

NW Seaport Alliance Puget Sound
Zero-Emission Truck Collaborative

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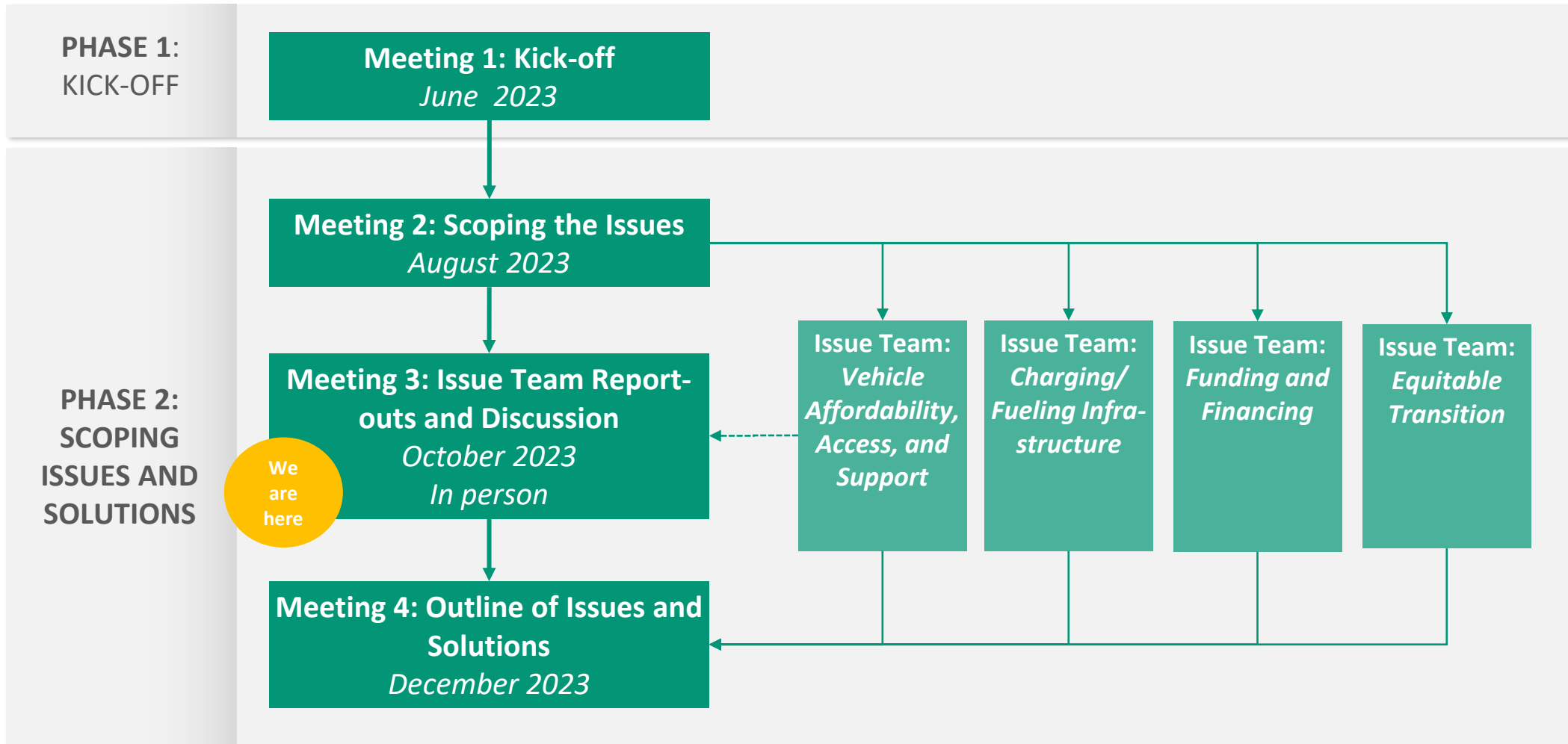
October 13, 2023



Meeting Objectives

- Understand key issues, concerns, and benefits of the transition to zero-emission trucks from the perspective of near-port community members
- Hear updates on outreach and engagement activities for the Collaborative
- Hear and discuss updates on key Washington state policy developments related to zero-emission heavy-duty trucks
- Hear and discuss potential solutions, key questions, and data needs from small group Issue Teams

Proposed 2023 Meetings



Meeting Agenda



9:00 – 9:15 AM

Welcome and Meeting Overview

9:15 – 10:15 AM

Community Panel

10:15 – 10:30 AM

Update on Outreach and Engagement

10:30 – 10:45 AM

Break

10:45 – 11:30 AM

Policy Updates

11:30 – 11:45 AM

Break for working lunch

11:45 AM – 12:30 PM

Issue Team Summaries and Discussion

12:30 – 12:45 PM

Roadmap initial outline and research agenda

12:45 – 12:55 PM

Public Comment

12:55 – 1:00 PM

Wrap up and Adjourn

Tips for effective hybrid meetings



In-person participants:

- Please use microphones
- Say your name before you speak so remote participants can identify you
- Tip up your name card to indicate a question or comment

Remote participants:

- Please use your video and mute audio when not speaking
- Raise your hand if you have a question or comment

Public Participation

- Those observing the meeting virtually will be muted, off video, and off chat until the public comment time
- There will be an opportunity for 2-minute public comments at the end of the meeting. At that time, members of the public who would like to comment should raise their hands if they would like time to speak

Project Website

URL:

<https://www.rossstrategic.net/Zero-Emission-Truck-Collaborative/>

PUGET SOUND
Zero-Emission Truck Collaborative

Meeting Schedule & Materials

About the Collaborative

The transition to zero-emission drayage vehicles serving ports in the Pacific Northwest is a key step to meet zero emission trucking targets adopted in the Northwest Ports Clean Air Strategy while also contributing to city and state decarbonization goals. The multi-stakeholder Puget Sound Zero-Emission Truck Collaborative to develop a roadmap for transitioning to zero-emission drayage services at the Puget Sound region marine cargo terminals no later than 2050. The Collaborative will meet approximately every other month for half-day meetings between June 2023 and December 2024. Most of these meetings will be virtual but some may be in-person meetings that will include site visits and/or listening sessions. This website will be updated with relevant materials for each of these meetings.

Meeting Schedule and Materials

Meeting 1: June 30, 2023

The purpose of this first meeting is to introduce members of the Collaborative and create a shared understanding of project context, background, and objectives and proposed process for the Collaborative. Members will discuss and affirm Roadmap principles and Collaborative purpose, as well as the Collaborative charter and operating guidelines.

[Meeting Agenda](#) [Draft Charter](#) [Collaborative Members](#) [Collaborative and Roadmap Scoping Document](#)

Meeting dates and materials will be posted for future meetings as available.

Introductions



Ice Breaker



What is the most unusual Halloween costume you've worn or seen?

Community Issues, Concerns, and Benefits





- Logan Danzek, Communities for a Healthy Bay
- Christian Poulsen, Duwamish River Community Coalition

Driver & Near-Port Community Engagement

Puget Sound Zero-Emission Truck Collaborative meeting

October 13, 2023

Consuelo Davis (she/her)

Stepherson & Associates Communications



Engagement Updates



Complete or in progress:

- Trucker and Near-Port Communities Engagement Plan
- Drafting key messaging, developing two surveys and outreach materials

Next steps:

- Small driver group listening sessions - Nov. 2023
- Surveys, community briefings, industry events – Dec./Jan. 2024

Collaborative Involvement



How can you help with engagement?

- Help us identify and recruit driver participants who may be interested in listening sessions in November (look for an email from us).
- Share the surveys with your networks (when final) via email listservs, social media, or other channels.
- Share surveys at fall/winter industry events, if attending.

Break



Policy Updates



Policy Updates

- Draft Washington State Transportation Electrification Strategy – Steven Hershkowitz, Department of Commerce
- Joint Transportation Committee Medium and Heavy-Duty Vehicle Infrastructure and Incentive Study – Betz Mayer, PNWER
- Climate Pollution Reduction Plans – Christine Cooley, PSCAA

Puget Sound ZEV Truck Collaborative – Meeting 3

Using the Transportation Electrification Strategy to inform drayage truck electrification

Steven Hershkowitz

TRANSPORTATION ELECTRIFICATION POLICY LEAD



Washington State
Department of
Commerce

Transportation Electrification Strategy

Vision: All Washingtonians and visitors can use an EV and have access to convenient, reliable, and affordable charging stations.

- Roadmap to show what policies and investments are needed to achieve maximum electrification through 2035
- Modeling to inform EV infrastructure investments (location, type, quantity, power level, costs, timeline)
- TES will be finalized Dec. 2023



Modeling methodology

Two-part python-based model	(1) Stock rollover -> (2) EV charging
Scope	Class 1-8, on-road vehicles
Scenarios	(1) Current policies, (2) Strong TE Tech, (3) Strong TE Policy, (4) Strong VMT & Weight Reduction, (5) Best Climate, (6) Worst Climate
Methods and inputs (stock rollover)	<ul style="list-style-type: none">• TCO (vehicle costs, fuels costs, incentives, etc.) and consumer demand S curve• Top-down mandates (ACCII, ACT, ACF)
Methods and inputs (EV charging)	<ul style="list-style-type: none">• Replica trip data converted to needed energy by vehicle segment, geography, and year• Assumes drivers will charge at location with longest “dwell time”
Outputs	<ul style="list-style-type: none">• Sales % by fuel type and vehicle segment• Vehicle population by fuel type and segment• Charging plugs by level, vehicle segment, geography, and year• Emissions and energy usage

Regional modeling outputs

Electric vehicle adoption, charging plugs, and air pollutants



Modeling results for King and Pierce – Heavy Duty Trucks

Geography	HDV BEV* stock % (2023)	HDV BEV stock % (2025)	HDV BEV stock % (2030)	HDV BEV stock % (2035)
King	0.9%	7.4%	28.3%	46.0%
Pierce	0.8%	6.7%	27.2%	46.0%
Statewide	0.6%	5.6%	23.5%	41.0%

* Does not include FCEV because model finds current data suggests FCEV will not be cost effective relative to BEV before 2035. However, this could change if green hydrogen costs decrease more than current forecasts.

