



# Flight Plan to Sustainability

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## MAAE Annual Fall Conference

September 12, 2023

## Avfuel Corporation

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# What do we mean by Alternative Fuels?



## Traditional Fuel Type

Petroleum-based Jet Fuel

100 Low-Lead Avgas

## Alternative Fuel Replacement

Sustainable Aviation Fuel (SAF)

Unleaded Aviation Gasoline

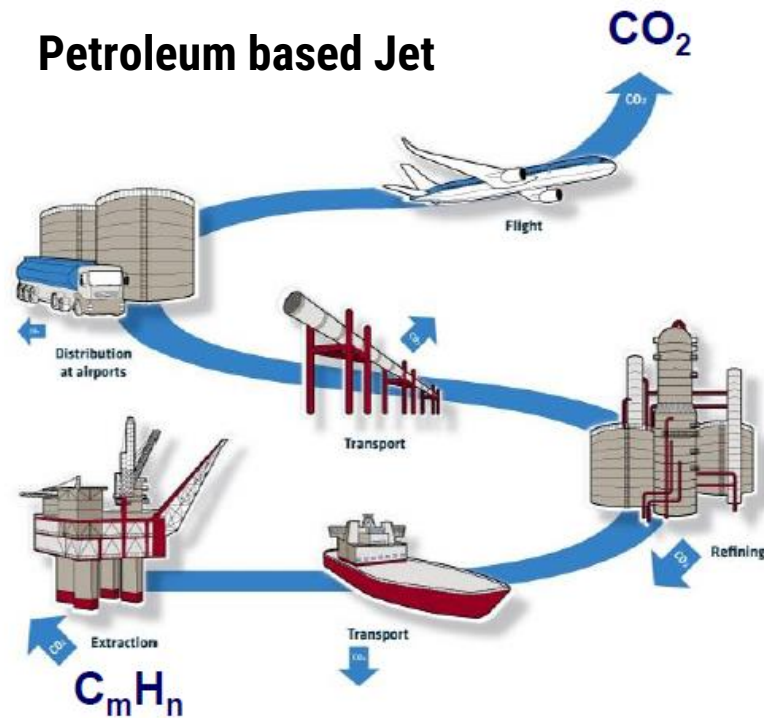
# What is SAF?

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- SAF = Sustainable Aviation Fuel: renewable jet fuel blend made from non-petroleum feedstocks
- When blended with petroleum-based jet fuel, meets ASTM D-1655
- Typical blend is 30% neat and 70% petroleum-based jet fuel
- Seven pathways approved to convert feedstocks into SAF
- Each truckload of SAF equivalent to 19 metric tons of reduced CO<sub>2</sub> emissions compared with petroleum-based jet fuel
  - 8,000-gallon truckload of SAF = 5 cars off the road for one year

# Achieving Net Lifecycle GHG Reductions With SAF



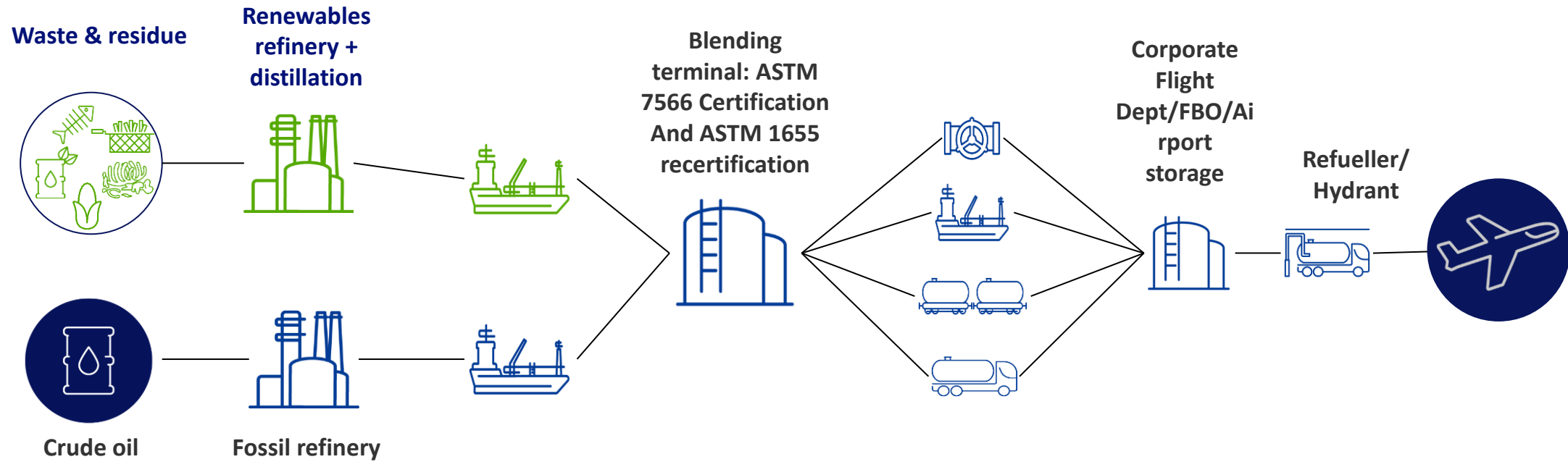
Continuing to pull additional carbon from the ground and releasing it into the atmosphere as  $CO_2$



