

NW Seaport Alliance Puget Sound
Zero-Emission Truck Collaborative

NW Seaport Alliance Puget Sound Zero-Emission Truck Collaborative

December 11, 2023



Meeting Objectives

- Understand the potential development of secondary markets for used trucks and implications for affordability and availability
- Understand emerging business models for Zero-Emission trucks, including trucking-as-a-service, leasing, and sponsorship models
- Discuss how different business models and secondary market development should fit into a roadmap for transitioning to zero-emission drayage in the Puget Sound region
- Hear quick updates on key policy developments and the upcoming legislative session

Roadmap Outline

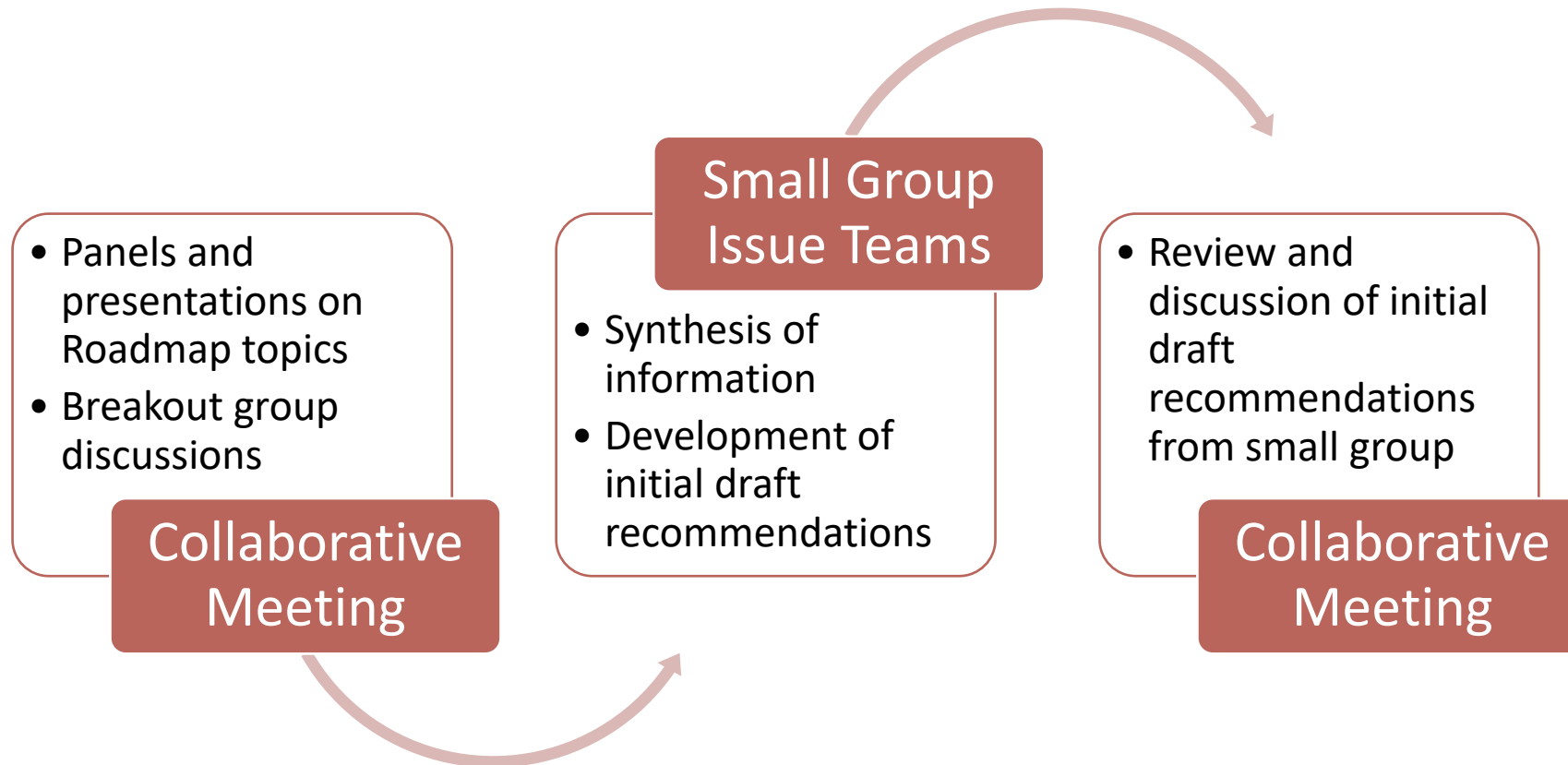


1. Introduction
2. Vision
3. Drayage Sector Context
4. Forecasted Transition
5. **Issues & Actionable Recommendations**
6. Funding and Enabling Policy Needs
7. Roles and Responsibilities
8. Ongoing Collaboration and Coordination
9. Conclusion

