Japan Ministry of Land, Infrastructure, Transport and Tourism (MLIT) and State of California Port Decarbonization & Green Shipping Corridor Symposium

Initial Summary of Outcomes

I. Transportation Leaders from California and Japan Sign Agreement to Support Port Decarbonization and the Development of Green Shipping Corridors

In March 2023, the Japanese Ministry of Land, Infrastructure, Transport and Tourism (MLIT) and the State of California signed a Letter of Intent (Japan-California LOI) to support port decarbonization and the development of green shipping corridors. The California signatories include the California State Transportation Agency (CalSTA), the California Air Resources Board (CARB), the California Energy Commission (CEC), and the Governor's Office of Business and Economic Development (GO-Biz). The Port Decarbonization and Green Shipping Corridor Partnership between California and Japan represents a bold step forward in addressing climate change. By prioritizing sustainability, investing in green technologies, and harmonizing policies, this partnership aims to pave the way for a greener, more prosperous future in maritime transportation.

Port Decarbonization: Multiple efforts are underway in Japan and California to decarbonize port-related activities. Japan has set a long-term goal of achieving net-zero carbon emissions by 2050, and MLIT is supporting port decarbonization efforts through its Carbon Neutral Ports (CNP) initiative, which includes introducing zero- and near zero-emission cargo handling equipment and onshore power supply facilities at Japanese ports. In order to strongly promote the CNP Initiative, MLIT is making various efforts, such as amending Japan's *Port and Harbour Act*, developing a system to visualize port decarbonization efforts, and conducting demonstration projects to introduce new technologies that utilize hydrogen and other new energy sources to ports.

California has codified a goal of reaching carbon neutrality by 2045 and is implementing an ambitious policy and regulatory framework to decarbonize the port and freight sector and reduce air pollution and toxics for adjacent communities. This includes the California Air Resources Board's (CARB) *Advanced Clean Fleet Rule* and *Ocean Going Vessels At-Berth Regulation and Commercial Harbor Craft Regulation*, among others. California is also investing in the development of zero-emission port and freight technologies, including recent investments through the CalSTA Port and Freight Infrastructure Program (PFIP) and the CEC grant program that funds planning blueprints for medium and heavy duty (MDHD) zero-emission vehicle (ZEV) refueling infrastructure. The CEC is also funding the EnergIIZE Commercial Vehicles block grant incentive project to provide grants for charging and hydrogen infrastructure for MDHD battery electric and hydrogen fuel cell electric ZEVs. Local efforts, such as the Ports of Los Angeles and Long Beach's Clean Air Action Plan (CAAP) have significantly reduced harmful emissions through progressive phasing to cleaner drayage trucks, cargo handling equipment and vessels.

Green Shipping Corridors: Recognizing that approximately 3 percent of global greenhouse gas (GHG) emissions come from international shipping, the United Nations' International Maritime Organization (IMO) recently revised its GHG reduction strategy with a new target to reach net-zero GHG emissions by or around (i.e., close to) 2050. The development of '*green shipping corridors*' represents a relatively recent emerging international framework to support maritime routes that showcase zero- and near zero- emission lifecycle fuels and technologies with the ambition to achieve zero GHG emissions across all aspects of a given corridor.

Within just the last year, there has been significant international activity at all levels of government and within the maritime industry to support the development of green shipping corridors. At the June 2023, G7 Transportation Ministerial Meeting, held in Ise-shima, Mie, Japan, member nations agreed to support the establishment of at least 14 green shipping corridors involving G7 members by the middle of the decade, and to recognize the importance of port decarbonization in establishing green shipping corridors. There have also been six agreements signed between individual Japanese and California ports to collaborate on port decarbonization and the development of green shipping corridors. The Port of Los Angeles has signed climate agreements with the Ports of Yokohama, Tokyo and Nagoya. The Port of Long Beach has signed an agreement with the Port of Kobe. And during the Symposium, the Ports of Oakland and Long Beach also signed agreements with the Port of Yokohama.

II. The Reason for Holding the Japan MLIT-State of California Port Decarbonization and Green Shipping Corridor Symposium

To share findings and experiences from their decarbonization efforts with high-level representatives from all interested parties, CalSTA and MLIT held a Symposium at the Port of Los Angeles on October 20, 2023. This event served as an important opportunity for the Japan-California LOI signatories to hear directly from eight Japanese and California ports about their decarbonization efforts, and to consider what else needs to be done to reach zero-emissions goals. This includes the unique role to be played by the public sector in supporting the ports' efforts and accelerate the pace of change. The public sector can also play a valuable role in helping to ensure that the decarbonization and green shipping corridor efforts do not have negative and unintended consequences for other supply chain stakeholders including trucking.

In addition, representatives from marine terminal operators, ocean shipping companies, and trucking companies shared their perspective on decarbonization efforts. To develop a green shipping corridor, cooperation must extend beyond governments and also include ports and private companies. The Symposium provided a framework for cooperation for governments, port and private industry stakeholders to share their findings and experiences with each other.

III. Initial Summary of Japan MLIT-State of California Port Decarbonization and Green Shipping Corridor Symposium Outcomes

Below is an initial summary of key topics and outcomes from the October 20, 2023 MLIT-State of California Port Decarbonization and Green Shipping Corridor Symposium. The presentations provided at the Symposium can be accessed **here**. In early 2024, a final Symposium report will be produced providing more detail, a broader discussion of key topics and outcomes, and a roadmap to guide future MLIT-State of California engagement on these issues.

- **Collaboration, information sharing and exchange of port decarbonization best practices must continue**: Despite being on different sides of the Pacific Ocean, it became clear during the Symposium that ports in both Japan and California are using similar methods to reduce their carbon emissions. California and Japanese ports are decarbonizing by acquiring new cargo-handling equipment such as rubber-tired gantry (RTGs) cranes, top handlers, and trucks that are powered by renewable energy.

