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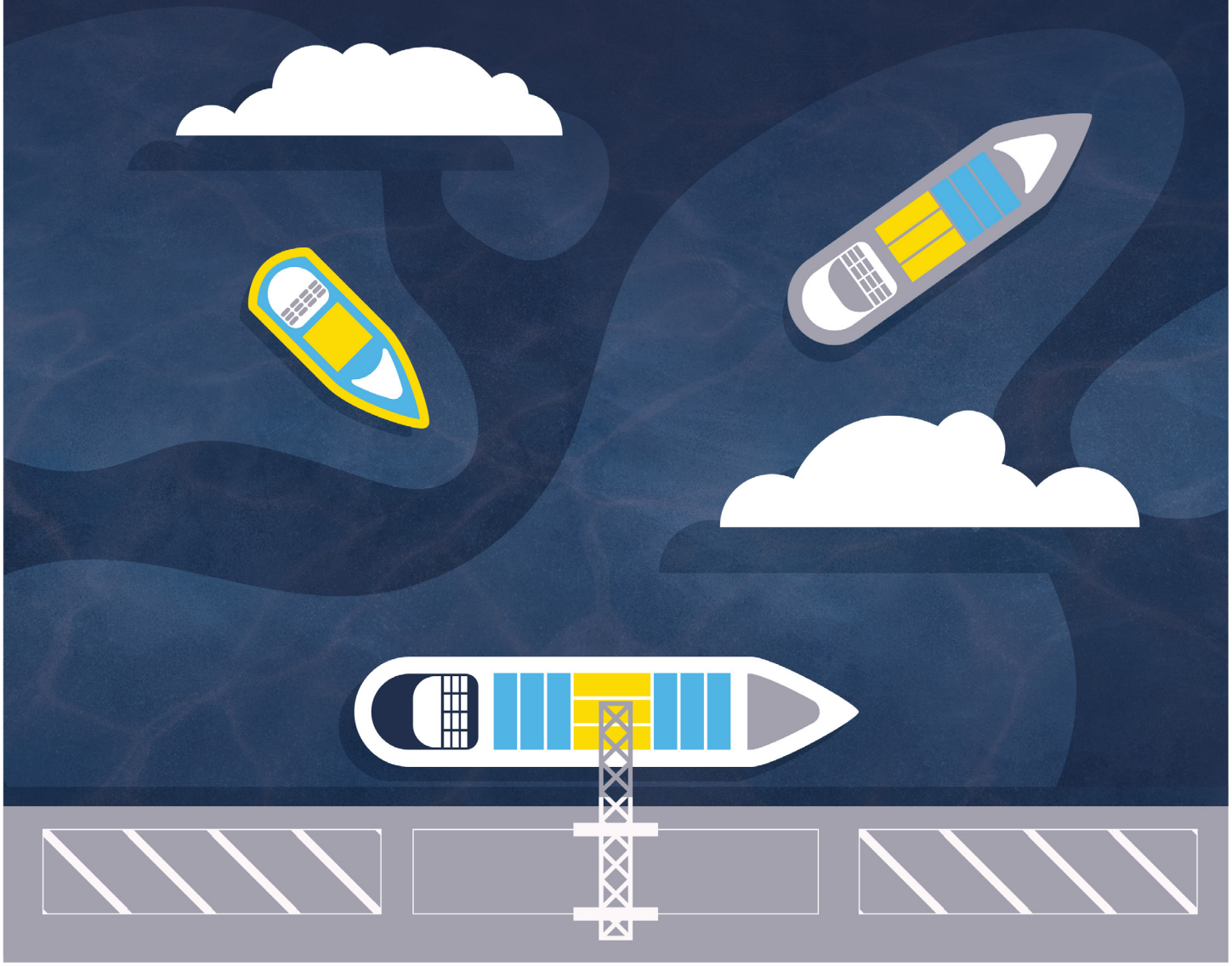
GREEN SHIPPING CORRIDORS

Assessing port-city-industry coalitions
for a decarbonized maritime future



GREEN SHIPPING CORRIDORS

Assessing port-city-industry coalitions
for a decarbonized maritime future

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AIVP ON GREEN SHIPPING CORRIDORS: A NEW PERSPECTIVE ON INNOVATIVE FLOWS FOR PORT-CITY COOPERATION

JOSÉ M P SÁNCHEZ, CAYA HEIN & NOÉMI MENÉ

The urgency to accelerate the decarbonization of the maritime sector is clear and has been emphasized by global institutions such as the IMO, national and regional governments, and even the industry leaders themselves. This task is an even greater priority for port cities, not just for the impact that reducing global emissions will have on the fight against climate change, but also because it will improve the life quality locally, for the people living in urban areas close to port facilities. For these reasons, it is a key topic for AIVP, as our organization is involved in key projects such as MAGPIE, which pays attention to concepts such as Green Shipping Corridors.

The Clydebank Declaration, presented during COP 26 – United Nations Climate Change Conference - in 2021, launched the concept of Green Shipping Corridors (GSCs). Ever since, according to the 2024 report by the Global Maritime Forum, more than 60 initiatives of this kind have been launched, with different levels of implementation. The enthusiasm of the maritime industry is evident. Logically, port city actors embrace new exciting concepts promising a green transition that are also attractive to the public eye and political leadership. However, it is also necessary to keep a critical perspective and discuss the depth of the concept, its actual implementation, and the challenges that may emerge along the way. AIVP supports and encourages any initiative that will accelerate the decarbonization of the sector, strengthen inter-port collaboration and stakeholder engagement, and improve the lives of inhabitants of port cities. We want to help our members to better understand concepts such as the GSCs, their origin, impact, and implications. For this reason, we decided to partner with Port City Futures (PCF) and invite organizations such as C40 or the Resilience 4 Ports program from the International Coalition for Sustainable Infrastructure, to prepare this document.

Dr. -Ing José M P Sánchez, Director of Agenda AIVP 2030, Projects and Content

Caya Hein, Project Leader - Green Transition and Agenda 2030 by AIVP

Noémi Mené, Project Leader - Sustainable Mobility and River Port Cities

In this publication we gather complementary perspectives, discussing the foundations of GSCs, how they are being implemented in different regions of the world, their connection to other issues such as resilient infrastructure, and the uncertainties that remain, such as the future fuels. Following AIVP's usual approach, we also asked our members who are implicated in GSCs to give us their perspectives and share their experiences. European and North American cases shed some light on the implementation of GSCs and reflect on the path they have already walked and the road that remains ahead.

This publication is just a small but significant effort of our organization to start a debate with port cities from all over the world and launch cooperation with organizations such as C40, which are directly engaged in establishing GSCs. The cooperation with Port City Futures (PCF), preceding this document and extending to other projects, shall provide an independent perspective from academic experts. Working with Resilience 4 Ports will impulse our capacity and support our work on resilient port city territories, as we are already doing in the SAFARI EU project.

We trust the articles and testimonies gathered here will help our members assess new cooperation proposals coming from peers for establishing GSCs. After this first step, AIVP will continue discussing this concept and work with the different partners to decarbonize the maritime industry, share valuable knowledge, and improve the lives of the people in port cities.

GREENING THE SEA - MARITIME GREEN CORRIDORS FOR HEALTHY OCEANS

PROF. CAROLA HEIN

Prof. Carola Hein
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Green Shipping Corridors, initiated in 2021, demonstrate a growing awareness among port and shipping stakeholders that the oceans and seas are more than blank spaces for industrial processes that don't find a place on land (Couling & Hein, 2018). Monitoring websites, like windy.com, visualize open access data, including on NO2 and SO2 air pollution. They highlight the continuity of air pollution along sea and land corridors, and reveal the densification of pollution in and around ports and along coasts. Green Shipping Corridors are thus a much-needed attempt to address maritime pollution and to create more sustainable transportation methods, both on land and at sea. Control of landside pollution is a task for national, regional and more local governance, but greening the seaside is much more difficult because of the mix at play of national jurisdiction zones and large areas under international law. Green Shipping Corridors and other practices for improving ocean health raise questions about how to embed these initiatives in meaningful international governance, controllable policies, and spatial planning that includes the sea. With the horizon of 2050, we need to clearly establish goals, timelines and impact indicators. What governance structures, tools, competitive incentives and control mechanisms do we need to green the sea? How will we assess the impact of these green corridors?

