



STATE OF WASHINGTON
DEPARTMENT OF COMMERCE

1011 Plum Street SE ○ PO Box 42525 ○ Olympia, Washington 98504-2525 ○ 360-725-4000
www.commerce.wa.gov

March 13, 2026

Ms. Sarah Bannister, Secretary of the Senate
312 Legislative Bldg.
PO Box 40482
Olympia, WA 98504-0482

Mr. Bernard Dean, Chief Clerk of the House of Representatives
338B Legislative Bldg.
PO Box 40600
Olympia, WA 98504-0600

Re: SSB 5950 Section 130(34) (2024) Report on strategic framework for advancement of sustainable maritime fuels in Washington

Dear Ms. Bannister and Mr. Dean,

Please find attached the report “Sustainable Maritime Fuels Strategic Framework.” This report was created by Washington Maritime Blue and submitted to the Washington State Department of Commerce.

This report satisfies the legislative requirement in Chapter 376, Laws of 2024, Section 130 which directed the Washington State Department of Commerce to “contract with a nonprofit entity that represents the maritime industry to develop and publish a strategic framework regarding the production, supply, and use of sustainable maritime fuels and deployment of low and zero emissions vessel technologies in Washington. Funding under this subsection may be used for activities including, but not limited to, convening stakeholders and building organizational capacity. Stakeholder engagement pursuant to this subsection shall include, at a minimum, engagement with federal and state agencies, ports, industry, labor, research institutions, nongovernmental organizations, and relevant federally recognized tribes.” To satisfy its legislative requirement, Commerce is “submit[ting] a copy of the strategic framework and findings to the legislature and the governor.”

The document details a framework for advancing sustainable maritime fuels in Washington by facilitating project coordination, innovation, stakeholder engagement, and development of policy analysis and recommendations through the establishment of the Sustainable Maritime Fuels Collaborative. The report lays out the mission, values, and objectives developed by the initial participants of the initiative. It also sets about creating a structure for the group and a timeline for accomplishing shared goals, community and tribal engagement, and activities aimed at accelerating the availability, affordability, and deployment of sustainable maritime fuels and low and zero emissions vessels and technologies in the region through a lens of equitable prosperity.

This report focuses on past efforts and activities that have been conducted to draft the framework and sets up a structure to collaborate on policy recommendations in the future. Commerce is excited to see this

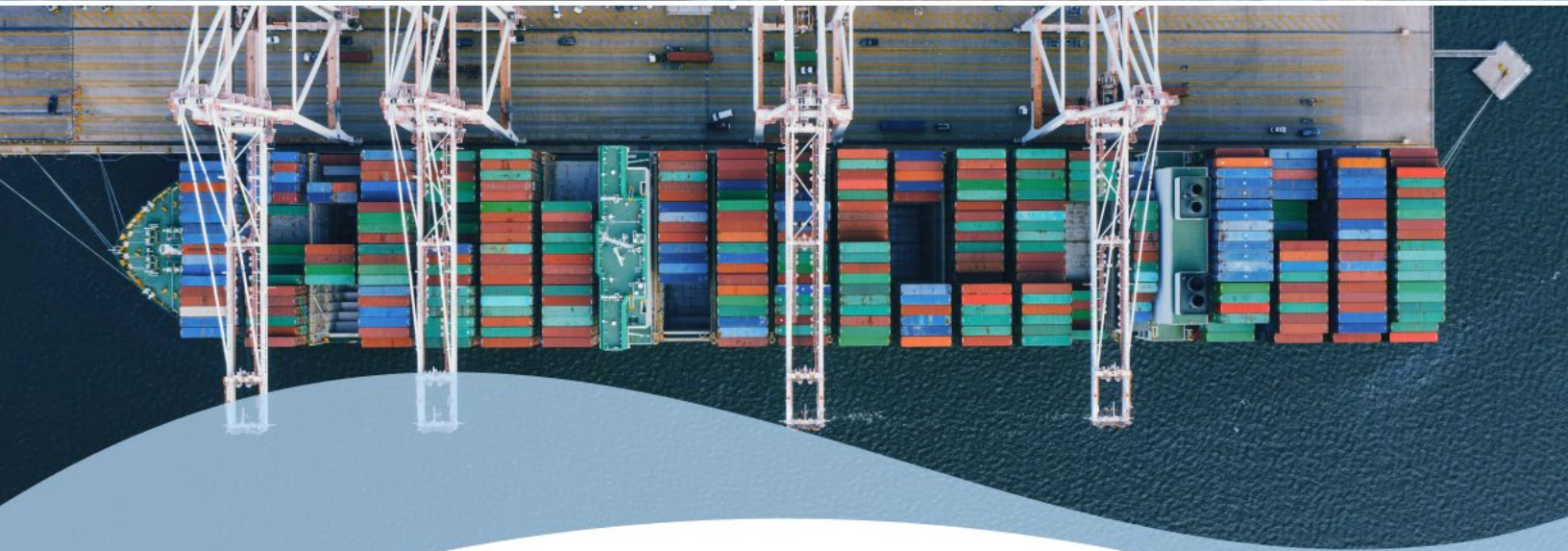
work move into the phase of developing policies and recommendations for Washington based on plans to identify gaps across the supply chain and policy landscape and engage with communities, tribes, and other interested stakeholders. There have been significant changes in the policy landscape since the drafting of this report and so are not included in its contents. The US Department of Energy terminated federal funding for the Pacific Northwest Hydrogen Hub, and the approval and adoption of the International Maritime Organization Net-Zero Framework, which would have imposed a carbon emissions price on global shipping, was postponed after opposition from the United States federal government. These issues will impact sustainable maritime fuels work in the region and strategies moving forward.

Developing solutions to tackle decarbonization of maritime fuels is an important step toward achieving the state's climate and energy goals. Working to support the development and use of sustainable maritime fuels aligns with the duties assigned to the statewide Office of Renewable Fuels, the needs projected in the 2024 legislative report, Green Electrolytic Hydrogen and Renewable Fuels Recommendations for Deployment in Washington, and the approaches outlined in the 2021 State Energy Strategy. Sustainable maritime fuels are also key to supporting a competitive maritime industry and shipping sector. Driven by international shipping emissions targets, public health, and consumer expectations, Washington's leadership in maritime innovation, clean energy, and technology offers an important opportunity for economic development in the state.

The Department of Commerce will carefully review the strategic framework and identify what role we can play in moving their ideas forward. This work to tackle the complex challenges of decarbonizing the maritime industry is important to Commerce, and we appreciate the time invested in developing the strategic framework.

Signed,

Jennifer Grove
Assistant Director, Energy Division
Washington State Department of Commerce



Sustainable Maritime Fuels Strategic Framework

SUSTAINABLE MARITIME
FUELS COLLABORATIVE

Report to the Legislature

Submitted pursuant to Chapter 376, Laws of 2024

March 2026

Acknowledgements

The development of this framework regarding the production, supply and use of sustainable maritime fuels and deployment of low and zero-emissions vessel technologies in Washington was a deeply collaborative effort, and its successful completion would not have been possible without the dedicated guidance, expertise and feedback from a wide range of partners and stakeholders.

We extend our sincere gratitude to the **Planning Committee** and **Founding Leadership Committee**, whose insights and guidance were instrumental in guiding the development of this framework. These included the Port of Seattle, the Northwest Seaport Alliance, the Port of Tacoma, Washington Department of Commerce, the Consortium for Hydrogen and Renewably Generated E-fuels (CHARGE) and Washington Maritime Blue, as well as Alta Gas, BP, Centerline Logistics, Climate Solutions, Earth Finance, Puget Sound Ports Council, Maritime Innovation Coalition, Pacific Merchant Shipping Association, Pacific Northwest National Laboratory, PNWH2 Hub, Sky NRG, Swinomish Indian Tribal Community, Twelve, Wallenius Wilhelmsen, Washington Public Ports Association, Zero Emission Buyers Alliance.

We would also like to acknowledge the essential work of our consulting partners, **Triangle Associates** and **Aquila Innovation Strategies**. Their expertise and diligent efforts were critical to the project's progress and success.

Finally, we are grateful to the many additional organizations that provided invaluable feedback at various stages of the planning process and development of this framework. This broad coalition of voices, representing **governments, ports, tribal nations, the fuel industry, vessel owners, operators, manufacturers, research institutions, labor and workforce groups and community and non-governmental organizations**, ensured that the resulting framework is comprehensive, robust and reflective of the diverse interests dedicated to a sustainable maritime future for Washington State.

The foundational work for this framework was made possible by the support of our partners, including the Port of Seattle, which hired and funded the consultant services necessary to support the Planning Committee and establish the Founding Leadership Committee. In April 2025, Maritime Blue contracted with the Department of Commerce, enabling these meetings to formalize and complete the framework.

This strategic framework is supported with funding from Washington's Climate Commitment Act. The CCA supports Washington's climate action efforts by allocating cap-and-invest dollars to reduce climate pollution, create jobs and enhance public health. Information about the CCA is available at www.climate.wa.gov. We sincerely appreciate the Washington state Legislature and Department of Commerce for their leadership, guidance and continued commitment to advancing sustainable maritime fuels in Washington.

Notice

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This strategic framework responds to the Legislature's directive in Chapter 376, Laws of 2024, to develop a comprehensive approach to sustainable maritime fuel advancement in Washington. It establishes the Sustainable Maritime Fuels Collaborative as a multi-stakeholder convening to advance the production, supply and use of sustainable maritime fuels and deployment of zero-emission vessel technologies across the state.

Table of Contents

Acknowledgements	2
Executive Summary.....	6
Recommendations.....	7
1. Introduction	9
1.1 Global Shift to a Sustainable Maritime Future	10
1.2 Washington’s Maritime Industry.....	11
1.3 Complexity of the Maritime Sector and Stakeholders	13
2. Overview of the Strategic Framework	15
3. Collaborative Structure for Implementing the Framework.....	18
3.1 Operational Structure Overview.....	18
3.2 Core Leadership of the Collaborative.....	19
3.2.1 Leadership Committee Overview.....	19
3.2.2 Secretariat Overview	21
3.3 Key Activities of the SMF Collaborative.....	23
3.4 Engagement Mechanisms to Advance the Framework.....	24
3.4.1 Public Communication and Attending Meetings.....	24
3.4.2 Tribal Engagement.....	25
3.4.3 Community Engagement.....	26
4. Engagement Conducted to Develop Strategic Framework.....	28
4.1 Washington State SMF Studies and Meetings	28
4.2 Planning and Coordination Meetings.....	28
4.2.1 Planning Committee Meetings	29
4.2.2 Founding Leadership Committee Meeting.....	29
4.2.3 Outcomes of Engagement with the Leadership Committee	30
5. Proposed Framework Priorities and Activities	32
5.1 Proposed Priorities for the SMF Collaborative.....	32
5.2 Proposed Working Groups.....	36
5.3 Proposed Studies and Analyses.....	37
5.4 Proposed Workshops.....	39
6. Annual Workplan	40

6.1 Tracking Progress	40
7. Timeline of Action	41
8. Conclusion	43
Appendix A: Planning Committee Meeting Summaries	44
Appendix B: May 30th Founding Leadership Committee Meeting Participants.....	46
Appendix C: Key Initiatives and Engagement Supporting SMF Advancement in WA	47
Appendix D: Organizations Engaged to Date	50
Appendix E: Washington Fuel Coordination Example – Sustainable Aviation Fuel	51
Appendix F: Examples of Other Maritime Blue Collaboratives	54

Executive Summary

In 2024, the Washington Legislature directed the Washington Department of Commerce (Commerce) to contract with a nonprofit entity that represents the maritime industry to develop and publish a strategic framework regarding the production, supply and use of sustainable maritime fuels (SMF) and deployment of low and zero-emissions vessel technologies in Washington under Chapter 376, Laws of 2024, Sec. 130 (34). Washington Maritime Blue (Maritime Blue) was contracted to develop the strategic framework and conduct required stakeholder engagement with federal and state agencies, ports, industry, labor, research institutions, nongovernmental organizations and relevant federally recognized tribes. Commerce must submit a copy of the strategic framework and findings to the Legislature and the governor by June 30, 2025.

This framework is a structured plan that outlines the guiding principles, key objectives and coordinated methods to achieve long-term goals. A critical finding of this work was that a formal group is the essential delivery mechanism required to implement this framework. Given the diverse, multi-stakeholder nature of the maritime industry, a dedicated coordinating body is imperative to ensure that Washington can be responsive to changes in policy, funding and community needs and to make meaningful progress on its SMF goals in the Pacific Northwest.

Why Washington needs sustainable maritime fuels:

- The maritime industry drives \$27 billion in business revenue and supports 174,000 jobs in Washington, based on 2021 data.¹
- The maritime sector's reliance on conventional fossil fuels, like diesel and heavy fuel oil, produces significant particulate pollution and greenhouse gas emissions (representing about 16% of Washington's transportation sector emissions), harming port community public health and fueling climate change.
- Without clear coordination, Washington risks falling behind global competitors moving rapidly toward SMF and risks impacting the state's ability to reach its climate and greenhouse gas goals.
- The transition to SMFs requires clear regional standards, harmonized policies and targeted incentives alongside investments in production capacity, supply chain logistics and fueling infrastructure.

