
# The 4th APEC Green Port Development Forum

# Summary Report

2024.6.4-5

The Secretariat

APEC Port Services Network

As of July, 2024

## Abstract

The 4th APEC Green Port Development Forum, hosted by the APEC Port Services Network (APSN) and co-hosted by the Shandong Port Group (SPG), was held successfully on June 4 to 5, 2024 in Qingdao, China. The Forum, centered on the theme of "Jointly Building Green Ports to Lead and Drive Sustainable Development", aimed to promote sustainable development in the port industry, encourage the application of green energy-saving technologies and clean energy in the industry, and enhance international port cooperation and exchanges.

The distinguished gathering included approximately 150 participants representing 10 APEC member economies. A total number of 34 speakers spoke at the Forum, which include senior officials from APEC port authorities, industry leaders of major port and shipping companies, senior officials and experts from international organizations.

The Forum consisted of Opening Session, Keynote Session 1: Challenges and Opportunities for Green Port and Shipping Development, Keynote Session 2: Application of Clean Energy in Port and Shipping Industry, Panel Session: Port and Shipping Energy Transformation, Keynote Session 3: Green Port Practice Sharing. Speakers and panelists exchanged views on the sustainable development issues

prioritized by the APEC port and shipping sectors and other emerging issues of keen interest to the port industry and related stakeholders.

By engaging policymakers, experts and port and shipping leaders to shape the green port agenda in the Asia-Pacific region, the APEC Green Port Development Forum served as a timely reminder of the importance of collective action and cooperation in building a greener and more sustainable future for the port industry.

## I Overview of the Forum

### 1. Guest Speakers: Multi-party Participation and Collision of Wisdom


1) **6 experts from international organizations** attended and delivered speeches: UN ESCAP, the World Bank, International Chamber of Shipping, International Association of Institutes of Navigation, Energy Foundation and Methanol Institute.

2) **10 officials from port authorities and research institutes** shared the development of green ports in their own economies. Marine Policy of Transport Canada, Water Transport Bureau and Department of International Cooperation, Ministry of Transport of China, Energy Systems Analysis Research Center of Energy Research Institute of National Development and Reform Commission, Marine Department of HKSAR Government of China, Marine Department Malaysia, Global Sustainable Transport Innovation and Knowledge Center, Maritime and Port Authority of Singapore, Port Authority of Thailand, the Philippine Ports Authority.

3) **13 executives from port, shipping and energy companies** shared their green port and shipping practices, including: Shandong Port Group, Ningbo Zhoushan Port, Tianjin Port, Huanghua Harbor Administration Corp. (Ltd), China Energy, Saigon Newport Corporation and Hamburger Hafen und Logistik AG. Shipping companies including: Maersk Group, CMA CGM and COSCO Shipping Ports Limited. Energy companies include: SIPG Energy shanghai co., ltd and China Merchants Energy shipping Co., Ltd., etc.

4) **The engagement of five esteemed female speakers exemplifies the APSN's proactive stance in response to APEC's emphasis on women's leadership.** In recent years, APEC has placed a heightened emphasis on women's leadership, showcasing its commitment to gender equality and empowerment through diverse initiatives such as the issuance of insightful reports, the execution of projects, and the organization of forums. These efforts underscore APEC's dedication to bolstering women's leadership and influence in business, society, and personal development. As one of the international organizations under the APEC framework, the APSN has shown a positive attitude and concrete actions in response to APEC's focus on women's issues. A total of five female speakers were invited to deliver speeches, they are: Ms. Sonya Read, President of the APSN Council and Director General of Marine Policy of Transport Canada; Ms. Chong Lee Fee, Regional Director (China) of Maritime and Port Authority of Singapore; Ms. Zhao Xi, Senior Transportation Specialist of the World Bank; Ms. Xin Yan, Senior Program Officer with the Transportation Program of Energy Foundation China and Ms. Qin Fei, Deputy General Manager of the Engineering & Procurement Department of COSCO Shipping Ports Limited.

**2. Guest Speeches: Green Consensus for Mutual Development**

A summary of the key points made by the speakers at this forum is as follows:

1) The green sustainable development of ports is an important issue of concern to the international community.

2) The endeavor to construct green ports is multifaceted, encompassing four key dimensions: First, continuously optimizing and adjusting the transportation structure to further enhance the efficiency of green transportation organization. Second, guiding ships to use new and clean energy to accelerating the development of green ships. Third, promoting the construction of green waterways and revitalizing them with "green" vitality. Forth, accelerating the green construction of ports with solid steps towards low-carbon transformation.

3) Shipping companies face challenges in their journey towards green and low-carbon operations, including high capital investment in green energy and ships, unpredictability in the supply of low-

carbon green energy, certification issues of green energy and geopolitical issues. To address these challenges, experts suggest: First, strengthening multi-party cooperation worldwide, including governments, international organizations and port and shipping companies. Second, making the cost of zero-carbon energy more transparent and exploring mechanisms for all stakeholders from the port, maritime and cargo industries to share the high costs of green energy. Third, applying new technologies such as AI to improve ship management efficiency and the ability to predict and mitigate emergencies.

4) The key to maritime decarbonization lies in fuel transition. The World Bank finds that green ammonia, green methanol, and biofuels are the most promising candidates fuels for the shipping industry. However, the high cost of green fuels, which may be 2-5 times that of traditional fuels, is a significant concern.

5) The importance of crew training is emphasized, focusing on how to operate equipment and handle green energy refueling, and ensuring the safe storage and response to leaks of green energy sources like methanol.

6) The green shipping corridor has received special attention. Experts believe that strengthening cooperation between ports at both ends of the green corridor and between ports and shipping companies is crucial. They suggest enhancing communication and discussions to explore mechanisms and policies that governments can support to advance the green corridor.

7) There is a significant disparity in the development levels of green ports among Asia-Pacific economies.

### 3. Green Port Award System (GPAS) Project: Leading with Green, Practicing First

53 ports from 10 APEC economies have won the GPAS Awards since 2016 when this program was officially launched. The influence of the program is expanding, drawing over 150 representatives from more than 10 economies to this forum. Representatives from port authorities and port enterprises in APEC economies are interested in the GPAS indicator system and implementation plan, hoping to apply for the GPAS project under the guidance of the APSN secretariat.

