RENEWABLE ENERGY

Medium-Term Market Report 2014

International Energy Agency

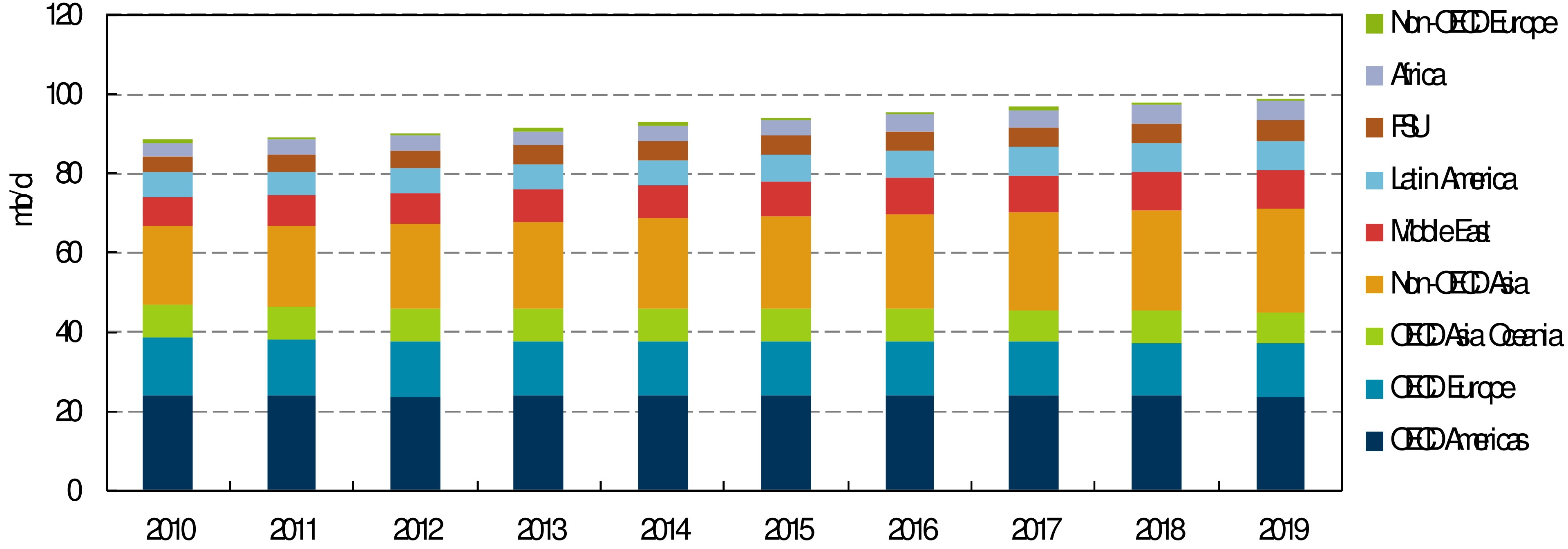
# Outlook for biofuels

## European Biofuels Technology Platform – Stakeholder Plenary Meeting

## 14 October 2014

Market Analysis and Forecasts to 2020

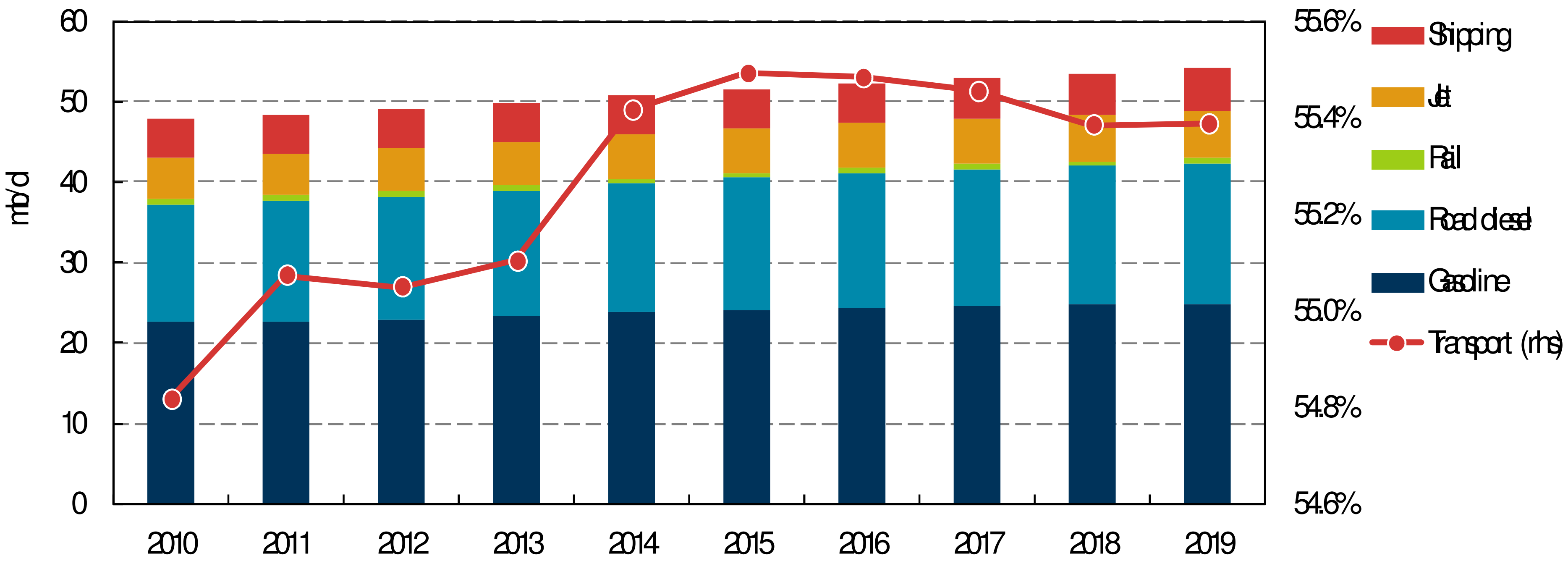
# Global oil demand inches steadily higher through the forecast




