



**COMMISSION  
AGENDA MEMORANDUM**

**Item No.** 10a

**ACTION ITEM**

**Date of Meeting** November 16, 2021

**DATE:** October 29, 2021

**TO:** Stephen P. Metruck, Executive Director

**FROM:** Sandy Kilroy, Senior Director Environment, Sustainability and Engineering  
Jon Sloan, Interim Director, Maritime Environment & Sustainability  
Alex Adams, Sr. Manager, Environmental Programs  
Ryann Child, Sr. Environmental Management Specialist

**SUBJECT: A Resolution to Adopt Charting the Course to Zero: Port of Seattle's Maritime Climate and Air Action Plan**

**ACTION REQUESTED**

Request a second reading of Resolution No. 3792 and Commission adoption of *Charting the Course to Zero: Port of Seattle's Maritime Climate and Air Action Plan*. A first reading of Resolution No. 3792 occurred on October 26, 2021

**EXECUTIVE SUMMARY**

*Charting the Course to Zero: Port of Seattle's Maritime Climate and Air Action Plan* (the MCAAP) is the Port's first ever comprehensive plan to address climate change and air pollution from maritime sources and is the Port's implementation plan for the *2020 Northwest Ports Clean Air Strategy* (NWPCAS), which was adopted in April 2021. The MCAAP charts the course to achieve the Port's Century Agenda target of a 50% reduction in greenhouse gas (GHG) emissions by 2030 and implement the NWPCAS vision to phase out emissions from seaport-related sources by 2050.

The MCAAP identifies and evaluates the impact of emission reduction strategies for scope 1, 2, and 3 GHG emissions from administrative operations of the Maritime and Economic Development Divisions (Maritime/EDD), including energy used in Port buildings, fuel used in fleet vehicles and equipment, and emissions associated with employee commuting and solid waste transportation and disposal. It also identifies strategies to reduce air and GHG emissions from Maritime/EDD tenants and maritime activity, such as cruise sailings, grain terminal operations, commercial fishing, and recreational marinas. In addition, the MCAAP includes the Port's habitat restoration programs to acknowledge the future carbon sequestration potential of shoreline and marine habitats.

The MCAAP strategies and actions were informed by extensive engagement across internal Port departments and with external community, government, and industry stakeholders.

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Implementation of the MCAAP will continue to be informed and projects further defined by ongoing engagement with near-port communities, government agencies, and maritime industries and will prioritize actions that advance environmental justice and help resolve environmental health disparities.

### **BACKGROUND**

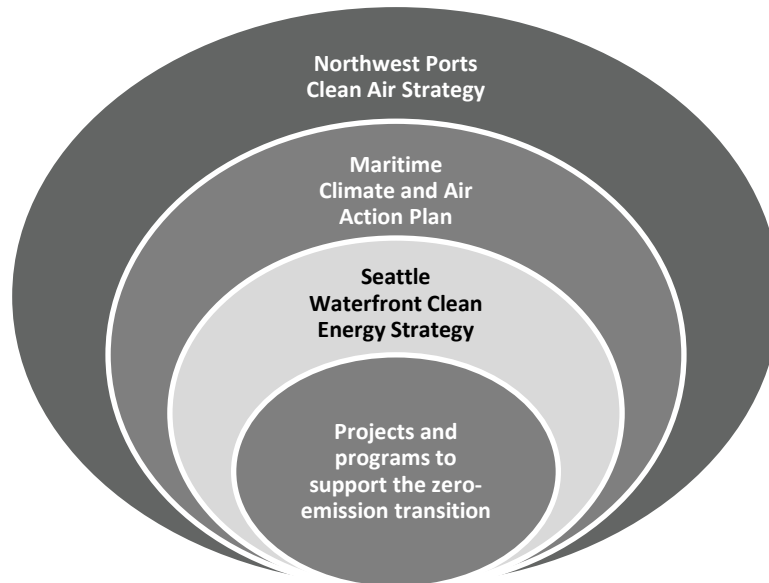
For more than a decade, the Port has worked collaboratively with regional ports, government, community, industry partners and non-profits through the NWPCAS to reduce seaport-related air pollution and GHG emissions. In April 2021, the Ports of Seattle, Tacoma, the combined container operations of The Northwest Seaport Alliance (NWSA), and the Vancouver Fraser Port Authority in British Columbia (together, the Northwest Ports), jointly committed to a new vision to phase out emissions from seaport-related activities by 2050. Through the 2020 NWPCAS, the Northwest Ports will work toward the 2050 vision by leading changes in equipment, fuels, and infrastructure that support cleaner air for local communities and fulfill the ports' shared responsibility to help limit global temperature rise to 1.5°C.

