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CONFERENCE ON AVIATION AND ALTERNATIVE FUELS

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Agenda Item 2: Financing and assistance programmes for aviation alternative fuels

UNIQUE AIRPORT ROLE TO ADVANCE SUSTAINABLE AVIATION FUEL (SAF)

(Presented by Rocky Mountain Institute/Carbon War Room)

SUMMARY

This working paper details unique benefits associated with an airport-led approach to increase uptake of Sustainable Aviation Fuel (SAF), recognizes existing applications of the unconventional approach, and highlights the urgency of intervention in the SAF market.

Action by the Conference is in paragraph 4.

1. INTRODUCTION AND AIRPORT SAF BUSINESS IMPERATIVE

1.1 Given the criticality of current atmospheric concentrations of greenhouse gases and the global trajectory of projected emission rate increases, climate action is urgent. In the short run, airport involvement in advancing sustainable aviation fuel is unlikely to be driven by economic considerations. However, airports with the requisite foresight and resources are already choosing to support voluntary climate leadership actions that may lack an immediate business case. The Airport Carbon Accreditation (ACA) program, for example, requires both airport staff labor and payment of program-related fees that do not yield a direct financial benefit for participants. Given the tremendous growth of ACA, now approaching 40 percent of global passenger volume, airports clearly realize that climate stewardship is essential for the continuity of our industry. Aircraft carbon emissions are the next focus area for the airport industry to prioritize.

1.2 The total global production of sustainable aviation fuel in 2016 was less than 4 million gallons. Since AltAir was commissioned in Paramount California 18 months ago, there has not been a single new dedicated commercial production facility. Despite a number of high profile off-take agreements, actual delivered fuel is not expected to increase on a monthly basis for the rest of 2017 above levels achieved in the third and fourth quarters of 2016. The SAF industry remains in a state of infancy and even modestly-sized new production of 2–6 million gallons has the potential to double existing supply. A premium over the price of conventional jet fuel is a persistent challenge, and airlines have limited appetite to pay more than their competitors for fuel. At an August 11th, 2017 San Francisco International Airport biofuel workshop, a carrier publically expressed a maximum tolerance of covering a USD 0.05 per gallon premium in the short term, and a USD 0.01 per gallon premium over a longer period. This is a significant mismatch with the existing SAF premium, which is at least USD 2.00-6.00

for now and the foreseeable future.[1] In the current pricing dynamic, SAF customers are not willing to pay for the product.

1.3 Aircraft Fuel Dynamics

1.3.1 Jet fuel at airports is managed by airlines and their contracted suppliers. Fuel farms may sit on airport-owned land; however consortiums run by commercial carriers operate the storage and delivery infrastructure. In terms of safety and transactional ease, airline control of the fuel has been both practical and efficient. However, the substantial impact of fuel combustion on air quality and on the climate do not directly affect the users of this energy, thereby creating a negative externality. Airports and their surrounding communities are adversely impacted by these air quality issues, and thus have a vested interest in new solutions. This interest is evidenced by multiple airports across the globe demonstrating a willingness to influence fuel choices and advance unconventional methods to accelerate SAF usage.

2. UNIQUE AIRPORT ROLES

2.1 Monetizing Externalities

2.1.1 Airports are required to conform to air quality standards. Regional, national and multi-national plans include greenhouse gas performance goals, which may connect with COP21 Paris Agreement carbon emissions targets. Airports are engines of economic development and indirectly support numerous travel- and freight-related industries, increasing regional employment. SAF supports all of these outcomes. Air quality emissions, such as sulfur dioxide and particulate matter, can be quantified and their damage can be monetized. The social cost of carbon is widely recognized and monetized as a negative commodity in multiple markets. Governments dedicate funding in the form of guarantees, actual loans, or production subsidies to grow new industries and create jobs. As monetizing air quality, carbon, and regional economic development gains sophistication, an airport is equipped to realize these benefits and potentially pay for them.

