

# SCALING SUSTAINABLE AVIATION FUEL *RECOMMENDATIONS TO FEDERAL POLICYMAKERS FROM WASHINGTON STATE*



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The aviation industry currently accounts for 2 percent of global carbon emissions, the vast majority of which is due to the use of fossil jet fuel. As air travel grows at a projected rate of 3 to 4 percent per year, the aviation industry will continue its reliance on energy dense liquid fuels with few transformative mitigation technologies on the horizon. Sustainable aviation fuel (SAF) offers a drop-in replacement for traditional petroleum-based jet-fuel and a path forward to reduce the emissions of air travel in the near-term. Scaling SAF technology and production to meet the needs of the growing aviation industry requires a combination of private and public investment, research and development, infrastructure build-out, and workforce development. The success of these efforts will depend on collaboration among industry, government, academia, and non-governmental organizations. Washington state has demonstrated leadership in bringing together stakeholders across the aviation industry to study, plan, and address the barriers to scaling the production of sustainable aviation fuels within the state. Building on insights from over more than a decade of state-level progress, this brief offers recommendations to federal policymakers to scale sustainable aviation fuel developed in a C2ES roundtable convening hosted in Seattle in April 2024.

## INTRODUCTION

### ABOUT REGIONAL ROUNDTABLES

Efforts to accelerate the transition to the low-carbon economy of the future are accelerating across all sectors of the economy. To chart a pathway to sustainable, long-term prosperity, communities must be able to leverage their particular strengths and capitalize on emerging economic opportunities, while addressing barriers that are often unique to their communities. To that end, the

Center for Climate and Energy Solutions (C2ES) is hosting a series of regional roundtables to bring together local, state, and federal government, businesses of all sizes, community organizations and nonprofits, academics and issue experts, trade associations, investors, philanthropy, economic development organizations, and individuals working across sectors. These conversations are meant to elevate the perspectives of a diverse set of stakehold-

ers who are deeply embedded in their communities and uniquely positioned to speak to the needs of their states and regions. They are also meant to create opportunities to integrate local perspectives into state and federal policy decisions and identify concrete steps to better align the long-term prosperity of these communities with the urgent task of reaching net-zero emissions economy-wide.

In April 2024, C2ES hosted a roundtable in the state of Washington to consider how federal policy solutions could support the development of the sustainable aviation fuels (SAF) industry. The roundtable brought together nearly 40 local stakeholders—representing

companies, state and local government, labor, and non-governmental organizations—to consider how federal policy solutions could support the development of the SAF industry in Washington.

The conversation was centered around a series of facilitated small group discussions and designed to learn from local stakeholder experiences to develop specific and actionable federal policy solutions to supplement state-level support for SAF. This brief provides some background on the issues and explains the key recommendations that emerged from the roundtable and follow-up conversations with participants.

## BACKGROUND

### SUSTAINABLE AVIATION FUELS

Aviation is among the most difficult sectors of the global economy to decarbonize due to its reliance on energy-dense fuels. Yet, as the United States aims to reduce greenhouse gas emissions from every sector of the economy, aviation's emissions continue to rise. Reducing—and eventually eliminating—emissions from aviation is critical to meeting mid-century decarbonization goals. While new technologies like electric and hydrogen-powered aircraft may ultimately advance toward widespread adoption, lower-carbon liquid fuels will enable reducing emissions from current aircraft technology.

Sustainable aviation fuel is an umbrella term for jet fuels that are not petroleum-based, can be blended with conventional jet fuel, and can be used in today's aircraft. It can be produced using a wide range of feedstocks and production pathways, each involving its own unique chemical process to convert various non-petroleum feedstocks into a liquid fuel. From a climate perspective, the value of SAF is derived from lower lifecycle greenhouse gas emissions when compared to fossil fuel, but the lifecycle emissions reduction of SAF range widely depending on the feedstock and production practices.<sup>1</sup> Currently, most global and U.S. SAF is produced by converting

feedstocks like vegetable oils, animal fats, and used cooking oils into fuel. As the industry develops into the 2030s, alcohol-based fuels, such as those from corn grain and sugarcane, will represent an increasingly large portion of SAF produced in the United States.

