Sustainable Aviation Fuel at an Inflection Point

Alex Menotti
VP, Corporate and Government Affairs

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CAAFI Biennial General Meeting
LanzaJet is intentionally driving innovation and accelerated deployment

**Financing**
- Capital to build company and 1st commercial plant
- Capital for series of commercial plants

**Feedstock**
- Widely available ethanol globally & from waste
- Great building block for hydrocarbons

**Technology**
- Scaled up with US DOE; ASTM pathway
- Standard sizing & modular deployment: time to market

**Fuel**
- >300M GPY by 2025
- Up to 90% SAF + 10% RD
- No sulfur, high reduction in GHGs & soot particles; less contrails
The harsh realities of climate change are accelerating the focus on decarbonizing aviation.

For Commercial Aviation...

Jet Fuel Consumption (Pre-Covid)

- **US**: ~21B+ Gallons / year
- **World**: ~96B+ Gallons / year

Sustainable Aviation Fuel Production (2021)

- **US**: ~5M Gallons / year
- **World**: ~30M Gallons / year

- New Goals
- New Mandates
- New Incentives
- New Scale in Technology & Production

Catalyzing a New Global Market

Sources: World = IATA, US = Various including Regulatory Incentives
US approach is an example for the role policy has in building this new industry

Sustainable Aviation Fuel Grand Challenge

3B Gallons by 2030

- **Tax Credit**
  (10-yr SAF BTC → $1.25 - $1.75; originally $1.50 – $2.00)
- **Grants**
  (3 DOE Projects with LJ ATJ)
- **Loans**
- **Data and Modeling**
- **New Pathways**

Duration is Critical to Spur Investment
The SAF BTC helps to level the playing field

SAF Faces Policy and Structural Disincentives

- Spot Price of Jet vs. Diesel
- RFS
- LCFS
- Cap and Trade
- Lack of economies of scale
- Higher production and logistics costs

Table 1. Calculated Value of SAF and RD in California (October 11, 2021)

<table>
<thead>
<tr>
<th>Date</th>
<th>SAF</th>
<th>RD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spot Price</td>
<td>$2.27</td>
<td>$2.47</td>
</tr>
<tr>
<td>Cap &amp; Trade Cost Added to Petroleum Product</td>
<td>$ -</td>
<td>$0.28</td>
</tr>
<tr>
<td>LCFS Cost Added to Petroleum Product</td>
<td>$ -</td>
<td>$0.20</td>
</tr>
<tr>
<td>LCFS Credit Value</td>
<td>$1.03</td>
<td>$1.15</td>
</tr>
<tr>
<td>RINS Value</td>
<td>$2.37</td>
<td>$2.52</td>
</tr>
<tr>
<td>Blender's Tax Credit</td>
<td>$1.00</td>
<td>$1.00</td>
</tr>
<tr>
<td>Total SAF or RD Value</td>
<td>$6.67</td>
<td>$7.61</td>
</tr>
</tbody>
</table>

Sources: BAAQMD/Stillwater Associates
LanzaJet Aspiration

1 BILLION GALLONS OF SAF IN THE US BY 2030
LanzaJet is supported by a world-class set of deeply committed investors and funders

- Funding commitments
- Commercial-scale projects commitments
- Offtake commitments
- Knowledge, support, and secondees commitments
- Feedstock supply flexibility commitments
- Innovation commitments
We leverage existing low-CI ethanol and use our proprietary technology and process to convert ethanol to drop-in SAF and RD

A. Leveraging & Transitioning Existing Ethanol Supply
- Existing low-CI ethanol production
- Cellulosic ethanol
- Waste-based ethanol

B. Building New Waste-Based Ethanol Supply
- Industrial / landfill off-gasses
- Agricultural waste and residues
- Municipal Solid Waste (MSW)
- Corn fiber cellulose / sugarcane bagasse
- Direct Air Capture (DAC) – CO$_2$ + H$_2$
Across the globe, various opportunities for low-CI ethanol

Illustrative Sources of Low-CI Ethanol

**US**
- Waste from energy crops
- Landfill biogas
- Ethanol mill offgasses

**UK & Europe**
- Woody waste
- Industrial & refinery offgasses
- Municipal solid waste (MSW)

**Australia & NZ**
- Waste from energy crops
- NZ: Woody waste

**Canada**
- Woody waste
- Refinery offgasses

**South America**
- Waste from energy crops
- Bagasse
- Ethanol mill offgasses
- MSW

**Asia & SE Asia**
- Waste from energy crops

Active Development Efforts
Freedom Pines Fuels (FPF) is the foundation for a global deployment of our technology

- **#1: Dragon**
- **#2: Speedbird**
- **#3: AtmosFUEL**

United Kingdom: Vattenfall, SAS, Shell, and LanzaTech

Sweden: Suncor

North America: Shell

Central Europe: FLITE

Illinois: Marquis SAF

North America: Others

Georgia, USA: LanzaJet Freedom Pines Fuels

- Pilot Plant: Georgia, USA
- 2014 – 2017
- 2023
- 30M – 120M+ GPY Each

TBA: Mitsui

Various: Others

2024 – 2026

Georgia, USA: LanzaJet Freedom Pines Fuels
Someday is now.