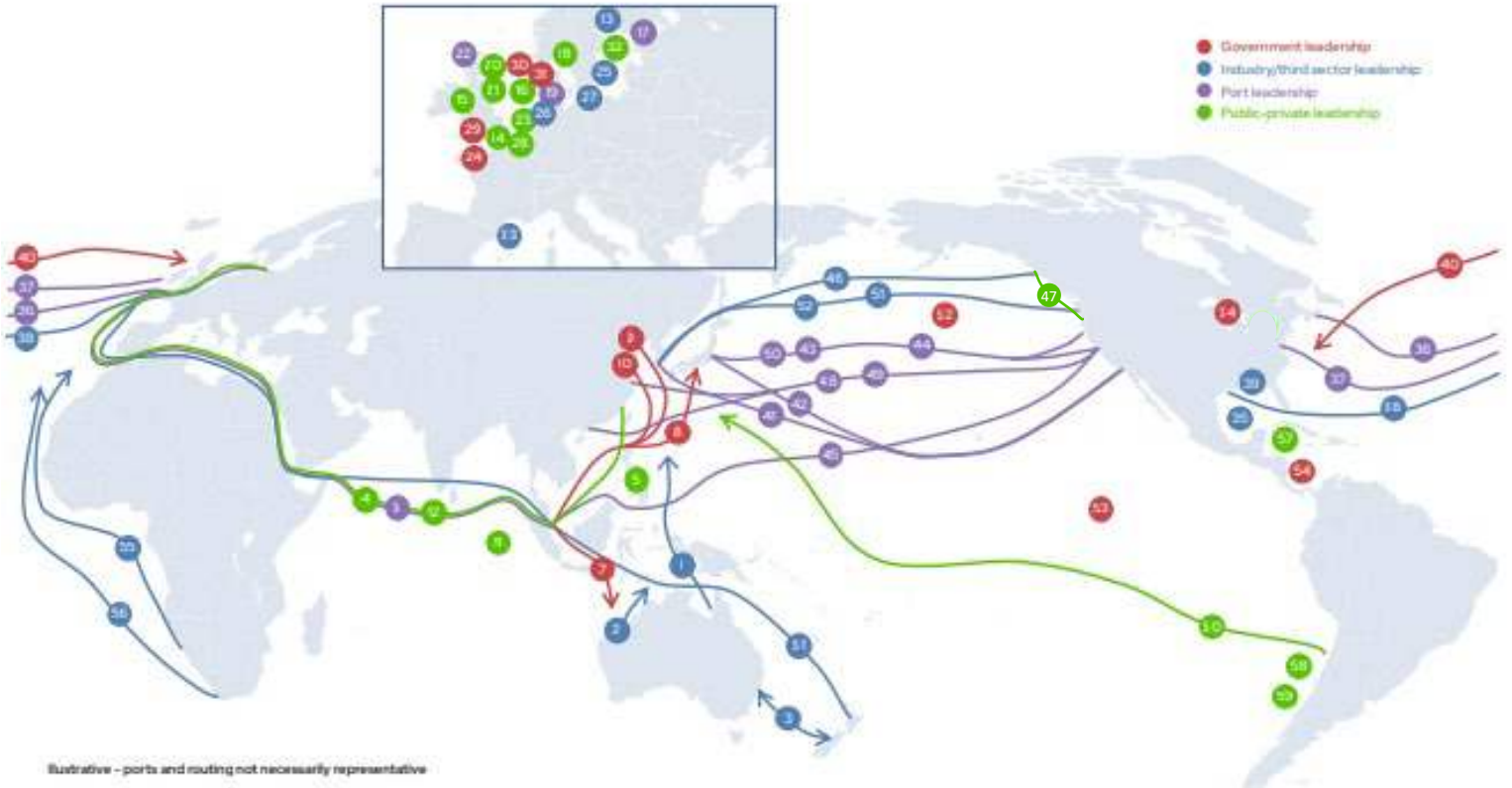
Item No. 11a supp
Meeting Date: Feb.11, 2025

The Pacific Northwest to Alaska Green Corridor

February 11, 2025

What is a Green Corridor?

A shipping route where low and zero greenhouse gas emission solutions are demonstrated and supported through collaboration across sectors to accelerate maritime decarbonization



60+ green corridor projects announced worldwide!