This publication provides a first insight into the role of Green Shipping Corridors and calls for a careful assessment of their impact. Together with AIVP, members of PortCityFutures have begun to reflect on how to assess green corridors. Mina Akhavan and Maurice Jansen have added their respective analysis and reflections on a taxonomy and glossary for Green Shipping Corridors; they also assess their role as a vector of the future of fuels. Through their geospatial analysis, members of the PortCityFutures team have emphasized the role of open-access data. The Port City Atlas (Hein et al., 2023) notably features 100 European port city territories as nodes in maritime and land-based corridors. Combining this atlas with open-access information from Copernicus on air pollution allows for transparency and long-term assessment of Green Shipping Corridors.

Such mapping raises questions about what needs to be measured to assess the impact and success of Green Shipping Corridors: Are we measuring primarily the type of fuel used or determining whether air quality has improved? Are the Green Shipping Corridors successful if they link with hinterland corridors? Or, shall these green corridors be places of increased biodiversity?

Decarbonizing the shipping industry is an important step to maintaining global exchange routes while establishing sustainable logistics and protecting oceans and seas. As such, Green Shipping Corridors go hand in hand with other tools aimed at improving ocean health, such as maritime spatial planning promoted by the Intergovernmental Oceanographic Commission of UNESCO and the European Commission's Directorate-General for Maritime Affairs and Fisheries (see https://maritime-spatial-planning.ec.europa.eu/; https://www.ioc.unesco.org/en/guidance-marine-spatial-planning).

The interviews with the different AIVP Ports, featured in this publication, provide insights into the challenges of establishing Green Shipping Corridors, the collaborative efforts they require (both international and local), and the variety of approaches and incentives.

This white paper serves as a first call to pay more attention to Green Shipping Corridors and to carefully promote their development.

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GREEN CORRIDORS

ARTICLES

‘GO GREEN’: CONCEPTUALISING A WORLDWIDE GLOSSARY AND TAXONOMY ON MARITIME GREEN CORRIDORS

DR. MINA AKHAVAN, TU DELFT

1. INTRODUCTION: THE NEED FOR ACTION IN GREENING THE SHIPPING INDUSTRY?

Dr. Mina Akhavan,
Port City Futures, TU Delft.

Maritime (or ocean) transport is the backbone of international trade and the global supply chain but also plays a crucial role in the tourism industry. Shipping and ports are also essential elements of the Blue Economy and play a vital function in maintaining blue growth across all sectors of the economy. Compared to bulk transportation, shipping is relatively energy efficient in terms of CO2 emissions. Yet, maritime shipping, both for commodity and passenger flow, raises concerns about human health and environmental issues. Greenhouse gas (GHS) emissions from the maritime sector are significant: about 2.8% of global GHG emissions (Morante, 2022), which may rise to 17% by 2050[1]. It is widely accepted that the shipping industry has five main environmental impacts: (i) air pollution, (ii) Noise pollution, (iii) Vessel discharges, (iv) Congestion (port and the port hinterland), and (v) Marine ecosystem (Jägerbrand et al., 2019). Several studies have pointed out the greening of ports and maritime logistics, highlighting the necessity for sustainable initiatives to decrease the environmental footprint of port operations (Davarzani et al., 2016; Parhamfar, 2023). Within the outlined framework, this short paper intends to make an overview of the ‘Maritime Green Corridors’ (MGCs) concept, launched officially in 2021, tracing the origins from environmental, transportation and planning studies, and discuss the potential impact on land and the sea. The aim is to understand the state-of-the-art studies and map a global glossary and taxonomy of the relatively new phenomenon of the MGCs, which can be used as a conceptual framework for future research lines in urban and regional studies.

2. GREEN CORRIDORS: ORIGINS, CONCEPTS AND DEFINITIONS

Although the emergence of the concept of ‘Green Corridors’ (GCs) in transportation and shipping is relatively new, the origins of green corridors in general can be traced back to the late 19th century in urban planning and design. Olmsted’s “Parkways” in the US and Ebenezer Howard’s “Garden City” in England are considered pioneering visions of GCs in early 20th-century town planning. Contemporary studies define such corridors as linear open spaces within or outside urban areas that play a

[1] *What Are Five Environmental Impacts Related To Shipping? (sinay.ai)*

crucial role in environmental protection and landscape preservation while offering various benefits to citizens (Aman et al., 2022). The significance of urban and ecological GCs is well documented in the literature (see Korkou et al, 2023). For the purpose of this study, it is worth highlighting transportation-related green corridors. As a European concept, green transport corridors (GTCs) are defined as long-distance freight transport corridors where advanced technology and co-modality are used to achieve energy efficiency and reduce environmental impact (Carballo-Penela et al., 2012). Freight-based GTC in Europe was introduced as part of the EU's Freight Transport Logistics Action Plan in 2007: these integrated routes [GTCs] would enable freight to be transported with a reduced environmental impact via a combination of short sea journeys, rail, road and inland waterways, and of relevant technologies (such as ICT used in intelligent transport systems) (EU, 2007). GTCs have gained attention in recent years and can be characterised as European transhipment routes with a concentration of freight traffic between major hubs and relatively long distances marked by reduced environmental and climate impact (Prause & Schröder, 2015). Therefore, GTCs offer integrated multimodal, efficient, and sustainable freight transportation solutions (Schröder and Prause, 2015).

3. DECARBONIZING THE GLOBAL SHIPPING SECTOR: MARITIME GREEN CORRIDORS

Following long-term international efforts to reduce the environmental impact of maritime and shipping activities (e.g., since the 1970s, the International Convention for the Prevention of Pollution from Ships – MARPOL), the International Maritime Organization (IMO)'s Clydebank Declaration was launched in November 2021, within the framework of the COP26 (Saul and Piper, 2021). The Declaration aims to promote the creation of Maritime Green Corridors (MGCs) by fostering a coalition among ambitious governments, port(s) and operator(s) to reduce the greenhouse gas emissions of shipping routes (zero-carbo emissions ships) through public and private actions and policy measures.

For the Global Maritime Forum and Getting to Zero Coalition, MGCs are Specific shipping routes where the technological, economic and regulatory feasibility of the operation of zero-emission ships is catalysed by a combination of public and private actions (Global Maritime Forum, 2022). Others define such green corridors as innovative systems of creating coalitions of stakeholders – to leverage national interest in the transition to zero-emission shipping in a way that impacts international shipping (Getting to Zero Coalition, 2021). The Next Wave (2021) considers MGCs as specific trade routes between major port hubs where zero-emission solutions have been demonstrated and supported. Once fully developed, the shipping green corridor entails the different layers between two (major) ports as schematically drafted in Figure 1. Three main layers can be identified here: Ports as nodes (land), shipping corridors and connectors (sea) and technology (energy, shipping and land-based). The collaboration between stakeholders will then leverage this system by creating a multi-layer development plan where all the actors will follow a common objective(s) towards decarbonising maritime activities on land and sea.

