NW Seaport Alliance Puget Sound
Zero-Emission Truck Collaborative

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October 17, 2024

Meeting Objectives

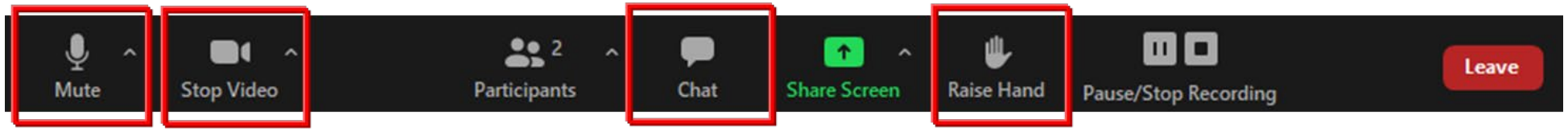
- Hear updates on state and federal funding for the transition to heavy-duty zero-emission vehicles and recent WTA Intermodal Summit
- Discuss paths forward on key themes from Collaborative members review of the initial Roadmap draft
- Discuss priorities for near-term actions to be highlighted in the Roadmap
- Outline next steps for Roadmap review and finalization

Meeting Agenda

9:00 – 9:10	**Welcome and Meeting Overview**
9:10 – 9:35	**Funding and Related Updates**
9:35 – 10:30	**Overview and Discussion of Draft Roadmap Feedback**
10:30 – 10:45	*Break*
10:45 – 11:35	**Roadmap Priorities for Near-Term Action (Breakouts and poll)**
11:35 – 11:45	**Roadmap Next Steps**
11:45 – 11:55	**Public Comment**
11:55 – Noon	**Wrap up and Adjourn**

Participating Effectively via Zoom

- Collaborative members please show your video
- If you're using your telephone for audio, remember to enter your participant ID
- If needed, update your name and affiliation
- To reduce background noise, please mute yourself when you are not speaking
- During discussions, please let us know you'd like to jump in by "raising your hand"

