Biofuels Outlook
Market Developments and Policy Challenges
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Market Trends and Projections to 2018
World biofuels production – end of rapid expansion?

Global biofuels output reached 120 billion litres in 2013 and now provides 3.5% of world transport fuel demand.

Support policies are major driver behind rapid growth in biofuel production

- Brazil and US first established biofuel programs in 1970/80s
- EU introduced mandate of 5.75% biofuels in transport by 2010 in 2003
  - changed target in 2010: 10% renewable energy in 2020

More than 50 countries worldwide now have biofuel mandates in place.
Biofuel support policies worldwide

Key drivers for introduction of support policies:
- Support for agricultural sector / rural development
- Energy security / reduced oil import bills
- Climate change mitigation
The context for biofuels has changed

- Oil price rising and increasingly volatile – should improve biofuels competitive position

- However: agricultural commodity prices also rising and increasingly volatile

- Biofuels sustainability increasingly questioned:
  - “food vs. fuel”
  - Deforestation
  - (indirect) land-use change

Source: FAO, IEA

Source: primatology.net
Biofuels production is expected to grow 25% to 2018.

- Global biofuels output is projected to grow 3.5% per year on average from 110 billion litres in 2012 to 135 billion litres in 2018.

- Biofuels provide 4% of global road transport fuel demand in 2018.

- Growing political uncertainty in the EU and US provides an important downside risk, and might undermine the medium-term growth prospects.
US Renewable Fuels Standard (RFS) set ambitious growth path for biofuels (140 bn L in 2022) → Very unlikely that it can be met

- EPA proposal for substantial revision of RFS mandate indicates that “blend wall” in the US proves challenging to overcome
  - Growth in US ethanol production will be limited in the future
  - US cellulosic fuel production far below original RFS 2 target
  - Biodiesel output above RFS target in 2013, due to Blender’s Tax Credit that expired in December
Brazil’s ethanol industry suffers from poor profit margins

- Brazilian ethanol output increasing again after some years of decline/no growth, but outlook is cloudy
  - Financial situation of the sugarcane sector prevents new investments into sugarcane plantations and sugar/ethanol plants
  - Regulated gasoline prices limit profits from ethanol sales
  - Proposed changes to US RFS “advanced biofuels” quota would significantly limit potential for ethanol exports to the US
Argentina’s biodiesel industry challenged by policy developments

- Biodiesel production took hit from new anti-dumping import tariffs in the EU
  - Significant decline in production in 2013 and 2014
- New B10 mandate has not stimulate growth in production so far
  - Biodiesel reference price does not cover production costs
EU policy uncertainty leaves biofuels sector in limbo

- **Medium-term growth in biofuel output of 4 billion liters 2012-18**
  - Driven primarily by EU Renewable Energy Directive
- **Proposed cap on conventional biofuels (5-7% of transport energy demand) due to sustainability concerns could significantly undermine growth prospects**
- **Future for advanced biofuels industry highly uncertain due to lack of post-2020 policy framework for biofuels**
  - First advanced biofuel projects get shelved as they struggle to secure investments (e.g. VAPO’s Ajos BtL plant in Finland)

Note: Projections do not include proposed changes to Renewable Energy Directive
Emerging markets set to grow

Growing number of emerging markets in Asia and Africa with blending mandates

- **India**: E10 finally adopted, but meeting the target proves difficult
- **Indonesia**: B10 as of Feb. 2014 as result of anti-dumping tariffs in the EU
- **Thailand**: subsidise use of E20; **Malaysia (B5)** and **Philippines (B5, E10)**
- **South Africa**: introducing long-awaited E2 and B5 mandate
- **Zimbabwe**: E10 as of Oct. 13, may rise to E20 later in 2014
Lack of long-term policy framework provides challenge for advanced biofuels industry

Industry currently enters large-scale production with first commercial plants coming online

Operating capacity at 4.5 billion litres in 2012 could grow to 9 billion litres in 2018

However: projects continue to get cancelled, or companies go bankrupt

Perceived investment risk is most important barrier to more rapid deployment

⇒ long-term policy framework is needed to spur growth

Note: HVO=hydrotreated vegetable oil. No plants have yet been announced beyond 2016
The advanced biofuels industry is expanding, slowly

http://demoplants.bioenergy2020.eu
IEA Biofuel Roadmap
Advanced biofuels to play a key role in the long-term

- In a low CO₂ scenario (IEA 2°C Scenario) biofuels’ share in total transport increases to 27% in 2050
- Advanced biofuels play key role → only low-carbon fuel alternative for heavy transport modes

Note: Figure shows gross land demand, excluding land-use reduction potential of co-products
Biofuels production falling behind targets of IEA 2 Degree Scenario

In a low CO₂ scenario (IEA 2°C Scenario) biofuels’ share in total transport increases to 27% in 2050.

Advanced biofuels play key role → only low-carbon fuel alternative for long-distance, heavy transport modes.

Without significant improvements of the policy framework for advanced biofuels, targets in the 2DS will not be met!
Conclusions and policy considerations

- **Policy framework continues to determine developments in the biofuel industry**
  - Long-term policy framework is key to ensure investor confidence, in particular for advanced biofuels

- **Policy support starts with innovation and deployment**
  - Sustained funding for RD&D of promising technologies, as well as research on land suitability mapping and biomass potential analysis, is crucial

- **Policies should promote sustainable biofuel production**
  - International alignment of sustainability certification to avoid trade barriers, and ensure solid sustainability standards globally
  - Support mechanisms should be linked to sustainability requirements for biofuels
Thank you for your attention!

- **Medium-Term Renewable Energy Market Report 2013**
  - 2014 edition to be launched 28 August 2014
  - [www.iea.org/topics/renewables](http://www.iea.org/topics/renewables)

- **Technology Roadmap - Biofuels for Transport**
  - [www.iea.org/roadmaps](http://www.iea.org/roadmaps)

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