Aviation biofuel perspectives

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Transport's renewable share is far lower than that of electricity and heat. Most renewable energy is consumed in road transport, with potential untapped in aviation and marine.
Around 2/3 of oil consumption growth is anticipated to come from transport, with aviation accounting for around 20%.
Biofuels are key to transport decarbonisation efforts

The IEA’s 2DS outlines an essential role for biofuels and electrification to achieve low carbon transport. Sustainable biofuels’ share grows three-fold by 2030 and by a factor of 10 by 2060.
Trucking, aviation and shipping account for two-thirds of biofuels consumption in the 2DS by 2060, however only biofuels with very low lifecycle emissions are compatible with this low carbon scenario.
Accelerated deployment of sustainable biofuels is required

Historical and forecast transport biofuel production compared to volumes within the IEA's low carbon scenario

Current market growth of sustainable biofuels falls short of the volumes required to keep on track with the COP 21 global climate agreement.
Aviation biofuels are currently more expensive than fossil jet fuel

In the long term commercialisation of a wider array of aviation biofuel production pathways will be required to access lower cost feedstocks with higher availability.
Higher efficiency lowers the cost of aviation biofuel consumption

The potential additional cost per passenger from biofuel blending may be lower than other elements that influence ticket price e.g. seat class and time of purchase (subject to individual airline commercial policy).

Note: Estimated costs based on IEA analysis.
As most demand is policy driven, low oil prices have not stopped biofuels output increasing. Policy support for aviation biofuels is gaining momentum.
Over \( \frac{3}{4} \) of novel advanced biofuel projects currently in development are in the EU, USA and India where policy support is available.
Conclusions

• Transport remains the hardest sector to decarbonise, with limited uptake of renewables.

• Biofuels are key to reducing CO₂ emissions from long haul transport.

• Biofuel production needs to accelerate to meet the needs of the IEA's long term low carbon scenarios. But measures are required to ensure sustainability.

• Demand from aviation for sustainable biofuels is clear, but solutions need to be identified to close or share current cost premiums over fossil jet fuel.

• Commercialisation of a wider array of aviation biofuel production pathways is needed to access feedstocks with higher availability and lower cost.
For further insights and analysis…

- *Renewables 2018 Market Report*
- World Energy Outlook (WEO) 2018
- Technology Roadmap - delivering sustainable bioenergy (free)
- How2Guide for Bioenergy (free)
- The Future of Trucks (free)
- Global EV Outlook (free)

For more information see: [www.iea.org/publications/](http://www.iea.org/publications/)

- Tracking clean energy progress in the transport sector: [www.iea.org/tcep/transport/](http://www.iea.org/tcep/transport/)