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Action Plan for Blue-Green Shipping Investment in the Pacific

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The Paris Agreement envisions a future that is free from carbon pollution and resilient to the effects of climate change. With diminishing time to address the climate challenge, it is a critical moment for countries to come forward with more ambitious climate goals and for nonstate leaders to work toward decarbonization by midcentury.

Decarbonization of shipping and ports is a key element of an overall climate strategy. Domestic and international shipping accounts for approximately 3% of global emissions, roughly equivalent to the emissions of a G7 country. Without widespread adoption of technology advances in low- or zero-carbon fuels, emissions from shipping could continue to grow dramatically by 2050. The International Maritime Organization (IMO) has committed to reducing absolute CO₂ emissions from shipping by 2050 from 2008 levels, yet this will still fall short of the vision of Paris.

The Pacific is one of the busiest regions for maritime trade. More than 14,000 ships pass through the Panama Canal in a given year, and ships traversing the transpacific corridor carried 24 million containers—46% of the world’s total—in 2015. At the same time, the Pacific is one of the most diverse regions for maritime trade, including some of the world’s most and least connected ports. It is also home to some of the largest flag states for merchant vessels, including Panama and the Republic of the Marshall Islands. Focusing on the region’s challenges offers salient lessons for maritime markets around the globe.

Many countries are working toward a sustainable shipping sector. For example, the Pacific Rim Ocean-Climate Action Partnership—a leadership coalition devoted to increasing climate ambition and maximizing ocean-based climate solutions—is focusing on shipping and ports as a key area of climate mitigation. Yet financial institutions have an essential role as well. This Action Plan considers the current characteristics of the Pacific shipping sector, including needs and opportunities with respect to emissions reductions and climate resilience, and derives principles for the investment community to support a blue-green shipping sector in the region. These principles fall into four pillars: financing the next generation of clean shipping; developing near-port renewable resources; developing climate-ready ports; and fostering connectivity.

Background: Characteristics of the Pacific Shipping Sector

North America

From Manzanillo in Mexico to Vancouver in Canada, the West Coast of North America boasts some of the largest and most well-connected ports in the western hemisphere. At the terminus for the transpacific corridor, for example, the Port of Los Angeles alone handled more than 9.3 million containers in 2019 (1).

Many ports have pursued policies to address air pollution and greenhouse gas emissions produced by port activity. Some ports, for example, have installed onshore power either voluntarily at some berths or to comply with state regulations (2). Others, such as the Port of Vancouver, offer reduced harbor dues for ships that reduce their greenhouse gas footprint or improve other environmental indicators like underwater noise (3). Meanwhile, ports in the San Pedro Bay area have

committed to phasing in zero-emission yard equipment, drayage trucks, and freight trucks to reduce air pollution and greenhouse gas emissions (4). In 2018, the Port of Los Angeles was awarded 41 million USD from the California Air Resources Board to build ten hydrogen fuel-cell-electric freight trucks, two yard tractors, and two associated hydrogen fueling stations (5).

It is also notable that cooperation among some ports in the region is strong. The ports of Vancouver, Los Angeles, and Long Beach, for example, have joined the World Ports Climate Action Program, committing to five programmatic areas, including common and ambitious public policy approaches on emissions reductions within larger geographical areas as well as the development of low-carbon fuels for maritime transport (6). In order to meet the minimum ambition goals envisioned by the IMO, commercially zero-emission vessels (ZEVs) will need to be operational by 2030. Developing the necessary bunkering and fuel infrastructure to produce green low- or zero-carbon fuels to meet this demand is therefore a key opportunity for investment in the coming decade (7).

At the same time, many ports in this region, such as the Port of Manzanilla, are exposed to the impacts of climate change, such as increased flooding, reduced draft clearance due to higher levels of sediment, and damage to infrastructure from increased rainfall (8). Improved climate resilience will be a main priority for many ports in the region.

Central and South America

South and Central America supports a vibrant shipping sector, active both regionally and globally. Much of the trade in the region is dominated by the Panama Canal, one of the key chokepoints of maritime trade. Although the Canal's expansion in 2016 permitted it to service greater sizes of ships, an ongoing drought in the region, exacerbated by climate change, has affected its operations (9).

