Pacific Northwest to Alaska Green Corridor Feasibility Study Scoping Proposal

Background

The Pacific Northwest to Alaska Green Corridor project launched in May 2022 to bring together 'First Mover' ports, cities, cruise lines and their global trade association, and nonprofit experts on maritime innovation and decarbonization to explore creating the world's first cruise-led green corridor. The partners involved in this project, referred to collectively as "First Movers," include:

Cruise Industry	• Carnival Corporation & plc • Norwegian Cruise Line Holdings • Royal Caribbean Group • Cruise Lines International Association
Ports / Municipalities	*Homeports:* • Port of Seattle, Seattle, Washington, USA • Vancouver Fraser Port Authority, Vancouver, British Columbia, Canada *Ports of Call:* • City and Borough of Juneau, Alaska, USA • City and Borough Sitka, Alaska, USA • Haines Borough, Alaska, USA • Greater Victoria Harbour Authority, Victoria, British Columbia, Canada • Municipality of Skagway, Alaska, USA
Nonprofit Knowledge Partners	• Blue Sky Maritime Coalition • Global Maritime Forum • Washington Maritime Blue

First Movers commit to voluntarily work together on the following objectives:

- Evaluate the necessary technological, economic, infrastructure, and regulatory/policy conditions to support a green corridor for cruise from the Pacific Northwest to Alaska.
- Explore near-term opportunities to accelerate decarbonization and/or to reduce emissions, leveraging this new, regional collaboration.
- Work collaboratively to develop and regularly update shared workplans and adhere to the governance structures, terms, and frameworks needed to guide this regional effort, as defined in the Pacific Northwest to Alaska Green Corridor Project Charter.

Feasibility Assessment Approach

To advance these objectives, First Movers will collaborate on a feasibility study. Collaborative work on the feasibility study is envisioned to evolve over multiple phases that will need to be iteratively defined and approved by consensus of the First Mover partners. These phases include:

- **Phase 1 – Landscape Assessment:** evaluate the technological, economic, and regulatory/policy conditions needed to support a green corridor for cruise travel to Alaska, whether those conditions exist along the corridor, and identify gaps, risks, and opportunities; identify key stakeholders and assemble critical partners needed to inform the corridor's development.

- **Phase 2 - Strategic Plan:** identify targets and actions needed to address gaps and leverage opportunities identified in the Landscape Assessment to accelerate decarbonization along the corridor.
- **Phase 3 – Implementation:** establish commitments and investments needed by First Movers and other stakeholders that will be necessary to bring about a green corridor.

First Movers have agreed to begin work on Phase 1- the Landscape Assessment, which is the focus of this scoping proposal. At the conclusion of the Landscape Assessment, First Movers will convene to reach consensus on next steps and whether to continue on future phases.

Landscape Assessment Scoping Proposal

This scoping proposal reflects results of the discussions within the Pacific Northwest to Alaska (PNW2AK) Green Corridor First Movers and features a list of topics recommended for inclusion in the Scope of Work (SOW) for a landscape assessment, which has been identified as phase 1 of a multi-phase feasibility assessment. ***This document is a proposal and may not reflect the final topics, analyses, and tasks included with an SOW for the study. The First Movers are continuing to refine the topics and approach to conducting the study.***

The Landscape Assessment is focused on cruise ships, the use of fuels, and the necessary shore-side infrastructure for alternative fuels and shore power for ships. The scope does not include decarbonization of cruise operations not related to the cruise ship, such as ground transportation, terminal equipment, terminal buildings, shore-side excursions and tours, or other operations.

The Landscape Assessment, as described below, is divided into two steps: a screening step and corridor-specific fuel evaluation. The screening step will screen and evaluate different low- and zero-emission maritime fuels and their applicability to cruise ship based on existing literature and research globally with the objective to identify a short list (2-3) of low- and zero-emission fuel options to further evaluate for deployment and use by cruise ships traveling in the Alaskan market. The tables below outline the selected topics proposed to cover within the screening and evaluation and provide a description of how these topics could be evaluated within the study.

Table 1. Landscape Assessment Topics

Landscape Assessment: Screening	
Topic	**Analytical approach**
Fuel	
Production pathways and carbon intensities of alternative fuels	Summary of existing research (global + some Corridor-specific) • Includes expected timing of availability globally • Includes assessment of local conditions for production of fuels
Total Cost of Ownership (TCO) of alternative fuels in cruise	Summary of existing research (global, not Corridor-specific)
Advantages and disadvantages of different fuels in cruise	Summary of existing research (global, not Corridor-specific) • Includes expected timing of vessel availability globally

	• Also includes identification of transition fuels available today and pathways to zero-emission fuels
Review of policies for production and fuel use in maritime	Review of policy arenas most relevant to corridor economics (national, regional, IMO) • Includes qualitative impact on attractiveness of fuel pathways • Includes safety regulations
Landscape Assessment: Fuel-Specific Evaluation (or subset of fuels)	
Topic	**Analytical Approach**
Fuel	
Baseline and future energy demand for the corridor	Core modelling element, generates fuel volume demand based on energy content of focus fuel(s) Includes potential role of shore power in reducing demand for fuels; including a review of existing feasibility assessments done/underway at Corridor ports.
Fuel market assessment	Corridor-specific assessment for focus fuel(s) including timing of availability, role of different production pathways (e.g. bio-based, e-fuels) at different stages. • Includes an overview of existing and planned production - both local and feasible import alternatives • Includes evaluation of other shipping demand in the region (coordinate with other corridors e.g. Seattle-Busan) • Includes evaluation of other industrial demand in the region.
Vessels	
Vessel availability and timing of alternative fueled vessels	Analysis of vessel availability and deployment scenario for focus fuel(s)
Bunkering	
Potential locations of bunkering and storage facilities	Includes system-level assessment of landside infrastructure requirements for focus fuel(s)
Bunkering patterns and strategies for handling the issue of seasonality	• Includes system-level assessment of impacts on landside infrastructure operations for focus fuel(s) • Includes other maritime uses, collaboration with other green corridors to solve the issue of seasonality
Policy and business case	
Business case for alternative fuels on the route: TCO, effects of different use cases on the TCO, indirect costs and benefits of decarbonization	• Route-specific modelled TCO analysis for the focus fuel(s) on the corridor, effects of different use cases including handling of seasonality, dual fuel operation, grey/green blending etc. • High-level analysis of indirect benefits of decarbonization from adopting focus fuel(s)

Review of policies for fuel production and fuel use in maritime	• Impact of policies on costs, timing of deployment of vessels, availability of focus fuel • Includes availability of funding for the stakeholders on the corridor • Includes safety regulations

Future Phases of Work

Following the development of the Landscape Assessment First Movers may decide to jointly work on Phase 2 – Strategic Plan. In the second phase of work, a consultant, working closely with the First Movers, will take the results of the Landscape Assessment to develop a Strategic Plan to advance work on green corridor from the Pacific Northwest to Alaska. The Strategic Plan may include the following:

- Set goals, objectives, and targets for further development of the Pacific Northwest to Alaska Green Corridor
- Identify of strategies, actions, and key actors needed to fill gaps identified by the Landscape Assessment and develop a green corridor
- Identify stakeholders and map an approach to engagement
- Set performance metrics and reporting frameworks to track and communicate progress