Ports are exploring equipment fueled by different sources of energy, including battery-electric vehicles and those that are powered by hydrogen. Regardless of which zero-emission fueling strategy ports pursue, there is consensus on the

urgency of deploying zero-emission fueling infrastructure, such as bunkering and charging stations. The Port of Oakland, for instance, is rebuilding its entire electrical infrastructure, including new solar panels and battery storage facilities, to be able to handle periods of peak electrical demand during the day. With regard to hydrogen fueling, California has just been awarded a grant of up to $1.2 billion from the U.S. Department of Energy to build or expand hydrogen projects that will power public transportation, heavy-duty trucks, port operations, and more. The Port of Kobe plans to develop a hydrogen receiving and transportation base and is implementing Proof-of-Concept projects for unloading and storing of liquefied hydrogen and using hydrogen energy.

During the Symposium, MLIT highlighted that ports have at least two roles to play with regard to the development of green shipping corridors – 1) building capacity to supply zero- or near zero-emission fuel for vessels and 2) the decarbonization of terminal operations. MLIT also noted that while a global target for international shipping decarbonization has been set by the IMO, there is no common global target for port decarbonization and each port and terminal must implement decarbonization efforts independently. Therefore, further dialogue is also warranted on developing methods, reflecting the situations at respective ports, of certifying and measuring the results of port decarbonization efforts. For example, MLIT is developing a Carbon Neutral Port Certification for Container Terminals to objectively evaluate port and terminal operators' efforts toward decarbonization.

Finally, such information sharing and collaboration warrants an opportunity to advance common standards and practices around data. An example in Japanese ports includes new sensors and systems that have been implemented to track and quantify the emissions profiles of vessels. Likewise, in California GO-Biz is leading the California Port Data Partnership to facilitate better data sharing across ports, including data useful for achieving sustainability goals.

- **There is widespread support for research and development and pilot demonstration projects**: There was widespread agreement during the Symposium on the importance of continued research and development of new, innovative technologies, as well as investment in pilot demonstration projects. For example, the Port of Yokohama is part of a project to transport green energy across the ocean by utilizing electric battery-powered tankers. The Port of Tokyo is also working on a pilot project to replace fossil fuel RTG engines with hydrogen fuel cell engines. By investing in pilot projects, port, terminal and maritime industry operators can deepen their understanding of new technologies (that in some cases are not widely commercially available) while at the same time learning more about existing technologies. Flexibility is warranted on all accounts – both governments and maritime industry stakeholders need to recognize the possibility that, despite large investments

already being made in different new zero-emission technologies, some technologies and investments may not ultimately provide a feasible pathway to decarbonization.

- **Additional engagement on port-related renewable energy and offshore wind efforts are needed:** Besides decarbonizing their cargo-handling vehicles, ports are also looking to support their operations with 100 percent renewable energy. Ports will have an important role in helping California and Japan reach their goals for offshore wind development: California has a goal of developing 3 to 5 GW of offshore wind by 2030 and up to 25 GW by 2045, while Japan has a goal of developing 5.7 GW of offshore wind power by fiscal year 2030.

Key roles for ports include facility staging, integration, construction and maintenance. The Port of Long Beach has released plans to create "Pier Wind", a floating offshore wind facility that would support the manufacture and assembly of offshore wind turbines standing as tall as the Eiffel Tower, and MLIT has designated several offshore wind base ports with wharves that will be used for the installation and maintenance of offshore wind power generation. As such, the Japan-California LOI envisions collaboration and sharing of best practices on port-related offshore wind projects.

- **Continued dialogue is needed to inform policy makers on both sides of the Pacific Ocean regarding the implications and potential policy actions required to support the maritime shipping industry's transition to cleaner fuels:** Ports are not the only ones involved in decarbonizing shipping. Ocean carriers are also seeking ways to reduce emissions. Both ports and shipping companies are introducing new vessels that are powered by renewable fuels. The decarbonization of shipping requires the development of new bunkering infrastructure. The Port of Nagoya has supplied liquified natural gas (LNG) fuel to vessels since 2021. And while LNG is already being used, companies are also considering vessels that are powered by hydrogen, ammonia, or methanol. One Symposium participant, Ocean Network Express (ONE), is seeking to deploy zero-emissions vessels by 2030 and to fully replace its current fleet of fossil fuel-powered vessels by 2050.

However, like ports, shipping companies must rely on the right infrastructure being in place, such as bunkering infrastructure, to support zero-emission operations. Additionally, shipping companies may be seeking incentives or government support to bridge the price gap that currently exists between fossil fuels and renewable fuels. Policy makers at all levels of government may need to consider a potential mix of regulatory, pricing, incentive or subsidy approaches to advance the maritime industry's transition to zero-emission fuels. At the international level, Japan has proposed a "Feebate System" that aims to

support "First Movers" at the IMO. The system imposes a fee on maritime shippers using fossil fuels to subsidize a rebate for shippers using zero-emission fuels. Both Japanese and California port Symposium participants highlighted port fee vessel incentive programs for lower emission vessels.

Next Steps

Despite challenges that lie ahead, the overall mood during the Symposium was optimistic. Both port representatives and public officials expressed their willingness and their ability to fully transition to zero-emissions by 2050. Gene Seroka, Director of the Port of Los Angeles, emphasized: "*We're all in*." All involved parties recognize and appreciate the value of enhanced coordination between Japan and California, which is supported by the several green shipping corridor agreements that have been signed in recent months.

In early-2024, a final Symposium report will be produced providing more detail, a broader discussion of key topics and outcomes, and a roadmap to guide future engagement on this topic.

To view the presentations from the Symposium, scan the QR-Code below:

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