



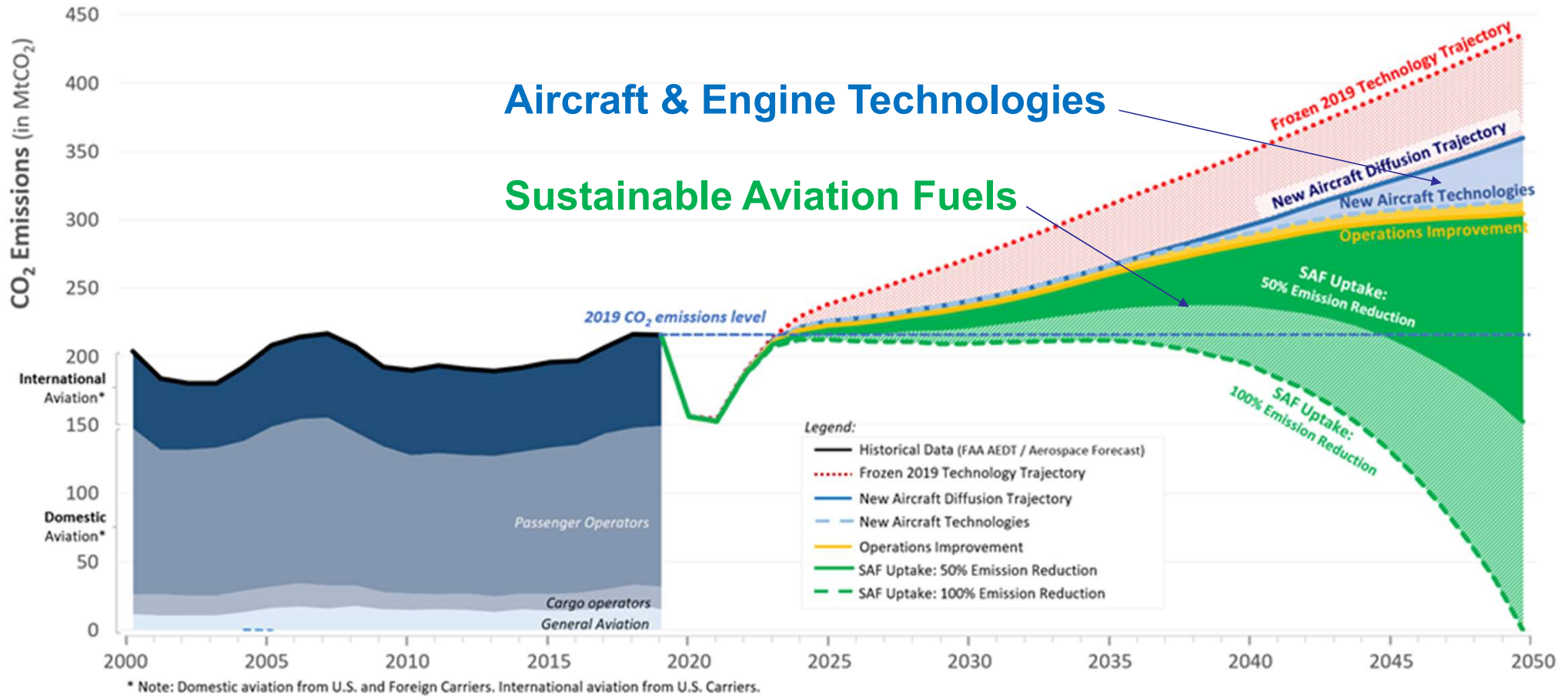
Federal Aviation
Administration



Investments in Aviation Decarbonization

ICAO Environment Regional Seminar - NACC/SAM Region
Nathan Brown, FAA Senior Representative for South America
August 20th, 2024

Aviation Decarbonization Options



NOTE: Analysis conducted by BlueSky leveraging FAA Aerospace Forecast and R&D efforts from the FAA Office of Environment & Energy (AEE) regarding CO₂ emissions contributions from aircraft technology, operational improvements, and SAF



Federal Aviation Administration

The Path to Success on decarbonization

- **Policy action & political commitment to stimulate investment and incentivize adoption**
 - Create an environment where industry invests and supplies cleaner technologies and SAF production
- **A coordinated approach by government to derisks technologies, supply chains, and markets & reduce barriers to adoption**
 - Data and analysis to support strong policies and support building of supply chains
 - Funding aircraft and engine technology innovation to support future technology
 - Investment that supports technology and SAF production infrastructure
- **Industry action to deploy and adopt aviation decarbonization solutions**

