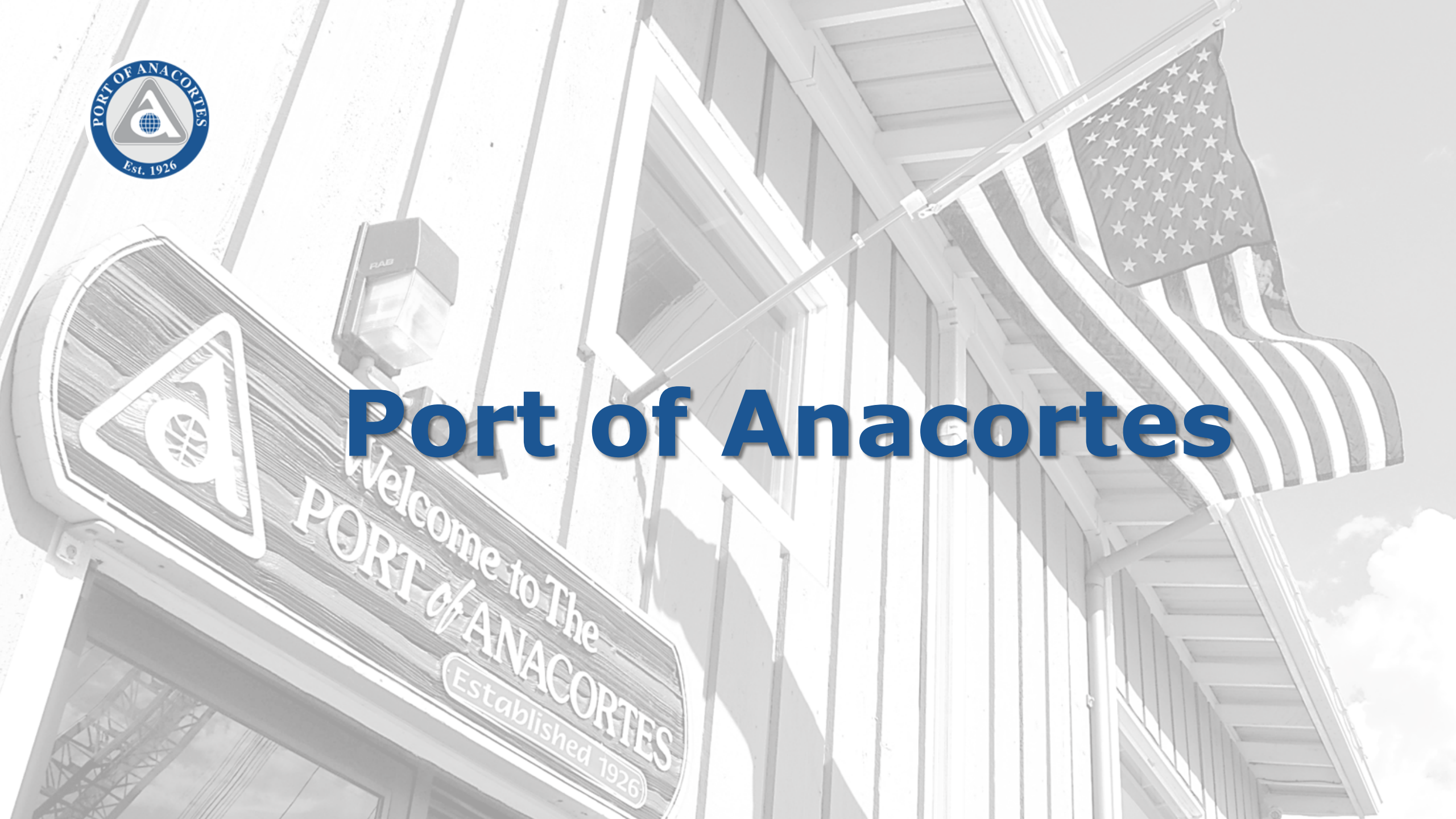
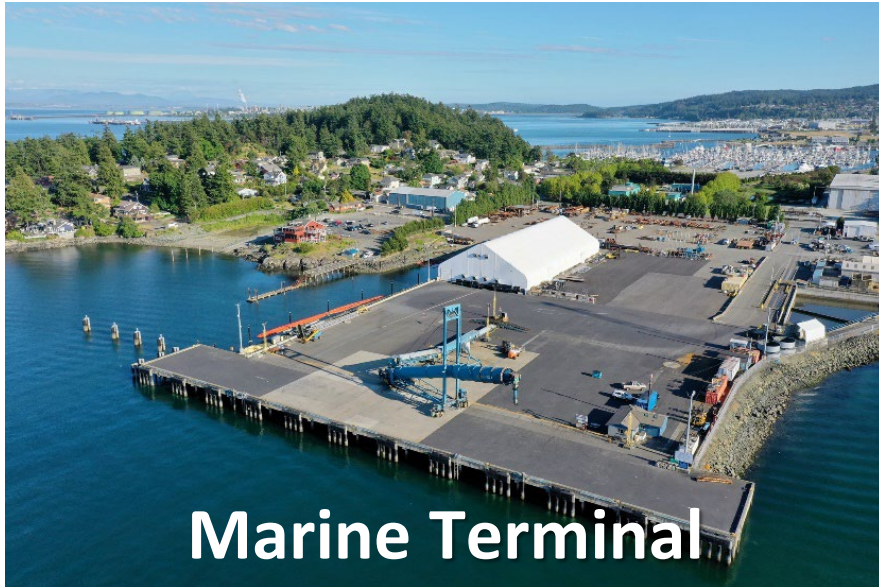