Modeling results for King and Pierce – Heavy Duty Truck Charging (Plugs – 350 kW)

Geography	Depot (2025)	Highway (2025)*	Depot (2030)	Highway (2030)*
King	50	24	182	65
Pierce	25	12	96	35
Statewide	186	102	679	258

* Does not include charging needed to support trucks moving through WA but stationed outside the state

Modeling results for King, Kitsap, Pierce, and Snohomish Counties – Local pollutants (tons)

Geography	NOx (2023)	NOx (2035)
King	978	333
Pierce	506	198
Statewide	4,388	1,489

Statewide GHG emissions

Implications for policy strategies for state & Puget Sound region



On-road emissions must be <10 MMT in 2030

Subsector	MMT	Percent
Light-duty vehicles (primarily gasoline)	16.3	40%
Heavy-duty vehicles (primarily diesel)	7.2	18%
On-road total	23.5	58%
Marine	7.2	18%
Aviation	6.3	16%
Rail	0.3	1%
Other ground non-road	2.8	7%
Non-road total	16.7	42%
Total	40.3	100%

2019 Emission Inventory – Ecology

2030 targets for on- and non-road emissions

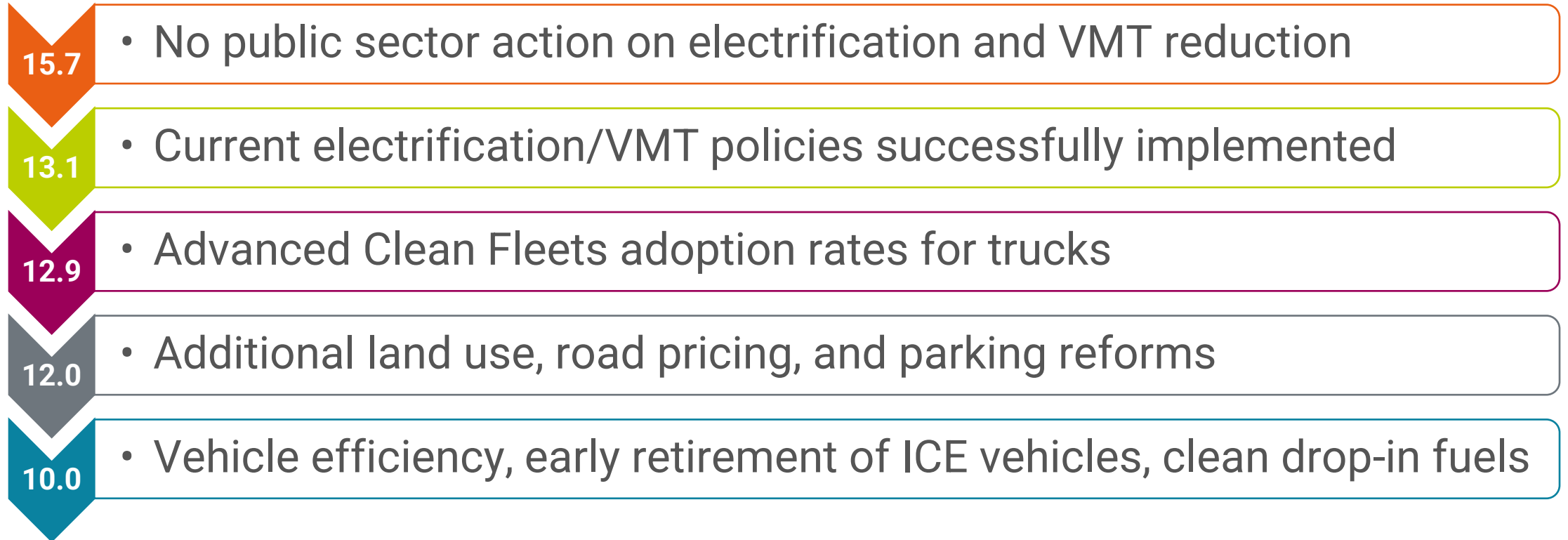
Two safe assumptions:

1. Transportation decarbonization is more likely than industrial sector
2. On-road emissions will be much easier to decarbonize than non-road emissions

Therefore, on-road emissions must “punch above its weight”

- Very likely that non-road emissions end up being higher than on-road emissions by 2030
- On-road emissions must be 10 MMT or less in 2030

Achieving 2030 limit – On-road emissions



Million metric tons CO2e for on-road transportation in 2030.