### 4. APEC Port Service Network (APSN): International Cooperation, Bridge for Communication

This forum not only provided a platform for port managers and industry experts in the Asia-Pacific region to exchange and learn but also offered valuable insights and references for promoting green development and technological innovation in the port and shipping industry in the region and globally. Representatives from international organizations, port authorities, port and shipping enterprises in Asia-Pacific and Europe, and energy companies have expressed that APSN is a very important platform for cooperation in the port and shipping industry, facilitating communication, exchange, and learning among all stakeholders. Participants gained a deeper understanding of global trends and the latest developments in the industry, enhancing exchanges and cooperation between government departments and related enterprises to jointly promote sustainable development.

### 5. Forum Format: Diverse Discussions, Integrated Interaction

The forum featured a variety of meeting formats, including keynote speeches, panel discussions, interactive sessions and technical visit. In the keynote speeches and panel discussions, participants deeply discussed each topic and shared their experiences and insights. After the forum, the participants were invited to visit the fully automated container terminal at Qingdao Port in Shandong, experiencing the advanced level and innovative capabilities of China's port industry. This rich and diverse format provided comprehensive learning and exchange opportunities for all attendees, contributing to the green development and technological innovation of the port industry.

Furthermore, to foster exchanges and cooperation among APEC members, the APSN secretariat arranged one-on-one business network for its members and the co-host, Shandong Port Group, during the forum to explore potential collaborations. In response to the meeting, Shandong Port Group and the APSN member who participated in the discussions expressed their appreciation for the arrangement and they hope that APSN will conduct more such events to provide opportunities for learning and exchange.

The forum was the first time to use live-streamed in both Chinese and English with video and images, attracting over 2,000 viewers. After the meeting, several media outlets covered the conference, extending the reach of the event's impact.

## II Summary of Main Views by the Guests

### 1. Opening Session

At the opening ceremony, Ms. Sonya Read, Director of Marine Policy at Transport Canada and President of the APSN Council, Mr. Chen Xingsen, Director of Department of International Cooperation of Ministry of Transport of China, and Mr. Huo Gaoyuan, Chairman of Shandong Port Group, delivered their speeches respectively.


**Ms. Sonya Read** declared the Forum open and expressed sincere gratitude to Shandong Port Group for co-hosting the Forum. She welcomed all speakers and participants to this event and thanked them for sharing their valuable insights and expertise. Ms. Read emphasized the paramount significance of the theme and responds to an urgent global priority, and the promotion of low-carbon ports was pointed out by the APEC Transport Ministers as a specific area that must be pursued. She also noted that the APSN and its supporting economies are well positioned to support this global goal. She believes that the fruitful discussion at the forum will provide important inspiration for participants to learn, communicate and think about the future of the maritime economy. At last, Ms. Read looked forward to seeing participants at the APSN Forum on Green Shipping Corridors taking place on 21 to 26 October in Kota Kinabalu, Malaysia, which will provide an excellent opportunity to continue this important conversation.


**Mr. Chen Xingsen** highlighted in his remarks that President Xi Jinping has paid multiple visits to ports and President Xi pointed out that “a port is a basic and pivotal facility for supporting economic development “, and stressed that “efforts should be made to develop world-class smart and green ports”. Mr. Chen mentioned that China always adheres to the principle of prioritizing

ecological conservation, and China accelerates the promotion and application of new energy and clean energy in ports, and continues to make efforts in the improvement of policy systems, the formulation of technical standards, the application of technological innovation, and the demonstration and leadership of "leading" enterprises and other aspects, so as to accelerate the low-carbon transformation of ports and stay firmly committed to green development. The Asia-Pacific region is an important engine driving world economic growth. The dynamic port cooperation in the Asia-Pacific region is an indispensable part of the economic development of Asia and the world at large. Mr. Chen pointed out that the Ministry of Transport of China is willing to work with friends of all parties to strengthen exchanges, build consensus, focus on cooperation, and jointly promote higher quality, safer and more sustainable development of the Asia-Pacific port industry.


**Mr. Huo Gaoyuan** highlighted in his remarks that promoting green low-carbon and building green ports are meeting contemporary needs. Shandong Port will conscientiously study and implement the important instructions of President Xi Jinping, and seize the opportunity and assume the mission, stay firmly committed to green development, lock in the "first-class integrated supply chain service system relying on ports", speed up the construction of land-sea corridor along the Yellow River, comprehensively promote the connectivity with ports in the Asia-Pacific region, and accelerate the formation of world-class port clusters. Mr. Huo stressed that Shandong Port is willing to work with all parties to advance together and move in the same direction, expand cooperation areas in an all-round way, build a "value chain" of shared interests, build a highland of new quality productivity, and contribute its wisdom and strength to building the world a better place.

## 2. Keynote Session 1: Challenges and Opportunities for Green Port and Shipping Development



**Mr. Ren Weimin, Director of the Transport Division, the United Nations Economic and Social Commission for Asia and the Pacific (UNESCAP)**, delivered an insightful presentation on "Accelerating Transformation of Ports in Asia and the Pacific towards a Green Future". Mr. Ren highlighted the advancements in shipping decarbonization but noted significant challenges, which include the following: First, financial gaps, and decarbonization of the transport sector requires huge amount of investment. Second, there is a lack of accurate forecast of demand and supply of alternative fuels and alternative fuel powered vessels. Third, there are uncertainties in shipping decarbonization and potential implications for shipping and seaborne trade, which include lack of or frequent changes in policies and technical regulations create uncertainties. In response to the above challenges, Mr. Ren recommended to strengthen collaboration among all stakeholders to make the path and prospect of green port and shipping development clearer; increase certainties in transport decarbonization through intergovernmental convening to enhance confidence of market players and investors; enhance research and analytical work to help policy-makers make informed policies and provide capacity development services to those in need; and encourage ports to play a more active role in transforming shipping and seaborne trade towards a green future. Mr. Ren expressed gratitude to Shandong Port Group and Qingdao Port for their achievements in green and smart port development and contributions to South-South cooperation.