Port of Anacortes



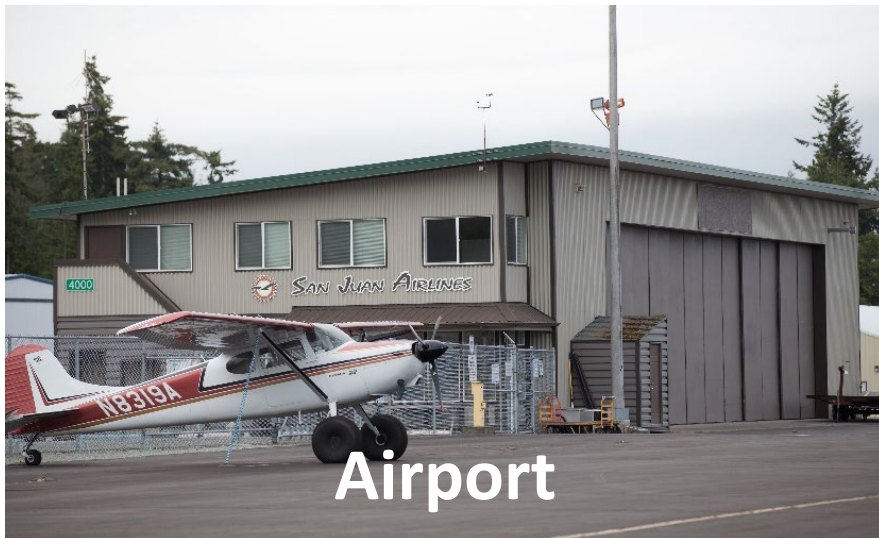
Operating Areas



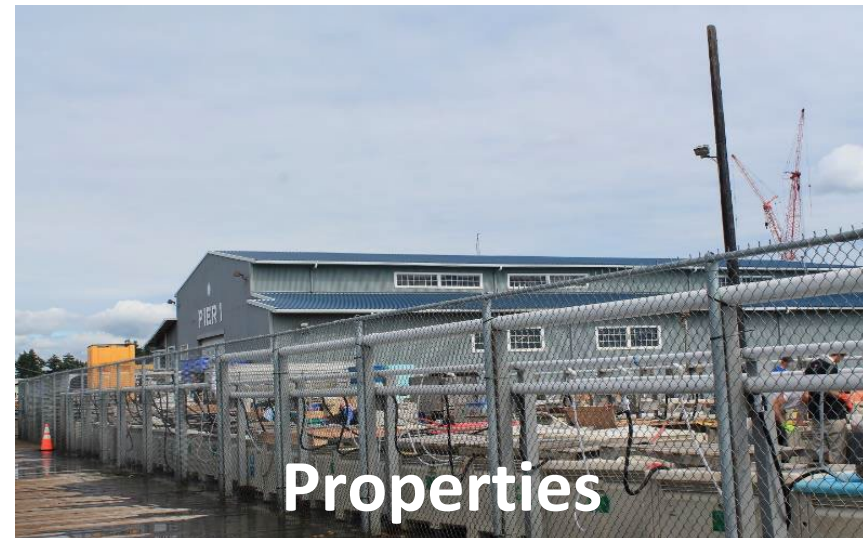
Marine Terminal



Marina



Airport



Properties



ELECTRIFYING THE PORT OF ANACORTES



DECEMBER 11, 2024

MARINE TERMINAL MODERNIZATION PLAN



MARINE TERMINAL MODERNIZATION PLAN



PORT OF ANACORTES

ANACORTES, WASHINGTON
September 15, 2020

CURTIS WHARF ELECTRIFICATION: SHORE POWER

Legislative Appropriation through WSDOT



Scope: (2) 200A 480V mobile skids to power harbor craft at berth

Cost: \$2.2 million

State Funding:

2023	\$ 500,000
2024	<u>\$1,500,000</u>
Total	\$2,000,000





Electrification: A Key to a More Sustainable Future

WSDOT Port Electrification Grant

ELECTRIFICATION: KEY TO A MORE SUSTAINABLE FUTURE

WSDOT Port Electrification Grant



Funding Mechanisms

WSDOT Funded	\$1,030,599
Port Funded	<u>\$ 257,650</u>
Total Project Cost	\$1,288,248



*Clockwise from left:
A Dock Shore Power; Airport EV
Charging Station; Ford F-150 HEV
Trucks (2); Prius Prime Premium;
Ranger XP Ultimate*





Welcome to The
PORT of ANACORTES
Est. 1926

Pacific Northwest National Laboratory

Port Electrification Collaboration

PNNL: PORT ELECTRIFICATION



PORT ELECTRIFICATION HANDBOOK

A Reference to Aid
U.S. Port Energy Transitions

May 2024

Prepared for the U.S. Department of Energy
under Contract DE-AC05-76RL01830

U.S. DEPARTMENT OF
ENERGY



Case Study: Port of Anacortes

Evaluating Opportunities for Port Technical Assistance
through a Collaborative Research Pilot

October 2024

U.S. DEPARTMENT OF
ENERGY

PNNL: CASE STUDY FOR PORT TECHNICAL ASSISTANCE



Purpose: *Determine what types of technical assistance would Ports need to better understand the most effective course of action to reduce emissions.*

❖ Renewable Energy Assessments:

- Solar Energy
- Wind Energy
- Marine Energy

❖ Microrgrid Analysis

❖ Decarbonization Life-Cycle Analysis

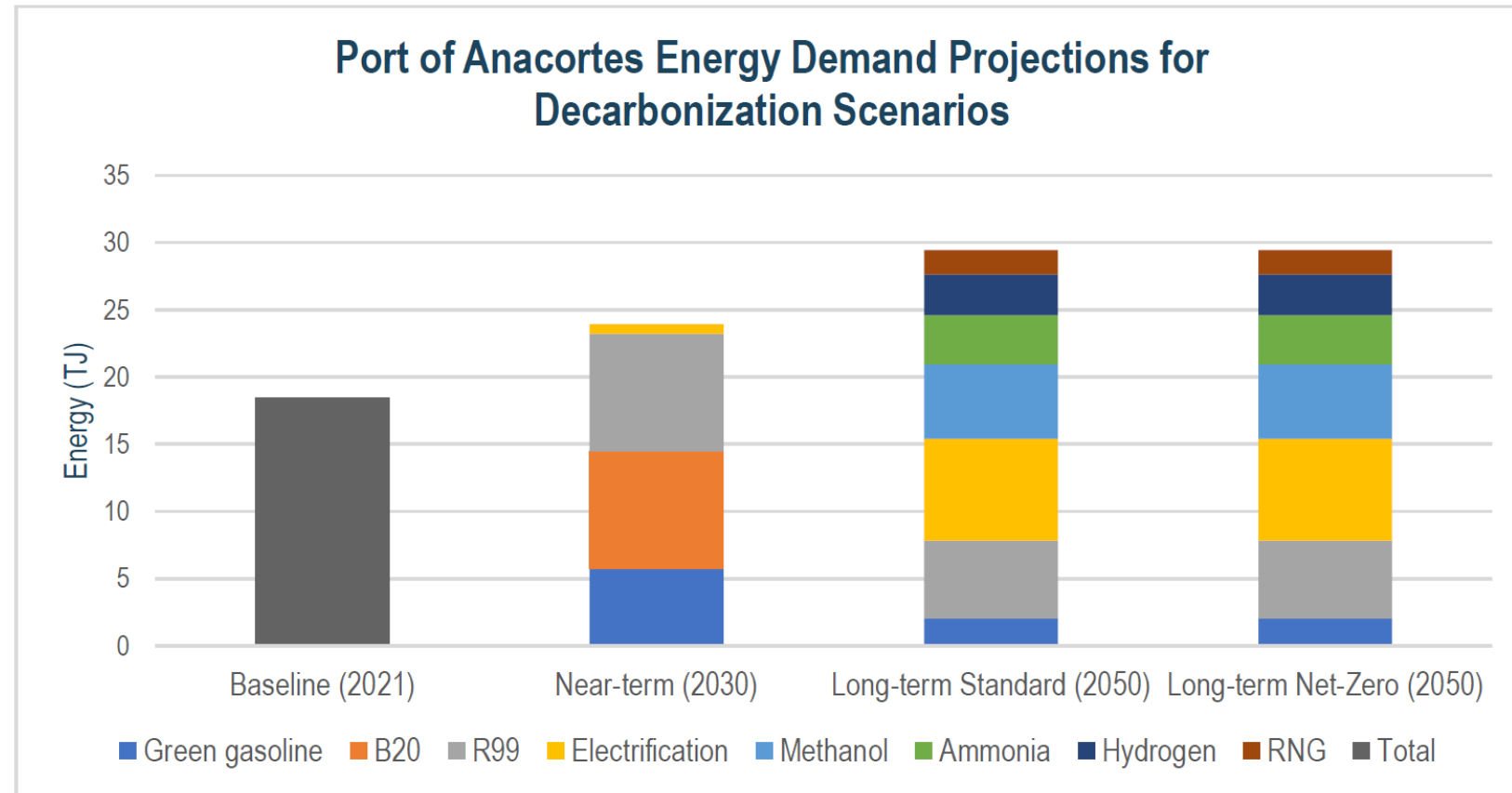


Figure 5. A breakdown of the historical and projected energy demand by energy type for mobile emissions sources at the Port of Anacortes. The Baseline (2021) scenario includes primarily fossil fuel energy sources—gasoline, MDO, ULSD—and some hybrid technologies.



