

ASCENT SAF Research Overview & Update

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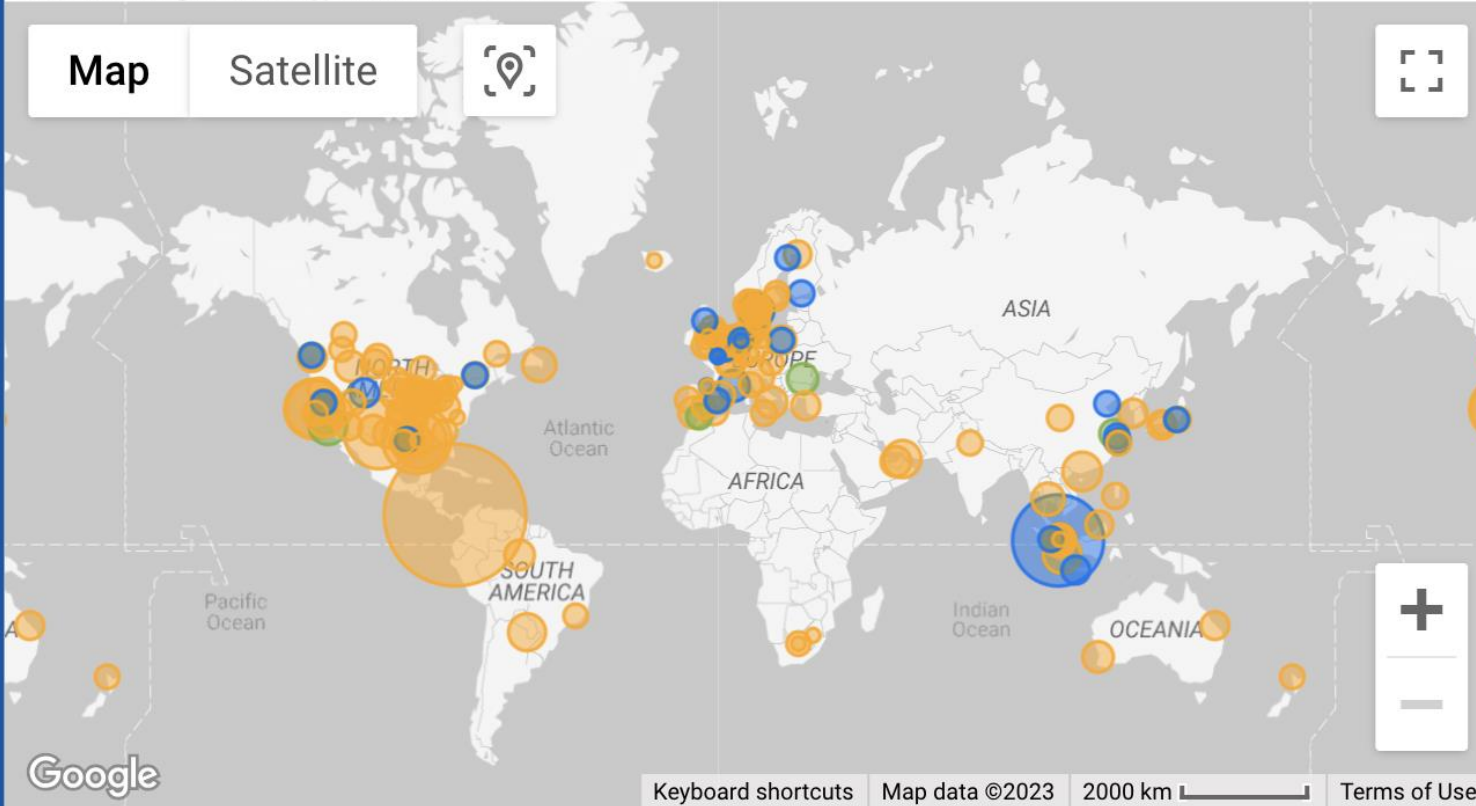


Growing Potential Capacity



ICAO SAF Facility Dashboard

This dashboard provides information on facilities (existing and announced) that could produce Sustainable Aviation Fuels.
Note: capacity numbers refer to total capacity, including SAF and other renewable fuels.
contact officeenv@icao.int to suggest the inclusion of information



