PORT OF TACOMA COMMISSION
ACTION ITEM MEMO

Item No: 6B
Meeting Date: 7/18/2023

DATE: 7/10/2023

TO: Port of Tacoma Commission

FROM: Eric Johnson, Executive Director

Sponsor: Jason Jordan, Director of Environmental Programs

Project Manager: Graham VanderSchelden, Environmental Project Manager II

SUBJECT: Adoption of New Greenhouse Gas Targets to Achieve Net Zero Scope 1 and 2 Emissions by 2040

A. ACTION REQUESTED

Request adoption of Resolution 2023-12-PT to update the Port of Tacoma's Greenhouse Gas Targets, incorporating new targets to achieve net zero scope 1 and 2 GHG emissions by 2040.

B. SUMMARY OF PROPOSED ACTION

If adopted, Resolution 2023-12-PT would update the Port of Tacoma's GHG targets as summarized in Table 1. The targets are relative to a 2005 baseline year. This advances the goal to achieve net zero scope 1 and 2 emissions from 2050 to 2040. Accelerated investment in electric vehicle charging infrastructure, electric vehicles, building electrification and renewable fuels will be required to implement these goals.

Table 1. Summary of Proposed Update to GHG Targets

Year	Existing Targets	New Targets
2030	50% (Scope 1, 2, and 3)	50% (Scope 1, 2, and 3)
2040	70% (Scope 1, 2, and 3)	Net Zero (Scope 1 and 2) 70% (Scope 3)
2050	100% (Scope 1, 2, and 3)	Net Zero (Scope 3)

C. BACKGROUND

Definition of Scope 1,2, and 3 Emissions:
The definitions of "Scope 1", "Scope 2", and "Scope 3" emissions come from the International GHG Protocol, which is the standard for corporate GHG emissions reporting. Scope 1 emissions refer to direct emissions from an organization's operations, which for the Port of Tacoma, includes our cargo handling equipment, maintenance equipment, and vehicle fleets and fuel used for building

heating. Scope 2 emissions include any electricity purchased for facilities or operations that occur on facilities that Port of Tacoma directly operates. Scope 3 emissions are any indirect emissions that occur as a result of business activity but are not under the Port's direct operational control. Notably, scope 1 and 2 emissions do not include tenant operations, which are part of scope 3.

Summary of the Port of Tacoma's Scope 1 and 2 Assets:
The Port of Tacoma's scope 1 and 2 assets include home port assets that are operated directly by the Port now and into the future. They exclude assets that directly serve the NWSA's operations, such as fleets and facilities at EB1 and the NIM Yard. Specifically, the Port of Tacoma's scope 1 assets include fleets that serve facilities and equipment maintenance, administrative functions, and Port security. The Port's scope 1 emissions also include natural gas usage at the Maintenance Building and the Port Recreation Center. Scope 2 emissions include electricity use at the administration building, the maintenance building, the Port Recreation Center, the Fabulich Center, and other miscellaneous meters paid by the Port. While part of the most recent emissions inventory, the Port Recreation center is slated for demolition in the coming months, so will not be part of the Port's carbon footprint in future years. A summary of the Port's scope 1 assets is shown in Table 2 below.

Table 2. Summary of Scope 1 Assets

Scope 1 Asset	Description	Annual Fuel Use (Therms or gal)	Annual GHG Emissions (tons)
Facilities			
Maintenance Building	Natural Gas Service	27,632 Therms	162
Port Rec Center	Natural Gas Service	3,208 Therms	19
Fleet (Vehicles and Equipment)			
Maintenance (Fac + Equip)	Pickup Trucks: 34 SUVs: 5 Vans: 15 Forklifts: 12 Other: 59	38,788 gal	444
Security/Fab Center	Patrol Vehicles: 11 Other: 1	11,125 gal	131
Admin + Engineering	Pickup Trucks: 4 SUVs: 8 Vans: 1 Cars: 1 Other: 2	1,752 gal	21

Existing GHG Targets:

The Port of Tacoma has established its greenhouse policy through three mechanisms; the 2017 Greenhouse Gas Resolution (Resolution 2017-04), the Northwest Ports Clean Air Strategy, and the Northwest Ports Clean Air Strategy Implementation Plans. A summary of the Port of Tacoma, Port of Seattle, and the NWSA's targets is provided below.

The Port of Tacoma's 2030 goal is that same as Port of Seattle and the NWSA, as is the 2050 goal for scope 3 emissions. In 2021, the Port of Seattle adopted a net zero goal to be achieved by 2040, which is more aggressive than the Port of Tacoma and NWSA's scope 1 and 2 goals, however, the Port of Tacoma and NWSA have adopted a 70% reduction goal for scopes 1,2, and 3, by 2040, directly aligned with the Washington State Target. Port of Seattle has not adopted a similar 2040 goal for scope 3 emissions.