Source: IEA Medium-Term Oil Market Report 2014

- **+1.3% per annum, 2013-19, as macroeconomic momentum builds**

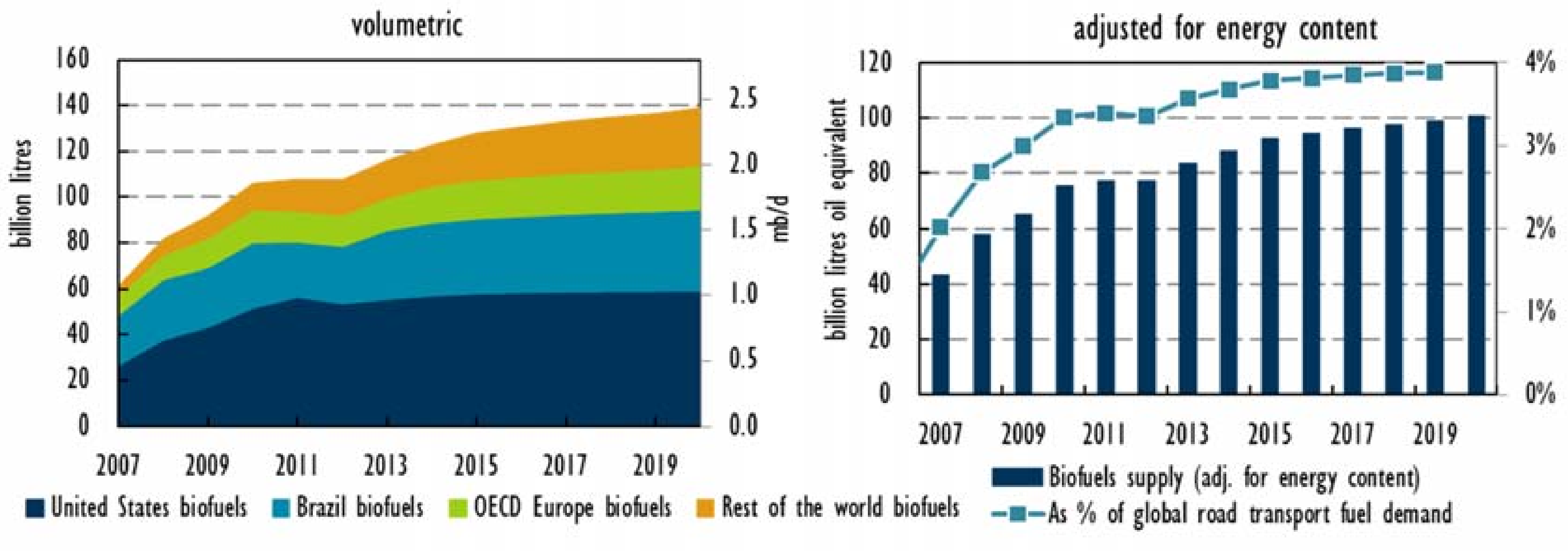
# The transport sector continues to dominate global oil demand




Source: IEA Medium-Term Oil Market Report 2014

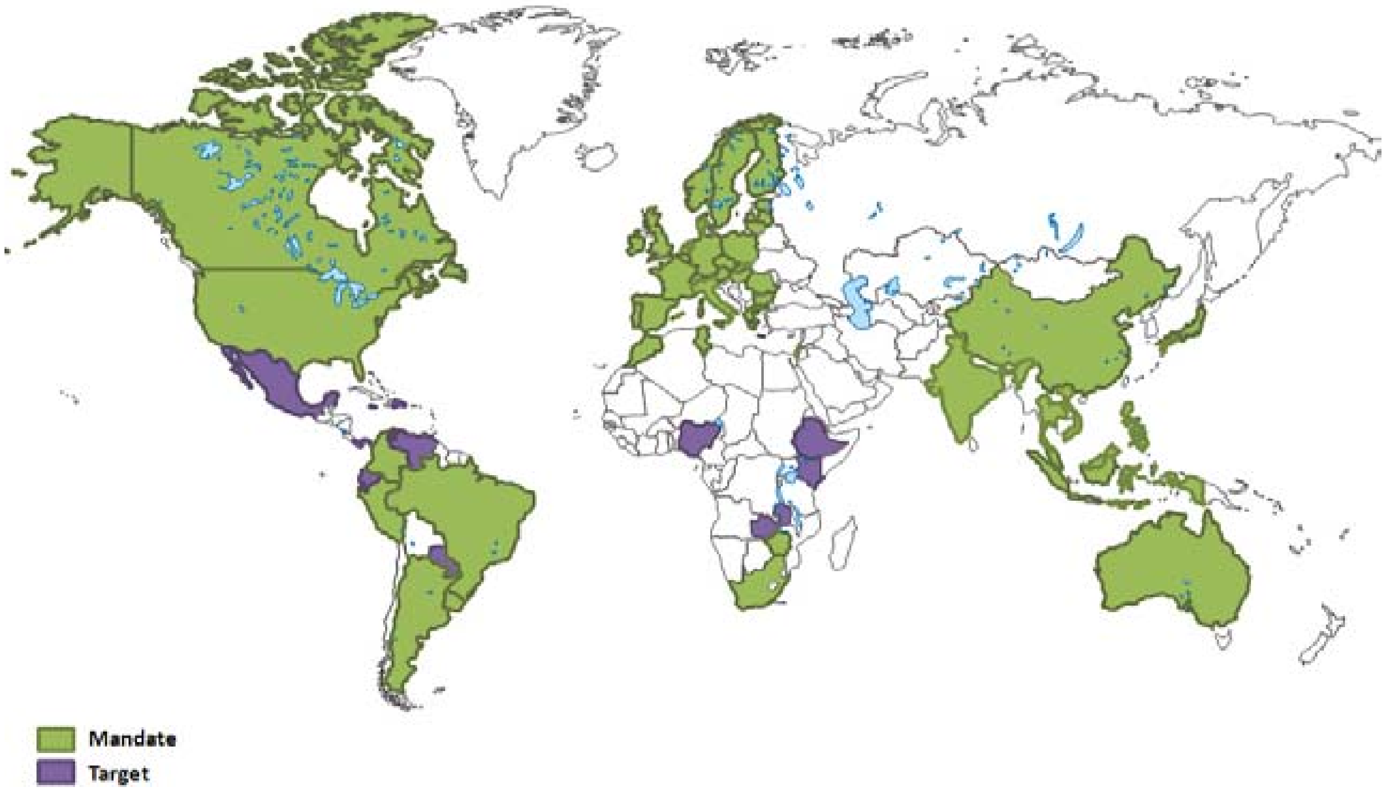
- **Road transport accounting for 4-in-every-10 barrels in 2014 and continues to grow at 1.5%/year to 2019**

# Shifting policy grounds slow down growth




- **After virtual halt in growth 2010-12, 2013 saw 9 billion litre (130 kb/d) increase in biofuel production**
  - → **biofuels accounted for <u>3.6%</u> of world road transport fuel demand**
- **Global production set to grow by 2.6% /year to 139 bn L (2.3 mb/d) in 2020**
- **Growing political uncertainty in the EU and US might undermine the medium-term growth prospects, while emerging markets ramp up support policies**

