



**IEA Bioenergy**  
Technology Collaboration Programme



Technology Collaboration Programme on  
**Advanced Motor Fuels**



# The Role of Renewable Fuels in Decarbonizing Road Transport

Deployment Barriers and Policy Recommendations

Adam Brown, Energy Insights

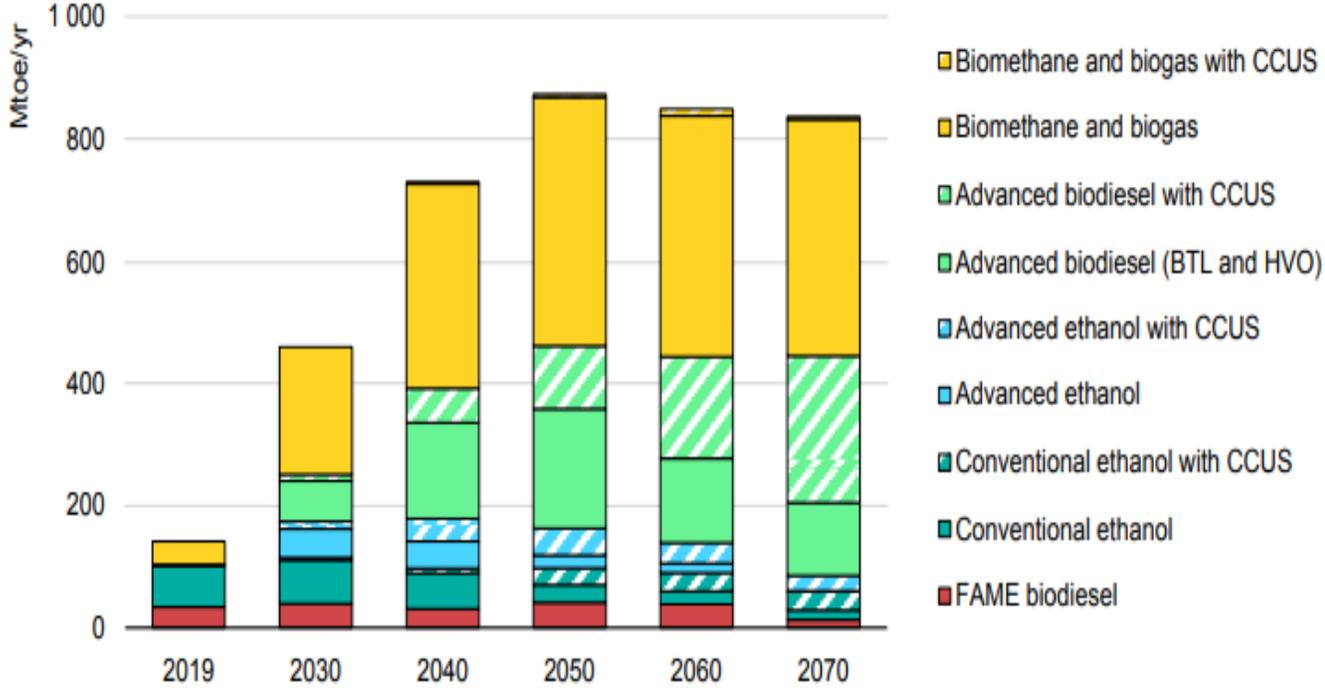
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# Topics

1. Current situation for biofuels
2. Barriers to more widespread deployment
3. Need for more ambitious policies to meet low GHG futures
4. Main policy priorities

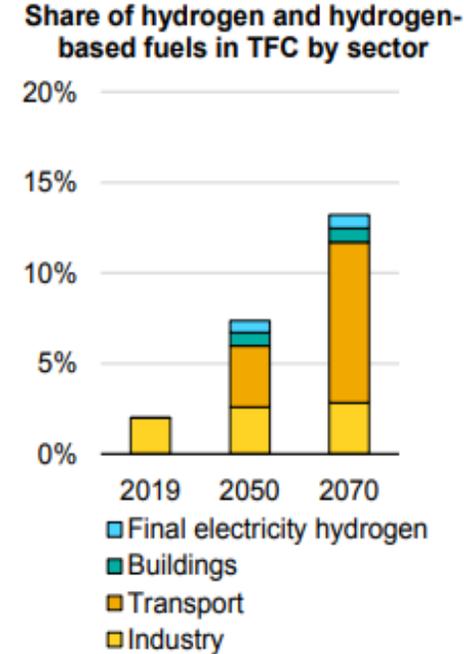
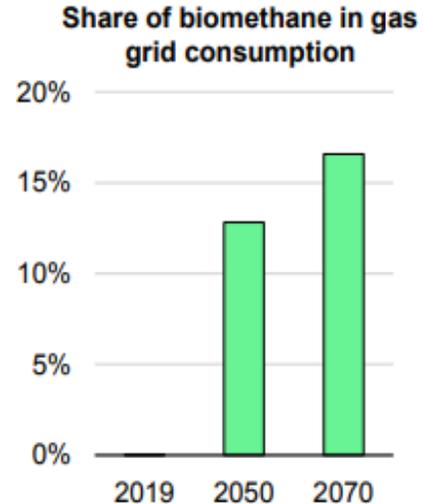
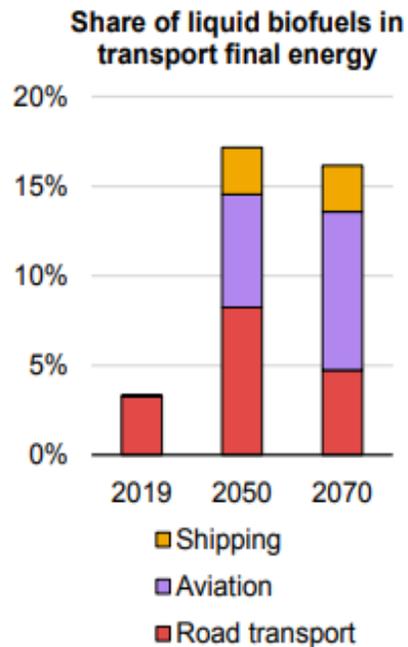
# Biofuels expansion key to future sustainable transport....