- COMPANY
- COUNTRY
- ENTRY TO SERVICE
- FEEDSTOCK
- ASTM
- CAPACITY - ML
- LATEST LINK

LAST UPDATE: May 3, 2023

Capacity (ML/year)
0.0 • ● 9.8K

In Service?
● No ● Yes ● Producing SAF

206 facilities
71.4 billion liters/yr

~50% in North America
(count and production volume)

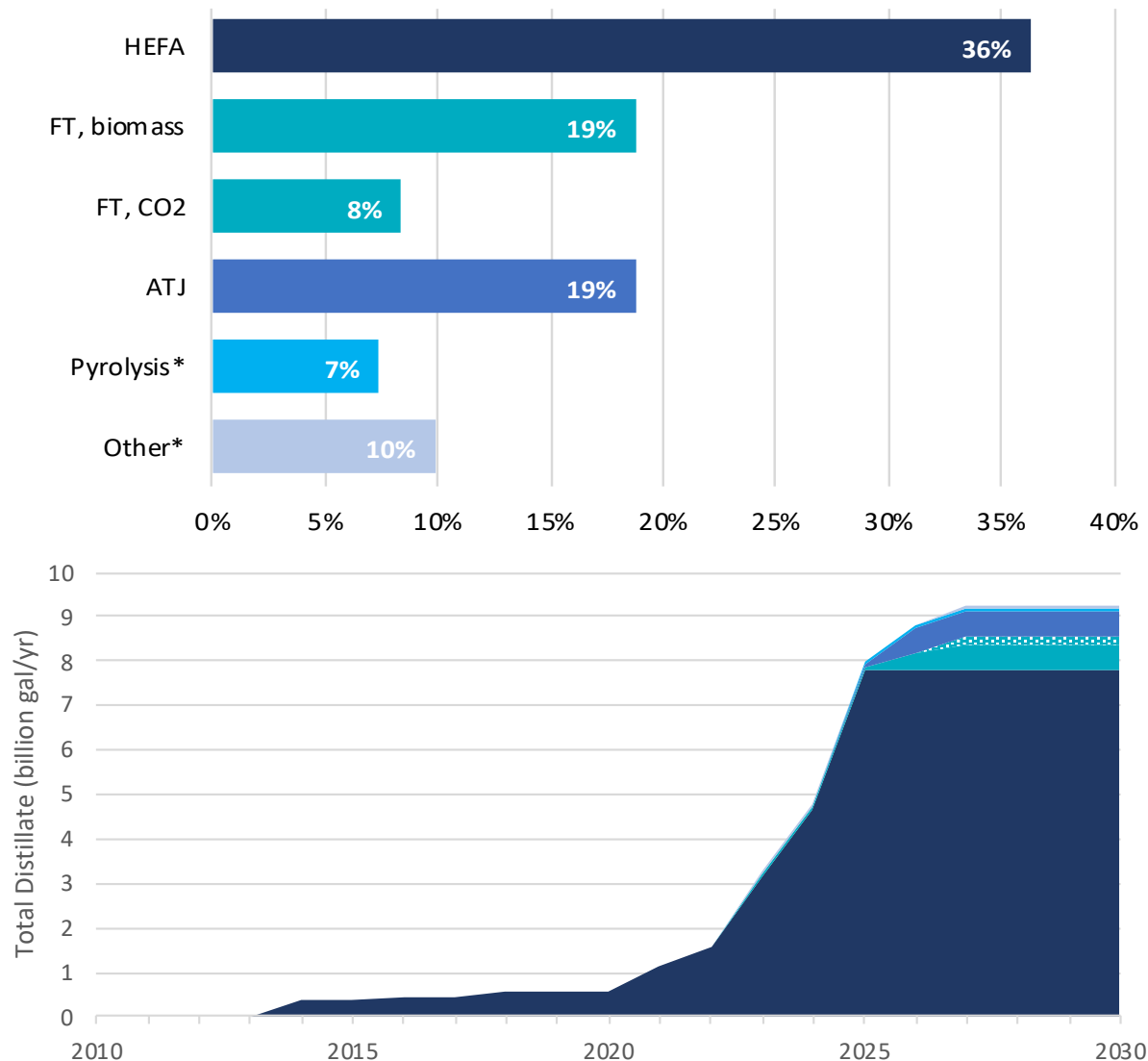
Retrospective analysis
~40-60% will produce fuel



