

Northwest Ports Clean Air Strategy (NWPCAS)

2020 NWPCAS: Discussion Document #2: Consultation Summary of Input Received

Summary of input received

This document summarizes the input received during the consultation period of April through June, 2020. During this period, the following opportunities for engagement were provided:

- Trucks Focus Group: April 1, 2020; 9am – 11am
- CHE + Rail Focus Group: April 2, 2020; 9am – 11am
- Marine Focus Group: June 2, 2020, 1:30pm – 4 pm
- Written feedback: 11 submissions received
- Additional meetings: 10 additional meetings held with port authorities
- Truck online survey: 101 respondents provided input through an online survey focused on the Clean Truck Program

This document provides a summary of all input received. General comments that apply to the whole strategy are summarized first, followed by sector-specific input. The comments are grouped by the source of the comment (focus group session, written feedback, additional meetings or truck online survey).

For details about the focus group agenda and participants, please see Attachment A. Comments and suggestions from participants are greatly appreciated and, together with input received from Canadian port consultation, will be used to inform the ongoing development of the Draft Strategy. The Ports look forward to the continued input from participants in the development of the new NWPCAS 2020.

Key themes in the input received

Substantial input was received from the sources outlined above, and all of this input is being carefully reviewed to inform development of the draft strategy. Although not all comments are captured, the following brief summary of key themes is provided to highlight the type of input received. Following this, more detailed comments are provided.

- **Vision and targets:**
 - Many respondents urged the ports to commit to an earlier and more specific timeframe to phase out emissions (midcentury)
 - Several respondents expressed concern about the impact on business if ports in the northwest take more aggressive action than other regions, particularly where the port commitment goes beyond State, Federal or International commitments
 - Several respondents expressed the need for the strategy to ensure alignment between objectives and actions with the overall vision and targets of the strategy
- **Conditions for success, objectives and port authority actions:**
 - Many requested additional context about the role port authorities can play and the specific barriers to adopting zero-emission technology
 - Several noted general agreement with the conditions for success, but also noted that port authorities need to clarify how they will actively address the conditions

- Several suggestions were provided for updating the conditions for success, for example, reframing so as not to put the onus on individual truck owners in the Truck section
- Several noted the importance of aligning with Washington state policy, particularly with respect to zero-emission trucks, as the ports are not large enough to single-handedly advance this technology
- Some noted the potential to create a coalition of west coast ports to advance technology more quickly, with a larger market-based approach
- Numerous respondents highlighted the importance of working with affected communities to reduce health disparities and advancing racial equity throughout the strategy
- Many respondents requested the addition of increased efficiency of operations be added to the objectives and actions
- Many responses were submitted regarding stated timelines for zero emissions equipment in the CHE and Trucks sectors – with numerous advocating for expediting timelines, while others stated the timeframes are unrealistic based on state of technology and costs
- Several respondents identified the need for economic impact studies, or cost, benefit analyses to inform strategy development
- Several respondents highlighted the need to partner and work closely with utilities and government to meet future electrification demand and infrastructure development
- Some respondents questioned whether utilities could provide sufficient capacity, and how the ports could find sufficient funding to meet the electrification needs to meet stated objectives
- Numerous respondents emphasized the need to advance electrification of port activities as the primary avenue to achieve the vision, that this should be coordinated across all sectors, and that ports should stop investing in new fossil fuel infrastructure
- Several highlighted the importance of avoiding “stranded assets” and ensuring objectives and following policies are designed with equipment life cycles in mind – either through skipping interim investments where possible and going straight to zero emission technology, or by ensuring timelines accommodate investments for the full life cycle
- See detailed sections below in the general section and divided by sector for a full list of suggestions submitted
- **Implementation, engagement and reporting:**
 - Several respondents called on port authorities to be more specific about commitments that will be implemented at each port
 - Respondents stated the importance of reporting based on physical location, so that it is clear what progress is being made in specific communities
 - Numerous comments noted the importance of community and worker engagement and accurately communicating the state of community health in relation to port activities

Document outline for detailed input:

GENERAL INPUT	3
SECTOR: TRUCKS	10
SECTOR: CARGO-HANDLING EQUIPMENT	25
SECTOR: RAIL	31
SECTOR: OCEAN GOING VESSELS	35
SECTOR: HARBOR VESSELS	42
ATTACHMENT A: LIST OF FOCUS GROUP ATTENDEES AND ORGANIZATIONS PROVIDING INPUT	45

General input

The following feedback represents general input about the strategy that is not specific to a particular sector. These have been grouped into: Vision and targets; Context, policies and commitments; Reporting, communications and engagement.

Vision and targets

Written feedback:

- We urge all of the ports to commit to a Strategy that aligns with the most recent climate science in its greenhouse gas reduction goals, and then to achieve these reductions in ways that will benefit workers and the surrounding communities. The current Clean Air Strategy is not aligned with the most recent climate science in its vision and outlined objectives and actions for reducing emissions. Ports have the opportunity to play a leadership role in the market acceleration of clean transportation technologies to the benefit of our health, and the Strategy should reflect this as well as commit to goals and actions aligned with mitigating dangerous climate change and protecting our health.
- Vision must be further refined so it is measurable and meaningful.
 - Based on current climate science, strongly recommend that the beginning of the vision be updated to: “phase out emissions from seaport-related activities by midcentury” to reflect the best available science and statutory limits.
 - In order to achieve goals, they need to be measurable. Setting a target of by midcentury rather than “as early as possible”—which has no clear meaning—will ensure that the ports that are part of this strategy will be able to determine their success and iterate plans and actions over time to ensure they are indeed meeting their responsibility to limit climate change. This renders the goal in a way that actually fulfills “our responsibility to help limit global temperature rise to 1.5°C.”
- Vision Needs to Align with International Emissions Targets
 - The vision for the NPCAS process is to, “phase out emissions from seaport-related activities as early as possible this century, supporting cleaner air for local communities and fulfilling our responsibility to help limit global temperature rise to 1.5°C.” Vision statements, objectives and goals are somewhat meaningless unless there is a specific target date included - setting a goal for “as early as possible this century” is not acceptable. The International Panel on Climate Change has made it clear that in order to mitigate the worst consequences of the climate crisis, we need to reach net zero carbon emissions by 2050, with a 45% decrease in emissions from 2010 levels by 2030. If the participating ports want to meaningfully participate in the deep carbon emission cuts that are needed, we strongly recommend the vision statement and all sequential objectives include a target date of reaching net zero emissions by 2050.
 - All actions should have associated deadlines that align with that vision

Additional meetings:

- For the emission goals, the 2030 (50%) target seems nearly impossible.
- Need to push this on the federal level as well, east coast and gulf ports so that we don't out price ourselves.

- Serious concerns about the goals and the framing of the issue
- Goals commit ports to GHG reductions beyond State, Federal or International goals. That means the port will pay or try to have customers stay in the PNW and pay for the most expensive emission reductions with no real impact at the local, state, national or worldwide levels for GHG reductions. If the state it that level of governance doesn't have these goals, what is the rationale for trying to address GHG at just a few points in the entire transportation and goods movement systems.
- Rather than aiming for net neutrality of emissions, suggest setting a carbon budget. For example, PSCAA has a reduction goal but has not set a baseline. Need a hard budget or baseline to track progress against in reaching your emissions reduction goal.
- Set ambitious climate goals with a hard carbon budget; push electrification.
- Be sure that the strategy incorporates new WA State greenhouse gas goals approved during the 2020 legislative session.

Port context, policies, commitments

Written feedback:

- Commit to no new fossil fuel infrastructure:
 - Building new fossil fuel infrastructure locks in emissions for decades to come, when we only have a few decades to reverse course and achieve net zero emissions.
- Expedite electrification investments and goals
- Take an active, central role in electrification:
 - Ports can and must take many creative, proactive actions that will help advance electrification and reduce air pollution in the immediate and near terms that will also lay the ground work for achieving necessary goals.
 - Actively work with utilities as willing partners to expand electrification infrastructure.
 - Rapid electrification is the only option that will provide necessary health and climate benefits in the short, medium and long term and achieve the Vision and Guiding Principles outlined in the most recent NWPCAS discussion draft document. Specifically, to phase out emissions as early as possible this century and seek early achievements urgently, by centering community health and equitable actions. Equipment and vehicles that are electrified produce zero particulate matter, NOx, SOx and other health harming compounds. Due to abundant hydropower resources, electricity produced by Seattle City Light is carbon free. This means anything that is electrified in Seattle is a 100% reduction in health harming tailpipe and GHG emissions. Electrification achieves the objectives of the NWPCAS for climate and human health and should be pursued aggressively.
- Expedite investments in electrification infrastructure – Infrastructure investments should be targeted on building out the proper charging capacity rather than investing in more fossil fuel vehicles or equipment.
- Intentional strategic planning can leverage near, medium and long-term Port capital investments to include comprehensive charging infrastructure for harbor vessels, OGV, CHE, trucks and administration in the scope of every capital project. Electric infrastructure is most cost effective to install at the time of construction. Projects should be scoped for comprehensive electrical capacity needs to maximize investments and avoid multiple electric service upgrades at the same location over time.

- In order to leverage planned capital investments, a gap analysis should be done in 2020/2021 to identify how much electric infrastructure is needed at each Port location to support fully electrified berths, CHE, trucks, administration and other needs. Northwest Ports could work with local utilities on feasibility studies to understand costs and create a funding strategy.
- Strongly recommend installing all infrastructure required to electrify all berths, CHE, trucks, administration and other needs by no later than 2030. Any new construction or remodel projects should include increased electrical capacity to support fully electrified Port operations.
- Improve conditions for success of electrification:
 - There are significant barriers to full electrification including equipment/vehicle costs, regional infrastructure gaps and lack of commercially available technology in some sectors. The Port can take an active role to help remove some of these barriers. The burden to transition to fully electrified operations should not fall on external stakeholders or conditions alone. Specifically, independent owner/operators, minorities and small businesses must not shoulder the financial burden to transition. Actions should be taken by the Port to minimize or remove financial burdens on minority and/or small business owners.
- Advance Racial Equity Through All NWPCAS Plans, Actions and Investments:
 - Upholding Port of Seattle’s Resolution #3767 Duwamish Valley Community Benefits Commitment provides the perfect opportunity for this. The goals and actions established in this resolution should be reflected in the NWPCAS. This includes urgently reducing air pollution and GHG emissions, making investments in the equitable distribution of air quality improvements, reducing truck traffic and noise in neighborhoods and promoting economic prosperity in place.
- Cross-sector action recommendations (also included in Trucks document):
 - Fund pilot projects that will support new technology, helping bring it to a broader market.
 - Purchase electric options for port operations and administration, thus helping increase demand and supporting the market for these products.
 - Fund and support training programs on maintenance for electric vehicles and equipment and recruit trainees from local underserved communities.
 - Actively champion policies that will promote electrification and cleaner fuels, such as the Clean Fuel Standard in Washington.
- Work with impacted communities and workers:
 - Though ports must transition rapidly to cleaner operations, the costs of this transition must not be borne by workers. Ideas from the above, such as grant or loan assistance, should be paired with regulations that would impact independent owner/operators. Additionally, training opportunities should be provided to help ease the transition to different equipment and technology. Ports should consult directly with workers on the best ways to address barriers to the transition to clean technologies.
 - As ports move to reduce pollution, they must also ensure that communities that have been impacted by this pollution are consulted with to ensure that the actions ports take truly have a positive impact. Consulting with impacted communities will help identify which actions will have the most desired benefits, and ports should prioritize these for the near-term.
 - Near-port communities have been suffering from air and noise pollution stemming from port activities and there are actions that ports can take immediately to help reduce impacts on these communities. Ports should listen to nearby communities and provide them with the resources to mitigate these impacts in ways identified by communities, such as by funding green screens. Ports should actively engage with other government entities who

may share jurisdiction, such as the Department of Transportation, to jointly work on remedying harms currently felt by nearby communities