This report recommends the SMF Collaborative as the formal group to carry out the strategic framework, maintaining its mission, values and priorities. Further, this report contains background on the issue of maritime decarbonization and the work completed to develop this framework and launch the SMF Collaborative.

¹ ["Maritime and Clean Economy Economic Analysis."](#) Washington Maritime Blue. April 12, 2022.

The SMF Collaborative:

- *Is a multi-stakeholder body bringing together ports, Tribes, labor, shipping companies, fuel providers, research institutions, government and communities.*
- *Provides a roadmap and governance structure to coordinate policy recommendations, investment and innovation.*
- *Ensures the transition is equitable, economically beneficial and aligned with global standards and stakeholder needs.*

The SMF Collaborative's mission, values and priorities as defined in the framework will remain consistent, while the work plan will be flexible to the evolving energy landscape.

- SMF Collaborative priorities based on stakeholder engagement:
 - *Near-term (Year 1) and ongoing priorities*
 - Gap analysis to identify impediments or primary challenges to accelerating deployment of SMFs in the PNW.
 - Policy development that supports accelerated availability and use, with a focus on practical deployment of fuels.
 - Meaningful engagement with adjacent and impacted communities.
 - *Long-term priorities*
 - Practical deployment and adoption of sustainable maritime fuels.
 - Definitions and standards for sustainable maritime fuels in the PNW region.
 - Identification of research opportunities through early-stage technology gaps and fostering innovation pathways.
 - Demonstration projects that foster innovation from research through commercialization.
 - Workforce pathways and opportunities that support the maritime clean energy transition.

Recommendations

This strategic framework highlighted the need to create the SMF Collaborative, a public-private partnership responsible for carrying out the framework to advance SMFs and introduce low and zero-emissions vessel technologies.

The strategic framework recommends that Washington:

- Utilize the consensus-based collaborative approach outlined in this report in considering steps like the following:
 - Establish state-level maritime fuel standards and definitions informed by the International Maritime Organization.

- Create funding opportunities, such as tax incentives, grants and loan programs to support SMF infrastructure, demonstration projects, new technology adoption and research, as consensus is built on specific priorities by Collaborative activities.
- Develop state-level deployment targets for fuels used and delivered in the state of Washington.

The strategic framework recommends that the SMF Collaborative:

- Engage with communities, tribal nations, industry, local governments, workforce organizations and other key stakeholders on ongoing work through participation in work groups, surveys, hosted workshops, individual meetings, research studies and demonstration projects.
- Research and identify clear gaps in the supply, availability and use of SMF and potential environmental and human health impacts of various SMF in the Washington via comprehensive analyses of gaps to inform decision-making and policy development.
- Continue to develop state policy recommendations based on future stakeholder engagement and research and track progress toward achieving state goals.

1. Introduction

The maritime sector is a cornerstone of the global economy and travel industries. In Washington state, the maritime industry is a substantial economic driver, generating significant revenue and employment. However, the industry's reliance on conventional fuels has been subject to scrutiny because the fuels used in shipping today lead to considerable global greenhouse gas (GHG) emissions and particulate pollution, particularly concentrated near port areas, which can adversely affect the health of adjacent communities.

Over the last decade, a global shift toward cleaner and more innovative maritime operations has driven a desire to address environmental impacts and a need to strengthen the maritime sector's economic resilience. By investing in cleaner ships and fuels that will power the maritime industry of the future, the industry is looking toward the long-term competitiveness and viability of the sector. International regulations are evolving to mandate reduced shipping emissions, further driving the adoption of sustainable maritime fuels (SMF). These cleaner alternatives represent a new pathway for the maritime sector of the future. And shipping companies globally have already committed to this transition and are building ships to adapt to new regulations and fuels. Washington state is positioned to lead the region in a global transition to SMF. Doing so will require policy changes, innovation and strong partnerships between the state and its regional partners, industry, local governments, nonprofits and research communities. Washington's strong track record in clean energy, technology, research and maritime innovation positions it well to lead this regional transition, with a focus on economic growth, equity and sustainability.

Establishing a coalition to guide this work can help bring regional strategies that drive new technologies, attract fuel producers and innovators, and serve the global shipping customer needs to transition to a new and cleaner future. Bringing together stakeholders from the public sector, private industry, tribal governments and the nonprofit sector to align on what the region needs to do across research, development, policymaking, and engagement is critical to ensure a prosperous and equitable transition to a future of the maritime industry.

To drive a cleaner, healthier and more prosperous future for the state's maritime sector, a strategic framework has been developed, outlining the establishment of the Sustainable Maritime Fuels Collaborative ("SMF Collaborative", or the "Collaborative") to lead its execution. The SMF Collaborative is aligned with the governing structure of the International Maritime Organization (IMO) and is structured with leadership bodies, working groups and a secretariat, which is familiar to the maritime industry. The SMF Collaborative will bring together a diverse set of stakeholders that will engage in activities ranging from workshops, working groups, studies and, ultimately, facilitate demonstrations and workforce initiatives. The Collaborative and its activities will work to advance the production, supply and use of sustainable maritime fuels and deployment of low- and zero-emissions vessel technologies in Washington.

1.1 Global Shift to a Sustainable Maritime Future

The global maritime industry is going through a substantial transition. International and regional emissions schemes are driving the global maritime industry to map out pathways to net zero, including a shift to new maritime fuels. To that end, this year, the IMO approved draft amendments to the international regulation governing air pollution from ships, MARPOL Annex VI, which mandate the implementation of the IMO Net-Zero Framework.²

The draft amendments were approved³ by the IMO countries participating in this year's meeting represent a significant milestone for the maritime sector by establishing mandatory emission intensity limits and GHG intensity pricing across the shipping sector as part of the 2023 IMO GHG Strategy. The strategy's benchmarks are a 20-30% reduction in emissions by 2030 and a 70-80% reduction by 2040, with the ultimate goal of net-zero by or around 2050.⁴ The IMO Net-Zero Framework establishes a robust foundation that can be further developed to fully decarbonize the maritime sector. It would represent the first legally binding set of rules that combine mandatory emission intensity limits and GHG pricing globally across an entire sector. At the time of this report's publication, the Net-Zero Framework is pending adoption, a process that has been met with strong public opposition from the U.S. federal government.⁵

The launches of several international and national efforts in 2024 and 2025 demonstrate the acceleration of support for maritime innovation and fuel advancements from industry, regulators and funders. The Zero Emissions Buyer Alliance, a coalition of global shipping companies seeking to procure zero emissions fuel, started accepting bids⁶ for its second procurement process focused on e-fuels. Additionally, the Mærsk McKinney Møller Center for Zero Carbon Shipping and RMI collaborated to launch Katalist, a platform designed to serve as a "book and claim" system for maritime decarbonization, providing critical accounting for the fuels being procured and used globally.⁷ The Maritime Innovation Coalition⁸ was also launched to drive the federal maritime innovation policy in the United States.

Multiple federal actions were initiated in the executive and congressional branches of government in 2024 and 2025. The US Center for Maritime Innovation (USCMI)⁹ was established under the Department of Transportation's Maritime Administration (MARAD) in 2024. This federal initiative is designed to facilitate research and development, analysis and deployment to advance the maritime sector while aligning federal maritime activities. The US

² ["IMO approves net-zero regulations for global shipping."](#) IMO. April 11, 2025.

³ ["IMO approves net-zero regulations for global shipping."](#) IMO. April 11, 2025.

⁴ ["IMO's work to cut GHG emissions from ships."](#) IMO.

⁵ ["IMO approves net-zero regulations for global shipping."](#) IMO. April 11, 2025.

⁶ ["ZEMBA E-Fuel-Focused Tender Now Accepting Bids."](#) ZEMBA. February 25, 2025.

⁷ ["Katalist."](#) Katalist.

⁸ ["Maritime Innovation Coalition."](#) Maritime Innovation Coalition.

⁹ ["U.S. Center for Maritime Innovation."](#) U.S Center for Maritime Innovation.

Shipbuilding Capacity for Emerging Technologies Assessment is scheduled for publication by MARAD in the second quarter of 2025. The Department of Energy plans to launch a Maritime Fuels Grand Challenge, which is expected to further drive innovation and research in maritime fuel technologies. The White House also recently announced an Executive Order on Restoring America's Maritime Dominance in April 2025.¹⁰ Within Congress, the bipartisan Shipbuilding and Harbor Infrastructure for Prosperity and Security for America Act of 2025 was reintroduced in April 2025.¹¹

1.2 Washington's Maritime Industry

The Pacific Northwest is a maritime fueling hub for a range of vessel types essential to transportation and commerce. The economic impact is substantial. Washington's maritime sector is diverse and covers a wide range of activities, including commercial and government shipbuilding, maintenance and repair, recreational boating, logistics and shipping, passenger water transportation, fishing and seafood processing, and maritime support services, such as naval architecture and training.

In 2021, the statewide maritime sector directly employed 67,000 workers and generated \$6 billion in labor income and roughly \$27 billion in business revenues. The total economic impact of the maritime industry in 2021 (including indirect and induced effects) was roughly 174,000 jobs. The maritime sector's activities, supported through multiplier effects, generated approximately \$41 billion in business revenues and \$12.6 billion in labor income.¹²

While Washington state has reduced overall air emissions through various measures,¹³ the fuel sold and subsequently burned in the maritime sector still has substantial emissions implications that impact local communities and contribute globally to climate change. In 2019, the sale of international bunker fuels in Washington resulted in approximately 6.8 million metric tons of GHG emissions, an amount equivalent to 16% of the total GHG emissions from the Washington transportation sector. In 2019, an estimated 538 million gallons of maritime fuels were supplied in Washington.¹⁴ Pollution from fossil maritime fuels, such as diesel, heavy fuel oil and marine gas oil, is concentrated around ports and contributes to health disparities in near-port communities, which rank among the highest in diesel pollution and have a disproportionate impact, according to the Department of Health's Environmental Health Disparities Map.¹⁵ A shift

¹⁰ [Executive Order on Restoring America's Maritime Dominance](#). Washington, D.C.: The White House; April 9, 2025. EO 14269.

¹¹ [Shipbuilding and Harbor Infrastructure for Prosperity and Security of America Act of 2025](#). Senate bill BOM25374 RL5. 119th Congress. 1st Session. 2025.

¹² ["Maritime and Clean Economy Economic Analysis."](#) Washington Maritime Blue. April 12, 2022.

¹³ ["New Report shows Maritime-Related Air Emissions Continue to Decrease in the Puget Sound Region."](#) The Northwest Seaport Alliance. June 6, 2024.

¹⁴ ["Sustainable Maritime Fuels."](#) Washington Maritime Blue.

¹⁵ ["Washington Tracking Network."](#) Washington State Department of Health.

to cleaner fuels is needed to advance environmental justice in the state, which will require capital, partnerships and innovation.

There have also been recent significant investments to drive toward cleaner, and ultimately zero-carbon fuels, including the Pacific Northwest Hydrogen Association (PNWH2), which has been awarded to the region to drive green hydrogen production.¹⁶ While the initial offtake commitments for the PNWH2 hub are not directed toward maritime fuel production, the hub serves as a critical regional market foundation that establishes production infrastructure and supply chains for green hydrogen, which is a feedstock for many SMFs. Several analyses examining the maritime transition and its needs have either been completed or are still in progress at the time of writing this report. These include: the RMI Pacific Northwest (PNW) Sustainable Maritime Fuels Roadmap¹⁷ was completed in 2024; the cross-border Washington and British Columbia Low-Carbon Hydrogen Analysis by the PNW Economic Region (PNWER) Foundation;¹⁸ the PNW Gateway to Korea Green Corridors¹⁹ feasibility studies exploring green methanol; and the PNW to Alaska Green Corridor (PNW2AK) feasibility study for exploring green methanol for cruise ships.²⁰

Washington is also home to multiple recipients of the EPA’s Clean Ports program,²¹ a federal program that will support ports in decarbonizing their operations. One of the awarded projects will be evaluating a more sustainable maritime future for the Seattle/Tacoma Gateway through several planning analyses:

- Fuel demand and supply infrastructure analysis
- Harbor vessel modernization in the Puget Sound feasibility study
- Syndicated fuel supply acquisition strategy
- Methanol bunkering, which refers to refueling ships with methanol as a marine fuel analysis and desktop design and risk assessment
- Maritime energy transition workforce impact study
- Fuel transition and policy roadmap

While all of these efforts have been implemented and there is clear momentum, a dedicated collaboration is still needed to support strategic planning and convening, enabling the whole region to effectively benefit from the outputs of these efforts.

¹⁶ [“Pacific Northwest Hydrogen Association.”](#) Pacific Northwest Hydrogen Association.

¹⁷ [“Advancing Zero-Emissions Fuels in Washington’s Shipping Sector.”](#) Washington Maritime Blue, RMI, and CHARGE. July 2024.

¹⁸ [“PNWER and Partners Begin Work on Pioneering Cross-Border Hydrogen Analysis.”](#) Pacific Northwest Economic Region. July 22, 2024.

¹⁹ [“US/ROK Green Corridor Pre-Feasibility Study.”](#) Mission Innovation.

²⁰ [“Green Cruise Corridor Feasibility Study.”](#) Port of Seattle. March 10, 2025.