FAA CENTER OF EXCELLENCE FOR ALTERNATIVE JET FUELS & ENVIRONMENT



US Production Announcements



Over-reliance on lipid feedstocks

- Not enough waste
- Carbon intensity questions with current ag feedstocks
- Will require novel second cropping systems

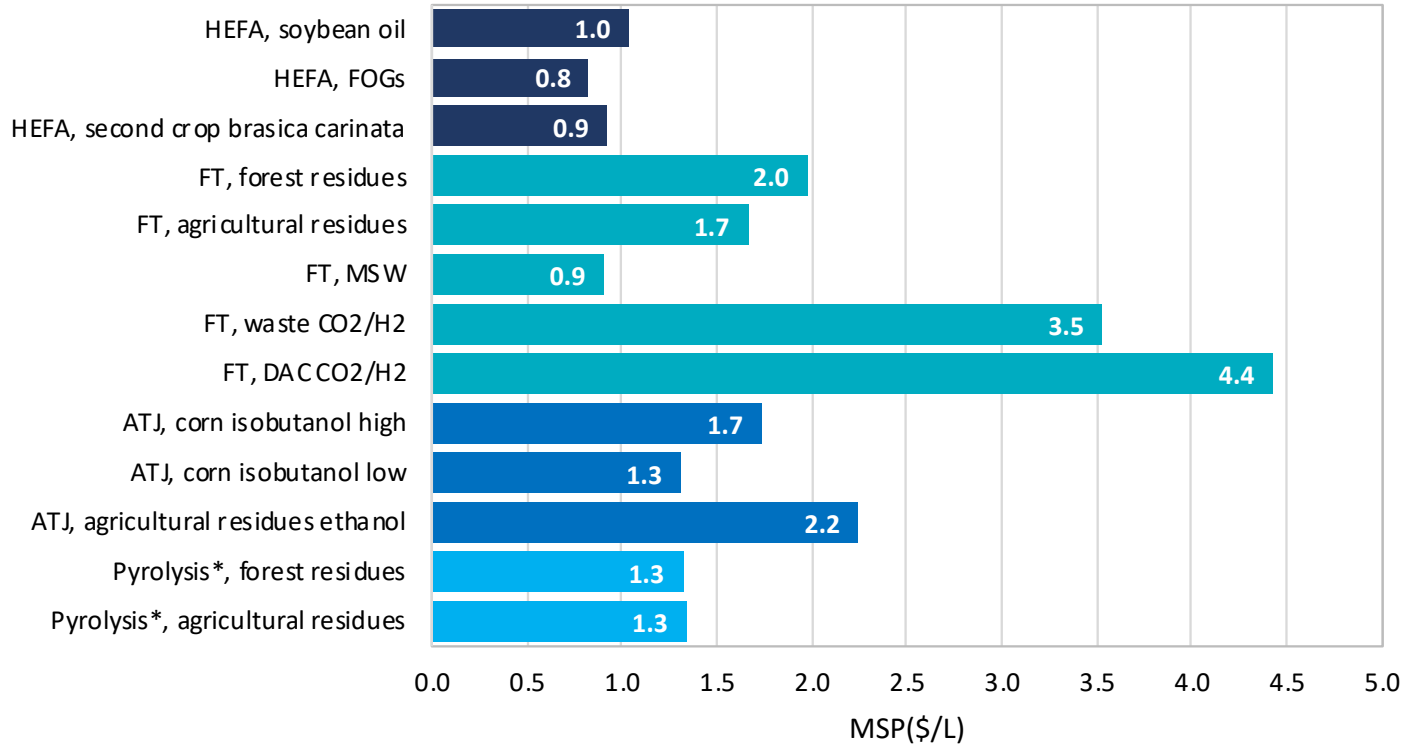
Biomass gasification has not been commercially demonstrated on a large scale