Notably, SAF is not a net-zero fuel source. As the number of pathways meeting specifications through international certification bodies continues to grow (11 as of July 2023), leveraging more advanced feedstocks such as captured carbon dioxide and hydrogen will be important in reducing the overall environmental impact of SAF as an emerging fuel product.<sup>2</sup>

To ensure the fuel is compatible with all existing infrastructure and equipment, SAF must be blended with conventional, fossil-based jet fuel before it can be used in an aircraft, with a maximum blend of 50 percent, depending on how the SAF was produced.<sup>3</sup> Blending infrastructure may include several stationary blending and storage tanks, some to store the jet fuel and SAF separately, and others to store the blended fuel.<sup>4</sup> Once SAF is blended with jet fuel, it becomes part of the jet fuel mix and is no longer differentiated from conventional jet fuel; it can be transported on the same pipelines, fuel tanker trucks, and rail cars as conventional jet fuel.

## FEDERAL SAF POLICY

The federal government has been working for over a decade to improve the energy efficiency and sustainability of the aviation industry. This includes partnerships between the Federal Aviation Administration (FAA), industry players, and research universities to innovate science-based solutions to address the biggest challenges to aviation's sustainability transition. While these programs are important to drive the industry forward, progress to scale sustainable aviation fuels has been slow. In 2012, the FAA had set a goal for U.S. airlines to use 1 billion gallons of SAF annually by 2018. By 2022, U.S. SAF production reached only 15.8 million gallons, or 0.1 percent of total fuel usage by the aviation industry.<sup>5</sup>

In 2010, the FAA initiated the first phase of its Continuous Lower Energy, Emissions and Noise (CLEEN) Program. This public-private partnership works with industry to develop and manufacture technologies that will reduce future aircrafts' fuel burn, noise, and emissions.<sup>6</sup> One focus of CLEEN throughout its first three phases has been on developing, demonstrating, and gathering test data on SAF. A fourth phase of the program is currently in development and is expected to solicit proposals in 2024.

In 2013, the FAA created the Aviation Sustainability Center (ASCENT)—also known as the Center of Excellence for Alternative Jet Fuels and Environment—which is co-led by Washington State University (WSU) and the Massachusetts Institute of Technology. ASCENT works to support the FAA's existing efforts (such as the CLEEN program) and the agency's environmental and sustainability goals, including enabling a dramatic expansion of SAF production.<sup>7</sup>

A key challenge to expanding SAF production has been its comparative economics to the production of renewable diesel (RD)—fuels used a drop-in replacement for ground-based transportation. Most SAF production in the near-term will be derived from existing facilities and from the same fats and vegetable oils that are capable of producing both SAF and RD. There are limited quantities of this feedstock available domestically and worldwide creating competition for its use between RD and SAF production.<sup>8</sup>

Furthermore, current policy incentivizes the production of RD more than SAF, hindering the economic case for producers to invest in increasing their SAF output. For example, the federal Renewable Fuel Standard (RFS) mandates certain volumes of renewable fuel, such as bio-

based diesel and ethanol, be produced for use in on-road vehicles but does not do the same for SAF to supply the aviation industry. While there are credits generated for SAF production under the federal RFS, the credit value is lower than that available for RD production. Similarly, state low-carbon fuel standards require fuel providers meet carbon-intensity requirements for diesel, but not for jet fuel. Together, this policy landscape creates higher economic value for RD compared to SAF, hindering SAF production where producers have a choice to produce either or both.