To address carbon pollution, the Canal Authority joined the Global Industry Alliance to Support Low Carbon Shipping (GIA), an initiative sponsored by the IMO to promote reductions of greenhouse gases from shipping in ten pilot countries. A key component identified in the project is the use of public-private partnerships to finance innovation and technology deployment (10).

A key challenge for some states, such as Chile, is the long distances ships must travel to reach markets in the

United States or China. The strong potential for renewable wind and solar energy, however, in places such as Chile's Atacama Desert, offer promise for the production of alternative fuels such as hydrogen or ammonia. It is notable that Chile has the potential to generate more than 1,200 GW in solar energy alone (11). Providing clean electrofuels for all departing ships could be a catalyst for developing these resources, and Chile's ports could unlock an estimated 65-90 billion USD in clean infrastructure investments. For some regions, development of these resources could be split across multiple ports. For instance, the clusters of ports around Lima, Peru or the Panama Canal could benefit from renewable energy and alternative fuel infrastructure. These facilities, and the ZEV ships capable of sailing with green fuels, would need significant investment to get underway, but would be financially rewarding for well positioned states.

Oceania

For the Small Pacific Island States, decarbonizing the shipping sector represents a critical challenge and opportunity. These states have some of the lowest container shipping connectivity, typically serviced by just a small number of companies and ships (12). Ships in the region are often old, poorly maintained, and replaced in turn by second vessels that are in a similar state (13). More data on the status of shipping fleets servicing Pacific Island countries is necessary and has been a key barrier to addressing this issue. Meanwhile, sea level rise poses an existential threat to Pacific Island states, and transportation infrastructure, such as ports, is often the most vulnerable type of infrastructure to climate impacts (14).

A structured transition by the marine transport sector away from fossil fuels is a key opportunity for the region, and one underserved by financial products. 95% of fossil fuels to Small Pacific Island States are imported, and reducing this dependency in favor of locally produced renewables could revitalize shipping in the region, reduce prices for goods, and boost productivity in industries.

Recognizing the scale of the challenge and opportunity, Fiji and the Marshall Islands (RMI), in partnership with Kiribati, Samoa, Solomon Islands, Tonga, Tuvalu, and Vanuatu, coordinated the founding of the Pacific Blue Shipping Partnership (PBSP). Collectively these countries seek to develop country-driven investment in low-carbon shipping infrastructure covering not only

ships and ports but also renewable energy and supporting infrastructure (15). The partnership calls for a \$500 million USD blended finance package.

East Asia

East Asia and Southeast Asia represent some of the largest hubs of maritime activity in the world. The regions boast some of the world's largest container ports, including major shipping hubs like the Pearl River Delta. These centers for maritime demand have the potential to provide the necessary infrastructure where commercially viable zero-emission vessels could bunker. An early example of alternative fuel adoption has occurred in Singapore, which has advocated for the adoption of lower-emission maritime fuels and begun offering incentives for the installation of alternative fuel engines on ships (16).

Nations such as Japan, the Republic of Korea, and the People's Republic of China also produce the majority of the maritime industry's new ships from their shipyards both in terms of completions and gross tonnage (17). Accordingly, these nations are primed to develop many of the first zero-emission vessels. Japan's Ministry of Land, Infrastructure, Transport and Tourism (MLIT) developed a roadmap for its Zero Emission Shipping Project, anticipating and setting a timeline for introducing the first generation of zero-emission vessels by 2028 (18). The Republic of Korea has also committed 869 million USD to its 2030 Green Ship-K Promotion Strategy to construct 10 demonstration vessels relying on different fuel mixes, as well as supporting the conversion of government and commercial vessels to alternative fuels and the adoption of other eco-friendly technologies (19).

Participation in the uptake of energy efficiency or development of ZEVs is also active for many nations in the region. Both China and Malaysia are lead pilot countries in the Global Maritime Energy Efficiency Partnerships (GloMEEP). Additionally, China incorporates the maritime community in the Oceans thematic partnership of the Belt and Road Initiative International Green Development Coalition (BRIGC) (20). The Republic of Korea has also traditionally played a leading role within the IMO's efforts to reduce emissions, dedicating technical capacity to reduce greenhouse gasses from shipping in East Asia (21).