Draft policy recommendations

Prioritization based on (1) GHG emissions reduction, (2) equity, and (3) urgency to act

Priority policy recommendations – Charging

Action	State Lead
Increase funding for heavy-duty depot and public charging where adoption is viable	Commerce and WSDOT
Utility-side make-ready planning and investments	Commerce and UTC
Allowing more TE programs by lifting cap on investments	Commerce and UTC
Consumer protections and standards	Commerce and WSDOT
Require utilities to provide public-facing hosting capacity maps	Commerce and UTC

Priority policy recommendations – Trucks

Action	State Lead
Consider Advanced Clean Fleets	Ecology
Equity-focused heavy-duty vehicle incentives	WSDOT/Commerce/Ecology
Pursue supply-side solutions	Commerce
Scrap and replace for diesel super-users	Ecology

Priority policy recommendations – Community capacity and workforce

Action	State Lead
Fleet training and technical assistance	Commerce, WSDOT
Grants to CBOs for project planning	Commerce
Workforce training and labor standards	Commerce/ WSDOT/Ecology/Labor & Industries

Priority policy recommendations – Non-electrification

Action	State Lead
Anti-idling law and enforcement for diesel vehicles	Ecology
Assess Clean Fuel Standard credits for e-fuels, biofuels, renewable diesel	Ecology/Commerce

How to provide public comment

- [Draft TES links](#), including modeling results dashboard
- Written comments can be submitted [online](#) through Oct. 30

Thank you!



Washington State
Department of
Commerce

www.commerce.wa.gov





WA State Infrastructure & Incentive Program Design for MHD ZEVs

JTC Study Update for NWSA's Puget Sound Zero-Emission
Truck Collaborative

October 13, 2023



Project Overview

Creating a successful infrastructure and vehicle incentive program based on best practices

Goals of the Project

- Provide the Legislature with study results **by January 2, 2024**
- Ensure the study's recommendations **align with WA's Transportation Electrification Strategy**
- Design an incentive program that helps **build a medium- and heavy-duty zero-emission vehicle market** in WA State
- Design an implementation plan that **enables smooth integration into State agency operations** for incentive program deployment in early 2024
- Incorporate **stakeholder feedback** from across WA State to ensure the proposed program will work well in WA

Work In Progress



- **Research of other incentive programs**
 - What have other states done well?
 - How can WA build a program that works?
- **WA Medium- and Heavy-Duty vehicle assessment**
 - What's happening in WA related to ZEVs?
- **Evaluation of the Clean Fuel Passenger Sales Tax Exemption**
- **Stakeholder engagement**
 - Focus Groups
 - One-on-One Meetings
 - Survey

Stakeholder Engagement Groups

- **Cargo handling and off-road equipment**
- **Tractor trucks**
- **Box trucks**
- **Drayage trucks**
- **Refuse trucks**
- **Step and panel vans**
- **Heavy and medium-duty buses**
- **School buses**
- **On and off-road terminal tractors**
- **Transport refrigeration units**
- **Forklifts**
- **Container handling equipment**
- **Airport cargo loaders**
- **Railcar movers**
- **Agriculture and Farming Equipment**
- **Dealerships – Medium-Duty, Heavy-Duty, & Off-road Vehicles**
- **Commercial Vehicle Insurance Providers**
- **Commercial Vehicle Finance**
- **Off-Road Equipment - Port / Airport**
- **Off-Road Equipment - Railroad**
- **Utilities**
- **Drayage → Puget Sound Zero Emission Truck Collaborative**
- **OEMs & Transportation Policy Experts → Clean & Prosperous Washington's MHD ZEV Work Group**