- **Health Disparities in Port-Adjacent Communities Need to be Addressed**
 - Neighborhoods adjacent to industrialized ports, like the Ports of Seattle and Tacoma, are often made up of largely low-income and communities of color, and experience disproportionately negative health impacts. These communities live in areas that rank 10 out of 10 on the Washington Department of Health’s Environmental Health Disparity Map – meaning these communities experience worsened health outcomes, including shorter life expectancy and higher rates of chronic disease, because of where they live. Their proximity to a major traffic corridor and heavily industrialized ports have exacerbated these disproportionate impacts because they are more exposed to particulate matter, carcinogenic volatile organic compounds, sulfur dioxide, and nitrogen oxide. Exposure to these pollutants leads to higher rates of heart disease, asthma, chronic obstructive pulmonary disease, infant mortality and low birth weights. These health disparities should be a major discussion point and basis for action in the NPCAS. We recommend adding sections to the NPCAS describing the root causes of these disparities and how this work will address these disparities. Further, fewer negative health outcomes in port-adjacent communities must be a condition for success in this process. Tangentially, this process should include activities and investments that will alleviate these burdens to public health today, not just 10 years from now.
- It is unclear to us what the individual commitments from each Port is going to be.
 - We have been told that the range in timelines and vagueness of specific actions is related to the need to find agreement amongst the 3 different port authorities. While we can appreciate the regional cooperation that the NW Seaport Alliance brings, it is concerning that this same cooperation is being used as an excuse for not taking concrete action. As such, it is our request that each Port authority disclose a timeline and process for detailing commitments to accomplishing the goals detailed in the NPCAS.
- **The Role, Authority and State of Technology in Ports Needs to be Clearly Defined and Addressed**
 - We understand that the participating ports are considered “landlord ports” and do not own a majority of the resources that contribute to port-related emissions, and have little influence on these resources. This dichotomy between the role of the ports and their inability to address certain negative externalities of their operations has been a major source of frustration, and has also been a barrier to meaningful participation in this process.
 - The NPCAS and participating stakeholders would benefit from clearer context-setting. For example, how can NW ports influence these operations? What restrictions prevent influence? What laws and regulations define the role and influence of ports? Without that context, the ports’ inability to act in certain areas comes off as at-best, dismissive of community concerns and at-worst, a failure on the part of the ports to address concerns expressed by community stakeholders. At a minimum, there needs to be better communication about the constraints and the ports’ sphere(s) of influence. Ideally, we would like to see each port in the NW Seaport Alliance make a commitment towards evaluating the various laws, systems and procedures in place that govern seaport operations and seek new ways of operating that could lead to greater efficiencies and system improvements.
 - Further, we need a clearer understanding of the state of technology among the port sectors. What are other ports doing? What are the barriers to truck GPS tracking, for example? A gap-analysis of where the northwest ports are in terms of technology and innovation versus

other west coast ports, and where we could be, would help us understand current realities and what we, as community stakeholders, could advocate for.

Additional meetings:

- Need to look at economic impact studies on job gain/loss from implementing new technologies. Particularly with job loss related to automation.
- Has there been an analysis done for these goals with engineering, costs, benefits, funding sources, impacts on land availability (truck charging/CHE charging is land intensive) consideration of construction timelines, determinations of timelines for technology pathways?
- Has there been a technical analysis done to determine maximum electrical demand to fully utilize existing or upgraded terminals of the future; have the utilities committed to supporting maximum demand? And, what if hydrogen or some other approach wins, then what about all the dollars spent on electrification?
- Focusing on tailpipe emissions is inconsistent with use of renewable fuels, which the plan acknowledges may be necessary.
- Aspirational goals with caveats will place the port in the political position of “breaking” promises when technology is unavailable and will make development/redevelopment untenable for failure to deploy unavailable technologies.
- Ports did a good job at articulating the conditions for success, but the port should take a more active role in addressing those conditions.
- With respect to the Condition for Success that "Sufficient qualified labor force in the region capable of maintaining zero-emission equipment," which appears in several sectors, ports should remember that electrified vehicles/equipment typically have much lower maintenance requirements/costs so a decrease in maintenance-specific labor could be expected as the fleets electrify. Instead, perhaps the focus should be on ensuring that the labor force is adequately trained and distributed across maintenance of vehicles and maintenance of electric charging supply equipment.
- Recommend editing this statement to include context like decreases in vessel calls, larger more efficient vessels, etc. Without modification, this statement seems to establish a one for one direct correlation that emissions grow at the same rate as trade growth:

Current projections indicate that global trade will continue to increase, and that the participating ports will also experience increased levels of trade. In this context of growth, even greater reductions in emissions are needed for the health of local communities and our planet.
- The Port’s objectives can best be met with the adoption of a statewide Clean Fuel Standard (or other market based regulatory structure) and continued efforts to access grant funding. In California, a combination of regulations mandating adoption of clean technology and taxpayer-funded incentives is driving the clean air transition. A clear regulatory framework supported by financial incentives is necessary for success.
- Conduct a gap analysis study of where the port is now and what equipment is needed to reach an electrified future. Just because the technology is not here today doesn't mean it will take ten years to come to market.
- To move this work forward recommends starting with looking at what the utilities have done. They have created a specific, mandated programs for utilities to put into infrastructure.
- For a lot of the objectives, phasing out emissions “as soon as possible” meant 2040 or 2050 and that feels too late. If you’re investing a lot of time and energy into interim measures, then you still must invest additional time into moving from interim to zero emission measures. The IPCC

recommendations are saying 2040/2050 is too late and we need to be a different position globally by 2030. Will interim measures get us where we need to be in 2030? Is this enough? Can we look more at what other ports are doing (e.g., Germany leading in electrification)? Are there any interim steps that can be cut out?

- The big concern is that interim measures could lock us into technology and infrastructure that is considered transitional for 40-50 years. Some of the comments in the sector focus groups were to not leave assets stranded, so if we're putting in traditional fueling infrastructure, no one is going to want to walk away from that investment. I would urge the NWSA to take a closer look at the air quality impacts of LNG. There is a gap in understanding about fine particulate matter that can have a huge health impact.
- Feel that the timeline for electrification, including the infrastructure, is ten years too long in the Strategy. The Port can leverage in the next 5-10 years to scope in adding more shore power at berth, charging for electric trucks, and planning electrification into the Port's capital projects.
- There's an opportunity to form partnerships with OEMs and start to bring new technologies to market. These partnerships are happening in California (driven in part by LCFS and additional revenue streams). Advocate at the state level that we have a level playing field.
- POLA has a goal that all on dock equipment will be electric by 2030 and other equipment will be electric by 2035. Learn from other ports and see what can be deployed, where the gaps are.
- Ports play an active role in creating the conditions needed for success.
- Ports refrain from investing in any new infrastructure for fossil fuels to avoid stranded assets.
- Ports and tenants expedite investments in electrification infrastructure - feasibility studies should be starting now and infrastructure should be installed by 2030. Goals should be closer to California port goals to electrify all CHE by 2030 and all drayage trucks by 2035.
- Ports and tenants focus on improving throughput and other port efficiencies as they relate across sectors.
- Ports should pilot zero-emission equipment and technologies at port-operated terminal(s) to show proof of concept since they can do this without any lease complications.
- Ports work to advance racial equity through all plans, actions and investments.
 - Co-design and co-implement solutions with those most impacted by Port operations.
 - Conduct a study to create a roadmap for an equitable transition to fully electrified (or otherwise zero-emissions) Port operations that addresses current barriers and identifies potential solutions.
 - Ensure that the cost of air quality improvements does not fall on the shoulders of those least able to afford it.
 - Work to improve truck traffic flows to reduce impacts on nearby neighborhoods, including such strategies as staggered shifts, container pick-up/drop-off reservations or other efficiency improvements.
 - Work directly with community members, truck drivers, port tenants and the Port of Seattle's Duwamish Valley Equity Program to create opportunities for community-based solutions for an equitable transition, including workforce development and training programs related to electrification.

Reporting, communications and engagement

Written feedback:

- Reporting and Permanent Oversight

- We recommend that progress reports on emission reduction goals, investments made, and any other condition of success be done by physical port location, in addition to by ownership. This is an important step in ensuring that investment dollars spent, and pollutant reductions made are done so equitably. Community health is not dependent on the “owner” of the emission source - i.e., it does not matter if the emissions are coming from a source owned by the Port of Tacoma or the Northwest Seaport Alliance. What really matters is that the health of the port workers, contractors, and adjacent communities is prioritized, and we cannot do that if we cannot easily access what areas are seeing improvements and what areas are falling behind.
- **Community Engagement**
 - While each of our organizations are appreciative in being included in the process and compensated for this time, we are concerned that there is no commitment on how to engage the communities we represent in ensuring that the goals and plans that result from this process are met. As such, we would recommend that the NW Seaport Alliance look towards the model of the Port of Seattle’s “Port Community Action Team” as a way to engage these communities on an ongoing basis. This will provide an ongoing forum for projects flowing from this body of work but also to develop more detailed plans and foster collaboration on solutions to intractable problems within the range of issues facing the different ports in the NW Seaport Alliance.

Additional meetings:

- More accurately communicate state of community health context from air quality through:
 - Levels of pollution in certain neighborhoods
 - Higher rates of asthma
 - Section explaining the health impacts of port activity and the areas around ports
 - Cite data from the Washington Public Health Tracking Network Health Disparities map
 - Humanize impacts through real stories woven into the strategy from community members, terminals, truck drivers, industry. Include quotes and anecdotes.
- Would like to see reporting in terms of progress and dollars invested for NWSA broken down between Seattle and Tacoma so Tacoma doesn’t get lost in everything. It’s important to know what’s happening in each location.
- In terms of communication:
 - Want to bring in the perspective that everyone is on the same side of these issues. We all want cleaner air and a cleaner environment. There are immediate needs of communities that are bearing the burden of this directly, but people who work in the terminals are also bearing the burden of this. We’re all working toward the same goal. Consider expanding the PCAT to other ports and keeping the community as part of the conversation. How can community participate and help work with truck organizations, etc.? Need a summary document for the community members.
- Ports invest in staff to make sure they have the resources to pursue these efforts.
- With respect to measuring the Ports’ progress in achieving the goals of the Strategy, recommends that the Ports create a broad-based stakeholder group to develop metrics and criteria which the group can then use to evaluate progress on an annual basis. The stakeholder group, which should include community members, environmental justice advocates, industry representatives, and others, would have the authority to revise metrics as needed based on the state of the industry.