- International Commitments
- Inflation Reduction Act

- Climate Action Plan
- SAF Grand Challenge Roadmap
- Grant funding programs

Industry commitments



Inflation Reduction Act (IRA) – SAF Production Incentive support through 2027

IRA Tax Credits

SAF Tax Credit

§13203 : 2023-2024

- Achieves 50% lifecycle GHG reduction
- \$1.25 per gallon up to \$1.75 for additional lifecycle emissions reduction (\$0.01 for every 1% in GHG reduction)

Clean Fuels Production Credit

§13704 : 2025-2027

- Lifecycle GHG <50kg CO₂e/MMBTU (Jet Baseline = 94kg CO₂e/MMBTU)
- Enhanced value for SAF up to \$1.75 for 100% reduction



FAA Efforts to Advance Sustainable Aviation Fuels and Aircraft Technologies

- University center of excellence
- SAF testing & analysis
- SAF supply chain data & analysis
- Aircraft technology innovation



- Accelerating aircraft and engine technology maturation
- Partnership with industry



FAST Grants

- Build SAF production, transportation, blending, and storage infrastructure
- Develop, demonstrate, and deploy low-emission aviation technology



FAA CLEEN accelerates aircraft and engine tech maturation

- Technological innovation is essential
- One to one cost share with industry
- CLEEN established in 2010
- Announced CLEEN Phase III on Sept 9, 2021
- CLEEN Phase IV market survey released December 2022
- Summary of CLEEN Phase I and II accomplishments (10+ years) are available online

CLEEN Phase III Technologies



For more information on CLEEN program: <http://www.faa.gov/go/cleem>

For the CLEEN Phase 3 Press Release: <https://www.faa.gov/newsroom/faq-awards-100m-develop-next-generation-sustainable-aircraft-technology>

For a summary of CLEEN Accomplishment: <https://www.faa.gov/newsroom/continuous-lower-energy-emissions-and-noise-cleem-program?newsId=22534>



Federal Aviation
Administration

Inflation Reduction Act (IRA) – SAF and Technology Grant Program

FAST Grant Program



New grant program under section 40007 of IRA

Fueling Aviation's Sustainable Transition

Objective: *investments to accelerate the production and use of SAF and low emissions aviation technologies*

\$297 million (total) competitive grant program

- ❑ \$245 million for SAF projects to enable production, transport, blending, or storage of SAF
- ❑ \$46 million to develop or apply low-emission aviation technologies
- ❑ \$5.5 million for administration of the program

Awards announced **August 16, 2024**:

<https://www.faa.gov/newsroom/biden-harris-administration-announces-nearly-300-million-awards-sustainable-aviation-fuels>



Federal Aviation
Administration

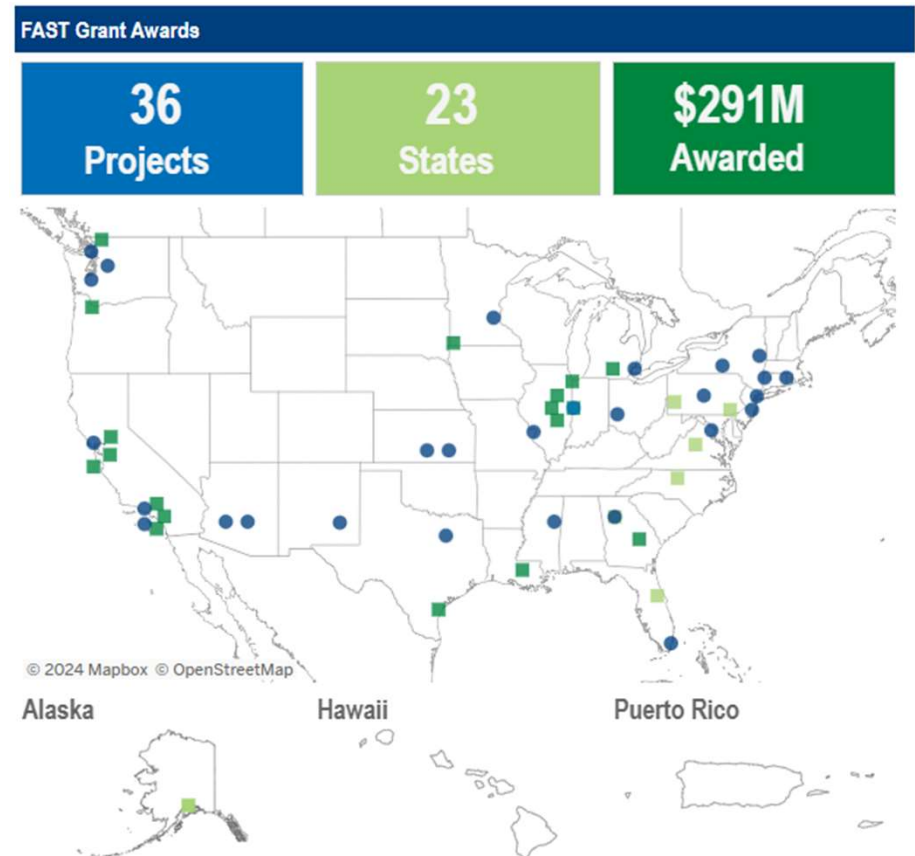
FAST Grant Awards

The FAA award selections:

- 7 SAF Tier 1 projects - supply chain studies to identify infrastructure needs
- 15 SAF Tier 2 projects - infrastructure for SAF production, transportation, blending, and storage
- 13 Low-Emission Technology Category 1 projects - developing low-emission aviation technologies
- 1 Low-Emission Technology Category 2 project - developing test capabilities to advance low-emission aviation technologies

Full list of awards available at:

<https://www.faa.gov/general/fueling-aviations-sustainable-transition-fast-grants>



Federal Aviation
Administration

FAA ASCENT Center of Excellence

For 20 years, FAA Office of Environment and Energy has relied on university centers of excellence to:

- Provide knowledge to inform decision making on environment and energy
- Enable innovative solutions to cost-effectively mitigate aviation's environmental impacts
- Support student instruction on the environmental challenges facing aviation (**674 students supported and counting**).

ASCENT Research Portfolio

- 2013 - ASCENT established
- Portfolio covers SAF, Emissions, Noise, Operations, and Analytical Tools
- Currently overseeing a large increase in the portfolio

Lead Universities:

Washington State University (WSU)
 Massachusetts Institute of Technology (MIT)*

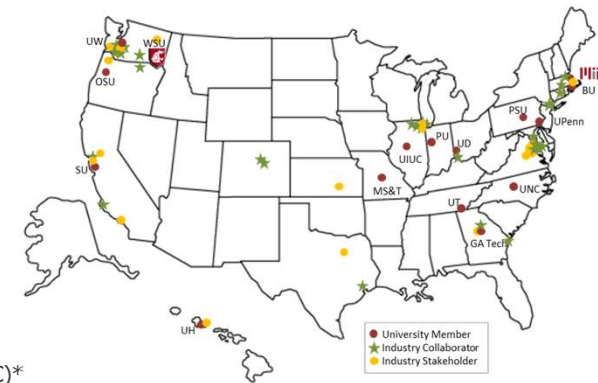
Core Universities:

Boston University (BU)*
 Georgia Institute of Technology (Ga Tech)*
 Missouri University of Science and Technology (MS&T)*
 Oregon State University (OSU)
 Pennsylvania State University (PSU)*
 Purdue University (PU)*
 Stanford University (SU)*
 University of Dayton (UD)
 University of Hawaii (UH)
 University of Illinois at Urbana-Champaign (UIUC)*
 University of North Carolina at Chapel Hill (UNC)*
 University of Pennsylvania (UPenn)*
 University of Tennessee (UT)
 University of Washington (UW)

Multiple international partners

Advisory Committee (57 orgs)

5 airports
 4 airlines
 9 NGO/advocacy
 8 aviation manufacturers
 10 feedstock/fuel manufacturers
 21 R&D, service to aviation sector