**Mr. Zhu Zhenyu**, **Deputy Director General, Water Transport Bureau, Ministry of Transport, China**, shared "Initiatives and Achievements of China's Green Port Construction". Mr. Zhu emphasized the Ministry of Transport's commitment to ecological civilization and green development, detailing the proactive outcomes in the green and low-carbon transformation of the shipping industry. The work include 1) Continuously optimize and adjust the transportation structure, further enhance the efficiency of green transportation organization. 2) Guide ships to use new and clean energy sources, and accelerate the development of green ships； 3) Promote the construction of green waterways, revitalizing the waterways with a "green" new vitality; and 4) Promote the construction of green waterways, revitalizing the waterways with a "green" new vitality. Mr. Zhu highlighted that China will continue to support APEC and the APSN in promoting the green and low-carbon development of the shipping industry, and together compose a new chapter of green port cooperation.

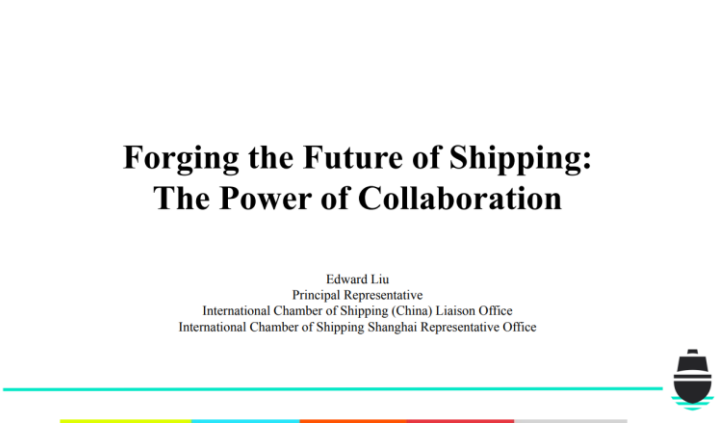

**Mr. Zhang Baochen, Senior Vice President, International Association of Institutes of Navigation**, shared "Approaches and Challenges of Shipping Industry Green and Low-carbon Transformation" in his presentation. Mr. Zhang mentioned that as an important supporting industry of the global economy, the green and low-carbon development initiatives of the shipping industry not only carry the pursuit and yearning of human beings for a better ecological environment, but also mark that the industry is facing a green and low-carbon transition and unprecedented challenges in the future. Since the implementation of the 2023 IMO Strategy on Reduction of GHG Emissions from Ships and a series of IMO's regulatory measures, shipping economies and the global shipping and offshore industry have actively taken actions to explore ways of green shipping development through a variety of measures. The Green Shipping Corridor offers an emerging model for international cooperation. Mr. Zhang pointed out that the challenges facing the green development of shipping include: First, the green energy power technology roadmap lacks focus; Second, Cross-sector green shipping collaboration is not smooth enough; Third, the economic viability of decarbonizing shipping not ideal; and Fourth, the industry lacks mature regulatory and assessment mechanisms. To address these challenges, Mr. Zhang recommended to: Firstly, promote the development of centralized technological routes tailored to specific scenarios; Secondly, promote the establishment of a relatively stable value chain system that benefits all parties; Thirdly, promote the development of platform-based and modular green equipment systems for vessels; and Fourthly, promote the establishment of a tracking-based regulatory and assessment mechanism. He concluded with confidence that through collective efforts and technological and policy advancements, the shipping industry will achieve sustainable green and low-carbon development, envisioning a harmonious future where shipping and nature coexist.



**Capt. Mohamad Halim Ahmed, Director General of Marine, Malaysia Marine Department**, shared "Challenges and Opportunities for Green Port and Shipping Development" in his presentation. Capt. Ahmed pointed out that the maritime industry and green ports face many challenges and opportunities. In terms of challenges, green ports and maritime development require sustainable practices and technologies to minimize the environmental impact of marine affairs. Currently, there are a lot of challenges across various aspects, including air and water pollution and biodiversity loss, and those arising from the global climate crisis. He also highlighted that we should also seize these opportunities, such as the application of new markets and new technologies, which can bring more entrepreneurial opportunities. It is a great time for green technology. Laws and regulations also play an indispensable role in this process. Capt. Ahmed stressed that through the joint efforts of all parties, the development of green ports and shipping is sustainable, and we hope to build green ports and shipping for the benefit of our future generations. As the hosting economy, on behalf of Malaysia, he also invited participants to the APSN Forum 2024, which will be held in Kota Kinabalu, Malaysia from 21 to 26 October.


**Mr. Zheng Huaiyu, Deputy Director-General, Global Sustainable Transport Innovation and Knowledge Center, China**, spoke about "Ports Connects the World, Green Shipping Leads towards the Future" in his presentation. Mr. Zheng mentioned in his presentation that the rapid development of China's port industry is injecting positive momentum into the stable development of the world economy. Ports and shipping play crucial roles in promoting sustainable transport development. There is still enormous potential and opportunity for green ports and green shipping in the process of sustainable development. Mr. Zheng stressed four keywords in his presentation: First, leadership. With its own development, China is providing new opportunities for the world's development. Second, responsibility. As the world's largest developing economy, China will make various efforts to contribute the world in carbon reduction. Third, vision. China's port development can better benefit people around the world. Fourth, innovation. Mr. Zheng added that the Center is willing to work with all parties to accelerate the construction of a safe, convenient, efficient, green, economic, inclusive and resilient sustainable transportation system, deepen cooperation and jointly contribute more wisdom and strength to the development of global sustainable transportation.