Sector: Trucks

Overview and context

Session notes:

- Need to keep equity front of mind
 1. Localized air pollution tends to be disproportionate and inequitably distributed.
 2. Diesel particulate are air toxics are carcinogens and need to get to zero, as no safe level.
 3. Truck drivers are new Americans and people of color, need to keep in mind in terms of preserving these jobs.
- Context part of trucking – suggestion to include context about the interaction of trucks with ports and terminals. To maximize emission reductions besides the equipment itself is addressing wait times and idling – improving efficiency of distribution centers, dispatching for trucks, terminal, use of truck interaction at the terminal.

Additional meetings:

- There is really no such thing as a dedicated drayage truck. There are trucks that, as part of their service, conduct drayage operations. Trucking companies don't really dedicate trucks to solely serving a port. As a result, trucks conduct work beyond a "short dray".
- Descriptions of the state of electric trucks are overly optimistic. Electric trucks are not only several times the cost of a used truck. ZE trucks are several times the cost of a new diesel truck (which itself is several times the cost of a used truck). And despite this cost, no ZE trucks exist that can replace the average "drayage truck".
- The differences between electric and hydrogen trucks are not as large as the plan portrays. Hydrogen trucks have made more developmental progress in the last two years than BEV has in the last 10 years. One might expect that trend to continue, which raises serious questions as to what infrastructure long-term planning should be focused on.
- The statement about near zero (low-NOx) trucks and GHG emissions is not necessarily true.
 - Renewable LNG can be used in NZE trucks and will be or is available in the PNW. The lifecycle GHG emissions are so favorable they can be negative. Again, focus on tailpipe emissions has (politically) taken off the table a viable GHG emission reduction strategy; one that is available now. The plan should consider this as an option.
- The statement about cleaner diesel and hybrid diesel is not necessarily true either. Again, paired with renewable fuels, substantial GHG emission reductions can be achieved.
- If evaluating electrical option, you can't assume a one for one replacement because of cycle time in addition to time to take out of service and footprint needs for charging stations and of course cost.
- Is a near zero emissions option going to be considered? Example: hybrid RTG's and 1,000 hp engine taken out of a gantry crane and replaced with 100 hp engine and battery reducing fuel by 85%; can't let perfect be the enemy of the good. On a related note, what is the delta between zero and near zero? And, tailpipe zero does not equal cradle to grave zero so not really zero.

Step 1: Review conditions for success for Trucks

A condition for success is any condition that must be in place to make substantial progress toward phasing out emissions.

1. *The infrastructure to provide sufficient low or zero-emission fuels and/or electricity are available across the region.*
2. *Zero-emission trucks are demonstrated to work for port trucking applications and are commercially available.*
3. *Enabling policies are in place to support the cost-effectiveness of zero-emission trucks (e.g. favorable utility rates, incentives for lower carbon fuels, etc.).*
4. *Total cost of ownership of zero-emission trucks is cost competitive and capital cost does not present a barrier to equitable opportunity to participate in the industry.*
5. *Truck owners and operators commit to transitioning to zero-emission trucks as soon as it is practicable.*
6. *Sufficient qualified labor force in the region capable of maintaining zero-emission trucks.*

Comments

Session notes:

- Reframe these as challenges to transitioning to zero emission, what the ports can do to address these, determining what the gaps are
- Clarify the role of the port in moving the market – leverage grants, funding study, funding training programs, build infrastructure, revolving load funds, training (with focus on nearby communities)
- Need ports to play an active role in shaping / addressing these conditions (rather than passive acceptance)
- Include the need for full engagement with full range of stakeholders (individual and fleet owners, community, dispatchers, terminals)
- 5 – Too much onus on truck owners – reframe to cooperative effort with other agencies, including ports and other authorities
- Acknowledging systemic barriers that have been in place to date and finding ways to address those
- Equity – perception of unfairness / racism – understand this and address
- Missing focus on efficiency of terminal operation, need collaboration with terminal operators, city planning – how ports are accessed

Additional meetings:

- Trucks and CHE might be backwards in timelines. Given state of technology and stranded assets
- Labor unions/agreements don't really have suggests removing bullets on bottom of page A-14. "Labor unions will be part of the solution"
- A-15 number 4, drop labor agreements and put in sufficient training
- Infrastructure needs to be a government and utility function, both needs to be onboard
- Cost of the vehicles is a huge barrier, BYD is the only one available, doesn't do all of what a diesel or natural gas truck can do
- Make sure to keep on top of emerging policy. For example, make sure that new infrastructure projects are supported for going green.
 - Weight limits should be considered and restructured, especially for battery electric due to battery weight

- Grants and incentives are important, but need to consider ways that grants can shrink like sales tax, income tax (have to pay it on grants)
- Need funding for community charging infrastructure (port or other organization might facilitate). Owner operators can't afford the chargers.
- Incentive programs are generally incentives to wait, since the dirtiest trucks get the most benefit. Look for ways to reward early adopters rather than make it harder for those that have recently invested in clean tech
- Showing members to use LCFS credit trading to help, get value add via workshops
- Concerned that the ports cannot achieve these goals outside a statewide effort. First, for the reason given above, port trucks must continue to serve the broader goods movement system. So, electric trucks must be compatible with the state's trucking sector (in terms of capability and ability to recharge). Second, the port is not a market maker and cannot create enough demand for electric trucks for truck manufacturers to build for. The ports of Los Angeles and Long Beach make up about two weeks of national truck manufacturing demand – once every 13 years. The PNW is probably a fourth of that level of demand.
 - What is Washington State's specific ZE goals for the broad truck sector; avoid looking at a segment that represents a duty-cycle rather than an actual distinct sector.
- What does "transition plans" for zero emission trucks mean?
 - If the ports commit to a transition that is not consistent with a state-wide transition, it will likely mean that ports will be responsible for funding the transition. This is exactly what has happened in San Pedro Bay. Just three weeks ago, the two California ports were lambasted for setting a fee that would generate \$90 million annually. The fee was called inadequate by regulators in California even though it goes beyond the goals that they have established. The incremental cost for 5,400 trucks could exceed \$1 billion. That does not include infrastructure. How will the ports manage and fund that transition?
- Need funding well in advance of any deadline
- WTA is running financial literacy resources to help
- Don't want to make it too expensive to be a contractor
- Range important to consider
 - Intra port – short range, could easily be electrified
 - Mid-range, i.e. Portland/eastern WA – not the same workforce with aging industry, could achieve more
 - Long range – bigger challenge
- Must fit within structure of leases, what if they expire before the strategy objectives?
- Recommend adding "Maximize energy efficiency of buildings and equipment". Maximizing energy efficiency could alleviate future electrical system constraints and was supported by public comments.
- The conditions for success are accurate. Obviously need a qualified labor force and technology that is commercially available; but, don't want the conditions for success to be an excuse. For each condition, identify where the Ports and other partners could play a role; greater connection between the conditions and the actions that Ports/others are taking to address those conditions.

- The charging port on the wall is the least expensive part of the infrastructure. Most of the total cost is bringing the electrical capacity to the property. Swapping a plug is minimal compared to wiring the property for full electrification.
- The current conditions for success put too much onus on truck owners – reframe them to create a cooperative effort with other agencies, including the Ports and other authorities. Include independent owners in discussions about how these conditions can be reframed and compensate them for their time providing input.
- Improve how Ports are accessed, including the efficiency of terminal operations, by collaborating with truck owners, terminal operators, and city planning departments
- Acknowledge systemic barriers that have been in place to date and finding ways to remove them
- Understand and eliminate potential discrimination at the terminals
- Understand and eliminate potential discrimination as new technologies are introduced into the market

Step 2: Review Draft 2020 NWPCAS Objectives for Trucks

Objectives are goals that will require collective action of port authorities, industry and government to be successful.

1. *Increase truck efficiency and reduce truck idling*
2. *Support interim emission reductions and reduce impacts on communities*
3. *Install infrastructure for zero-emission trucks by 2040*
4. *Accelerate the turnover of the drayage fleet to zero-emission trucks by 2050*

Note: numbers in the bullet points refer to the associated objective listed above.

Comments

Session notes: *(numbers refer to the associated objective listed above)*

- 1 – Operations, not just individual trucks, systems efficiency – add another objective or incorporate this into 1
- 2 – Parking issues, especially near Seattle
- 2 – Clarify rolling truck age in objectives (call it out)
- 3 – Infrastructure opportunities earlier than 2030-2040 – especially with new terminal development
- 3 – 2040 is 10 years too late – aim to take advantage of stimulus, grant programs over next 5 years
- 3 – Agree 2040 too late, opportunities for communities to install infrastructure now
- 3 – Agree 2040 too late – get infrastructure in place faster, get trucks to zero faster, let’s be aggressive
- 3, 4 – Steps to be accelerated
- 4 – Clarify that this means whole fleet
- Question on whether safety needs to be added re: near-port communities

- Clarify on-port activities to be more efficient, not sacrificing safety of near-port communities

Written feedback:

- 1 – notes this objective was committed to in 2013 and 2018 implementation report and has not been acted upon. Including this objective again with no discernable difference from the 2013 update that the ports have continuously ignored is not a serious proposal likely to result in action.
- 2 – Considered adding the following bullet to Objective 2:
 - Support/build ongoing access to maintenance for clean diesel trucks
- 3 – Timelines of 2040 or beyond are simply too long and need to reflect current timelines of technology coming to market and the urgency of the climate and health crisis to reduce emissions.
- 3 – Must, and can, happen sooner to achieve the Strategy’s vision.
 - For comparison, under their Clean Air Action Plan, the Port of Long Beach and the Port of Los Angeles have committed to a goal of trucks being zero emissions by 2035, meaning the infrastructure must be in place by this time as well.
 - Similarly, their goal for zero emissions cargo handling equipment is 2030—a full decade earlier than the Strategy’s draft goal for equipment turnover.
 - Given that trucks and cargo handling equipment together account for over a quarter of the ports’ current emissions, the transition to zero emissions must occur sooner, especially given that these two sectors face fewer technological barriers compared to ocean going vessels in transit, for example. Since certain types of vehicles or equipment are not as far along in zero emissions technology development, those that have available zero emissions options or will in the near future should be invested in sooner.
- In conjunction, infrastructure investments should immediately begin prioritizing expanding electric charging capacity rather than in more fossil fuel vehicles or equipment.
- The timeline in Objective 3 should be accelerated. Feasibility studies should be starting now. Ports should begin installing infrastructure before 2025 and finish by 2030. Zero-emission truck requirements should more closely align with those for California ports (ZEV by 2035).
- 4 – wouldn’t use the word accelerate for a 2050 target. That is 30 years away and the furthest planning date in the strategy, when emissions must be close to zero.
- Notes increase in GHG emissions intensity associated with heavy-duty vehicles from 2005 levels – despite vehicle conversion effort. Recommends updating proposed objectives will fall short of achieving meaningful progress in reducing GHGs.
- 4 – in 2005, prior to truck model year requirements, NWSA reported that the oldest operating trucks calling at the ports were 20 years old. This means establishing today a requirement that by 2040, 100% of all truck calls will be with zero-emission vehicles is timely. It would allow the newest trucks in operation today to fully serve their useful life while ensuring that as they are replaced, our region can count on increasing penetration of zero-emission alternatives.
- For Objective 4:

- Don't create unsustainable financial burdens for individual truck owners
- Provide support and training to transition to new technologies; compensate individual owner-operators for attending training
- Recommends adding the following objectives:
 - Increase efficiencies: reduce wait times for drayage drivers by streamlining truck interactions at terminals, improving dispatching for trucks, and improving the efficiency of distribution centers.
 - Emphasize equity: independent truck owner-operators should not be required to bear the full cost of cleaner trucks. The Ports should start now to develop programs to build equity to cover high capital costs and look for mechanisms that can distribute these costs throughout the supply chain.