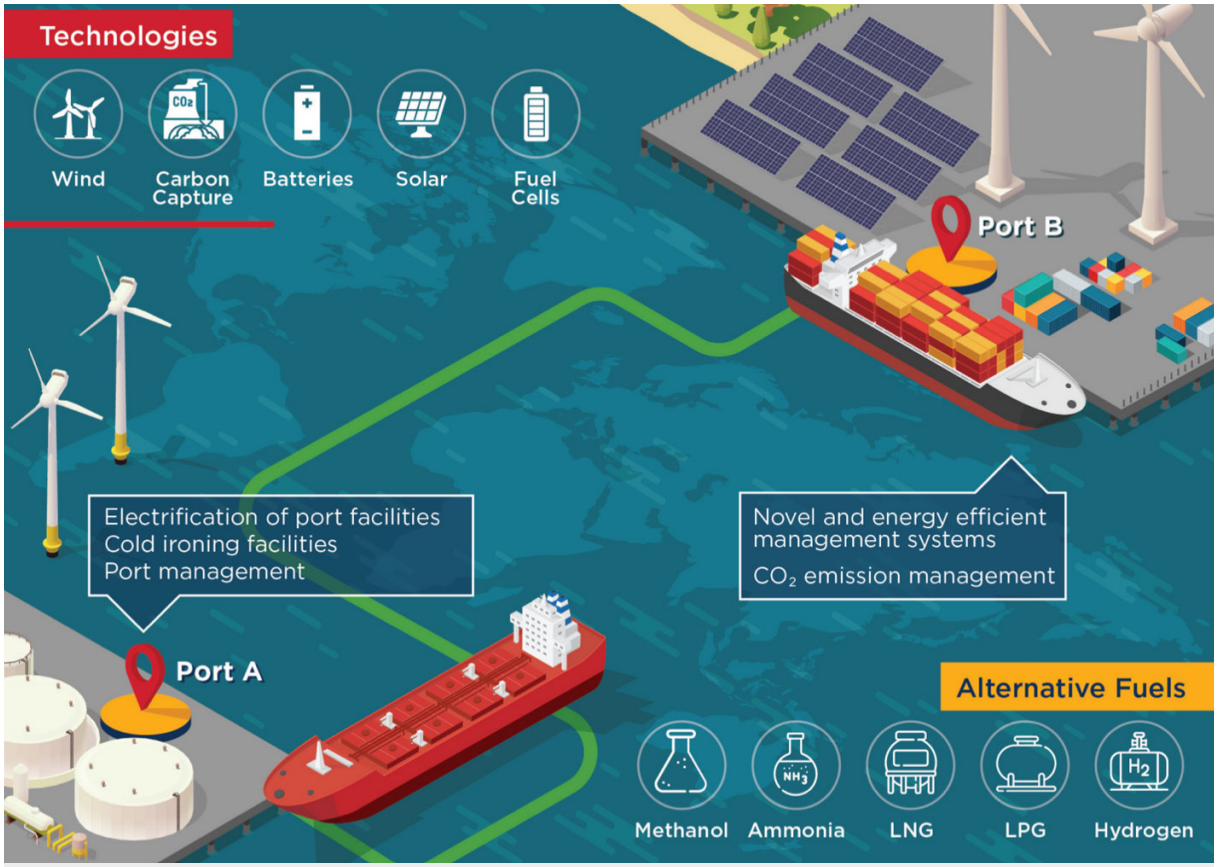

Figure 1. Schematic layers of the Green Corridor Concept | Source. ABS (2022); Page 2

To date, 24 countries have signed the Clydebank Declaration: Europe (Belgium, Denmark, Finland, France, Germany, Ireland, Italy, the Netherlands, Norway, Spain, Sweden, Great Britain and Northern Ireland), North America (Canada, the USA), South America (Chile and Costa Rica), Oceania (Australia, Fiji, New Zealand, Palau and Republic of the Marshall Islands), North Africa (Morocco) and East Asia (Japan and Singapore). By November 2023, about 62 initiatives on green corridors have been introduced by public and private stakeholders worldwide (see Figure 2). The geography of the announced green corridors shows a concentration in North America, (North and Eastern) Europe and East Asia, which aligns with the region's strategies to decarbonize their economy. Yet, there are huge gaps; being an international sector, maritime transport is regulated by the IMO at a global scale, so more countries should engage for a faster transition to the process of decarbonisation (PierNext, 2022).

Figure 2. Global initiatives on green shipping corridors (under development or established) | Source. Hervas (2023)

The world's first GSC was announced in January 2022 between two major ports in the US (the Port of Los Angeles), China (Port of Shanghai), and C40 cities. Based on the 'Green Shipping Corridor Implementation Plan Outline', the participants of this Corridor strive to reduce carbon emissions from shipping and port activities and to address local community impacts (Figure 3). In this example, the corridor is 'port-centric' as it initiates from the port level, so the system priority settings and fuel choices are set based on the air quality issues and local community and environmental interests in both port cities (Global Maritime Forum, 2022). In contrast to the port-centric corridors are the 'route-centric' ones (for example, the West Australia-East Asia iron ore green corridor), which are not driven by the ports themselves but may originate from ambitious countries and their strategic interest, which vary from region to region.

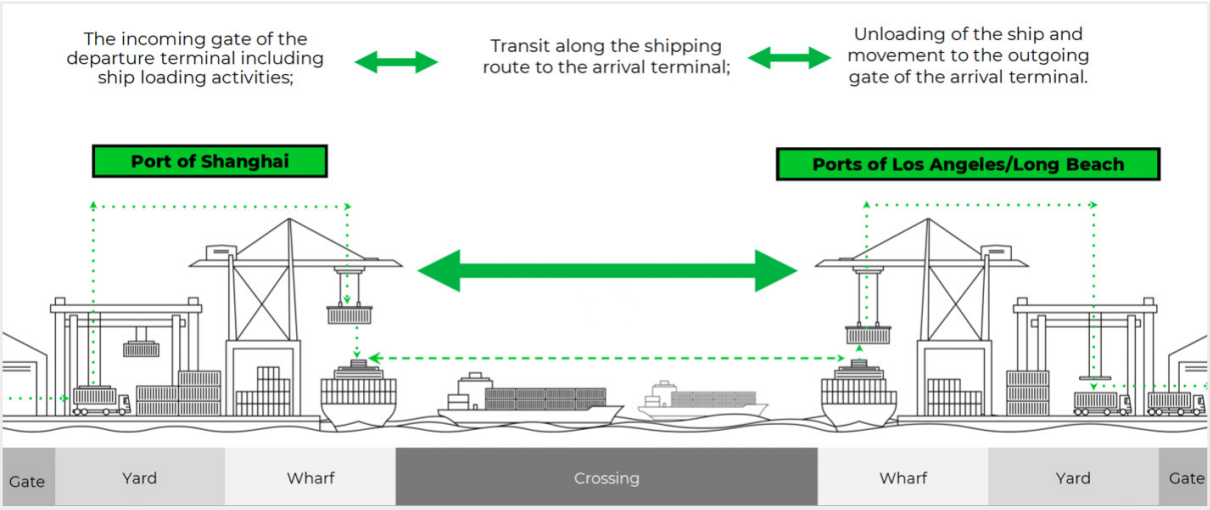

Figure 3. Schematic vision of the Port of Los Angeles–Port of Shanghai Green Shipping Corridor Source.
Source: Port of Los Angeles - Port of Shanghai GSC Partnership Implementation Plan Outline. C40. P.5

4. CONCLUDING REMARKS: RETHINKING PORTS AND THEIR GREEN/BLUE CONNECTION WITH THE SEA

The concept of MGCs, energy transition in the maritime sector and its environmental impact is gradually gaining attention in different regions of the globe. Such corridors re-configure the international coalition of stakeholders, which already exists in a complex network of nodes (ports and port-cities) and links (shipping routes). Offering favourable conditions for accelerated actions in terms of environmental policy, energy production and shipping operation, MGCs can function as 'special economic zones at sea', which should be expanded and linked to the green ports on land. This will allow policymakers to enable an ecosystem with regulations and financial incentives to support the transition, for example, in lowering the cost of green fuel.

Furthermore, we should consider MGCs as a complementary effort for the complex and multidimensional concept of sustainability and sustainable development. Here, it is worth mentioning the three-pillar conception of sustainability (social, economic and environmental) – introduced by Barbier in the mid-1980s, known today as a common view for a model of sustainable development (Purvis, et al. 2019). Conceptualising the MGCs, I suggest adding a fourth pillar to the sustainability concept: Institution (governmental and non-governmental). Therefore, a schematic diagram of the four intertwined pillars for sustainable development of port-city-regions connected to green maritime corridors and green ports is re-imagined, as illustrated in Figure 4.

Figure 4. The four-pillar dimension of sustainable development of port-city-regions connected to green maritime corridors
Source. Own elaboration

To conclude, here I have outlined some challenges that raise questions for the future implementation and success of green maritime corridors, which would also become future research lines:

- Political and governmental support and creating a transborder collaboration among different countries. *What is the role of regional policy and planning? Can the EU Regional framework, such as the MSP, facilitate cross-border cooperation for implementing green shipping corridors?*

- A collaborative framework for a joint action between various stakeholders. *What tools and methods are needed to encourage cooperation among governments, industry and academia? what does it change for the private operators, how does it impact the worldwide competitiveness of ports and operators?*
- Technological advancements and challenges. *What is the role of the public sector in providing financial incentives and investing in R&I, start-ups and industry in green technology?*
- Interaction between the green maritime corridors, land and local communities. *How can community leaders be included in the implementation process for a just society?*

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GREEN SHIPPING CORRIDORS: HOW PORTS AND CITIES ARE TESTING NEW WAYS OF COLLABORATION TO TACKLE CLIMATE CRISIS

YANA PROKOFYEVA, C40

1. INTRODUCTION

Yana Prokofyeva,
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The concept of Green Shipping Corridors (GSC) was first introduced by the Clydebank declaration in 2021[1] and 44 corridors were launched since then, with all of them being at different stages of maturity today[2].