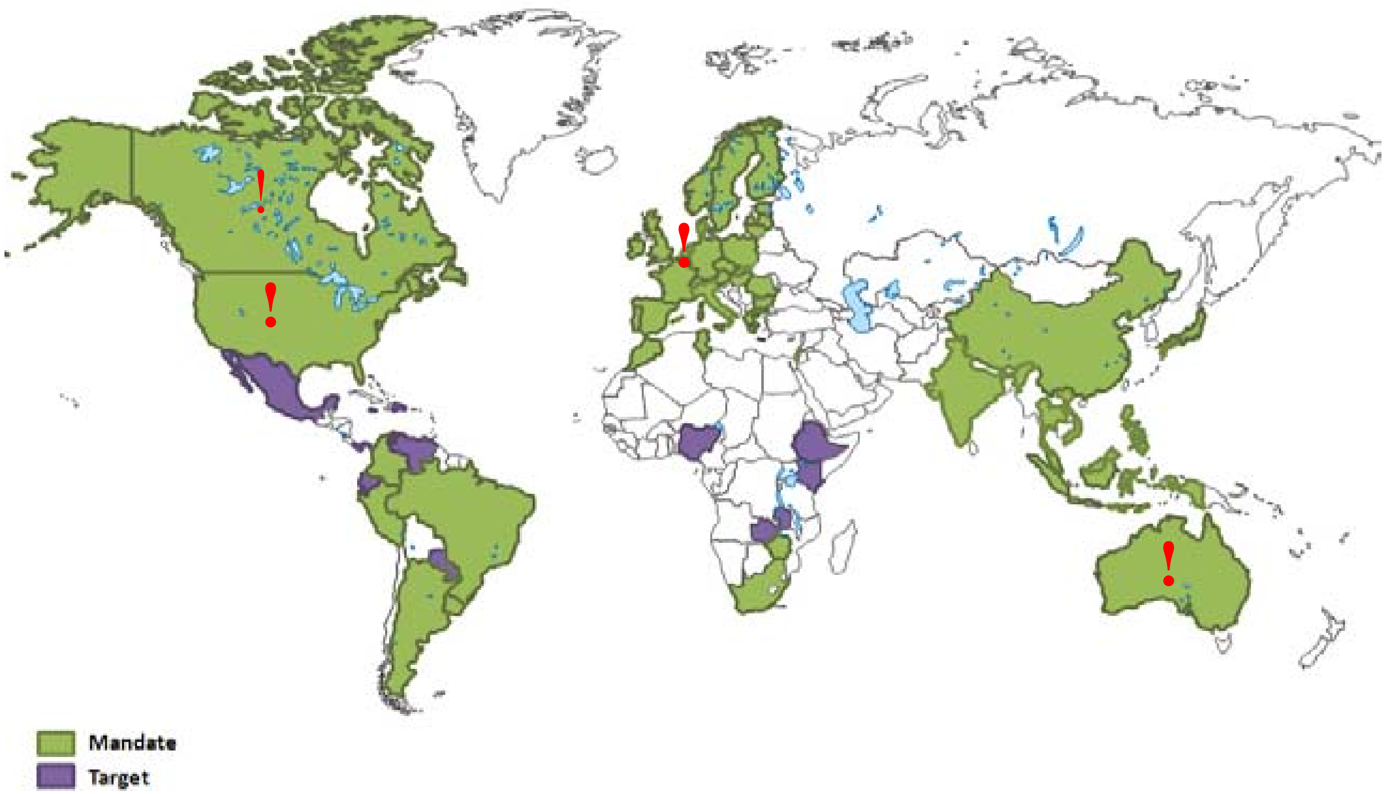
# Policies remain key driver for the industry…




This map is without any prejudice to the status of or sovereignty over any territory, to the delimination of international frontiers and boundaries and to the name of any territory, city or area.

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

# …but support in established markets is under pressure

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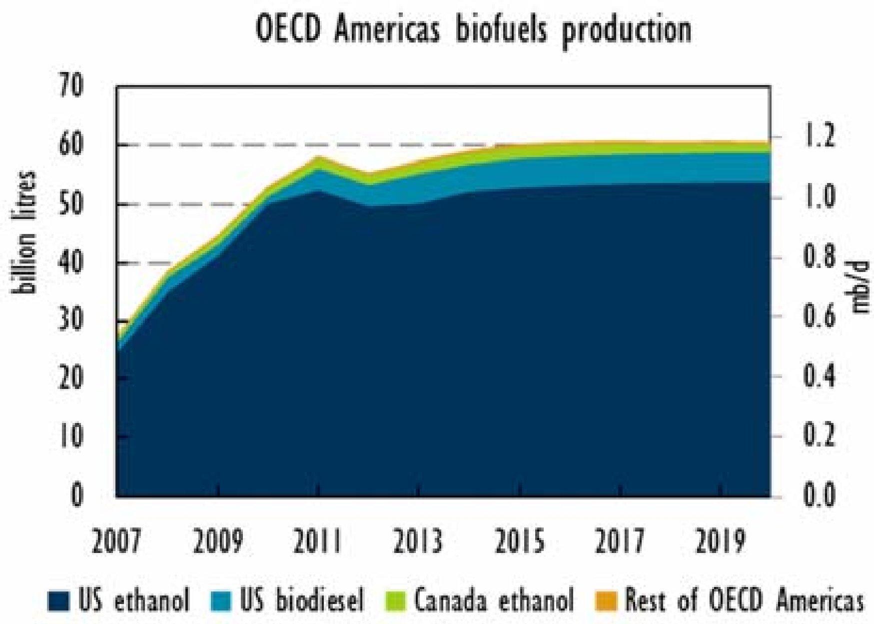
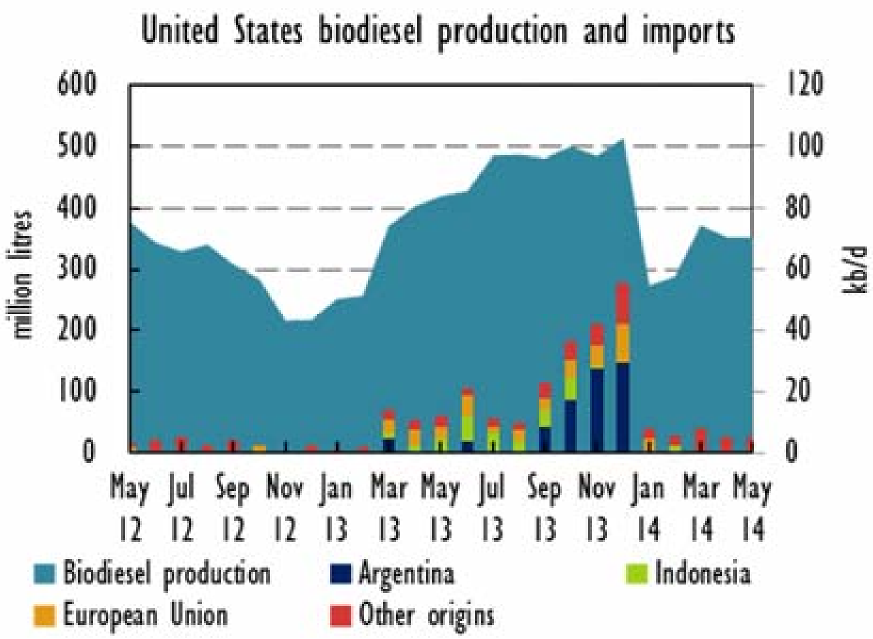
- **Support policies under pressure due to:**
  - **Infrastructure constraints (US)**
  - **Sustainability discussions → ILUC (EU)**
  - **Vanishing support for renewable energy  (Australia)**