Additional meetings:

- If you create a more efficient industry, you will create the biggest impact
 - Focus on turn times, turn time consistency, and dual transactions. Multiplies the capacity of one truck.
 - “You have to work to do good”
- Supportive of step 2, near zero is available right now, something like RNG is ready and could bring real benefits.
 - Brakes and tires are a big source of pollution
- If supported by a strong market based regulatory framework and sufficient grant funding these actions will meet the overall goals of Objective 2 (support interim emission reductions and reduce impacts on communities), as well as State GHG emissions limits and equity requirements.
- If infrastructure is not there, you can't expect people to buy the equipment
- With regard to the infrastructure the end goal is to have the infrastructure be ready. Ports should include a rolling/interim target to work toward that date and ensure we're on track.
- Recommend Objective 3 (100% of zero-emission infrastructure is installed by 2040) be completed by 2030
- Objective 4 (turnover drayage truck fleet to zero emissions by 2050) by 2040.
- Not sure how they feel about 2050 deadline, will be incumbent on infrastructure and commercial manufacturing
 - Will need big government effort to make the infrastructure side happen, not confident
- Drayage is a secondary or tertiary industry
 - Don't think we'll see a lot of secondary market for equipment
 - Drayage is only 2% of market for new truck manufacturing
 - Need a market approach, need it to make financial sense
 - OEMs, could decide not to supply trucks to west coast states. Many big operators buy trucks in other states.
- Huge opportunity for west coast ports coalition. Regional approach. Could be more influence if we have all west coast ports in it together. 30-40k trucks for whole coast
- Recommends adding an objective to “Identify and complete all cost-effective energy efficiency projects by 2025”

- Supports the objectives laid out by the Port and suggests the NWSA consider achieving GHG reductions on a condensed timeline.

Truck online survey:

- Some commenters wanted a statewide approach, as opposed to a port-specific program:
“Why you guys focus on port trucks, older trucks still run in the state?”
- Many commenters were unsupportive of the port having any role in reducing emissions from trucking in the interim:
“Stop screwing the truck drivers, allow business to settle, when the price point changes, then make changes.”
- Some commenters raised the issue of systemic racism operating through the port program:
“Stop the Systemic racism at the port of Seattle and Tacoma”
“port of Seattle and Tacoma have hundreds of properties but only require new trucks where minorities Drive.”

Step 3a: Review Port Authority and Others’ Actions for Trucks

Port authority actions encompass what all port authorities need to do, focusing on the first five to ten years. Refer to the table on pages A-11 to A-12 in Discussion Document #2.

Session notes: (Input in standard text; content from the DD#2 is in italics)

Objective	Port authority actions	Others’ actions
1. <i>Increase truck efficiency and reduce truck idling</i>	<ul style="list-style-type: none"> • Increasing turnover at terminals, decreasing wait times 	<ul style="list-style-type: none"> • Terminal operators to address system efficiencies
2. <i>Support interim emission reductions and reduce impacts on communities</i>	<ul style="list-style-type: none"> • Provide support for training for new technologies 	
3. <i>Install infrastructure for zero-emission trucks by 2040</i>	<ul style="list-style-type: none"> • <i>By 2030, work with industry and operators to engage and secure commitment to transition to zero-emission trucks</i> <ul style="list-style-type: none"> ○ Do this sooner than 2030 ○ Clarify “secure commitment” – is this a plan? 	

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- | | | |
|---|--|---|
| <p>4. <i>Accelerate the turnover of the truck fleet to zero-emission trucks by 2050</i></p> | <ul style="list-style-type: none"> • Monitor cost of ownership of zero-emission trucks relative to diesel • Study on equitable transition to zero-emission trucks – continuously revisit and update timelines based on new technologies coming online • <i>Support policies that would make zero-emission trucks more cost competitive</i> <ul style="list-style-type: none"> ○ Don't create unsustainable financial burdens for individual truck owners • <i>Identify funding strategy to support fleet transition</i> <ul style="list-style-type: none"> ○ Earlier date • Provide support for training for new technologies • Question about whether there's a place for automation in the trucking sector – how to balance investment vs. timing of automation • Measure of emission reductions for full trip to have equal evaluation | <ul style="list-style-type: none"> • Government provide carbon intensity ratings for products • Development of a purchasing coalition |
|---|--|---|
-

Written feedback:

- “By 2030, work with industry and operators to engage and secure commitment to transition to zero-emission trucks; By 2030, begin installation of infrastructure on port land”
 - Would make these 2025 targets, especially the 2nd one as it is just a “begin” action.
- The proposed Strategy goes on to include no tangible actions through 2030, and the first actual fleet conversion milestone in 2040, with no conversion metric present until 2050. Complete inaction for 20 years is unacceptable and will not achieve meaningful climate progress.
- Notes the key actions do not align with reducing GHG in line with climate science – timeline is too long and is not in line with market ready technology. For comparison, in the 2017 Clean Air Action Plan for the Port of Los Angeles and Long Beach, goals include full electrification of all on-dock equipment (cranes, yard tractors, CHE, top handlers, etc) by 2030 and all trucks serving the Ports to be electric by 2035.
- Conduct a study to see how much infrastructure is needed in the region to support full electrification of the truck fleet serving the Puget Sound region.
- In order to leverage planned capital investments, a gap analysis should be done in 2020/2021 to identify how much electric infrastructure is needed at each Port location to support fully electrified berths, CHE, trucks, administration and other needs. Northwest Ports could work with local utilities on feasibility studies to understand costs and create a funding strategy.
- New investments in fossil fuel-based infrastructure and vehicles should be avoided in all cases. Port investments, properties and tenants could instead provide electric fueling stations for harbor vessels, ocean going vessels (OGV), cargo handling equipment (CHE), trucks and administrative uses.
- Recommends installing charging infrastructure and make port property available to charge and store trucks.
- Strongly recommend installing all infrastructure required to electrify all berths, CHE, trucks, administration and other needs by no later than 2030. Any new construction or remodel projects should include increased electrical capacity to support fully electrified Port operations.
- Install charging infrastructure and make Port property available to charge and store trucks.

- Recommends purchasing electric options for port operations and administration, thus helping increase demand and supporting the market for these products.
- Recommends implementing a truck appointment system and provide preference to electric and other zero emission trucks for all short drays.
- Recommends establishing no-cost incentives to support those owner operators and fleets that choose to convert early to zero-emissions. We recommend employing a truck appointment system and providing preference to electric and other zero emission trucks for all short drays. Because 55% of drays serving the Port of Seattle are less than 40 miles, a figure that is likely fairly consistent for all three ports, and drayage trips include start-and-stops that aid regenerative braking, this use case is ideal for immediate electrification. Providing preference would allow early adopters to increase their number of daily drays and associated revenue, helping defray additional up-front capital costs, while also reducing the need for existing high-polluting diesel trucks. Enforcement of the requirement and call-preference can be effectuated with the same RFID and truck registry system the NWSA has employed with success over a decade and a half to upgrade trucks to post-1994 model year and then post-2007 model year engines.
- Recommends coupling this requirement and call-preference with financing mechanisms developed in concert with unions and government, including the Department of Ecology, especially its VW mitigation program, the Puget Sound Clean Air Agency, and peer organizations in British Columbia.
- Work to provide equity among truck owners (fleets and independent owner/operators)
- Provide ombudsman services to advocate for independent truck owner-operators (especially those who have language barriers) in their communications with dealers regarding truck purchases and repairs; the ombudsman must have deep familiarity with diesel engines in order to adequately represent and assist truck owner-operators
- Recommends supporting truck drivers in the transition to electric trucks. Consider a low-interest revolving loan fund or similar that provides the upfront capital for the transition.
- Recommends requiring all truck calls be with zero-emissions vehicles by 2040, which provides certainty and sets the necessary trajectory.
- Recommends advocating for grants for electric equipment, especially those that prioritize immigrant operators and others from vulnerable communities, and help promote them to port workers.
- Work with financial institutions to create a stronger partnership and program to support truck drivers to transition to electric trucks.
- Create access to capital for new vehicles through a revolving loan fund or similar.
- Explore new business models for truck ownership/operation that decreases costs and increase profits for truck drivers.
- Advocate for and administer federal, state, local or private electric truck grants prioritizing immigrant truck drivers.
- Recommends funding pilot projects that will support new technology, helping bring it to a broader market.
- Fund pilot projects that help bring new technology to market and purchase electric options for Port operations/administration to drive demand.

- Facilitate a study to create a roadmap for an equitable transition to fully electrified Port operations including current barriers and solutions for truck drivers. This study could also inform what near term (2-3 year) actions could improve air quality the most for the Duwamish Valley without investing in new fossil fuel infrastructure.
- Work directly with community, truck drivers, port tenants and the Port of Seattle's Duwamish Valley Equity Program to create opportunities for community-based solutions for an equitable transition including workforce development and training programs related to electrification.
- Co-design and co-implement solutions with those most impacted by Port operations.
- Recommends actively championing policies that will promote electrification and cleaner fuels, such as the Clean Fuel Standard in Washington.
- Recommends protecting near-port communities today by providing funding for strategies that will protect communities from pollution, such as green screens and other barriers on roads with high port traffic.
- Recommends funding and supporting training programs on maintenance for electric vehicles and equipment and recruit trainees from local underserved communities.
- Training on new technologies should be available and accessible to all truck owners; compensate individual owner-operators for attending training.
- Work to improve traffic flow efficiency to reduce impacts on nearby neighborhoods including staggered shifts, non-idling waiting lots, reservations or other efficiency improvements.
- Ports should add an action for the efficiency of port operations/interactions with the truck owner/operators.