Green Shipping Corridors are generally defined as "specific trade routes where the feasibility of zero-emission shipping is catalyzed by public and private action[3]" and can be critical enablers of the shipping industry's green transition. One of the central features of these first-mover initiatives is their potential to provide tangible examples of multi-level cross-value chain collaboration. These projects can be an effective way of testing new models of collaboration and emerging partnerships - and chart the path for other sectors, which will undoubtedly need to adopt a similar collaborative approach to succeed in the energy transition and tackle the climate crisis. GSCs also place ports and cities at the heart of maritime decarbonization and offer an innovative way of addressing some of the most pressing and serious challenges that the shipping industry is facing in its green transition: deployment of zero emission ships and uptake of zero emission fuels.

C40 Cities acts as a convener for two GSC Partnerships: Los Angeles-Long Beach-Shanghai Green Shipping Corridor and Los Angeles-Long Beach-Singapore Green and Digital Shipping Corridor. Additionally, together with other non-governmental organizations, we are engaged in the work of building a GSC community, by identifying valuable knowledge and best practices in the GSC space and by providing GSC practitioners with a platform to share and learn from each other.

In this article, we will discuss some of the best practices of Green Shipping Corridors' governance that can be applied to other areas of climate action, and the role that cities and ports can play in accelerating shipping decarbonization.

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[1] *UK Department for Transportation. (December 2023). COP26: Clydebank Declaration for green shipping corridors*

[2] *Global Maritime Forum. Annual Progress Report on Green Shipping Corridors. (2024).*

[3] *Idem.*

2. GREEN SHIPPING CORRIDORS PAVE THE WAY FOR MULTI-STAKEHOLDER CLIMATE ACTION

In April 2024, C40 and Arup published a study[4] analyzing the inherent challenges and complexities of Green Shipping Corridor partnerships, as well as the best governance practices that have started to emerge in this space. Some of the Green Shipping Corridor governance principles identified are highly relevant to broader shipping decarbonization, as well as to climate initiatives in other sectors.

- **New ways of collaboration are needed.**
  Often multicultural and international in nature, corridor partnerships are showing the need for innovative approaches to convening and collaboration, and the importance of working across political, cultural, and administrative boundaries. Maritime leaders must embrace new ways of working - and be collaborative, flexible, inclusive and future-oriented to drive the transformation in a meaningful and just way. Transparency is also fundamental to foster trust and accountability, and to facilitate decision-making.
- **A clear vision and a strategy is essential.**
  Convening a Green Shipping Corridor involves coordinating diverse stakeholders, organizations and work activities. Such complexity makes it vital for the partnership to be aligned on a clear vision. As the corridor progresses, it is crucial to link this vision to the corridor activities and their expected outcomes - which in turn will help the partners to prioritize certain discussions and activities.
- **Role of a neutral convener**
  Many Green Shipping Corridors demonstrate that having a neutral convener (e.g. a non-governmental organization) makes it easier to move the corridor activities forward since such organizations provide guidance without the risk of commercial conflict of interest. A convener can also help implement governance protocols, support the partnership in aligning on a clear strategy, and facilitate sharing of confidential information.

3. UNIQUE VALUE OF CITIES: SECURING POLITICAL AND SOCIAL ACCEPTANCE

To add to the complexity of the GSC partnerships themselves, they also have to actively engage the stakeholder ecosystem around them in order to succeed. This includes early engagement with cities and their communities.

Port cities play a major role in international trade and have a key role in accelerating shipping decarbonization through Green Shipping Corridors and similar initiatives. It's not always easy for cities to act, especially when the port is not under their direct authority, but the decarbonization efforts can pay off and bring great benefits for communities, such as improving air and water quality, attracting investment, creating good green jobs, unlocking opportunities for neighborhood revitalization and national resources restoration, creating demand for zero-emission technologies and accelerating the global market, etc.

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[4] *C40 Cities, Arup. (April 2024). Navigating collaboration: Good covernance for green shipping corridors.*

The form and level of engagement can vary depending on the regional context, but having a city or a local government involved in a corridor partnership sends a strong signal about political support for the project. It can also provide a valuable framework for having industry partners join the project. Cities can play an essential role in supporting Green Shipping Corridors by:

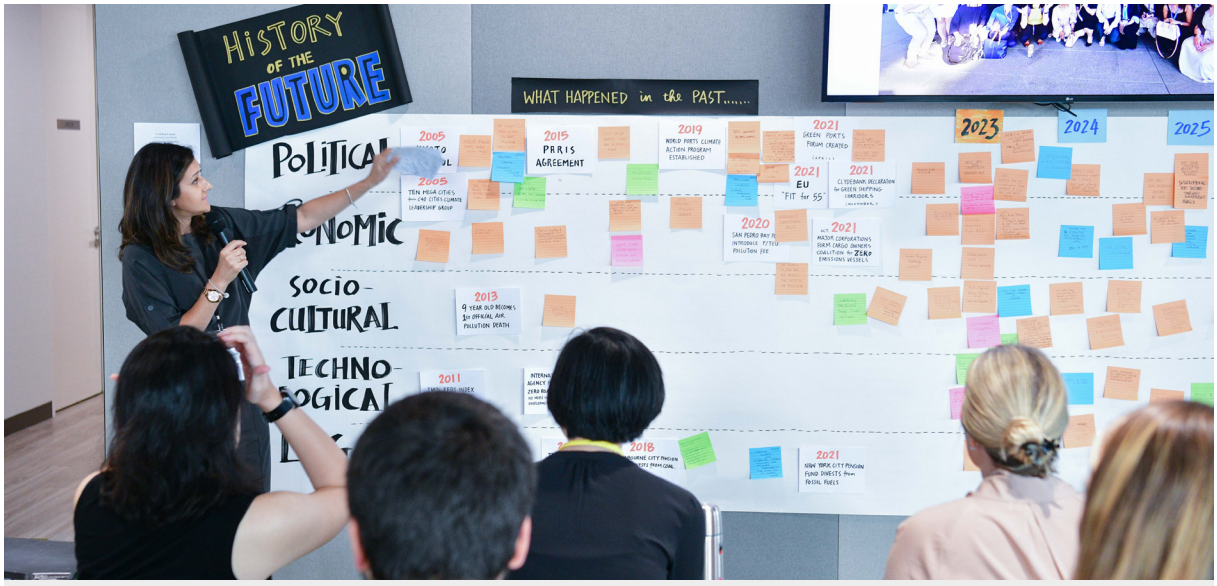
- **Providing policy support**
  Policy support is needed to advance green fuels and technology standards (developing fuels infrastructure, ensuring fuel supply by facilitating local production or encouraging international import, etc.). Depending on the city's jurisdiction and powers, support policies can be implemented using targeted local interventions, or by aligning advocacy between cities and ports at national and international levels.

- **Driving innovation and attracting funding**
  Acting as innovation hubs, cities can support GSCs by setting up technology accelerators and pilot projects, thus providing an invaluable sandbox for testing out new technologies before their deployment on the corridor.

  Cities can also seek national or regional funding for Green Shipping Corridors which is necessary to close the finance gap and make green fuels competitive, develop green fuel bunkering infrastructure, and deploy port electrification technologies.

- **Ensuring accountability and advocating for community interests**
  Cities' interest in GSC partnerships can help ensure accountability and transparency, and support data sharing, which can help advance collaboration.

  Moreover, shipping has dramatic health impacts on port-adjacent (often disadvantaged) communities. Environmental justice calls for engaging local populations in climate projects such as GSCs to ensure that their experiences and needs are integrated into project design and implementation and that they derive equitable benefits. Cities can support GSCs by identifying key communities, establishing trust, acting as convener, and promoting transparency and accountability.



C40's Green Ports Forum workshop in Singapore, September 2023

4. CONCLUSION

A recent Arup report[5] defines competitiveness as "a measure of a city's preparedness for the future to not only respond to risks such as climate, but also position to capture future opportunities and the ability to compete globally". Green shipping corridors offer port cities this competitive edge by fostering new energy and technology markets, driving innovation, and attracting capital. These elements not only position a city as a leader in sustainability but also make it more attractive and competitive in the global economy.

All over the world we're seeing cities and their ports leading the way. In 2022, the City of Los Angeles and its port initiated the world's first transpacific Green Shipping Corridor which aims at demonstrating the feasibility of deploying the world's first zero lifecycle carbon emission container ship(s) by 2030[6]. In 2023, the cities of Rotterdam and Oslo launched a city-to-city Green Shipping Corridor[7] to ensure a green, clean trade route between the two cities - and their ports are actively supporting the cities in making this vision a reality. The list goes on.

