

Executive Summary

Aviation accounts for 3% of global carbon emissions, a share projected to grow as demand for air travel increases. The aviation sector is among the most challenging industries to decarbonize, given the high energy demands of flight and the infrastructure investments required for electric or hydrogen-powered aircraft, which remain years from commercialization.

Sustainable aviation fuel (SAF) presents the only readily available, stop-gap solution to decarbonize commercial aviation over the next 40+ years. Produced from non-fossil materials, SAF is a drop-in replacement for conventional jet fuel, offering significant reductions in carbon emissions. However, despite its potential, SAF has yet to achieve commercial-scale production, and the resulting price disparity continues to hinder widespread adoption.

The Cascadia Sustainable Aviation Accelerator (CSAA) is focused on de-risking the entire regional SAF value chain and enabling capital investment across the globe

in SAF production, infrastructure, new clean energy projects, and feedstocks. This trade organization will drive industry and policy solutions that promote market adoption of SAF and bring physical fuel to strategically important airports across WA, MT, OR, ID, and British Columbia.

In partnership with the Cascadia Sustainable Aviation Institute (CSAI), the Cascadia Sustainable Aviation Accelerator will drive systems-level solutions that accelerate the broader market transition to SAF. These two organizations will bring public and private establishments together to implement the necessary policy, finance infrastructure, energy, feedstock, and R&D solutions to drive investor confidence in the future of a healthy sustainable aviation fuel marketplace. **By de-risking the broader marketplace, global investment in SAF production across the Pacific Northwest could deliver a 13X ROI in direct and indirect economic impact from sustainable aviation fuel refining.**

 <https://www.cascadiaaccelerator.org/>



Feedstock
Providers



Airplane
Lessors



Business
Community



Infrastructure



CASCADIA

SUSTAINABLE AVIATION ACCELERATOR

Rapidly accelerating the transition to sustainable aviation fuel across the Pacific Northwest



<https://www.cascadiaaccelerator.org/>

A Catalytic Investment Opportunity

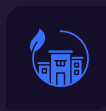
Every energy transition requires systems-level solutions based on a novel, higher-performing, cleaner, and more efficient technology. Historical energy transitions such as coal to petroleum took decades and required significant investment in new technologies, infrastructure, and wide-scale market adoption. These transitions require market disruption and large-scale investment to achieve the scale and production efficiencies of their legacy alternatives. Cleaner jet fuel alternatives face the same headwinds.

While sustainable aviation fuel (SAF) has proven to be the only viable clean fuel alternative for the aviation industry over the next 30+ years, it faces many of the same market challenges as previous energy transitions. The Cascadia Sustainable Aviation Accelerator (CSAA) is a public/private partnership with the mission to **rapidly accelerating the transition to sustainable aviation fuel across the Pacific Northwest**. It will simultaneously support decarbonization objectives while cultivating a thriving and prosperous sustainable aviation economy across the entire value chain.

With the race against time to curtail global emissions in alignment with the Paris Climate Accord, decarbonizing the aviation sector will require >\$1.5 trillion investment over the next 30 years to catalyze the transition from traditional fossil-based jet fuels to next generation sustainable aviation fuels.

The Potential for Impact

The transition from fossil-based jet fuels to sustainable aviation fuels brings significant value and impact across multiple social, economic, and environmental dimensions. Investing in a regional SAF ecosystem dramatically helps alter the environmental and human health related impacts of aviation.



ENVIRONMENTAL

Better Fuels

80%+

reduction in CO₂ emissions over SAF's full lifecycle

Global Warming

1-3x

reduction in CO₂ emissions over SAF's full lifecycle

Abatement

8 million mTCO₂

can be abated by 2030 using 1B gallons of SAF



ECONOMIC

Regional Production

5,000-7,000

new SAF facilities needed by 2050

Scale & Magnitude

<1%

of global jet fuel use currently comes from SAF

Economic Impact

13x

economic impact delivered by SAF refineries over 20 years



SOCIAL & HUMAN HEALTH

Air Quality

20-70%

reduction in particulate matter, soot, and NOx with SAF

Asthma

4x

higher risk of asthma hospitalization in airport-adjacent communities

Human Health

Correlation

exists between airport proximity and reduced life expectancy

SYSTEMS LEVEL SOLUTIONS TO SYSTEMS LEVEL CHALLENGES

In partnership, the Cascadia Sustainable Aviation Accelerator and the Cascadia Sustainable Aviation Institute will drive systems-level solutions that accelerate the broader market transition to SAF. These two organizations will bring public and private establishments together to implement the necessary policy, finance, infrastructure, energy, feedstock,