Additional meetings:

- Supporting a Clean Fuel Standard, joining efforts to seek increased grant funding for electrification projects, and continuing to partner with local utilities might make objectives achievable ten years sooner than currently projected.
- In CAAP, there are 2- and 3-year intervals for technology check ins. Would highly recommend these sorts of check ins, looking at economics, commercial viability, operational viability, etc. to determine whether we can successfully continue with the strategy or we need a revision
- Companies that have used GSC logistics CMI, TTSI, are all involved with zero emission truck pilots in CA. TTSI has been early adopters of all types of technologies. Would recommend working with those three companies to see how we can replicate in our region.
- BYD and Cummins are members of the association.
- Advocating for both fleet program and micro fleet program
 - Grants favor big companies, need separate programs for owner operators to make sure they have resources available.
 - Working groups for owner operators
- Simplest thing a port authority can do to help: supply ancillary support facilities. I.e. cell phone lot with charging. Partner with folks that are willing to do pilot programs.
 - Whatever the port can do to create a facility to park the truck and charge it

- Acquire a small group of trucks, create a fleet that folks can rent for short durations to give more folks an opportunity to get acquainted with the tech. Takes away the challenges of up-front costs.
- Charging for on-road trucks should not be conducted within the port. Charging electric trucks is land intensive. Where the residency time for a diesel truck at a fuel station is 15-20 minutes, the residency time for truck charging would be 4-8 hours. The amount of space necessary to support an electric truck fleet is enormous. Has the port examined the land commitment they are making through the plans stated goals?
- Have the ports examined the costs for public charging infrastructure? Do the ports have the revenue necessary to fund such infrastructure?
- Recommends working with utilities to create collaborative incentive programs. By supporting these efforts through partnerships with the Port, terminal operators, OEMs, and drayage owner/operators, we can better identify and remove barriers that inhibit electrification.
- Need to emphasize rolling out programs sooner rather than later. Some of these things are happening now, some are nebulous (e.g., supporting turnover to ZE trucks). Immediately start thinking about different programs, like a loan program to buy ZE trucks. Balance the need to be vague enough for a long-range plan and the programs that need to happen soon. Think it would make the plan seem more real. Putting off action makes it harder to achieve the goals.
- For each of the objectives, identify something near term that you have to do.

Truck online survey:

- Many comments sought significant financial assistance to help purchase zero-emission trucks:
“For you to lobby to Congress for a grant to 100% fund all financially hard up truckers to purchase this zero-emission truck.”
- Some commenters focused on improving turn times and port efficiency:
“Add additional gates to t18 and other terminals so we can move more efficiently!”
- Many comments were unsupportive of any future zero-emission truck program:
“I don't want a zero-emission truck. We already have enough issues with the trucks we have now.”
- One commenter asked for a federal requirement for zero-emission trucks:
“A change in federal law mandating zero emissions vehicles.”
- Many commenters wrote that faster turn times and improved port efficiency would be the most effective ways to reduce emissions in the next 5-10 years:
“More efficient port turn times will equal less idling”
“Get trucks out of ports within one hour or less it is possible you need to operate 24 hours if need be.”
- Some commenters raised issues around DPF tampering and enforcement, to ensure an even playing field and ensure emissions are actually being reduced:
“90% of the trucks going into the ports are deleted. You guys need to call the EPA start testing trucks for emission”

Step 4: Brainstorm Metrics – Trucks

Comments
<p>Session notes:</p> <ul style="list-style-type: none"> • Stakeholder group + criteria with progress measures to hold each other accountable • Stakeholder process annually (similar to this) to re-evaluate and update – any new obstacles to address, update approach • Fleet composition over time – annually to track trend toward cleaner vehicles • Reporting out on demonstration projects (demo new technology / report results) • Use stakeholder group to identify interim measures over time • Keep on top of the state of the industry and adjust • Health of community – e.g. GPS off-port information – where are trucks driving, reducing miles on near-port community roads • Health of industry (Employment, gate turnover) • Infrastructure – compare to industry norm, other ports • Efficiency of port terminals themselves – e.g. time of truck on terminal, time spent in line • Real-time data on truck turn times etc. <p>Additional meetings:</p> <ul style="list-style-type: none"> • Help people understand the difference between DPM (health) and GHGs. Need to decouple the stories of health and GHGs. • Feel like there is a need for federal standards, west coast coalition advocating for stronger GHG standards. If we move freight elsewhere that only makes the problem worse for climate. • Driver productivity metrics KPIs, Harbor Trucking association. Have been collecting turn time data for years. <ul style="list-style-type: none"> ○ Turn time is a key KPI ○ Consistent turn time is important. Measure turn times as average and number over 1 hour, 2hours act ○ Street turns ○ Triangular transitions (VMT per container move) ○ Look at volume as important context for turn times • Introduce us to Mark Darling, XPO. • Need collaboration with ocean carriers to help solve the efficiency issues • Would be helpful if the Port of Tacoma collected data to support a Total Cost of Ownership calculation including the following information: <ul style="list-style-type: none"> ○ Fuel cost (\$/year) ○ Fuel efficiency (ton miles/gallon) ○ Emissions CO₂, SO₂, NO_x, PM (g/gallon)

- Maintenance costs (\$/year)
- Capital investment costs (\$/project)
- Cargo throughput by terminal (tons per year)
- Age of equipment (hours, years of service)
- Emissions over time.
- Infrastructure and equipment that is being used for different sectors - how are new technologies being rolled out and how is infrastructure changing each time?
 - For example, this is how many trucks we have operating with the port at a given time and this is the type of equipment they have; regularly updated equipment inventories.
- Public health measures - track and report as conditions for success.
- More granular understanding of the output of the truck fleet; GPS tracking of where trucks are going before and after going to the terminal.
- Reporting out on demonstration projects (demo new technology / reporting results)
- Exposure of community to truck emissions - e.g., GPS off-port information - where are trucks driving, reducing miles on near-port community roads
- The health of industry (employment, gate turnover)
- Fleet composition over time - annually to track trend toward cleaner vehicles

Written feedback:

- NOx trucks can provide near-term GHG reductions, while providing other benefits
 - Low NOx heavy-duty vehicles remain one of the most cost-effective immediate remedies to the problems of greenhouse gas emissions (GHG) and NOx, and are certified by the California Air Resources Board as 90 percent cleaner than diesel. When running on low carbon renewable fuels, lifecycle greenhouse gas emissions are reduced substantially when compared to diesel, including “carbon negative” for some feedstocks.
 - Benefits beyond GHG emissions – quieter engines, fueling infrastructure already in place, cost-effective technology.
 - Opportunity Cost of a strategy dependent only on zero emission technologies would have a real impact on the immediate needs to reduce significant air pollution for our most troubled air sheds throughout the state. ZEV technology should be part of the solution, but near-term NOx reductions from the largest vehicles in the state are only achievable with a portfolio approach.
 - Regulatory Signals are Important: Given the inherent advantages to just purchasing another diesel truck, it is critical to send consistent purchasing signals to the sector. The long-term acceptance of a technology is necessary to ensure full commercialization. Such a dynamic will most likely result in a near-term void in the cleanest purchases possible in the heavy-duty sector because zero-emission heavy-duty technologies are not yet ready for immediate deployment, and diesel has the historical advantage.

- Placing Northwest Ports' clean air future into one technology basket is risky and discourages port businesses from implementing a range of technology options that could meaningfully reduce their environmental footprint sooner and less expensively. Rather than prematurely picking a technology winner, the Northwest Ports should embrace performance-based standards that support both zero and near-zero emission strategies that are powered by renewable fuels
- The plan makes the following statement:
 - Currently, electric options are the closest to commercialization for most types of CHE, and these are likely to have the lowest operating costs among zero-emission options.
- This statement is attributed to the CAAP CHE Feasibility Assessment. However, because of the screening criteria in that report, the BEV options are not compared to any other ZE options in terms of operating costs (see figure below). The statement is unsupported. While screening criteria eliminated other ZE technologies like fuel cell from the San Pedro Bay ports' report, that does not mean that BEV will be commercialized faster. BEV has significant operational constraints that has continually prevented its usage on a marine terminal.

Summary of input from the online survey on trucks:

Select the categories you would like further information on. Check all that apply:

Options for compliance with the existing Clean Truck Program (e.g. retrofits, alternative fuel trucks, etc.)	40
DPF maintenance	40
Small business assistance	52
Financing options and business planning	40
Truck Parking	48
DPF Tampering penalties	25

Are you familiar with zero-emission truck technology?

Yes	47
Somewhat	27
No	28

How would you prefer the ports to accelerate the adoption of zero-emission trucks in our gateway?

A new Clean Truck Zero-Emission Truck deadline	12
Charge a fee to trucks that are not zero-emission to enter the terminals	9
Voluntary program	48
Other	33

What support do you need to be prepared to make the transition to a zero-emission truck? (select all that apply)

Education	25
Demonstrations/ride and drive	21
Grants towards the purchase of a zero-emission truck	68
Financing options and business planning	44
Identifying charging/fueling options	31
Other	29

What measures do you think would be most effective in reducing diesel emissions from trucks in the near-term (i.e. next 5-10 years)? (Select all that apply):

A new Clean Truck Diesel deadline tied to a truck model year	15
A rolling truck age (all trucks entering terminals must be under a certain age e.g. 10 years old and below, which progresses every year).	29
Reduce truck idling	50
DPF Maintenance training	23
DPF Cleaning program	27
DPF Tampering/Removal enforcement	22
Separate truck parking facilities	20
Other	34

Sector: Cargo-Handling Equipment

Step 1: Review conditions for success for CHE

A condition for success is any condition that must be in place to make substantial progress toward phasing out emissions.

1. *Adequate electricity or fueling infrastructure is available where needed.*
2. *Suitable zero-emission equipment is commercially available and are cost competitive.*
3. *Terminal operators commit to purchasing zero-emission equipment.*
4. *Labor agreements and sufficient training are in place for use / charging / fueling of zero-emission equipment.*
5. *Sufficient qualified labor force in the region capable of maintaining zero-emission equipment.*

Comments

Session notes:

- Reframe into challenges and clarifying the port places an important role in seeing these (active rather than passive)
- Priority on infrastructure and supply from utilities – regional outlook for electrical demand – having sufficient funding to support expansion of capacity (funding requirements)
- Really need a champion to ensure these are fulfilled – e.g. pushing state / fed govts to provide funding; bringing together parties to ensure agreements come into place
- Incorporate concept of avoiding stranded assets, using equipment to serviceable life

Written feedback / additional meetings:

- Trucks and CHE might be backwards in timelines. Given state of technology and stranded assets.
- Equipment must be performance competitive in addition to cost competitive
- Infrastructure will be a big challenge. Wonders if we have the power capacity.
- Equipment is properly tested and can do the job
- Grant funding is available to allow early adoption and demonstration. Incentives are critical to getting the ball rolling.
- Terminals would prefer to keep carbon credits.
- Sufficient training for labor needs to be in place
- Need to address training and mechanic labor force that will maintain the electric equipment.
- Will always come down to cost.
- Stranded assets and long-term revenue are concerns for getting equipment changed over
- Recommend adding “Maximize energy efficiency of buildings and equipment”. Maximizing energy efficiency could alleviate future electrical system constraints and was supported by public comments.