Building Towards a Cleaner Community by Planning for the Future

*EPA Clean Ports Program: Climate &
Air Quality Planning Competition*

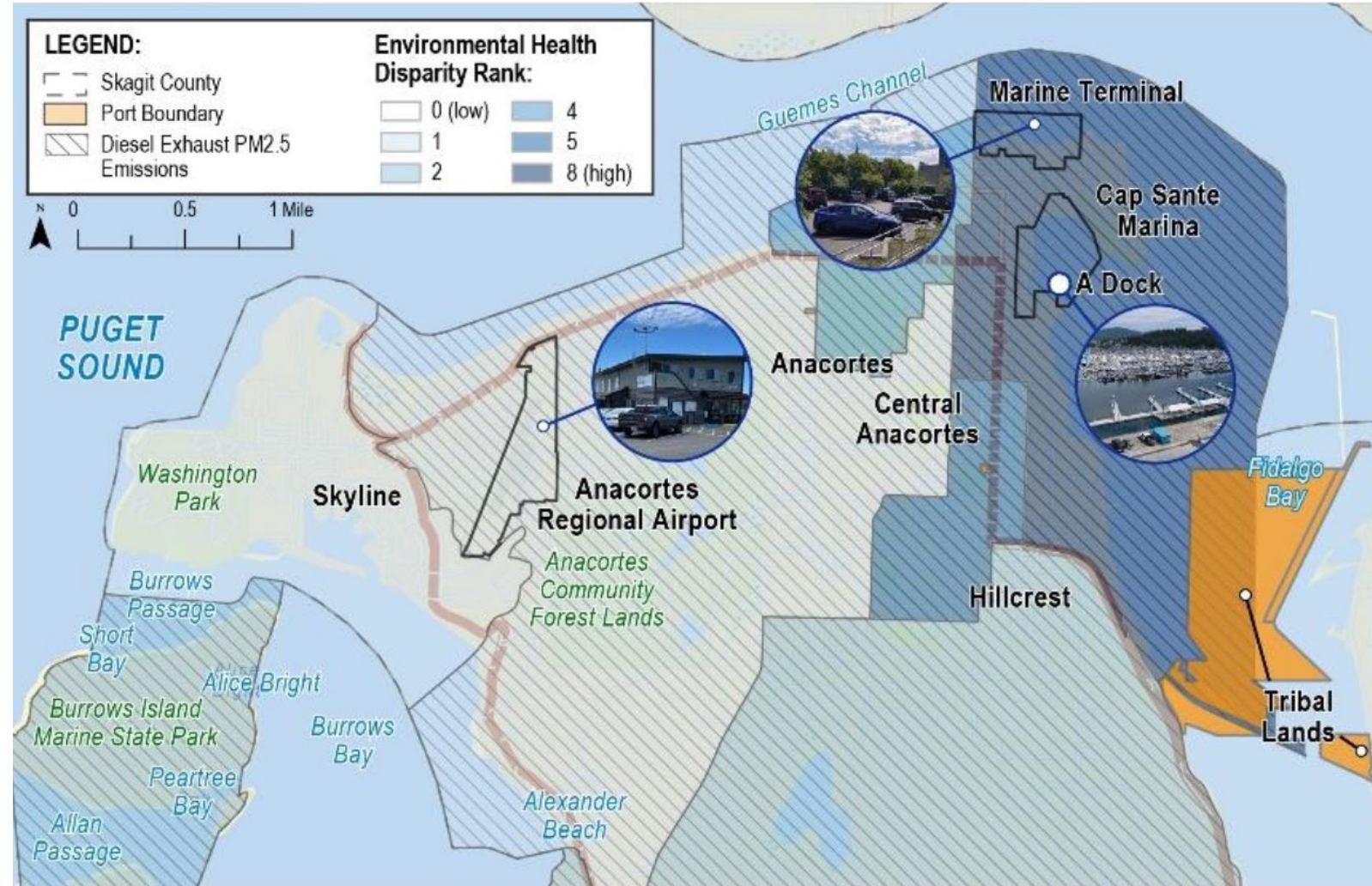
PLANNING FOR THE FUTURE

Within the Port of Anacortes



Funding

EPA Funding Request	\$1,355,955
Port Funded	<u>\$ 150,6620</u>
Total Project Cost	\$1,506,617