²¹ [“Clean Ports Program.”](#) United States Environmental Protection Agency.

1.3 Complexity of the Maritime Sector and Stakeholders

The maritime industry represents a complex supply chain with interdependent stakeholders. The maritime industry is a critical nexus point between the movement and transportation of goods, passenger transportation and the intersection of water- and land-based infrastructure. While not exhaustive, the following is a list of stakeholders engaged in the maritime industry:



Governments set regulatory frameworks, provide funding and drive policy for decarbonization, safety and trade in the maritime industry. They play a central role in enabling innovation, permitting infrastructure and enforcing international and domestic maritime laws.



Ports act as critical hubs for cargo movement and logistics and serve as key facilitators in the transition to cleaner maritime operations through infrastructure development, fuel provisioning and intermodal connectivity. Ports also serve as economic development engines, setting standards and expectations through lease agreements with maritime operators and tenants.



Tribal nations bring sovereign rights and authority, cultural stewardship and environmental leadership to maritime projects, particularly where activities intersect with treaty rights and ancestral and culturally significant waters and lands. They often lead or co-lead efforts in sustainable development and marine conservation. Tribal nations and enterprises also own and operate port facilities and invest in maritime-related business ventures.



Fuel industry companies produce, refine and distribute fuels—including emerging low- and zero-carbon options—that power vessels and port equipment. They are central to the maritime sector's decarbonization transition and infrastructure readiness.



Vessel owners, operators and manufacturers are responsible for fleet design, construction, daily operations, efficiency of operations and technology adoption. Their investment choices shape the pace and scale of maritime innovation.



Research and energy Innovation institutions advance the technologies and systems needed for cleaner, smarter maritime operations—such as alternative fuels, propulsion systems and digital tools—while informing policy and commercial strategies.



Labor and workforce groups represent the human capital powering the industry, from seafarers to dockworkers. They are key to implementing safety practices, supporting operational shifts and ensuring that transitions are equitable and create good jobs.



Communities and non-governmental organizations (NGOs) advocate for environmental protection, economic equity and improved health outcomes tied to maritime activities. They help shape public discourse, influence permitting and policy decisions and ensure accountability in maritime development.

Although other industrial sectors, such as aviation, are also transitioning to lower-carbon fuel and energy solutions, the complexity of the regulatory environment, fuel mix, and standards, as well as international frameworks and operational structures, makes mobilizing action and coordinated planning in the maritime sector even more complicated. There are various scales of vessels, ownership structures, impacts on waterways, and communities affected by air pollutants, as well as a disparate research community, due to the myriad challenges and opportunities in the maritime sector.

Despite this complexity, there are examples for regional coordination on fuel that can be used as templates for aligning state incentives to accelerate production and adoption of sustainable maritime fuels and technologies. Washington's alternative jet fuel (AJF) work group provides a relevant model. The state created a stakeholder network that educated policymakers and laid the foundation for supportive policies.²²

The Sustainable Aviation Fuel Northwest program launched in 2011, and in 2012, the state legislature created the Sustainable Aviation Biofuels Work Group. Over the last decade, this collaborative approach resulted in clean fuel standards, sustainable airline fuel (SAF) production incentives, streamlined permitting, regional goals like the Port of Seattle's 10% SAF blend target by 2028, ongoing research partnerships and announced fuel facility projects that will create hundreds of jobs. This demonstrates how sustained stakeholder collaboration can create the policy, funding and partnership environment necessary to accelerate the adoption and production of alternative fuels. See [Appendix E](#) for detailed information on Washington's SAF collaborative model.

²² Washington State University. "[Sustainable Aviation Fuel Updates and Recommendations: Opportunities for Washington](#)." December 1, 2024.

2. Overview of the Strategic Framework

The Washington State Legislature recognized the importance of maritime decarbonization in 2024 by setting aside funds to develop a SMF strategic framework, in response to global, national and regional drivers, and the need to span the complex stakeholder groups. The first step in the strategic framework is to create a group of partners from different sectors. This group will be responsible for setting clear goals and defining the practical steps needed to expand the use of alternative fuels in the Pacific Northwest. The SMF Collaborative, launched in April 2025, brings together diverse stakeholders and interested parties across the value chain to accelerate a fair transition to sustainable maritime fuels in the Pacific Northwest. This framework outlines the operational structure of the Collaborative, including prior stakeholder engagement that informed its development, the draft Collaborative priorities and activities aimed at achieving its objectives, the process for developing the annual workplan each year, and a tentative timeline for executing the framework in its current iteration.

This work has developed over the last year and a half with support from a planning committee led by Washington Maritime Blue (Maritime Blue), the Port of Seattle, the Northwest Seaport Alliance, the Port of Tacoma, Washington Department of Commerce and the Consortium for Hydrogen and Renewably Generated E-fuels (CHARGE). The Planning Committee focused on shaping the draft mission, vision and organizational structure, as well as initiating the Founding Leadership Committee. The Founding Leadership Committee was established in May 2025, marking the first meeting of the Leadership Committee, which assumed leadership of the SMF Collaborative with Maritime Blue serving as its Secretariat. The ongoing Leadership Committee will expand as necessary to ensure a diversity of voices and will guide the SMF Collaborative in establishing goals and objectives, prioritizing initiatives and ensuring cohesive efforts. It includes representatives from all segments of the maritime industry and impacted communities. Additionally, a fundamental aspect of the Collaborative's work involves ensuring the participation and input of all interested or affected parties. This engagement encompasses public communication, tribal engagement and community engagement.

Mission statement

This framework aims to accelerate the availability, affordability and deployment of sustainable maritime fuels and low- and zero-emission vessels and technologies in the Pacific Northwest, with a focus on achieving equitable prosperity and net-zero emissions by 2050. It establishes the SMF Collaborative as the mechanism to advance this strategy.

Values

The following values guided the development of this framework and will govern its execution via the SMF Collaborative:

- Support solutions for future fuels and technologies feasible for the maritime industry;
- Accelerate energy innovation in the region;

- Plan for competitiveness in the future;
- Prioritize local workforce development and economic prosperity;
- Drive efforts to reduce and eliminate maritime activity emissions of GHG and pollution; and
- Support human health in communities impacted by conventional fossil fuels in the marine sector.

Priorities and goals

The following near and long-term priorities have been identified as critical to the success of this framework:

- **Near-term (Year 1) and ongoing priorities**
 - Conduct a gaps analysis to identify impediments or primary challenges to accelerating deployment of SMFs in the PNW.
 - Advance policy development that supports accelerated availability and use, with a focus on practical deployment of SMFs.
 - Provide meaningful engagement with adjacent and impacted communities.
- **Long-term priorities**
 - Determine definitions and standards for SMFs in the PNW region.
 - Identify research opportunities through early-stage technology gaps and foster innovation pathways.
 - Support demonstration projects that foster innovation from research through commercialization.
 - Drive practical deployment and adoption of SMFs.
 - Create workforce pathways and opportunities that support the maritime clean energy evolution.

The successful execution of this framework requires the SMF Collaborative to achieve the following strategic goals and objectives during its initial phase of operation (years 1-2). The Collaborative will employ various activities to achieve its goals, including working groups, studies and analyses, workshops, meetings and demonstration projects. The remainder of the framework will reference back to these goals, further elaborated on in section 5, to clearly indicate how the framework is delivering against these:





3. Collaborative Structure for Implementing the Framework

The SMF Collaborative serves as the mechanism to bring together representatives from across the maritime value chain, as represented in Figure 3-1, to achieve the mission of the strategic framework. This includes community-based organizations, non-governmental organizations, the fuel industry, tribes, governments, ports, vessel owners and operators, labor and workforce development organizations to accelerate the supply and use of SMFs. This organizational and operational structure is designed to be responsive, allowing work and activities to evolve in response to the ever-changing landscape and increasing complexity of reducing fuel emissions from this hard-to-decarbonize industry.



Figure 3-1. The SMF Collaborative ecosystem.

3.1 Operational Structure Overview

The SMF Collaborative will be organized and managed by Maritime Blue as Secretariat and led by a Leadership Committee as reflected in Figure 3-2. Guided by the Leadership Committee, the Secretariat will manage collaborative activities, including forming working groups, publishing

studies, hosting events and supporting demonstration project priorities. Outcomes will be coordinated with Commerce, with direction from the Washington Legislature. The full principles and operating procedures will be governed by a charter in the coming months.

3.2 Core Leadership of the Collaborative

3.2.1 Leadership Committee Overview

The Leadership Committee will be structured and formed by the Founding Leadership Committee. The Founding Leadership Committee was established by inviting subject matter experts from across the SMF value chain and interested party groups to support the formation of the SMF Collaborative. This founding group has supported the identification of additional Leadership Committee participants and has provided feedback on the Collaborative structure and its priorities to inform this strategic framework. As the founding committee transitions into the continuing Leadership Committee through a shared charter, it will set the goals, objectives and priorities of the SMF Collaborative. The Leadership Committee will have representation from stakeholder groups and interested parties crucial to the sector's success.



Figure 3-2. The operational structure of the SMF Collaborative.

The organizations invited to the Founding Leadership Committee included:

- Maritime Blue (Planning Committee)
- Washington Department of Commerce (Planning Committee)
- Northwest Seaport Alliance (Planning Committee)
- Port of Seattle (Planning Committee)

- Port of Tacoma (Planning Committee)
- Consortium for Hydrogen and Renewably Generated E-Fuels (CHARGE) (Planning Committee)
- AltaGas
- BP
- Carnival
- Centerline Logistics
- Chevron
- Climate Solutions
- Crowley
- Cruise Lines International Association
- Earth Finance
- Front & Centered
- HMM
- Puget Sound Ports Council
- Maritime Innovation Coalition
- Mitsui O.S.K. Lines
- Northwest Seaport Alliance
- Pacific Merchant Shipping Association
- Pacific Northwest National Laboratory
- Par Pacific
- PNWH2 (Pacific Northwest Hydrogen Hub)
- Saltchuk
- Sky-NRG
- Swire Shipping
- Tidewater
- Twelve
- Wallenius Wilhelmson
- Wartsila
- Washington Public Ports Association
- Washington Department of Ecology
- Zero Emission Buyers Alliance

Invited Washington Tribes

- Chehalis Tribe
- Colville Tribes
- Confederated Tribes of the Umatilla Reservation
- Cowlitz Tribe
- Hoh Tribe
- Jamestown S’Klallam Tribe
- Kalispel Tribe
- Lower Elwha Tribe
- Lummi Nation
- Makah Tribe
- Muckleshoot Tribe
- Nez Perce Tribe
- Nisqually Tribe
- Nooksack Tribe
- Port Gamble S’Klallam Tribe
- Puyallup Tribe
- Quileute Tribe
- Quinault Indian Nation
- Samish Indian Nation
- Sauk-Suiattle Indian Tribe
- Shoalwater Bay Indian Tribe
- Skokomish Indian Tribe
- Snoqualmie Tribe
- Spokane Indian Tribe
- Squaxin Island Tribe
- Stillaguamish Tribe of Indians
- Suquamish Tribe
- Swinomish Indian Tribal Community
- Tulalip Tribes
- Upper Skagit Indian Tribe
- Yakama Tribe

Leadership Committee Roles and Responsibilities

The Leadership Committee will be responsible for three main areas: (1) advice and guidance; (2) building consensus; and (3) external collaboration in coordination with the Secretariat.

The Leadership Committee will:

- Provide advice, input, or assistance in the development of solutions for the long-term success and sustainability of the program.
- Provide direction for SMF Collaborative working groups, program priorities and budget.
- Co-chair working groups and identify participants.
- Review and provide feedback on key project reports and other materials commissioned for the SMF Collaborative program.
- Use consensus-based decision making.

To facilitate coordination on external collaboration, the Leadership Committee will:

- Collaborate with the Secretariat in representing SMF Collaborative to elected officials and public/government/private sector audiences.
- Assist the Secretariat in identifying and pursuing opportunities to advance the program by connecting the Program Director to funders/stakeholders/interested parties/entities.
- Support outreach and communications by sharing SMF Collaborative information and providing suggestions to the Secretariat for additional outreach.

In the first year of operation, it is anticipated that the Leadership Committee will meet a minimum of quarterly for two to four hours. Additional meetings may be called for some members of the Leadership Committee to focus on a particular topic, as needed, or through the formation of subcommittees.

3.2.2 Secretariat Overview

The Secretariat will manage the Collaborative and serve as a critical link between the Leadership Committee, Collaborative activities, Commerce and the Washington Legislature. The Secretariat role for this Collaborative will be Maritime Blue. As Secretariat, Maritime Blue will be responsible for the day-to-day execution of the Collaborative as detailed in the Roles and Responsibilities below.

Maritime Blue is a strategic alliance propelling the Pacific Northwest toward global leadership in ocean-based innovation. Maritime Blue fosters collaboration among industry, government, academia, communities and investors to create sustainable maritime and ocean industries. Maritime Blue empowers the region to thrive in the Blue Economy by accelerating innovation and entrepreneurship, centering equity, addressing climate change, restoring marine ecosystems and building a diverse workforce. Strategic focus areas include maritime decarbonization, renewable ocean energy, sustainable fisheries and seafood, healthy ocean ecosystems and digital solutions. Maritime Blue works to create a world-class, thriving, equitable and sustainable maritime and ocean industry through knowledge sharing, joint innovation, entrepreneurship, commercialization, business and workforce development.