Power-to-Liquid technologies will require large amounts of renewable electricity

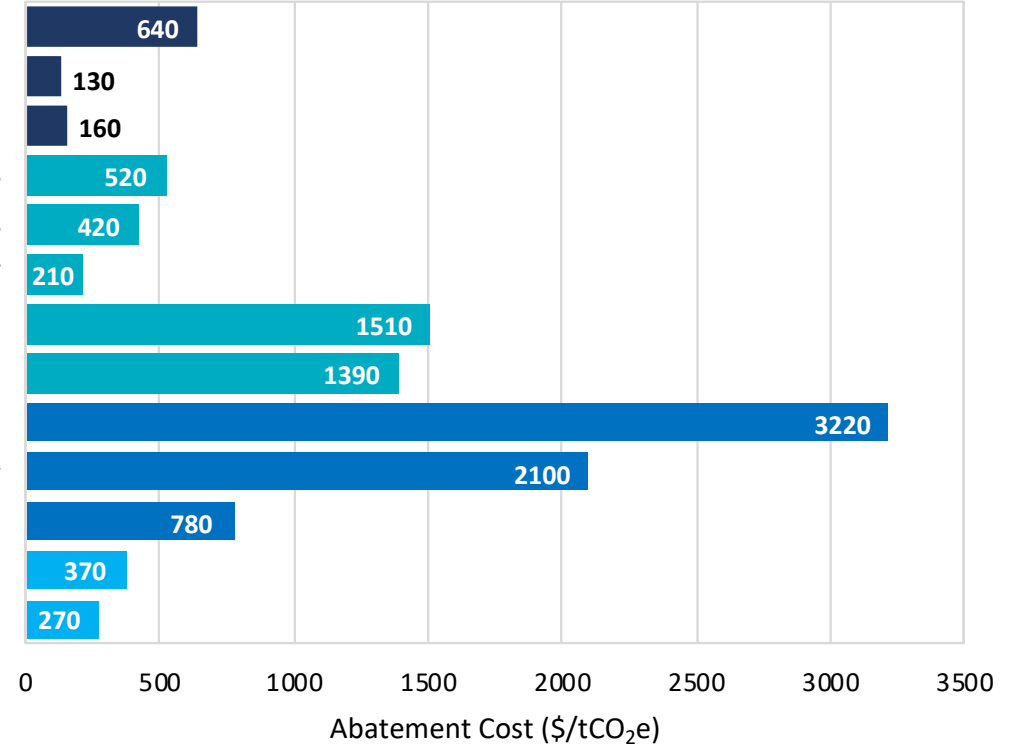
Announcements for start-up **beyond 2025** may not be public yet, especially for HEFA. **Additional volume is expected** to be announced.



Computed Fuel Selling Price \$/L



Computed CO2 Abatement Cost \$/tCO₂e

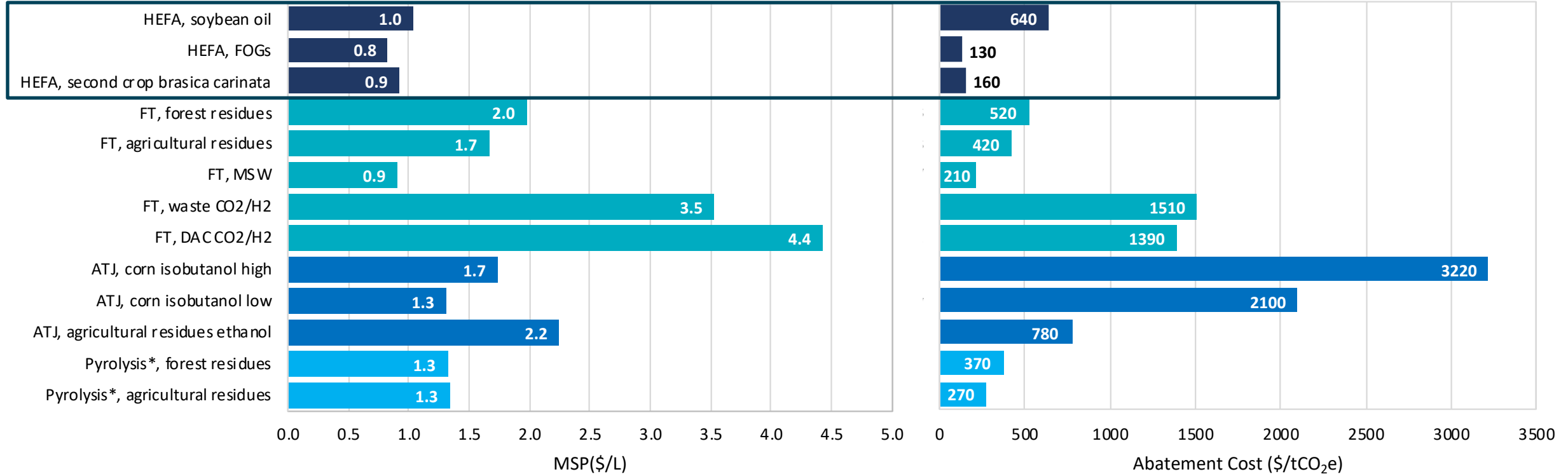


*not currently through ASTM approval process



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Computed CO2 Abatement Cost \$/tCO₂e