PLANNING FOR THE FUTURE

Within the Port of Anacortes



EPA Planning: Work Plan Project Summary

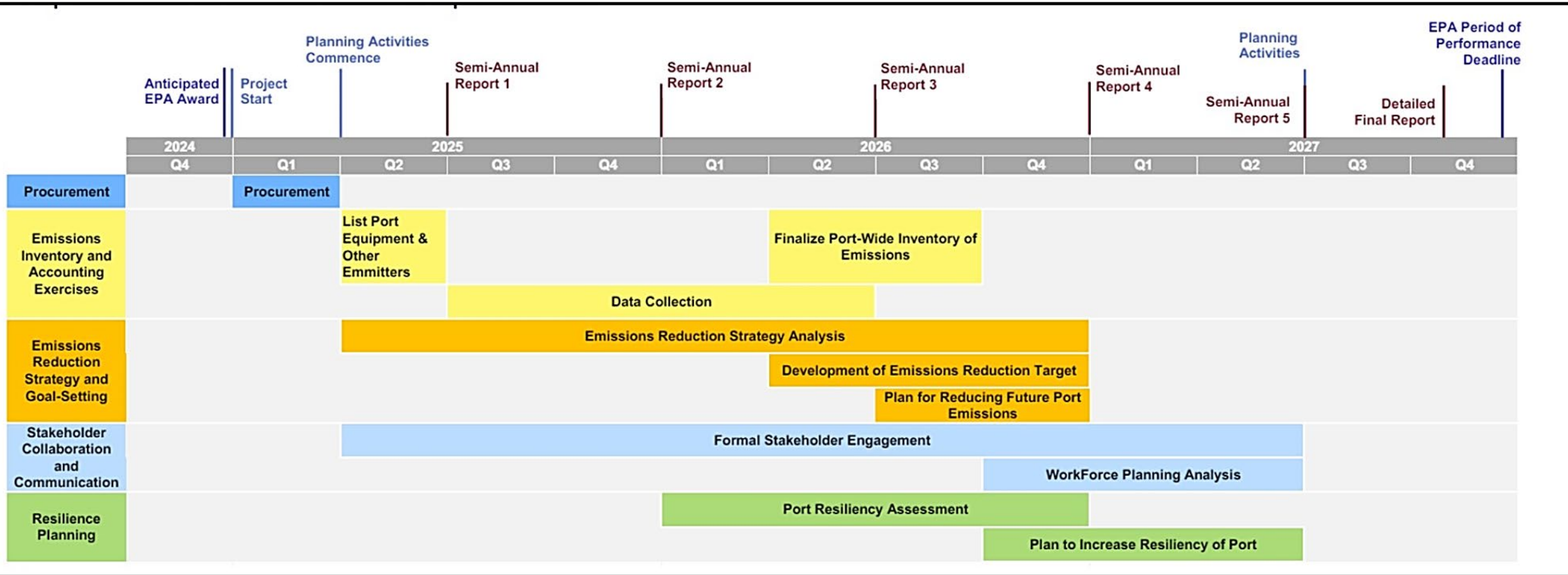
- **Emissions Inventory & Accounting Exercise**
Port-wide Equipment Inventory List, Traffic Emissions Baseline & Model, and Emissions Inventory of Port
- **Emissions Reduction Strategy & Goal-Setting**
Emissions simulations and reduction analysis, feasibility assessment, Port-wide Air Quality and Climate target setting, Port Emissions Reduction Implementation Plan
- **Stakeholder Collaboration & Communication**
Stakeholder Engagement Plan, Environmental Justice Outreach Plan, Community Benefits Plan, Workforce planning and development
- **Resilience Planning**
Overall infrastructure and operational assessment of the Port Resiliency, and Implementation Plan

