



**COMMISSION
AGENDA MEMORANDUM**

Item No. 8a

ACTION ITEM

Date of Meeting April 14, 2020

DATE: March 27, 2020

TO: Stephen P. Metruck, Executive Director

FROM: Stephanie Meyn, Climate Program Manager
Keith Warner, Utility Business Manager
Elizabeth Leavitt, Sr Director, Engineering, Environment & Sustainability

SUBJECT: Renewable Natural Gas Supply Contract Funding Authorization

Amount of this request: \$23,000,000
Total estimated project cost: \$23,000,000

ACTION REQUESTED

Request Commission authorization for the Executive Director to (1) meet Century Agenda goals for carbon reduction by executing a 10-year supply contract with the best value proposer for Renewable Natural Gas (RNG) to Seattle-Tacoma International Airport’s central plant boilers and CNG fueling station commencing delivery on October 1, 2020, and (2) authorize a total contract cost of \$23,000,000.

EXECUTIVE SUMMARY

Natural gas is essential to airport operations and is used to heat the terminals and power the bus fleet. Until now, the Port has used fossil natural gas exclusively to meet this demand. However, to meet the Port’s Century Agenda Goal to reduce greenhouse gas (GHG or “carbon”) emissions from Port-owned or -controlled sources 15% by 2020 and 50% by 2030, the Port must reduce its emissions from fossil natural gas. Fossil natural gas accounts for ~75% of the Port’s “Scope 1 and 2” (Port-owned and -controlled) carbon footprint, largely from the airport’s central plant boilers.

Through this contract, ~65% of the Port’s fossil natural gas use will be replaced with RNG, thereby meeting the 50% carbon reduction goal. The average carbon mitigation cost for this project is \$209/metric ton (MT), or \$60/MT for transportation RNG and \$270/MT for heating RNG. This compares favorably to other projects such as energy conservation (\$300/MT), Green Direct electricity (\$60/MT) and renewable diesel (\$125/MT) that Commission has approved. RNG is the most cost-effective choice, and the only strategy available to the Port to meet its Century Agenda greenhouse gas goals while also maintaining regular operations of the airport terminal.

The Port seeks to contract for a long-term supply of RNG to reduce these carbon emissions and meet the Port’s Century Agenda goal nearly a decade ahead of schedule. This contract is the final

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step in the Port's efforts to obtain RNG that were first presented to the Commission in 2017 and is the lowest cost strategy to meet emission goals. For cost effectiveness, the Port recommends limiting the purchase of RNG only to the amount necessary to meet its 50% GHG reduction goal. In addition, given the economic challenges introduced by the COVID-19 pandemic, the Port and the proposer have agreed to delay the start of the RNG supply to October 1st, 2020 to minimize cost impacts to airlines. This change will reduce the approved 2020 operating budget by ~\$800K, and in 2021-2029 will mean an increase to Port expenses by \$480K per year and an increase to annual airline rates and charges of less than 1%.

The proposed RNG contract is for a total supply of ~200,000 MMBTU of RNG per year for a 10-year period. This includes 150,000 MMBTU/yr (equal to 55% of the gas) consumed by the boilers, and ~50,000 MMBTU/yr to operate the Port's bus fleet. The RNG used by the bus fleet is considered a "transportation fuel" and qualifies for federal financial incentives.

Delaying the timing of this request puts this RNG supply and price in jeopardy, and could force the Port to re-issue the RFP, putting the Port back to the position it was in over a year and a half ago. There are only seven contracts in the U.S. similar to the Port's proposed contract, making the efforts of the Port both unique and substantive to obtain the RNG terms and pricing presented in the action outlined in this memo.

BACKGROUND

What is RNG?

RNG is a fossil natural gas alternative and is considered a biogenic or zero carbon fuel per the Greenhouse Gas Protocol Corporate Accounting Standard. As organic waste from humans and/or animals breaks down, it emits methane gas that can be captured and processed to meet natural gas pipeline quality specifications. Once upgraded to pipeline quality standards, RNG may blend with, or substitute for, fossil natural gas, and introduced directly into the pipeline.

RNG is renewable because it recycles existing carbon in the environment rather than extracting carbon from geologic sources (e.g., "fossil fuels") including oil and natural gas buried deep underground from organic matter that has decayed over hundreds of millions of years.