Since the 2020 NWPCAS vision and objectives are high-level and span the Northwest Ports' operations and different governance structures, each port committed to releasing a port-specific plan for implementation. Port-specific implementation plans enable each port to identify, prioritize, and focus resources on actions and investments in a way that is strategic and relevant to their individual business and policy contexts, and to the regions where they operate while still maintaining the long-standing collaborative NWPCAS effort.

The MCAAP is Port of Seattle's NWPCAS implementation plan. The MCAAP adds detail to the strategies and actions the Port of Seattle will take locally to achieve the ambition set in the NWPCAS (Figure 1). The MCAAP builds on the Port's environmental successes, such as providing shore power for cruise ships since 2005 and generating over 400,000 kWh of solar energy on Port rooftops. It includes related projects, programs, and strategic planning efforts to chart the course to zero-emissions, including the development of the Seattle Waterfront Clean Energy Strategy, which is a priority action within the MCAAP to identify future energy infrastructure needed to support long-term decarbonization of maritime operations in Seattle.

The scope of the MCAAP does not include GHG or air pollutant emissions associated with Seattle-Tacoma International Airport, the NWSA, or Port of Tacoma.

**Figure 1. Inter-relationship of Port of Seattle’s Maritime climate, air, and clean energy planning efforts to phase out seaport-related emissions in Seattle**



## **DETAILS**

### ***Development***

The Port began developing the MCAAP alongside the 2020 NWPCAS. Both documents were informed by a two-year engagement process with a representative panel of community, environmental and health advocacy organizations, industry representatives, and Tribal, federal, state, and local government agencies in the Puget Sound region. After adopting the 2020 NWPCAS in April 2021, the Port, the NWSA and the Port of Tacoma responded to public requests for additional time to review and engage on the details of the implementation plans for each entity. Accordingly, the three organizations designed and jointly led an engagement process focused on the implementation plans over the summer of 2021.

This process, which was informed by the goals of the Duwamish Valley Community Benefits Commitment, included targeted outreach to near-port communities and equitable, accessible opportunities to learn about and share feedback on the ports’ proposed approaches to reduce climate and air pollution. The extended community engagement period launched in early July and concluded in mid-August 2021. The engagement process included a dedicated webpage with links to each organization’s implementation plan, a community readers guide to help improve access to the full MCAAP draft, an online survey available in six languages, a NWSA-led survey of the trucking community, several public webinars, targeted outreach to neighborhood groups, meetings with industry, government, non-profit, and community-based organizations, and interactive workshops.

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Feedback from engagement on NWPCAS implementation in the Seattle and Tacoma harbors fell into the following themes:

- (1) Strong consensus on the need to achieve zero emission operations by 2050 and to prioritize the clean energy transition
- (2) Feedback on the importance of interim emission reduction targets
- (3) Desire for the ports to lead by example and prioritize clean air and climate investments to address health disparities in environmental justice communities
- (4) Desire for more accountability, communication, and transparency in reporting and decision-making by the ports
- (5) Consensus on the importance of reducing emissions from trucks, but concerns about cost, feasibility, and equity for drivers
- (6) Concerns about ocean-going vessels as a major source of emissions and the impacts of vessel traffic on marine life

The feedback the Ports of Seattle, Tacoma, and the NWSA received helped inform the implementation strategies within each plan. Changes were made to actions in the final MCAAP to better reflect community priorities. These themes, the results of engagement, and a detailed list of changes the Port made to its MCAAP were summarized publicly in a report-out webinar and detailed in an engagement summary document posted on the Port's website.

In addition to the extensive engagement on the MCAAP itself, the Port worked with the Port Community Action Team and a Duwamish Valley community-based organization to develop the resolution that accompanies the MCAAP.