**Ms. Chong Lee Fee, Regional Director (China), Maritime and Port Authority of Singapore (MPA)** shared "Maritime Singapore's Decarbonization Efforts". Ms. Chong mentioned in her presentation that Singapore's decarbonization efforts include: 1) Reducing emissions from port terminals. 2) Low-carbon transition to automation and digitalization through the adoption of cleaner energy at Singapore's port terminals; 3) Making better use of and providing integrated digital platforms and providing more convenient shipping services; 4) Developing its own charging infrastructure standards, further studying how these charging facilities can be better deployed along Singapore's coastline, and making full use of these offshore facilities; 5) Striving to optimize renewable energy use, Singapore's refueling infrastructure is also advancing towards low-carbon fuel capabilities to enhance sustainable development.; 6) Signing a series of Green and Digital Shipping Corridors; 7) Launching the Maritime Singapore Green Initiative (MSGI), which aims to reduce the environmental impact of shipping and further promote clean and green shipping in Singapore; and 8) Launching the Green Port Program, Green Ship Program, Green Energy and Technology Program, and Green Awareness Program.


**Mr. Edward Liu, the Principal Representative, International Chamber of Shipping (China) Liaison Office**, spoke about "Forging the Future of Shipping: The Power of Collaboration"**.** Mr. Liu mentioned in his presentation that one of the biggest threats facing the entire world is climate change and the need to decarbonize. The IMO has set a goal of achieving zero emissions by 2050, and time is running out. China has made a lot of efforts and contributions in promoting the development of green ports. To achieve the emission reduction goal, it needs the cooperation of the port and shipping industry. To date, the development of alternative fuels has been sluggish, with prices remaining prohibitively high and availability still very limited. In the MEPC 81 held in March, which marks a significant phase of negotiations at the IMO, member economies reviewed existing regulations, discussed interim measures, and assessed the current state of lifecycle evaluations for marine fuels. The collective aim was to achieve the emission reduction targets put forward by IMO.


**Ms. Zhao Xi, Senior Transport Specialist, the World Bank** spoke about "Decarbonizing Maritime and Inland Waterways". Ms. Zhao mentioned that the World Bank has been working to decarbonize waterways and shipping. The key to decarbonizing shipping lies in fuel conversion, which is why energy efficiency alone will not achieve IMO greenhouse gas targets. To decarbonize the sector, the World Bank analysis finds that green ammonia, green methanol, and to a lesser extent biofuel are the most promising candidate fuels. The World Bank is also an observer at IMO, and has done work on carbon pricing and carbon finance. She stressed that the maritime industry must participate in the energy transition, not only because shipping can actually help us promote clean energy in the future but maritime buyers are more willing to buy clean energy than other industries. The World Bank will help to make clean fuels available and to increase buyers' ability to buy them. Ms. Zhao stressed that the World Bank is also working to help economies build a green maritime ecosystem, and is committed to helping to decarbonize maritime and inland waterway shipping.

## 3. Keynote Session 2: The Application of Clean Energy in the Port and Shipping Industry



**Mr. Wu Yuzhen**, **the Executive Vice President of Qingdao Port Group**, shared the practices of green and sustainable development at Qingdao Port's automated terminal. Regarding green port construction, Wu Yuzhen emphasized the importance of optimizing top-level design, responding to President Xi Jinping's directive to build a world-class marine port cluster. Qingdao Port is actively promoting the construction of a smart green port and a zero-carbon port. Specific measures include optimizing clean cargo transportation modes, significantly reducing diesel truck usage, promoting clean oil transport, and building an intelligent air-rail transportation system. Looking to the future, Qingdao Port will continue to focus on terminal production, energy structure, and transportation to promote the construction of a green and low-carbon port. Through the construction of specialized terminals and the upgrading of clean production modes, it aims to achieve a 70% share of clean energy by 2025. Additionally, Qingdao Port will collaborate with Shandong Port Shipping Group to develop the first autonomous coastal pure electric intelligent ship, optimize the transportation structure, and deploy methanol refueling facilities to accelerate the decarbonization of the shipping industry and create a green shipping corridor. Wu Yuzhen stated that Qingdao Port will actively embrace the global green transformation trend in the port and shipping industry, build a diversified, low-carbon sustainable energy system, create the cleanest, lowest-carbon end-to-end transportation model, and promote the green, low-carbon, high-quality development of global ports. Finally, he sincerely invited leaders and guests to visit Shandong Port Qingdao Port.



**Mr. Karim Fahssis, Head of Decarbonization Team, Maersk**, detailed Maersk's efforts and challenges in green decarbonization in his speech. Maersk launched its decarbonization plan in 2018, aiming for near-zero emissions by 2050, but advanced this goal to 2040 due to the availability of new fuels in 2021.To achieve this goal, Maersk has begun extensive use of green methanol and placed the first orders for methanol-fueled ships. Additionally, Maersk plans to operate its first carbon-neutral ship by 2030. Mr. Fahssis emphasized that Maersk will no longer order ships that are not compatible with carbon-neutral fuels and has established partnerships with energy suppliers to ensure fuel supply. He also mentioned Maersk's partnership with China's Goldwind Technology to sign the world's largest green methanol procurement agreement, utilizing biomass fuel, wind, and solar resources in northern China. He believes China has significant advantages in green fuel production, with government support being crucial to Maersk's decarbonization plan. Furthermore, Mr. Fahssis introduced strategies for optimizing costs and cooperation, emphasizing the importance of regulatory tools like carbon taxes and pricing mechanisms. He concluded by stating that Maersk will continue to drive the global shipping industry's green transition through various clean energy technologies and regulatory measures, hoping China will play an important role in this process.



**Mr. Ren Xiaobo**, **Board Director and Deputy General Manager, Ningbo Zhoushan Port Company Limited.**, shared the port's green and low-carbon development practices and reflections. In terms of green and low-carbon practices, Ningbo Zhoushan Port has achieved significant results by optimizing the transportation structure, improving the cleanliness of energy-using equipment, and promoting the large-scale application of clean energy. The port has enhanced the proportion of water and rail transport through the development of sea-rail intermodal transport, river-sea intermodal transport, and inland waterway networks, promoting low-carbon transportation structures. Regarding energy-using equipment, the port has vigorously promoted the application of electric and LNG-powered cranes, electric container trucks, and hydrogen-powered container trucks, aiming to form the world's largest fleet of new energy port machinery. In terms of clean energy, Ningbo Zhoushan Port has vigorously built wind and photovoltaic power facilities, promoted the coverage and use of shore power facilities, established multiple battery swapping and hydrogen refueling stations, and strengthened LNG fuel supply. Mr. Ren emphasized that the green and low-carbon concept should run through the entire lifecycle of the port, from planning and design to systematic planning, optimizing the transportation structure, and accelerating low-carbon development. Finally, he invited everyone to participate in 2024 Maritime Silk Road Port Cooperation Forum (MPF 2024) to discuss best practices in green and low-carbon shipping, promoting business exchanges and cooperation, and jointly advancing high-quality development.