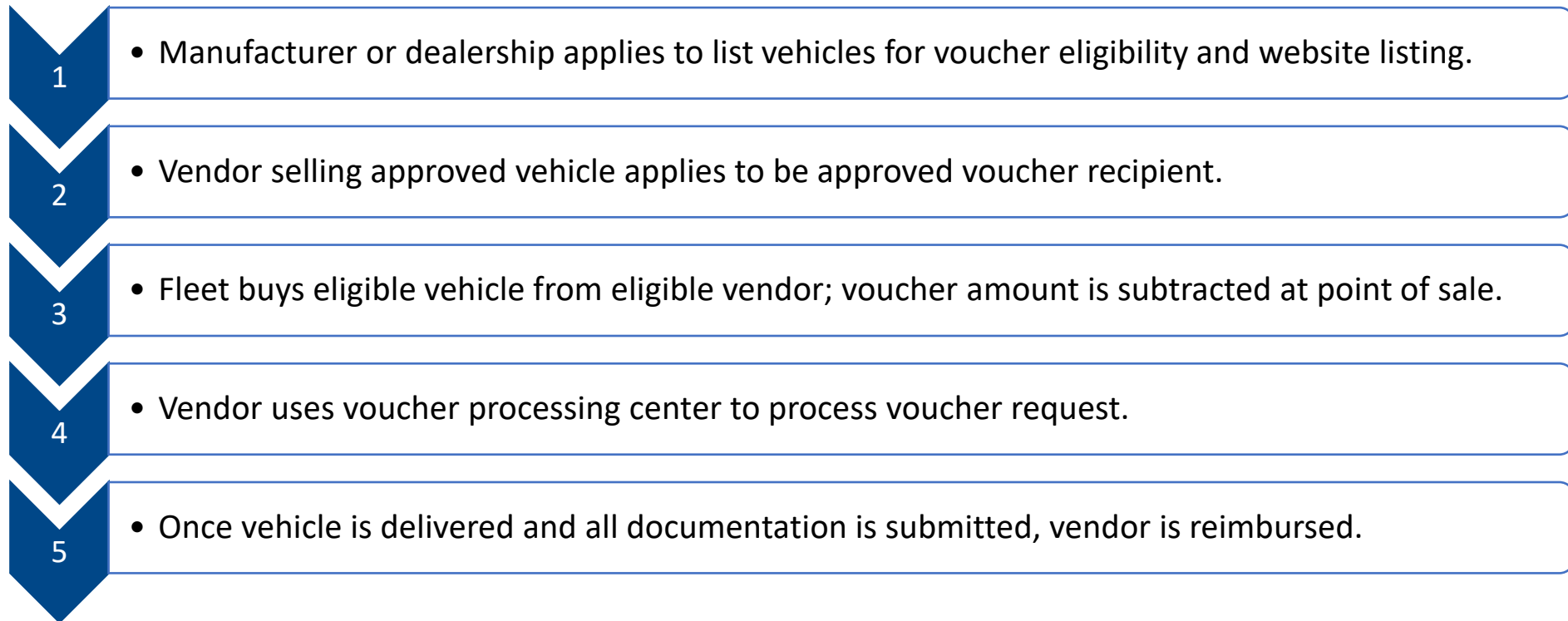


Proposed Incentive Program Overview

Point of Sale Voucher

- Using a 3rd Party Administrator, provide a point-of-sale voucher to dealerships to reduce purchase price of vehicle

HVIP Model



Additional Program Considerations

- Integration Plan for deploying in 2024
- Technology Neutral Approach
- Education / Outreach Component
 - Creating a voucher pre-approval process that helps ensure fleets have talked to local utilities about charging, have baseline knowledge of what is needed to transition fleet to ZEVs.
- Implementation Manual for Dealerships
- ‘Plus-Ups’ for ZEVs domiciled in disadvantaged communities
- Infrastructure Incentive

Next Steps

- Hosting Focus Groups
- Consultation with legislators
- Consultation with Staff Work Group
- Draft final report in November 2023
- Presentation to JTC on Dec. 14
- Final Report due January 2, 2024
- Presentation to WA State Legislators January 2024

Join a Focus Group

Your input is needed for Dec. 14 JTC report!

- We're hosting over 20 feedback sessions with legislators and stakeholders
- Join a small focus group from your industry segment
 - Respond to draft incentive program
 - Sign up for Focus Groups at bit.ly/mhd-focus-group



Thank you!

Please send feedback & further comments to betz.mayer@pnwer.org!