***Vision, guiding principles, and GHG targets***

The MCAAP upholds the same vision as the 2020 NWPCAS:

*Phase out emissions from seaport-related activities by 2050, supporting cleaner air for our local communities and fulfilling our responsibility to help limit global temperature rise to 1.5°C.*

It also shares the same guiding principles to inform how the Port will work toward the NWPCAS vision, which are: community health, climate urgency, social equity, innovation, evidence-based decisions, focused resources, leadership, accountability, and port competitiveness.

With the 2020 NWPCAS as the overarching policy framework, the MCAAP focuses on strategies and actions through 2030 to achieve the Port of Seattle's Century Agenda target of a 50 percent reduction in GHG emissions by 2030 and make progress toward the 2050 vision of the NWPCAS.

The MCAAP also acknowledges the Port's long-term GHG emission reduction targets in the Century Agenda. Given the urgency of the climate crisis and the Port's desire to transform operations to eliminate GHG emissions, the Executive Director accelerated the Century

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Agenda’s GHG reduction targets on October 26, 2021. The accelerated targets (outlined in Table 1) are included in the MCAAP.

**Table 1. Port of Seattle’s Century Agenda GHG reduction targets**

	<b>Original Targets</b>	<b>Accelerated New Targets</b>
<b>Scope 1&amp;2</b> Port Directly and Indirectly Controlled Emissions	<ul style="list-style-type: none"> <li>• 15% below 2005 levels by 2020</li> <li>• 50% below 2005 levels by 2030</li> <li>• Carbon neutral by 2050 OR Carbon negative by 2050</li> </ul>	<ul style="list-style-type: none"> <li>• 15% below 2005 levels by 2020</li> <li>• 50% below 2005 levels by 2030</li> <li>• Net-zero or better by 2040</li> </ul>
<b>Scope 3</b> Port Influenced Emissions	<ul style="list-style-type: none"> <li>• 50% below 2007 by 2030</li> <li>• 80% below 2007 by 2050</li> </ul>	<ul style="list-style-type: none"> <li>• 50% below 2007 by 2030</li> <li>• Carbon neutral or better by 2050</li> </ul>

The MCAAP also acknowledges alignment with international, state, and local priorities, including Resolution 3767: The Duwamish Valley Community Benefits Commitment and the Duwamish Valley Clean Air Program.

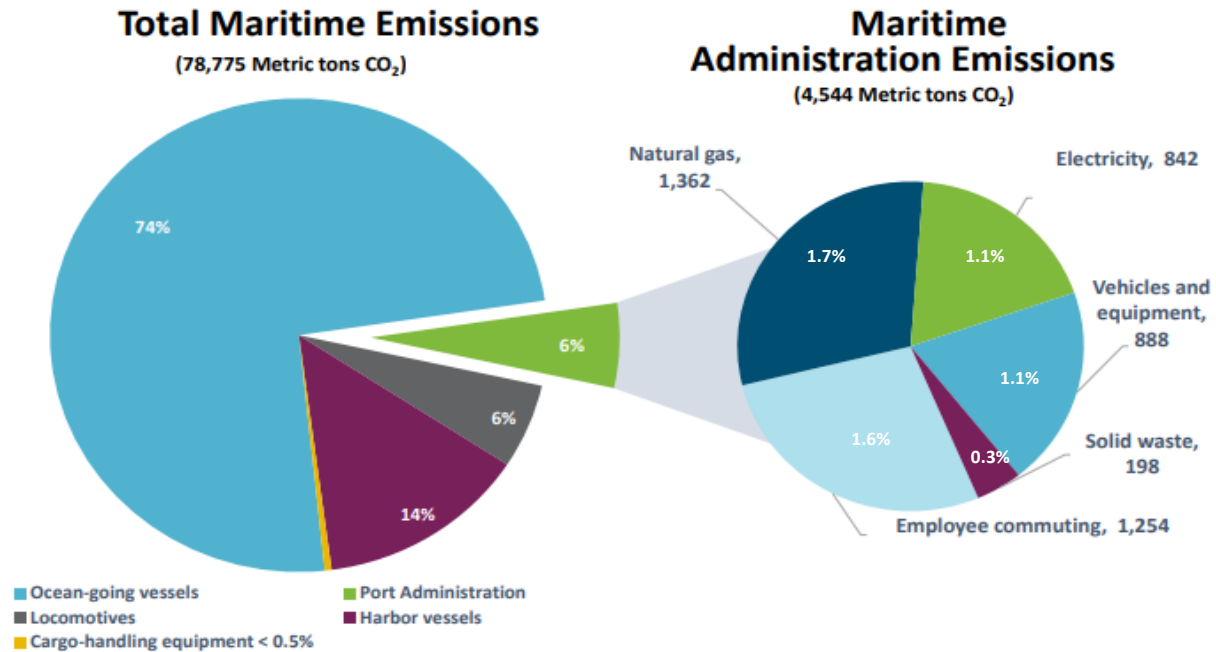
***Port of Seattle’s Maritime-Related Emissions***

The MCAAP addresses the Port’s maritime-related emissions in two sections: Port Maritime Administration and Maritime Activity.