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Source: IEA ETP 2020

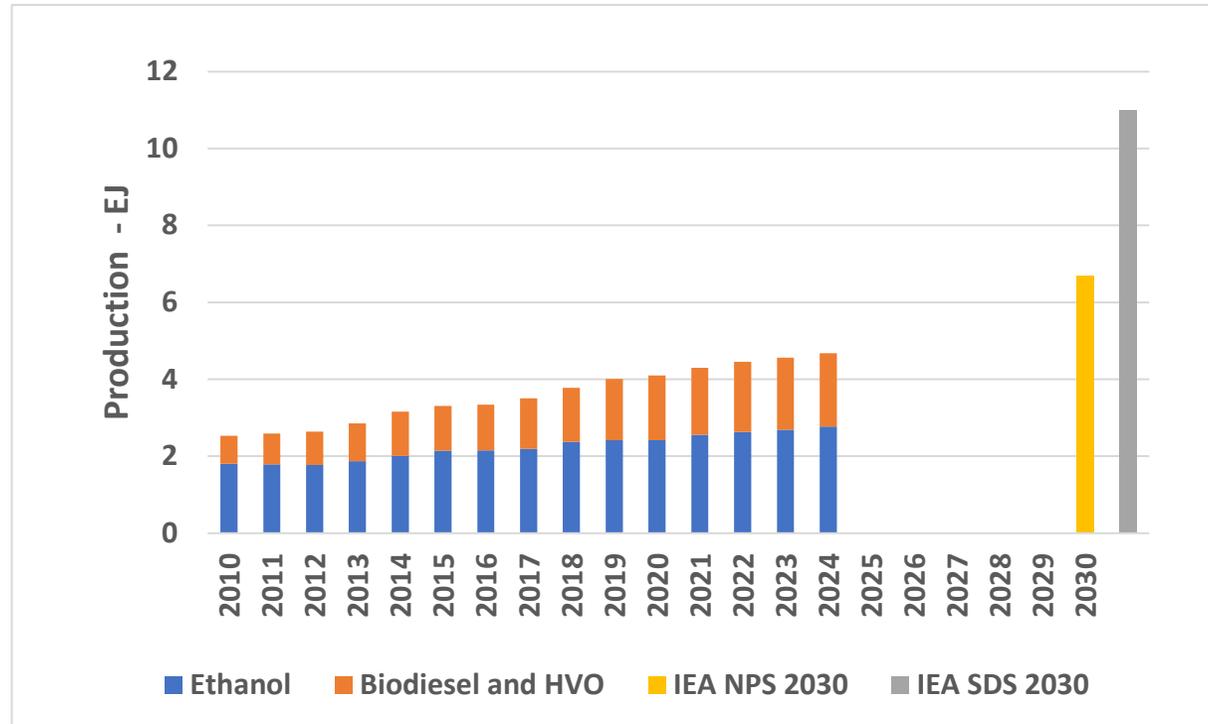
# ..along with other options including hydrogen based fuels, electricity etc.