To address the large gap between U.S. SAF goals and actual production, the Biden Administration launched the SAF Grand Challenge in September 2021. The SAF Grand Challenge is an interagency collaboration between the U.S. Department of Energy (DOE), the U.S. Department of Transportation (DOT), the U.S. Department of Agriculture (USDA), and other federal agencies to accelerate the research, development, demonstration, and deployment needed to commercially scale production of sustainable aviation fuels.<sup>9</sup>

In addition, the Inflation Reduction Act of 2022 (IRA) includes several grants and tax credits to incentivize the development of SAF technology, infrastructure, and production. Section 40007 of the IRA created the Fueling Aviation's Sustainable Transition (FAST) grant program, a portion of which (FAST-SAF) provides \$244.5 million in grants to support projects that produce, transport, blend, or store SAF.<sup>10</sup> Another FAST program (FAST-Tech) provides \$46.5 million in grants to support projects that develop, demonstrate, or apply low-emissions aviation technologies, including technologies that increase SAF utilization.<sup>11</sup> The FAA is evaluating FAST applications, and grant awards are expected to be announced in the summer of 2024.

Examples of potential projects that could receive FAST-SAF grant funding include: upgrading existing fuel production facilities for SAF production; examining barriers and opportunities for SAF delivery via existing transportation infrastructure; identifying optimal SAF blending facility sites to enhance supply chain performance; establishing blending facilities; and enabling neat and/or blended SAF storage at on-airport or off-airport facilities.<sup>12</sup>

The IRA also includes tax credits to incentivize the production of SAF. Under the IRA's Sustainable Aviation Fuel Credit (40B), producers must outperform fossil jet fuel by 50 percent on a lifecycle greenhouse gas emis-

sions basis to qualify for incentives.<sup>13</sup> The 40B tax credit provides \$1.25 per gallon of qualifying SAF, with the possibility to increase the credit by \$0.01 per additional percentage of emissions reduction beyond the 50 percent threshold, up to \$1.75. The 40B tax credit is set to expire at the end of 2024, at which point it will be replaced by the Clean Fuel Production Credit (45Z) which itself expires in 2027. 45Z provides SAF producers with a credit ranging from \$0.01 to \$1.75 per gallon depending on the carbon intensity of the fuel and whether the qualifying facility meets prevailing wage and apprenticeship requirements.<sup>14</sup> However, the current time horizon for these tax credits does not align with their goal of incentivizing new production to come online.

## WASHINGTON AND SAF

Washington has several characteristics conducive to the development of a sustainable aviation fuel industry. The state is home to key players in aviation such as Boeing, Seattle-Tacoma International Airport, several military air bases, leading research institutions such as Washington State University, many influential tech companies with sustainability goals, and a legislature with a track record of supporting climate action.

Within this supportive environment, Washington has done pioneering work to study and plan for a regional SAF supply chain. In 2011, Washington launched the first regional assessment of SAF in the country with the creation of the Sustainable Aviation Fuel Northwest (SAFN) program, which determined that an aviation biofuels industry could be commercially viable in the Pacific Northwest.<sup>15</sup> To build on the state's potential in the SAF space, the Washington legislature established the Sustainable Aviation Biofuels Work Group in 2012 and tasked it to provide annual updates of its findings and recommendations to the governor and legislative committees.<sup>16</sup> This group represents an established community and network of stakeholders in the SAF space and serves as a vehicle for educating the legislature about the industry. The work group has also helped lay the foundation for the state's advantageous policy environment designed to attract investment for the buildout of in-state SAF production.

For example, following reauthorization of the work group by the legislature in 2021, it released a report in December 2022 that included recommendations that ultimately led to the adoption of key SAF-related policies during the 2023 legislative session.<sup>17</sup> The success of the

work group is reflected in the fact that Washington is the only state in the country where SAF is credited under both the tax code and as an opt-in fuel under the state's Clean Fuels Program.