Broader Cascadia Sustainable Aviation Accelerator, a 501(c)(6):

Accelerator aims to enable capital investment across the Cascadia region in SAF production, infrastructure, new clean energy projects, and feedstock. This trade organization will drive industry and policy solutions that promote market adoption of SAF and bring physical fuel to strategically important airports across WA, MT, OR, ID, and British Columbia.

Cascadia Sustainable Aviation Institute, a 501(c)(3):

While the Accelerator is focused on de-risking the entire SAF value chain, the Institute is dedicated to rapidly accelerating the commercialization of new SAF technologies and helping producers scale refining processes to bring down cost. In addition, the Sustainable Aviation Institute is a key enabler of achieving 100% qualification.

These organizations will partner to provide concierge-like services for renewable fuel producers that fast track their go-to-market timelines and production schedules, bringing larger volumes of clean fuels to market sooner.

and R&D solutions to drive investor confidence in a healthy sustainable aviation fuel marketplace. By de-risking the broader marketplace, global investment in SAF production across the Pacific Northwest could deliver a **13X ROI** in direct and indirect economic impact.

- | | |
|-------------------------------|---------------------------|
| ✓ SAF Producers | ✓ Research Institutions |
| ✓ Airlines | ✓ Municipalities |
| ✓ Fuel Consortia | ✓ Military |
| ✓ Airports | ✓ Airport Partners |
| ✓ Aerospace Manufacturers | ✓ Standard Setting Bodies |
| ✓ Airplane Lessors | ✓ Financial Institutions |
| ✓ Business Community | ✓ Private Aviation |
| ✓ Community Organizations | ✓ Energy Providers |
| ✓ Credit Exchange Marketplace | ✓ Tribal Nations |
| ✓ Labor Unions | ✓ Infrastructure |
| ✓ NGO's | ✓ Feedstock Providers |

PARTNERSHIPS NEEDED

Multi-industry collaboration across the entire jet fuel value chain is essential to a successful transition to alternative clean fuels in aviation, one of the hardest to decarbonize industries. Partnerships include organizations from the entire ecosystem, working together in a coordinated manner to drive holistic and systemic-level solutions.

CSAA's strategic objectives are focused on positioning the Pacific Northwest as a global leader in sustainable aviation fuel innovation. By developing airport-specific commission models and addressing the West Coast jet fuel premium, CSAA will attract SAF production to the region while delivering significant economic value. These efforts will secure both private and public

investment, reinforcing the PNW as a next-generation aerospace hub. Through cutting-edge research, policy leadership, and industry collaboration, CSAA will drive down technology uncertainty, improve air quality, and establish the region as a globally recognized center for sustainable aviation advancements.

STRATEGIC OBJECTIVES

Develop airport specific commission models

Recruit production to the PNW and address the west coast jet fuel premium

Deliver significant economic value to region

Secure private/public investment

Secure PNW as a next generation aerospace hub

Receive global recognition for sustainable aviation innovation

Improve air quality and environmental benefit

Drive down technology uncertainty

UNIFYING A COALITION

The CSAA unifies a coalition of stakeholders from the entire SAF value chain, including businesses, tribes, philanthropy, finance, and the local PNW community, to accelerate the production, deployment, and adoption of sustainable aviation fuels. It leverages an airport commission-style model to transition jet fuel to SAF at strategically advantaged airports across the region and delivers measurable and material economic value for the full ecosystem.

Criticality of Scaling SAF and Decarbonizing Aviation

80% Reduction in carbon emissions when using SAF

13x Economic impact multiplier from regional SAF production

IMPORTANCE OF SAF

Aviation currently accounts for 3% of global carbon emissions, a share expected to grow as demand for air travel increases. Additionally, the aviation sector is widely anticipated to be one of the most difficult industries to decarbonize due to the high energy demand of flight and the significant infrastructure improvements required for electric or hydrogen-powered aircraft, which remain decades out from commercialization.

