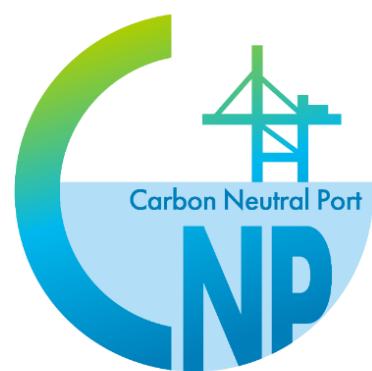
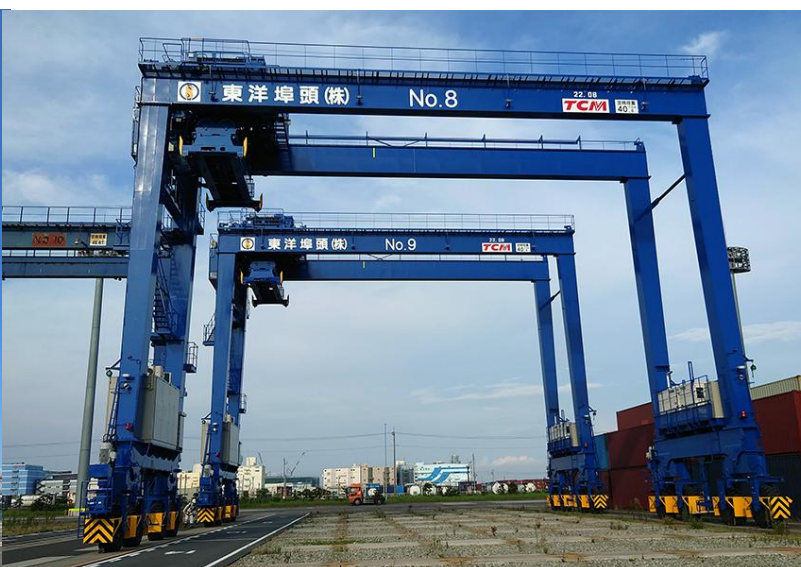
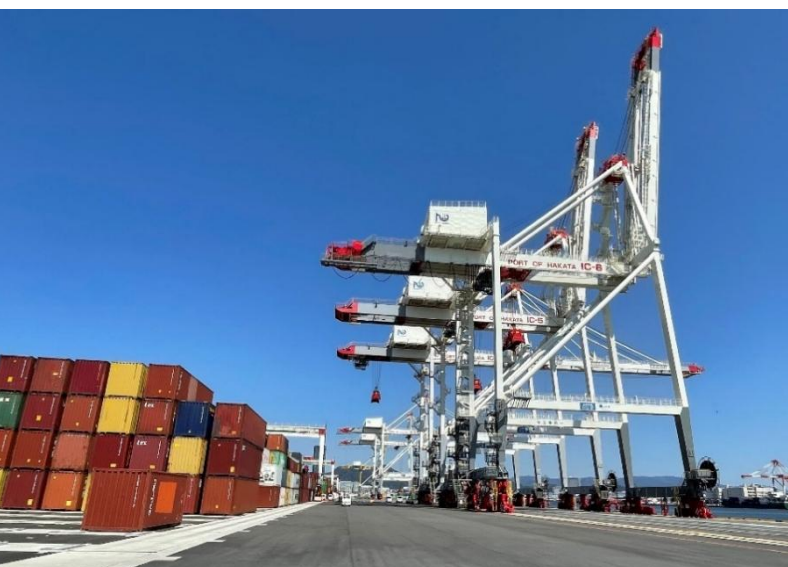


GUIDELINES FOR THE CERTIFICATION SYSTEM FOR DECARBONIZATION EFFORTS AT CONTAINER TERMINALS

Briefing Pamphlet 43



CNP Certification

INTRODUCTION

In recent years, efforts have been made to accelerate the reduction of global carbon emissions and various companies have examined their international and national supply chains. Port hubs handling large volumes of cargo face a critical challenge involving advancing decarbonization initiatives at port terminals to meet the demands of shippers, shipping lines, and logistics companies.

To address this, Japan's Ministry of Land, Infrastructure, Transport, and Tourism (MLIT) has promoted the Carbon Neutral Port (CNP) initiative. As a part of this initiative, MLIT established CNP Certification System in March 2025, which provides transparent and objective evaluations of decarbonization efforts at container port terminals.

The system is designed not simply to assess the amount of GHG emission reductions from terminals, but to evaluate various efforts to optimize terminal operation, including energy efficiency and improving productivity, from the perspective of decarbonization, thereby facilitating their practical and gradual progress toward carbon neutrality in line with the actual conditions of each terminal.

As of June 2026, 11 terminals in Japan have obtained certifications under the system, which allows them to demonstrate their efforts to customers and stakeholders. In addition, the system is leading to the establishment of new initiatives to promote decarbonization. For example, some local governments as Port Management Bodies, have introduced subsidies to support further improvement of certified terminals in decarbonization performance towards higher certification level.

These guidelines - drafted by MLIT and edited by the International Cargo Handling Coordination Association (ICHCA) - aim to share knowledge of the system, including its concept, evaluation criteria and procedures.

It is hoped that these guidelines will serve as a practical reference for port terminal stakeholders and enable them to introduce such effective system tailored to their economies, which ultimately contribute to decarbonization of port terminal worldwide.

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1. PURPOSES AND SIGNIFICANCE

1.1 Background and Purposes

With the global trend to incorporate decarbonization into business management, domestic and international companies are working to reduce carbon emissions in their supply chains. Shipping lines and logistics companies need to respond to these shippers' needs. Port terminals, which are the hubs of the maritime supply chain, are also required to respond by taking steps to reduce emissions in all operations (e.g., the decarbonization of port facilities).

In light of these circumstances, this certification system aims to promote decarbonization efforts at terminals and support the development of Carbon Neutral Port (CNP) by providing transparency and objective evaluation of such efforts.