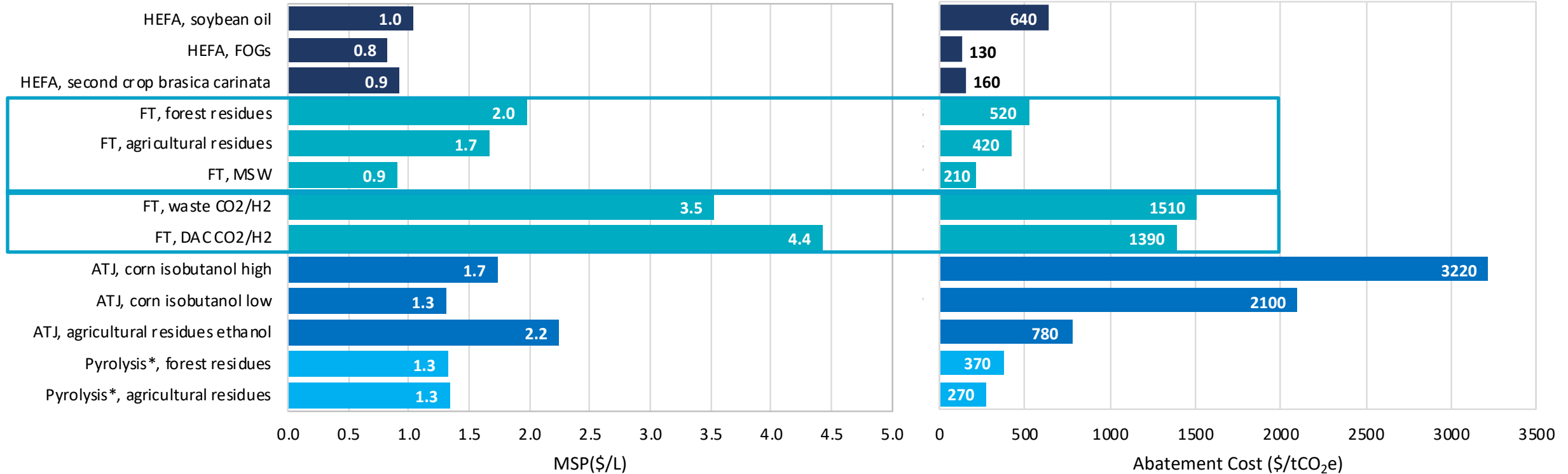


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Computed Fuel Selling Price \$/L