- a) Equity and Opportunity
- b) Vehicles**
- c) Infrastructure

- i. Ensure affordability through financial incentives
- ii. Provide appropriate alternatives to vehicle ownership (e.g., trucking-as-a service)**
- iii. Mitigate impact of additional vehicle weight
- iv. Ensure vehicle availability
- v. Ensure adequate vehicle maintenance and services
- vi. Increase vehicle familiarity and training
- vii. Create secondary ZEV market**
- viii. Accelerate diesel vehicle retirement

Development of Draft Recommendations



Meeting Agenda



11:00 – 11:15 AM

Welcome and Meeting Overview

11:15 AM – 12:00 PM

Secondary Markets for Used Zero-Emission Trucks

12:00 – 1:15 PM

Business Models for Zero-Emission Trucks: Panel

1:15 – 1:30 PM

Break

1:30 – 2:15 PM

Breakout Sessions

2:15 – 2:30 PM

Quick Updates

2:30 – 2:40 PM

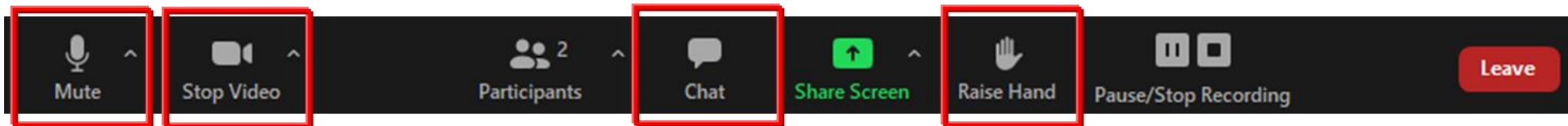
Public Comment

2:40 – 2:45 PM

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/>

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.

Ice Breaker



What is your favorite New Years Day activity?

Secondary Markets for Used Zero-Emission Trucks



gnda CLEAN TRANSPORTATION
& ENERGY CONSULTANTS

———— a  TRC company ————

*Leveraging the Drayage Market to Drive the Primary
and Secondary Markets for Zero Emission Trucks*

December 11, 2023

Goal: Accelerate the adoption of zero emission trucks in the NWSA drayage sector.

- Vehicle affordability, access and support
- Funding and financing
- Charging/fueling infrastructure
- Equitable transition

Cost Challenge: Zero Emission Trucks

DIESEL

- 5 to 10 year old diesel truck
- Purchase price of ~ **\$65K to \$85K**
- Monthly truck payment of ~ **\$2,500**
- Monthly fuel, insurance, maintenance cost ~ **\$2,500**
- Total Monthly Cost: ~ **\$5,000**



ZERO EMISSION

- New truck
- Purchase price of **\$500K to \$550K**
- Monthly truck payment of ~**\$12,000**
- Monthly fuel, insurance, maintenance cost ~ **\$3,000**
- Total Monthly Cost: ~ **\$15,000**
- Trucking As a Service: ~**\$9,000** per month
- **Requires good credit!**
- **And infrastructure!**

Opportunity: Leverage the drayage sector as a traditional secondary truck market

Potential Benefits:

- More cost-effective option for ZE trucks for drayage operators
- Less grant funding required, more trucks deployed
- Acceleration of ZE truck purchases by primary corporate truck buyers
- Addresses infrastructure gaps and development

Market Research

- **Meetings With:**

- Several Major Truck OEMs
- Large Dealer Networks
- Major Leasing Companies

- **Key Findings:**

- No one has a good answer on ZE truck secondary market / residual value.
- Most recommend depreciating to \$0, or including a nominal value (\$30K) on a used ZE truck.
- The industry is looking for better answers (Topic at the 2023 Used Truck Convention).
- Market seems very receptive to drayage market for used ZEVs.
 - ***“The idea is solid” and we are “on the right track”***



Residual Value

- **Critical part of fleet economics**
- **Typically ~ 30% of new truck cost**
 - \$125,000 diesel after 5 years will have a value of ~ \$40,000
 - \$525,000 ZE truck after 5 years should have a value of ~\$160,000
- **Without a secondary market, buyer depreciate the asset to \$0, which can overturn positive fleet economics**
 - The lack of a secondary market for used natural gas trucks was a critical factor in this market never scaling
- **The lack of a secondary market for used zero emission trucks will have a similar “chilling effect” on investment by primary fleet buyers**

What Makes a Good Residual Value?

- Neutral Color
- Wheelbase is not too long and not too short
- Engines that everyone knows how to work on

“...EVs are none of these, plus they have limited range and need chargers no one has!”

- OEM quote

Where Have Alt Fuel Trucks Worked Well?