PLANNING FOR THE FUTURE

Within the Port of Anacortes



Planning Grant Timeline





Building a Cleaner Future by Implementing Zero-Emission Equipment

*Clean Ports Program: Zero-Emission
Technology Deployment Competition*

IMPLEMENTING ZERO-EMISSION EQUIPMENT

Within the Port of Anacortes



Lead Applicant

Port of Anacortes

Collaborators/Sub-awardees

Stabbert Marine & Industrial

Arrow Launch Service

Culbertson Marine Construction

Island Express Charters

Skyline Marine Center

Washington State Ferries

EPA Funding Request

\$63,803,293

Port/Private Match

\$10,312,006

Total Project Cost

\$74,115,299

IMPLEMENTING ZERO-EMISSION EQUIPMENT

Within the Port of Anacortes



Port of Anacortes

❖ ZE Equipment

❖ Shore Power at Cap Sante Marina

A Dock – (3) 200A/480V

T Dock – (2) 200A/480V

❖ Staff Training

Total: \$2.7 Million

Line Item and Itemized Cost	EPA Funding	Non-Federal Cost Share
Equipment		
Forklift 2,500 kg	\$65,830	\$7,315
Forklift 4,500 kg	\$84,537	\$9,393
Forklift 7,000 kg	\$132,684	\$14,742
Forklift 8,000 kg	\$148,939	\$16,549
Forklift 8,000 kg, 36" LC	\$164,062	\$18,229
Electric Boom Lift	\$135,000	\$15,000
Total Equipment	\$731,052	\$81,228
Contractual		
A-Dock Electric Upgrade Design & Engineering & Construction Oversight	\$99,000	\$11,000
T-Dock Electric Upgrade Design & Engineering & Construction Oversight	\$81,900	\$9,100
Total Contractual	\$180,900	\$20,100
Construction		
A-Dock Electric Upgrade (Shorepower project) Provision of upgraded transformer to 500 KVA and panel to 1600A. Provide three (3) 200A 480V 3phase charging outlets	\$648,000	\$72,000
T-Dock Electric Upgrade (Shorepower project) Provision of upgraded transformer to 225 KVA and panel to 1000A. Provide two (2) 200A 480V 3phase charging outlets	\$495,900	\$55,100
A-Dock Puget Sound Energy Fees	\$112,500	\$12,500
T-Dock Puget Sound Energy Fees	\$112,500	\$12,500
Total Construction	\$1,368,900	\$152,100