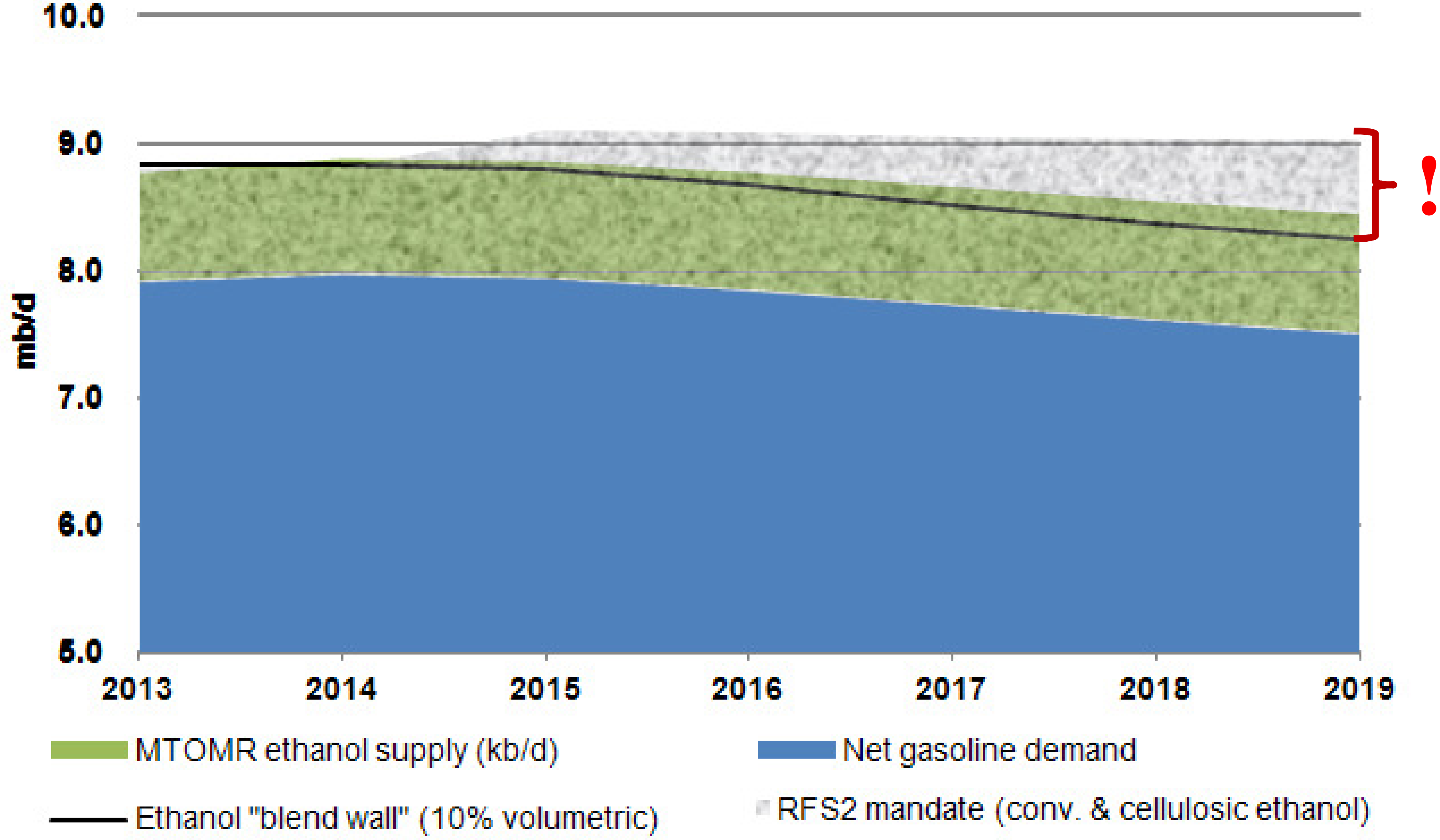
# Growing uncertainty about US policy framework undermines growth prospects



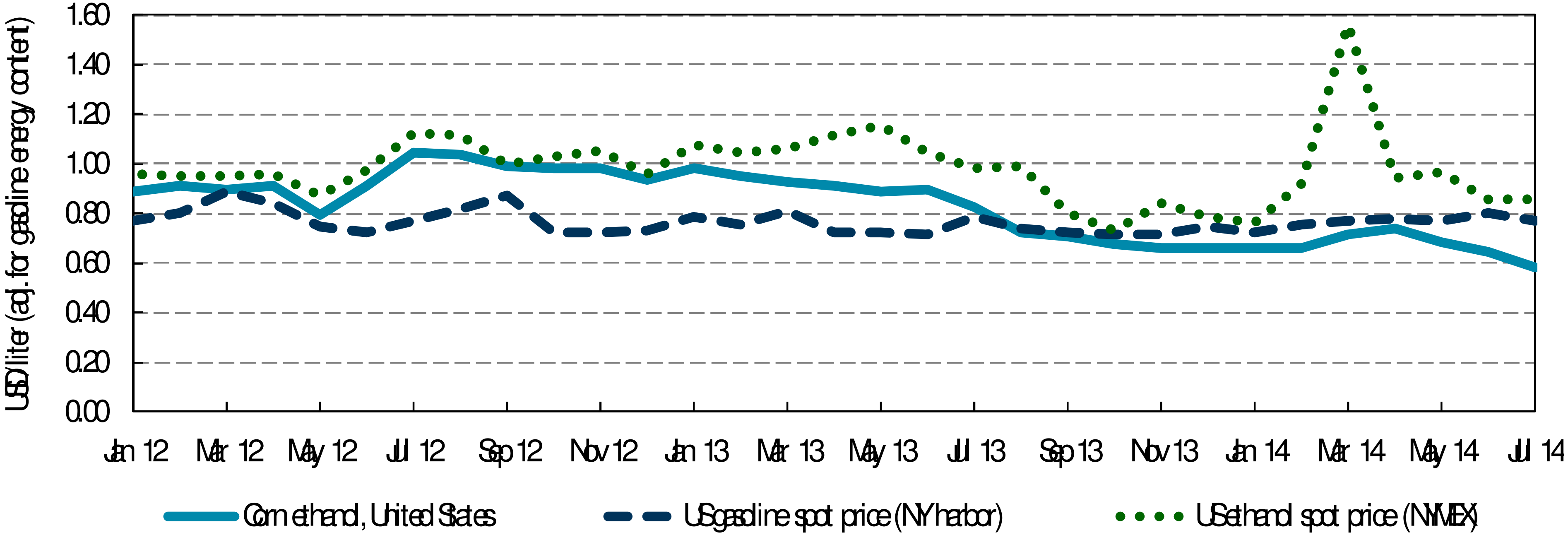




- **Policy uncertainty increases amid proposed changes to RFS quotas**
  - → **Substantially lower ethanol quotas reflect difficulties to overcome "blend wall"**
- **Biodiesel faces more uncertain future after blender's tax credit expired**
- **OECD Americas production grows only minimal (0.8%/year) from 57 bn L to 60 bn L (1 040 kb/d) over 2013-20**