Sustainable aviation fuel (SAF) is the only readily available, near-term solution to decarbonize commercial aviation over the next 40+ years. Made from non-fossil materials, SAF is a drop-in replacement for commercial jet fuel with significantly reduced carbon emissions. While SAF can be produced small scale using current technology, it has not achieved commercial-scale production, leading to a significant price disparity that prevents widespread industry uptake.

TIMEFRAME FOR SAF AS THE SOLUTION

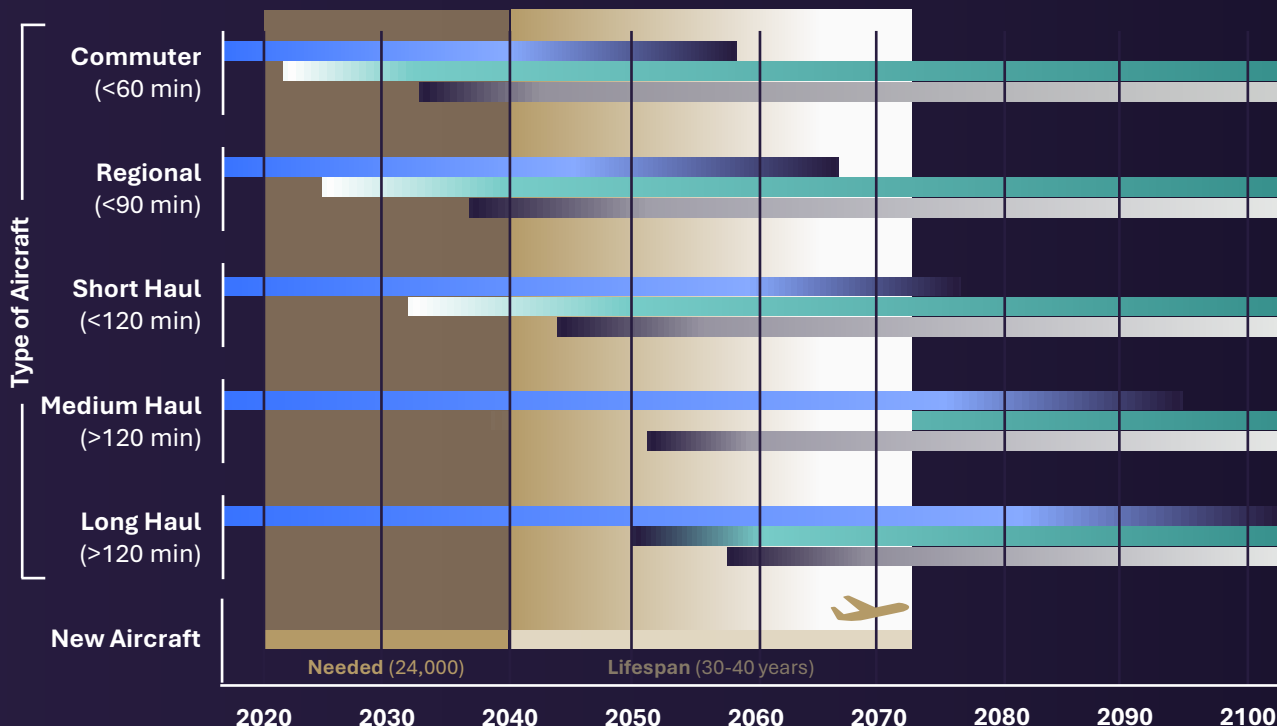
Sustainable aviation fuel is expected to be the low-carbon solution for aviation for the next ~70+ years, based on today's technologies and future technology innovations. Hydrogen and full-electric propulsion are expected to reduce less than 5% of aviation emissions by 2050².

24,065

New aircraft needed by 2042 to meet forecasted demand, each with a 30+ year lifespan. SAF is the most immediate solution to decarbonize aviation.

Estimated Viability of SAF, Electric Aircraft, and Hydrogen Aircraft¹

Bars below represent technology readiness and when aircraft could potentially transition from liquid based fuels to hydrogen or electric propulsion



KEY TAKEAWAY

Between 2022 and 2042 there will be 24,065³ new aircraft, each with a 30 - 40 year lifespan.