Year after year, project after project, cities and ports continue demonstrating that joint climate action is the way forward. C40 Cities supports our member cities and ports in implementing new ways of collaboration and enabling dialogue - and we believe the rest of the world should follow their lead.

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[5] *Arup. (October 2024) City Competitiveness Redefined: which cities will thrive in the era of climate change?*

[6] *C40 Cities. (January 2022) Port of Los Angeles, Port of Shanghai, and C40 Cities announce partnership to create world's first transpacific green shipping corridor between ports in the United States and China | Ports of Los Angeles, Long Beachm and Shanghai unveil Implementation Plan Outline for first transpacific green shipping corridor*

[7] *Port of Oslo. (November 2023). Handshake for a green corridor*

NAVIGATING THE UNCERTAIN FUTURE OF FUELS

MAURICE JANSEN, ERASMUS UPT

Maurice Jansen,
Erasmus UPT, LDE PortCityFutures

Port cities play a crucial role in facilitating global trade, primarily by accommodating the loading and unloading of cargo from ships. They serve as vital connectors between continents, with trade routes established have over land and over sea for thousands of years, making port and shipping activities fundamentally interdependent. In more recent decades particularly since the 1970s and 1980s, the shipping industry has seen a shift away from port cities. The tides seem to be turning though, particularly with the Sustainable Development Goals Agenda (SDGs) having gained traction in the port and shipping industry by the World Port Sustainability Declaration, adopted in 2018. During the launch of the WPSP in Antwerp on March 22-23, the then Secretary General of the IMO acknowledged that the shipping industry relies on ports to decarbonize its operations. Not having signed the Paris Agreement in 2015, the IMO chose a separate pathway towards decarbonization of the industry, which led to the initial GHG strategy in 2018, revised in 2023. Implementation measures are now encouraging shipping companies to adopt energy-efficient, and low carbon intensive ship operations. This renewed interdependence between ports and shipping is especially important. For over a century, ships have relied on the abundant supply of bunker fuel available in practically every corner of the world. However, the energy supply for ships is due for a major overhaul. This interdependency emphasizes the need for alternative fuel infrastructure and onshore power supply facilities to support the transition to cleaner energy use. In the energy transition, green shipping corridors provide the bridge between port cities, the shipping and energy sectors.

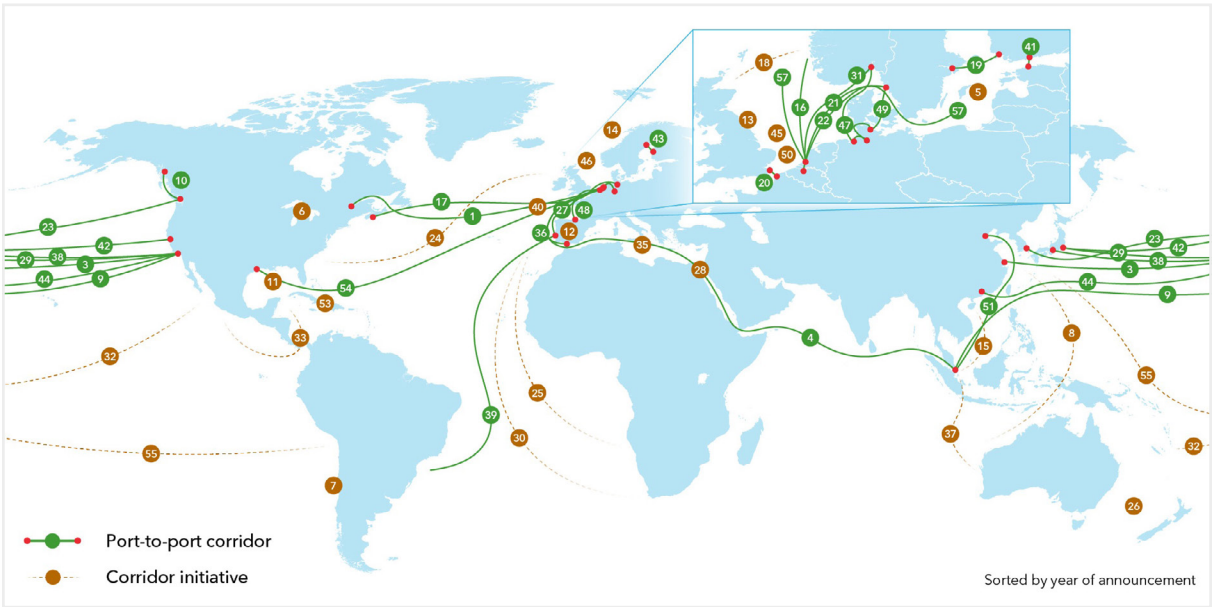
At COP26 in Glasgow in 2021, more than 20 countries agreed to the Clydebank Declaration, committing to establishing zero emissions shipping corridors, commonly referred to as green corridors. A green corridor is a designated route between two or more ports where ships operate using net zero or carbon neutral fuels. Shipping companies are under increasing pressure from regulators, particularly the International Maritime Organization (IMO) and the European Commission's Green Deal, which included the 'Fit-for-55' agenda. The Fit for 55 Package outlines the European Union's plan for a green transition, aiming to reduce net greenhouse gas emissions by at least 55% by 2030, with the goal of achieving climate neutrality by 2050. The primary purpose of green corridors is to serve as a governance mechanism that facilitates the deployment of new energy-efficient and alternative fuel technologies on ships, while ensuring the availability of alternative fuels and charging infrastructure at the ports along these corridors, under an effective regulatory framework. Green shipping corridors have the potential to create a reliable customer base for fuel producers by connecting them with shipping companies, thus addressing the 'chicken and egg' problem.

BREAKING THROUGH THE FOSSIL DILEMMA

The chicken and egg problem may turn into a fossil dilemma for shipping companies due to the uncertain planning horizon of bunker infrastructure development at an adequate scale, combined with the path dependency of these companies. Once shipping companies invest in a particular fuel technology or onboard system, their ship could become a 'sunk investment' if the fuel is not readily available. For ports, the fossil dilemma is complicated by the perception of green activists who believe that the 'old economy' lacks the urgency needed to transition towards sustainable practices. Consequently, they may not allocate sufficient research budget for 'greening' their business models that rely on renewable energy sources. Moreover, port governing bodies fac spatial challenges due to this dilemma. They must determine where to allocate space for the green economy – such as biorefineries, electrolysis plants, pipelines, wind farms – while the conventional economy continues to operate? In this context, stakeholders become fixated on their individual interests, resulting in an unresolved spatial planning puzzle. To address these barriers and scale up the use of new fuels and low and zero emission technologies, new governance constellations that emphasize collaboration among a range of stakeholders is are essential.

GREEN CORRIDORS ARE PROLIFERATING ACROSS MAJOR SHIPPING ROUTES

DNV maintains a database of 66 recorded green shipping corridors (DNV Green Shipping Corridor Database, 2024) based on announcements in the press. Many of these are still in the early stages of planning. The process of implementing a green corridor involves several phases, including feasibility studies, development, contracting, and execution. The success of this planning process depends on the inputs, commitment and openness of shipping lines, alternative fuel suppliers, and cargo owners. Classification societies such as DNV and Lloyd's Register assist in this planning by providing knowledge, open datasets, maps, and updates on both supply and demand sides of green corridors.



Overview of announced Green Shipping Corridors, DNV database as of March 2024

GOOD PRACTICES OF GREEN CORRIDORS IN THE MAKING

There are already some good practices for developing green corridors. In December 2023, the Port of Long Beach and the Port of Los Angeles and Maritime and Port Authority of Singapore announced a partnership strategy for creating a green and digital shipping corridor across the Pacific Ocean. They are collaborating closely with C40 Cities as part of the initiative. To implement this strategy effectively, a new governance mechanism and partnership structure has been established. This includes joint identification of opportunities and clarifying the quantities of zero-emission fuels needed for traffic on the corridor. Green corridors are not limited to the oceans; inland, stakeholders are also working together to ensure a sufficient supply of renewable energy along river deltas. A notable initiative is RH2INE, the hydrogen corridor collaboration between the Province of South-Holland (Netherlands) and North-Rhine-Westphalia (Germany). This initiative aims to realize a establish a hydrogen market for inland shipping on the Rhine-Alpine Corridor. The governance model of this collaboration employs a multi-level, and multi-actor approach. It includes alignment of regulatory frameworks across the corridor involving government-to-government (G2G) interactions. Additionally, there are arrangements to create favorable market conditions on a government-to-business basis (G2B). Business-to-business (B2B) cooperation is focused on developing the technology of hydrogen filled tank containers and hydrogen refueling practices. Finally, there is a banks-to-business (Ba2B) component to ensure that investments are available for new and not yet proven technologies.