1.2 Significance and Effectiveness

This certification system enables port terminals to facilitate their decarbonization efforts through objectively evaluated results, which can incentivize further initiatives. Significant features of this certification system include:

- **Identification of Evaluation Items¹ and Indicators:** By providing evaluation items and indicators, the path to terminal decarbonization becomes more concrete, making it easier to drive action and deliver outcomes.
- **Contribution to the Entire Supply Chain:** Advanced decarbonization at port terminals supports the broader efforts of shippers, shipping lines, and logistics companies—including those using terminals in the supply chain, as well as those involved in hinterland transport.
- **Enhancing Port Competitiveness:** promoting objective evaluation of decarbonization at port terminals to shippers, shipping lines, port users, related businesses, financial institutions, and society as a whole, enhances port competitiveness.
- **Contribution to Environmental Improvement:** Promoting the shift to non-fossil fuels and electricity not only mitigates climate change but also helps reduce air pollution by lowering SOx (sulphur oxides, NOx (nitric oxide), and diesel particulate matter (DPM) emissions, thereby improving the work environment at port terminals.
- **International Ripple Effect:** Contributes to the realization of the 'Green Shipping Corridor' which promotes the decarbonization of ports and shipping at the global level, by disseminating the practices and certification as detailed in this scheme and expanding them to suit the needs of port terminals overseas.

The objective evaluation of results provided by this scheme can provide the following benefits:

- **Port Users (Shippers, Shipping Lines, Logistics Companies):** These stakeholders are interested in initiatives that support supply chain decarbonization.
- **Financial Institutions (Investors, Banks):** In the context of environmental, social and governance (ESG) finance, the objective evaluation provides valuable information that can influence investment and financing decisions.
- **Society as a Whole:** With increasing focus on Corporate Social Responsibility (CSR) and Sustainable Development Goals (SDGs), obtaining certification can enhance trust, improve corporate image, and strengthen the brand.

1.3 Purposes and Positioning of the Guidelines

These guidelines are intended to support the establishment and operation of a system for evaluating and certifying decarbonization efforts in port terminals.

¹ Evaluation Items refers to equipment, operations or processes that are considered to be significant emitters of carbon or possess a significant carbon footprint.

1.4 Benefits of Certification

This certification system aims to benefit both entities receiving certification (port terminals) and those utilizing the certification results (shippers, shipping lines, investors, and banks). The following are the benefits of certification.

- It is possible to demonstrate the results of their decarbonization efforts as an objective evaluation conducted by the certification body.
- Obtaining certification can be utilized as a promotional tool for port users (shippers, shipping lines, logistics companies, etc.) striving to enhance corporate value through decarbonization, for funding sources (investors, financial institutions, etc.), and for society as a whole.
- Through the evaluation of terminals, momentum can be created for the development of CNP in the port as a whole, and synergistic effects can be expected, such as enhancing the brand power of companies and others involved in CNP and of the port itself.

The certification system also contributes to acquisition of international recognition.

2. FRAMEWORK

2.1 Certification Body

This certification system is established by the certification body² which is also responsible for the administration of the system, including the evaluation process and the awarding of certification to successful applicants.

2.2 Certification Targets

Ports have terminals with different characteristics, such as container, bulk, ferry/ Roll-on/Roll-off (RORO), and cruise. However, this certification is initially focused on container terminals (see Figure 1) for the following three reasons:

- i. As shippers, shipping lines, and logistics companies decarbonize their supply chains, container transport - a key component of the global supply chain - requires similar efforts to maintain international competitiveness.
- ii. Container terminals have a high concentration of cargo handling and transport machinery, as well as electrical and communication equipment, all of which are major energy consumers ideal for carbon emission reduction. Decarbonization efforts, such as the introduction of low-carbon cargo handling equipment and reservation systems to mitigate gate congestion, are already being implemented.
- iii. Container transport follows ISO standards for size and weight, and containers are handled at ports worldwide, making it easier to standardize the evaluation of decarbonization efforts compared with bulk terminals, where handling conditions vary by commodity.

2.3 Applicants

Applications for this certification system must be submitted on a terminal unit basis and would normally be made by entities operating terminals (terminal operators, port authorities, etc.). In cases where the application includes decarbonization efforts undertaken by parties other than the applicant, written consent from those parties shall be attached to the application form.

Applicants seeking certification under this system must apply to the certification body.

2.4 Certification Assessment

For certification applications, the certification body will assess compliance with the criteria outlined in Chapter 3 of these guidelines by reviewing application documents and conducting interviews, as necessary. Certification will be awarded based on the examination results and may be revoked if, after issuance, the

² in Japan, the Ministry of Land, Infrastructure, Transport, and Tourism plays the role

application is found not to meet the requirements.

The certification validity period is three years.

Container Terminal	Main Facilities
	● Civil Engineering Facilities(Quays, Piers) ● Cargo Handling Equipment(STS cranes, RTGs, Top lifters, Forklifts, Terminal Tractors, etc.) ● Electrical Equipment(Reefer plugs, Gates, Lightings, Surveillance cameras, Fence sensors, etc.) ● Building Facility(Administration buildings, Extra-high voltage power substation, Maintenance shop, etc.)

Figure 1 Main Facilities of a Container Terminal

3. EVALUATION ITEMS FOR CERTIFICATION, DEFINITION OF CERTIFICATION LEVEL

3.1 Evaluation Framework

This certification system conducts multi-level evaluations based on the implementation status of the efforts, with the ultimate goal of achieving decarbonization at the terminals (for details, see Figure 2 and Table 1).

3.1.1 Decarbonization Efforts Related to Cargo Handling at Terminals

The evaluation focuses on efforts related to cargo handling at terminals, particularly targeting major sources of CO₂ emissions.

Subject to Evaluation:

- Cargo handling equipment: STS, RTG, RMG, Straddle Carriers, Reach Stackers, Forklifts, Yard Trailers, AGVs, etc.
- Terminal facilities: Yard lighting, Reefer Equipment, Administration Buildings, etc.

3.1.2 Efforts Contributing to the Decarbonization of Vessels and Vehicles Using Terminals

Since emissions from vessels and vehicles account for a large share of total GHG emissions in the supply chain, the evaluation focuses on evaluating initiatives that contribute to the decarbonization of these emissions at the terminal.

Subject to Evaluation:

- **Vessels:** Introduction of onshore power supply for vessels at berth, alternative fuels bunkering for vessels, and implementation of incentives such as port fee reductions for vessels using alternative fuels.

*To be assessed where services are available at the terminal.

- **Vehicles:** Measures to mitigate traffic congestion at terminal gate (such as reservation and dispatch systems), introduction of incentives such as priority lanes for low-carbon and zero-carbon vehicles, or introduction of regulations on vehicles using fossil fuels.

GHG Scope Categories Evaluated (see Appendix 4):

- **Scope 1** - fuels used to produce energy or to power operations
- **Scope 2** - purchased energy
- **Scope 3**, which is related to hinterland transport, maritime transport, or logistics facilities outside the container terminal is excluded.