# US "blend wall" limits ethanol industry's growth prospects

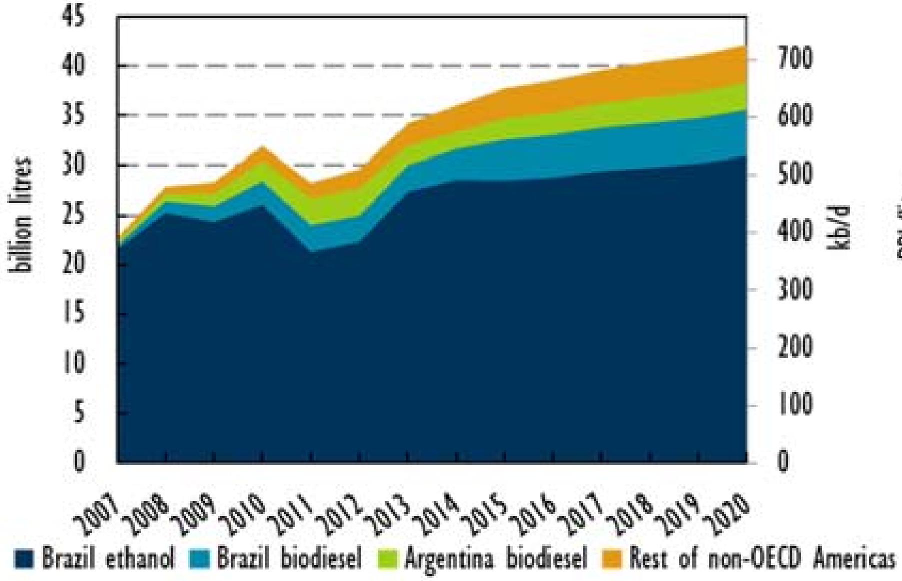


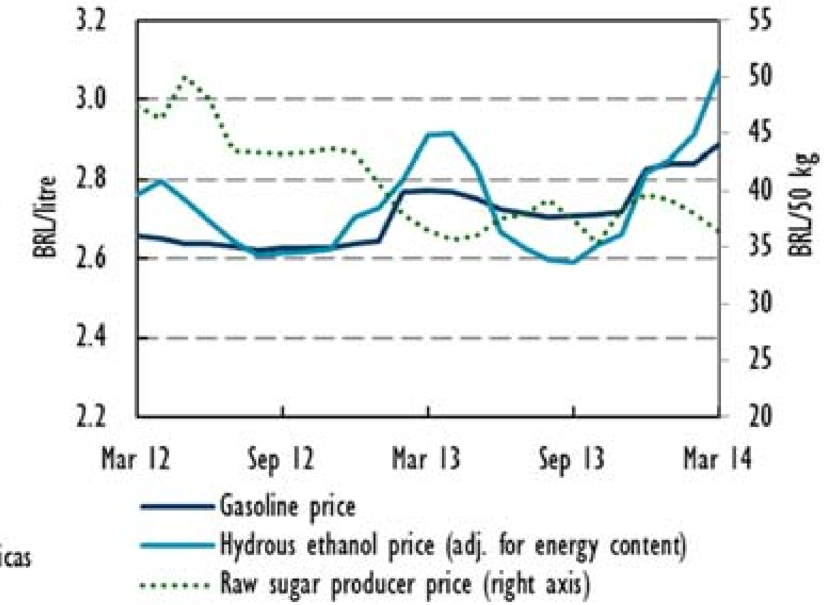
# US ethanol production economics back to "normal"




- **After record-high corn prices drove increase in production costs, ethanol now competitive with gasoline again**
- **Supply interruptions caused by cold weather opened window of opportunity for exports to US early 2014**

# Brazilian production outlook suffers from difficult economic situation



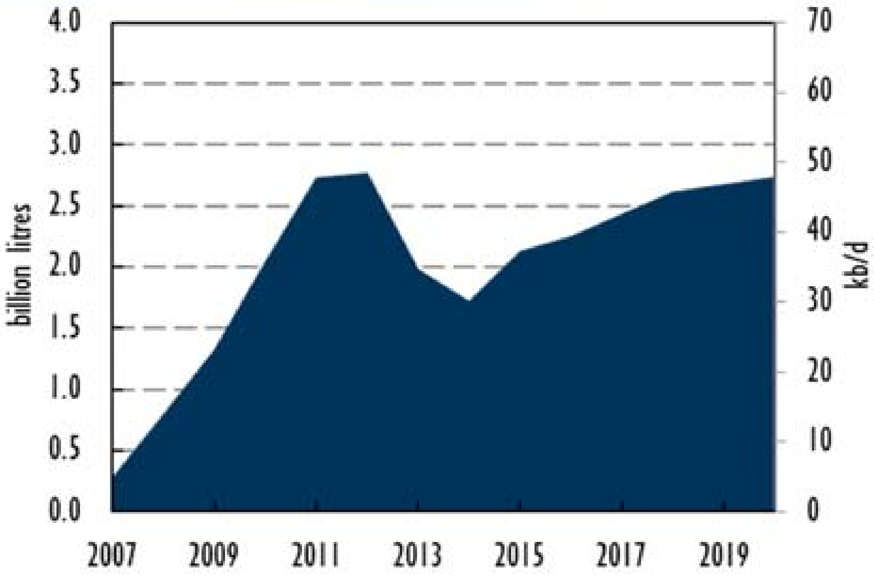



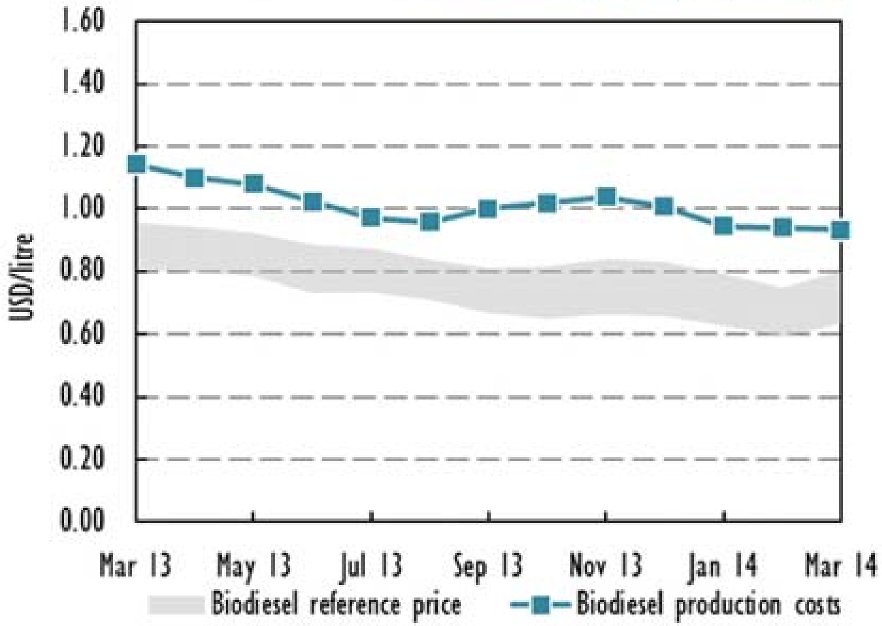

- **In 2013 Brazilian ethanol output recovered, but outlook remains cloudy**

  **→ 31 bn L in 2020, +1.8%/year 2013-20**

  - **Low sugar prices continue to undermine poor 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 significantly limit potential for sugarcane ethanol exports to the US**