1. Australia Bauxite
2. Australia-East Asia Iron Ore
3. Australia-New Zealand
4. Hamburg-Shanghai
5. Philippines Corridors
6. Rotterdam-Singapore GDSC
7. Singapore-Australia GDSC
8. Singapore-Japan GDSC
9. Singapore-Shandong
10. Singapore-Tianjin GDSC
11. The Silk Alliance
12. UK-Singapore-ASEAN
13. Åland Mega Green Port
14. Dover-Calais/Dunkirk Ferry
15. Dublin-Holyhead
16. Esbjerg-Immingham
17. FIN-EST
18. Gothenburg-Frederikshavn Pilot Study
19. Gothenburg-Rotterdam
20. Larne-Liverpool
21. Liverpool – Belfast
22. Northwestern England-Ireland
23. Oslo-Rotterdam Pilot Study
24. St Helier-St Malo
25. Stockholm-Åbo
26. Sweden–Belgium
27. Trelleborg-Lübeck
28. Tyne-Ijmuiden
29. UK-Belgium
30. UK-Denmark
31. UK-Norway
32. Vaasa-Umea
33. West Mediterranean Cruise
34. Great Lakes Iron Ore
35. Gulf of Mexico Green Shipping Corridor
36. Halifax-Hamburg
37. Ireland-to-Indiana container
38. Port of Houston-Port of Antwerp-Bruges
39. US Green Bulk
40. US-UK Green Shipping Corridors Taskforce
41. Hueneme-Pyeongtaek Green Automotive
42. Hueneme-Yokohama Green Automotive
43. LA-Nagoya
44. LA-Yokohama
45. Los Angeles/Long Beach-Singapore GDSC
46. North Pacific Green Corridor Consortium
47. Pacific Northwest to Alaska Green Corridor
48. LA-Guangzhou
49. Port of Los Angeles-Port of Long Beach-Port of Shanghai
50. Port of Oakland-Yokohama
51. Seattle and Tacoma-Busan
52. Seattle and Tacoma-Korea PCTC
53. US and Pacific Blue Shipping Partnership Green Corridors
54. US and Panama Green Corridors
55. Namibia Corridors
56. South Africa-Europe Iron Ore Corridor
57. The Caribbean Green Shipping Corridor Initiative
58. Chile Piscicultura
59. Chile Sulfuric Acid
60. Chile-Japan/Korea copper concentrate
61. Taurange-Zeebrugge
62. West Green Shipping Corridor

Image adapted from Annual Progress Report on Green Shipping Corridors, 2024 (Global Maritime Forum & Getting to Zero Coalition, Nov 2024)

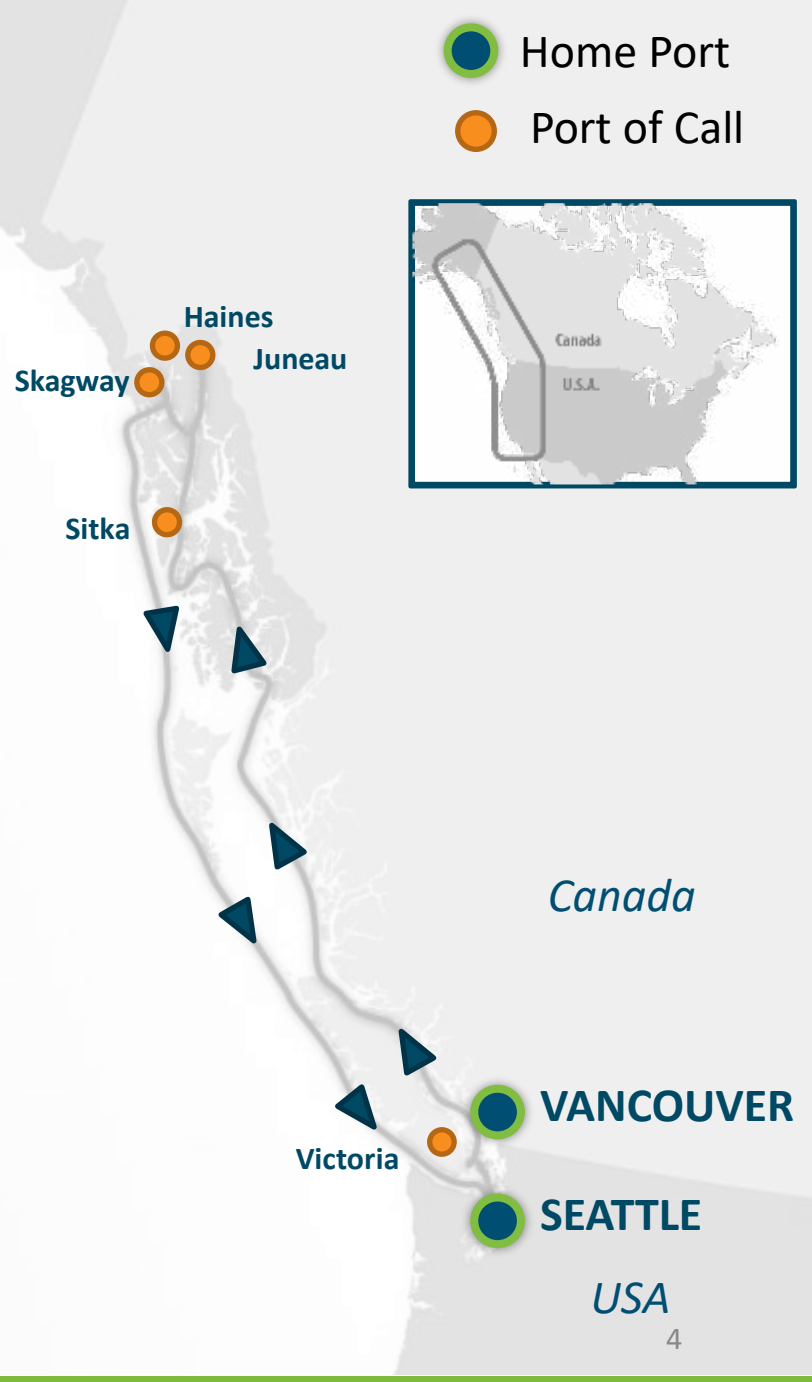
The Pacific Northwest to Alaska Green Corridor Project

