



**COMMISSION
AGENDA MEMORANDUM**

Item No.

7a

BRIEFING ITEM

Date of Meeting

August 15, 2017

DATE: July 16, 2017

TO: Dave Soike, Interim Executive Director

FROM: Stephanie Meyn, Climate Protection Program Manager
Arlyn Purcell, Director, Aviation Environment and Sustainability
Elizabeth Leavitt, Senior Director, Environment and Sustainability

SUBJECT: Sustainable Aviation Fuel Program Update

BACKGROUND

Historically the Port of Seattle has been a leader in supporting research and development of aviation biofuels. With the support of our regional partners, we are now shifting towards a market development role, and exploring what the Port can do to support aviation biofuel infrastructure development and increase demand for sustainable aviation fuel at Sea-Tac Airport.

To date, only one facility in the U.S. is producing sustainable aviation fuel. It's located in Paramount, California at a retrofit shuttered petroleum refinery, now owned and operated by AltAir Fuels. Many factors led to its success, including California's Low Carbon Fuel Standard, airline off-take agreements (i.e. airline commitments to buy a certain volume of fuel at a certain price), grants, availability of feedstock, and markets for co-products. The facility produces 2 to 4 million gallons of sustainable aviation jet fuel per year, which represents less than 1% of LAX's fuel consumption.

While many airlines have signed off-take agreements with other producers for additional fuel production capacity, none of these have yet to be completed. Building a sustainable aviation fuel market requires contracts for stable and reliable feedstocks (such as oilseeds or municipal solid waste), commercialized technologies, stable and harmonized renewable fuel policies, and reliable end markets.

The Port continues to demonstrate its leadership in developing a market for aviation biofuel with the release of a new report that explores innovative airport funding mechanisms to help cover the incremental cost of the fuel or pay for related biofuel infrastructure. The information contained in this study will help the Port of Seattle take the next step toward the goal of making biofuel cost-effective and practical for airlines at Sea-Tac.

The report, titled *Innovative Funding for Sustainable Aviation Fuel at U.S. Airports: Explored at Seattle-Tacoma International*, was authored by Carbon War Room and SkyNRG who have

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experience developing sustainable aviation fuel purchasing agreements and airport-focused funding mechanisms in Europe.

The two biggest challenges facing broader adoption of sustainable aviation fuel at Sea-Tac are the higher cost compared with petroleum jet fuel, and the constraints imposed by state and federal regulations on use of airport funds.

KEY FINDINGS OF INNOVATIVE FINANCING STUDY

The report explores 14 financial mechanisms available to U.S. airports, and examines the legal constraints and revenue potential of each mechanism specifically at Sea-Tac.

To gauge the financial feasibility of each funding source, the report assumes a 1% supply of aviation biofuel at Sea-Tac. In 2016, this represents approximately 5 million gallons. The incremental cost (of aviation biofuel compared with petroleum jet fuel) per gallon is approximately \$1.50 (after federal credits), and the total incremental cost associated with 5 million gallons is \$7.5 million per year.

The report found that no single mechanism could generate enough funding to cover the higher cost of biofuel, and recommends combining a number of funding sources in a single fund operated by a third party. The report also acknowledges that several of these funding mechanisms require FAA approval and could be viewed unfavorably by airlines or airport businesses.

The key findings of the study are as follows:

1. While a U.S. airport cannot pay for aircraft fuel, it could pay directly for the “co-benefits” of sustainable aviation fuel, although this approach requires FAA approval.
 - Public dollars cannot cover a commodity used by a for-profit private firm. However, aviation biofuel produces direct air quality benefits, reduces greenhouse gas emissions, and supports regional economic development—all of which are valued by airports.
 - Sea-Tac Airport has implemented other projects that reduce airline emissions such as pre-conditioned air and electric ground support equipment, which have been funded by airport revenue and FAA grants.
2. No single mechanism can generate enough funding to cover the higher cost of biofuel. The report recommends combining a number of funding mechanisms into a central fund operated by a third party. The most promising are:
 - **Corporate Support**—corporations contribute to offset their flight emissions, generating an estimated \$1.0 million to \$2.5 million per year.

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- **Port Taxing Levy**—this source of funds may be available to support air quality benefits, though the legality of such use requires further review. Funding amount is variable and dependent on Port Commission priorities.
 - **Use of General Non-Aeronautical Revenue (requires FAA approval)**—the airport could target specific non-aeronautical sources (such as parking or landside fees). Alternatively, the airport could apportion a fixed amount or percent of total non-aeronautical revenue to biofuel only when the airport achieves a particular revenue threshold. This approach could generate an estimated \$1.0 million to \$4.0 million per year
 - **Airline Agreement (requires FAA approval)**—implement a fund via the airline operating agreement that is not subject to revenue sharing, or create a new fee, generating an estimated \$0.4 million to \$2.3 million per year
3. There are a limited number of mechanisms available to the Port to finance infrastructure projects directly because most are outside the legal scope under Title 53 of the Revised Code of Washington. The most promising applications of airport funds for infrastructure are those that support storage and blending of aviation biofuel, rather than production facilities.

ADDITIONAL BACKGROUND

- Global aviation generates approximately 2 percent of global greenhouse gas emissions and the contribution is forecast to grow to 5 percent by 2050.
- Sustainable aviation fuel reduces carbon emissions by 50 percent to 80 percent compared to petroleum jet fuel on a lifecycle basis.
- Published research since 2015 shows consistent and significant reductions in particulate matter emissions from sustainable aviation fuels (<https://ascent.aero/project/emissions-data-analysis-for-cleen-access-and-other-recent-tests/>). However, emission reductions vary relative to aircraft engine conditions, biofuel production pathway, and percent blend of biofuel. More research would be needed to develop “emission factors” for aviation biofuels.

ATTACHMENTS TO THIS BRIEFING

- (1) Presentation slides
- (2) Biofuel Finance Report

PREVIOUS COMMISSION ACTIONS OR BRIEFINGS

March 28, 2017 – The Commission was briefed on the findings of the Aviation Biofuels Infrastructure Feasibility Study results.