Port Maritime Administration emission sources include building and campus energy, fleet vehicles and equipment, employee commuting, solid waste, and the future carbon sequestration potential of shoreline habitat restoration. Port Maritime Administration emissions sources make up 6% of the Port’s total maritime-related GHG emissions. While a mix of scope 1, 2, and 3 emissions, Port has relatively more influence over these sources.

Maritime Activity sources include ocean-going vessels (cruise and grain ships), harbor vessels (tugboats, commercial fishing, and recreational vessels), cargo-handling equipment, provisioning trucks and cruise buses, and rail locomotives. Maritime Activity sources contribute 94 percent of the Port’s total maritime-related GHG emissions. As the Port does not own or operate vessels or equipment within maritime activity sectors, it has limited influence over GHG emissions from these sources, which all fall entirely under Scope 3. Figure 2 shows the relative contribution of each of the Port’s maritime emissions sources to the Port’s overall maritime emissions.

Figure 2. 2019 profile of Port of Seattle maritime-related GHG emissions



### ***Emission Reduction Strategies and Commitments by 2030***

The MCAAP identifies a set of ambitious, timely strategies and actions to be taken by 2025 and 2030 for both Port Maritime Administration and Maritime Activity sectors to decrease GHG and air pollutant emissions by 50 percent.

Key actions to be taken by 2030 include:

- (1) Continual engagement with community, industry, and government to reduce emissions
- (2) 100% of Port-owned light-duty vehicles are electric or use renewable fuels
- (3) No fossil natural gas use in Port-owned buildings
- (4) Shore power infrastructure installed at all cruise ship berths
- (5) 100% of homeport cruise ship calls connect to shore power
- (6) The Seattle Waterfront Clean Energy Strategy (SWCES) has established industry and utility partnerships and the Port and partners are addressing key constraints by deploying enabling infrastructure for zero-emissions equipment, locomotives, vehicles, vessels, and buildings

A full list of MCAAP strategies and emission reduction potential for each sector is included in Table 2 (next page).

**Table 2. Summary of emission reduction strategies by MCAAP sector and estimated GHG emission reduction potential by 2030**

Port Maritime Administration Strategies	Approximate Annual Metric Tons (MT) CO <sub>2</sub> Reduction Potential by 2030
<b>Building and Campus Energy (BC)</b>	
BC1: Eliminate fossil natural gas	1,400
BC2: Implement energy audit conservation measures	330
BC3: Install energy efficient lighting and controls	140
BC4: Reduce plug loads and upgrade controls	25
BC5: Maximize use of renewable energy	50
BC6: Advance energy data management and planning	Critical to other efforts
BC7: Apply high performance lease terms	Critical to other efforts
BC8: Strengthen energy conservation communication and education	Critical to other efforts
<b>Fleet Vehicles and Equipment (FV)</b>	
FV1: Use drop-in renewable fuels	330
FV2: Deploy electric vehicle charging across Port waterfront	Critical to other efforts
FV3: Transition to electric vehicles	250
FV4: Right-size vehicles and fleet	75
FV5: Use technology to gather data and improve efficiency	Critical to other efforts
FV6: Educate Port drivers on eco-driving and fleet use practices	Critical to other efforts
<b>Employee Commuting (EC)</b>	
EC1: Encourage use of flexible work arrangements	350
EC2: Update employee commute benefits for low-emission commutes	210
EC3: Expand employee communication and education	60
EC4: Continue to advocate for better transportation access	60
<b>Solid Waste (SW)</b>	
SW1: Maximize diversion of common recyclables and organics	60
SW2: Minimize solid waste generation	60
SW3: Expand specialized items recycling	15
SW4: Enhance communications with employees and tenants	Critical to other efforts
<b>Habitat Restoration and Carbon Sequestration (HR)</b>	
HR1: Complete Smith Cove Blue Carbon Benefits Study	To be determined
HR2: Continue shoreline restoration projects	To be determined
<b>Maritime Activity and Cross-Sector (XS) Strategies</b>	<b>Approximate Annual MT CO<sub>2</sub> Reduction Potential by 2030</b>
<b>Cross-Sector (XS) Strategies</b>	