Maritime Blue leads a suite of collaborative initiatives aimed at advancing innovation, sustainability and industry coordination across the maritime sector. These Collaboratives

convene cross-sector stakeholders to address shared challenges and opportunities, support emerging industries and foster regional leadership across the Blue Economy. A list of these activities and further background on Maritime Blue is included in [Appendix F](#).

Secretariat Roles and Responsibilities

The Secretariat will be the primary face of the program to stakeholders and the public. As part of its role, Maritime Blue as Secretariat will lead the program in strategic planning, managing relationships, coordinating of key meetings and workshops, determining resource requirements, managing deliverables and budgets, interpreting findings, researching issues, short and long-term funding development, coordinating findings and publishing outputs, developing communications content, and promoting and representing the program nationally and internationally.

Additional roles and responsibilities will include:

- Facilitate and set agendas for Leadership Committee meetings;
- Synchronize the working groups by aligning priorities, helping everyone focus on the main programmatic goals and addressing unaligned interests as needed;
- Provide oversight and project management for all work products of the Collaborative, as prioritized by the Leadership Committee;
- Work closely with the Budget/Fundraising Leadership Subcommittee and working groups to put together a comprehensive annual budget proposal that considers the program's overall goals and aligns the priorities of the Collaborative. This single budget proposal will then go to the Leadership Committee for approval;
- Work with Leadership Committee members to give SMF Collaborative briefings to elected officials, executives and senior-level leadership from participating entities;
- Coordinate with US and foreign key organizations (such as the Department of Energy (DOE), MARAD, the Economic Development Administration (EDA), international economic development agencies, innovation clusters) and individuals who can help further the SMF Collaborative mission; and
- Report to the Washington Legislature on the outcomes and outputs of the SMF Collaborative.

In addition to its operational and coordination duties and responsibilities, the Secretariat will participate in key strategic engagements as appropriate. Maritime Blue has existing commitments with the following engagements:

- Support industry engagement on several relevant Ports of Seattle and Tacoma studies, including:
 - Fuel demand and supply infrastructure analysis;
 - Harbor vessel modernization in the Puget Sound feasibility study;
 - Syndicated fuel supply acquisition strategy;
 - Methanol bunkering analysis and desktop design and risk assessment;
- PNW2AK Green Corridor Feasibility Study (Knowledge Partner); and

- USCFI PNW Leader.

Though these existing engagements inherently inform the Collaborative’s work, in its participation, Maritime Blue will clearly communicate that this work is distinct from its SMF Collaborative Secretariat role.

The Secretariat may identify strategic external engagements in externally led studies, workshops, events, or initiatives that will support the mission of the SMF Collaborative. These future engagements will be selected based on staff capacity, ability to accelerate the Collaborative’s mission, and with Leadership Committee approval. If appropriate, in these future engagements, Maritime Blue may participate specifically in its role as SMF Collaborative Secretariat.

SMF Collaborative Secretariat staff will conduct regular briefings for elected officials and executives at the request of their organization and invite elected officials and executives to an annual dedicated SMF Collaborative meeting through their representatives on the Leadership Committee or working groups. This includes providing an annual update to the State Legislature’s Maritime Caucus.

3.3 Key Activities of the SMF Collaborative

The Collaborative's core activities—working groups, studies and analyses, meetings and workshops and technology demonstrations—will generate the technical knowledge and strategic insights needed to execute this framework to advance sustainable marine fuels in Washington state. These activities will build on stakeholder input and engagement to identify implementation priorities, assess feasibility and guide investment decisions across the SMF value chain.

Working Groups: Working groups will be responsible for providing specific specialist advice and subject matter expertise in the development and execution of research, strategies and management of projects and initiatives to support SMF Collaborative goals. Participants will be identified by the Leadership Committee, or self-identified through direct inquiries to SMF Collaborative, or by other partners. The Collaborative webpage will be kept up to date with active working groups and participation opportunities to facilitate direct inquiries from interested stakeholders.

The structure of the working groups is as follows:

- **Co-Chairs:** At least 1 from Leadership Committee
- **Participants:** Representatives from industry, communities, research, nonprofits, public entities, tribes, and/or labor (including those organizations not represented on Leadership Committee)
- **Meeting Frequency:** Dependent on goals of working group
- **Workload:** Dependent on focus of the group

- **Duration:** Dependent upon the focus area of the working group. Some may be long term while others may be established to staff shorter term projects/needs
- **Potential Model – Deliverable/Study Focused:** formed to scope, fund, contract, or inform a specific study or similar style body of work
- **Potential Model – Information Sharing:** formed to begin early discussions on a topic, share resources, understand base needs and help to inform priorities of broader program objectives

Studies and Analyses: Studies or analyses will be conducted by external contractors and be led or informed by the Collaborative. These studies and analyses will be intended to fill knowledge gaps by interested parties.

Meetings and Workshops: The SMF Collaborative will assemble meetings and workshops on certain topics, as necessary. These will help fill knowledge gaps, enable networking and topic socialization, facilitate identification of projects, or ensure sharing of insights. These may be targeted towards specific organization types or broadly inclusive.

Demonstrations: Participants in the SMF Collaborative may use activities led by the SMF Collaborative as a jumping off point for demonstration projects. Staff or Collaborative participants may engage in these directly, if requested by project leads, or may support identification of further partners or funding pathways for vessel, fuel, or technology demonstration.

3.4 Engagement Mechanisms to Advance the Framework

There are many stakeholders who are interested in and impacted by the outcomes and findings of the activities of this framework. Though the SMF Collaborative Leadership Committee will have representation from a broad set of interests, it will be important to engage with even more interested parties across the region throughout the proposed activities and to guarantee broad representation.

There are four main methods that will be used to communicate and engage: (1) publish public information about the proceedings and outcomes of the SMF Collaborative; (2) conduct specific engagement through working groups and meetings; (3) engagement with Washington and PNW Tribes; and (4) community-specific engagement based on priorities identified by the Leadership Committee.

3.4.1 Public Communication and Attending Meetings

The SMF Collaborative recognizes the need to accommodate the interested public and will accomplish this in three ways: (1) conduct meetings with interested parties and stakeholders, as requested by a given entity; (2) post Leadership Committee meeting minutes on the Maritime Blue website; and (3) respond to inquiries from the public as they arise and in a timely manner.

The SMF Collaborative will engage with the public in the following ways:

- Website (including opt-in links on the website for new groups to engage)
- Listserv and E-Newsletter
- Social media
- In-person and virtual meetings, events, workshops, listening sessions

The Secretariat will also provide the participating groups with materials to share with their networks. Participants in SMF Collaborative activities will also be empowered to introduce the Collaborative's work to new groups and encourage them to get involved.

The Secretariat, on an annual basis, will review maritime and related supply chain events and opportunities for amplifying the state's work to advance maritime technologies and fuels and create an annual calendar of events, such as:

- Conferences
- Invited briefings for elected officials
- Quarterly (August, November, February and May) public communications releases (website, email, or live meetings TBD).

A formal communications plan will be developed and published by the Secretariat in Year 1, which will include guidance for the Leadership Committee on communications, key messages and coordination.

3.4.2 Tribal Engagement

The SMF Collaborative has an engagement plan to work with numerous tribal government representatives. Thus far, all 29 federally recognized tribes in Washington, as well as the Nez Perce Tribe and the Confederated Tribes of the Umatilla Indian Reservation (due to treaty rights extending into Washington) have been invited to participate in the SMF Collaborative Leadership Committee. To date, seven tribes have responded to outreach and engaged in email correspondence with Maritime Blue, and, through these emails, those tribes have specified how they would like to be engaged in the SMF Collaborative. All long-term tribal engagement will be aligned with the engagement guidance received from each tribe, respectively, and these tribes will be informed of any additional opportunities to engage in the way they choose. Proposed engagement methods include:

1. *Individual visits to interested tribes:* Site visits, including meetings with tribal staff and briefings/discussions with Tribal elected leadership, provide each Tribe with the opportunity to offer specific, uniquely tailored feedback about the SMF Collaborative process as the observations and solutions offered may be unique to each tribe. Additionally, each tribe can be given the opportunity to detail their individual engagement needs and preferences. Site visits also reduce the time requirements and travel burdens for tribes and their staff who often have limited capacity.
2. *Regular communications to tribal leadership:* Maritime Blue will maintain direct communications to tribes through regular official letters to Tribal leadership. Often,

tribes will communicate through formal letters signed by their leadership and missives to tribal leadership shows deference to the tribes' sovereignty and hierarchy.

3. *Leverage tribal relations of SMF Collaborative Leadership Committee members:* Several organizations involved in the SMF Collaborative as Leadership Committee members or are on the Board of Maritime Blue have existing, established relationships and communication pathways with tribes. Over the next six months, as the Leadership Committee Charter is finalized, the SMF Collaborative will build upon these relationships to keep tribes informed of the discussions and decisions happening within the SMF Collaborative.
4. *Engage through established forums:* To increase the opportunities for tribes to engage and be informed about the SMF Collaborative, Maritime Blue will engage tribes through established forums they are already involved in, if requested. For example, Maritime Blue could present at Affiliated Tribes of Northwest Indians (ATNI) general meeting, if invited to do so.
5. *Host tribal regional forums:* Tribal Regional Forums are a method for meeting with Tribes regionally to ease travel and create opportunities for tribes to offer specific feedback, as the observations and solutions offered may be unique to some areas. Planning would be predicated on tribes signing off on the need or their interest in holding these forums.

3.4.3 Community Engagement

Beyond the public communication methods, the SMF Collaborative will work to engage impacted communities early. As a start, there will be a subcommittee of the Leadership Committee dedicated to outreach and engagement. As the Collaborative identifies key priorities and activities, public engagement will be necessary to understand potential impacts to Washington communities and set the stage for meaningful collaboration to reduce harm and maximize benefits. The types of ways to engage with communities will vary depending on the activities of SMF Collaborative. For example, if the Collaborative is contemplating new policy recommendations, engaging with communities that would be affected by policies to ensure they are shaped with their concerns in mind will be important.

Additionally, as the SMF Collaborative examines the supply chain and the potential for more fuel producers, consideration will need to be given to how fuel producers can work with communities on new facility siting and construction. While the SMF Collaborative will not take on community engagement for siting and permitting of specific projects, the Collaborative can work with communities and trusted intermediaries to understand the types of questions and information communities would need to support new facilities broadly.

For communities concerned about environmental health impacts – whether from air quality effects of alternative maritime fuel use or water quality impacts from potential spills – the SMF Collaborative could engage with community groups to understand their specific concerns. And the Collaborative can identify key activities to support these groups, including providing education on the health impacts of sustainable fuels compared to traditional maritime fuels, or

working with first responders, port operators, health agencies and other affected parties to support transparent communication about monitoring protocols and emergency response resources.

To empower communities and promote collaboration, the SMF Collaborative will conduct robust stakeholder mapping related to new analyses and projects. Specific community engagement methods can include:

1. *Direct outreach to community-based organizations:* Briefing groups on the Collaborative and providing regular status updates.
2. *Briefings to local government representation:* When appropriate, engage local governments, councils, or other structures in the Collaborative.
3. *In-person and virtual meetings:* Engage local community members at in-person and virtual meetings.
4. *Surveys or other information gathering:* Identify ways that communities can provide input to policy recommendations or reports through surveys or requests for information.

This list is non-exhaustive, and the SMF Collaborative will work to continuously engage communities as part of this work.

4. Engagement Conducted to Develop Strategic Framework

This framework builds on years of coordinated regional efforts and extensive stakeholder engagement conducted throughout the planning process. This section outlines the key initiatives that created momentum to create this framework and the planning activities that directly informed establishing the Collaborative to advance it and enable acceleration of SMF.

4.1 Washington State SMF Studies and Meetings

Numerous studies and meetings have engaged organizations from across the region and SMF value chain, creating the foundation for the SMF Collaborative. These are described in detail in Appendix C, but some particularly noteworthy activities include:

- Maritime Blue's inaugural Blue Forum in 2019, which mapped research pathways to industry demand for maritime energy solutions in partnership with Pacific Northwest National Laboratory and federal agencies.
- The Pacific Northwest to Alaska Green Corridor (PNW2AK), the world's first cruise-led green corridor feasibility study, is currently underway.
- Concurrent feasibility studies to explore green corridors between the Republic of Korea and the Pacific Northwest Gateway are also underway.
- The selection of the Pacific Northwest as a federal Hydrogen Hub in 2023 further positioned the region as a leader in clean energy infrastructure critical to maritime fuel production.
- RMI's Advancing Zero-Emission Fuels in Washington's Shipping Sector Roadmap (SMF Roadmap) study, which was published in August 2024, provides a regionally focused roadmap for decarbonizing Washington state's shipping sector.

4.2 Planning and Coordination Meetings

A planning committee met and held a series of coordinated workshops and meetings to discuss the initial structure and objectives for what would become the SMF Collaborative. These engagements have laid the groundwork for formalizing the Collaborative and establishing the Founding Leadership Committee. The SMF Collaborative provides a platform for cross-sector partners to accelerate the development, accessibility and deployment of sustainable maritime fuels and zero-emission vessels across the Pacific Northwest.