The price of RNG is higher than fossil natural gas because project developers must recover the capital and operational costs of capturing, upgrading, and injecting gas from sources such as digesters, landfills, or wastewater treatment plants. These production facilities can cost tens to hundreds of millions of dollars per project, depending on the size. While these costs are significantly reduced by federal incentives when RNG is used as a transportation fuel, these incentives do not apply to RNG used as a heating fuel.

While there are over 900,000 active fossil oil and gas wells in the U.S., there are currently only 99 RNG production facilities. These facilities range from small agricultural anaerobic digesters to landfills, typically producing on average 300,000 MMBTU/year. To put this in perspective, the

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airport alone uses 320,000 MMBTU/year and Washington state uses over 344 million MMBTU/year. This limited supply makes RNG challenging to obtain, particularly because incentives in California and Oregon create economic advantages for producers to sell into those markets.

Port Experience with RNG

This requested action reflects the culmination of several years of Port staff work to obtain a supply of RNG for the facilities at the airport that consume fossil natural gas. In 2014-2015, the Port was able to obtain a supply of RNG for its CNG buses, but quickly lost it due to financial incentives in California. Since that time, the Port has pursued RNG supply as a critical component of the Port's GHG emission reduction strategy and was only able to negotiate contractual RNG terms in January-February 2020, just as the novel coronavirus outbreak was developing.

RNG was not available as a pipeline natural gas substitute until 2014, when the U.S. Environmental Protection Agency (EPA) qualified RNG as an advanced biofuel under the Renewable Fuel Standard (RFS). Within the RFS structure, RNG can replace fossil natural gas at CNG fueling stations connected to the common carrier pipeline system.

Within a few months of the RFS amendment, the Port was able to obtain RNG for its CNG fueling station through a Puget Sound Energy (PSE) pilot program that used King County Cedar Hills' Landfill RNG. The success of this pilot program led PSE to sell the RNG to the California market for a higher price, and the Port was left without a source by spring 2015.

The Port then began exploring other opportunities for RNG and expanded the scope to include the airport's central mechanical plant boilers. The Port evaluated sources of RNG in Washington state that were not previously connected to the pipeline and explored ways the Port could obtain the supply, including an RFI issued in 2013. After almost 7 years of developing financial, legal, and technical expertise in RNG project development, the Port developed the criteria needed to issue a well-researched Request for Proposals (RFP).

JUSTIFICATION

Project Objectives

This contract will supply RNG for 10 years at a volume of ~200,000 MMBTUs/year to the central plant boilers and CNG fueling station at Seattle-Tacoma International Airport. This will:

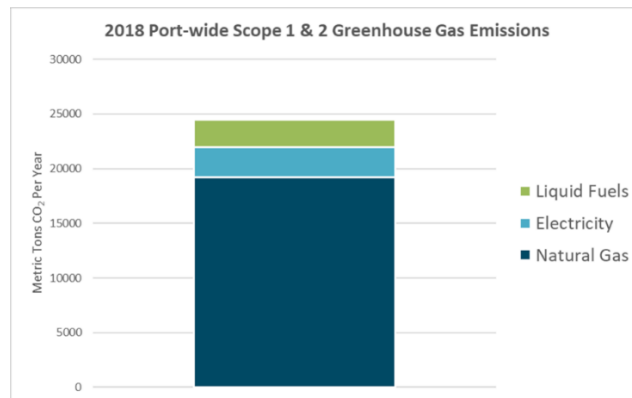
- Reduce carbon emissions by a minimum of 11,000 metric tons per year, enabling the Port to meet its 2020 goal when the fuel is purchased, and the 2030 emission reduction goal almost 10 years early.
- Provide a fixed price that can be reduced if additional federal, state, or local incentives/policies are introduced
- Allow the Port to purchase more RNG as needed to continue to meet its Century Agenda emission reduction goals

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- Put new sources of RNG into the pipeline to ensure that the Port is advancing demand for renewable fuels and not reducing availability of RNG for existing users, and
- Show leadership in the region for meeting our aggressive climate goals a decade early.

The Port’s 2018 Greenhouse Gas Emission Inventory in Figure 1 shows that fossil natural gas accounts for approximately 75% of the emissions from Port-owned or controlled sources.