Principles: Promoting Sustainable Shipping Investment in the Pacific

There are several key principles for the investment community to create a decarbonized and climate-resilient Pacific maritime industry. These are clustered around the four thematic areas of shipping, renewable resources, ports, and connectivity.

By taking a regional lens, these principles build on existing best practices and sustainable shipping principles, such as the Poseidon Principles and the Principles for Responsible Banking, which reflect the commitment to and alignment with the IMO's Initial GHG Strategy as well as the United Nations' Sustainable Development Goals (22, 23).

➤ Finance the next generation of clean shipping

Signatories of the Poseidon Principles are committed to aligning their maritime investments with the goals of the IMO's Initial GHG Strategy. To further strengthen shipping investments in the Pacific, the following additional principles should also be applied.

- Offer support for companies seeking to install innovative energy efficiency or fuel reducing devices, such as bubble curtains or wind power, onboard their ships, as a component of marine investments.
- Support the rapid decarbonization of sea transport for the Pacific, including the development of commercially viable zero-emission vessels as a matter of urgency. This can include the financing of smaller harbor craft, tugboats, and passenger ferries.

➤ Develop renewable resources to support the ecological transition of the shipping sector

To fully realize the benefits of zero-emission fuels in maritime transport, these fuels must be produced with green energy (24).

- Finance long-term investments in renewable low- or zero-emission shipping fuels, such as hydrogen or ammonia, for the transpacific corridor ports.
- Offer long-term financial loans or green bonds for renewable resources developed near port

facilities, created for the purpose of developing low- or zero-emission shipping fuels or powering low- or zero-emission port equipment. Special attention will be given to fuels that can scale across the intermodal process, such as: hydrogen-fuel cells for smaller vessels, yard tractors, and freight trucks.

➤ Develop climate-ready ports

Given the unavoidable impacts of climate change, any investments in the long-term resources required for decarbonization also require planning for infrastructure that can endure. At present, most ports, including those in the Pacific, have reported impacts of climate change on their facilities, but few have received assistance either financially or technically to plan or build more resilient infrastructure (25).

- Focus on projects that incorporate climate resilience. Considering our investments in the Pacific, seek to provide technical assistance or financial products to assist clients in climate-proofing these infrastructure needs. These needs may include developing a climate risk assessment for the port that evaluates the specific climate impacts the port will face to incorporate into the port's master plan. Other options include direct infrastructure projects such as reinforcing rock walls, improving drainage to prevent flooding from rising sea levels, reorganizing storage to reduce the risk of saltwater, or planning for lower stacking heights of containers for locations prone to stronger winds.

➤ Foster connectivity

The ecological transition of shipping should be an economic opportunity for all states. The investment community should provide assistance to ensure wider access to our financial products.

- Assist the Pacific Island State port entities through access to Sustainably Linked Loans and other financial products to interested states and companies. These loans could be applied to climate adaptation planning for port facilities, updating or replacing vessels with more efficient or zero-emission ships, or developing renewable energy facilities near ports.

- Commit to offering pre-bankability financing to assist the development of infrastructure proposals for entities that require assistance.

Conclusion

The coming decades will prove decisive for the planet, and all industries and regions must consider the appropriate steps to transition away from fossil fuels as a matter of urgency. In drafting this Action Plan for Blue-Green Shipping Investment in the Pacific, we commit to supporting the shipping industry, ports, and states in this momentous endeavor.