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XS1: Facilitate cross-industry clean energy planning	Critical to other efforts
XS2: Leverage green lease terms	Critical to other efforts
XS3: Advocate for local, state, and federal policy and funding	Critical to other efforts
XS4: Engage with community, industry, and government	Critical to other efforts
<b>Waterside: Ocean-going Vessels (OGV) and Harbor Vessels (HV)</b>	
OGV1: Install shore power at all major cruise berths by 2030	13,000
OGV2: Support international efforts to phase out emissions from OGV	To be determined
OGV3: Support OGV efficiency improvements and emission reductions	To be determined
HV1: Provide infrastructure for zero-emission HV by 2030	Critical to other efforts
HV2: Support accelerated turnover of HV to zero-emission models	To be determined
HV3: Support HV efficiency improvements and emission reductions	To be determined
<b>Landside: Cargo-handling equipment (CHE), Trucks (TR), and Rail (RR)</b>	
CHE1: Provide infrastructure for zero-emission CHE by 2030	Critical to other efforts
CHE2: Support adoption of zero-emission CHE by 2050	To be determined
CHE3: Support CHE efficiency improvement and emission reductions	To be determined
TR1: Provide infrastructure for zero-emission trucks by 2030	Critical to other efforts
TR2: Support adoption of zero-emission trucks by 2050	To be determined
TR3: Support truck efficiency improvements and emission reductions	To be determined
RR1: Provide infrastructure for zero-emission on-terminal rail by 2030	Critical to other efforts
RR2: Support adoption of zero-emission rail by 2050	To be determined
RR3: Support rail efficiency improvements and emission reductions	To be determined

**Implementation**

Implementation of this plan will require focused action and investment by the Port, the active pursuit of external funding sources, and collaboration with a coalition of partners spanning sectors.

While the MCAAP charts the course to zero emissions at Port of Seattle, many decision points remain intentionally open-ended regarding the Port's actions and priorities in the future. Engagement with near-port communities impacted by maritime emissions, maritime industry,



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government agencies and non-governmental organizations, tribal governments, and others will be critical to helping the Port identify, scope, and prioritize projects that can improve air quality, protect community health, and achieve GHG emission reductions targets. The Port is committed to working with near-port communities on an ongoing basis to identify community-based projects and investment priorities and to help inform an equitable transition to zero emission maritime activities and port maritime administration.

Engagement with Port tenants, terminal operators, and maritime industries is also a key focus of implementation. The Port will work with equipment owners and operators to understand energy requirements, infrastructure needs, and technology constraints and leverage agreements and leases as an important method to implement strategies.

The Port will report on progress annually and take an adaptive management approach to monitoring, reporting, and reviewing the MCAAP strategies and actions. This approach allows the Port to update the plan as new emissions data becomes available or with advancements to the technology, policy, or funding landscape.

**FINANCIAL IMPLICATIONS**

Focused resources will be needed to implement the strategies and actions in the MCAAP, including consistent annual funding and capital planning. Implementation will require holistic and ongoing evaluation of benefits and costs. Table 3 summarizes cost estimates for select projects identified within the first five years. The capital project cost estimates are projects budgeted in the Port’s five-year Capital Improvement Plan and represent planning level estimates and do not represent the total cost of investment needed to achieve all of the strategies and actions identified. The estimates also do not include the full cost of staff time, external costs to industry or others, nor do they reflect cost savings (e.g., saving on energy or fuel costs), cost recovery opportunities from the investments, or future grant funding.