Over the last two years, Maritime Blue has developed a contact list and performed outreach to more than 200 organizations to support this effort (see [Appendix D](#)). These organizations participated in workshops to support related bodies of work like the RMI SMF Roadmap, one-on-

one meetings to understand and validate the challenges encountered in advancing SMF deployment. Maritime Blue sought to confirm the proposed strategies were appropriate to address the broad challenge. While these outreach efforts covered a range of organization types, Maritime Blue will work to increase equitable representation of voices in the outreach going forward.

4.2.1 Planning Committee Meetings

Between December 2024 and April 2025, a series of Planning Committee meetings laid the groundwork for establishing the SMF Collaborative. These meetings brought together regional stakeholders to discuss the framework’s purpose, scope and structure and develop targeted outreach strategies to engage public, private, tribal and community-based organizations. The Planning Committee finalized the framework’s mission and vision, as well as the SMF Collaborative’s draft operating procedures and timeline, with a particular emphasis on high-level industry engagement and legislative reporting milestones. Meetings also advanced the development of core materials, including concept papers, pitch decks, a press release to launch the Collaborative²³ and background briefings—and clarified Maritime Blue’s role as the Secretariat. Aligning with Washington’s maritime decarbonization and innovation goals, this group also planned the Leadership Committee meeting on May 30. For more information on those meetings, please refer to [Appendix A](#).

4.2.2 Founding Leadership Committee Meeting

Through discussions with the Planning Committee, Maritime Blue invited 33 organizations and all federally recognized tribes in Washington to serve as the Founding Leadership Committee. The breakdown of participation is shown in Figure 4-1. The list was based on the Planning Committee’s expertise and understanding of who could best represent the breadth of SMF interests across the Washington and PNW region, as well as Maritime Blue’s extensive maritime industry experience.

Maritime Blue, as Secretariat, organized a half-day meeting with the Founding Leadership Committee to discuss the operating framework and the priority areas for the SMF Collaborative. A list of organizations involved in that meeting can be found in [Appendix B](#). Over 40 representatives from public, private, tribal, nonprofit and research sectors participated.

²³ [“A Sea Shift: Maritime Fuels Collaborative Launches to Accelerate Clean Energy Transition across the Pacific Northwest Maritime Industry.”](#) Washington Maritime Blue. April 3, 2025.

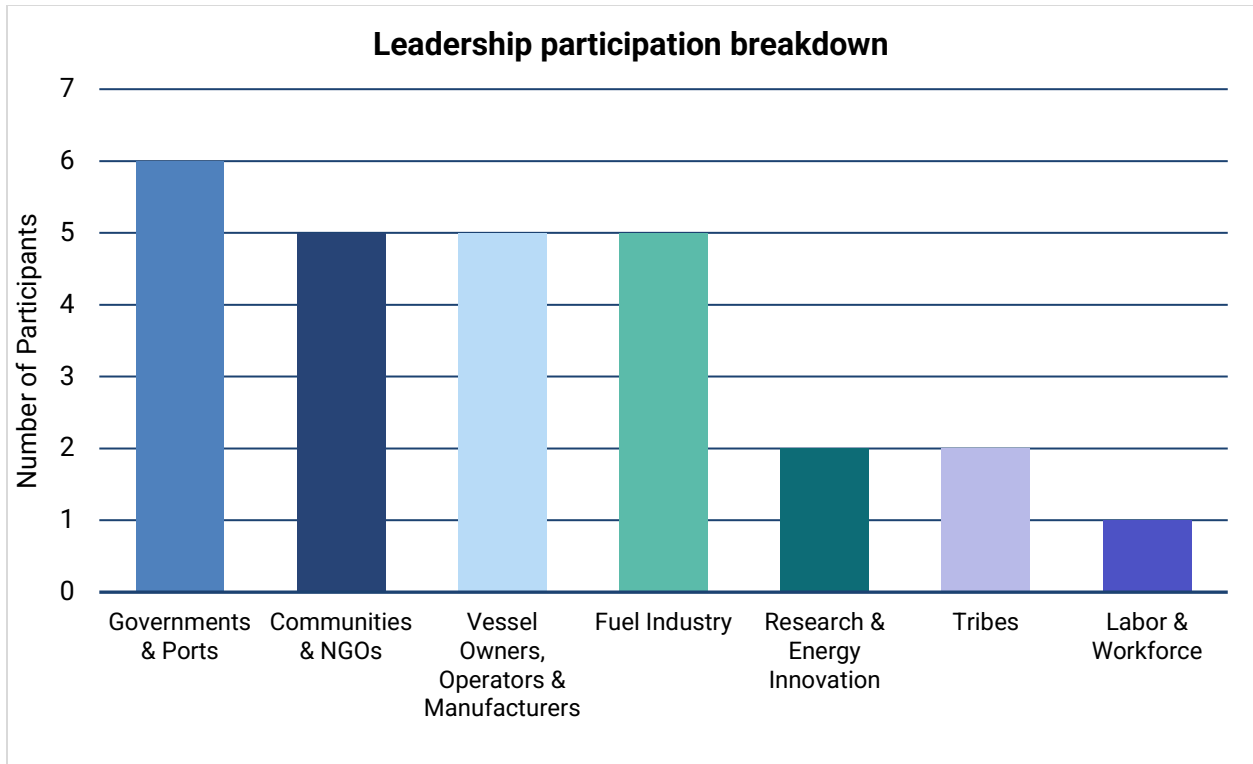


Figure 4-1. Breakdown of organizations in Founding Leadership Committee, by organization type and classification.

During the meeting, participants engaged in in-depth discussions on the Collaborative’s mission, governance, priorities and stakeholder engagement. They proposed refining the mission statement to ensure technology neutrality and highlight the Pacific Northwest’s competitive advantages in policy, geography and innovation. Maritime Blue clarified its role as Secretariat, with the Leadership Committee assuming authority over goals and budget decisions, guided by a forthcoming Charter. Participants emphasized the importance of a balanced governance structure, free from undue funder influence, and called for careful consideration of stakeholder representation in shaping the Collaborative’s direction.

Breakout sessions and polling exercises helped solidify the near term SMF Collaborative priorities, with strong alignment around policy recommendations, meaningful engagement and supply chain mapping. Additional focus areas included standards-setting, demonstration projects, workforce development, environmental justice and market readiness.

4.2.3 Outcomes of Engagement with the Leadership Committee

The Founding Leadership Committee identified three key planning areas: (1) establish a Community Engagement Subcommittee and a Budget/Finance Subcommittee; (2) expand the Leadership Committee with additional members; and (3) solidify year one Collaborative priorities. The Community Engagement Subcommittee will support initial drafting and design of outreach and engagement strategies and then continue throughout the life of the Leadership Committee to support and reflect on outreach around the determined activities of the

Collaborative. The Budget and Finance Subcommittee will support the Secretariat in identifying resources that will be needed to execute on the proposed activities and priorities.

Maritime Blue asked the Founding Leadership Committee and external partners for suggestions on additional organizations or entity types whose participation would benefit the Leadership Committee. Additionally, from April to June 2025, Maritime Blue engaged government and private sector partners for individual feedback on the framework and priorities. The feedback identified several priority areas for expanded representation:

- **Government:** Partners emphasized the need for strong state and local government representation, regulatory agencies such as the US Coast Guard and Washington state tribal participation. All 29 federally recognized tribes, as well as 2 additional tribes with treaty areas extending into Washington, have been contacted with ongoing engagement efforts underway.
- **Communities:** Multiple respondents highlighted the importance of expanded non-profit participation, particularly environmental and social justice organizations. While one community coalition was contacted, they indicated limited capacity to engage currently. As a part of the Community Engagement Subcommittee, the Collaborative will discuss building capacity for expanded non-profit engagement, recognizing that these organizations often have limited resources. Community voices are essential in the formation and leadership of this effort to ensure equity and justice are sustained priorities from the outset, and identification of organizations to expand the Leadership Committee will be done thoughtfully to ensure geographic diversity.
- **Industry, Workforce, and Regional Expansion:** Feedback identified needs for increased representation from cargo and shipping operators, financial institutions, supply chain members, additional labor unions and emergency response and safety experts. Participants also emphasized including non-Washington Pacific Northwest organizations from Oregon and British Columbia and coordinating with similar sustainable fuel coalitions to address shared infrastructure challenges.
- **Expanding the Leadership Committee:** As part of its charter to be agreed upon by the Leadership Committee, there should be clear language about how Leadership Committee representation will be added during the duration of the Collaborative.

This feedback will inform ongoing outreach efforts and the evolution of the Leadership Committee composition as the collaborative matures. The Founding Leadership Committee input on the Collaborative's priorities and activities are detailed in Section 4 of this report.

5. Proposed Framework Priorities and Activities

This section outlines the priority areas and initial activities that the SMF Collaborative will pursue to advance the framework, including the working groups, studies, and meetings that may be necessary. It presents the initial activities proposed by the Planning Committee, incorporates feedback from the Founding Leadership Committee and external partners, and establishes the resulting aligned goals and objectives for this framework to advance.

5.1 Proposed Priorities for the SMF Collaborative

The Planning Committee identified the following proposed priorities for the SMF Collaborative in executing this framework:

- **Policy development** that supports accelerated availability and use.
- **Meaningful engagement** with adjacent and impacted communities.
- **Definitions and standards** for sustainable maritime fuels in the PNW region.
- **Identification of research opportunities** through early-stage technology gaps and fostering innovation pathways.
- **Demonstration projects** that foster innovation from research through commercialization.
- **Practical deployment** and adoption of sustainable maritime fuels.
- **Workforce pathways** and opportunities that support the maritime clean energy transition.

Feedback from Founding Leadership Committee

Though all these priorities are important long-term to achieving the mission of the framework, participants at the May 30th Founding Leadership Committee meeting identified Year 1 priorities from within these for initial action by the Collaborative. Participants engaged in breakout discussions to review proposed Year 1 priorities and identify areas of consensus.

Across groups, there was strong alignment around three core focus areas: (1) policy development, (2) meaningful engagement and (3) supply chain mapping and gaps analysis. These were seen as foundational to creating clarity, building trust and positioning the Pacific Northwest to lead in the deployment of sustainable maritime fuels. Additional priorities included defining regional fuel standards, pursuing demonstration projects and mapping workforce needs aligned with emerging technologies. See section 2 Overview of the Framework for complete list.

Having a comprehensive value chain analysis to support policy development and gaps assessment was a clear priority from the Founding Leadership Committee. Coupled with an

agreed upon definition of sustainable maritime fuels, the Committee agreed that there was a need to define the focus of the SMF Collaborative on the types of fuels developed. This included whether there should be more of a long-term strategic focus on alternative fuels of the future, versus having short-, medium- and long-term fuels. Fuels like e-methanol or e-ammonia are often considered currently to be the alternative “fuels of the future,” but are much farther from widespread adoption due to lack of fuel availability, cost and suitable vessels. Conversely, fuels like LNG or biofuels like renewable diesel are more readily available but come with tradeoffs, notably a higher emission profile than e-methanol or e-ammonia. Determining whether the primary focus of the Collaborative will be on “fuels of the future” versus a multi-fuel approach that looks at all-of-the-above fuels will be important when establishing goals and future activities.

Establishing clear and consistent definitions for SMF and their associated production and emissions pathways should be a critical priority for Washington state, particularly given the upcoming implementation of the IMO’s revised fuel standards set to be enacted in October. The IMO’s framework will set a global baseline for low- and zero-emission fuels. Aligning Washington’s definitions with these international standards will be essential to ensure compatibility with global shipping markets, enable access to green corridors, and support the state’s port competitiveness. During recent stakeholder engagement and Leadership Committee discussions, participants consistently emphasized the need to wait for the finalized IMO criteria before formalizing local standards, recognizing that premature definition-setting could create conflicts or misalignment.

Washington’s unique policy landscape, including its Clean Fuel Standard (CFS), underscores the urgency of establishing regionally relevant SMF definitions that can guide incentive structures, infrastructure planning and private sector investment. Stakeholders are looking to the state to provide leadership in shaping practical and forward-compatible standards, especially as federal and international frameworks continue to evolve. Making sure Washington’s definitions match national and international standards and reflect local fuel production and sustainability priorities is key to attracting investment, providing clear regulations and speeding up the use of low- and zero-emission maritime fuels across the state.

Washington has a strong existing maritime and energy workforce, particularly with respect to union labor and apprenticeship programs that already train workers for the construction, maintenance and operation of the infrastructure needed for sustainable maritime fuels. The Collaborative will focus on connecting SMF-related projects to these established, local workforces, ensuring that investments in clean energy transition directly support high-road jobs and unionized labor. Supporting this workforce continuity not only advances equity and economic development but also ensures that SMF deployment is grounded in proven labor capacity and community-based employment.