ALL HANDS-ON DECK

In summary, the future of fuels for the shipping sector will depend on the development of adequate infrastructure for alternative fuel technologies at ports. Meanwhile the shipping industry is inclined to maintain flexibility by adopting no-regret strategies, such as slow steaming, using biofuel or installing wind-assisted systems. Transitioning from a ‘one fuel fits all’ to a multi-fuel system requires careful coordination between demand and supply. The implementation of green shipping corridors will foster new partnerships between port cities and the shipping and energy sector. These partnerships will help overcome the barriers to scaling up alternative energy solutions at an affordable cost. Navigating the uncharted territories of the energy transition is akin to navigating the world oceans, it depends on bold leaders at the helm, brave hearts ashore and all hands on deck.

ABOUT THE AUTHOR

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FUTUREPROOFING THE ENERGY TRANSITION: GREEN SHIPPING CORRIDORS NEED RESILIENT PORT SYSTEMS

DR DARSHANA GODALIYADDE, RESILIENCE4PORTS

THE CRUCIAL ROLE OF PORTS IN GLOBAL MARITIME SHIPPING

Maritime shipping is the backbone of the global economy, as indicated by the International Maritime Organisation (IMO) over 80% of the world's trade is transported by sea. Ports play a vital role within this maritime system, serving as critical linkages between shipping routes and land-based transport networks, including road and rail connections. With more than 17,000 ports worldwide, these facilities encompass a wide range of functions, including large trade ports for containers, dry bulk and liquid cargo, passenger terminals, and significant fishing ports. Ports are crucial not only for global economic activity but also for driving employment and economic growth in many countries, with around 30 million people working within port ecosystems.

Dr Darshana Godaliyadde, Director, Resilience4Ports, International Coalition for Sustainable Infrastructure (ICSI) & Lloyd's Register

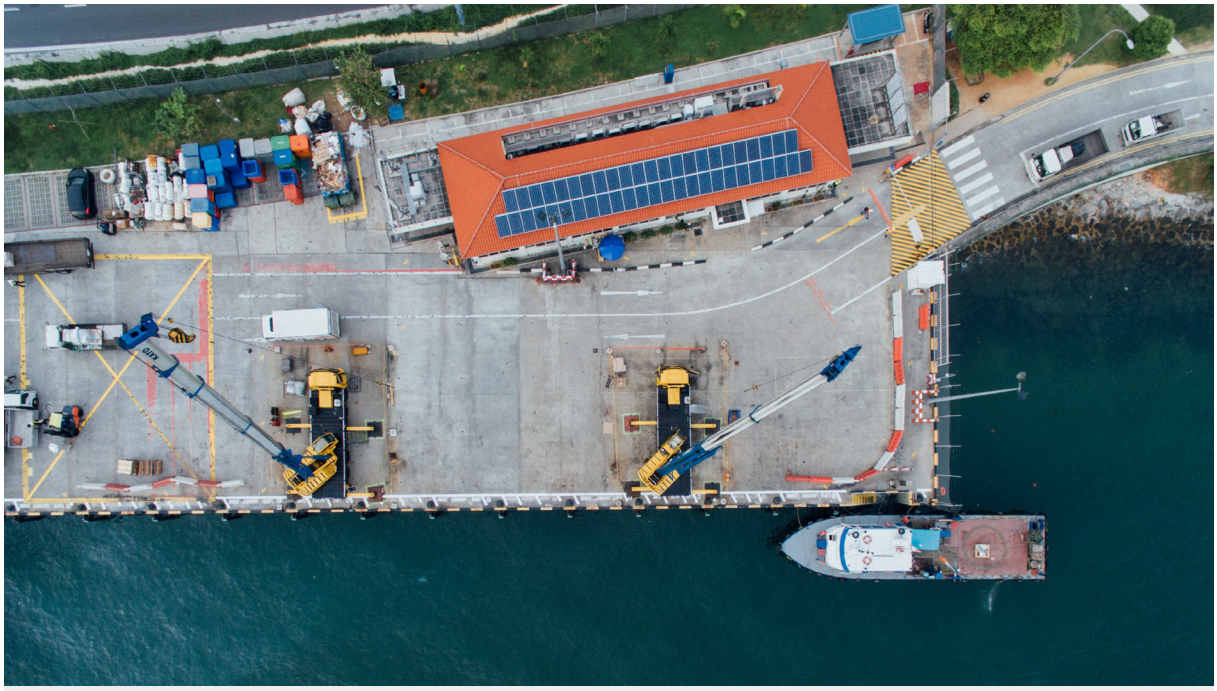
THE IMPACT OF CLIMATE CHANGE ON PORTS AND THE CASE FOR INVESTMENT IN RESILIENCE

However, ports are increasingly vulnerable to climate change, facing challenges such as rising sea levels, extreme heat, and hurricanes—phenomena largely driven by greenhouse gas emissions. According to the available data, shipping itself contributes approximately 3% of global emissions, underscoring the need for ports to play a proactive role in achieving the goals of the Paris Agreement. Specifically, at least 5% of zero-near zero fuels whilst striving for 10% by 2030 and ports are well-positioned to supply the alternative fuels necessary for this transition.

To meet these challenges, significant investment in enhancing the climate resilience of physical infrastructure and supply chains is essential. This includes energy systems, industrial hubs, and port refueling facilities that can provide the fuels of the future for shipping while integrating with various other sectors. A resilient supply chain is equally important, ensuring that the flow of goods remains uninterrupted despite disruptions, whether they are climate-related or due to economic fluctuations. These investments not only catalyze the wider energy transition but also offer broader social and environmental benefits.

Estimating future demand for alternative fuels such as methanol, ammonia, and hydrogen is complex and uncertain. A comprehensive analysis of shipping movements, ship types, and fuel production capabilities is needed to guide infrastructure development. Recent research indicates that approximately $2 trillion in global investment is required to decarbonize shipping, with around 85% of this cost associated with landside infrastructure and production facilities for future fuels.

To facilitate the shipping sector's transition to zero emissions, ports must also enhance automation and improve digital infrastructure. These technological advancements will accelerate the decarbonization process in shipping and strengthen the resilience of supply chains, enabling more efficient and responsive operations.



Bird's eye view of port in Singapore. Hanson Lu. Unsplash.

THE EMERGENCE OF GREEN SHIPPING CORRIDORS

Green Shipping Corridors (GSCs) are at the forefront of this transition, serving as pioneering testbeds where zero-emission shipping solutions can be developed and refined. GSCs link two or more ports and represent a holistic reimagining of the shipping landscape, addressing the technical, regulatory, and commercial challenges impeding a zero-carbon future.

However, GSCs are not merely about replacing fossil fuels with greener alternatives; they aim to create a resilient network of ports, vessels, and fuel production systems capable of thriving amidst ongoing and future challenges. This network must also include resilient supply chains that can adapt to disruptions, ensuring the steady movement of goods and resources.

THE NEED FOR RESILIENCE IN SHIPPING INFRASTRUCTURE AND SUPPLY CHAINS

As the maritime industry shifts toward sustainability, resilience becomes paramount. Infrastructure—including bunkering systems, port facilities, and fuel production plants—must withstand and adapt to a range of environmental and economic stresses, including immediate challenges and future climate impacts. Ports, bunkering vessels, and fuel plants must prepare for an increasingly unpredictable world, and resilient supply chains are critical in supporting this effort.

Climate-related disruptions present significant risks. For instance, changing weather patterns could jeopardize certain bunkering operations due to hazardous sea conditions, while extreme weather might hinder the production of sustainable fuels. Moreover, the skills and capabilities of seafarers in safely handling new fuels may also be affected. A resilient GSC should address these factors, ensuring that the entire system can recover from unexpected shocks, including disruptions in supply chains.

ADDRESSING ECONOMIC CHALLENGES IN SUSTAINABLE FUELS

The economic landscape of sustainable fuels adds another layer of complexity. One of the key challenges facing GSCs is closing the cost gap between sustainable fuels and conventional fossil fuels. Developing cost-effective solutions is crucial for enabling a large-scale transition. Achieving this will require innovation and collaboration across industries, supported by resilient infrastructure and supply chains capable of functioning efficiently under present and future conditions.