Puget Sound Zero-Emission Truck Collaborative Meeting

October 13, 2023



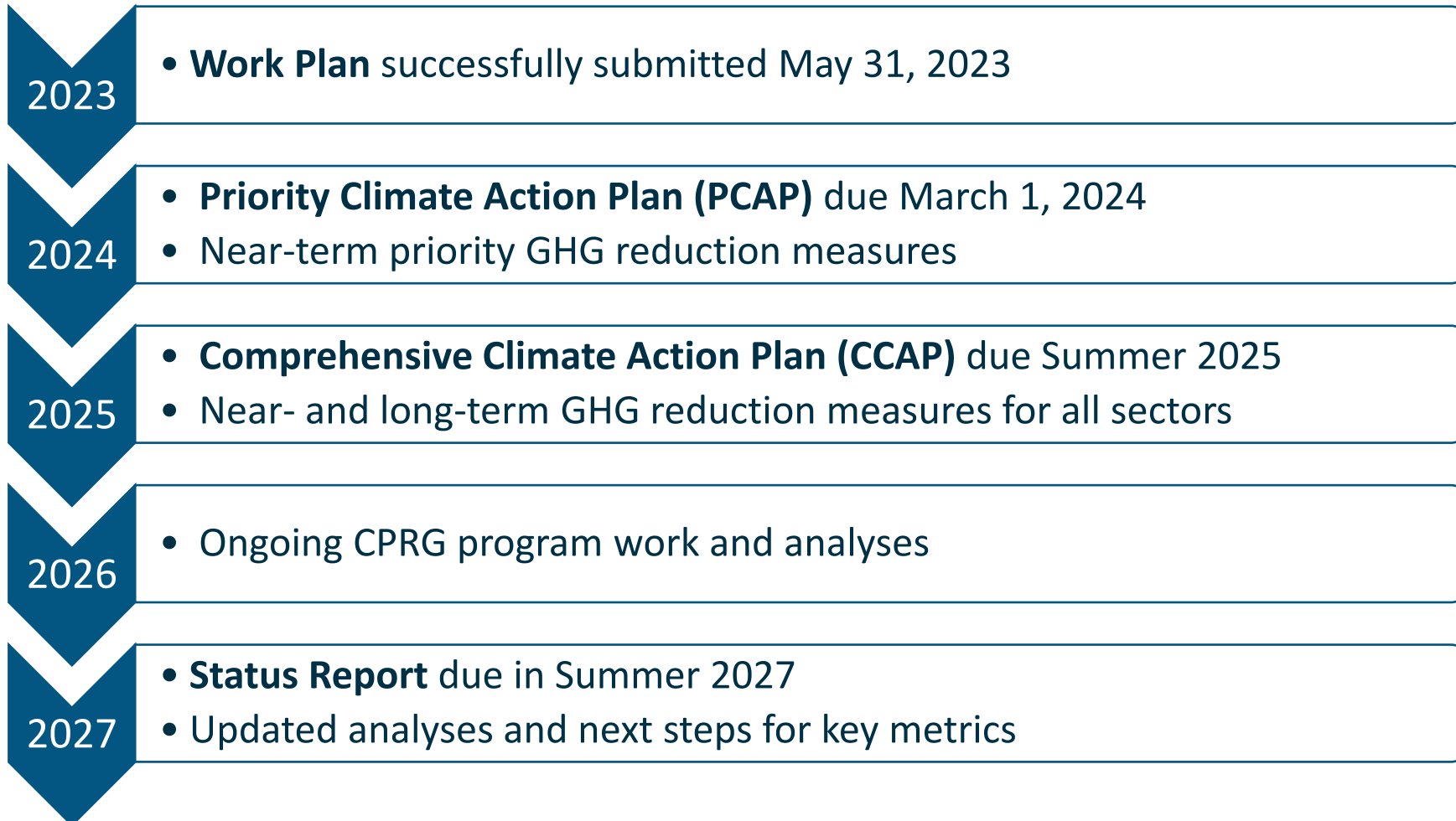
To be covered

- Recap: Brief Overview of CPRG Program and Deliverables
- Phase 2 Overview
- Next Steps & Questions

CPRG Overview

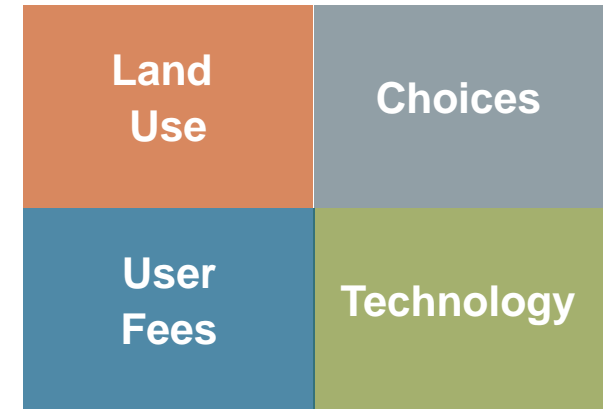
- Part of the Inflation Reduction Act (IRA), the CPRG program is just one of the tools EPA is implementing to reduce climate and air pollution
- CPRG is comprised of two phases:
 - Phase 1 (Non-Competitive Planning Grants) to develop strong climate pollution reduction strategies (\$250M)
 - Phase 2 (Competitive Implementation Grants) to put plans into action (\$4.6B)
- The Agency is serving as lead organization for the Seattle-Tacoma-Bellevue MSA
 - Covers the four-county region
 - Working closely with Department of Commerce and the Governor's Office to stay aligned with State efforts

CPRG Timeline & Deliverables



Priority Climate Action Plan (PCAP)

- Will address all sectors / sources of emissions
 - Transportation, including –
 - On-road (PSRC's Four-Part Greenhouse Gas Strategy)
 - Off-road
 - Marine
 - Aviation
 - Built environment
 - Waste
 - Agriculture
 - Industry
 - Electricity



CPRG Phase 2 Overview

- EPA released Phase 2 guidance on September 20, 2023
- Applications due April 1, 2024
- Goal to implement ambitious measures that will achieve significant cumulative GHG reductions by 2030 and beyond
- Eligible applicants may only apply for funding to implement measures contained in an applicable PCAP
- Eligible applicants include states, municipalities, tribes, tribal consortia, territories
- Can also apply as Partnership or Coalition (may require an MOA)

Phase 2 Funding Tiers

Tier	Grant Ranges	Funds Targeted for Each Tier	Anticipated Number of Grants to be Awarded
Tier A	\$200,000,000 – \$500,000,000	\$2 billion	4-10
Tier B	\$100,000,000 – \$199,999,999	\$1.3 billion	6-13
Tier C	\$50,000,000 – \$99,999,999	\$0.6 billion	6-12
Tier D	\$10,000,000 – \$49,999,999	\$0.3 billion	6-30
Tier E	\$2,000,000 – \$9,999,999	\$0.1 billion	10-50