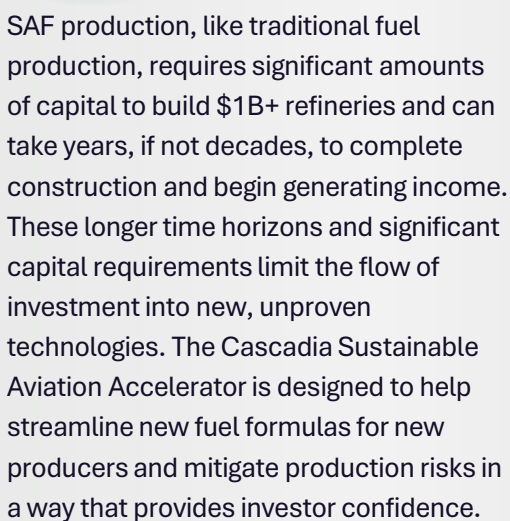
As shown, it's expected that these new aircraft will be dependent on what's available: **SAF**.

1 - "Waypoint 2050" - [Air Transport Action Group](#) (2021)

2 - "A Realistic Path to Net-Zero Emissions for Commercial Aviation" - [Bain & Company](#) (2023)

3 - "Boeing Commercial Market Outlook" - [Boeing](#) (2023)

The Cascadia Accelerator will help amplify these innovations and bring solutions to the marketplace that de-risk capital investments and drive rapid growth for the broader SAF industry. The regional ecosystem approach to de-risking the rest of the value chain for new producers further mitigates other market challenges and provides additional assurance to investors.



The Pacific Northwest is uniquely poised to become a powerhouse for SAF production, thanks to its exceptional natural resources, strategic policy environment, and robust industrial infrastructure. Like every other energy transition, the shift from fossil fuels to SAF represents an enormous economic and workforce development opportunity for the region. SAF production facilities in the Pacific Northwest can leverage

local feedstocks such as woody biomass, municipal solid waste, and waste oils to produce billions of gallons of sustainable fuel. With leadership at the state and local level, the region can leverage its unique natural and commercial assets to scale SAF production and provide clean fuels in markets around the world to make widespread industry uptake more feasible.



Abundant & Diverse Biomass and Wastes-Feedstock Supply

Reducing supply risks and production costs.

- Forestry Residues – 50M+ acres of timberlands provide a steady source of woody biomass.
- Municipal Solid Waste (MSW) – High urbanization generates millions of tons of convertible waste annually.



Favorable Policy & Political landscape

Strong, long-term policy support de-risks investment and ensures demand.

- Washington's Clean Fuel Standard (CFS) & Oregon's Clean Fuels Program (CFP) create a stable SAF credit market.
- State & federal funding programs support infrastructure and innovation.



Diverse Investor Support

A well-funded investment landscape accelerates SAF project financing and commercialization.



Major SAF R&D Hub

Access to cutting-edge SAF technology and testing capabilities.

- PNNL leads SAF fuel certification, feedstock research, and hydrothermal liquefaction (HTL) advancements.
- Washington State University (WSU) hosts ASCENT, the FAA's SAF research center.



Broad Commercial Interest from Fortune 500s

Strong corporate buy-in ensures market stability and investment confidence.

- Boeing's 100% SAF certification goal by 2030 fuels R&D and production.
- Alaska Airlines & Amazon invest in SAF offtake agreements.



Unrivaled Aviation-Specific Infrastructure

A ready-built multimodal network (air, sea, and pipeline) for SAF distribution, export, and large-scale adoption.

- SEA (Seattle), PDX (Portland), YVR (Vancouver) – Key international air hubs.
- Paine Field (Everett, WA) – One of the world's most advanced aerospace manufacturing centers.



Co-location with Green Hydrogen Hub

Co-locating SAF and hydrogen infrastructure lowers production costs and emissions. Green hydrogen is a critical feedstock for next-generation e-SAF.



Cheap and Clean Energy Grid

Lower operating costs and lower-carbon SAF increase competitiveness.



Proximity to Military Aviation Assets

Joint Base Lewis-McChord (JBLM)



Existing Refining Infrastructure

5 refineries across the state of WA.