THE DUAL-FUEL VESSEL SOLUTION

A pragmatic solution being implemented within GSCs is the construction of dual-fuel vessels. These ships can operate on both fossil fuels and sustainable fuels, providing a buffer against uncertainties in fuel availability. In the short term, this flexibility ensures that transportation capabilities are not compromised in the event of sustainable fuel shortages. However, as the industry increases its reliance on sustainable fuels, ensuring their availability and affordability becomes increasingly critical.

The dual-fuel approach embodies the resilience mindset that GSCs advocate—preparing for both current realities and future. It allows time for sustainable fuel infrastructure to develop while enabling vessels to operate efficiently.

A SYSTEMS APPROACH TO RESILIENCE

Resilience is not just about individual components; it encompasses how the entire system functions cohesively. GSCs are uniquely positioned to adopt a systems approach to resilience, enabling them to test, implement, and deploy new infrastructure systems while considering the interactions between ports, fuel production, vessels, regulatory frameworks, and supply chain dynamics. By fostering this interconnected resilience, GSCs can ensure that the decarbonization journey in shipping evolves into a cohesive movement toward a sustainable and adaptable future.

CONCLUSION: A PATH FORWARD

In conclusion, Green Shipping Corridors represent more than an environmental initiative; they signify a bold step toward future-proofing an industry essential to the global economy. They ensure that the maritime sector can navigate forthcoming challenges—be they economic, regulatory, or climatic. Through collaboration, innovation, and resilience, GSCs offer a pathway not only to decarbonization but also to a shipping sector that is prepared for the challenges of tomorrow. The topic on GSCs was previously discussed through our Resilience4Ports (R4P) publication can be found here.

A container cargo vessel is loaded and unloaded by cranes in a commercial dock. Sven Hansche. Shutterstock.

A CALL TO ACTION

It is vital to recognize that adaptation and resilience are often disconnected from the net-zero agenda. Embedding resilience within GSCs during the energy transition and decarbonization is essential, ensuring that adaptation and resilience are prioritized alongside mitigation efforts. The International Coalition for Sustainable Infrastructure (ICSI) and R4P launched "A Call to Action" at COP29 for port stakeholders to:

1. **Understand and Manage Climate Risks:** Identify, understand, prioritize, and manage climate risks to port operations, developing concrete action plans for positive outcomes for people and nature in accordance with the Maritime Resilience Breakthroughs.
2. **Integrate Climate Resilience into Business Models and Processes:** Foster partnerships between government agencies, industry players, research institutions, and international financial institutions (IFIs) to scale climate finance, explore joint initiatives, knowledge-sharing mechanisms, and funding opportunities.

3. **Foster Community Focus in Business Continuity:** Engage with local communities to understand their vulnerabilities and create mutually beneficial relationships, supporting sustainable economies and promoting social capital.
4. **Share Knowledge and Experiences:** Collaborate with governments, industry leaders, and international organizations to share best practices, pool resources, and develop coordinated responses to common threats.

THE IMPORTANCE OF COLLABORATION

Ultimately, the success of this transition hinges on collaboration among all stakeholders in the maritime sector. This includes port authorities, shipping companies, fuel producers, government agencies, and local communities. By working together, these stakeholders can ensure a resilient energy transition that not only mitigates the impacts of climate change but also strengthens the entire maritime ecosystem in times of uncertainty. Collaborative efforts can drive innovation, share resources, and develop strategies that enhance resilience and adaptability, paving the way for a sustainable future in maritime shipping.

GREEN CORRIDORS

INTERVIEWS

GREEN CORRIDOR ANTWERP, BRUGES, MONTRÉAL

INTERVIEW BY CAYA HEIN

1 ***What was your motivation to join the Green Corridor initiative with the Port of Montréal (Canada)?***

Jan Cuyt,
Strategic account manager maritime business from the Port of Antwerp-Bruges.

Port of Antwerp-Bruges and Port of Montréal already have an excellent longstanding relationship. Starting a Green Corridor initiative together was a logical next step, as both ports have high ambitions in the energy transition, and specifically in the decarbonization of the maritime sector. Our aim is/was first to tackle the maritime leg. By doing so, we wanted to learn what requirements were needed to make it a success. Also, to make progress on regulation, availability of alternative fuels, and willingness of the partners to participate. Although the Green Corridor did not (yet) materialize, the lessons learned were very useful to share with other ports (specifically through the Working group of WPCAP) and to start working for possible corridors on other destinations. The established contacts during the first phase were very useful in our goal to become a Multifuel Port. As a result, we have been able to complete the first ship-to-ship methanol SimOps bunkering in the Port this spring.

2 ***Besides the port authorities, who are the key actors involved in the Green Corridor Antwerp-Montréal?***

We have been in close contact with Shipping Lines (Containers) operating between the two ports, as these are finally the critical partners in such a project. In a next phase, it is also very important to get shippers on board, and other stakeholders, including alternative bunker producers and suppliers. But we also became aware that the gap in cost between conventional fuels and the new fuels is wide. So, we have also been in contact with EU instances to convey our input and create more awareness. The Green corridor concept has also been useful to share and learn about during presentations and conferences.

3 ***What is the relevance of your involvement in the green corridor for your local context and does your involvement in them bring up opportunities to collaborate with your municipality or citizens?***

Green corridors will require green fuels with less emissions. Similarly, the installation of Shore power (OPS) for these vessels, will further reduce the emissions. While in port, vessels use auxiliary engines to produce for example electricity for the daily operations. These engines are a source of GHG emissions and possibly annoying noise levels for the citizens. Consequently, the quality of the air will improve, and the noise level of the vessels will decrease. This will have a positive impact on the municipality and the citizens. As an example, from 2026 onwards cruise vessels calling at our own operated cruise terminal in Zeebrugge, will connect to the grid. But the same is also valid within the electrification process of Port equipment, trucks etc. Here the Port acts as a facilitator, but also actively participates to provide the right infrastructure as chargers.... Port of Antwerp-Bruges also operates its own fleet of patrol boats and tugboats. In order to reduce the emissions of this fleet, the renewal and retrofitting of this fleet towards alternative fuels is ongoing. Examples are the usage of more efficient engines and the worldwide first hydrogen-powered tugboat. This week a retrofitted methanol-powered tugboat became operational and at the end of the year, the first fully electric tugboat will be delivered.

4 ***How will your green corridor initiatives link to your ambitions to decarbonize your connections to the hinterland?***

The green corridor is part of the larger MultiFuel project we have. This project is closely linked to the wider ambition of the port, to become an energy hub in the transition, also connected to the EU's ambitions and requirements. This is fundamental for the transition of the large chemical cluster operating in the Port and, further, to the industrial centers in our hinterland (e.g. Germany, North of France, South-Holland,..). The demand will be very high and will require a large volume of new feedstock to be imported from overseas. Throughput to these hinterland centers will be done by inland waterways and rail but also substantially by pipelines. Ensuring we can provide the right tools for green maritime corridors will be an additional plus in the realization of a green supply chain.

GREEN CORRIDOR DUNKIRK, DOVER, CALAIS

INTERVIEW BY NOÉMI MENÉ

1 ***What are your main initiatives aimed at decarbonizing the maritime industry?***

Daniel Deschodt,
Vice-CEO of Dunkerque-Port

The first initiative involves supporting DFDS, Europe's leading ferry operator, to create a green corridor between the ports of Dunkirk, Calais (France), and Dover (UK). It's a zero-carbon cross-Channel trade route between the strait ports. We signed a Memorandum of Understanding (MoU) in march 2023. DFDS is designing and building six 100% electric ferries to operate them by 2030 on this strategic route. This year (2024), during the Choose France Summit, the Danish shipowner announced 1 Billion € investment for the electric conversion of its strait's fleet.

For its part, Dunkerque-Port plans to fit out its quays with electric charging systems to meet the specific needs of the shipping company during its commercial operations, and thus transform the Strait into a fully-fledged green corridor. These investments form an integral part of the 2025-2029 strategic project.

2 ***For cross-Channel routes, apart from the port authorities and DFDS, are you also in touch with the local authorities or other stakeholders in your ecosystem?***

Dunkerque-Port is talking to RTE and Enedis about sourcing power, and with all of the logistics operators for the next part of the transport chain notably by introducing more sustainable land transport solutions.

By the end of 2025 ,the creation of a rail-road terminal for loading and unloading trailers and swap bodies onto rail wagons will make it possible to develop a new, low-carbon alternative transport offer for continental road flows, linked to cross-Channel activity and the Port of Dunkirk's industrial and logistics zones.