Acquiring the majority of our carbon from the atmosphere, via biology or recycling, and turning it back into fuel

**Result is a net reduction of additional GHG ( $CO_2$ ) being introduced into our biosphere.**

# SAF is a Drop-in Solution to the Existing Fuel Supply Chain & Infrastructure



# Do we need SAF?

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- SAF represents the aviation industry's attempt to control regulation
- Aviation contributes 2% of global greenhouse gas emissions
- General Aviation contributes 2% of this amount (0.04% of global emissions)
- The fastest potential reduction in emissions is adopting SAF
- 500,000+ flights have flown thus far on SAF
- SAF Grand Challenge:
  - By 2030: Produce 3 Billion gallons of neat SAF in U.S.
  - By 2050: Net zero emissions (35B gallons of SAF)



# Can we meet our SAF goals?

2022 U.S. SAF Production: 16M gallons (neat); 54 M gallons (blended)  
0.5% of 2030 goal; 0.15% of 2050 goal



- ✓ I.R.A. Legislation provides tax credits and grants to SAF projects for manufacturing, transportation and blending/storage of SAF
- ✓ Low Carbon Fuel Standards – LCFS (credits) adopted in CA, OR & WA and legislation pending for several other states and Canada
- ✓ AtJ and PtL technologies will improve
- ✓ Many new SAF production start-ups forming
- ✗ Airlines reluctant to sign “take or pay” contracts
- ✗ Renewable diesel is a competing factor against SAF production
- ✗ \$1,000,000,000,000 investment needed to reach 2050 goal

# Additional Resources – SAF

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- [www.avfuel.com/Fuel/Sustainable-Fuel](http://www.avfuel.com/Fuel/Sustainable-Fuel)
- [www.futureofsustainablefuel.com/#resources](http://www.futureofsustainablefuel.com/#resources)
- [www.caafi.org/](http://www.caafi.org/)
- [www.nbaa.org/aircraft-operations/environmental-sustainability/sustainable-aviation-fuel-saf/](http://www.nbaa.org/aircraft-operations/environmental-sustainability/sustainable-aviation-fuel-saf/)



# Wish List for an Unleaded Avgas

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- ☑ Must be safe to store, handle and burn
- ☑ Functional in all existing piston aircraft and fuel systems
- ☑ No aircraft modifications necessary
- ☑ Affordable
- ☑ Miscible with 100LL
- ☑ Use existing 100LL infrastructure

# Candidate Fuel Evaluation

Candidate Fuel	Pathway	Specification	STC?	Status
GAMI – G100UL	STC	Independent	Required	<ul style="list-style-type: none"><li>• FAA-approved</li><li>• Awaiting commercialization</li></ul>
Swift Fuels – 100R	STC	ASTM	Required	<ul style="list-style-type: none"><li>• Seeking FAA-approval</li><li>• Seeking ASTM specification</li></ul>
LyondellBasell-VP Racing Afton Chemical-Phillips 66	PAFI	ASTM	Not required	<ul style="list-style-type: none"><li>• If successful, PAFI process ends with FAA-approval and ASTM-specification</li></ul>

# Additional Information – Unleaded Avgas

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- [www.avfuel.com/Fuel/Alternative-Fuels/Unleaded-Avgas#FAQ](http://www.avfuel.com/Fuel/Alternative-Fuels/Unleaded-Avgas#FAQ)
- [www.faa.gov/unleaded](http://www.faa.gov/unleaded)
- [www.aopa.org/advocacy/100-unleaded-avgas](http://www.aopa.org/advocacy/100-unleaded-avgas)
- [www.avweb.com/author/paulb/](http://www.avweb.com/author/paulb/)
- [www.flyeagle.org/](http://www.flyeagle.org/)