- Fleets that don't rely on secondary markets
- Can depreciate to \$0 over long asset life



The Importance of Secondary Markets

	100%	70%
ZE Truck \$	\$525,000	\$367,500
Term	60 months	60 months
Monthly \$	\$8,750	\$6,125
	Difference \$	\$2,625
	Difference %	43%

Zero Emission Truck Market

- New truck purchase price of **\$500K to \$550K**
- **Grant of ~ \$450K** required to get to parity with diesel truck
 - Monthly truck payment of ~\$2,500
- **CHALLENGE: \$157,500 in federal taxes (35%) due on a \$450K grant (and increase in tax rate on base income from 24% to 35%)**



Zero Emission Truck Market

- Used truck purchase price of **\$160K**
- **Grant of ~ \$100K** required to get to parity with diesel truck
 - Monthly truck payment of ~\$2,500
- **SOLUTION: \$24,000 in federal taxes (24%) due on a \$100K grant (and no likely increase in base tax rate)**



Hypothetical \$100 Million ZE Truck Grant Program

	Traditional New Truck Market	Innovative Approach
New ZE Truck Price \$	\$525,000	\$525,000
Grant for New ZE Truck	(\$450,000)	(\$200,000)
New Truck Cost to Owner	\$75,000	\$325,000
Used ZE Truck Price		\$157,500
Grant for Used ZE Truck		(\$100,000)
Used Truck Cost to Owner		\$57,500
Total Grant \$ Per Truck	(\$450,000)	(\$300,000)
# of Trucks Funded	222	333
		50%

High level estimates for illustrative purposes only

Preliminary Concept



- First generation truck buyers
- \$150K to \$200K grant
- 3 to 5 years of operation

- Drayage pool
- QA/QC / certified used trucks
- Role for TaaS providers?

- Second generation truck buyers
- \$100K to \$150K grant
- 5+ years of additional operation

Infrastructure Development (fueling and service)

Preliminary Concept

- Primary ZE truck fleet buyers receive a \$200K grant and commit to 3 to 5 year term
- Truck is guaranteed to be returned to a “drayage pool”
- An additional \$100K grant is provided to drayage operator to buy the truck from this pool
 - Trucking as a Service companies may also commit to purchase the used ZE truck for use in their model
- Infrastructure development in next 3 to 5 years to prepare for a ZE drayage truck market

Benefits

- **Fewer high hurdles** for drayage operator (up front capital cost, insurance costs, credit requirements & rates)
- Lower grant does not raise applicable federal **tax rate**
- Allows time to build public access **infrastructure** – and regional support infrastructure - for the drayage market in next 3 to 5 years
- Most **cost-effective** investment of grant funds
- **Primary market buyers** more likely to **accelerate investment** in ZE with a known secondary market having residual values

Remaining Issues and Key Considerations

- Identifying a flexible **incentive program** that would allow this concept to be funded
- How to set up a “ZE truck **drayage pool**” and how do you guarantee **participation** from second generation buyers?
- Ensuring the used ZE truck is in **good working condition** and has an acceptable remaining **battery life**
- **Warranty** and ongoing **service** for used ZE trucks
- Building out the **infrastructure** to truly support the drayage market

Helps Address The Issues We're Working to Solve:

- ✓ Vehicle affordability, access and support
- ✓ Charging/fueling infrastructure
- ✓ Equitable transition
- ✓ Funding and financing



Questions & Discussion





Let's work together to **drive a more sustainable future.**

Erik Neandross, President, Clean Transportation Solutions

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Business Models for Zero-Emission Trucks



Panelists

- Matt LeDucq, Forum Mobility
- Nick Raspanti, ZEEM
- Todd Berger, PacLease
- Steve Moelk, IKEA
- Paul Rosa, Penske

Moderator: Patrick Couch, GNA



Break



Breakout Sessions



Breakout Sessions



- How do you see these business models (including secondary markets) contributing to the transition to ZEV drayage at NW ports?
- What will be needed to make these models most successful?
- What are concerns or unintended consequences?

Quick Updates

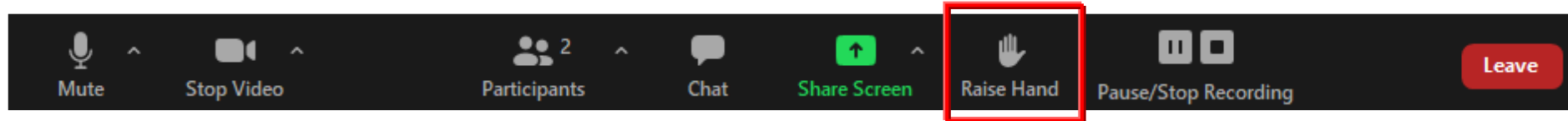


Public Comment



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: January 30th, 9:00 AM – 12:30 PM
- Vehicle subgroup meeting: December 19th: 9:00 – 11:00 AM