- Look forward to coordinating on infrastructure needs and supporting policies that enable cost effective electrification including joint applications for grant funding from federal and state sources.
- After more than 10 years of testing, current ZE CHE technologies are not capable of conducting operations at a marine terminal. A date specific goal is, therefore, inappropriate. It is impossible to plan to that goal. The only solution today that meets ZE requirements is full automation. Faced with the choice of planning based on non-existent technologies or automation, terminals may be forced to select automation. That appears to be happening in San Pedro Bay.
- If the ports will not support automation, have the ports analyzed the space available on terminals to support parking of CHE. Traditional stall and lane parking will not work with electric charging.
- The draft key actions outlined in the recent discussion document are not aligned with desired climate and health benefits because the timeline for electrification is too long and underestimates the current state of market ready technology. For comparison, in the 2017 Clean Air Action Plan for the Port of Los Angeles and Long Beach, goals include full electrification of all on-dock equipment (cranes, yard tractors, CHE, top handlers, etc) by 2030 and all trucks serving the Ports to be electric by 2035. Also, resources like CALSTARTs ZETI tool show there are eight manufacturers currently offering fully electric port equipment like yard tractors, today. Timelines of 2040 or beyond are simply too long and need to reflect current timelines of technology coming to market and the urgency of the climate and health crisis to reduce emissions.

Step 2: Review Draft 2020 NWPCAS Objectives for CHE

Objectives are goals that will require collective action of port authorities, industry and government to be successful.

1. *Increase efficiency of equipment and operations.*
2. *Support interim emission reductions.*
3. *All infrastructure is in place to support transition to zero-emission CHE by 2035.*
4. *Accelerate turnover of cargo-handling equipment to zero-emission equipment by 2040.*

Note: numbers in the bullet points refer to the associated objective listed above.

Comments

Session notes:

- 1 – Consider including automation of operations
- 1 – Should there be a timeline on the automation / improvement of operational efficiency?
- 1 – Too vague – needs to clarify what efficient equipment / operations means
- 1 – Operations: how goods are delivered – working toward peel off (“uber” model)

- 2 – Benchmarks along the way – more specificity on this goal – taking advantage of interim opportunities – address issue of stranded assets
- 2 – Already in some leases to transition to Tier 4 as equipment replaced; concern with purchasing abandoned equipment (replacing before serviceable lifespan)
- 2 – Understand interim measure emission reductions vs. investment level needed
- 3 & 4 – Look at California timeframes (2030 zero emission CHE)
- 4 – Programs to address issue of stranded assets (scrap and replace) – be creative with these
- Timeframes should keep in mind manufacturing timelines especially for limited market specialized equipment
- Cleanest equipment is already purchased when replacing (currently Tier 4)

Written feedback / additional meetings:

- 1 – Can this be done sooner?
- 4 – No target date for this? Could happen in next couple years really
- 3,4 – 2035 and 2040 might be too aggressive for fully implementing zero emission CHE.
- Stranded assets are a concern
- Moving towards zero emissions by 2035 with infrastructure plans in place would be critical for meeting a zero-emission goal by 2040.
- 4 – too aggressive for Washington
- Wonders about how the dates were decided upon.
- The ports commit to ZE infrastructure by 2035. Does that include the ports support for automation? The costs of electrification are so high, that terminal operators are considering means of mitigating those costs. Terminals currently do not automate because the costs of electrifying the terminal to support automation are cost prohibitive. If the terminal must be electrified, then the environmental goal becomes the enabling action to automation. Do the ports understand that plan proposal not only enables automation, but makes it more likely in order to mitigate the cost of electrification?
- Recommends adding an objective to “Identify and complete all cost-effective energy efficiency projects by 2025”
- To avoid stranded assets advocate for standardization and interoperability of charging equipment. Otherwise, implementation of infrastructure gets more complicated and costlier. The issue will snowball if not addressed now.
- ZE tech will make sense for most pieces of equipment, but for unique large pieces like RTGs, that just doesn't make sense. Need hybrid RTGs. Would need to rebuild footprint of facility to accommodate a widespread crane.

Truck online survey:

- Many commenters asked the port to ensure cargo-handling equipment is also upgraded:
“having the ports equipment updated, forklifts and yard trucks produce more emissions than all the trucks combined in the port”

Step 3: Review Actions for CHE

- *Are these the right actions needed by port authorities? For others?*
- *Do you have any comments on timeframes?*
- *Can we identify and commit to timeframes on any of the actions needed by others?*

Session notes: *(Input in standard text; content from the DD#2 is in italics)*

Objective	Port authority actions
1. <i>Increase efficiency of equipment and operations</i>	<ul style="list-style-type: none"> • <i>By 2030, establish port programs or lease requirements to promote / incentivize efficiency in CHE</i> <ul style="list-style-type: none"> ○ Accelerate this action • <i>Coordinate demonstration projects</i> <ul style="list-style-type: none"> ○ Getting grants for these; longer-term demonstrations needed • Ports lead by example with own equipment (where applicable)
2. <i>Support interim emission reductions</i>	<ul style="list-style-type: none"> • No comments
3. <i>All infrastructure is in place to support transition to zero-emission CHE by 2035</i>	<ul style="list-style-type: none"> • No comments
4. <i>Accelerate turnover of cargo-handling equipment to zero-emission equipment by 2040</i>	<ul style="list-style-type: none"> • <i>Support demonstration projects</i> <ul style="list-style-type: none"> ○ Getting grants for these; longer-term demonstrations needed • Need to understand capacity better (will we need more equipment to serve same functions?) – looking at inductive charging opportunities

Written feedback:

- Notes the key actions do not align with reducing GHG in line with climate science – timeline is too long and is not in line with market ready technology. For comparison, in the 2017 Clean Air Action Plan for the Port of Los Angeles and Long Beach, goals include full electrification of all on-dock equipment (cranes, yard tractors, CHE, top handlers, etc) by 2030 and all trucks serving the Ports to be electric by 2035.
- New investments in fossil fuel-based infrastructure and vehicles should be avoided in all cases. Port investments, properties and tenants could instead provide electric fueling stations for harbor vessels, ocean going vessels (OGV), cargo handling equipment (CHE), trucks and administrative uses.

- In order to leverage planned capital investments, a gap analysis should be done in 2020/2021 to identify how much electric infrastructure is needed at each Port location to support fully electrified berths, CHE, trucks, administration and other needs. Northwest Ports could work with local utilities on feasibility studies to understand costs and create a funding strategy.
- Strongly recommend installing all infrastructure required to electrify all berths, CHE, trucks, administration and other needs by no later than 2030. Any new construction or remodel projects should include increased electrical capacity to support fully electrified Port operations.
- Fund and support training programs to maintain zero emission trucks, vessels and equipment and recruit trainees from local underserved communities.
- Work to improve traffic flow efficiency to reduce impacts on nearby neighborhoods including staggered shifts, non-idling waiting lots, reservations or other efficiency improvements.
- Co-design and co-implement solutions with those most impacted by Port operations.
- LED lighting program would be in the best interest of the port
- Recommends taking advantage of aggressive OEMs
- Look at every single berthing space and every single CHE hook up to figure out what might be needed to electrify? Electrification isn't going away, we just need to get over the initial sticker shock of purchasing equipment.
- Action 1 is too vague – needs to clarify what “efficient equipment/operation” means.

Step 4: Brainstorm Metrics – CHE + Rail

Comments
<p>Session notes:</p> <ul style="list-style-type: none"> • Operational efficiency measure – time that trucks are on terminal = turn time • Tracking equipment type – tier levels vs. electric • Tracking what has been tested / trialed * • Be clear on what will be done with the data collected and who are we reporting to; try not to reinvent the wheel • Carbon per tonne of cargo moved • Normalizing fuel cost per tonne of cargo (considering competitive non-disclosures) • Staging opportunities to improve efficiency; need to engage BFOs in this process → collectively prioritize efficiency • Stakeholder group to evaluate effort and progress – ongoing (annual basis) review and adjusting actions regularly • Understand port progress relative to state emission targets • Technology availability / progress

- Labor statistics – changes in jobs, capabilities
- Utility capabilities changing over time to meet equipment needs

Written feedback:

- Spreadsheet ports send to operators on CHE list is not a heavy lift to send
- There are tracking elements built in to equipment now that can show emissions in nearly real time
- Can track utility bills to show reductions from facilities
- Hours of equipment operation per container throughput
- Petroleum fuel use per container throughput
- KWh use per container throughput
- Periodic snapshots of fleet composition (type of equipment, fuel it runs on and age)
- Periodic snapshots of age and tier of switcher engines
- Idling hours of switcher locomotives

Sector: Rail

Step 1: Review conditions for success for Rail

A condition for success is any condition that must be in place to make substantial progress toward phasing out emissions.

1. *Sufficient fuels/electricity are available at terminals and rail yards for switching, and across the continent for line haul.*
2. *Zero-emission switchers and line haul locomotives are demonstrated and cost competitive.*
3. *Commitment from tenants and rail companies to transition to zero-emission technology as practicable.*
4. *Enabling regulation is in place to support investment in zero-emission rail.*
5. *Sufficient qualified labor force in the region capable of maintaining zero-emission equipment.*

Comments

Session notes:

- Rail may be suitable for focus on reducing significant emissions now, especially with rail yards in impacted communities
- Improved air quality for people in impacted communities
- How to get other states to participate especially for line haul / national carriers
- On-dock rail – who is responsible for national switchers on dock
- National standards – port coordination / advocacy for these
- CARB pushing for a Tier 5 standard – NW ports could join this effort
- Load profile for utilities need to understand the technology direction = (3rd rail vs. battery) – challenging to have 3rd rail as switchers go off of terminal property

Written feedback:

- Ports have no authority on Class 1 railroads. To imply otherwise with specific goals targeting Class 1 railroads only serve to misinform stakeholders. There are no plans at the federal level that contemplate electrification of the interstate rail system.
- Rail investment may become untenable due to failure to meet stated goals. The ports of Los Angeles and Long Beach had previously made similar commitments. As a result, they have faced significant pressure against rail improvements (despite the fact that it is cleaner than trucking) to not improve rail facilities because the San Pedro Bay ports have “failed” to meet previous rail commitments that they have no power to implement.
- Infrastructure development was occurring on a separate timeline as the locomotive technology. That's not feasible. Rail operators aren't going to install infrastructure if it isn't going to be utilized for several years and utilities aren't going to invest in capacity if the usage isn't going to be there. Timeline needs to happen in parallel and the feasibility of the date is driven by the utility.

- Biggest challenge is the small number of players in manufacturing locomotives. There are many more names in passenger rail application, but those applications are very different from freight.
- On page A-19, the Conditions for Success paragraph refers to “trucks” instead of “rail.” Page 4 of 4

Step 2: Review Draft 2020 NWPCAS Objectives for Rail

Objectives are goals that will require collective action of port authorities, industry and government to be successful.

1. *Support equipment efficiency improvements and reduced rail idling.*
2. *Support interim emission reductions and reduce impacts on communities.*
3. *Install infrastructure for zero-emission rail.*
4. *Accelerate the turnover of switchers and locomotives to zero emissions.*

Comments

Session notes:

- Rail may be suitable for focus on reducing significant emissions now, especially with rail yards in impacted communities
- Need rail operators engaged
- Need better understanding of operational restraints before we can make meaningful goals and timelines
- Critical to also engage rail workers in effort as well

Written feedback:

- The focus needs to be on the health impacts of nearby communities and reducing their exposure as rapidly as possible. The technology for zero-emissions on locomotives is way behind other sectors so it is vital to focus on intermediate solutions like repowering locomotives to cleaner diesel engines, improving intermodal efficiencies, etc.