The culmination of years of work by Washington's aviation stakeholders was the passage of Senate Bill 5447 in 2023, an act to promote the alternative jet fuel industry in Washington.<sup>18</sup> SB 5447 has multiple components designed to expand the SAF industry and, particularly, attract investment in fuel production to the state. Up until this point, fuel producers had been a key missing piece needed to unlock the growth of the SAF industry in Washington.<sup>19</sup> A core element of the law's ability to attract investment in SAF facilities is a tax credit for certain sales and purchases of alternative jet fuel with at least 50 percent reduction in lifecycle carbon intensity. The credit is set at \$1 per gallon, increasing \$0.02 for each additional percent carbon intensity reduction, up to \$2 per gallon (100 percent reduction in carbon intensity). Importantly, the credit can be claimed by the SAF producer, blender, or end-user. This flexibility enables the industry to adjust the credit's use based on changing market dynamics and needs. SB 5447 also includes an additional tax benefit to attract in-state production, in the form of a preferential business and occupation tax rate of 0.275 percent for those manufacturing and wholesaling alternative jet fuel. Crucially, the preferential tax rate will begin only once the Washington Department of Ecology determines that facilities in the state have a collective production capacity of at least 20 million gallons of alternative jet fuel per year.<sup>20</sup>

The measures in SB 5447 go well beyond tax rates, with several other provisions aimed at supporting the SAF industry through government agencies and the state's world-leading research institutions. SB 5447 expands the statutory purpose of Washington Office of Renewable Fuels to include the development and use of alternative jet fuels. The bill also requires the Department of Ecology to allow one or more pathways for alternative jet fuel to be included in the state's Clean Fuels Program (CFP). In terms of research and convening, SB 5447 requires the University of Washington and WSU to complete a report on emissions of ultrafine and fine particulate matter and sulfur oxides from the use of alternative jet fuel as compared to conventional fossil jet fuel. The bill also directs WSU to convene an alternative jet fuel work group through the end of 2028 to further the development of alternative jet fuel as a productive industry in Washington.

While this new law is a major step forward in efforts to attract investment from SAF producers, the legislature acknowledged the need to address an additional challenge to building new facilities in the state: permitting for clean energy projects. Accordingly, in 2023, the same year SB 5447 was passed, the Washington legislature also enacted HB 1216, a bill concerning clean energy siting designed to ensure that siting of new clean energy projects in Washington is efficient, sustainable, and equitable.<sup>21</sup> The bill helps address well-documented challenges with clean energy siting by consolidating permitting decisions among government authorities, streamlining the process for approvals, and prioritizing energy projects critical to accomplishing the state's decarbonization goals. The bill also created the Clean Energy Siting Coordinating Council—a streamlined clean energy authority, co-chaired by the Departments of Ecology and Commerce—dedicated to improving the clean energy siting and permitting process.<sup>22</sup> In order to cut down on lengthy review timelines, the bill amended the state's Environmental Policy Act, directing lead agencies to complete environmental impact statements for clean energy projects within two years.

To ensure critical projects are completed in a realistic timeframe and avoid some of the concerns about limiting community engagement and advantaging fossil fuel development that have stymied federal permitting reform bills, HB 1216 established a new program within the Department of Commerce to designate clean energy projects of statewide significance (CEPSS); CEPSS must contribute to emissions reductions and economic development goals, positively impact the environment and public health, and meaningfully engage with federally recognized tribes impacted by the project.<sup>23</sup> HB 1216 should improve timelines to develop SAF infrastructure in Washington.

Prior to passage of SB 5447 and HB 1216, in 2021 the legislature passed several climate policies with major implications for the SAF industry and clean energy generally, including the Clean Fuels Program (also known as the Clean Fuel Standard) and the Climate Commitment Act, which created the state's cap-and-invest program.<sup>24</sup> Washington is one of only four states in the United States to pass a clean fuel standard. It is joined by California, Oregon, and New Mexico, which adopted a clean fuel standards in 2011, 2016, and 2024, respectively.<sup>25</sup> The Washington CFP requires transportation fuel suppliers (not including aviation) to gradually reduce the carbon intensity of their fuels to 20 percent below 2017 levels by 2034.<sup>26</sup> Suppliers can meet these requirements by improving production efficiency, blending with low-carbon bio-fuels, or purchasing credits. Producers of clean fuels with a carbon intensity below the standard (including electric vehicle charging providers) generate credits that can be kept or sold to producers of fuels with carbon intensity above the standard. As noted above, SB 5447 requires the Department of Ecology to create one or more pathways for alternative jet fuel to generate credits under the CFP.