# Argentina's biodiesel industry suffers from policy changes at home and abroad




- **Biodiesel production took hit from new anti-dumping import tariffs in the EU**
  - → **Significant decline in production in 2013 and expected for 2014**
- **New B10 mandate has not stimulate growth in production so far**
  - → **Biodiesel reference price does not cover production costs**

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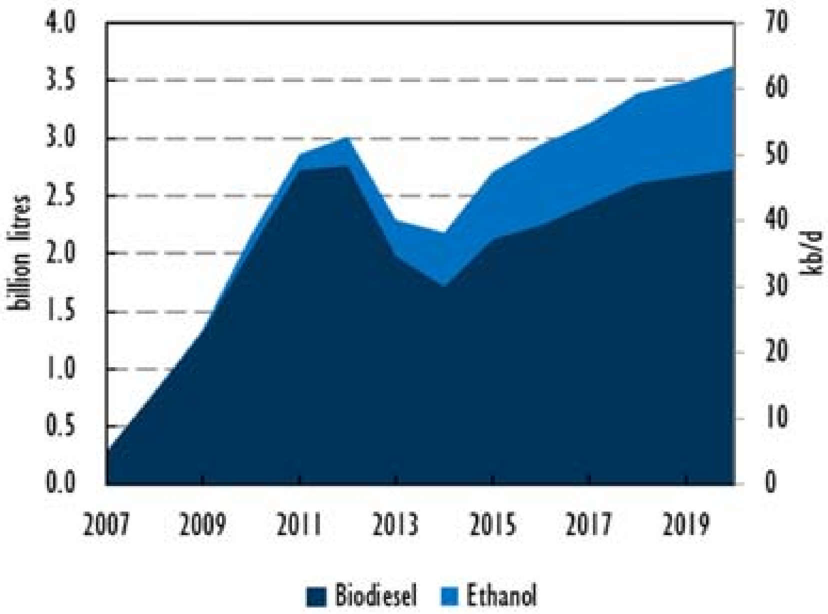
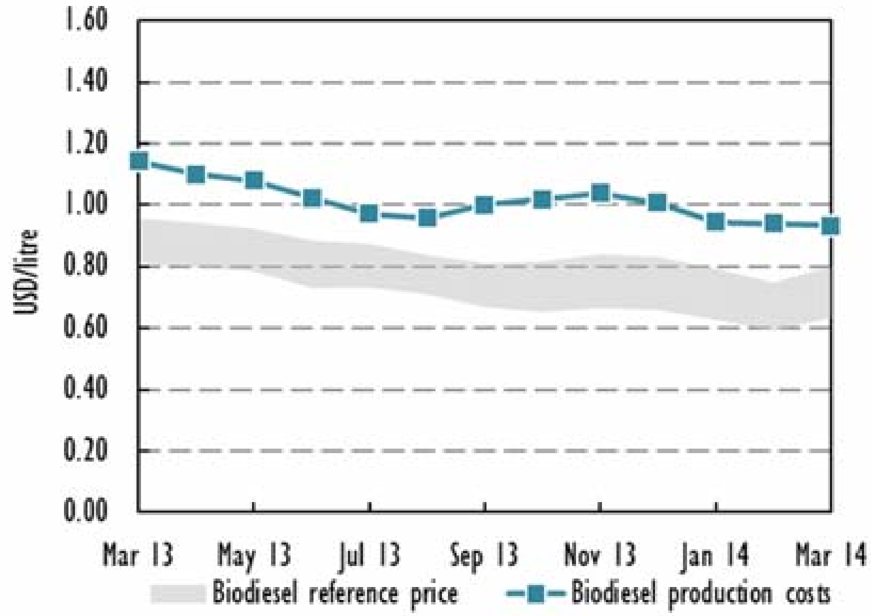
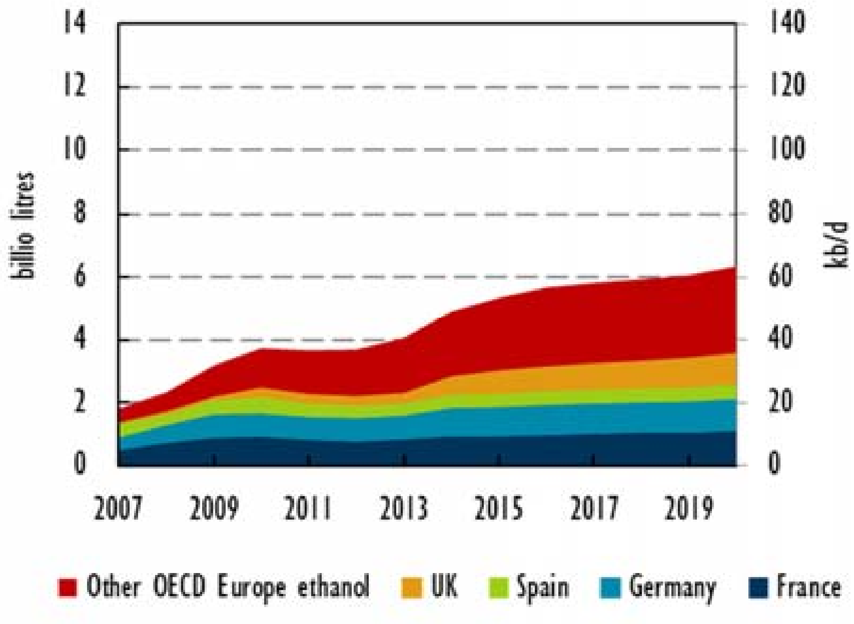
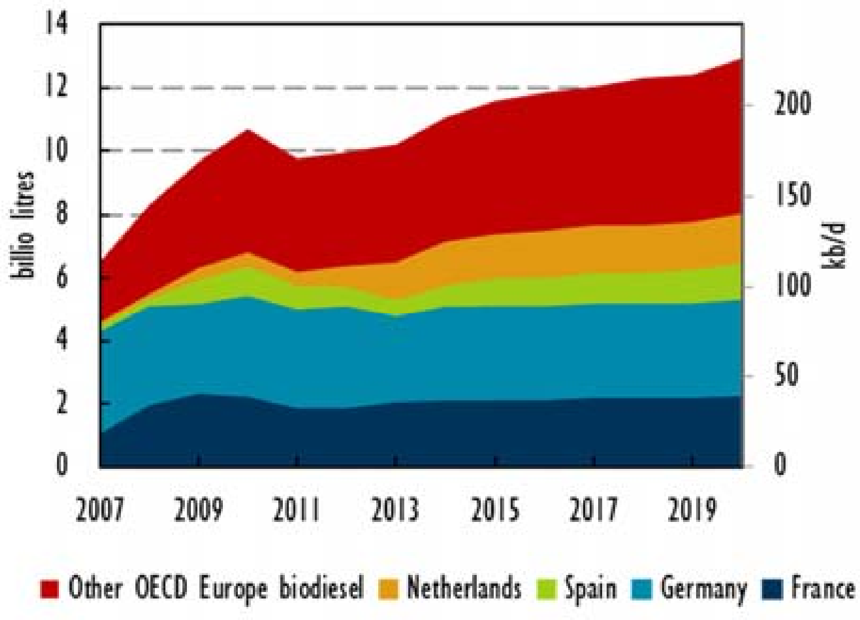