**Mr. Wu Jianyi**, **Technical Director of China Merchants Energy Shipping Co., Ltd.**, shared the company's decarbonization practices and strategies in his speech. As China and the IMO has successively issued carbon reduction policies, the shipping industry is now facing significant decarbonization challenges. China Merchants Energy Shipping's decarbonization strategy includes reducing carbon emissions from new ships by building new fuel ships and adopting energy-saving technologies such as sail technology and methanol dual-fuel ships. Additionally, the company has developed an intelligent ship operation system to monitor and manage ship carbon emissions in real-time to optimize energy consumption. Mr. Wu pointed out that the key to ultimately solving the shipping industry's decarbonization problem lies in the development of alternative energy sources, with green methanol currently being a relatively mature choice. In the future, the shipping industry may face a multi-fuel scenario, including LNG, biofuels, green methanol, and green ammonia. Mr. Wu emphasized that ports play an important role in shipping decarbonization, as they must provide green fuels to ships, reducing economic pressure and detour distances for shipowners. He finally called for joint efforts from the entire society, emphasizing that global cooperation is the key to achieving green shipping. Through global cooperation, the shipping industry will undergo significant changes and look forward to a bright future.



**Mr. Feng Shengbo**, **Director of Energy Systems Analysis Research Center, Energy Research Institute, National Development and Reform Commission of China** shared his views on the construction of China's new energy system and the application of hydrogen energy in the maritime field and offered several suggestions. He first emphasized the background of climate change and the trend of global carbon emissions, and China's efforts in building a new energy system. Regarding the application of hydrogen energy in the shipping industry, Mr. Feng pointed out the high dependence on traditional fuels in the shipping industry and mentioned the increasing carbon intensity. New technologies and new energy sources will play a key role in the future, and finding alternative energy sources to replace fossil fuels is a global task. Biofuels also have an important position in energy supply, although their production currently accounts for only 4% of global fuel use. Mr. Feng said that the high cost of electro-ammonia and electro-methanol is the main obstacle to their further application. He expects their usage to increase by 2030. Finally, he made several suggestions, including strengthening the targets and regulatory management for greenhouse gas emissions, promoting the implementation of international standards, and forming a concerted effort to achieve near-zero emission goals. He stressed that enhanced regulation and legislation are crucial for realizing emission reduction targets.



**Ms. Xin Yan**, **Senior Program Officer of the Transportation Program at the Energy Foundation**, discussed the importance of zero-carbon shipping and the methods of achieving this goal through innovative collaboration in her speech. She emphasized the critical need for action across all economies and sectors to combat climate change, pointing out that current efforts are insufficient to meet the global target of keeping warming within 1.5 degrees Celsius. Progress varies across sectors, with some lagging and requiring more measures and international cooperation, especially in the maritime sector. Although methanol fuel is a viable solution currently, ammonia fuel might be a better alternative in the long term to achieve the 2050 carbon neutrality goal. However, the supply of green fuel remains a challenge, with many announced projects still in the conceptual or feasibility study stages, and only about a quarter to a fifth of these projects expected to deliver clean ammonia as planned. Ms. Xin also highlighted the high cost of green fuels, which can be 2-5 times the price of traditional fuels. She finally emphasized the importance of innovation in achieving zero emissions. Although decarbonizing the shipping industry is challenging, innovative solutions can achieve meaningful change and ultimately reach zero-emission goals.


**Mr. Zhao Kai**, **Chief Representative of the Methanol Institute in China**, discussed the prospects of methanol as a marine fuel in his speech. He first introduced the Methanol Institute, emphasizing its global influence and wide membership, including methanol producers, technology suppliers, users, and stakeholders from the shipping and renewable energy sectors. He emphasized the concept and importance of renewable methanol, noting that, 99% of methanol currently comes from natural gas, but the goal is to rely more on renewable resources in the future. Mr. Zhao mentioned two methods for producing renewable methanol: bio-methanol and electro-methanol, citing international reports that highlight the potential for producing 500 million tons of green methanol. In the maritime fuel sector, Mr. Zhao noted the advantages of methanol as an emerging fuel. Currently, there are 270 orders for methanol-fueled ships, accounting for 1%-2% of total ship orders. He also discussed the importance of crew training, emphasizing the need to train personnel on operating equipment and refueling, ensuring the safe storage of methanol, and handling of leaks. Finally, Mr. Zhao expressed his gratitude and looked forward to collaborating with APSN member economies to bring renewable methanol fuel to more ports, achieving the goal of green shipping.


**Ms. Qin Fei**, **Deputy General Manager, Engineering & Procurement Department, COSCO Shipping Ports Limited**, shared COSCO Shipping Ports' practices and insights on applying clean energy in the port sector. COSCO Shipping Ports has made efforts in energy selection through three main initiatives: full implementation of shore power facilities, upgrade of clean energy vehicles and exploration and application of renewable energy. In the use of clean energy, the company improves energy utilization efficiency by enhancing the digital and intelligent level of port operations. Ms. Qin emphasized that clean energy innovation and supporting operations face multiple challenges, including high investment, high costs, and the need for policy support. However, she noted that the key is cooperation and to innovation. By collaborating with the government, research institutions, and industry peers to share resources and risks, and by accelerating technological innovation, solutions can be found. Looking ahead, she believes that the application of clean energy in the port and shipping industry will become a compulsory task, calling for collective efforts to contribute to global green development, leaving a cleaner and more beautiful earth.