Port, cruise line, and nonprofit 'First Movers' committed to:

- Evaluate conditions to support a green corridor for cruise from the Pacific Northwest to Alaska
- Explore near-term opportunities to reduce emissions

About the Corridor

- **Two Homeports:** Seattle and Vancouver (BC)
- **5 Ports of Call:** Victoria (BC), Juneau, Sitka, Skagway, Haines
- **Major cruise lines** participating
- **Seasonal:** April-October
- **Average duration:** 7-day round-trip
- **~900 nautical miles** Seattle-Juneau via Inside Passage



Progress

2022

- Launched partnership (May)
- Established monthly First Mover meetings
- Defined objectives, governance structure

2023

- Signed Project Charter
- Public webinar (200 attendees)
- **Partnered with the Mærsk Mc-Kinney Møller Center for Zero Carbon Shipping to scope feasibility study**

2024

- Public webinar (200 attendees)
- Negotiated and signed Project Commitment Letter
- Launched Green Methanol Feasibility Study

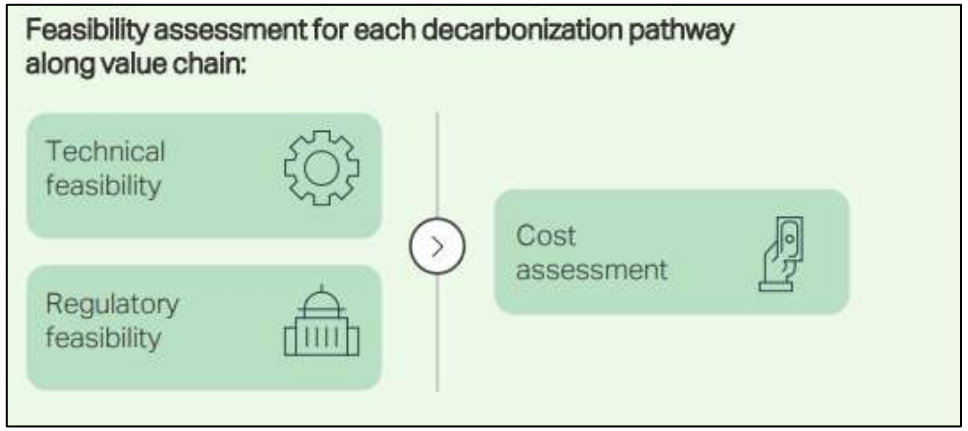
On-Going: Technical Working Groups

Stakeholder Engagement | GHG Emissions Baseline | Policy Advocacy

About the Green Methanol Feasibility Study

- Led by the **Maersk Mc-Kinney Moller Center for Zero Carbon Shipping**
- **Project Goal:** Assess the feasibility of 4 cruise vessels sailing on green methanol to Alaska by 2032
  - Bunkering at homeports: Seattle and Vancouver, BC
  - First methanol ship in water by 2030
- **Key Output:** corridor-specific cost gap
- **Timeline:** Results late 2025