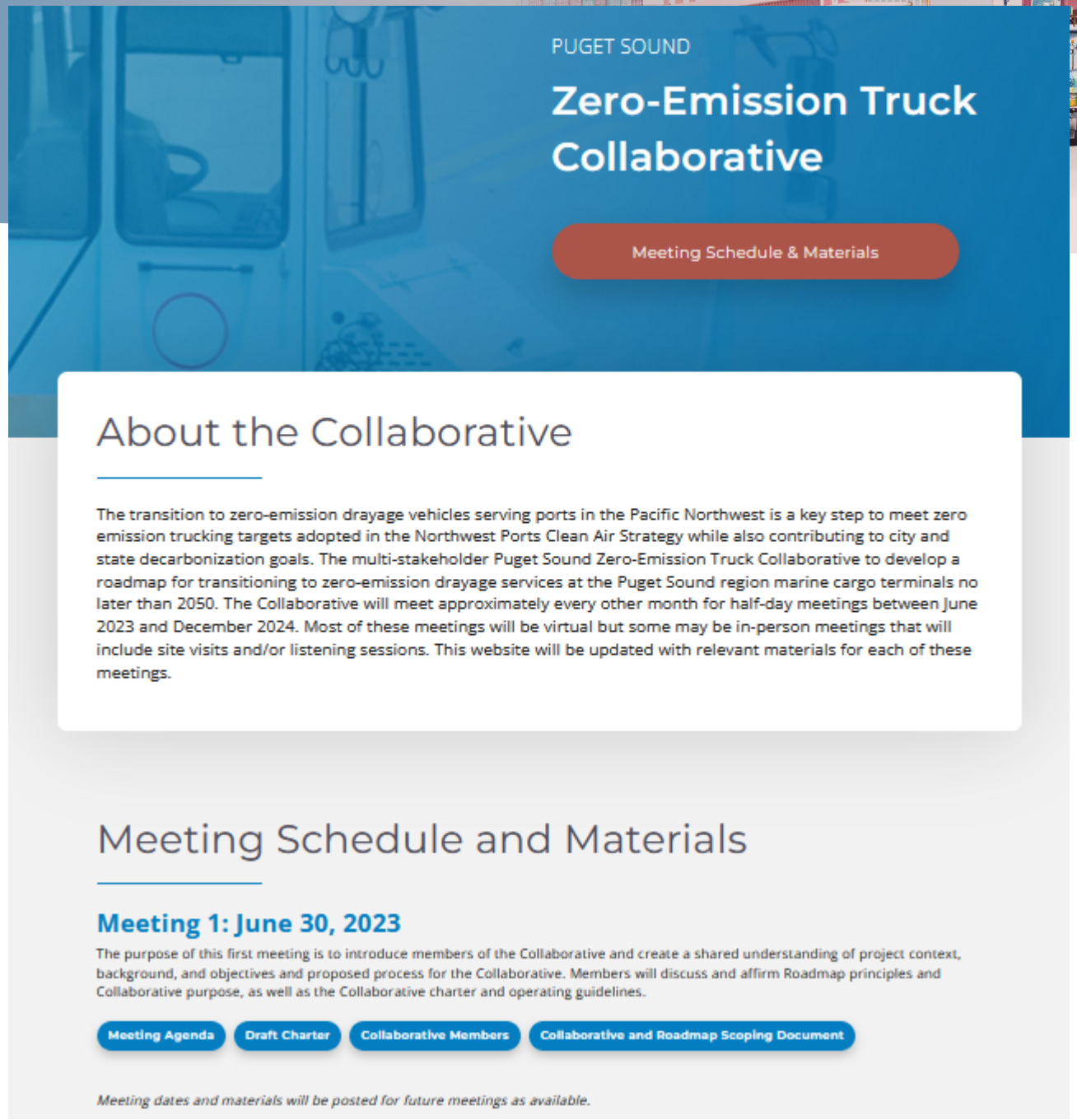


Public Participation

- Those observing the meeting 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/



Quick Ice Breaker

What are you most looking forward to doing this Fall?

- Please chat in

Funding and Related Updates

Draft Roadmap Feedback

General Feedback on Roadmap Draft

- Discussion and feedback via three small groups (equity, vehicles, infrastructure) and written comments

- Many suggested refinements, but no major concerns
- Strengthen recommendations and clarify audience where possible
- Consolidate recommendations where possible

Key Topics for Today

- Forecast of infrastructure needs *(Patrick Couch, GNA)*
- Inclusion of renewable diesel
- Weight limits
- Proactive utility infrastructure investments
- Preferential electricity rates
- Secondary market incentives

NWSA Clean Trucks Collaborative

Estimate of Scale of ZE Infrastructure Needed

October 2024

SUPPORTING [DOING] LEADING

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EVSE Requirement Estimates

Three approaches:

- Simplified average power — 180 kW, 4.4 trucks/charger (TPC)
- Mixed Low + High Power — 50 kW, 1.3 TPC + 350 kW, 11.2 TPC
- High Power — 350 kW, 6.7 TPC

For a ~4,500 truck fleet, total charging infrastructure would be:

- Simplified average power — 1,000 charge points at 180 kW (180 MW)
- Mixed Low + High Power — 3,400 at 50 kW charge points + 400 at 350 kW charge points (310 MW)
- High Power — 670 at 350 kW charge points (235 MW)

Hydrogen Refueling Station Requirement Estimates

Approach:

- Evaluate total diesel fuel demand and translate to estimated hydrogen consumption
- Use *average* annual vehicle mileage of 60,000 miles/truck
- Consider range of baseline fuel economies of 5.4 to 8.2 mpg
- Assume FCV efficiency relative to diesel of 1x to 2x

For a ~4,500 truck fleet, total estimated hydrogen demand ranges from 74,000 to 224,000 kg/day. Number of hydrogen stations required:

- 40 to 110 stations at 2,000 kg/day station capacity
- 10 to 40 stations at 6,000 kg/day station capacity

Infrastructure Space Requirements

Scenario	Total Charging Points	Charging Points per Site	Number of Sites	Total Space
Simplified Avg Power	1,000 medium power	20 medium power	50 medium power	75 acres
Mixed Low + High Power	3,400 low power + 400 high power	20 low power or 20 high power per site	170 low power + 20 high power	60 acres
High Power	670 high power	20 high power	34 high power	100 acres
FCV Large Stations	40 stations	1 station, 2 lanes	40 stations @ 6,000 kg/day	10 acres
FCV Small Stations	110 stations	1 station, 1 lanes	110 stations @ 2,000 kg/day	15 acres