**Mr. Fu Yu**, **Senior Engineer at Shanghai International Port Group Energy Company**, introduced the progress and thoughts of Shanghai International Port Group (SIPG) on investment and development of new energy projects in the port shipping sector. He stated that SIPG is committed to enhancing the service capacity and resource allocation ability of the Shanghai International Shipping Center through the construction of green ports and energy transformation, supporting the sustainable development of shipping energy. Guided by the carbon peak plan set for 2030, Shanghai Port actively promotes digitalization and low-carbon transformation, achieving significant results in green port construction. SIPG has implemented several measures, including converting port machinery from oil to electricity and gas, deploying distributed photovoltaic projects, and increasing the proportion of clean energy trucks within port areas. Additionally, all container terminals at Shanghai Port have been equipped with shore power facilities, with a significant increase in the utilization rate of shore power. In the area of clean ship fuel supply, Shanghai Port has established a service system for multiple types of new energy ship refueling, including LNG and green methanol. Mr. Fu emphasized that SIPG will continue to build a clean, low-carbon, safe, and efficient energy system, exploring the application of green hydrogen and ammonia-based energy. The company aims to construct comprehensive energy stations powered primarily by wind and solar power, ensuring safe and reliable electricity use, and promoting the coordinated optimization of the source-grid-load-storage-control system in large ports. SIPG is dedicated to establishing world-class green intelligent integration demonstration projects.

## 4. Panel Session: Port and Shipping Energy Transformation


During the panel session, panelists discussed topics include the challenges of pursuing green and low-carbon initiatives, approaches of overcoming the challenges and how to promote the green shipping corridor with a concerted effort.

The session agrees that the very high investment in green energy and green vessel, the uncertainty of green energy supply, the certification of green energy, and geopolitics like Red Sea crisis are the major challenges that all stakeholders are facing with on their way of going green and low-carbon. With respect to the solutions to overcome the challenges, the panelists agree that firstly global cooperation with government, international institutions and port and shipping enterprises should be strengthened. Secondly, the cost of zero-carbon energy should be more transparency and open, mechanism of all stakeholders to jointly bear the high cost of green energy jointly should be discussed. Furthermore, emerging technologies such as AI could improve the vessel management efficiency and provide better capabilities of foreseeing emergencies.

Regarding of the green shipping corridor implementation, the panelists agree that it is critical to strengthen cooperation between ports at both end of the corridor, and between ports and shipping companies, to have better communications and information exchanging, mechanism of promoting green corridor could be discussed under this cooperation. Preferential policies from the government side could be good support to green shipping corridor implementation. Some economies capabilities on technology and investment should also be considered when promoting green shipping corridor.

## 5. Keynote Session 3: Green Port Practice Sharing



**Mr. Cai Ouchen, Deputy Director of the APEC Port Study Center,** first briefed the updates on the implementation of GPAS in the last two years, including the expanded APEC ports and economies getting involved in the program, as well as the relative promotion and collaboration initiatives supporting the green port development in the Asia-Pacific region. Then he introduced the progress made by APSN in updating the GPAS evaluation system, including the research conducted by the APEC Port Study Center proposing the framework of indicator system for evaluating the APEC low-carbon ports, and the strategic suggestions for updating the GPAS evaluation system based on the review of the implementation of this program.



**Mr. Lap Keung Law, Assistant Director at the Planning and Services Division of the Marine Department of Hong Kong SAR Government, China,** introduced the best practices by Hong Kong port companies as well as the competent authorities in developing the green ports, including the ambitious plan for providing multiple alternative fuels bunkering service, the incentive scheme for

carbon emission reduction and green operation, the revision of relative marine legislation, the adoption of digital tools facilitating the governance of vessels and seafarers, the green and smart infrastructure development, and some other initiatives focusing on capacity-building, collaboration and innovation.



**Mr. Jack Luo, Vice President of Tianjin Port Group Company Limited**, presented the efforts of Tianjin Port to build a world-class green port. He first introduced the overview of Tianjin Port as the largest comprehensive port in the north China and one of the busiest ports in the world, and then stated the comprehensive solutions for the sustainable development of the port including initiatives related to the upgrading of energy structure, clean transportation, pollution control, ecological scenery, intelligent empowerment, and management efficiency. Lastly, he highlighted the case of the Second Container Terminal of Tianjin Port as the world's first "smart and zero-carbon" terminal.



**Mr. Jiravich Klomperee, Director of Corporate Strategy Department of Port Authority of Thailand**, presented on the development of green and sustainable ports in Thailand. First, he introduced the overview of Port Authority of Thailand, including its responsibilities, mission and

vision, and business overview. Then he talked about the green and sustainable strategy and policy set by PAT focusing on decarbonization and efficient port management. Lastly, he shared information on some sustainable projects for low-carbon ports, including the use of renewable energy and energy-efficient equipment, the development of shift mode logistics, the sustainable development plans for Thai's main ports, the digital transition for the port management, and the port greening.


**Mr. Ma Haishen, Deputy General Manager of Huanghua Harbour Administration Corporation Limited, China Energy,** first introduced his company including its strategic role in China and its capabilities in terms of port operation. Then he presented the green port practices of his company in dust control, wastewater reuse, energy transformation, electricity substitution, greening in the port area, and smart empowerment. Lastly, he shared the key focus of his company for the future green development, which mainly consists of port constructions towards a zero-carbon, no-waste and ecological port.

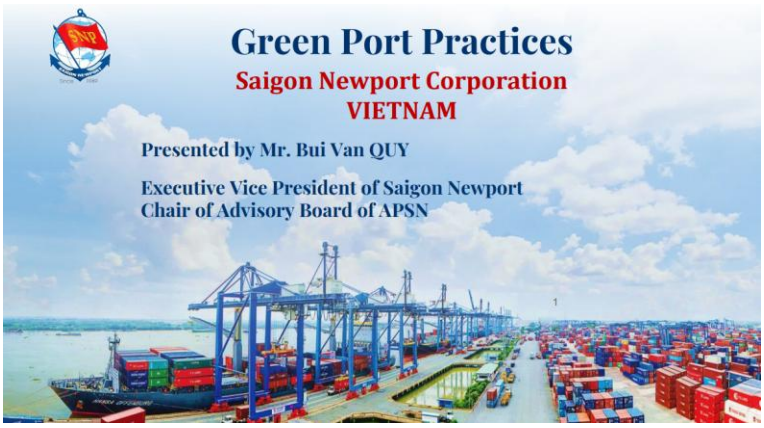


**Mr. Lars Anke, Chief Representative Asia-Pacific of Hamburger Hafen und Logistik AG**, first introduced the several logistics businesses of HHLA, including the port, shipping, truck and rail operations. He then introduced the innovative initiatives of his company related to the adoption of drones, autonomous cargo handling, digitalized intermodal service, and highlighted the climate-neutral plan of HHLA, especially via the construction of net-zero carbon port and hydrogen powered logistics.