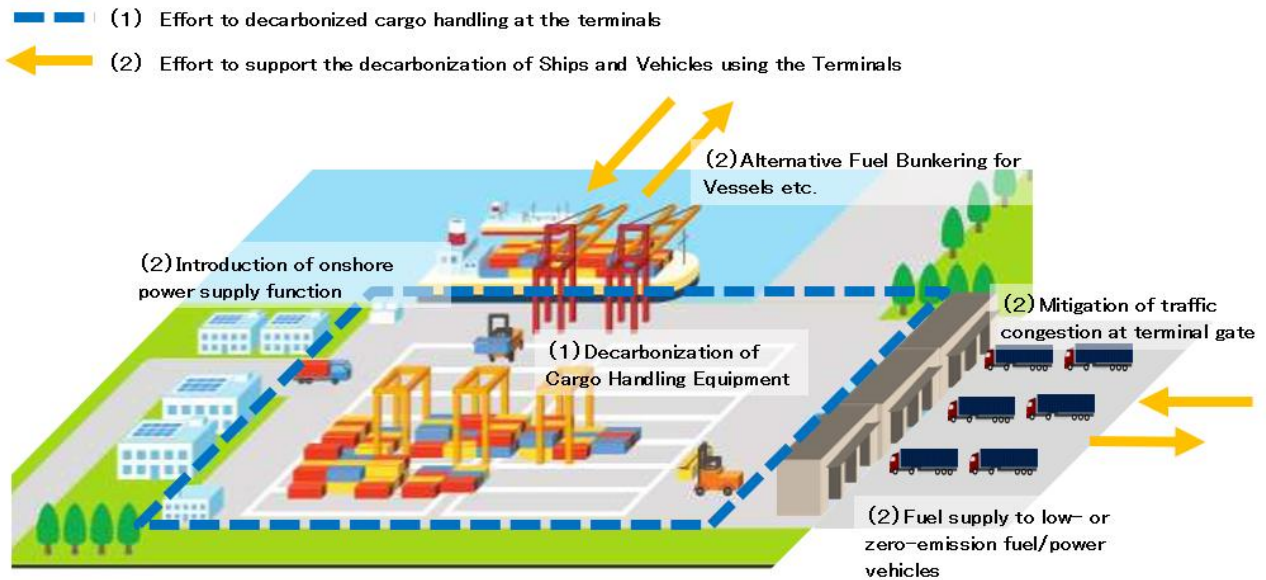


Figure 2 Evaluation Framework Image

Table 1 Major Facilities Subject to Evaluation at container Terminals

Considering the share of CO₂ emissions from container terminals, the evaluation will focus on decarbonization efforts for cargo-handling equipment and terminal facilities (highlighted in yellow in the table below).

(1) The evaluation will target GHG categories Scope 1 and Scope 2, related to fuel consumption and electricity use within the terminal, excluding Scope 3 (highlighted in grey in the table below).

Note: The evaluation will not include hinterland transport, maritime transport, or logistics facilities outside the container terminal (highlighted in grey in the table below)

(2) Efforts contributing to the decarbonization of vessels and vehicles using the terminal will be evaluated (highlighted in blue in the table below).

Category	Classification	Primary Machines/Facilities as CO ₂ Emission Sources		Operators, etc.	GHG Scope
(1) Terminal Facilities and Equipment	Cargo Handling Equipment	Loading/Unloading from Ships	Ship To Shore Cranes	Terminal Lessees / Terminal Operators / Port Transport Operators / Port Authorities, etc.	Scope 1/ Scope 2
		Cargo Handling Equipment in Yard	Yard Cranes (RTG, RMG, etc.), Straddle Carriers, Reach Stackers, Forklifts, Yard Trailers, AGVs, etc.		
	Terminal Facilities	Reefer Equipment			
		Yard Lighting			
		Administration Buildings, etc.			
	Others (Excluded Items)	Purchased Products/Services, Capital Goods, Fuel and Energy-related Activities not Included in Terminal Facilities or Cargo Handling, Transport/Distribution (Upstream), Waste from Business Sites, Employee Travel, Employee Commuting		Terminal Lessees / Terminal Operators/ Port Transport Operators / Port Authorities, etc.	Scope 3
(2) Vessels and Vehicles Using Terminals	Vessels	Vessels at Berth	CO ₂ Emissions from Auxiliary Engines at Berth	Shipping Companies (Container Ships)	Scope 3
		Sailing Vessels (Inside/Outside Ports)	CO ₂ Emissions During Sailing (Inside/Outside Ports)	Shipping Companies (Container Ships)	
	Vehicles	Trailers/Trucks	Traffic Congestion at Gates/Waiting Within Yard	Port Transport Companies / Land Transport Companies	
		Trailers/Trucks	Container Transport to/from Coastal Areas and Hinterland Production/Consumption Areas	Port Transport Companies / Land Transport Companies	
Others (Excluded Items)	Logistics Facilities	Warehouses, Logistics Centres, etc.	Cold Storage, Ambient Storage, Logistics Centres	Warehouses	Scope 3
	Consignor Companies in Manufacturing and Related Industries	Container Cargo User Companies	Manufacturing Industries, such as Automotive and Electronics, Retail Stores, etc.	Private Companies	

3.2 Certification Levels, Categories

This certification system evaluates the decarbonization of port terminals across five levels, from Level 1 to Level 5 (see Table 2).

The assessment comprises three categories: Category (1) Decarbonization efforts related to cargo handling at terminals; Category (2) Efforts contributing to the decarbonization of vessels and vehicles; and Category (3) Other (see Table 1).

Evaluation indicators are established for each evaluation item, and the efforts necessary to obtain certification at each level are defined as “Requirements.”

Efforts beyond the stated requirements that are desirable under this certification system are defined as Recommendations. In such efforts “+” is added as a suffix based on the number of recommendations achieved (e.g., Level 4+, Level 3++).

*Detailed evaluation indicators and performance requirements are specified in Appendix 1 (Evaluation Items, Evaluation Indicators) and Appendix 2 (Setting Performance Requirements for Decarbonization Initiatives). Examples of certification level evaluations are shown in Table 3.

Table 2 Certification Level Criteria (Outline):

Level 1:	Developing a decarbonization plan (including specific actions, KPIs, SPTs, and monitoring policies for reducing GHG emissions) and calculation of CO ₂ emissions per unit of cargo handling (common across all levels).
Level 2:	Adoption rate of low-carbon and decarbonized equipment (STS, RTG, yard lighting, etc.) of 10% or higher.
Level 3:	Adoption rate of the above equipment of 50% or higher.
Level 4:	Adoption rate of the above equipment of 80% or higher, with additional initiatives for vessels (efforts to allow environmentally friendly ships to enter port) and for vehicles (efforts to reduce gate waiting congestion, such as reservation and dispatch systems).
Level 5:	Adoption rate of the above equipment of 100%, with additional initiatives for vessels (efforts to allow environmentally friendly ships to enter port) and for vehicles (efforts to reduce gate waiting congestion, such as reservation and dispatch systems).