Economic Impact of SAF Production Across the PNW

The production of SAF across the Pacific Northwest presents a significant economic opportunity, driving job creation, infrastructure investment, and regional economic growth. As a growing industry, SAF production will generate high-quality jobs in feedstock cultivation, refining, transportation, and technology development. The construction and operation of SAF facilities will attract capital investment and create demand for local goods and services, benefiting industries such as agriculture, forestry, and advanced manufacturing. Additionally, by leveraging the region's renewable energy resources and existing biofuel expertise, the Pacific Northwest can position itself as a global leader in SAF innovation, securing long-term economic resilience, and international investment.

Beyond direct economic benefits, investing in SAF production will have substantial indirect impacts on the region. Strengthening the SAF supply chain will create new market opportunities for farmers and forest product industries, enabling sustainable land management practices while providing an economic boost to rural communities. Increased SAF adoption will also enhance energy security, reducing reliance on imported fossil fuels and keeping energy expenditures within the local economy. Furthermore, by fostering a robust SAF ecosystem, the region can attract federal/international funding, private investment, and public-private partnerships, accelerating the transition to a low-carbon aviation sector and reinforcing the Pacific Northwest's reputation as a hub for sustainable innovation.

By the numbers

Potential outcomes of achieving one billion gallons of local SAF production:

14x

economic impact delivered by SAF refineries over 20 years

\$500B+

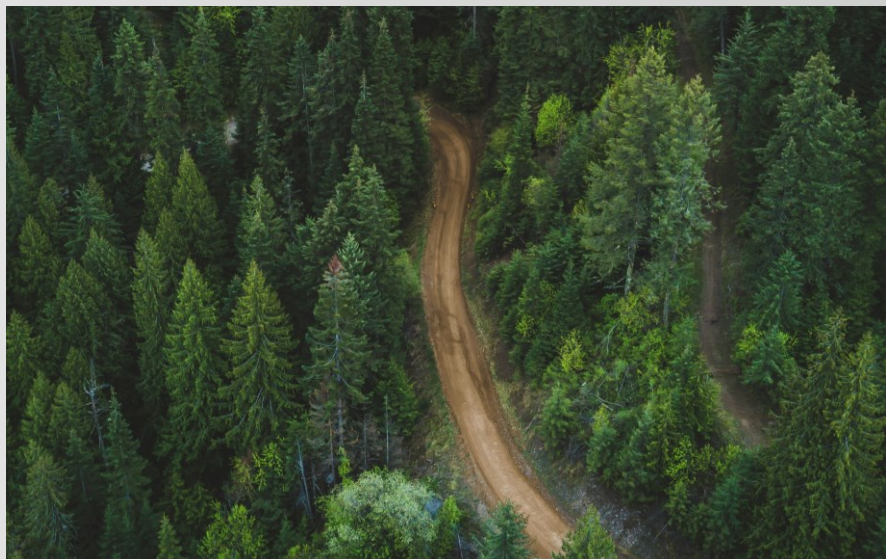
total economic impact from \$38B in investment