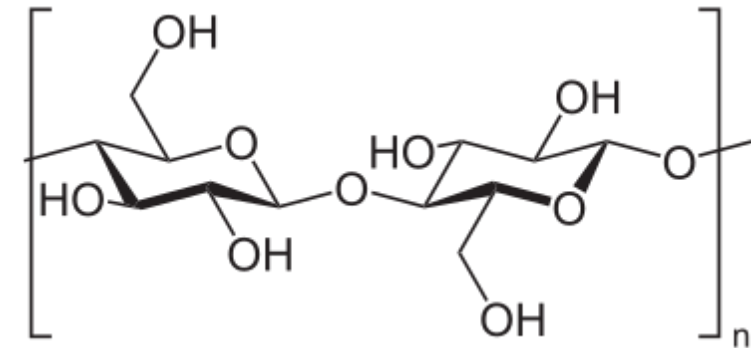
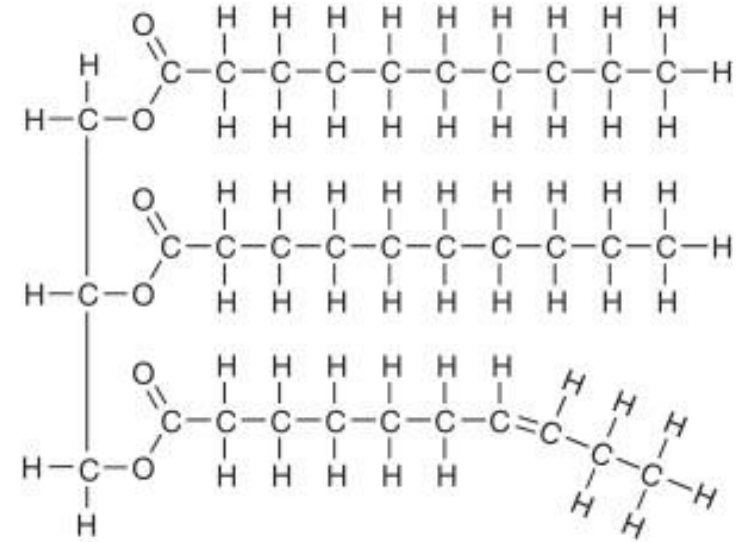
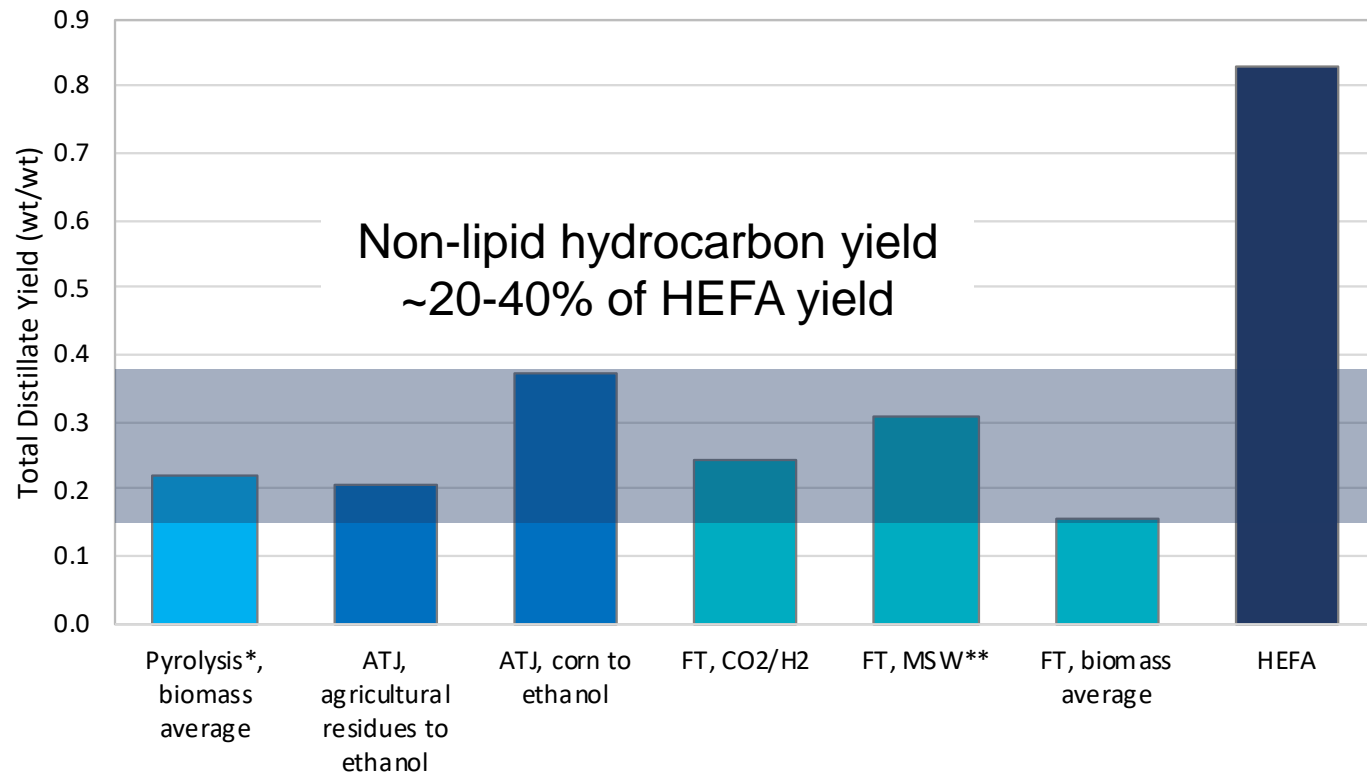
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Cellulosic Feedstock – Challenge of Oxygen Removal