The state's supportive policy actions, designed in part to create a competitive environment for the sustainable aviation industry, are already paying dividends. In 2023, Washington realized its goal of attracting SAF production to the state. In May that year, Dutch-based energy company SkyNRG announced plans to commence construction on a \$600–\$800 million SAF refinery in Washington with the capacity to produce 30 million gallons of SAF annually.<sup>27</sup> Months later, in July 2023, carbon transformation company Twelve broke ground on a pilot facility in Moses Lake, WA, that will produce around 40,000 gallons of power-to-liquid SAF per year by using renewable energy and water to transform captured carbon dioxide into certified drop-in synthetic jet fuel.<sup>28</sup>

## ROUNDTABLE RECOMMENDATIONS

Given the state's policy efforts and early success in attracting investment in SAF production, Washington stakeholders are in a unique position to speak to the need for federal policy to complement existing state-level action. Through the Washington roundtable sessions and subsequent discussions with participants, several recommendations for Congress emerged to address areas of high need for scaling the SAF industry. The areas of need include: unlocking greater private investment in SAF production; supporting the buildout of SAF infrastructure; accelerating SAF utilization; and encouraging equitable workforce development in the SAF industry.

### UNLOCKING PRIVATE INVESTMENT IN SAF

**Congress should extend tax credits to cover at least 10 years from when a SAF production facility is placed in service.**

A key theme that emerged from the roundtable discussion was the need to support the financial competitiveness of producing sustainable aviation fuel, which is currently more expensive to produce and purchase than fossil jet fuel and at a policy disadvantage against RD. Tax credits are the main vehicle that can help bridge the premium gap. The IRA's two new SAF tax credits, 40B and 45Z, are designed to increase SAF's competitiveness and spur new production, but the duration of the tax credits does not align with the time needed to bring new production online. The credits can only be claimed when a facility is producing SAF, but building new SAF facilities may take an estimated 5–7 years.<sup>29</sup> Both the 40B and 45Z credits, which expire in 2024 and 2027, respectively, will sunset before many new facilities can claim the credits. Given this timeline, it is unlikely that SAF facilities planned after the passage of the IRA will be able to include these tax credits in their projected revenue.

For these tax credits to be effective in incentivizing new production, roundtable participants emphasized the need to accommodate the longer timelines required to finance, plan, and construct facilities. Extending the eligibility period of SAF tax credits to 10 years following the date a facility is placed into service would provide the economic certainty needed to unlock private investments for new capital-intensive SAF facilities. The extension would also align SAF credits with the duration afforded to other tax credits created by the IRA, including the 45V Clean Hydrogen Production Tax Credit.<sup>30</sup>

### SUPPORTING SAF INFRASTRUCTURE

**Congress should provide not less than \$244,500,000 annually for FAST-SAF.**

The SAF Grand Challenge estimates that \$30 billion dollars of capital investment is needed to build out the production and delivery infrastructure to meet the goal of producing 3 billion gallons of SAF by 2030.<sup>31</sup> Meeting the estimated 35 billion gallons of SAF needed to provide 100 percent of aviation fuel demand by 2050 will require hundreds of billions in capital expenditure on infrastructure.<sup>32</sup> As the nascent SAF industry seeks to attract capital, there is a large gap between available funding and expected need. In the meantime, expanding existing government programming for SAF infrastructure could help catalyze private investment needed to make progress toward stated goals.

The FAST-SAF grant program, created by the IRA section 40007, could be a powerful tool to help unlock capital for investments in large-scale SAF infrastructure projects, but it is a one-time, \$244.5 million program. In the initially introduced version of the FAST program, as part of the Aviation Emissions Reduction Opportunity Act (AERO Act), appropriations would have been \$200 million each year from 2023 to 2027 with 70 percent of grants awarded for FAST-SAF and 30 percent awarded for FAST-Tech.<sup>33</sup> The higher total funding amount would better facilitate building out capital-intensive SAF production and distribution infrastructure.