7.5M

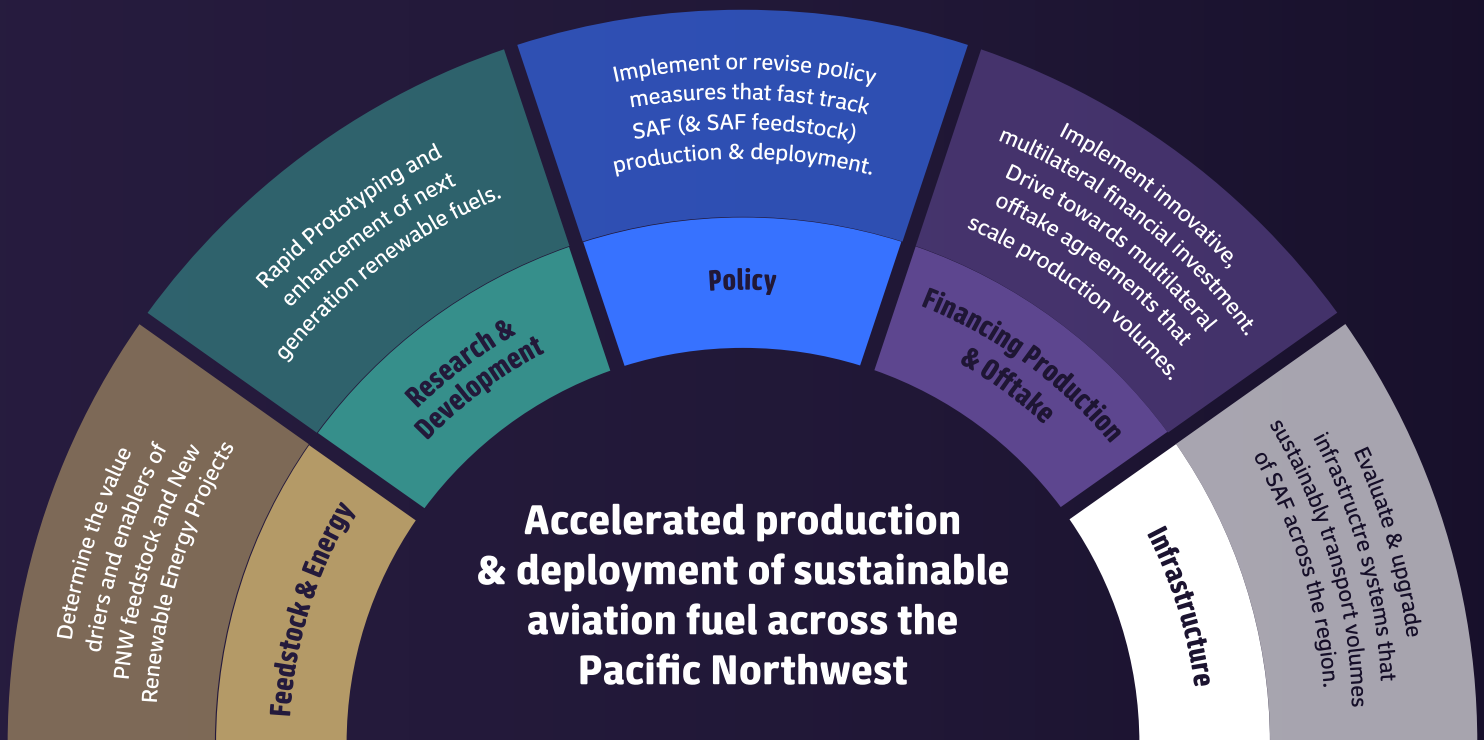
mTCO₂ abated by 1B gallons of SAF

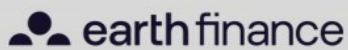
\$12B

Estimated annual cost of jet fuel across the region in 2030



Between 2024 and 2027, the region must radically transform policy, energy, infrastructure, and market dynamics to set the foundation for a regionally competitive and thriving next generation renewable fuel economy. The following strategic framework represents the **five strategic focus areas** of the organization:











The SAF transition represents a more circular, regional economic model that can deliver high quality jobs for tribal nations and rural communities across the region. The adoption of SAF at key airports like SeaTac will dramatically improve air quality and health outcomes related to jet fuel combustion for airport adjacent communities.

Short-term and long-term measurement and evaluation of air quality will further aid in the quantification of SAF combustion properties and enable additional research and development activities that further improve the environmental characteristics of SAF. Quantifying these benefits over the next decade will further justify SAF adoption for other highly populated airport communities around the world.

CSAA will partner with agricultural and forestry feedstock entities – and tribal entities in particular – to generate economic development in their communities. In addition, CSAA will partner with SAF production, infrastructure, and airport entities to minimize industrial impacts and maximize environmental and health benefits of commercial SAF development.



The transition from fossil-based jet fuels to a more local, circular economic model like SAF brings significant value and impact across multiple social, economic, and environmental dimensions. Investing in SAF R&D that commercializes new technologies and production pathways dramatically helps alter the environmental and human health related impacts of aviation. **Some of these human health related impacts include:**



Air Quality

SAF delivers 20%-70% reduction in particulate matter, soot, and SOx



Better Fuels

SAF can reduce lifecycle CO2 emissions by 80%+



Asthma & Human Health

lower risk of asthma hospitalization for airport adjacent communities and increase in general life expectancy



Global Warming

SAF reduces the significant warming impact of jet fuel's non-CO2 emissions