Goals and Objectives to Achieve Priorities

Given the feedback to prioritize gaps analysis, policy and engagement, the framework has established goals and objectives for the Collaborative to continue progress on all three

immediate priorities. Each objective is subject to funding and capacity, and the timing is relative to the first Leadership Committee meeting that was held on May 30, 2025. These reflect the initial goals and objectives that Maritime Blue developed as outputs of the Founding Leadership Committee's first meeting, but they may be revised as more activity gets underway:

Goal 1: Formalize structure and refine scope of the SMF Collaborative

Fall 2025

- 1.1 Solidify the Leadership Committee composition and ensure the charter enables expansion or changes in membership.
- 1.2 Finalize a charter to support the SMF Collaborative.
- 1.3 Create a public-facing communications plan and identify the most critical meetings/conferences to attend to conduct stakeholder engagement.

Winter 2025

- 1.4 Establish a clear community engagement plan.

Spring 2026

- 1.5 Finalize an annual workplan with the Leadership Committee for the next fiscal year.

Summer 2026

- 1.6 Define the geographic scope of the SMF Collaborative, including the reach beyond the state of Washington, and the need for coordination activities with Alaska, Oregon, British Columbia and other identified regions/states.
- 1.7 Create a fuels roadmap to identify and prioritize the types of fuels and vessels that should be prioritized in SMF Collaborative activities.
- 1.8 Create and execute a tribal engagement strategy.

Goal 2. Identify clear gaps in the supply, availability and use of SMF in Washington state.

Winter 2025

- 2.1 Conduct a workshop on SMF deployment gap identification.
- 2.2 Launch SMF Deployment Working Group.

Summer 2026

- 2.3 Scope a study on SMF deployment availability and gaps; inclusive of policy, infrastructure and industry interest and readiness.

Winter 2026

2.4 Publish findings from workshops, reports and other methods on gaps of fuel availability aligned with multiple fuel pathways.

Goal 3. Develop state policy recommendations to support maritime fuels.

Winter 2026

- 3.1 Establish a State Policy Working Group to build on findings from the SMF Deployment Working Group.
- 3.2 Building upon the fuel deployment study, develop a subsequent analysis to identify the most promising policies used by states and other countries to incentivize and attract both fuel supply, vessels and related technologies to adopt SMF.

Summer 2027

- 3.3 Conduct additional activities (workshops, meetings, studies) to develop recommendations for incentives for fuel adoption.
- 3.4 Recommend in a report state-level deployment targets for fuels used and delivered in the state of Washington.

Goal 4. Create a roadmap to invest in innovation and research in the state to attract new technologies and solutions to accelerate the adoption of maritime fuels.

Winter 2025

- 4.1 Conduct a workshop to convene regional perspectives from the full SMF value chain to determine research and early-stage innovation priorities.

Winter 2026

- 4.2 Develop a regional assessment of research conducted to support the development and use of SMF.
- 4.3 Plan a study to identify ways to attract SMF innovation to the region and analyze gaps in available investment.

Winter 2025-Summer 2027

- 4.4 Conduct workshops and other events to highlight SMF global innovation that is currently or potentially impactful to the region.

5.2 Proposed Working Groups

The Founding Leadership Committee considered the list of working groups below. Additional working groups will likely be identified but these were put forth for consideration:

- Community outreach
- International collaboration
- Technology development and demos
- Value and supply chain mapping and identification of impediments to SMF
- Regulations and incentives to advance SMF
- Safety regulations
- Workforce development

Feedback from founding Leadership Committee and External Engagement

During the May 30th Founding Leadership Committee meeting, the group identified Value and Supply Chain Mapping and Policy and Incentives as key working groups, see Figure 5-1. It was made clear to the facilitators that safety regulations and workforce are being covered by other groups and should not be a focus at this time. However, in external engagement on the priority activities, it was also encouraged that supporting robust conversations about local workforce safety training and connecting the existing union workforce with this sector as it advances will be valuable activities as the work progresses.

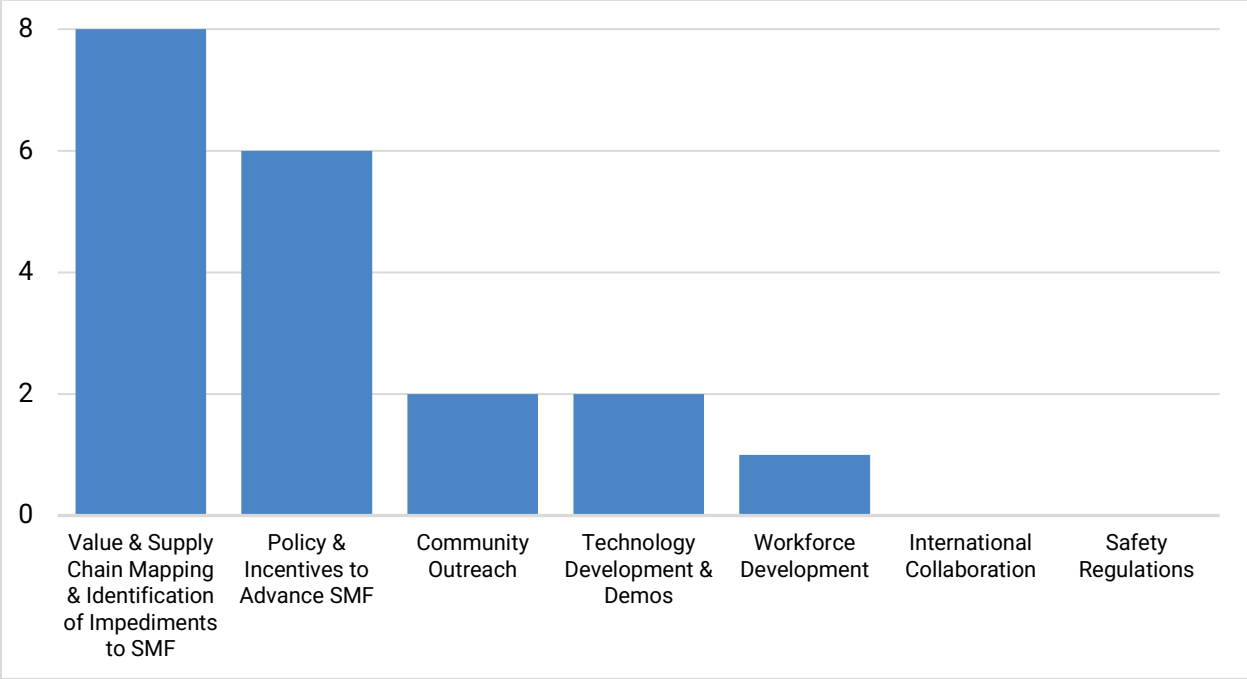


Figure 5-1: Founding Leadership Committee feedback through Mentimeter poll at May 30th Meeting on priority Working Groups for near-term activity.

There was also a robust discussion about community outreach. However, rather than having a working group focused on community outreach, it was decided that a subcommittee of the

Leadership Committee would be formed to best approach community outreach and engagement.

The draft initial working groups – Value & Supply Chain and Policy & Incentives—also complement existing working groups, including:

- Fuel Buyers Group (via Ports of Seattle and Tacoma Syndicated Fuel Supply Strategy)
- Harbor Vessel Modernization Advisory Group (via Ports of Seattle and Tacoma Harbor vessel modernization in the Puget Sound feasibility study)

Other suggested topics for working groups included Outreach and Engagement, Innovation and Startups and a working group specific to Industry Engagement. Participants also encouraged the SMF Collaborative not to duplicate existing efforts in establishing working groups.

5.3 Proposed Studies and Analyses

While there are numerous studies that have been conducted focused on maritime in the Pacific Northwest and Washington, several additional studies were proposed to the Founding Leadership Committee:

- Policy analysis for accelerating availability, affordability and adoption of SMF in the region
- Forecasted fuel needs for ports in the Pacific Northwest
- Public/private partnership models for maritime action
- Gaps Analysis: impediments to deploying SMF in our region
- Technology roadmap and research identification for SMF and zero-emission vessels
- Harborcraft decarbonization in the Salish Sea as demonstrations
- Inland waterway and Columbia River Corridor analysis

Feedback from Founding Leadership Committee

At the May 30th Founding Leadership Committee meeting, the group was requested to provide feedback on the proposed studies. The group reaction is found in Figure 5-2 below:

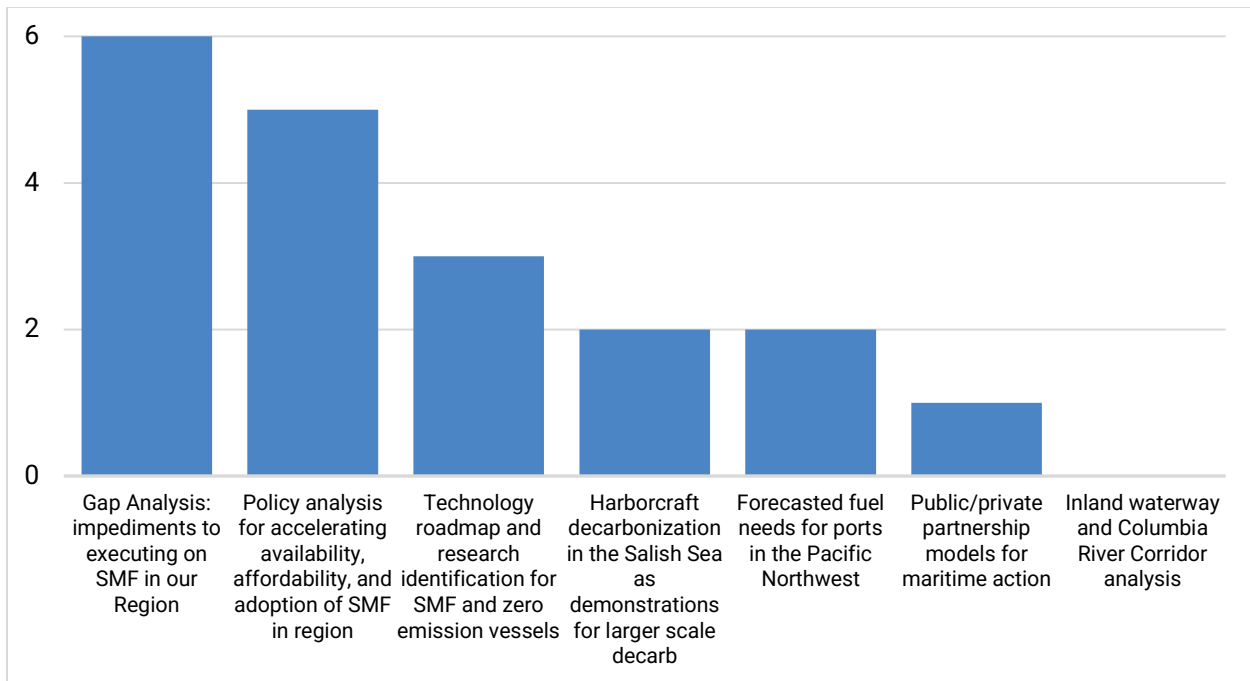


Figure 5-2: Founding Leadership Committee feedback through Mentimeter poll on priority studies for near term activity.

Like with feedback on working groups and priorities, the group emphasized the importance of gap assessments for SMF, including the identification of impediments and policies to support the availability of fuels.

Attendees provided additional research suggestions, including environmental justice analysis of SMF production and transportation, economic impact studies of the SMF industry in the Pacific Northwest, and regional market opportunity assessments. Participants also identified the need for sector-specific research on vessel types, such as Washington State Ferries, the towing industry, and Tribal maritime operations, as well as infrastructure studies and value/supply chain mapping.

Several participants emphasized clarifying what types of gaps should be included in gap analyses. These included studying gaps in community engagement, fuel commercialization, technology advancement, and capital deployment. These additional suggestions will be considered as the SMF Collaborative develops its research agenda and secures funding for expanded analyses.

5.4 Proposed Workshops

Workshops and meetings will be important tools for gathering external feedback and input at various stages of implementing this framework. Several potential workshops were suggested for consideration by the Founding Leadership Committee and other stakeholders:

- Defining maritime fuels for the Pacific Northwest in alignment with the IMO;
- Tribal workshop on SMF;
- Port and near-shore community meetings; and
- Innovation in the maritime sector - connecting technologies, investors, and users.

6. Annual Workplan

This framework outlines the process for developing the SMF Collaborative's Annual Workplan, which includes a workplan and budget, as well as the identification and utilization of state funding, methods to attract private capital, philanthropic funding, and other public funding.

The annual workplan will include updates, revisions to goals and objectives, key findings, and outcomes from the previous year, as well as highlight that year's planned workshops, working groups, and activities.

The typical process for finalizing the SMF Collaborative Annual Workplan and corresponding budget is detailed below:

- The SMF Collaborative fiscal year is July 1 - June 30, in concordance with the state of Washington and Maritime Blue's fiscal years.
- Working groups develop proposed annual workplans and budgets (if relevant and needed) in October and November of the preceding year and submit proposed workplans and budgets for the coming fiscal year to the Secretariat in December.
- The Secretariat compiles an SMF Collaborative workplan and proposed budget in January and February.
- The Secretariat presents it to the Leadership Committee in March for final approval by the end of April.
- The Secretariat staff and the Leadership Committee will present the SMF Collaborative budget to Maritime Blue's board at their May meeting. Maritime Blue's board will incorporate the SMF Collaborative budget into the Maritime Blue budget at their June meeting.
- Maritime Blue staff and Leadership Committee will work throughout the calendar year to secure funding for approved projects.
- The budget may be amended throughout the year by the Leadership Committee consensus to spend the amount of funding available.
- Maritime Blue Staff have discretion to move projects forward outside of this budget process based on fiscal opportunities and project needs.