Table 3. GHG Emission Targets for the Port of Tacoma, Port of Seattle, and the NWSA.

	2030	2040	2050
Port of Tacoma [Baseline=2005]	50% reduction for scope 1, 2 & 3	70% reduction for scope 1, 2 & 3	"Phase out emissions" (100% for scope 1,2,3)
NWSA [Baseline=2005]	50% reduction for scope 1, 2 & 3	70% reduction for scope 1, 2 & 3	"Phase out emissions" (100% for scope 1,2,3)
Port of Seattle [Baseline=2005 for scopes 1 and 2 and 2007 for scope 3]	50% reduction for scope 1, 2, & 3	Net zero for scope 1 and 2	"Phase out emissions" & Carbon neutral [airport] for scope 3

Emissions:
Addressing the Port of Tacoma's scope 1 and 2 emissions is an opportunity to demonstrate leadership because it is where the Port has direct operational control and can take direct action to reduce emissions. This is in contrast to reducing scope 3 emissions for which the Port must partner with tenants and other supply chain partners to implement emission reduction programs.

However, scope 1 and 2 emissions are ultimately a small proportion of the Port of Tacoma's overall emissions profile and the total port related emissions for lines of business that call in the Tacoma Harbor (i.e. Port of Tacoma + NWSA Tacoma Harbor activities).

Port of Tacoma's emissions are about 7% of the total Tacoma Harbor emissions (the NWSA makes up the other 93%) and of Port of Tacoma's emissions, less than 3% are scope 1 and 2. The following figure shows the distribution of Port of Tacoma's scope 1 and 2 emissions, which total 845 tons per year.

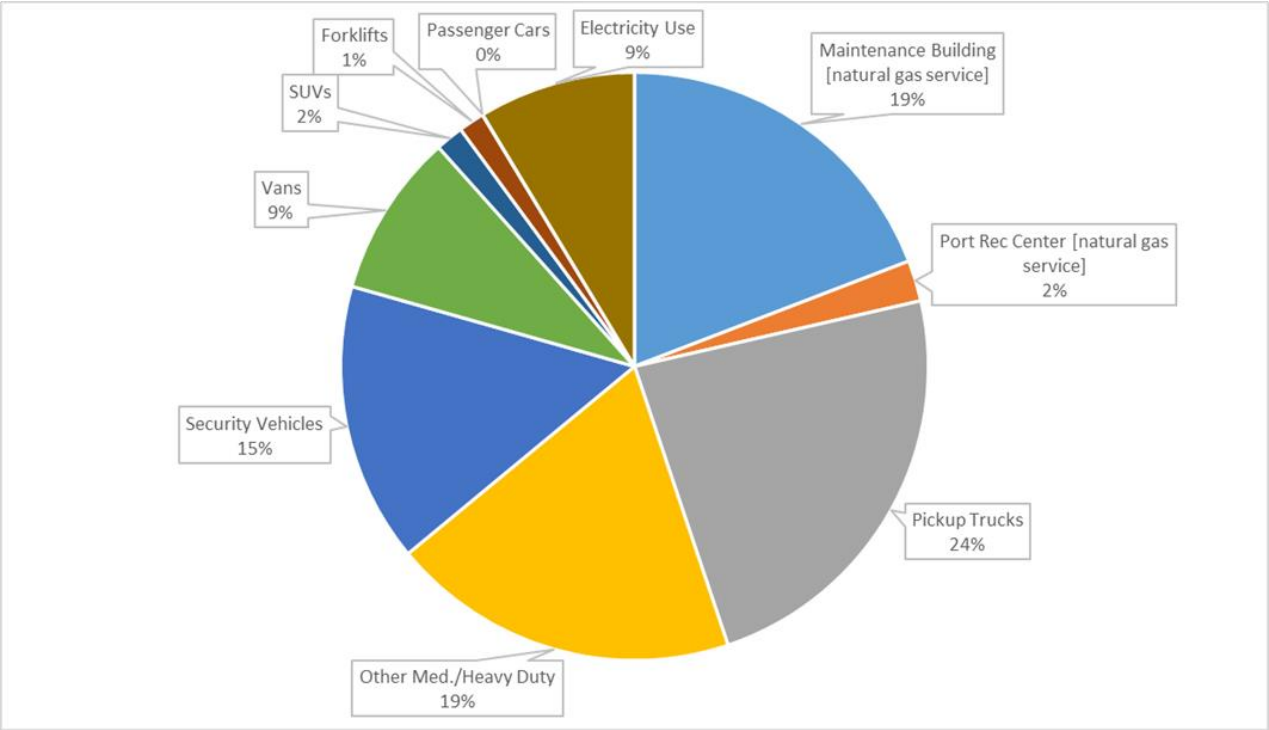

Figure 1. Distribution of Port of Tacoma's scope 1 and 2 emissions by source.