3 ***The partnership was signed in March 2023. What's the current situation?***

Dunkerque-Port is carrying out preliminary studies to supply DFDS's quays with electricity. For example, Dunkirk was the first port in Europe to equip its container terminal with a cold ironing system, enabling ships to switch off their engines during their stopover, thus reducing emissions of atmospheric pollutants.

4 ***Do you intend to focus on ferries, or will you be expanding your ambitions to include other types of vessels or lines?***

By definition, cross-Channel ferries have short rotations. A ferry arrives and departs every two hours between Dunkirk and Dover, twenty-four hours a day, seven days a week. That high frequency and busy traffic mean the scale of the investment is justified. Currently, the technology is not yet capable of sending vessels further than the other side of the Channel, to Ireland for example, which is another of the routes DFDS operates from Dunkirk. For the moment there's no prospect of it being used for other journeys.

5 ***What originally inspired this project?***

DFDS, the shipping company, is determined to decarbonize its transport chain, and has finally taken a major step forward. DFDS is the only ferry operator present in all three ports. Other companies are considering LNG propulsion, but DFDS has opted for electric power. The operator wants to go further, with the introduction of electric ships by 2030. Dunkerque-Port has joined forces with DFDS to contribute to the transition towards decarbonization of the maritime and port sector.

6 ***Are you working together with the ports of Dover and Calais in other areas?***

We share best practices. We began collaborating more closely when the UK left the European Union. Brexit was a trigger for the three ports to work together on customs, border control, and veterinary and phytosanitary controls. BRexit also forced a rethink of the cross-Channel business model, based on quicker loading, unloading, and removal of goods. We had to look closely at the way turnarounds are organized and how long they take.

Signature of the MoU, March 2023

7 ***What is your second initiative?***

For our second initiative, we are partners, but with a more secondary role. It involves setting up one of the first low-carbon transoceanic links between the Caribbean and continental Europe. The Port of Dunkirk has become France's leading port for tropical fruit and vegetable imports.

The CMA CGM group provides the link between Martinique, Guadeloupe and the Port of Dunkirk, notably for the supply of tropical fruit, thanks to the support of carrier customers. This line has since been extended to Latin America, including Colombia and Costa Rica.

From the end of 2024, 7 new container ships powered by biogas will gradually be aligned by the CMA CGM Group on its Caribbean and Latin America service. This alternative fuel significantly reduces greenhouse gas emissions. This project is part of the development of the Antilles hub, the fruit of collaboration between the French government and the CMA CGM group, aimed at establishing a low-carbon shipping route on this transatlantic link.

8 ***What is the port of Dunkirk's role in this initiative?***

We are playing an active part in efforts to decarbonize the shipping industry. The whole local logistics chain is preparing for the changes that lie ahead. Logistics operators and investors at the port of Dunkirk have ploughed funds into meeting logistics and handling requirements: unloading containers, quality control, repacking, etc., and then delivery to ripening facilities. Operators are preparing to receive additional volumes as the ships being built will be capable of carrying around 20% more cargo. That will require more reefers (refrigerated containers) and electric infrastructures.

The attraction of this route is that transshipment means we can reach other parts of the Caribbean, like Guiana, and by extension the whole periphery in the Caribbean and Latin America, Ecuador, Brazil...

9 ***Is there a willingness to decarbonize the second part of the supply chain? Once the ships have arrived in Dunkirk, what are the next links in the modal chain (electric trucks, rail, etc.)?***

Road hauliers are gradually investing more and more in vehicles that run on alternative fuels like LNG or B100. The same is true of electric trucks, with increased EV ranges meaning goods can now be transported over short distances. After that, rail freight - including rolling highways (where trailers are loaded onto trains) - is a solution for the future. We are looking closely at it, particularly for managing temperature-controlled logistics between Dunkirk and France's main food industry distribution platforms.

CRUISE GREEN CORRIDOR
PACIFIC NORTH NORTHWEST, ALASKA

INTERVIEW BY CAYA HEIN

A GREEN CORRIDOR FOR CRUISES

Christine Rigby,
Manager, Climate Action and Air Quality, Vancouver Fraser Port Authority.

1 ***What was the motivation of the Port of Vancouver to join the Green Cruise Corridor initiative and what is its relevance in your local context?***

The Vancouver Fraser Port Authority has a mandate to contribute to the competitiveness, growth and prosperity of the Canadian economy, while protecting the environment and considering local communities. In support of that mandate, we are working to phase out all port-related emissions that contribute to climate change and affect air quality by 2050. As a major cruise destination on Canada's west coast, the Port of Vancouver will welcome more than 300 cruise ship calls and up to 1.3 million passengers this year. We have been working to reduce emissions from cruise operations at the Port of Vancouver by providing shore power technology at our Canada Place cruise ship terminal, which has prevented more than 30,000 tonnes of greenhouse gases and nearly 1,000 tonnes of air pollutants to date. The Pacific North Northwest to Alaska Green Corridor is an opportunity for us to continue to build on that work and explore new ways to further reduce emissions from cruise, in collaboration with cruise lines and others.

Cruise Ship Past Lions Gate Bridge

A GREEN CORRIDOR FOR CRUISES

2 ***Besides the port authorities, who are the key actors involved in the Green Cruise Corridor? How did the local port ecosystem react to the engagement of the Port of Vancouver in this initiative?***

First Movers in the green corridor include:

- Blue Sky Maritime Coalition
- Carnival Corporation & plc
- City and Borough of Juneau
- City and Borough of Sitka
- Cruise Lines International Association (CLIA)
- Haines Borough
- Greater Victoria Harbour Authority
- Global Maritime Forum
- Municipality of Skagway
- Norwegian Cruise Line Holdings
- Royal Caribbean Group
- Port of Seattle
- Vancouver Fraser Port Authority
- Washington Maritime Blue

As one of two homeports for the Pacific Northwest to Alaska cruise sector, the Port of Vancouver is an important partner in this green corridor effort. Cruise vessels spend many hours berthed in downtown Vancouver, surrounded by communities where people live, work and play. The Port of Vancouver is a bunkering hub for vessels along this route and has additional potential to support cruise vessels in reducing emissions enroute to/from Alaska, as well as in port.

NEW OPPORTUNITIES TO ENGAGE THE COMMUNITY

3 ***How does your involvement in the Green Cruise Corridor bring up new opportunities to collaborate with your municipality or citizens?***

The Port of Vancouver is unique in that it borders 16 municipalities and intersects the traditional territories and treaty lands of several Coast Salish First Nations. A green cruise corridor provides an opportunity to work collaboratively with nearby municipalities and Indigenous groups to enable thriving communities.

For example, cruise tourism is directly beneficial to the economy through direct spending and job creation. The Vancouver cruise industry stimulates on average nearly $3 million in direct economic activity for each vessel that visits the Canada Place cruise terminal. Tourism also positively impacts local municipalities and residents through infrastructure development, tourist support of local businesses, and by supporting the viability of festivals, events and attractions.

Vancouver is consistently ranked as one of the most beautiful cities in the world, so it's no surprise that over 1,000,000 cruise passengers come through the Port of Vancouver each year. Guests often extend their stays before or after their cruise to enjoy Vancouver and the various offerings of nearby municipalities. There are many opportunities to continue to work with communities and encourage guests to enjoy local entertainment, restaurants, hotels, shopping and attractions, use public transportation, taxi services, and more.

We are working proactively to be a good neighbour, inspiring community connections, fostering Indigenous relationships, and upholding safety and security in the Port of Vancouver. Achieving our emission reduction goals cannot be done alone, and we are grateful for the continuous support and collaboration between municipalities, cruise lines, local businesses, nearby communities and others.

THE ADVANTAGES OF THIS GREEN CORRIDOR

4 ***This is the first Green Corridor focused specifically on cruises, making it both unique and open to different challenges than the other Green Corridors. What are the expected benefits from entering in this collaboration with other ports to create a Green Cruise Corridor?***

The nature of a green corridor is that it involves more than one port. The intention is to create a route along which vessels can operate in a manner that reduces or even eliminates emissions. By having key ports along the route all as part of the collaboration, and by working directly with the cruise lines, the collaboration will be better positioned to explore options for greening the corridor that work for the various ports, communities and cruise lines that need to be involved.

Creation of a green cruise corridor along the Pacific Northwest to Alaska route will support cleaner air for local communities and reduced contributions to climate change. It may also support the creation of additional opportunities to reduce emissions through the shared use of infrastructure by other sectors locally, and by creating demand from the same cruise vessels operating in other regions during the off-season.

Cruise Ships Depart

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