2.2 Leveraging New Sources of Capital

2.2.1 Airports generate local and regional loyalty from passengers, governments, and businesses. In most locations, these stakeholders have not had a vehicle to contribute to advancing SAF technology. SkyNRG has demonstrated in the Nordics and at Amsterdam Airport Schiphol that voluntary programs are viable and can generate meaningful funding. Aèroport Genève has applied for an innovation grant from the Swiss Federal Office of Civil Aviation (FOCA) that could cover the majority of the cost premium of a one-percent airport-wide SAF blend over five years. In the United States, the Port of Seattle has identified its regional taxing authority as a potential mechanism to generate revenue to accelerate SAF adoption at their airport. All of these funding examples are uniquely tied to an airport and are unavailable to commercial carriers.

2.3 Investor Confidence

2.3.1 Additional fuel off-take agreements obtained by airlines do not generate the same level of confidence or reduce borrowing costs to the degree that a public entity can. Airlines function in a highly-competitive market and the history of the industry includes a long list of bankruptcies. When airlines sign jet fuel contracts there may be no secondary market for that obligation if a carrier's company fails. For example, if air travel demand declines during an economic recession, so will the demand for existing fuel

[1] Klauber, Adam, Annie Benn, Charlotte Hardenbol, Craig Schiller, Isaac Toussie, Misha Valk, Jeff Waller. Innovative Funding for Sustainable Aviation Fuel at U.S. Airports: Explored at Seattle-Tacoma International. Rocky Mountain Institute, SkyNRG, July 2017. https://www.rmi.org/insights/reports/innovative- funding-sea-tac-2017/

supply. On the other hand, many public governments have sterling credit ratings and both lenders and investors recognize that large and medium airports will survive the vicissitudes of economic cycles. A new producer can demonstrate an airport customer's proven demand for SAF and thus obtain lower interest rates on commercial production facilities.

2.4 **Meaningful Volumes**

2.4.1 Given the logistical, administrative, and economic requirements of SAF utilization, an airport-led SAF program might require a program minimum volume of ~3-4 million liters annually. This investment level might preclude many smaller airports with commercial service. On the other hand, 3,000 metric tons of SAF is not a modest quantity in comparison to the total global consumption of jet fuel.

2.5 **Equitable Distribution**

2.5.1 Airline first-movers in the SAF space are at a competitive disadvantage. Due to the high cost premium, a pioneering commercial carrier has to pay twice the price of other carriers for fuel, already the largest single operational cost for most airlines. While all the airlines at an airport stand to gain from SAF deliveries to fuel farms, the economic reality is that most of the carriers at an airport receiving SAF deliveries, such as the SAF procured by United and KLM at Los Angeles International Airport (LAX), are free riders. Airlines have to prioritize cost reductions and maximize profit. It makes sense that airlines have minimal interest in replicating the model beyond the AltAir facility. However, this dynamic impedes additional commercial production facility development. In addition, it is not efficient for carriers with a small number of scheduled flights to an airport to implement an SAF program or individual off-take agreements. An airport can address these market barriers by facilitating SAF delivery to the fuel farm through the purchase of the positive externalities, as described in 2.1. Airports also may have methods to equitably cover the premium cost across the airlines based on their proportional fuel consumption.

3. **CONCLUSIONS**

3.1 As airport-controlled operations comprise approximately 5 percent of the entire aviation industry's emissions, aircraft emissions are the next logical area for leading sustainable airports to influence. Pioneering airports not only can play a role catalyzing regional SAF supply chains, they can also secure a "license to grow" with their communities. Airports can help scale SAF by developing regional supply chains that will begin to realize efficiencies and help drive faster and broader adoption.

4. **ACTION BY THE CAAF/2**

4.1 The CAAF/2 is invited to:

a) recognize that airports can play a unique role in advancing SAFs that no other aviation stakeholder can play; and

b) acknowledge that positive externalities of SAF production and use are valuable to airports and should be considered an acceptable use of airport revenues with explicit regulatory approval.

— END —