Transportation GHG Measures (Examples)

- Programs to increase the share of electric vehicles and to expand electric vehicle charging infrastructure
- Transportation pricing programs that reduce vehicle miles traveled (VMT)
- New or expanded transportation infrastructure projects to facilitate alternative modes such as public transit
- Incentive programs to purchase zero-emission vehicles and equipment to replace older heavy-duty diesel vehicles and equipment
- Programs to increase efficiency and reduce GHG emissions at ports and freight terminals
- Programs to support / expand sustainable aviation fuels

Next Steps

- In partnership with the Department of Commerce, we are proposing a broad stakeholder meeting in mid-November to hear interests from agencies around the region to pursue Phase 2 implementation grants:
 - Virtual meeting date/time TBD
 - Plan to interact and provide feedback
 - Your input will inform the PCAP and Phase 2 priorities

Questions



Break for Working Lunch



Issue Team Summaries and Discussion



Vehicle Affordability, Access, and Support



Key Solutions

- Provide upfront purchase incentives and financing packages that leverage multiple “stackable” revenue streams to bring total cost of ownership (TCO) to parity with diesel and/or provide compelling ROI
 - TCO equivalency may not be enough to overcome up-front capital costs as ROI may be too extended and not compete well with other uses of capital.
- Consider alternative models to ownership: Truck-as-a-service, leasing options, and co-op models
- Advance secondary market for ZEVs
- Accelerate diesel retirement through “daisy chain” of sales/trades
- Ensure sufficient ZE truck support services (e.g., maintenance, emergency services)
- Consider increasing weight limits/exemptions for ZE trucks
- In addition to financial incentives, consider non-financial benefits for drivers (e.g., priority in queue lines)

Potential Unintended Consequences



- Technology/business risk of ZEV trucks borne by IOOs and small businesses if they are “early adopters”
- Independent owner/operators (IOOs) and small businesses particularly vulnerable to business disruptions from lack of maintenance services for ZEVs, parts availability, etc.
- Alternative business models to ownership could have negative effect on livelihoods and diminish value of drayage work
- Disruption to dealers’ business models

Data and Analysis Needs

- Analysis of purchasing incentives and financing packages, including scan of existing revenue sources, gaps, and needs
- Data collection and analysis of drayage routes to understand opportunities and potential disruptions from ZEV transition
- Best practices for incentive program design and communication to encourage uptake
- Analysis of pros and cons of alternative business models
- Best practices in resale and scrappage program design to accelerate diesel fleet retirement
- Best practices in secondary market creation
- Best practices in driver/company education and outreach

Funding and Financing



Key Solutions

- Provide upfront purchase incentives and financing packages that leverage multiple “stackable” revenue streams (continuation of vehicle affordability conversation)
- Reduce complexity/contingency of incentive offerings to enable speedy deployment
- Design incentive/financing programs that avoid adverse income tax consequences
- Create resources to help drivers and companies navigate incentive options
- Consider ways that shippers or other companies in the supply chain can pay some cost for the transition to ZEVs

Unintended Consequences



- Potential for predatory lending practices
- Impact of “hidden costs” of ZEVs, such as increased insurance cost and tax consequences of incentives
- Smaller businesses/IOOs unable to apply for funding due complexity of programs and/or lack of capacity
- Risk of stagnant demand for incentives, including for larger fleets (e.g., seeing with HVIP in California)

Data and Analysis Needs

- Scan available sources of ZEV incentive funding, gaps, and needs
- Scan ZEV incentive and financing programs in other jurisdictions and determine which of those might be successfully emulated in Washington State
- Best practices for financing program communications and design to maximize uptake (e.g., lessons from CA programs)
- Project ZEV costs over time based on market and technology maturation

Charging/Fueling Infrastructure



Key Solutions

- Pursue diverse portfolio of charging opportunities to serve different needs: behind-the-fence, public charging, trucking-as-a-service
- Proactively engage with communities on charging/fueling infrastructure location and design
- Explore the use of DERs at substations to support infrastructure needs
- Consider charging and fueling alternatives (e.g., battery swapping)

Unintended Consequences



- Inequitable access to charging resulting in inequitable economic opportunities
- Cost differentials with different types of charging (e.g., charging likely to be more expensive to drivers without a place to charge overnight)
- Potential IOO and small business dependency on companies with private infrastructure for charging
- Economic impacts of utility infrastructure and costs to rate base, especially lower income customers
- Unintended consequences on communities from siting
- Interstate commerce issues if limiting routes/services to Washington State