6.1 Tracking Progress

This framework is intentionally designed to be adaptive, enabling goals to be refined and modified in response to emerging priorities and developments within workstreams. The SMF Collaborative will utilize the annual workplan process to assess progress on the strategic goals outlined in this report (see Section 7: Timeline of Action). This assessment may include the number and frequency of engagement events, studies or analyses completed, or pilot programs implemented; it may also include tracking of participation from interested parties in activities.

7. Timeline of Action

The SMF Collaborative will execute the framework’s priorities, objectives, and goals outlined through its planning process and informed by its Planning Committee, Founding Leadership Committee, and external outreach. The timeline below outlines the roadmap for increasing the availability, affordability, and widespread use of sustainable maritime fuels in Washington (Figure 7-1). It is based on current staffing and funding for the SMF Collaborative, managed by Maritime Blue. All activities and timelines are subject to change following further input from the SMF Collaborative Leadership Committee or any adjustments that may arise as a result of increased funding or capacity.

These dates show the latest possible start of each activity, working group, or study; they don’t mark the end of the work unless noted. Some activities build on each other. For example, the gaps analysis (titled SMF Deployment Gaps Analysis below) will identify challenges for alternative fuel use that the Desktop Incentives study will be designed to address further.

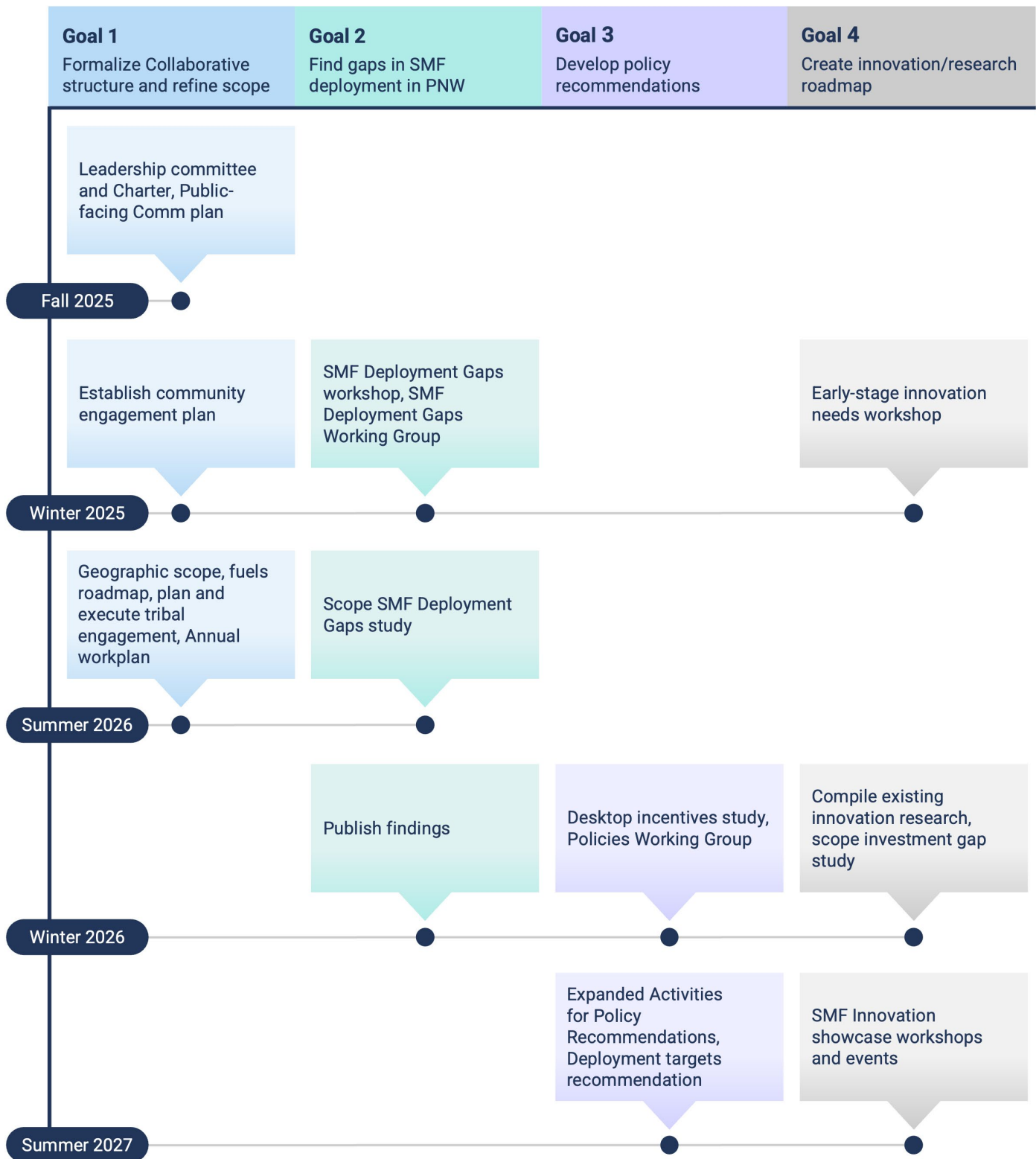


Figure 7-1: Timeline of SMF Collaborative Activities for its first two years, starting from May 30.

8. Conclusion

The maritime sector, a significant economic driver for Washington, has lagged behind other industries in organizing and accelerating decarbonization efforts. This framework provides a system to advance SMF in Washington by directing the creation of the SMF Collaborative, which fosters coordination, develops policy recommendations, facilitates deployment, and enables innovation. Engaging a wide range of stakeholders and interested parties through the Collaborative is crucial to effectively address the competing economic, environmental, sustainable, and innovation priorities within the maritime sector. Support from public and private entities, through funding and in-kind contributions, will position Washington's maritime industry to adopt a coordinated approach to new fuels that will power vessels in the coming decades.

By implementing this strategic framework and setting out to achieve these initial priorities, goals, and objectives, this multi-stakeholder Collaborative can advance the policies, outreach, innovation, and strategies to support the modernization and transition of the maritime energy sector in Washington.

Appendix A: Planning Committee Meeting Summaries

As part of an effort to establish the SMF Collaborative, there have been many Planning Committee meetings to align regional and state stakeholders around the need for maritime fuel and zero-emission technologies strategies. These included:

December 9, 2024

An in-person workshop at Pier 69 in Seattle brought together members of the Planning Committee to align on the Collaborative's overarching purpose, goals, and expected outcomes. This session focused on reviewing further stakeholder outreach objectives, defining the problem statement, and setting parameters for the Collaborative's scope. The group agreed to defer further discussion of the stakeholder outreach list to allow for greater clarity on the Collaborative's vision and structure.

January 9, 2025

The Planning Committee reconvened at Maritime Blue Headquarters to confirm the Collaborative's goals, proposed structure, and operating procedures. The group finalized a timeline to establish the Founding Leadership Committee by April, recognizing the need to report back to the Washington state Legislature by June 2025. Discussions emphasized the urgency of this work, given the legislative session and pending funding allocations. Participants also began developing outreach strategies to engage key individuals and organizations.

January 23, 2025

The Planning Committee held another in-person session to finalize the Founding Leadership Committee invitation list and determine a coordinated outreach strategy. The committee refined talking points tailored to public sector leaders, industry representatives, community-based organizations, and labor unions. The need for high-level (C-suite) representation on the Founding Committee was identified as a priority to elevate credibility and commitment.

February 13, 2025

The Planning Committee held a virtual meeting focused on finalizing outreach materials, including the concept paper, a leadership pitch deck, and a stakeholder recommendations spreadsheet. The group reviewed the status of outreach to potential Founding Committee members and confirmed the need to convene both an internal goal-setting meeting and a public-facing event to announce the formation of the Committee. Maritime Blue clarified its role as the Collaborative's Secretariat, responsible for facilitation, budget oversight, and coordination of working groups. Naming and branding discussions also began, with CHARGE volunteering to support the creative process.

April 3, 2025

The team prepared for upcoming engagements by reviewing outreach status, confirming May scheduling availability, and initiating follow-up actions with key organizations including NWSA, the Port of Seattle, and Maritime Blue. This internal coordination meeting served to align efforts ahead of broader meetings.

April 22, 2025

The Planning Committee reconvened to finalize logistics for the upcoming May 30th Founding Leadership Committee meeting. The group reviewed pre-meeting survey logistics, finalized speaking roles, and confirmed which organizations would be invited and engaged—including outreach to tribal governments, fuel producers, and clean energy innovators. Materials such as background briefings and presentation slides were assigned for development and circulation in advance of the event.

Together, these coordinated efforts have established a clear roadmap for launching the Sustainable Maritime Fuels Collaborative, ensuring robust stakeholder engagement and alignment with the State’s decarbonization and innovation priorities.

Appendix B: May 30th Founding Leadership Committee Meeting Participants

- Alta Gas
- BP
- Centerline Logistics
- Consortium for Hydrogen and Renewably Generated E-fuels (CHARGE)
- Cruise Lines International Association
- Climate Solutions
- Earth Finance
- Puget Sound Ports Council
- Maritime Innovation Coalition
- Northwest Seaport Alliance
- Pacific Merchant Shipping Association
- Pacific Northwest National Laboratory
- PNWH2 Hub
- Port of Seattle
- Sky NRG
- Swinomish Indian Tribal Community
- Twelve
- Washington Department of Commerce
- Wallenius Wilhelmsen
- Washington Maritime Blue
- Washington Public Ports Association
- Zero Emission Buyers Alliance
- Facilitation Team: Triangle Associates

Though unable to participate in the Founding Leadership Committee meeting, the following additional organizations agreed to participate in the Leadership Committee as it advances:

- Colville Confederated Tribes
- Crowley
- Washington Department of Ecology
- Wartsila

Appendix C: Key Initiatives and Engagement Supporting SMF Advancement in WA

There have been numerous studies and meetings that have engaged organizations from across the region and the SMF value chain, creating the momentum behind the SMF Collaborative.

October 2019: Maritime Blue held its first Blue Forum on “R&D Pathways for Maritime Energy Solutions” in partnership with the Pacific Northwest National Laboratory, U.S. Department of Energy, and U.S. Department of Transportation’s Maritime Administration. The primary goal was to map current research to industry demand. The results of the forum were published in April 2020.²⁴

May 2022: The Pacific Northwest to Alaska Green Corridor (PNW2AK) was launched by a broad coalition of organizations involved in the Alaska cruise market, including the Port of Seattle, Canadian ports and Alaskan jurisdictions, cruise lines, and other stakeholders.²⁵ This initiative comprises the development of a feasibility study for the world’s first cruise-led green corridor, aiming to accelerate the deployment of zero-emission ships and operations between Alaska, British Columbia, and Washington.

November 2022: During the World Leaders Summit of COP27, the Republic of Korea and the United States announced technical cooperation to help facilitate the establishment of a green shipping corridor,²⁶ laying the groundwork for future collaboration on maritime decarbonization between the Pacific Northwest and Korean ports.

March 2023: First mover project partners finalized a Project Charter for the feasibility study to be conducted to establish the PNW2AK green corridor.²⁷ The charter established formal governance and operational frameworks for the cruise corridor feasibility study.

September 2023: The Rocky Mountain Institute (RMI), with funding from Breakthrough Energy and technical advisory support from the participants of the SMF Collaborative Planning Committee, initiated the *Sustainable Marine Fuels Roadmap*²⁸ study. This comprehensive effort aims to evaluate the current and future landscape for zero-emission maritime fuels in the Pacific Northwest, identifying actionable pathways to decarbonize the sector.

²⁴ [“Blue Forum: R&D Pathways for Maritime Energy Solutions.”](#) Washington Maritime Blue. October 29, 2019.

²⁵ [“The PNW2Alaska Green Corridor Sets New Bar for Maritime Sustainability.”](#) Port of Seattle, December 10, 2024.

²⁶ [“Korea–Europe Green Shipping Corridor aims for 70% CO₂ cut, sets blueprint for maritime decarbonization.”](#) For Our Climate. April 23, 2024.

²⁷ [“The World’s First Green Corridor for Cruise.”](#) Port of Seattle.

²⁸ [“Advancing Zero-Emission Fuels in Washington’s Shipping Sector.”](#) Rocky Mountain Institute (RMI). 2024.

October 2023: Maritime Blue, in collaboration with the Port of Seattle and Pacific Northwest National Laboratory (PNNL), convened a high-level “author’s convening” to align and coordinate ongoing maritime decarbonization research efforts in the region, like the green corridors and state-led clean fuels analyses. Participants included representatives from multiple national laboratories, the U.S. Department of Energy, the Washington state Department of Commerce, the Maersk McKinney Møller Center for Zero Carbon Shipping, RMI, and the Northwest Seaport Alliance.

October 2023: The PNWH2 was selected by the U.S. Department of Energy as a Hydrogen Hub, securing federal investment to advance the development and commercialization of clean hydrogen technologies. Given hydrogen’s critical role as a feedstock for sustainable maritime fuels and as an energy source for port operations, this investment represents a significant advancement in the region’s decarbonization efforts.

