

ASCENT Project 001



Alternative Jet Fuel Supply Chain Analysis:

Support on FTG

Washington State University

PI: Michael Wolcott

Co-PI: Kristin Brandt, Lina Martinez

PM: Prem Lobo

Objective:

Provide an overview of metrics and projections for cleaner energy use for international aviation
Identification of parameters for fuel accounting and reporting, including elements contained in CORSIA
Maintain and extend the SAF producer's database to inform ICAO members

Project Benefits:

Identification and classification of possible metrics and parameters that will inform regarding the use of cleaner energy in international aviation
Inform ICAO members on SAF production trends

Research Approach:

Review published documents that include metrics for the use of cleaner energy in the aviation sector
Review of fuel accounting parameters contained in CORSIA documents
Update global SAF producer's database with new announcements
Verify the current project status of producers listed in the database

Major Accomplishments (to date):

Presentation of two working paper at the CAEP/13 Fuels Task Group (FTG)
Data/information collected and analyzed for presentations at FTG/4
Solicit input from global SAF producer's and begin integrating that data into the database

Future Work / Schedule:

Technical support to the FTG/CAEP requirements

Alternative Jet Fuel Supply Chain Analysis:

Policy Decision Support Tools

Washington State University

PI: Michael Wolcott

Co-PI: Kristin Brandt, Lina Martinez

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Research Approach:

Financial analysis following the methodology developed by ASCENT

Calculation and estimation of incentives' applicability and values based on policy legislation interpretation and validation

Objective:

Adapt a system dynamic (SD) model for feasibility analysis of the supply chain, including US federal and state policies

Estimate the effect of federal and state policy on the financial performance of SAF projects

Assess the risk of investment in terms of the probability of failing to reach a positive NPV metric during the facility lifetime when including uncertainty

Project Benefits:

Deterministic and stochastic analysis of the incentives impact on the financial feasibility of SAF projects

Major Accomplishments (to date):

Deterministic and stochastic models for three conversion technologies (HEFA, FT, ATJ) and various feedstocks

Inclusion of major federal and state policies (e.g., IRA-40B,45Z, 45V, 45Q; RFS; state policies- CA, OR, WA)

Presentation of analysis on maximum feedstock price to US Office of the Chief Economist

Future Work / Schedule:

Impact of green H2 and CCSU production options on the financial performance of SAF projects

Draft publication scheduled to be under internal review in late 2023.

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Alternative Jet Fuel Supply Chain Analysis:

SAF Grand Challenge

Washington State University

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Objective:

Update and finalize SAF Grand Challenge analysis and convert the data and presentations into a joint peer-reviewed journal article with NREL.

Project Benefits:

Inform a wide audience on the practical pathway options to meeting the SAF Grand Challenge while including the impact of existing US policy support.
Identify barriers to focus efforts to aid in meeting the goals.

Research Approach:

Update and expand original SAF Grand Challenge 2030 data and analysis.
Combine ASCENT 2030 data with NREL 2050 data, harmonized to the ASCENT TEA methodologies.
Write a joint paper with NREL that describes a practical pathway to meeting the SAF Grand Challenge goals.

Major Accomplishments (to date):

Update US production database and expand information to include project implementation timelines and cost by pathway.
Differentiate between facility conversion, expansion and greenfield projects.
Update US feedstock data.
Present related data to WA SAF working group and NW Bioenergy Summit

Future Work / Schedule:

Complete joint paper with NREL for internal review late 2023