Table 3 Examples of Certification Level Evaluation

✓: Requirement + : Recommendation

Category		Evaluation Items		Evaluation Criteria	Content of the effort to be evaluated	Certification Level					Remarks	
		Major Items	Sub-items			Level 1	Level 2	Level 3	Level 4	Level 5		
(1) Decarbonization efforts related to cargo handling at terminals	Common	Commitment	・ Plan toward decarbonization of the container terminal ・ CO2 emissions per unit of cargo handling at the terminal		・ Developing a feasible plan toward decarbonizing the container terminal ・ Calculation of CO2 emissions per unit of cargo handling (e.g., TEU) at the terminal	・ Port decarbonization promotion plan (Formulated in xx) ・ Calculation of CO2 emission per unit (xxkg CO2 per TEU)	✓	✓	✓	✓	✓	
	At the terminal	Cargo Handling equipment	Ship to shore handling	Ship To Shore Crane	Introduction of STS with inverter system for energy saving, etc.	60%	—	10% or more	50% or more	80% or more	100%	・ If CO2 emissions are reduced through the introduction of renewable energy power or decarbonized fuel, it will also be evaluated. ・ The number under “✓” indicates the introduction rate based on the number of units. ・ For terminals using both yard cranes and straddle carriers, the combined number of units will be evaluated. ・ For yard trailers (including AGVs), future evaluation criteria will be considered based on the status of low-carbon and decarbonization. ・ For the cargo-handling equipment other than STS cranes, yard cranes, straddle carriers, future evaluation criteria will be considered based on the status of low-carbon and decarbonization.
			In the yard	Yard Crane (RTG, RMG, etc.)	Introduce decarbonized equipment, such as hybrid and electric machinery, or fuel savings through the introduction of automation	60%	—	10% or more	50% or more	80% or more	100%	
				Straddle carrier	Introduce decarbonized equipment, such as hybrid and electric machinery	Not applicable	—	10% or more	50% or more	80% or more	100%	
				Yard trailer, AGV, and other cargo-handling equipment	Introduce decarbonized equipment, such as hybrid and electric machinery, or fuel savings through the introduction of automation	Unsupported	+	+	+	+	+	
		Facilities in the yard	Yard lighting	Introduce LED lighting	100%	—	10% or more	50% or more	80% or more	100%		
	Reefer facility and other facilities	Energy saving measures, such as limiting temperature rises through low-reflective heat paving, installing roofs, etc.	・ Introduction of LED to Administration building ・ Installation of roofs on Reefer facilities	+	+	+	+	+	+			
(2) Efforts contributing to the decarbonization of vessels and vehicles	Vessels	Decarbonizing fuel or power of vessels	Vessels at berth		Reduce CO2 emissions by onshore power supply, etc.	Unsupported	+	+	+	+	+	・ If onboard power generation for vessels at berth using alternative fuel becomes widespread, the evaluation criteria will be reconsidered. ・ Bunkering services from other ports can be received at the terminal, they will also be evaluated.
			Alternative fuel bunkering		Introduce alternative fuel bunkering for vessels moored at the terminal, such as LNG, etc.	Unsupported	+	+	+	+	+	
		Promote low or zero emission vessels	Port incentives for environmentally friendly ships		Introduce port incentives for low or zero emission vessels or impose penalties for fossil fuel vessels	Unsupported	—	—	—	—	—	・ Initiatives at the terminal or port where the terminal is located will be evaluated.
	Vehicle	Efficiency	Trailer congestion in front of the gate, stagnation in the yard		Introduce gate reservation system for the efficient collection and delivery of cargo, alleviate traffic congestion by extending gate operating hours, etc.	Extended Gate Operating Hours	—	—	—	✓	✓	
		Promote decarbonized fuel/power vehicles	Incentives for large commercial EVs, FCVs, etc.		Introduce incentives for EVs or FCVs, such as preferential gate lanes, or impose penalties for vehicles powered by fossil fuels	Unsupported	+	+	+	+	+	・ Future evaluation criteria will be considered based on the commercialization status of low-carbon and decarbonized fuel trucks.
(3) Others		Decarbonization efforts other than (1) and (2) above			Introduce decarbonized fuels and electricity, introduce environmental friendly tugboats, such as LNG or EV tugboats, implement technologies to reduce emissions, such as urea, eliminate the offshore waiting, utilize inland ports, promote the blue carbon and carbon offsetting measures	・ Introduction of EV tugboats ・ Creation of Carbon ecosystem on container terminal seawalls	+	+	+	+	+	・ Recommended items for all certification levels. ・ Specific initiatives not included in the evaluation items of categories (1) and (2) should be detailed in the application.

Explanation

The efforts carried out by the applying terminal are indicated by the red circle in the “Content of the Effort to be Evaluated” column. The requirements for Certification Level 3 (highlighted in light green in the row of “Level 3”) are all met. However, some evaluation items do not meet the requirements for Certification Level 4 or higher (e.g., STS, yard cranes, port entry incentives). Additionally, two “recommendations” (decarbonization of yard facilities and decarbonization efforts not included in items (1) and (2)) have been implemented. In this case, the certification level will be Level 3++.

Recommendations are evaluated by the number of items fulfilled (e.g., even if multiple initiatives are implemented under one item, as in the example above, the evaluation is based on the number of items, not on the number of efforts).

3.3 Requirements for Certification, Evaluation Methods

The specific requirements necessary to meet the certification levels shown in Section 3.2 are organized by evaluation item. This section provides an overview of the key evaluation indicators and the criteria for each certification level. For details, refer to Appendix 1 (Evaluation Items, Evaluation Indicators) and Appendix 2 (Setting Performance Requirements for Decarbonization Initiatives).

3.3.1 Decarbonization Efforts Related to Cargo Handling at Terminals

1. Plan for Decarbonization of Terminals (Requirements/All Levels)

The plan for decarbonizing the applying terminal should be formulated with the agreement of relevant parties. This plan should clearly specify the specific actions, the Key Performance Indicators (KPIs), the target timing for these KPIs, measurable Sustainability Performance Targets (SPTs), and the implementation plan for monitoring the achievement these targets (monitoring items and methods) for reducing GHG emissions (see Table 4). Monitoring shall be conducted at least once per year.