- Biodiesel production took hit from new anti-dumping import tariffs in the EU
  - → Significant decline in production in 2013 and expected for 2014
- New B10 mandate has not stimulate growth in production so far
  - → Biodiesel reference price does not cover production costs
- Situation should improve over medium-term as short term challenges (biodiesel pricing) are overcome, and ethanol industry continues to expand

# OECD Europe biofuel production determined by EU developments

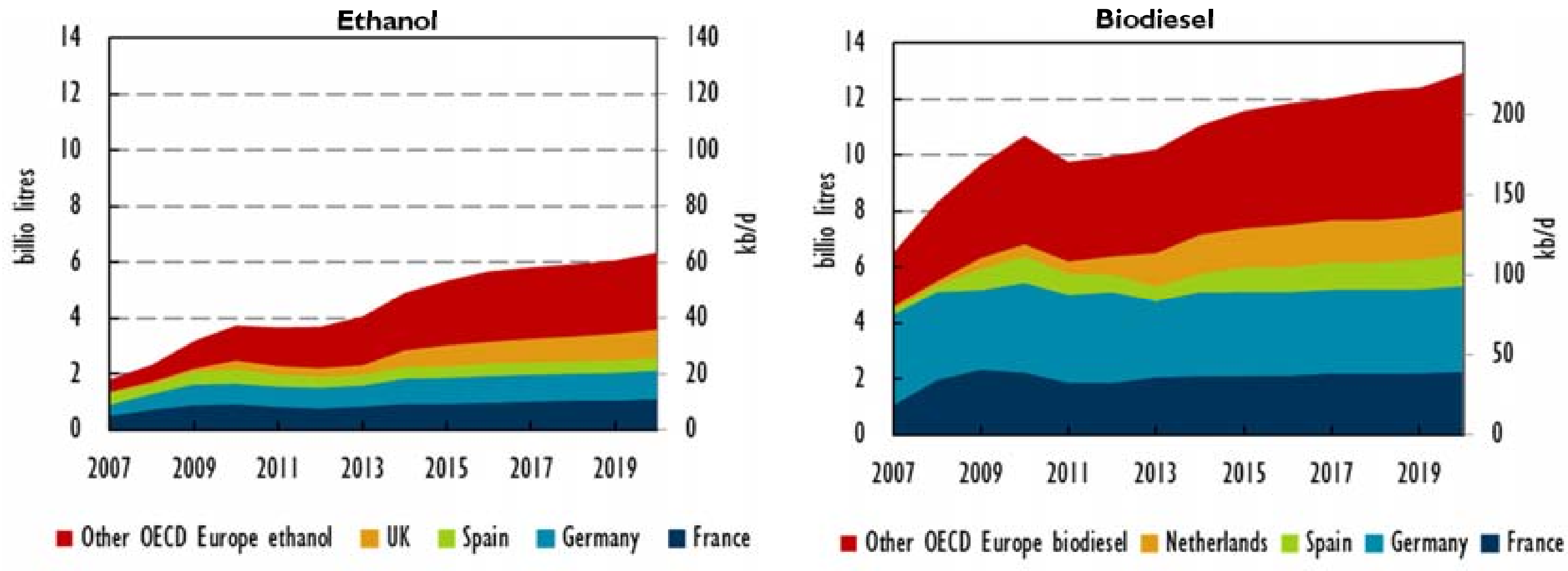



- **Some drivers to promote medium-term growth in biofuel output of 5 bn L (86 kb/d) 2013-20**
  - → **Targets under the EU Renewable Energy Directive**

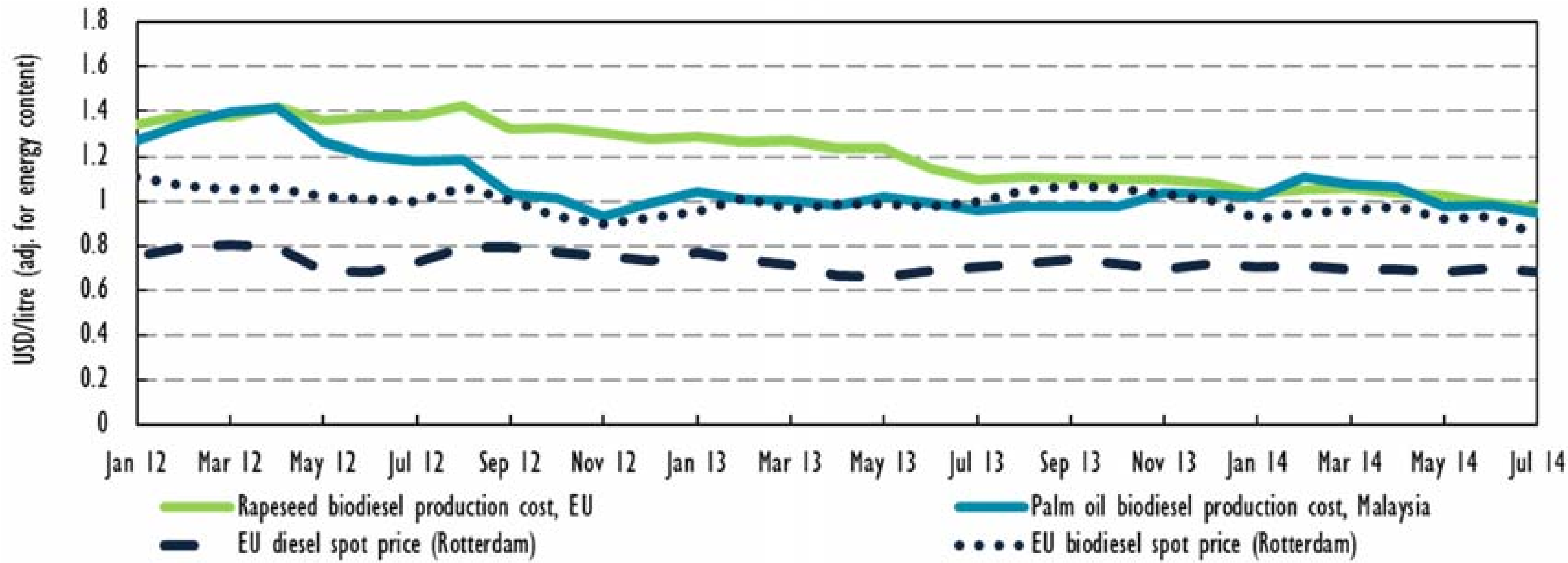
    **For now 10% transport energy from renewables by 2020, likely to be limited to 7%**
  - → **New anti-dumping tariffs on biodiesel imports (Indonesia, Argentina) to support domestic biodiesel production**
  - → **UK ethanol capacity additions (Vivergo, Crop Energies) help increase in production**