**Mr. Zhang Feng, Deputy General Manager of Qingdao New Qianwan Container Terminal, Qingdao Port of Shandong Port Group,** talked about the practices on sustainable development of his terminal with the beginning on the overview of this fully automated container terminal whose operation efficiency is much higher than the common container terminal. He then introduced the sustainable initiatives of the terminal which mainly focuses on the use of renewable energy including solar power, wind power, hydrogen and pure electric-driven equipment, and the advanced smart systems for both port operation and energy management. In addition, he highlighted the performance of a number of innovative technologies developed by his company, including the automated TOS

software and cycle-charging AGVs.

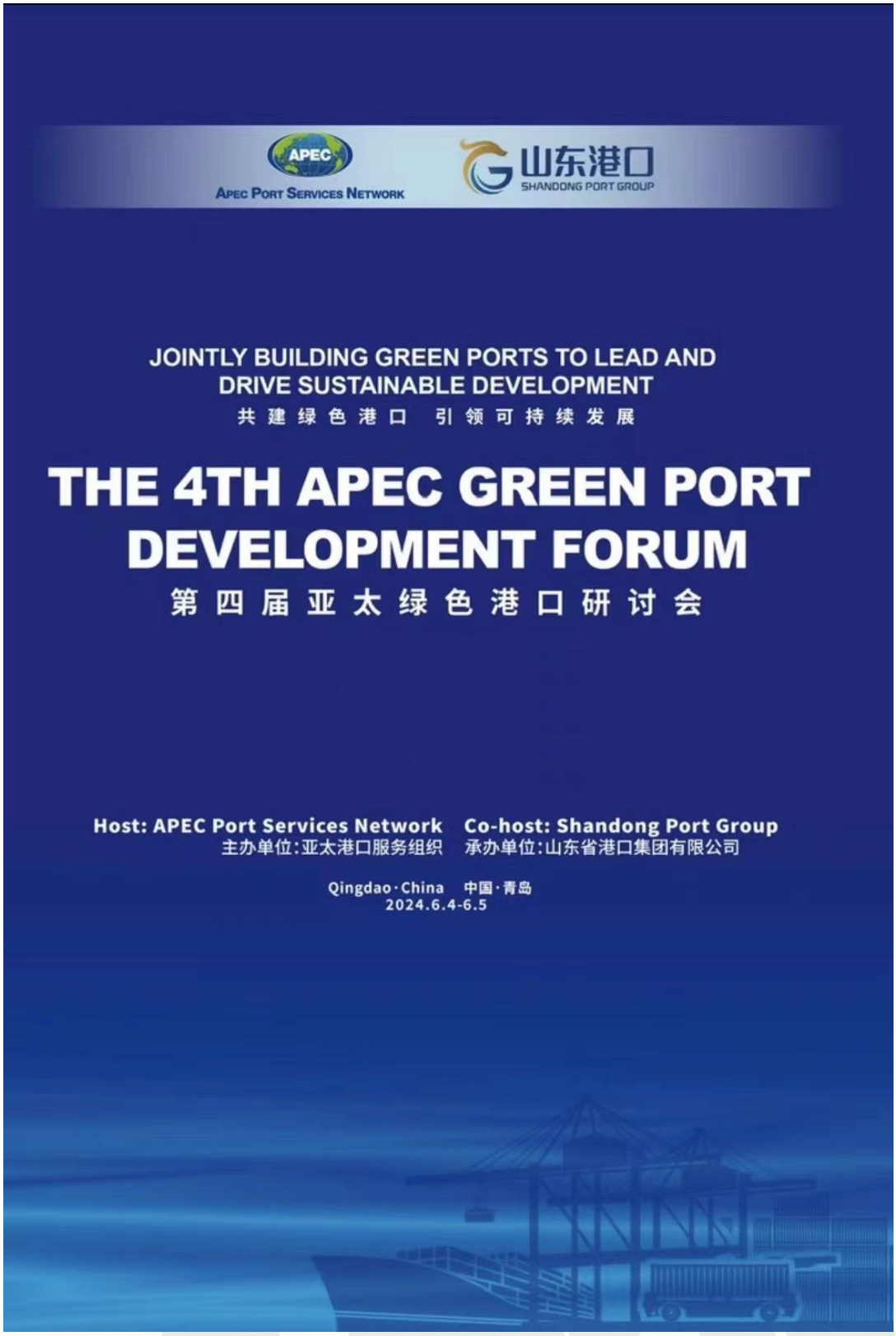

**Mr. Bui Van Quy, Executive Vice President of Saigon Newport Corporation,** presented the green practices of his company to the meeting. He first introduced the overview of Viet Nam's seaport network, as well as the leading role of Saigon Newport Corporation in it. Secondly, he briefed the meeting the green port activities of his company, including its action plan, the green barging service, the adopted information technologies and some other pollution control measures. Based on analysis on the opportunities and challenges for the green development of ports in Viet Nam, he proposed a number of solutions for port authorities, port operators and other stakeholders, respectively, which mainly focusing on the circular economy, transport mode shift, energy transition and efficient digital technologies.



**Mr. Froilan U. Caturla, Port Manager of the Philippine Ports Authority's Port Management Office of Surigao,** presented the sustainable development and environmental commitment at the Port of Surigao. He began the speech with the overview of the Port of Surigao as well as his port authority.

Then he went into the details of the green initiatives of the port including solar-powered lighting, shore power usage, energy conservation devices for lighting and air conditioning, atmospheric water generation, carbon sink improvement, environmental management and some other common pollution control measures.