IMPLEMENTING ZERO-EMISSION EQUIPMENT

Within the Port of Anacortes



T Dock Electric Upgrades

Provide 2 Opportunity Charging Pedestals of 200A 480V 3P service



A Dock Electric Upgrades

Provide 3 Slip-based Charging Pedestals of 200A 480V 3P service

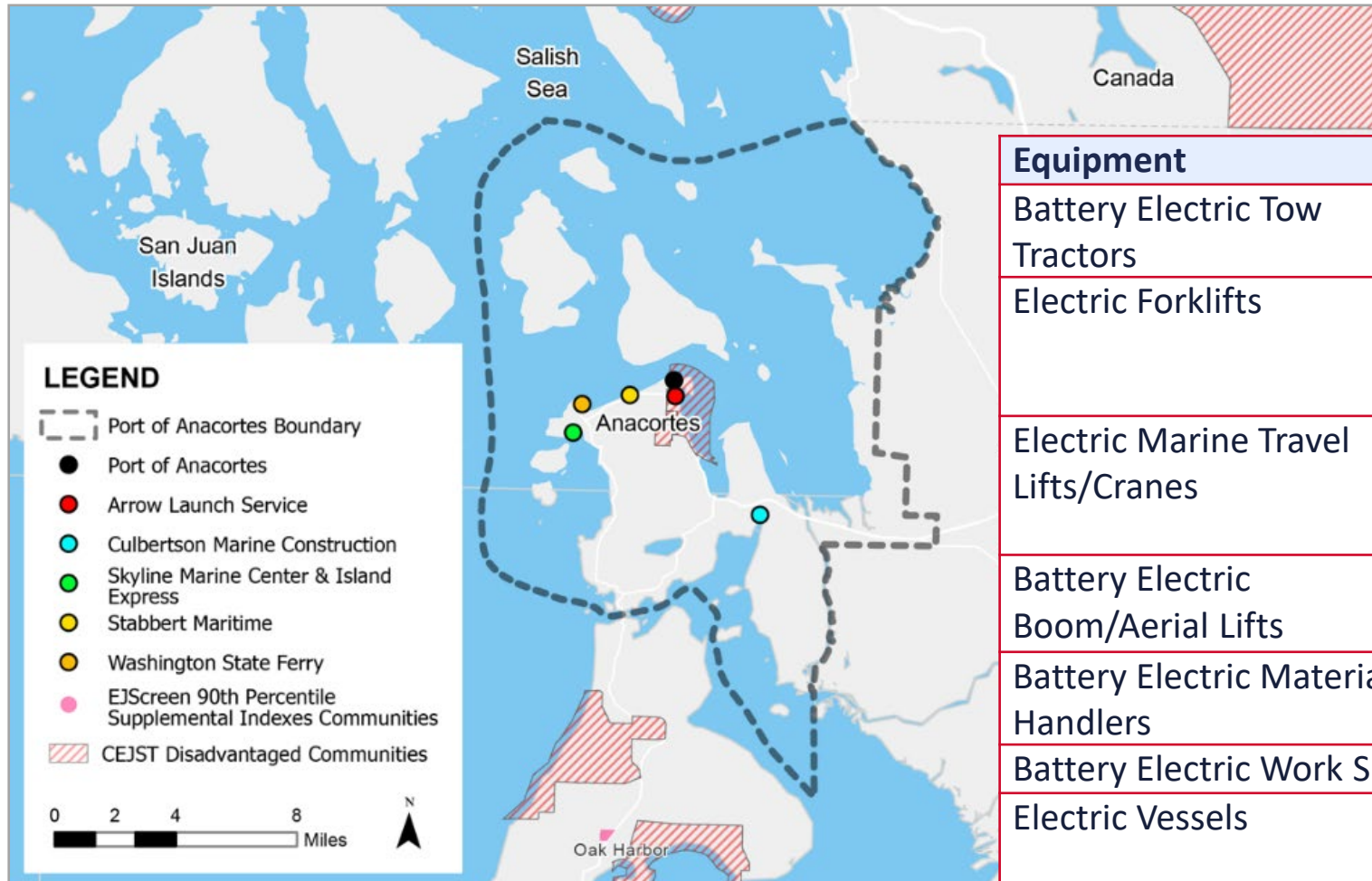


IMPLEMENTING ZERO-EMISSION EQUIPMENT

Within the Port of Anacortes



Port of Anacortes Map



POA & Collaborating Partner Project Vehicles, Vessels, & Equipment

Equipment	Qty	Partner(s)
Battery Electric Tow Tractors	5	Washington State Ferries
Electric Forklifts	16	Stabbert Marine & Industrial, Culbertson Marine Construction, Skyline Marine Center, Port of Anacortes
Electric Marine Travel Lifts/Cranes	6	Culbertson Marine Construction, Stabbert Marine & Industrial, Skyline Marine Center
Battery Electric Boom/Aerial Lifts	5	Stabbert Marine & Industrial, Culbertson Marine Construction, Port of Anacortes
Battery Electric Material Handlers	2	Culbertson Marine Construction
Battery Electric Work Skiffs	2	Stabbert Marine & Industrial
Electric Vessels	5	Arrow Launch Service, Island Express Charters

IMPLEMENTING ZERO-EMISSION EQUIPMENT

Within the Port of Anacortes



Project Timeline & Milestones

Task	Start	Completion	Milestones/Deliverables
Task 1 Project Management & Administration	December 2024	November 2028	Project Kick-off; PMP; Project Meetings
Task 2 Community Outreach & Engagement	December 2024	November 2028	Education and Outreach Materials, Community Workshops and Forums, School Visits, Newsletters, and E-mail
Task 3 Preconstruction Activities	December 2024	March 2027	100% Design Documents, Bid Documents, Bid Documents Release(s), Permits, Contractor Awards
Task 4 Vehicle, Vessel, & Equipment Procurement	December 2024	November 2026	Purchase Orders, Vehicle, Vessel, and Equipment Delivery
Task 5 Infrastructure Construction &/or Installation	March 2025	December 2027	Infrastructure Construction, Charging Equipment Installation
Task 6 Commissioning & Training	January 2025	November 2028	Testing, Training Materials, Training Sessions
Task 7 Grant Reporting	June 2025	November 2028	Semiannual Progress Reports, Final Report



PORT OF ANACORTES