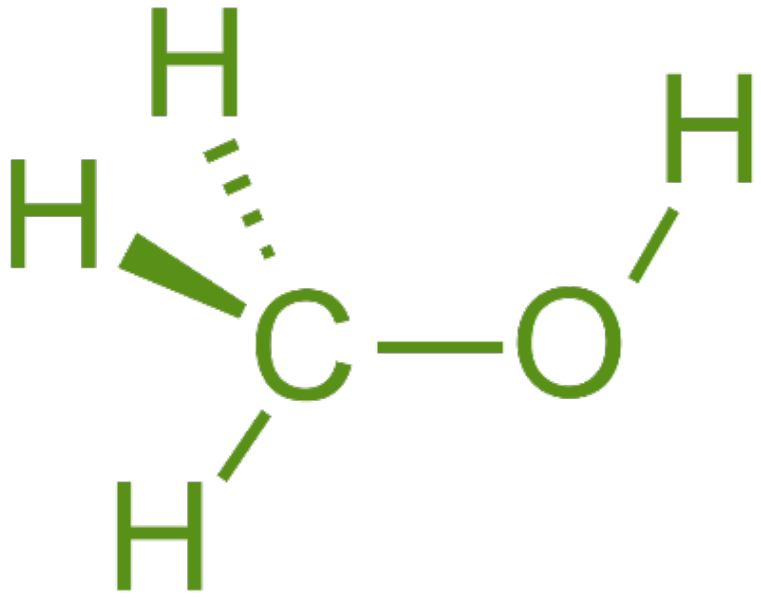
Mærsk Mc-Kinney Møller Center
for Zero Carbon Shipping



Excerpt from the Mærsk Mc-Kinney Møller Center for Zero Carbon Shipping [*Green Corridor Feasibility Study Phase Methodology*]

What is Methanol?

- **Pros:**
  - Liquid at ambient temperatures, easy to store
  - Lower air pollutant emissions
  - No bioaccumulation
- **Cons:**
  - Lower energy density than petroleum-based fuels
  - Flammable
  - Toxicity with acute ingestion/inhalation
  - Formaldehyde from incomplete combustion
- ***Green Methanol*** **requires net-zero carbon source.** Two types:
  - Bio-Methanol: produced using waste biomass or biogas
  - E-Methanol: produced using renewable hydrogen and captured CO2.



Green Methanol Feasibility Study Project Consortium

Workstream	Scope of Analysis	Lead Organization
Alternative Fuel Supply Chain	Feasibility and cost of producing green methanol	HY2GEN USA INC. — *Green methanol fuel producer*
Port and Bunkering Infrastructure	Feasibility and cost of transporting, storing, bunkering methanol	Port of Seattle — *Supported by Vancouver and ports of call*
Vessel Decarbonization Pathway	Feasibility and cost of methanol-capable cruise ship deployment	CLIA Cruise Lines International Association — *Supported by cruise lines*
Passenger Willingness to Pay	Impact of passenger willingness to pay for greener cruising to offset GHG footprint or contribute to the uptake of cleaner fuels	CLIA Cruise Lines International Association — *Supported by cruise lines*
Consolidation	Summarize results and final cost gap, identify funding opportunities	Mærsk Mc-Kinney Møller Center for Zero Carbon Shipping
Roadmap	Develop roadmap and commitments for next phases of project toward implementation	Mærsk Mc-Kinney Møller Center for Zero Carbon Shipping

Green Methanol Feasibility Study Scope

Green Methanol Production

120,000 tonnes for 4 ships in one season

Fuel transportation from production to cruise ship or storage facility

Methanol storage and bunkering at Homeport: Vancouver, BC

Methanol storage and bunkering at Homeport: Seattle, WA

Cruise ship powered by methanol

1,500 tonnes Per round-trip journey

Passenger willingness to pay

Ports of call in British Columbia and Alaska accepting methanol-powered vessel

Consortium roles:

Fuel Provider: HY2GEN

Ports: Port of Seattle / VFPA / Victoria / Juneau

Vessel Operators: Cruise Lines International Association / Carnival Corporation & plc. / Norwegian Cruise Line Holdings, LTD. / Royal Caribbean Group

In partnership with:

Mærsk Mc-Kinney Møller Center for Zero Carbon Shipping

Other Initiatives

- **Stakeholder Engagement and Policy Advocacy:**
  - Shared messaging
  - Two webinars to update public on progress
  - Developing policy advocacy framework and strategy to engage policymakers
- **Greenhouse Gas (GHG) Emissions Baseline and Tracking**
  - Objective: quantify CO_2 emissions from Alaskan itineraries (round-trip) for homeport ships involved in Pacific Northwest to Alaska Green Corridor
  - Output: GHG emissions for the 2019 and 2023 seasons for the corridor
  - Methodology: Uses verified fuel consumption and GHG data submitted to IMO, data aggregated and anonymized by CLIA
  - Next Steps: Finalize baseline, begin regular reporting to track GHG reduction progress

Next Steps for 2025

- **Green Methanol Feasibility Study**
  - Technical and cost gap analysis completed in Q3
  - Implementation Roadmap (Commission engagement opportunity)
- **Other Initiatives:**
  - Educating policymakers in U.S. and Canada on the corridor and advocating for policy and resource support
  - Finalize GHG emissions baseline and share results; begin regular reporting
  - Communicate progress via public webinar/communication moment