## III Final Schedule of the Forum



# AGENDA

## June 4, 2024

| TIME | SPEAKERS |
|---|---|
| | Opening Session |
| | Moderator: Mr. Li Qing, Secretary-General of APSN/Vice President, China Waterborne Transport Research Institute |
| 09:00-09:05 | Ms. Sonya Read, President of APSN/Director General, Marine Policy, Transport Canada (Video) |
| 09:05-09:10 | Mr. Chen Xingsen, Director, Department of International Cooperation, Ministry of Transport of China |
| 09:10-09:15 | Mr. Liu Shubin, President, China Waterborne Transport Research Institute |
| 09:15-09:20 | Mr. Huo Gaoyuan, Chairman, Shandong Port Group, China |
| | Keynote Session 1: Challenges and Opportunities for Green Port and Shipping Development |
| | Moderator: Mr. Li Fengli, General Manager, Shandong Port Group, China |
| 09:20-09:35 | Mr. Ren Weimin, Director of the Transport Division, the United Nations Economic and Social Commission for Asia and the Pacific (UNESCAP) |
| 09:35-09:50 | Mr. Zhu Zhenyu, Deputy Director General, Water Transport Bureau, Ministry of Transport, China |
| 09:50-10:05 | Mr. Zhang Baochen, Senior Vice President, International Association of Institutes of Navigation |
| 10:05-10:20 | Capt. Mohamad Halim Ahmed, Director General of Marine, Malaysia Marine Department |
| 10:20-10:35 | Coffee Break |
| 10:35-10:50 | Mr. Zheng Huaiyu, Deputy Director, Global Sustainable Transport Innovation and Knowledge Center |
| 10:50-11:05 | Ms. Chong Lee Fee, Regional Director (China), Maritime and Port Authority of Singapore |
| 11:05-11:20 | Mr. Edward Liu, the Principal Representative, International Chamber of Shipping (China) Liaison Office |
| 11:20-11:35 | Ms. Zhao Xi, Transport Specialist, World Bank Group |
| 12:00-14:00 | Lunch |
| | Keynote Session 2: Application of Clean Energy in Port and Shipping Industry |
| | Moderator: Mr. Jiravich Klomperee, 2nd Vice-President of the APSN Council |
| 14:00-14:15 | Mr. Wu Yuzhen, Executive Vice General Manager, Qingdao Port of Shandong Port Group, China |
| 14:15-14:30 | Mr. Karim Fahssis, Head of Decarbonization Team, Maersk |
| 14:30-14:45 | Mr. Ren Xiaobo, Board Director and Deputy General Manager, Ningbo Zhoushan Port Company Limited, China |
| 14:45-15:00 | Mr. Wu Jianyi, Technical Director, China Merchants Energy shipping Co., Ltd. |
| 15:00-15:15 | Prof. Feng Shengbo, Director of Energy Systems Analysis Research Center, Energy Research Institute, National Development and Reform Commission, China |
| 15:15-15:30 | Coffee Break |
| 15:30-15:45 | Ms. Xin Yan, Senior Program Officer, Transportation Program, Energy Foundation China |
| 15:45-16:00 | Mr. Zhao Kai, China Chief Representative, Methanol Institute |
| 16:00-16:15 | Ms. Qin Fei, Deputy General Manager, Engineering & Procurement Department, COSCO Shipping Ports Limited |
| 16:15-16:30 | Mr. Fu Yu, Senior Engineer, SIPG Energy (Shanghai) Co., China |

| | |
|---|---|
| **Panel Session: Port and Shipping Energy Transformation**<br>**Facilitator: Capt. Mohamad Halim Ahmed, 1st Vice-President of the APSN Council** | |
| 16:30-17:00 | ○ Mr. Fei Weijun, APSN Senior Consultant<br>○ Mr. Karim Fahssis, Head of Decarbonization Team, Maersk<br>○ Ms. Zhao Xi, Transport Specialist, World Bank Group<br>○ Mr. D'AZEVEDO Florent, Director of Strategic Business Development in China, CMA CGM<br>○ Mr. Wu Yuzhen, Executive Vice President, Qingdao Port of Shandong Port Group, China |
| 17:30-19:30 | Dinner |

## June 5, 2024

| TIME | SPEAKERS |
|---|---|
| **Keynote Session 3: Green Port Practice Sharing**<br>**Moderator: Dr. Jia Dashan, APSN Senior Consultant** | |
| 09:00-09:15 | Mr. Cai Ouchen, Deputy Director, APEC Port Study Center of APSN |
| 09:15-09:30 | Mr. Lap Keung LAW, Assistant Director,<br>Planning and Services Division of the Marine Department, Hong Kong, China |
| 09:30-09:45 | Dr. Jack Luo, Vice President, Tianjin Port (Group) Co., Ltd, China |
| 09:45-10:00 | Mr. Jiravich Klomperee, Director of Corporate Strategy Department, Port Authority of Thailand |
| 10:00-10:15 | Mr. Ma Haishen, Deputy General Manager, Huanghua Harbour Administration Corp. (Ltd), China Energy |
| 10:15-10:30 | Coffee Break |
| 10:30-10:45 | Mr. Lars Anke, Chief Representative Asia-Pacific, Hamburger Hafen und Logistik AG, Germany |
| 10:45-11:00 | Mr. Zhang Feng, Deputy General Manager of Qingdao New Qianwan Container Terminal,<br>Qingdao Port of Shandong Port Group, China |
| 11:00-11:15 | Mr. Bui Van Quy, Executive Vice President , Saigon Newport Corporation, Viet Nam |
| 11:15-11:30 | Mr. Froilan U. Caturla,<br>Port Manager of the Philippine Ports Authority's Port Management Office of Surigao, the Philippines |
| 11:30-13:30 | Lunch |
| **Technical Visit** | |
| | Qingdao new Qianwan Container Terminal |
| 14:00-15:00 | ○ Foreign guests will gather at the hotel lobby at 14:00 on June 5th |
| 15:00-16:00 | ○ Chinese guests will gather at the hotel lobby at 15:00 on June 5th |