Data and Analysis Needs

- Analysis of infrastructure locations based on drayage routes, land use, community factors, etc.
- Forecast capacity and infrastructure needs to supply ZEV charging and other electrification loads to inform utility planning
- Analyze hydrogen fueling needs, supply and cost-effectiveness with electrification
- Identify funding sources and incentives for charging/fueling as well as gaps and needs
- Scan current efforts to develop truck charging/fueling infrastructure in Seattle/Tacoma gateways
- Best practices/examples for community engagement in charging/fueling siting

Equitable Transition



Key Solutions

- Design purchase incentive and financing approaches that are clear and accessible to independent owner/operators (IOOs) and smaller fleets
- Consider opportunities to reduce default risk to encourage financing for IOOs and small businesses (e.g., loan-loss reserves)
- Provide education, training, and technical assistance programs for IOOs and small businesses to increase awareness of ZEV trucks, charging/ fueling, financing options, etc.
- Provide education and training to drivers on technology, maintenance, operations, insurance, financing, etc.
- Proactively engage with communities about land use, charging/fueling facility siting, and facility design

Data and Analysis Needs

- Analysis of demographics of drivers and companies serving Seattle/ Tacoma port
- Analysis of community characteristics, impacts, and needs
- Best practices for incentive program communications and design for IOOs and small businesses
- Analysis of impacts and opportunities for local businesses
- Analysis of workforce demand and development opportunities

Discussion

- What is missing?
- What should be emphasized?



Roadmap Initial Outline and Research Agenda



Roadmap Initial Outline

- A. Introduction**--Project purpose and process
- B. Vision**--What we are seeking to accomplish and guiding principles
- C. Drayage Sector Context**
 - 1. Drayage market size, composition, and trajectory
 - 2. Drayage routes
 - 3. Driver issues and characteristics
 - 4. Community issues and characteristics
- D. Forecasted Transition**
 - 1. Factors affecting market development over time
 - 2. Scenarios of vehicle and charging/fueling characteristics over near, medium, and longer terms

Roadmap Initial Outline



E. Issues & Actionable Recommendations

1. Equity and Opportunity
 - a) Ensure vehicle affordability, access, and support for IOOs and small businesses
 - b) Ensure equitable access to infrastructure
 - c) Minimize disruptions to drayage business practices and models
 - d) Engage communities and maximize benefits
 - e) Create economic opportunity and mitigate unintended consequences
2. Vehicles
 - a) Ensure affordability through financial incentives
 - b) Provide appropriate alternatives to vehicle ownership (e.g., trucking-as-a service)
 - c) Mitigate impact of additional vehicle weight
 - d) Ensure vehicle availability
 - e) Ensure adequate vehicle maintenance and services
 - f) Increase vehicle familiarity and training
 - g) Create secondary ZEV market
 - h) Accelerate diesel vehicle retirement

Roadmap Initial Outline



E. Issues & Actionable Recommendations, continued

3. Charging and Fueling Infrastructure

- a) Ensure appropriate mix of charging types (behind-the-fence, trucking-as-a-service, public charging) and composition
- b) Create appropriate role for hydrogen vehicles and fueling
- c) Appropriately locate infrastructure to provide adequate opportunity and minimize disruption to drayage patterns
- d) Site infrastructure in ways appropriate to the sector and community
- e) Ensure adequate funding/financing for infrastructure costs
- f) Ensure high level of infrastructure reliability
- g) Ensure adequate power supply and infrastructure from utilities

F. Funding Needs and Enabling Policies

G. Roles and Responsibilities

H. Collaboration

I. Conclusion: Call to Action

Key Areas of Research and Collaborative Learning



- Drayage Characterization Study (Tetra Tech)
- Driver and community issues and needs (S&A)
- Forecast/scenarios of regional ZEV transition path for vehicles and infrastructure (GNA)
- Secondary market development (GNA)

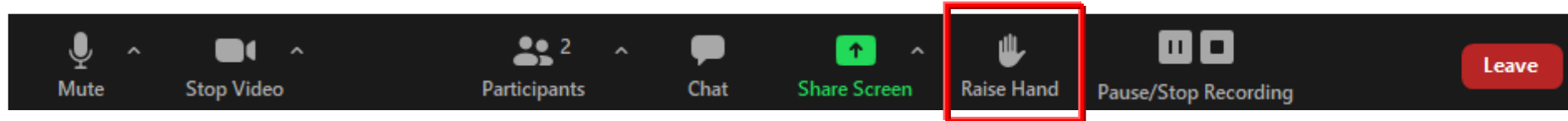
- Panels and presentations on a variety of topics, such as:
 - Vehicle incentives and financing
 - Alternatives to ownership (e.g., trucking as a service)
 - Incentive program design
 - Utility infrastructure and planning

Public Comment



Instructions for Public Comment

- Members of the public that are interested in making 2-minute statements are invited to do so
- Please introduce yourself
- To the extent possible, please frame remarks as comments rather than questions
- For virtual participants, please use Zoom to raise your hand if you would like to make a statement, and you will be unmuted



Next Steps

- Meeting summary, slides and materials on website
- Next full Collaborative meeting: December 11, 11:00 AM – 2:30 PM