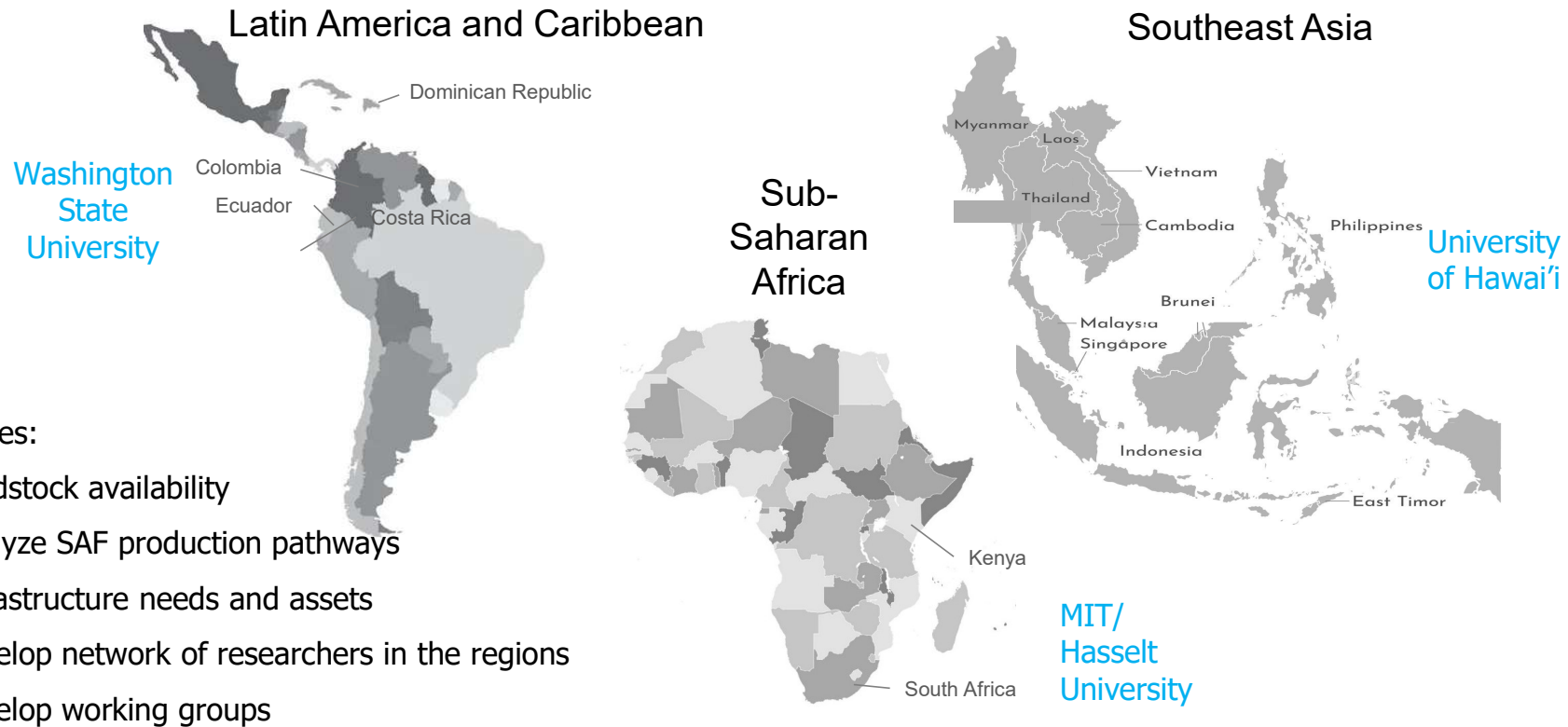


ASCENT Support



Global SAF Supply Chain Development

ASCENT Project 93 - Collaborative Research Network for Global SAF Supply Chain Development
In collaboration with the World Bank



Objectives:

- Feedstock availability
- Analyze SAF production pathways
- Infrastructure needs and assets
- Develop network of researchers in the regions
- Develop working groups

<https://ascent.aero/project/collaborative-research-network-for-global-saf-supply-chain-development/>



Federal Aviation
Administration

ASCENT 93: Latin America and Caribbean

PIs: Manuel Garcia-Perez, Michael Wolcott

Co-PIs: Lina Martinez, Kristin Brandt

Students:

□ Colombia

- Marcela Valderrama

□ Dominican Republic

- Raul Perez

□ Ecuador

- Paulina Echeverria
- Micaela Peralta

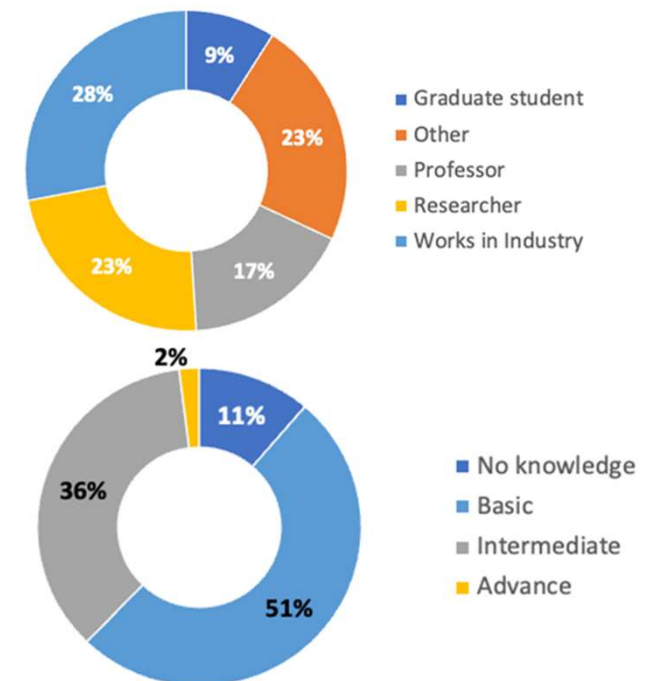


Federal Aviation
Administration

ASCENT 93 Virtual Training Series

- **Launched on November 2, 2023**
 - Concluding in December 2024
- **105 participants registered**
- **21 lectures schedule**
- **Planning additional workshops with multilateral organizations and interested partners**
- **WSU will provide a certificate for participants who have attended at least 75% of the lectures**

53 initial survey responses



Federal Aviation
Administration

Thank You



Nathan Brown
Senior Representative for South America
U.S. Federal Aviation Administration
Nathan.Brown@faa.gov



Federal Aviation
Administration