Figure 1 – Port-wide Scope 1 & 2 Greenhouse Gas Emissions



The airport’s central plant natural gas boilers and CNG fueling station together account for the majority (92%) of the Port’s natural gas emissions. Reducing these emissions is the only way the Port can achieve its Century Agenda GHG goals (50% by 2030, 100% by 2050). Replacing this fossil fuel source with RNG is the most cost-effective way to mitigate these emissions in this decade.

Determining a Reasonable Price

The Port is confident that the contract value reflects a reasonable price for RNG. Prior to issuing the RFP, the Port evaluated capital and operating expenses for nine RNG projects, and estimated the range of costs for RNG. The average value was \$13/MMBTU, which is about 3 to 4 times the current cost of fossil natural gas (\$3-4/MMBTU). This cost did not include profit margins, costs to transport the gas, or benefits of federal incentives for RNG as a transportation fuel. This value is consistent with the proposed contract.

Potential Impacts of Contract Delay

Delaying the timing of this request puts this RNG supply and price in jeopardy, resulting in the Port missing a viable and cost-effective source that is available today and may not be in the future. This could ultimately require the Port to re-issue the RFP, putting the Port back to the position it was in over a year and a half ago. There are only seven thermal RNG contracts in the U.S, making the efforts of the Port both unique and substantive to obtain the terms and pricing presented in the action outlined in this memo.

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Diversity in Contracting

The Diversity in Contracting Department determined that there are extremely limited numbers of suppliers of RNG in the country and no WMBE goal was established for this procurement.

DETAILS OF THE REQUEST FOR PROPOSALS (RFP)

Due to the limited amount of available cost information, and to avoid sending a maximum price signal to the market, the Port issued an RFP in January 2019 for RNG *prior to making a Commission budget request*. The RFP requested a long-term (10- or 20-year) contract for a supply of RNG for the airport's boilers and CNG station from sources in the United States. The Port expressed a preference for a fixed price and from sources that were not previously capturing gas.

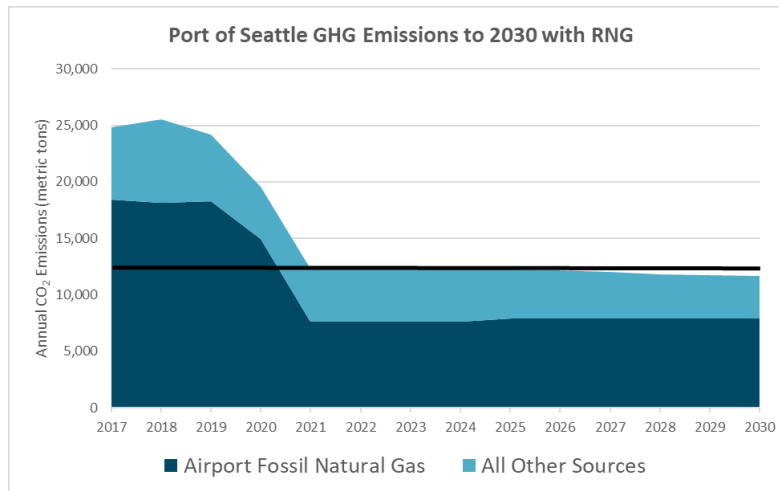
The Port reviewed the proposals and developed contract terms with the best value proposer for RNG for a 10-year fixed price to supply 100% of the transportation RNG and ~55% (150,000 MMBTU) of the central plant boiler gas. These terms allow the Port to meet its Century Agenda goal of 50% by 2030 early, as shown in Figure 2. The terms also allow the Port to purchase up to 10% more gas annually with minimal notice and higher volumes as mutually agreed to by both parties. The Port recommends purchasing this volume of RNG rather than the full volume to displace all fossil natural gas because it is sufficient to meet the 2030 Century Agenda goal without spending additional operational funds.

This contract will result in an operational cost increase to the Port of \$2,300,000 per year, over and above the cost of fossil natural gas. While the cost impact of the transportation fuel is small (conservatively \$150,000/year, but subject to incentive price fluctuations), the cost of the boiler fuel is likely to remain constant unless new government incentives are developed.

The airport's fossil fuel contract will remain in place to supply the full volume of gas required to operate the airport. The RNG will be contractually 'swapped' with fossil for the volumes purchased, similar to the mechanisms used to purchase renewable electricity. In order to earn federal credits and track RNG use, the pathway for delivery must be mapped, showing RNG units input to the US pipeline are balanced with those consumed by the Port.