Step 3: Review Actions for Rail

- *Are these the right actions needed by port authorities? For others?*
- *Do you have any comments on timeframes?*
- *Can we identify and commit to timeframes on any of the actions needed by others?*

Session notes: (*Input in standard text; content from the DD#2 is in italics*)

Objective	Port authority actions
1. <i>Support equipment efficiency improvements and reduced rail idling</i>	<ul style="list-style-type: none"> • No comments
2. <i>Support interim emission reductions and reduce impacts on communities</i>	<ul style="list-style-type: none"> • No comments
3. <i>Install infrastructure for zero-emission rail</i>	<ul style="list-style-type: none"> • <i>Incorporate terminal switching energy demands into grid capacity study, to be completed by 2025 (see CHE and Trucks)</i> <ul style="list-style-type: none"> ○ Look for opportunities to coordinate with national carriers on their electrification planning / transition – could this study be completed earlier? US intent to move forward earlier
4. <i>Accelerate the turnover of switchers and locomotives to zero emissions</i>	<ul style="list-style-type: none"> • No comments

Written feedback:

- What about renewable diesel?
- What about charging fees for Tier 1 engines like in Vancouver?

Additional meetings:

- Would like to see battery-electric switcher. Right now, working on line haul application. Next step is to take knowledge that learned from line haul and apply it to switcher. It's a tough economic case because switchers burn so much less fuel, so the economics of making a switch to electric based on fuel savings doesn't offer as high of a return. Exploring partnerships with passenger operations to pilot a switcher and a passenger application, because those are more similar than line haul applications.

- Could use support from Ports in advocating for DOE to look at batteries for locomotives. DOE is fixated on hydrogen, but BNSF doesn't see it as feasible; focus on battery technology.
- Locomotive repowers are also misunderstood. There's a huge opportunity to reduce criteria pollutant emissions from repowers. However, there are 20-25 different switcher model types. Each model type requires a specific engineering design to repower to a higher Tier. It's frustrating being told to repower because engineering kits for a Tier 4 don't exist for every type of switcher. Also, Tier 4 isn't always feasible because of the size of the engine, but most funding opportunities require a Tier 4 conversation. Going from Tier 0 to a Tier 2 could still improve AQ for communities, but can't get funding for that in CA.
- We want to emphasize that rail companies were not present at the stakeholder meeting, and that we would like to participate in conversations between the Ports and the railroads to learn more about what is feasible and what the Strategy should focus on.

Step 4: Brainstorm Metrics

See Cargo-handling equipment section for all CHE + Rail Metrics input.

Sector: Ocean Going Vessels

Session roundtable input by organization

- Pacific Merchant Shipping Association:
 - Involved in NWPCAS for a long time.
 - Would like to see more recent emission inventory to support strategy (or estimated changes since 2016 inventory).
 - Industry is working on managing speed for multiple reasons (orcas, pilot boat alignment, managing heat) – can be complex and need to consider these other elements when discussing vessel slow-down programs.
 - Regarding emission inventories: over 600 vessels call across US/Canada border, make sure not counting inbound and outbound leg in both US and CDN emission inventories.
 - Provide more information / review on what is being done (e.g. IMO initiatives) for context in strategy.
 - Shipping is the most efficient form of transportation – NW Ports are green gateway – avoid unintended adverse consequences [of Strategy actions which could result in] shipping along other routes that are more air emissions intensive.
 - Important to keep abreast of new technologies for shore side – shore power may not be the only / long-term zero emission option at berth. Don't want to waste shore side investment. For example, fuel cells would require different fueling infrastructure.
 - IMO goals are driving long-term reductions in shipping emissions.
 - How many ships currently visiting have shore power?
 - Port response: Based on our research, 50% container ships that call at 5 major container terminals are outfitted with shore power infrastructure
 - Don't forget to consider other non-container and cruise ships that are currently “off the radar” for shore power use.
- American Waterways Operators:
 - Alternate technologies for tugs have come in fits and starts. Hybrid diesel electric tug first developed out of this region years ago, but had battery cooling issues and a fire, are now having to redesign their approach.
 - Battery and static issues are delaying adoption.
 - In the meantime, important to be mindful of input and output with Tier 3 and 4 standards; consider GHG impact – higher tier engines can actually produce higher GHG emissions while lowering PM emissions.
- Front & Centered:
 - Would like a better understanding of near-shore pollution sources and levels from ships. This would be helpful for prioritizing which actions to take.
 - PMSA: have done some dispersion modelling to see how different sources affect near-port communities; Ports can provide more information about this after the call.
 - Port Response: For marine, about 20% is at shore emissions (at dock), 80% when in transit and maneuvering.
 - 2030 deadline for shore power on all the docks – why that deadline? Why are we waiting a decade to get there?

- Port response: Large investments rely on external funding. 10-year timeframe fits within capital expenditure plan. Reality is that many major terminals could happen before deadline. Port of Seattle cruise terminals plan to be shore power equipped by 2022.
- Puget Sound Clean Air Agency:
 - Difficulties with grant applications for harbor vessels because going to Tier 4 technologies increase GHG emissions (at the same time as they reduce particulate matter).
- EPA:
 - No major rule changes right now. However, encourage group to share information about Tier 4 considerations for future rule changes.
 - EPA prides itself on practical legislation. Appreciates any real-world feedback and data.
 - EPA is currently focusing on developing emissions inventory guidance documents – will be based on west coast ports’ emission inventories.
 - EPA continues to support Diesel Emissions Reduction Act (DERA) program, recognize this is a “drop in the swimming pool” of funding that’s needed.

Step 1: Review conditions for success for OGVs

A condition for success is any condition that must be in place to make substantial progress toward phasing out emissions.

<i>For zero emissions at berth:</i>	<i>For zero emissions in transit and at anchor:</i>
<ol style="list-style-type: none"> 1. <i>Low emission electricity is available at berths, with necessary grid upgrades complete.</i> 2. <i>Vessels visiting terminals are capable of plugging in and maximize use of shore power.</i> 3. <i>Funding is in place to support shore power installation costs.</i> 4. <i>Utility rates and connection fees are not cost prohibitive compared to the cost of onboard power generation.</i> 5. <i>Agreements are in place with terminals and labor to allow for shore power connections to occur.</i> 	<ol style="list-style-type: none"> 6. <i>Zero-emission fuel with sufficient energy density must be developed and demonstrated at the scale of trans-Pacific ships, and be available in sufficient quantities.</i> 7. <i>IMO policies prioritize development and implementation of zero-emission vessels.</i> 8. <i>Required fueling/electricity infrastructure is coordinated among ports internationally and available at key ports of call.</i> 9. <i>Favorable investment conditions support development and deployment of zero-emission vessels.</i>

Comments

Session notes:

- Requires investment of shore power not only by the ports but also by the port-side owner of the vessel to install shore power capability
- Opportunity / cost matrix of different options + reviewing number equipped vessels visiting these ports at berth
- Technology installed should be consistent with global direction of maritime industry (e.g. shore power or other zero emission technologies)
- Broaden if needed re: shore power and other technologies – but don't wait for new vessels to be equipped with those technologies, need shore power which is available now
- Q: is LNG a worthwhile investment in interim? PMSA in support of TOTE efforts. Likely to be in mix as bridge fuel
- Near-term / long-term dynamic is very important – LNG provides near-term emission reductions for communities
- Methane tracking for LNG fuel is very important for emission inventories if using in interim (lifecycle analysis)
- Bonnet technology missing – could be valuable for other (non-shore power capable ships)
- Concern about investing in stranded assets for LNG investment
- Ports have large role to play, don't allow conditions for success serve as a scapegoat for inaction
- Define what "interim" means (some LNG investments may be 40-50 years – beyond climate goals)

Written feedback:

- Need legislation to push requirements and/or funding opportunities if to be successful
- OGV at berth conditions for success are good

Other meetings:

- Charging and connecting ships is ILWU work, would suggest not delving in to labor agreements within the document.
- For vessels at berth, conditions for success look comprehensive.
- PNW ports cannot even advocate at IMO as the plan suggests. Only organizations that represent nation-states or have global representation have standing at IMO. The ports do not meet any of the criteria for lobbying IMO.
- The electricity demands for vessels at berth are wrong.

Step 2: Review Draft 2020 NWPCAS Objectives for OGVs

Objectives are goals that will require collective action of port authorities, industry and government to be successful.

1. *Install shore power at all major cruise and container berths by 2030 and maximize connection rates*

2. *Continually increase efficiency and decrease emissions from vessel operations*
3. *Support interim emission reductions*
4. *Support the international development of a zero-emission ocean going vessel by 2030*

Comments

Session notes:

- Additional regional coordination desired to ensure “dirtier” vessels aren’t going elsewhere – international is great, also build on NWP approach to include more west coast ports
- Define “interim” emission reductions
- Acknowledge co-benefits (e.g. noise reduction) very important – cutting cavitation – these emissions benefits should be documented
- Difficult to balance business vs. green gateway (continuing attracting business while reducing emissions)

Written feedback:

- The goal of a ZE OGV by 2030 is patently absurd. Placing the concept in the report serves to misinform stakeholders as to what is achievable.
- Objective 1: Look for other sources of funding, not just government.
- Objective 2: Focus on OGVs as part of a goods movement system: improving efficiencies at the terminals reduces time OGVs spend at dock, which lowers emissions across multiple sectors, not just while vessels are hoteling.

Step 3a: Review Port Authority Actions for OGVs

Port authority actions encompass what all port authorities need to do, focusing on the first five to ten years. Refer to the table on pages A6-A7 in Discussion Document #2.

Comments

Session notes:

- Clear reference sheet of the different entities / participants in the system
- Encourage more rapid timeframe – e.g. grid capacity study by 2025 not ambitious enough
- Encourage more aggressive times for planning – e.g. need utility capacity before 2030 to have shore power constructed by 2030
- Incentives, recognition good, but driving forces from commercial side – need to maintain reliability, competitiveness in alignment with environmental programs
- Remember this is a goods movement system – e.g. efficiencies on shore side also enables ships to spend less time at berth
- Efficiency!!