While roundtable participants celebrated the enactment of FAST-SAF, they also highlighted the need to annualize the program and increase the overall amount of money available to, at a minimum, make the current one-time funding level the annual funding level. Participants stressed that further funding for regional blending infrastructure, especially to serve airports whose fuel delivery infrastructure is already constrained, is essential to supporting the ability of producers to get SAF to end users.

## ACCELERATING SAF UTILIZATION

### **Congress should direct FAA to allow SAF purchasing and investments in SAF infrastructure as an appropriate use of airport revenue.**

In 2017, the Port of Seattle became the first U.S. airport operator to set a goal and timeline for SAF, with the initial goal being to power every flight fueled at Seattle-Tacoma International Airport with at least a 10 percent blend of SAF by 2028.<sup>34</sup> Roundtable participants concurred that it is in the interest of airports to support SAF uptake. For example, the use of SAF could decrease particulate emissions by up to 65 percent, improving air quality at airports and for surrounding communities.<sup>35</sup> SAF will also play a key role in meeting airports' decarbonization goals through scope 3 emissions reductions.<sup>36</sup> As the link between fuel suppliers and airline end-users, it is likely airports could play a useful role in promoting SAF, but there remains uncertainty about what exactly that role can and should be.

Airports in other countries have found ways to encourage the use of SAF. A series of discussions between airports hosted by the Roundtable on Sustainable Biomaterials in 2022 identified several opportunities to address the cost and availability of SAF.<sup>37</sup> For instance, to address SAF's higher costs to airlines, airports could subsidize SAF through an incentive scheme, directing some funding (e.g., from an airport's profits or fees) toward subsidies that cover a portion of SAF's price premium.<sup>38</sup> In 2022, Heathrow became the first airport to launch a program to bridge the premium between traditional jet fuel and SAF by covering up to 50 percent of the extra cost; Heathrow made £71 million (\$91 million) available to incentivize airlines' uptake of up to 155,000 tonnes of SAF in 2024.<sup>39</sup> Other airport operators with similar SAF incentive programs include Schiphol, Swedavia, Düsseldorf, and Milan.<sup>40</sup>

Some international airports have provided loans or made direct investments in SAF infrastructure (e.g., in production and blending facilities), which enable the airports to diversify their revenue streams and reserve a portion of the SAF produced for use at their facili-

ties. For example, the Luxembourg airport invested in synthetic fuel startup Norsk e-fuel, with the aim of producing 25 million liters of SAF by 2026.<sup>41</sup> Amsterdam Airport Schiphol invested in a SkyNRG SAF plant with the expectation of producing 100,000 tonnes of SAF by 2025.<sup>42</sup>

These strategies to increase the uptake of SAF at European airports, however, may not be replicable in the current U.S. regulatory environment. Under federal law, and as detailed in the FAA's *Policy and Procedures Concerning Use of Airport Revenue*, there are strict requirements on permitted and prohibited uses of revenue generated from any airport that receives federal assistance, including revenue from state and local taxes on aviation fuel.<sup>43</sup> Spending on prohibited uses would be considered unlawful revenue diversion. The FAA policy prohibits "the use of airport revenue for purposes other than the capital or operating costs of the airport, the local airport system, or other local facilities owned or operated by the airport owner or operator and directly and substantially related to the air transportation of passengers or property..."<sup>44</sup>

Offsite infrastructure investments and direct procurement of SAF are not explicitly prohibited, but there is a risk that they could be considered revenue diversion. Meanwhile, direct subsidization of air carrier operations is explicitly considered to be revenue diversion, and that could be interpreted to include efforts by an airport to subsidize a portion of airlines' SAF costs. Notably, the most recent amendments to the FAA's *Policy and Procedures Concerning Use of Airport Revenue* were published in 2014, predating commercially available SAF in the United States.