Estimated space required by station type:

- Private charging stations: 7.5 kW/sq ft (2021 Drayage Technology Feasibility Study, San Pedro Bay Ports)
- High Power Public Access charging stations: 6,500 sq ft per 350 kW charger (average of WattEV San Bernardino and POLB sites) or 3,250 sq ft per 180 kW charger
- Public Access Hydrogen Station: 6,000 sq ft per fueling lane (typical space for commercial truck stops, 2021 Drayage Technology Feasibility Study, San Pedro Bay Ports). Two lanes per station for 6,000 kg/day site.

Forecast of Infrastructure Needs

- Current: ***Recommendation 6.6:*** *In addition to identifying near-term charging and fueling needs and locations, forecast buildout scenarios of charging and fueling that would meet the needs of a future fleet of zero-emission drayage*

- Feedback:
  - Suggest greater resolution on amount of future charging and fueling that will be needed and what this means about energy demand and number and location of facilities
  - Recognizing limits of this Roadmap, strengthen recommendation that this type of scenario analysis should be conducted

- Proposed path forward for Roadmap:
  - Include rough estimates of infrastructure needs in Roadmap and strengthen recommendation about future analysis

Inclusion of Renewable Diesel

- Current: ***Recommendation 5.33****: Develop a public education campaign for drayage drivers to promote the advantages of renewable diesel as a fuel for heavy-duty drayage vehicles*

- Key discussion points:
  - Pro: Interim solutions will be needed on the path to zero-emission technologies, renewable diesel is readily available as a drop-in fuel
  - Con: Inconsistent with zero-emission focus of Roadmap, interim solutions may delay transition away from diesel and delay benefits (e.g., cleaner air)

- Proposed path forward for Roadmap:
  - Recognize the need for interim solutions like renewable diesel in the context/framing section of the Roadmap, but remove recommendation 5.33 and reference to renewable diesel as a near-term priority action

Weight Limits

- Current: ***Recommendation 5.28:*** *Adjust regulatory weight limits for ZEVs to bring them to parity with diesel.*

- Key discussion points:
  - Existing weight limit allowances for ZEV trucks don't bring payload capacities into parity with diesel (they are a "nice start" but not sufficient)
  - Washington state's allowed vehicle weights are already among the highest in the country; the state may have gone as far as it can, and federal action may be necessary
  - Increased weight allowances may have consequences not fully understood or discussed by the Collaborative
  - Other states are currently grappling with this issue

- Proposed path forward for Roadmap:
  - Soften recommendation to focus on understanding what other states are doing about weight limits and collaborating with them on a solution, which may involve advocating for changing federal rules

Proactive Utility Infrastructure Investments

- Current: ***Recommendation 6.17:*** *Work with utilities to ensure that regulatory barriers are addressed, and incentives are appropriate to allow early development of necessary electric infrastructure*

- Key discussion points
  - Allowing utilities to proactively build out capacity for charging is critical for the ZEV transition
  - Policy change to allow rate-basing of proactive electricity system infrastructure investments will be needed
  - Examples of policies include Rule 29 in CA and Construction Work in Progress (CWIP), which is being discussed around the country

- Proposed path forward for Roadmap:
  - More explicit recommendation on advocating for policy change that will allow proactive capacity build out and rate-basing of investments
  - Specific references to Rule 29, CWIP, and policies being considered around the country; along with suggestion not to “reinvent the wheel”

Preferential Electricity Rates

- Current: ***Recommendation 5.6:*** *Provide preferential electricity rates for electric vehicle charging to maintain low average charging costs.*

- Key discussion points
  - Value to ZEV fleets/drivers of having predictable, long-term, and low-cost volumetric rates
    - WA has fairly good rate structure
    - Demand charges may be a barrier
    - In CA, preferential rates are time-limited
  - Preferential rates could have equity cost-shifting impacts

- Proposed path forward for Roadmap?