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Figure 2 – Port of Seattle GHG emission decrease with proposed ~200,000 MMBTU of RNG. Black line indicates 2030 GHG reduction goal.



Schedule

The terms of the contract state that RNG will be supplied to the airport for 10 years, commencing October 1, 2020, contingent upon execution of the contract. Cost breakdowns for the contract, commencing with 3 months of supply in 2020 and full years’ cost commencing in 2021, are shown in Table 1 below.

Table 1: Cost Breakdown

| Fuel | 2020 [‡] | Annual | Total 10-Year |
|----------------------|-------------------|------------------|-------------------|
| Boiler (thermal) RNG | \$0.644 M | \$2.145 M | \$21.450 M |
| Transportation RNG | \$0.042 M | *\$0.150 M | \$1.500 M |
| Total RNG | \$0.686 M | \$2.295 M | \$22.950 M |

[‡]Original budget for 2020 is \$1.5 million. This new 2020 budget represents a savings of \$800K

*Costs range from \$1 M credit to \$0.35 M cost per year depending on federal incentive prices. \$0.15 M/yr is a conservative estimate.

ALTERNATIVES AND IMPLICATIONS CONSIDERED

The Port considered four alternatives, ranging from no RNG to full RNG investment, to a complete renovation and replacement of the natural gas infrastructure with electricity. Implications from each of these alternatives are described below.

Alternative 1 – Purchase no RNG (business as usual)

Cost Implications: No additional operational cost to Port

Pros:

- Port would not incur any new cost

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Cons:

- Port would not meet its 2030 Century Agenda greenhouse gas reduction goals
- Port risks reduced supply and increased price if it wanted RNG in the future
- Port would not contribute to green energy economy and delay new renewable fuels on the market

This is not the recommended alternative because it doesn't meet Century Agenda goals.

Alternative 2 – Purchase the full volume of RNG used by the airport's boilers and bus fleet.

Cost Implications: ~\$4M/yr which is 3-4 times the current cost of fossil natural gas.

Pros:

- Port surpasses its 2030 Century Agenda 50% greenhouse gas reduction goal and achieves most (75-80%) of its 2050 goal of 100% reduction
- Port supports the growth of renewable fuel markets

Cons:

- Annual operating costs increase of ~\$4M
- Provides little flexibility to explore other strategies for reducing emissions beyond the 2030 goal

This is not the recommended alternative because of cost.

Alternative 3 – Retrofit the entire central mechanical plant boiler/heating system and bus fleet to run on electricity. While this alternative was not investigated in full detail, preliminary estimates suggest the increase in *operational costs* from natural gas to electric would be similar to the cost to fully replace with RNG.

However, the *capital costs are expected to be hundreds of millions of dollars* because the alternative requires retrofitting the central mechanical plant underneath the airport garage, replacing the natural gas boilers and adding electrical transmission infrastructure.

The added electrical peak demand (15 MW) would require expanded substations and trigger new large single load status with the Bonneville Power Administration (BPA), which limits additional access to low cost power.

Cost Implications: Additional cost of \$3-4 million/yr in electricity for boilers and buses, and hundreds of millions in capital cost to replace 4 natural gas boilers with electric boilers. In addition, the Port would have to replace the bus fleet with electric buses and install charging infrastructure.

Pros:

- Port surpasses its 2030 Century Agenda 50% greenhouse gas reduction goal and achieves most of its 2050 goal of 100% reduction.

Cons:

- Annual operating/electricity cost to the Port would be \$3-4 million
- Total capital cost to the Port would be hundreds of millions of dollars

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This is not the recommended alternative because of capital cost and operational impact.

Alternative 4 – Purchase the volume of RNG used by the airport’s central mechanical plant and CNG bus fleet to meet the 2030 Century Agenda goal of 50% GHG reduction, and delay delivery of the RNG until October 2020 in light of COVID-19 economic challenges.

Cost Implications: An operational cost increase of \$2 million/yr to purchase ~200,000 MMBTU/year.