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Source: IEA ETP 2020

# Biofuels are growing.....

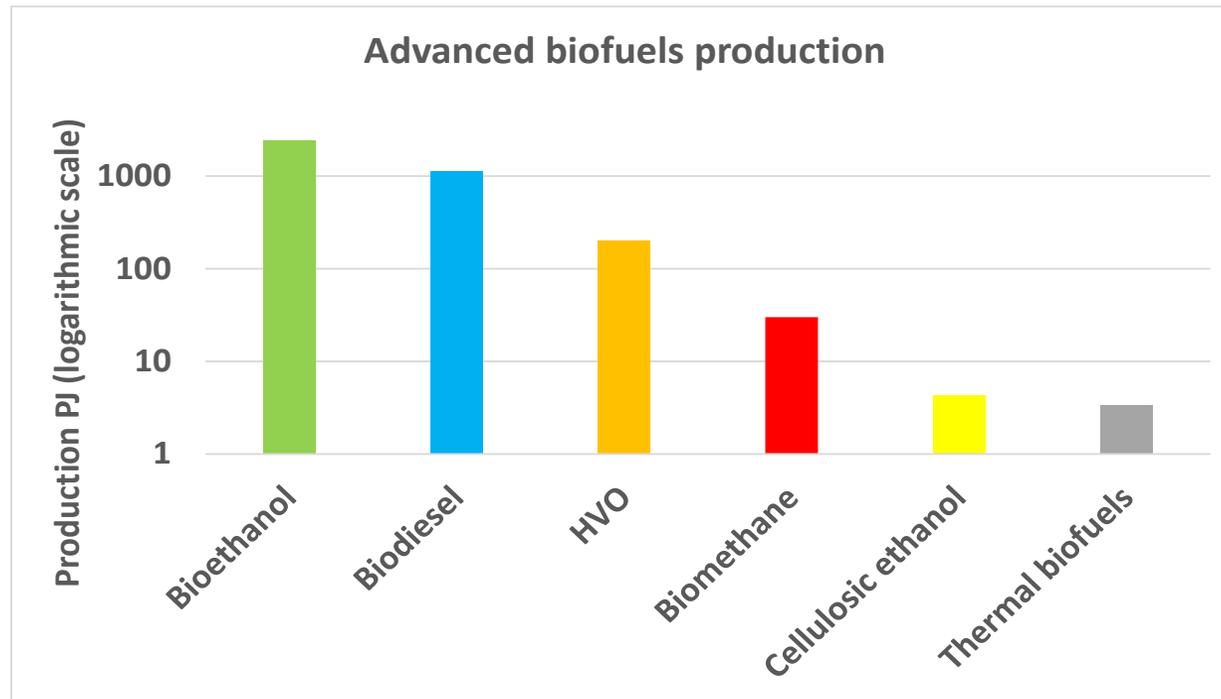


Source: based on data in REN 21 GSR 2020, IEA Renewables 2020 and IEA WEO 2019

**And growth is expected to continue**

**- but current policies will not get near the level needed for a sustainable energy future**

# Biofuels - different technologies at different stages of maturity



Source: Based on data in REN 21 GSR 2020

.....with different barriers to wide deployment and needing different policy recipes.

# Varying barriers to deployment.....

	Technology	Economic Competitiveness	Fuel integration	Sustainable Feedstock availability
Bioethanol	Green	Yellow	Yellow	Yellow
Biodiesel	Green	Yellow	Yellow	Yellow
HVO	Green	Yellow	Green	Yellow
Biomethane	Green	Yellow	Yellow	Green
Cellulosic ethanol	Red	Red	Yellow	Green
Thermal biofuels	Red	Red	Green	Green

So one-size-fits-all policies unlikely to succeed

# IRENA - CEO views on main barriers to deployment of advanced biofuels

- Regulatory uncertainty (particularly in Europe)
- Complex legislation since several fuel alternatives possible
- Low support levels, high financing costs and limited availability of finance
- Straight forward tax- or obligation-based regulatory systems can be effective and applicable, A fuel-neutral carbon intensity-based mandate system provides a fair platform for advanced biofuels to compete.
- Sustainability standards and certification schemes are a positive development, but need for:
  - accurate and reliable methods for estimating GHG emissions, land-use change and indirect land-use change
  - more harmonised certification systems verifying the sustainability credentials of their products.

Source: IRENA, Advanced Biofuels - What Holds Them Back, November 2019

# Main Policy Requirements

Progressive blending regulations

Recognition of social and environmental benefits

Sustainability Governance

Clear permitting regime

Level playing field

Stable policy framework

Clear long term targets

Market access via blending obligations

Incentives for lower GHG fuels

# Policy requirements for new fuels

Special obligations for new fuels

Support for R&D and demonstration

Requirements for new fuels/technologies

Financing support e.g;. Loan guarantees

Additional support to bridge price gap

# Main requirement - policy attention!

- **Policy makers need to have confidence** that biofuels can make a major contribution to reducing emissions in the transport sector, complementing energy efficiency, electrification, hydrogen in a sustainable way
- Policy making should be **evidenced based**, accept that there is **no silver bullet** but that a range of solutions **including bioenergy is needed**
- If this confidence is in place, experience shows that policy packages can be designed based on local circumstances and can **deliver the benefits!**

# Conclusions

- Biofuels have an important role in a future sustainable transport system, including for road transport, along with other alternatives including electricity and H<sub>2</sub> based fuels
- Biofuels use is growing but not in line with the low GHG trajectories, and current policy portfolios are not sufficiently ambitious
- Existing policy portfolios have shown how to stimulate biofuels production and use
- Policy makers will only put the necessary measures in place if they are confident that biofuels can deliver low GHG energy sustainably and reliably

Thanks

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