Written feedback:

- Recommends requiring shore power use and electrified operations through lease agreements.
- Recommends actively work with utilities as willing partners to expand electrification infrastructure.
- New investments in fossil fuel-based infrastructure and vehicles should be avoided in all cases. Port investments, properties and tenants could instead provide electric fueling stations for harbor vessels, ocean going vessels (OGV), cargo handling equipment (CHE), trucks and administrative uses.
- In order to leverage planned capital investments, a gap analysis should be done in 2020/2021 to identify how much electric infrastructure is needed at each Port location to support fully electrified berths, CHE, trucks, administration and other needs. Northwest Ports could work with local utilities on feasibility studies to understand costs and create a funding strategy.
- Strongly recommend installing all infrastructure required to electrify all berths, CHE, trucks, administration and other needs by no later than 2030. Any new construction or remodel projects should include increased electrical capacity to support fully electrified Port operations.
- Fund and support training programs to maintain zero emission trucks, vessels and equipment and recruit trainees from local underserved communities.
- Require shore power use and electrified operations through Port lease agreements.
- As IMO moves forward with their goal to reduce vessel GHG emissions by 50%, one strategy under consideration would be the use of fuel cells to provide auxiliary power.
- An international IEEE/ISO standard for shore power already exists. Are the ports proposing to supplant this standard?
- The report acknowledges that renewable fuels are a likely GHG strategy for vessels. However, the focus on tailpipe emissions, as stated earlier, means that ports have politically taken this option off the table
- Interim emissions need to be defined.

Step 3b: Review Others' Actions for OGVs

Others' actions encompass what others (primarily industry and government) need to do, focusing on the first five to ten years. Refer to the table on pages A6-A7 in Discussion Document #2.

Comments

Session notes:

- Objective 1 – government is not only other funding partner for shore power – need non-governmental sources as well
- Agree that broader funding sources important / essential
- Note re: Seattle cruise SP – may include agreement with industry in addition to government grants and port funds

Step 4: Brainstorm Metrics – Marine

Comments

In Session:

- Good metrics in inventories
- Per unit metrics help normalize trends – quite valuable for focusing strategies / evaluating options
- Absolute emissions and overall reductions metrics very important – needed to measure progress
- Understand geographical understanding of where emissions are; focus efforts where communities are most impacted
- Progress compared to state-wide progress on emission reductions; seeing cargo shifts from California to east coast ports due to increased cost of doing business – ensure consistent with state-wide goals and efforts
- State-wide goals in WA science-based; but progress not on track to meeting these goals at this stage; ensure ports don't shy away from taking leadership role; also, a good reason for collaboration between ports
- Current implementation report data for harbor difficult to come by and not very helpful – looking for other ideas
- Clear higher-level info on website for general public in addition to deeper data and info as well – analogous to Dept of Ecology website by sector – current and changes over time (last decade)
- For difficult to deal with sources (where cost-benefit is very high) – is there room for use of offsets in these cases? E.g. accelerate community emissions reductions in lieu of shipping emission reductions
- Be cautious re: adding fees / costs per unit as business will go elsewhere, reducing throughput
- Looking for ways to link grants to most cost-effective ways to reduce emissions
- Still a lot of work to get to point of having viable commercial deployment that are available to make use of grants
- Could we provide incentives to get more regular data from the harbor vessel fleet? Inventory pretty good but doesn't capture everything. Looking at just tug assists – now much more focused (12 doing assists) – i.e. can focus on smaller number of tugs.
- Periodic snapshots of age and tier/type of harbor vessel engines
- Number of vessels equipped with shore power capability
- Number of docks equipped with shore power capability
- Hours vessels are plugged into shore power /power consumption

Step 5: Q and A Period – Marine

- For difficult to deal with sources (where cost-benefit is very high) – is there room for use of offsets in these cases?

- For example, shipping line request operator to use only electric car trucks to move cargo.
- For example, accelerate community emissions reductions in lieu of shipping emission reductions.
- Response: Be cautious re: adding fees / costs per unit as business will go elsewhere, reducing throughput.
- Looking for ways to link grants to most cost-effective ways to reduce emissions.
- Still a lot of work to get to point of having viable commercial deployment that can take advantage of grants available.
- Could we provide incentives to get more regular data from the harbor vessel fleet? Inventory pretty good but doesn't capture everything. Dream would be to track which types of engine makes up the whole harbor craft fleet. Perhaps an incentive program to provide for harbor vessel owners to report. Don't currently have that big picture.
- Cruise ship sector invited to stakeholder engagement session?
 - Response: Yes, they were invited but they weren't able to attend. Preoccupied at this moment due to COVID.

Sector: Harbor Vessels

Step 1: Review conditions for success for Harbor Vessels

A condition for success is any condition that must be in place to make substantial progress toward phasing out emissions.

6. *Safe zero-emission energy source exists that has sufficient energy density to satisfy operational needs.*
7. *Sufficient fuels or electricity are available across the region.*
8. *Zero-emission tugs are demonstrated for port operations and for towing, bunkering and escort applications.*
9. *Zero-emission tugs are cost competitive.*
10. *Commitment from tug companies to transition to zero-emission technology.*
11. *Enabling policies or regulations are in place to support investment in zero-emission technology.*
12. *Sufficient qualified operators and engineers in the region capable of operating and maintaining vessels with alternative propulsion sources.*

Comments
<p>Session notes:</p> <ul style="list-style-type: none"> • Wide range of other vessels beyond tugs, conditions don't currently speak to these other vessels • Wide range of tug movements, including transits between jobs • Idea of tug escorts as a way to reduce emissions being discussed – not convinced these would result in desired outcomes (with more transits, question whether this would result in increased emissions, noise etc.) • Lifespan of vessels dictate investment in retrofit vs. retirement – very different for different types of tugs (towing has much shorter lifespan); E.g. some vessels may last 40-50 yrs., but typical may be 15-20 yrs. • Movement between jurisdictions (higher emitting tugs may move to lower standard equipment) – need for harmonized standards • Grant requests for hybrid new engines (not rebuilds) – may need other funding sources to support new builds, which was identified to be a more desirable funding source than repowers • New builds likely best opportunity for faster emission reductions • Possible new condition that hybrid technologies working first before we see all electric • Diesel-electric may need to be considered as first step to support in move toward battery electric <p>Written feedback:</p> <ul style="list-style-type: none"> • We may need to see the success of interim technologies (such as hybrids) before vessels are willing to go to zero emissions.

Step 2: Review Draft 2020 NWPCAS Objectives for Harbor Vessels

Objectives are goals that will require collective action of port authorities, industry and government to be successful.

5. Support interim emission reductions and reduce impacts on communities
6. Install infrastructure for zero-emission tugs
7. Accelerate the turnover of tugs to zero emissions

Comments
<p>Session notes:</p> <ul style="list-style-type: none"> • Shore power for tugs – in fairly wide usage; may not be available in some destinations • Emergency vessel at Neah bay already set up for this when not underway <p>Written feedback:</p> <ul style="list-style-type: none"> • Interim emissions need to be defined. • Avoid stranded assets

Step 3a: Review Port Authority Actions for Harbor Vessels

Port authority actions encompass what all port authorities need to do, focusing on the first five to ten years.

Refer to the table on page A-24 in Discussion Document #2.

Comments
<p>Session notes:</p> <ul style="list-style-type: none"> • Short-sea shipping as a potential path for air emission reductions – efforts around this in California (difficulties), but a worthwhile option to keep on the table • Green gateway / efficiency discussions / information very important to leverage to make offloading of cargo much more efficient, minimize tug movements etc. <p>Additional meetings:</p> <ul style="list-style-type: none"> • Could the port pilot a fully electric harbor vessel and obtain grants to fund it? Recruiting trainees from underserved communities. Installing charging infrastructure. Getting creative with what resources we have on the table and figuring out how we close gaps.

- Objective 1 actions: Look for and develop opportunities to demonstrate hybrid technologies.

Step 3b: Review Others' Actions for Harbor Vessels

Objectives are goals that will require collective action of port authorities, industry and government to be successful.

Refer to the table on page A-24 in Discussion Document #2.

Comments
No comments

Step 4: Brainstorm Metrics

See Ocean-going vessels section for all Marine Metrics input.

Attachment A: List of Focus Group Attendees and Organizations Providing Input

Focus Groups

Three focus group sessions were held using an online meeting format in-lieu of an in-person workshop as follows:

- Trucks Focus Group: April 1, 2020; 9am – 11am
- CHE + Rail Focus Group: April 2, 2020; 9am – 11am
- Marine Focus Group: June 2, 2020, 1:30 – 4 PM

Agenda:

The following general agenda was followed for each focus group session:

- Welcome and roll call
- Context for the Trucks discussion
- Discussion: conditions for success & objectives
- Discussion: actions
- Brainstorm: metrics
- Closing

Attendees:

First Name	Last Name	Organization	Trucks	CHE/Rail	Marine
Charles	Costanzo	American Waterways Operators			X
Erin	Dilworth	Citizens for a Healthy Bay	X	X	X
Andrea	Pratt	City of Seattle	X		
Jeremy	Stewart	City of Tacoma	X	X	X
Leah	Missik	Climate Solutions	X	X	X
Ron	Stuart	Department of Ecology	X	X	X
Chris	Wolfe	Environmental Defense Fund, Friends of the San Juans			X
David	Mendoza	Front and Centered	X	X	X
Sameer	Ranade	Front and Centered	X	X	X
Robert	Blankenship	Husky Terminal	X		
Brenda	Martin	Husky Terminal			X

Eric	Bayani	International Transportation Service, Inc.			X
Jordan	Royer	Pacific Merchant Shipping Association			X
Mike	Moore	Pacific Merchant Shipping Association			X
Thomas	Jelenic	Pacific Merchant Shipping Association			X
Andrew	Schiffer	Port Community Action Team/Georgetown Neighborhood	X		
Eric	Wright	Portland Container		X	
Amy	Fowler	Puget Sound Clean Air Agency	X		X
Beth	Carper	Puget Sound Clean Air Agency	X	X	X
Kelly	Garber	SSA Marine		X	
David	Logsdon	Seattle City Light			X
Shannon	Holmes	Shippers Transport Express	X	X	X
Keil	Drescher	Tacoma Power		X	
Sarah	Frederick	U.S. Environmental Protection Agency	X	X	X
Karl	Pepple	U.S. Environmental Protection Agency R10	X		X
Graham	VanderSchelden	Northwest Seaport Alliance	X	X	X
Nicola	Graham	Northwest Seaport Alliance	X	X	X
Steve	Nicholas	Northwest Seaport Alliance	X	X	X
Alex	Adams	Port of Seattle	X	X	X
Marie	Ellingson	Port of Seattle			X
Mick	Schultz	Port of Seattle			X
Ryann	Child	Port of Seattle	X	X	X
Cariad	Garratt	Pinna Sustainability [Facilitator]	X	X	X
Dana	Cook	Pinna Sustainability [Notes]	X	X	X

Written feedback

Written feedback was submitted by the following organizations:

- Citizens for a Healthy Bay
- Front and Centered

- Climate Solutions
- Duwamish River Cleanup Coalition
- Duwamish Valley Port Community Action Team
- City of Tacoma
- City of Seattle
- Clean Energy Fuels
- Pacific Merchant Shipping Association
- Puget Sound Clean Air Agency
- Tacoma Power

Additional meetings

Additional meetings were held via online / teleconference methods with the following organizations:

- Climate Solutions
- BNSF Railway
- Front and Centered
- Citizens for a Healthy Bay
- City of Seattle
- Pacific Coast Terminals / Everport
- Harbour Trucking Association
- Husky Terminal/International Transportation Services
- International Longshore & Warehouse Union (ILWU)
- Washington United Terminal