**Table 3. Five-year implementation cost estimates**

Project	Plan Strategy	Cost Estimate 2021-2025
<b>Capital Projects (approved and prospective)</b>		
Shore power at Pier 66 Cruise Terminal by 2023 <i>Implementation cost is net after grant funding</i>	OGV1: By 2030, install shore power at all major Port of Seattle cruise berths	\$14,100,000
Install new shore power capacity for tugs at Harbor Island Marina’s “E” Dock	HV1: By 2030, sufficient infrastructure is in place to enable adoption of zero-emission harbor vessels	\$485,000

Project	Plan Strategy	Cost Estimate 2021-2025
Upgrade shore power and electrical capacity for fishing vessels at Terminal 91	HV1: By 2030, sufficient infrastructure is in place to enable adoption of zero-emission harbor vessels	\$1,500,000
HVAC upgrades Pier 66, World Trade Center West	BC1: Eliminate fossil natural gas	\$4,600,000
Install LED lighting in all waterfront properties	BC3: Install energy efficient lighting	\$3,700,000
Purchase energy management software for waterfront properties	BC6: Streamline and advance energy data management	\$700,000
Install electric vehicle charging stations at waterfront locations	FV2: Deploy electric vehicle charging across Port waterfront properties	\$850,000
5-year Fleet Replacement for Maritime, Economic Development Division, and Pier 69	FV4: Right-size vehicles and fleet	\$9,600,000
<p>Near-term implementation of the Seattle Waterfront Clean Energy Strategy</p> <p><i>Investments could include pilot projects, studies, or infrastructure upgrades. Implementation costs may vary significantly and may also include grant funding support</i></p>	XS1: Seattle Waterfront Clean Energy Strategy	≥\$500,000
<b>Capital Projects Subtotal</b>		<b>≥\$36,035,000</b>
<b>Programmatic Projects</b>		
Completion of the Seattle Waterfront Clean Energy Strategy	XS1: Seattle Waterfront Clean Energy Strategy	\$200,000
National Renewable Energy Lab study at Terminal 91	BC5: Maximize use of renewable energy	\$75,000
Sustainable Evaluation Framework	Cross sector	\$150,000
Sustainable Maritime Fuels Program	OGV2: Support domestic and international efforts to	\$250,000

Project	Plan Strategy	Cost Estimate 2021-2025
	phase out emissions from ocean-going vessels	
Domestic and international maritime environmental policy engagement	OGV2: Support domestic and international efforts to phase out emissions from vessels	\$150,000
Non-capital outside services <i>Programmatic projects may include an inventory of maritime leases and development of green lease terms, building energy audits, cruise emissions research, completing the Puget Sound Maritime Air Emissions Inventory, and community and industry engagement.</i>	Cross-Sector	\$1,900,000
<b>Programmatic Subtotal</b>		<b>\$2,725,000</b>
<b>TOTAL</b>		<b>≥\$38,760,000</b>

**ATTACHMENTS TO THIS REQUEST**

- (1) Resolution No. 3792
- (2) Charting the Course to Zero: Port of Seattle’s Maritime Climate and Air Action Plan
- (3) Presentation slides

**PREVIOUS COMMISSION ACTIONS OR BRIEFINGS**

- October 26, 2021 – First reading of Resolution No. 3792 to adopt Charting the Course to Zero: Port of Seattle’s Maritime Climate and Air Action Plan
- May 18, 2021 – Briefing for the Energy and Sustainability Committee on the Maritime Climate and Air Action Plan
- April 6, 2021 – The Northwest Seaport Alliance Managing Members adopted the 2020 Northwest Ports Clean Air Strategy
- January 12, 2021 – Commission briefing on the final 2020 Northwest Ports Clean Air Strategy and draft Port of Seattle implementation actions
- December 11, 2020 – Briefing memo to NWSA Managing Members on 2020 Northwest Ports Clean Air Strategy development
- September 1, 2020 – Third briefing for the NWSA Managing Members on 2020 Northwest Ports Clean Air Strategy development
- August 6, 2019 – Second briefing for the NWSA Managing Members on 2020 Northwest Ports Clean Air Strategy development
- December 2018; June 2019; January 2020; June 2020; August 2020; and November 2020 – Briefings and Engagement with the NWSA Managing Members Environmental Working

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Group on 2020 Northwest Ports Clean Air Strategy development

July 3, 2018 – First briefing for the NWSA Managing Members on 2020 Northwest Ports  
Clean Air Strategy development

December 10, 2013 – The Commission adopted the Northwest Ports Clean Air Strategy 2013  
Update

January 22, 2008 – The Commission adopted the original Northwest Ports Clean Air Strategy