D. IMPLEMENTATION OF A NET ZERO BY 2040 TARGET

A net zero target allows for some flexibility in implementation but does carry an expectation that an organization will seek to electrify, or otherwise adopt zero tailpipe emission technology where possible in order to minimize local air pollution in addition to GHG emissions. Utilizing renewable and biofuels is an allowable approach to meet the goal and should be utilized in cases where electrification or other zero tailpipe emission technologies are not feasible. Finally, carbon credits or "offsets' may be purchased, but it is generally accepted that this option should only be utilized when there is no other way to achieve the goal. The hierarchy of implementation action priority should be roughly as follows:

1. Purchase zero tailpipe emission vehicles.
2. Replace natural gas with electricity in Scope 1 buildings and facilities. No natural gas in new construction.
3. Purchase renewable fuels for any assets that could not be replaced with zero tailpipe emission technologies. For example, renewable diesel in vehicles and renewable natural gas for buildings.
4. Purchase offset credits for any remaining net GHG emissions that could not be eliminated through the other measures.

Tracking Progress and Compliance with GHG Targets:

The Port performs regular emission inventories to track progress towards our GHG goals following the international Greenhouse Gas Protocol, the leading standard for corporate GHG emissions tracking. The inventories are performed every five years and include two parts: the Puget Sound Maritime Air Emissions Inventory and a complimentary corporate GHG inventory. Starting with the 2016 inventory, we began the practice of having the GHG inventory third party verified to ensure it will stand up to external scrutiny.

E. FINACIAL IMPLICATIONS

Because the Port of Tacoma has already committed to achieving zero GHG emissions by 2050 through the Northwest Ports Clean Air Strategy, accelerating the target to 2040 does not change the scope of assets that need to be decarbonized, but does mean that those investments would need to happen over a shorter timeframe.

Table 4 below summarizes a preliminary rough order of magnitude analysis of the costs of implementing a net zero target for the port's scope 1 and 2 assets. It should not be understated that this analysis carries a large amount of uncertainty, given that formal design and analysis has not yet been performed on infrastructure and zero emission fleet purchases and the future cost and availability of renewable fuels is uncertain. Due to the high degree of uncertainty, an "error" range of –25%/+50% has been applied.

For scope 1 assets, it was assumed that SUVs, passenger cars, vans, pickup trucks, and forklifts will be electrified, and other heavier equipment and vehicles will use renewable fuels. It is also assumed that each of these assets will reach the end of their useful lives by 2040 and therefore only the incremental cost, or EV premium, is included here in the cost of this policy (assuming that the base replacement cost is part of business as usual). Since we do not have a detailed assessment of the costs and feasibility of replacing building natural gas at the maintenance building, we have assumed that this fuel will simply be displaced by renewable natural gas. Unit charging infrastructure costs from the Administration Building EV Charging project were applied to all electric vehicles and equipment and premiums of $1.36 per gallon and 2.2 times the usage charge were used for renewable fuels and renewable natural gas, based on outreach to Port of Seattle who purchases these products. We assume that the state's Clean Energy Transformation act will make the electricity supply zero emission by 2045. Offsets may be needed to achieve net zero for scope 2 between 2040 and 2045.

The rough order of magnitude estimated cost of the net zero policy for scope 1 and 2 emissions, based on the existing emission profile, is $8.9M - $17.8M. Accelerating the GHG Targets also carries the following financial implications and risks:

- Stranded Assets: Accelerating the targets increases the risk that a vehicle may need to be replaced before the end of its useful life. This is a particular risk for the Port of Tacoma, given the light duty cycles (i.e. low annual mileage) of many vehicles and equipment owned by the Port.
- An expansion of the scope 1 and 2 portfolio (i.e. fleet growth or new buildings) will mean more assets that will need to meet the goal and more cost.

Table 4. Estimated Net Zero Policy Implementation Costs.

Vehicle Incremental Cost	Infrastructure Cost	Renewable Fuel Incremental Cost (Per 10 years)
$1.4M - $2.7M	$6.8M - $13.7M	$0.9M - $1.4M

F. NEXT STEPS

The NWSA is considering a parallel action through the Environmental Working Group which would establish the 2040 net zero target for the NWSA's scope 1 and 2 assets. This action would align the GHG Targets for all port owned and operated assets in the Tacoma Harbor.