December 2023: Ports, government, cargo shipping companies and fuel providers convened to conclude a green shipping corridor prefeasibility study, led by the Maersk McKinney Møller Center for Zero Carbon Shipping (MMMC). The pre-feasibility study looked at establishing routes between the US and the Republic of Korea (ROK). A ro-ro vessel corridor between NWSA and the Ulsan Port Authority (UPA) and a container ship corridor between NWSA and the Busan Port Authority (BPA) were selected to advance to a feasibility assessment phase.²⁹ A ro-ro vessel is a type of ship designed to carry wheeled cargo, like cars, trucks, or tractors, that roll-on/roll-off the ship during loading and unloading.

December 2023-June 2024: The SMF Collaborative Planning Committee and RMI hosted two technical workshops that engaged over 90 stakeholders from the maritime industry, fuel and technology providers, environmental organizations, research institutions, and local, state, and federal agencies to inform the Sustainable Marine Fuels Roadmap study. These workshops provided critical input on fuel supply pathways, infrastructure constraints, policy interventions, and technology adoption strategies required to support zero-emission maritime fuels.

January/February 2024: MMMC kicked off the feasibility assessment for the ro-ro vessel green shipping corridor between NWSA and UPA with a focus on green methanol as a fuel. MMMC established a consortium that included a shipping company, Wallenius Wilhelmsen, as well as fuel providers. The Korean Register initiated a feasibility assessment of the container ship green corridor, also with a focus on green methanol as a fuel, between the NWSA and the Korean ports of Ulsan and Busan, coordinating with Hyundai Merchant Marine (HMM). In addition, the NWSA and the Rocky Mountain Institute (RMI) launched an assessment focused on green methanol availability, storage, and bunkering on the US side, partnering with a consortium that includes Swire Shipping and U.S.-based fuel providers. Both corridor feasibility assessments and associated implementation roadmaps are expected to conclude by the end of 2025.

²⁹ [“US/ROK Green Corridor Pre-Feasibility Study.”](#) Mission Innovation.

August 2024: RMI published the SMF Roadmap study: Advancing Zero-Emission Fuels in Washington’s Shipping Sector Roadmap.³⁰ The study delivers a detailed, regionally tailored analysis of Washington’s maritime decarbonization potential. It outlines ways to introduce zero-emission fuels (ZEFs) by 2030 and achieve full decarbonization at Washington ports by 2050. The report looks at how realistic hydrogen and biofuels are as clean fuels and what policies could help increase their use.

³⁰ [“Advancing Zero-Emission Fuels in Washington’s Shipping Sector.”](#) Rocky Mountain Institute (RMI). 2024.

Appendix D: Organizations Engaged to Date

From September 2023 until the formal launch of the Collaborative in April, Maritime Blue developed a contact list and performed outreach to more than 200 organizations to support this effort. These organizations were engaged through workshops, interviews, and other measures. Below is a chart representing the types of organizations engaged in this effort.

This outreach was also conducted to support ongoing analyses critical to establish a framework for SMF, which included evaluating the state’s infrastructure for SMF and the availability of fuels. These efforts have been focused on technical analysis, as reflected in the chart, with early outreach efforts targeting industry and technical experts. As the work progresses, Maritime Blue will strive to increase the equitable representation of voices in its outreach going forward.

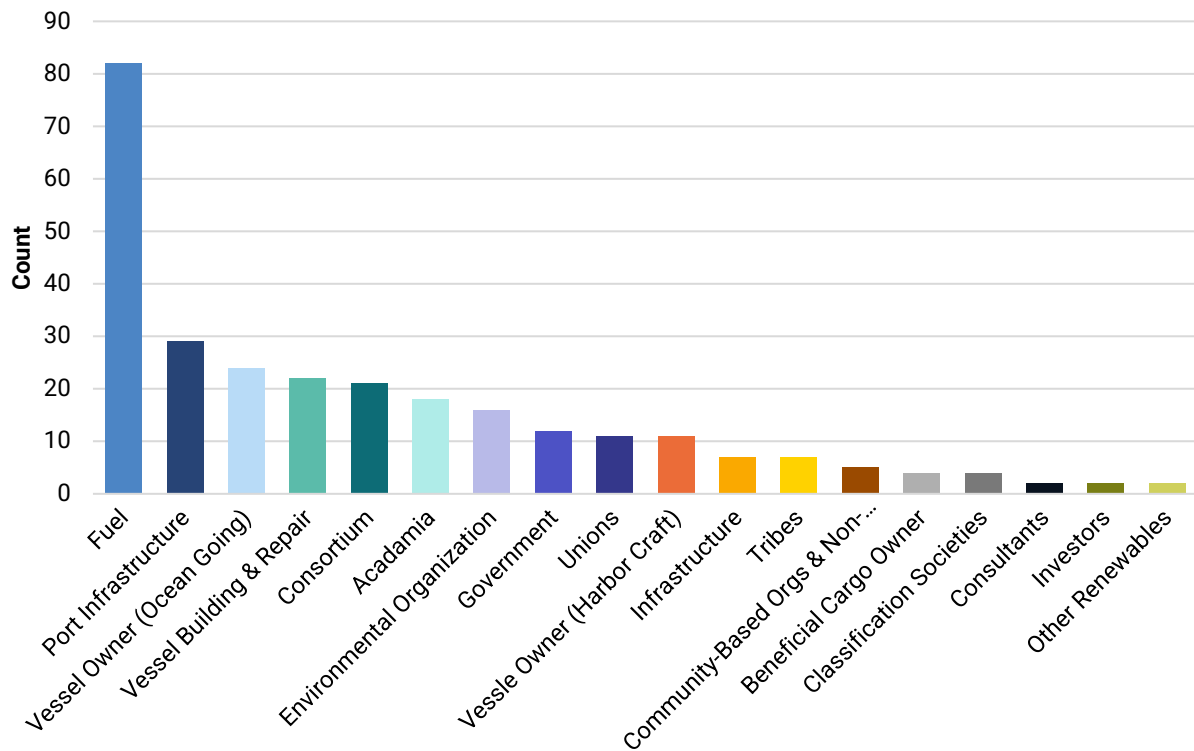


Figure D-1: SMF Planning Outreach by Organization Classification

Appendix E: Washington Fuel Coordination

Example – Sustainable Aviation Fuel

To provide an example of the types of outcomes that could be achieved through a formal collaborative, a similar collaborative effort to support the sustainable aviation fuel (SAF) industry was conducted, which resulted in incentives, plans, and projects. The state and the airline industry have aligned to create a policy, funding, and collaboration environment to accelerate the production and adoption of SAF, with Washington state in a leadership position.

In 2011, Washington launched the first regional assessment of SAF in the country with the creation of the Sustainable Aviation Fuel Northwest (SAFN) program. The Washington Legislature then established the Sustainable Aviation Biofuels Work Group in 2012 and tasked it to provide annual updates of its findings and recommendations to the governor and legislative committees. Similar in nature to the SMF Collaborative, this group represented an established community and network of SAF stakeholders and served as a vehicle for educating the legislature about the industry and helped lay the foundation for the state's advantageous policy environment designed to attract investment for the buildout of in-state SAF production.³¹ As a result, the state has seen:

Policy and Incentives:

- **Clean Fuel Standard:**³²
Washington established a clean fuel standard that requires fuel suppliers to gradually reduce the carbon intensity of their fuels.
- **SAF Production and Use Incentives:**³³
The state has passed legislation to attract investment in SAF production facilities, including preferential tax rates and flexible tax credits for production, blending, and end-use of SAF.
- **Permitting Streamlining:**³⁴
Policies have been put in place to streamline the permitting process for clean energy projects, including SAF facilities.

³¹ Trousdale, P and Holler, J. "[Scaling Sustainable Aviation Fuel Recommendation to Federal Policymakers from Washington State.](#)" Center for Climate and Energy Solutions. July 2024.

³² Swift, C. "[Fast Facts About Clean Fuels.](#)" Port of Seattle. November 5, 2020.

³³ "[New Washington Law Incentivizes Local Sustainable Aviation Fuel Production.](#)" Port of Seattle. May 3, 2023.

³⁴ "[Concerning clean energy siting.](#)" House bill 1216. 2023-24. Washington State Legislature.

Regionally Focused Plans:

- **Port of Seattle Goals:**³⁵

The Port of Seattle has set a specific goal to power every flight fueled at Seattle-Tacoma International Airport with at least a 10% blend of SAF by 2028.

Collaboration and Partnerships:

- **Stakeholder Collaboration:**

The Sustainable Aviation Biofuel Work Group, now the Alternative Jet Fuels Work Group, brings together stakeholders from various sectors to advance the SAF industry. The work group is convened by Washington state University's Office of National Laboratory Partnerships.

- **Research and Development:**

Snohomish County and Washington state University are working to establish a global SAF repository at the world's first Sustainable Aviation Fuel Research and Development Center.³⁶ And ASCENT has been launched as the FAA's Center of Excellence for Alternative Jet Fuels and Environment, co-led by Washington state University and MIT, focused on advancing sustainable aviation fuel (SAF) and aviation environmental research.³⁷ It brings together universities, government agencies, and industry partners to accelerate SAF development, certification, and deployment across the U.S. aviation sector.

Fuel Facility Announcements:

- **Projects Announced:** Several projects have been announced in the state of Washington. Many fuel producers are considering the production of SAF as well as SMFs. But two examples include:

- **Project Wigeon:** SkyNRG's Project Wigeon,³⁸ a new SAF facility at the Port of Walla Walla, is a key initiative in the state's SAF strategy. The project could generate up to 600 jobs during construction and up to 100 jobs once production begins in 2029.³⁹

³⁵ ["Sustainable Aviation Fuels."](#) Port of Seattle.

³⁶ ["SAF Center."](#) The Sustainable Aviation Fuel Center.

³⁷ ["Ascent - FAA Center of Excellence."](#) Ascent.

³⁸ ["SKYNRG Project Wigeon."](#) SKYNRG.

³⁹ ["SKYNRG Project Wigeon."](#) SKYNRG.

- **Twelve's AirPlant One E-Jet Fuel Plant:** Twelve, a company involved in carbon transformation, is building a commercial-scale E-Jet fuel production facility in Moses Lake, Washington.⁴⁰ The project could generate up to 200 jobs during construction and will provide additional, permanent clean energy jobs once production begins.⁴¹

⁴⁰ ["Twelve announces plans to scale production of sustainable aviation fuel made from CO2 in Washington State."](#) Washington State Department of Commerce. June 19, 2023.

⁴¹ Velev, V. ["Twelve Starts Construction Of First US Commercial-Scale Plant For Producing Sustainable Aviation Fuel From CO2."](#) Carbon Herald. July 13, 2023.

Appendix F: Examples of Other Maritime Blue Collaboratives

Maritime Blue leads a suite of collaborative initiatives aimed at advancing innovation, sustainability, and industry coordination across the maritime sector. These Collaboratives convene cross-sector stakeholders to address shared challenges and opportunities, support emerging industries, and foster regional leadership across the Blue Economy.

Quiet Sound

Quiet Sound is one of Maritime Blue’s most advanced and mature Collaborative initiatives. It brings together government agencies, industry representatives, tribal nations, researchers, and environmental organizations to support voluntary efforts aimed at reducing underwater noise from commercial shipping. The program’s primary focus is to protect the endangered Southern Resident killer whale population in Puget Sound through coordination, scientific research, and industry engagement.

Blue Wind Supply Chain

Blue Wind is Maritime Blue’s Collaborative focused on Washington state’s potential role in the emerging floating offshore wind industry along the U.S. West Coast. While not pursuing offshore wind development within Washington’s own waters, the Collaborative assesses how the state’s capabilities—such as advanced shipbuilding, aerospace expertise, maritime logistics, and composite manufacturing—can support offshore wind development in Oregon and California. The initiative also identifies opportunities for workforce and infrastructure development to strengthen Washington’s role in the regional offshore wind supply chain.

Salish Sea Seaweed Collaborative

Launched in January 2025, the Salish Sea Seaweed Collaborative is a farmer-led effort supported by Maritime Blue to explore the potential of seaweed farming as a viable and sustainable maritime sector. The initiative is driven by Washington’s four permitted seaweed farms, with a focus on cooperative strategies for shared infrastructure, market development, and value-added processing. Maritime Blue is convening key stakeholders—alongside partners such as GreenWave and Ocean Strategies—to assess market opportunities, support early-stage investments in processing technologies, and evaluate Washington’s potential as a regional hub for seaweed processing and distribution.

Tacoma Blue Edge Network & Innovation Lab

This Collaborative evolved from a joint innovation project to assess and implement the world’s first private, port-operated 5G network. Now formalized as the Tacoma Blue Edge Network Innovation Lab, the initiative aims to use this network as a platform to bring technology innovators to port environments. Port terminal operators identify operational challenges that could benefit from enhanced connectivity, and the Lab facilitates innovation partnerships to develop, test, and deploy solutions powered by 5G infrastructure.

These collaborative initiatives are supported by the whole of Maritime Blue’s organization as shown below:



Each of these five Collaboratives are guided by an external leadership committee

Figure F-1. Maritime Blue experience with facilitating collaboratives.