Citations

- (1) Port of Los Angeles. Facts and figures. Available from: <https://www.portoflosangeles.org/business/statistics/facts-and-figures>.
- (2) EPA. Shore power technology assessment at U.S. ports. Available from: <https://www.epa.gov/ports-initiative/shore-power-technology-assessment-us-ports>.
- (3) Port of Vancouver. Shore power. Available from: <https://www.portvancouver.com/environment/air-energy-climate-action/marine/>.
- (4) Clean Air Action Plan. Ports of Los Angeles and Long Beach unveil bold strategies to reduce greenhouse gases and clean the air. 2016. Available from: <https://cleanairactionplan.org/2016/11/18/port-of-los-angeles-and-long-beach-unveil-bold-strategies-to-reduce-greenhouse-gases-and-clean-the-air/>.
- (5) Port of Los Angeles. Port of Los Angeles preliminarily awarded \$41 million from California Air Resources Board to launch zero emissions hydrogen-fuel-cell-electric freight project. Available from: https://www.portoflosangeles.org/references/news_091418_carb_toyota.
- (6) World Ports Climate Action Program. Available from: <https://sustainableworldports.org/world-ports-climate-action-program/>.
- (7) Getting to Zero Coalition. Available from: <https://www.globalmaritimeforum.org/getting-to-zero-coalition/>.
- (8) IADB. Port of Manzanillo: Climate risk management. Executive summary. Available from: [https://publications.iadb.org/publications/english/document/Port-of-Manzanillo-Climate-Risk-Management-\(Executive-Summary\).pdf](https://publications.iadb.org/publications/english/document/Port-of-Manzanillo-Climate-Risk-Management-(Executive-Summary).pdf).
- (9) BNAmericas. Drought ups risks for Panama Canal. 2020. Available from: <https://www.bnamericas.com/en/features/drought-ups-risks-for-panama-canal>.
- (10) GloMEEP. About the project. Available from: <https://glomEEP.imo.org/about/about-the-project/>.
- (11) EDF. Alternative fuels for shipping. Available from: <https://www.edfeurope.org/alternative-fuels-shipping>.
- (12) UNCTAD. Review of maritime transport. 2020. Available from: <https://unctad.org/topic/transport-and-trade-logistics/review-of-maritime-transport>.
- (13) Newell A, Nuttall PM, Holland E. UN Sustainable Development Knowledge Platform. Sustainable Sea Transport for the Pacific Islands: The Obvious Way Forward. 2015.
- (14) Fakhruddin BSHM, Babel MS, Kawasaki A. Assessing the vulnerability of infrastructure to climate change on the islands of Samoa. 2015.
- (15) Pacific Blue Shipping Partnership. Available from: <https://mest-rmiusp.org/index.php/projects/current-projects/pacific-blue-shipping-partnership>.
- (16) Khasawneh A. Singapore pushes shipping industry to use cleaner fuels to reduce carbon emissions. 2019. Available from: <https://www.reuters.com/article/us-singapore-fuel-regulations/singapore-pushes-shipping-industry-to-use-cleaner-fuels-to-reduce-carbon-emissions-idUSKBN1X10EF>.
- (17) Danske Maritime. Sea Europe shipbuilding market monitoring, report 46 FY 2018. Available from: <https://danskemaritime.dk/wp-content/uploads/2017/04/SEA-MM-REPORT-No-46-FY-2018.pdf>.
- (18) MLIT. Roadmap to zero emission from international shipping. 2020. Available from: https://www.mlit.go.jp/en/maritime/GHG_roadmap_en.html.
- (19) Maritime Executive. South Korea to invest \$870 million developing eco-friendly shipping. 2020. Available from: <https://www.maritime-executive.com/article/south-korea-to-invest-870-million-developing-eco-friendly-shipping>.
- (20) Green Belt and Road Initiative Center. Available from: <https://green-bri.org/belt-and-road-initiative-green-coalition-brigc>.
- (21) IMO. Republic of Korea to assist IMO in building capacity in developing countries to address greenhouse gas emissions from ships. Available from: <http://www.imo.org/en/MediaCentre/PressBriefings/Pages/Republic-of-Korea-to-assist-IMO-in-building-capacity-in-developing-countries-to-address-Greenhouse-Gas-Emissions-from-Ships.aspx>.
- (22) Poseidon Principles. Available from: <https://www.poseidonprinciples.org/>.
- (23) UNEP. Principles for responsible banking. Available from: <https://www.unepfi.org/banking/bankingprinciples/>.
- (24) Englert D, Losos A. Zero-emission shipping: What's in it for developing countries? World Bank. 2020. Available from: <https://blogs.worldbank.org/transport/zero-emission-shipping-whats-it-developing-countries>.
- (25) UNCTAD. Port industry survey on climate change impacts and adaptation. Available from: <https://unctad.org/en/pages/PublicationWebflyer.aspx?publicationid=1964>.

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