Pros:

- Port achieves its 2030 Century Agenda 50% greenhouse gas reduction goal
- Port conserves budget and costs to airlines and the Port compared to purchasing the full volume of RNG
- Port supports the growth of renewable fuel markets

Cons:

- Port would not be able to mitigate the entire carbon footprint of natural gas consumption at the airport
- Annual operating cost increase to the Port would be \$2.3 M

This is the recommended alternative.

FINANCIAL IMPLICATIONS

The operational cost of RNG will impact two different cost centers: the Terminal cost center related to the central plant boilers, and CNG Operations cost center related to the bus fleet.

Changes to the cost of the CNG fuel could impact the users of the Rental Car Facility and North Employee Parking Lot. However, these cost impacts are expected to be near-zero due to the value of the federal incentives. Over the long term, as more carbon-related transportation fuel policies are adopted by local, state and federal governments, we expect the overall price of this fuel to be equal to or even less than the cost of fossil natural gas.

The cost of heating-related (boiler fuel) RNG is recovered by the airlines through normal airline rates & charges. There is no RNG-related cost impact to other terminal tenants such as airport dining and retail (ADR). We estimate that the annual cost of RNG will increase airline rates and charges by <1%. The remaining unrecovered cost to the Port will increase operational expenses by ~\$480K per year.

Annual Budget Status and Source of Funds

The funds for this operational budget increase would be borne by the Airport Utility. The funds needed for 2020 RNG supply were included in the original 2020 budget at a value of \$1.5M, which would be reduced to \$690K upon authorization of this action. Future years would be included in the annual utility budget request.

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Future Revenues and Expenses (Total cost of ownership)

This contract is for fixed price RNG. The price of RNG for the boilers does not qualify for any financial incentives, and the Port is likely to pay the same price for the duration of the contract unless a “thermal RNG” credit is developed by local, state, or federal governments. In the event such a credit or incentive is developed, the Port is entitled to 100% of the benefit and would apply this proportionally to the airlines rates and charges (77%) and the Port’s expenses (23%).

For the CNG station transportation fuel, the price the Port will pay varies based on the value of the federal Renewable Fuel Standard (RFS) RINs. If a Clean Fuel Standard is passed in Washington, additional credits could further reduce the cost of this fuel. If the credit value exceeds the price of the fuel, the Port would allocate these credits to the CNG Operations cost center.

Due to the range of potential values for the transportation fuel credit, the combined total cost of both the boiler and transportation fuel could range from \$15M to \$25M over the 10-year contract term. If we conservatively assume the lowest quarterly credit value in the last 5 years, the estimated total contract value would be approximately \$23M over the contract term.

Comparing Carbon Mitigation Costs

The carbon mitigation cost for this project is an average of \$209/metric ton with a boiler RNG mitigation cost of \$270/metric ton and bus fuel RNG mitigation cost of \$57/metric ton. This compares favorably to other approved projects such as the Stage 3 Mechanical energy conservation project. It is much lower than other projects not pursued such as bus electrification on airport facilities, as summarized in the table below:

Table 3: Carbon Mitigation Costs of Port Strategies

| STRATEGY | Cost per Metric Ton Carbon Reduced |
|----------------------------------|------------------------------------|
| Convert Buses to Electric | \$900 |
| Stage 3 Mechanical Conservation | \$300 |
| RNG (boilers) | \$270 |
| RNG (CNG buses) | ~\$60 |
| Renewable Diesel | \$125 |
| Green Direct for PSE Electricity | \$61 |

Lastly, this price estimate for transportation RNG is consistent with our previous transportation RNG estimate presented to Commission in Q1 2019. Port staff briefed Commission on our recommendation to purchase new buses that serve the RCF and NEPL. Port staff recommended CNG buses fueled with RNG and estimated the price of transportation RNG to be approximately \$3M for a 20-year supply of RNG. This is approximately \$150K per year for the fuel and is consistent with the average annual conservative price estimated in Table 3 above.

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ATTACHMENTS TO THIS REQUEST

- (1) Presentation slides

PREVIOUS COMMISSION ACTIONS OR BRIEFINGS

September 24, 2019 – The Commission was briefed on the airport’s natural gas contract and its relationship to the future RNG supply contract

February 26, 2019 – The Commission was briefed on RNG as a greenhouse gas reduction strategy as part of the Rental Car Facility and Employee Shuttle Bus Procurement

February 28, 2017 – The Commission was briefed on the critical role of RNG to the Port’s Energy and Greenhouse Gas Assessment