Roundtable participants emphasized the importance of clarifying the resources available to U.S. airports to support SAF uptake by permitting airport revenue to be used for this purpose. Amending FAA policy to explicitly allow airports to support SAF uptake, or at least to clarify the circumstances under which airports may do so, will provide the regulatory clarity needed for airports to become more active stakeholders in the development of the domestic SAF market.

## ENCOURAGING EQUITABLE WORKFORCE DEVELOPMENT

**Congress should direct federal agencies administering SAF-related funding to require applicants to consider how the project will support equitable workforce development.**

One major benefit of SAF compared to some other low-emissions technologies is that it is a drop-in replacement fuel. This means much of the infrastructure and equipment needed to support SAF is already built-out to service the conventional jet fuel industry. Many workers and companies serving this industry are already equipped to support the shift to SAF. For the most part, workers will be prepared to fill the forthcoming construction, operations, and maintenance jobs for new SAF production facilities, refineries, and transport infrastructure.

Still, new developments in SAF feedstocks, refining, processing, and blending will require the workforce to evolve alongside the industry, developing new skills and becoming more competent in SAF-specific areas. In addition, roundtable participants stressed the importance of enhancing equity within SAF-related workforce development.

The FAST-SAF notice of funding opportunity mentions workforce opportunity as a key criterion for application evaluation in second-level review. Under Factor C of the second-level review, the criteria include an evaluation of the following:

How the project will address equity and Justice40 Initiative considerations, including... Whether and how the project will create good-paying jobs with the free and fair choice to join a union to the greatest extent possible; the use of demonstrated strong labor standards, practices and policies (including for direct employees, contractors, sub-contractors, and service workers on airport property); use of project labor agreements; distribution of workplace rights notices; union neutrality agreements; wage and/or benefit standards; safety and health standards; the use of Local Hire Provisions; registered apprenticeships; joint labor management partnerships; or other similar standards or practices.<sup>45</sup>

Roundtable participants referenced these conditions as essential elements of positive workforce development and recommended that they be expanded, both in scope and across other SAF-related funding opportunities. They underlined the benefits to both companies and workers of utilizing apprenticeship programs, which produce higher returns on investment and rates of retention among employees compared to employers that do not utilize apprenticeship programs.<sup>46</sup>

This expanded scope of equitable workforce development should include access to wraparound services—benefits outside of salary that support the ability of lower-income and single-parent workers to physically get to work and be engaged on the job. Wraparound services could include providing access to transportation to work and childcare during work hours, which can help lower-income workers and single parents get to work and be more engaged on the job.



## CONCLUSION

Washington state has been working for more than a decade to study and cultivate state-level production and adoption of sustainable aviation fuels. Washington's legislature has demonstrated its leadership by developing a favorable policy environment, supported by key stakeholders in the SAF industry. Although Washington has made great progress on its goals, additional policy support at the federal level is crucial to expanding SAF production and utilization in Washington and around the United States.

The experience and expertise of Washington's SAF stakeholders provides them with valuable insight regarding ways that federal policy can complement ambitious state-level action to scale SAF. The C2ES roundtable conversation with stakeholders in Washington led to several policy recommendations for federal action, including extending existing SAF tax credits to support new production, annualizing the FAST grant program to support the build-out of critical SAF infrastructure, allowing U.S. airports to use funds to support SAF utilization at their facilities, and expanding consideration of equity in SAF workforce development to help ensure the sustainable growth and long-term health of the industry. Progress in each of these issue areas at the federal level would fill critical gaps and build on the strong work done at the state level to support the SAF industry.

### Other C2ES Resources

#### C2ES Regional Roundtables

<https://www.c2es.org/accelerating-the-us-net-zero-transition/regional-roundtables/>

#### Fueling a Low-Carbon Biofuel Future in Minnesota

<https://www.c2es.org/document/fueling-a-low-carbon-biofuel-future-in-minnesota/>

#### Reaching for 2030: Climate and Energy Policy Priorities

<https://www.c2es.org/document/reaching-for-2030-climate-and-energy-policy-priorities/>

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