2. CO₂ Emissions per Unit (Requirements/All Levels)

CO₂ emissions per unit of output should be calculated and published. It is calculated by determining the annual Scope1 and Scope2 CO₂ emissions related to cargo handling and dividing them by the annual cargo handling volume (TEU) (see Table 5).

Note: Emissions from ships at berth and vehicles in front of gates (Scope 3) are generally excluded. However, if shore power supply or congestion mitigation systems are implemented, the CO₂ emissions resulting from these measures within the container terminal can be included in the calculation, thus providing a value for the total reduction effect of CO₂ emissions.

3. Ship To Shore Cranes (Requirements)

Evaluation is based on the introduction rate of inverter-driven types or similar technology: L2 = 10% or higher, L3 = 50% or higher, L4 = 80% or higher, L5 = 100%.



Introduction rate required to achieve each level

- If low-carbon or decarbonized electricity is adopted, evaluation is based on the adoption status of such electricity.
- L2 to L5 indicate the certification levels defined in Table 2 of these guidelines.

Table 4 Examples of Setting Targets (KPIs and SPTs)

KPI (Key Performance Indicator)		Around 2028 SPT	Around 2033 SPT
KPI 1	Reduction of CO ₂ emissions per unit of cargo handling	xx kg CO ₂ /TEU (xx % reduction compared with 2013)	xx kg CO ₂ /TEU (xx % reduction compared with 2013)
KPI 2	Introduction of near-zero-emission RTGs	50% introduction rate	80% introduction rate
KPI 3	LED conversion of yard lighting	50% introduction rate	100% introduction rate
KPI 4	LED conversion of lighting in the management building	80% introduction rate	100% introduction rate

Table 5 Main Facilities Emitting CO₂ at Container Terminals (Examples)

Facility (Example)		GHG Category
Cargo Handling Equipment	Ship To Shore Cranes	Scope 2
	Yard Cranes (RTG, RMG, etc.)	Scope 1 (Scope 2 if electrified)
	Straddle Carrier	Scope 1 (Scope 2 if electrified)
	Yard Trailers	Scope 1 (Scope 2 if electrified)
	Reach Stackers	Scope 1 (Scope 2 if electrified)
	Top Lifters	Scope 1 (Scope 2 if electrified)
	Forklifts	Scope 1 (Scope 2 if electrified)
Facilities within the Terminal	Reefer Power Supply	Scope 2
	Lighting Towers	Scope 2
	Management Buildings, Substations, Gates, Other Facilities	Scope 2

4. Yard Cranes (RTG, RMG, etc.) (Requirements)

Low-carbon or decarbonized introduction rate: L2 = 10% or higher, L3 = 50% or higher, L4 = 80% or higher, L5 = 100%.



Introduction rate required to achieve each level

- If low-carbon or decarbonized fuel is introduced, or automation achieves the required CO₂ emission reductions, the requirements will be considered met regardless of the performance of the yard cranes.
- If both yard cranes and straddle carriers are used at the terminal, the introduction status will be evaluated based on the combined number of these units.
- If low-carbon or decarbonized fuels are introduced, it is evaluated based on the actual introduction status of those fuels.

5. Straddle Carriers (Requirements)

Low-carbon or decarbonized fuel introduction rate: L2 = 10% or higher, L3 = 50% or higher, L4 = 80% or higher, L5 = 100%.



Introduction rate required to achieve each level

- The method for evaluating the introduction of low-carbon and decarbonized fuel shall follow the procedure described in 4 above.

6. Yard Trailers (including AGV) and Other Cargo Handling Facilities (Jib Cranes, Reach Stackers, Top Lifters, Forklifts, etc.) (Recommendations)

Currently, this is a recommendation. Evaluation criteria will be reviewed in the future based on dissemination and technological progress.

7. Yard Lighting (Requirements)

Introduction rate of LED lighting, etc.: L2 = 10% or higher, L3 = 50% or higher, L4 = 80% or higher, L5 = 100%.



Introduction rate required to achieve each level

- If low-carbon or decarbonized electricity is introduced, or automation achieves the required CO₂ emission reductions, the requirements will be considered met regardless of the performance of the yard lighting.
- The method for evaluating the introduction of low-carbon and decarbonized electricity shall follow the procedure described in 3 written above.

8. Reefer Facilities and Other Facilities (Recommendations)

Measures to mitigate temperature rise (such as installing heat-reducing pavement and roofs) and converting office building lighting to LED and the other decarbonization efforts of terminal facilities are considered recommendations.

3.3.2 Efforts Contributing to the Decarbonization of Vessels and Vehicles Using Terminals

1. Related to Ships Using the Terminal

- **Measures for Power Supply (Recommendations):** It is recommended to implement measures to reduce CO₂ emissions from ships berthed at the terminal, such as introducing onshore power supply equipment, and to establish a supply system for alternative fuels, such as LNG, hydrogen and ammonia.
- **Promotion of Low- or Zero-emission Ships (Requirements/Level 4 and above):** To promote the use of low- or zero-emission ships at the terminal, implementation of incentives such as port fee reductions for LNG and other alternative fuel ships, or regulations on fossil fuel-powered ships, is required.

2. Related to Vehicles Using the Terminal

- **Gate Efficiency (Requirements/Level 4 and above):** Measures such as gate reservation systems, systems that optimize cargo pickup and delivery, and initiatives to alleviate congestion, such as extended gate opening hours. This requirement applies to certification levels 4 and above.
- **Promotion of Low- or Zero-emission Vehicles (Recommendations):** To promote the adoption of low- or zero-emission vehicles at the terminal, it is recommended to introduce incentives such as priority gates and lanes for biodiesel trucks, electric vehicles (EVs), and fuel cell vehicles (FCVs) or regulations on vehicles using fossil fuels.

3.3.3 Others

It is possible to apply for low-carbon and decarbonization efforts beyond those listed in Sections 3.3.1 and 3.3.2 via free-form submission.

Examples: Low-carbon and decarbonized fuels and electricity, introduction of environmentally friendly tugboats, implementation of technologies to reduce emissions, elimination of offshore waiting, utilization of inland ports, promotion of blue carbon, and carbon offsetting measures.

4. PROCEDURES RELATED TO THIS CERTIFICATION SYSTEM

4.1 Application Methods

Terminals wishing to apply shall submit the application form and the required attachments (see Table 6) to the certification body.