Secondary Market Incentives

- Current:
  - ***Recommendation 5.14:*** *Follow the proposed design of the Washington state purchase incentive program by including stackable financial incentives for used vehicle purchases…*
  - ***Recommendation 5.15:*** *Consider new incentive programs that offer primary purchasers an incentive for committing to vehicle resale (in a predictable timeframe and for vehicles that meet certain specifications)*

- Key discussion points
  - Incentives for the purchase of used ZEVs puts WA in a leadership position in the country and is likely to attract vehicles to the state, kick-starting a used vehicle market
  - Incentives for primary purchasers committing to resale may valuable but practically and legally complicated; incentives may not get passed on to buyers; incentives may go to well-capitalized companies
  - Ease of implementation is valuable

- Proposed path forward:
  - Recommend incentives for used vehicle purchases but acknowledge that we don’t yet know whether incentives for resale into secondary markets are valuable and how to design
  - Describe the pros/cons of different approaches

Break (resume at 10:45)

Roadmap Priorities for Near-Term Action

Draft list of Priority Near-Term Actions (1-3 years)

1. Get ZEVs and infrastructure deployed in the region via demonstration projects
2. Implement vehicle and infrastructure financial incentive programs
3. Lay the groundwork for secondary vehicle markets
4. Create a cadre of “driver-influencers” and opportunities to test out ZEVs
5. Develop initial publicly-available charging infrastructure
6. Engage in proactive utility planning to provide needed charging infrastructure
7. Build local capacity for technical ZEV support, including job opportunities
8. Actively engage drivers and communities
9. Provide technical assistance to fleets for vehicle adoption and infrastructure
10. Advocate for operational and supply-chain incentives for ZEV drivers (e.g., preferred port and distribution center access)
11. Others?

Breakout Discussions

- Two groups, 25 minutes

- *Which of these are the most critical path actions in the next 1-3 years to get the transition underway?*
- *Are there any other critical path actions we should add to the list?*
- *Are there any we should remove from the list or regard as merely "nice to have's"?*

Poll

- A link in the chat will take you to an online survey
- Please take a few minutes to submit your response and send a chat in Zoom when you are finished

Collaborative Survey: Priority Near-Term Actions

1. Please share your thoughts on each near-term action listed below:

	Critical	Nice to have	Should not be on the list	No opinion
Get ZEVs and infrastructure deployed in the region via demonstration projects	○	○	○	○
Implement vehicle and infrastructure financial incentive programs	○	○	○	○
Lay the groundwork for secondary vehicle markets	○	○	○	○
Create a cadre of "driver-influencers" and opportunities to test out ZEVs	○	○	○	○
Develop initial publicly-available charging infrastructure	○	○	○	○
Engage in proactive utility planning to provide needed charging infrastructure	○	○	○	○
Build local capacity for technical ZEV support, including job opportunities	○	○	○	○
Actively engage drivers and communities	○	○	○	○
Provide technical assistance to fleets for vehicle adoption and infrastructure	○	○	○	○
Advocate for operational and supply-chain incentives for ZEV drivers (e.g., preferred port and distribution center access)	○	○	○	○

2. Are there any priority near-term actions that you would add to this list?

Enter your answer

Roadmap Next Steps

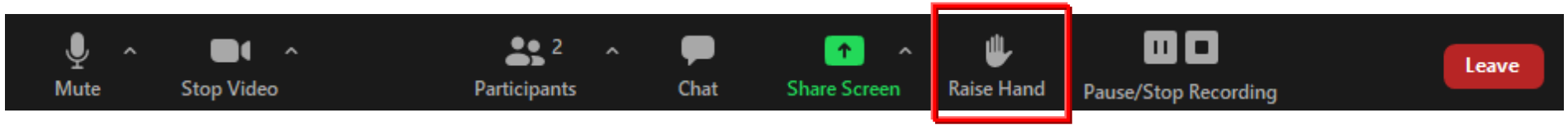
Roadmap Review and Revision Process

- Revised draft (early November)
- Driver and community review (Nov)
- Finalize Roadmap at December meeting (Dec 12)
- Release Roadmap

Public Comment

Instructions for Public Comment

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



Next Steps

Next Steps

- Meeting summary, slides and materials will be posted on website
- Next full Collaborative meeting: December 12, 9:00 AM – 12:30 PM