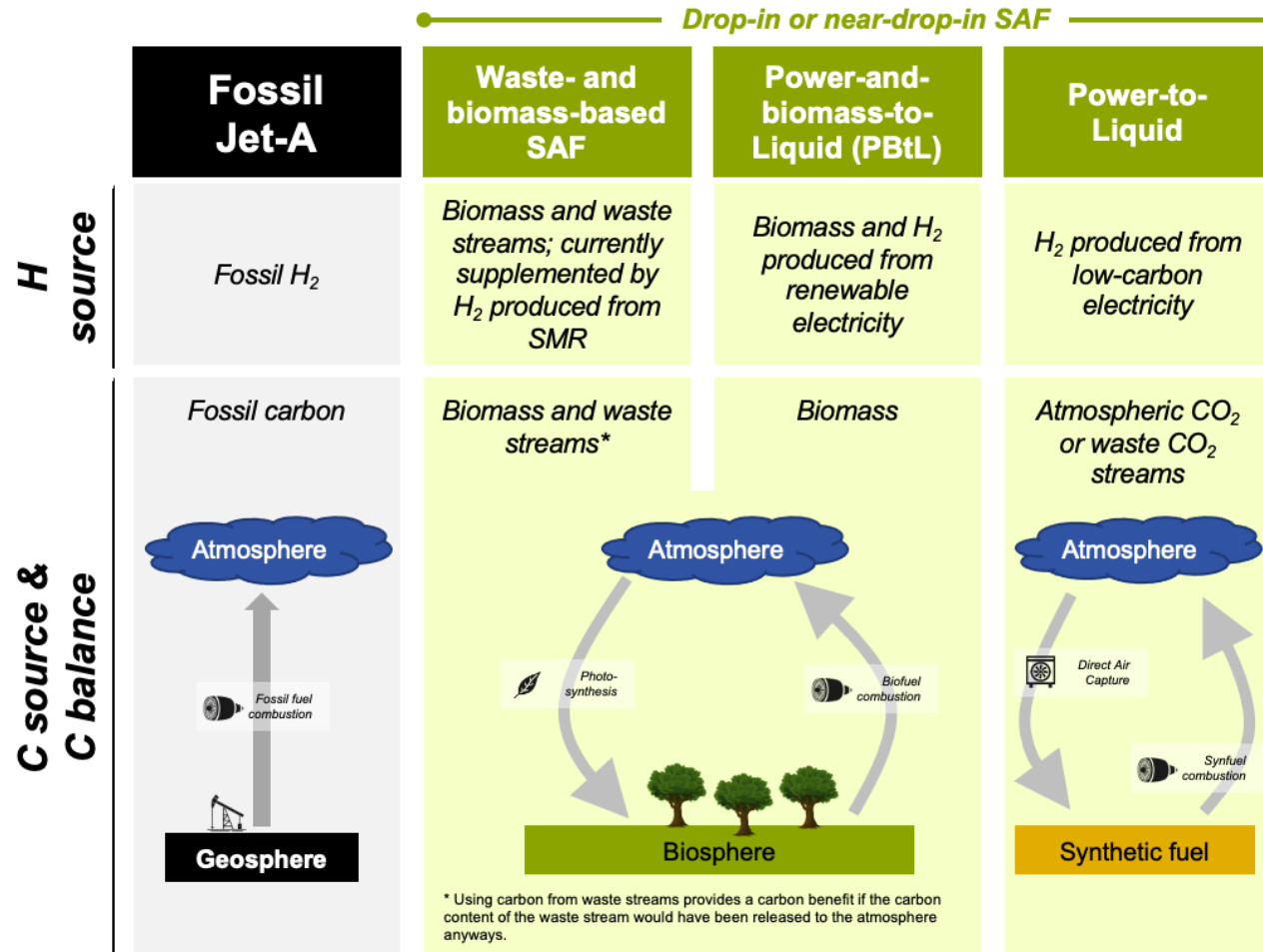


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**includes 15% non-biogenic carbon



Key Challenges and Potential Solutions



Source: Florian Allroggen - MIT

Focus use of renewable electricity on green **H** production

Initial **C** sourcing from biomass to reduce reliance on scarce renewable electricity

Improve efficiency of biomass **O**

Upscale **PtL** technologies with dedicated renewable electricity production