4.2 Procedures for Evaluation

The certification body will review the application forms submitted by applicants based on this guideline. If necessary, applicants may be required to revise the application contents or submit additional materials.

The certification body will notify applicants of the examination results after the evaluation.

4.3 Publication of Certification Results

The certification body shall publish the certification results and information about the application terminal on its website after notifying the applicant of the certification results.

Applicants may publicly announce their certification once the information has been published on the website.

4.4 Procedures for Renewal of Certification

Applicants shall apply for the renewal of their obtained certification or for changes in certification levels in the same manner as new applications.

If progress in low-carbon and decarbonization efforts justifies a change in certification level, applicants may apply for changes (i.e., level-up) in certification levels

even within the three-year validity period.

To maintain certification, applicants must apply with monitoring results showing that decarbonization efforts corresponding to the obtained certification level have been maintained within the validity period.

If compliance is not maintained, the certification level may be adjusted, or certification may be withdrawn.

4.5 Other Consideration

This certification system aims to align with international initiatives, such as the Green Shipping Corridor, which is being considered by ports and maritime sectors worldwide. It also seeks to promote the international recognition, deployment and wider adoption of this system, including mutual recognition of certified ports across economies.

In addition, the spread of initiatives and on-going technological progress in the low carbonization of cargo handling equipment and facilities at port terminals is expected to continue. Therefore, the evaluation items, indicators, and performance requirements for decarbonization efforts will be reviewed periodically every five years.

Table 6 Outline of Application Documents

1. Application Form • Applicant • Outline of Application, etc.
2. Attached Documents
Overview of the Terminal Applying for Certification • Overview of the Terminal Applying for CNP Certification • Location and Layout of the Container Terminal, etc.
Decarbonization Plan for Terminals • Decarbonization Targets and Key Performance Indicators (KPIs) • Monitoring and Reporting Policy for Decarbonization Efforts, etc.
Calculation and Publication of CO ₂ Emission per TEU at the Terminal Applying for Certification
Implementation Status of Each Evaluation Item at the Terminal Applying for Certification

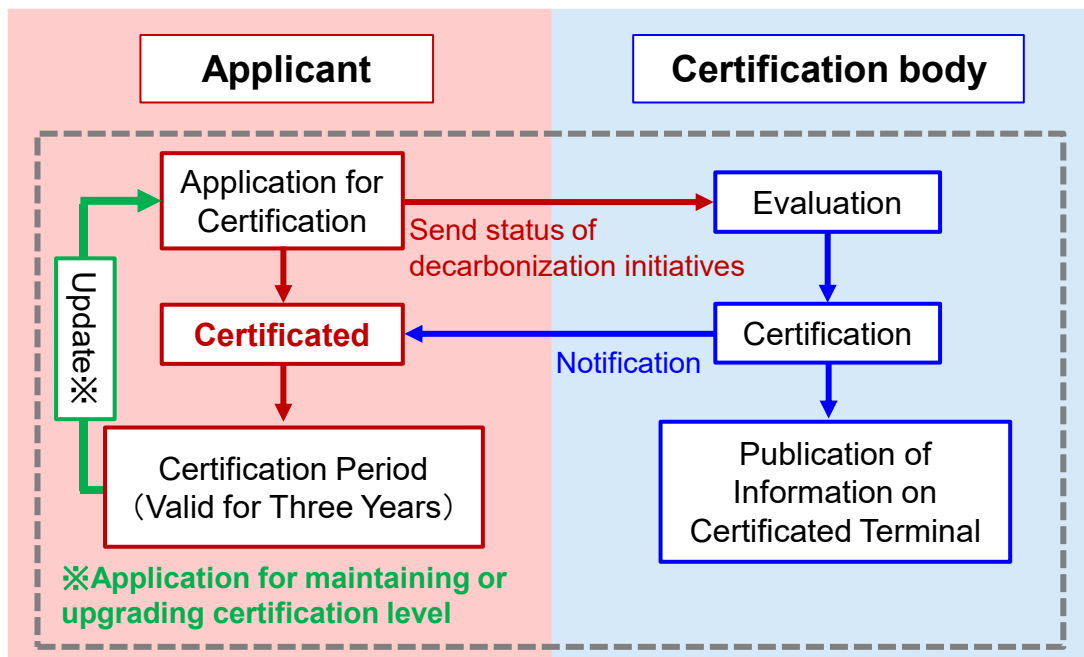


Figure 3 Flow of Application, Certification, and Renewal Procedures

5. FOSTERING UNDERSTANDING AND FOLLOW-UP

5.1 Significance of Utilizing the System

This certification system is not intended to be the objective in itself but rather a mechanism to encourage continuous improvement toward terminal decarbonization.

Obtaining certification provides transparent information to shippers, logistics companies, financial institutions, and other stakeholders, contributing to the enhancement of the terminal's reliability and international competitiveness.

Therefore, it is important to continuously review and enhance understanding of the system and appropriately follow up on its implementation to ensure that certification is not merely a temporary achievement, but that decarbonization efforts are sustained over time.

5.2 Certification Body's Role

The certification body intends to periodically review the evaluation items, evaluation indicators, and performance requirements related to low-carbon and decarbonization efforts every five years, in response to the international expansion of this certification system and advancements in decarbonization technologies. Based on these reviews, the latest system information will be organized and provided to ensure the system's transparency and effectiveness.

Information will be disseminated through updates to the official website, the holding of workshops, and other appropriate channels.

5.3 Applicant's Role

Applicants should continuously improve their knowledge and understanding of this certification system and stay informed about trends in technological innovation and system revisions.

When submitting new applications, applications for certification level changes, or certification renewal applications, applicants are required to fully understand the latest system information and take appropriate and precise actions.

Furthermore, even after obtaining certification, applicants are required to continuously verify the

implementation status of decarbonization efforts and improvement plans, and revise countermeasures, as necessary.

5.4 Follow-up and Improvement

Follow-up in this certification system is essential to ensure its reliability and to encourage continuous improvement by applicants.

The certification body may request interim reports or additional information during the certification period.

Furthermore, the certification body aims to promote applicants' improvement by providing an environment where applicants can compare and improve their efforts through the collection and sharing of best practices and benchmarking.

APPENDIX

Appendix 1 Evaluation Items, Evaluation Indicators

Appendix 2 Setting Performance Requirements for Decarbonization Initiatives

Appendix 3 Case Studies of Efforts at Certified Terminals

Appendix 4 Demystifying scope 1, 2, and 3 emissions

Appendix 1 Evaluation Items, Evaluation Indicators

✓: Requirement + : Recommendation

Evaluation Items			Evaluation Criteria	Certification Level					Remarks
Major Items	Sub-items			Level 1	Level 2	Level 3	Level 4	Level 5	
Commitment	・ Plan toward decarbonization of the container terminal ・ CO2 emissions per unit of cargo handling at the terminal		・ Developing a feasible plan toward decarbonizing the container terminal ・ Calculation of CO2 emissions per unit of cargo handling (e.g., TEU) at the terminal	✓	✓	✓	✓	✓	
Cargo Handling Equipment	Ship to shore handling	Ship To Shore Crane	Introduction of STS with inverter system for energy saving, etc.	—	✓ 10% or more	✓ 50% or more	✓ 80% or more	✓ 100%	・ If CO2 emissions are reduced through the introduction of renewable energy power or decarbonized fuel, it will also be evaluated. ・ The number under “✓” indicates the introduction rate based on the number of units. ・ For terminals using both yard cranes and straddle carriers, the combined number of units will be evaluated. ・ For yard trailers (including AGVs), future evaluation criteria will be considered based on the status of decarbonization. ・ For the cargo-handling equipment other than STS cranes, yard cranes, or straddle carriers, future evaluation criteria will be considered based on the status of decarbonization.
	In the yard	Yard Crane (RTG, RMG etc.)	Introduce decarbonized equipment, such as hybrid and electric machinery, or fuel savings through the introduction of automation	—	✓ 10% or more	✓ 50% or more	✓ 80% or more	✓ 100%	
		Straddle carrier	Introduce decarbonized equipment, such as hybrid and electric machinery	—	✓ 10% or more	✓ 50% or more	✓ 80% or more	✓ 100%	
		Yard trailers, AGV, and other cargo-handling equipment	Introduce decarbonized equipment, such as hybrid and electric machinery, or fuel savings through the introduction of automation	+	+	+	+	+	
Facilities in the yard	Yard lighting		Introduce LED lighting	—	✓ 10% or more	✓ 50% or more	✓ 80% or more	✓ 100%	
	Reefer facility and other facilities		Energy saving measures, such as limiting temperature rises through low-reflective heat paving, installing roofs, etc.	+	+	+	+	+	

✓: Requirement + : Recommendation

Category		Evaluation Items		Evaluation Criteria	Certification Level					Remarks
		Major Items	Sub-items		Level 1	Level 2	Level 3	Level 4	Level 5	
(2) Efforts contributing to the decarbonization of vessels and vehicles	Vessels	Decarbonizing fuel or power of vessels	Vessels at berth	Reduce CO2 emissions by onshore power supply, etc.	+	+	+	+	+	• If onboard power generation for vessels at berth using alternative fuel becomes widespread, the evaluation criteria will be reconsidered.
			Alternative fuel bunkering	Introduce alternative fuel bunkering for vessels moored at the terminal, such as LNG, etc.	+	+	+	+	+	• Bunkering services from other ports can be received at the terminal, they will also be evaluated.
		Promote low or zero emission vessels	Port incentives for environmentally friendly ships	Introduce port incentives for low or zero emission vessels or impose penalties for fossil fuel vessels	—	—	—	✓	✓	• Initiatives at the terminal or port where the terminal is located will be evaluated.
	Vehicle	Efficiency	Trailer congestion in front of the gate, stagnation in the yard	Introduce gate reservation system for the efficient collection and delivery of cargo, alleviate traffic congestion by extending gate operating hours, etc.	—	—	—	✓	✓	
		Promote decarbonized fuel/power vehicles	Incentives for large commercial EVs, FCVs, etc.	Introduce incentives for EVs or FCVs, such as preferential gate lanes, or impose penalties for vehicles powered by fossil fuels	+	+	+	+	+	• Future evaluation criteria will be considered based on the commercialization status of decarbonized trucks.
(3) Others		Decarbonization efforts other than (1) and (2) above		Introduce decarbonized fuels and electricity, introduce environmental friendly tugboats, such as LNG or EV tugboats, implement technologies to reduce emissions, such as urea, eliminate the offshore waiting, utilize inland ports, promote the blue carbon and carbon offsetting measures	+	+	+	+	+	• Recommended items for all certification levels. • Specific initiatives not included in the evaluation items of categories (1) and (2) should be detailed in the application.

Appendix 2 Setting Performance Requirements for Decarbonization

Initiatives

- Initiatives for the low-carbon and decarbonization of cargo-handling equipment and facilities are diverse, and their CO₂ reduction effects vary. In this certification system, initiatives that contribute to the low-carbon and decarbonization of the port will be evaluated. Therefore, the performance requirements for cargo-handling equipment and facilities will be assessed based on the type and specifications of the introduced equipment and facilities.
- Examples of low-carbon and decarbonization initiatives that may be evaluated are shown below. Initiatives not listed below will also be considered if they contribute to the low-carbon and decarbonization of the port.

Target Equipment/ Facilities	Conventional Approach	Examples of Low carbon/ Decarbonization Approaches
Ship to Shore Crane	Thyristor Control System	Inverter Control System
Yard Crane (RTG, RMG, etc.)	Diesel-electric System	Hybrid System
		Hydrogen Fuel Cell System
		Hydrogen Engine System
		Electric System
Straddle Carrier	Diesel-electric System	Hybrid System
		Fuel Cell System
		Electric (Battery) System
Yard Trailer	Diesel Engine System	Hybrid System
		Fuel Cell System
		Electric (Battery) System
Forklift	Diesel Engine System	Hybrid System
		Fuel Cell System
		Electric (Battery) System
Reach Stacker	Diesel Engine System	Hybrid System
		Fuel Cell System
		Electric (Battery) System
Top Lifter	Diesel Engine System	Hybrid System
		Fuel Cell System
		Electric (Battery) System
AGV	Diesel-electric System	Electric (Battery) System
Yard Lighting	High-pressure Sodium Lamp	LED Lamp
Tugboat	Heavy Fuel Oil System	LNG Fuel System
		Ammonia Fuel System
		Hydrogen Fuel System
		Electric Propulsion System

Appendix 3 Case Studies of Efforts at Certified Terminals

Case 1

Certified Terminal

Island City Container Terminal, Hakata Port, Fukuoka, Japan

Certification Level

Level 5+ (Certification date: September 25, 2025)

Terminal Outline

Opened in 2003, the Island City Container Terminal covers a total area of 48.5 hectares and features berths with depths of 14 and 15 meters (total length: 890 m), capable of accommodating large container vessels. The terminal handles approximately 60% of Hakata Port’s total container throughput.

For cargo-handling equipment, the terminal has introduced 6 STS cranes with inverter control systems and 26 electrically driven RTG cranes, enabling a significant reduction in CO₂ emissions. In addition, environmental and operational efficiency initiatives include converting 10 units of yard lighting to LED and implementing the Hakata Port Logistics IT System (HiTS) at the gate, which helps reduce truck waiting times and congestion.

Through these initiatives, based on the Hakata Port Decarbonization Initiative by Fukuoka City, the Island City Container Terminal actively contributes to the decarbonization of the port and plays a pioneering role in realizing Carbon Neutral Port (CNP).

Decarbonization Efforts

Stakeholders of Decarbonization	Decarbonization Efforts
Hakata Port Terminal Co., Ltd. Fukuoka City	Introduction of 26 eRTG Cranes
	Implementation of the HiTS Gate Processing System
	Formulation of the Hakata Port Decarbonization Initiative
	Introduction of Six STS Cranes with Inverter Control Systems
	Conversion of Ten Yard Lighting Units to LED

			
eRTG Cranes	Gate Processing System	STS Cranes (Inverter)	LED Lighting

Case 2

Certified Terminal

Kawasaki Container Terminal, Kawasaki Port, Kanagawa, Japan

Certification Level

Level 4+ (Certification date: September 25, 2025)

Terminal Outline

The Kawasaki Port Container Terminal currently has 431 meters, with a water depth of -14 meters, accommodating vessels of up to 50,000 tons. It can also handle two vessels of approximately 200 meters in length, berthing and loading/unloading simultaneously.

To reduce environmental impact, the terminal is actively implementing measures such as the introduction of CO₂-free electricity, hydrogen-ready yard cranes, and conversion of lighting throughout the premises to LED.

Decarbonization Efforts

Stakeholders of Decarbonization	Decarbonization Efforts
Kawasaki City	Formulation of a port decarbonization promotion plan, LED conversion of on-site lighting, and Introduction of inverter-type gantry cranes.
Yokohama Kawasaki International Port Corporation Kawasaki Rinko Soko Wharf Co., Ltd. Joint Venture	Introduction of CO ₂ -free electricity
Toyo Wharf and Warehouse Co., Ltd.	Introduction of hydrogen-ready yard cranes

		
LED Lighting	Cargo Handling Equipment Powered by CO ₂ -free Electricity	Hydrogen-converted Yard Crane

Appendix 4 Demystifying scope 1, 2, and 3 emissions

Understanding the scopes

GHG emissions are typically reported according to the **GHG Protocol**, the world's most widely used standard for measuring and managing emissions. The GHG Protocol provides a consistent and internationally recognized framework that helps governments, companies, and organizations measure, manage, and report their GHG emissions in a transparent and comparable way.

It provides a comprehensive suite of accounting and reporting standards, tools, and guidance that organizations use to measure and manage their GHG emissions consistently. By adopting the GHG Protocol, businesses align their reporting with globally recognized best practices and ensure their emissions data can be understood and compared by investors, regulators, and customers worldwide.

The GHG Protocol divides emissions into three distinct scopes, helping businesses understand where their emissions originate and how much control they have over each source. Think of these scopes as different levels of your company's influence and responsibility across your operations and value chain.

Scope 1: Your direct footprint

Scope 1 emissions are the most straightforward—these are emissions that result directly from your company's activities. These are usually fuels that you burn to produce energy or to power your operations. These direct emissions are categorized into stationary combustion, mobile combustion, process combustion, and fugitive emissions, with examples including:

- Stationary combustion
- Natural gas to heat your buildings or power manufacturing
- Process combustion
- PFC emissions from aluminium smelting
- Mobile combustion
- Gasoline to fuel your company vehicles
- Diesel for heavy vehicles
- Fugitive emissions
- Propane to power equipment like forklifts
- Refrigerants in your heating, ventilation, and air-conditioning (HVAC) systems

Example: If your company has 10 offices with gas heating and air-conditioning systems and a fleet of company-owned vehicles, all of these would be considered sources of scope 1 emissions.

Scope 2: Your purchased energy

Scope 2 emissions result from purchased energy; essentially, you're buying electricity, gas, or district heating/cooling from a utility provider. If you're purchasing energy from offsite to use in your operations, this falls under scope 2.

The key thing to remember is that these emissions are actually generated at the utility where power is produced, not at your facility. This is why companies can reduce scope 2 emissions by purchasing clean, renewable energy.

Example: If your company has 10 offices drawing electricity from the local grid, this would generate scope 2 emissions.

Scope 3: Everything else in your value chain

Scope 3 is the most comprehensive category, covering emissions that are an indirect result of your company's activities. This represents everything upstream and downstream in your value chain. While companies have less direct control over these emissions, they often represent the majority of total emissions from company activity. Scope 3 includes 15 different categories, such as:

- Upstream
 - Purchased goods and services from suppliers
 - Business travel and employee commuting
 - Transport and distribution of raw materials
 - Leased assets
 - Capital goods
- Downstream
 - Transportation and distribution of your products
 - Waste generated in your operations
 - Process and use of your products by customers
 - End-of-life treatment of your products
 - Leased assets
 - Franchises and investment

Source : BSI web site

<https://www.bsigroup.com/en-US/insights-and-media/insights/blogs/demystifying-scope-1-2-and-3-emissions/>

About The Author

The Carbon Neutral Port (CNP) Promotion Office, Ports and Harbors Bureau, Ministry of Land, Infrastructure, Transport and Tourism (MLIT), Japan is promoting the formation of Carbon Neutral Port (CNP) taking steps to reduce emissions in all operations (e.g., the decarbonization of port facilities) in ports and by developing infrastructure to receive hydrogen, ammonia, and other alternative fuels. This initiative aims to enhance the competitiveness of ports and related industries while contributing to the realization of a decarbonized society.

For more information on the policy of Carbon Neutral Port (CNP), please visit or contact:

- Web: https://www.mlit.go.jp/en/kowan/kowan_fr4_000011.html
-
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*Please replace the placeholder with @ when sending.

About ICHCA International

Established in 1952, ICHCA International is an independent, not-for-profit organization dedicated to improving the safety, productivity, and efficiency of cargo handling and logistics throughout the global supply chain. ICHCA International holds privileged non-governmental organization (NGO) status, enabling it to represent its members and the cargo handling industry at large when presenting views to national government agencies and international regulatory bodies.

ICHCA also publishes materials addressing a wide range of practical cargo handling issues and provides members with recommendations on cargo handling and transportation through its technical advisory services.

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