# EU policy uncertainty leaves biofuels sector in limbo



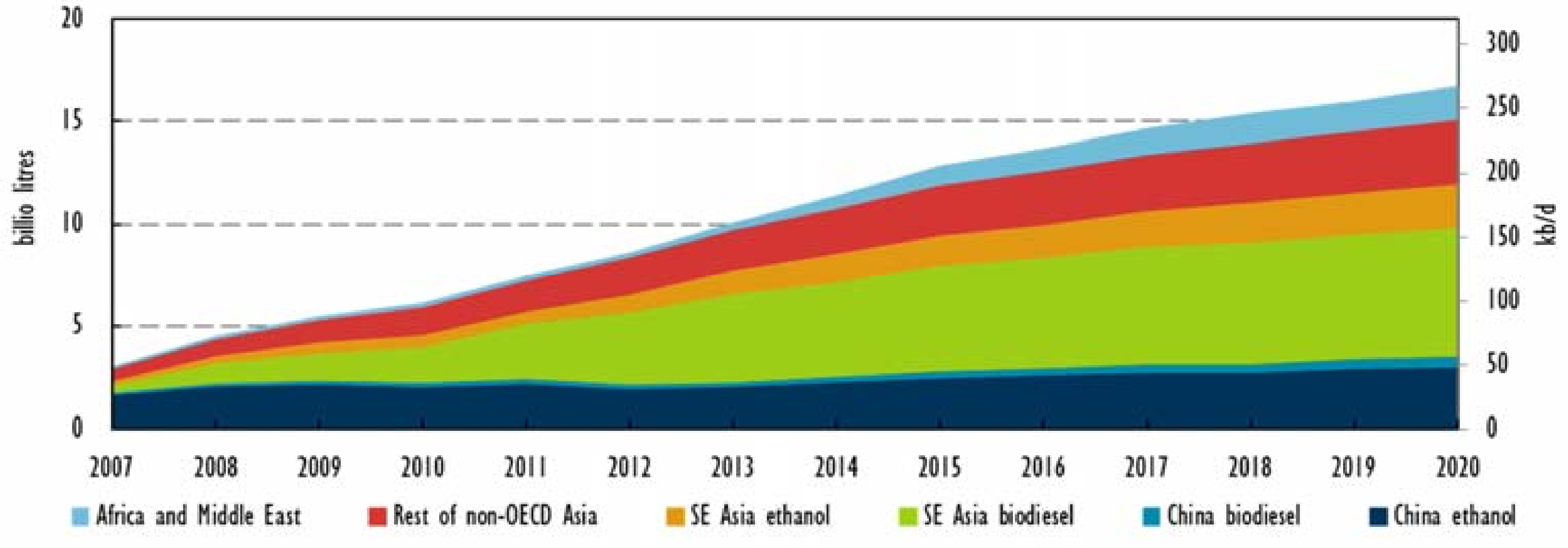

- **Proposed cap on conventional biofuels (7% of transport energy demand), increases uncertainty and limits growth prospects**
  - → **No significant capacity additions expected going forward**
- **Long-term future highly uncertain in absence of post-2020 framework**
  - → **No support for conventional biofuels after 2020**
  - → **Particularly relevant for advanced biofuels industry, where perceived investment risk is high**
  - → **First advanced biofuel projects get shelved as they struggle to secure investments (e.g. VAPO's Ajos BtL plant in Finland)**

# Biodiesel production costs declining




- **Biodiesel production economics improve and should support production**

# Emerging markets expanding rapidly



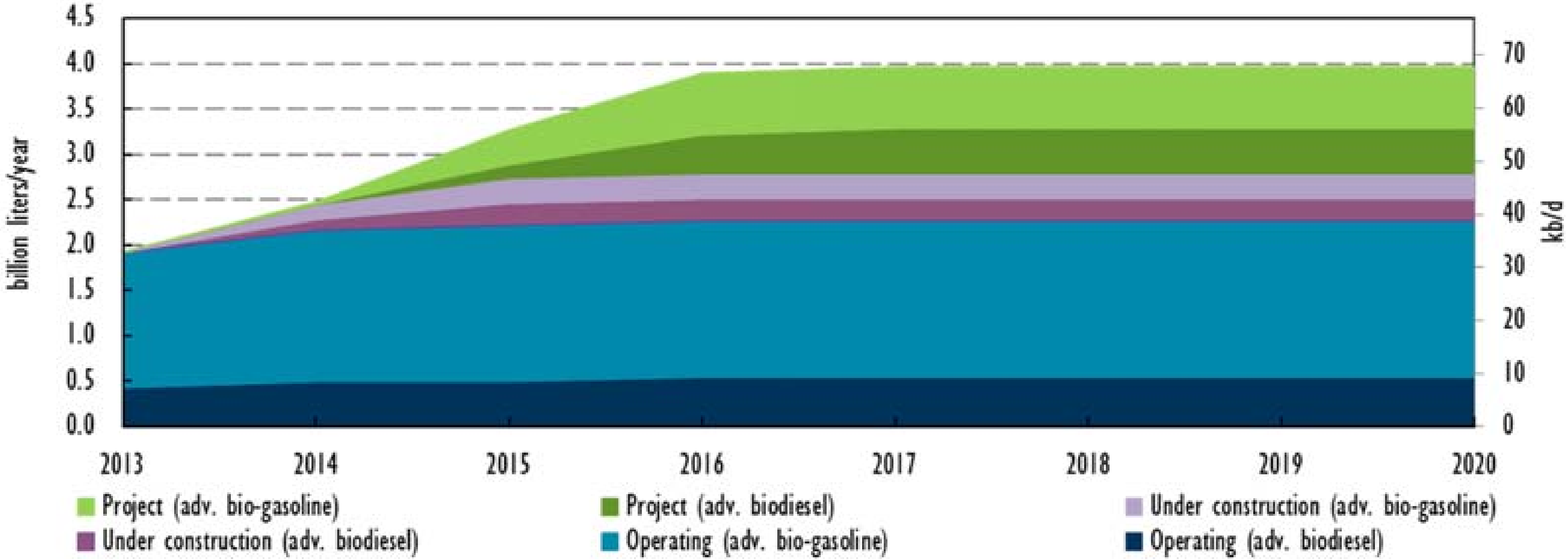

- **Production in several Asian and African markets expands rapidly driven by:**
  - → **Rising bills for fossil fuel subsidies and oil imports**
  - → **Vanishing export markets (EU, US)**
  - → **Support for agricultural sector**
- **Growing number of emerging markets in Asia and Africa with blending mandates**
  - → **India: E5** finally adopted, but meeting the target proves difficult
  - → **Indonesia: B10** as of Feb. 2014 as result of anti-dumping tariffs in the EU
  - → **Thailand:** subsidies for **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

# Advanced biofuels production globally


**Status as of October 2013**

# http://demoplants.bioenergy2020.eu

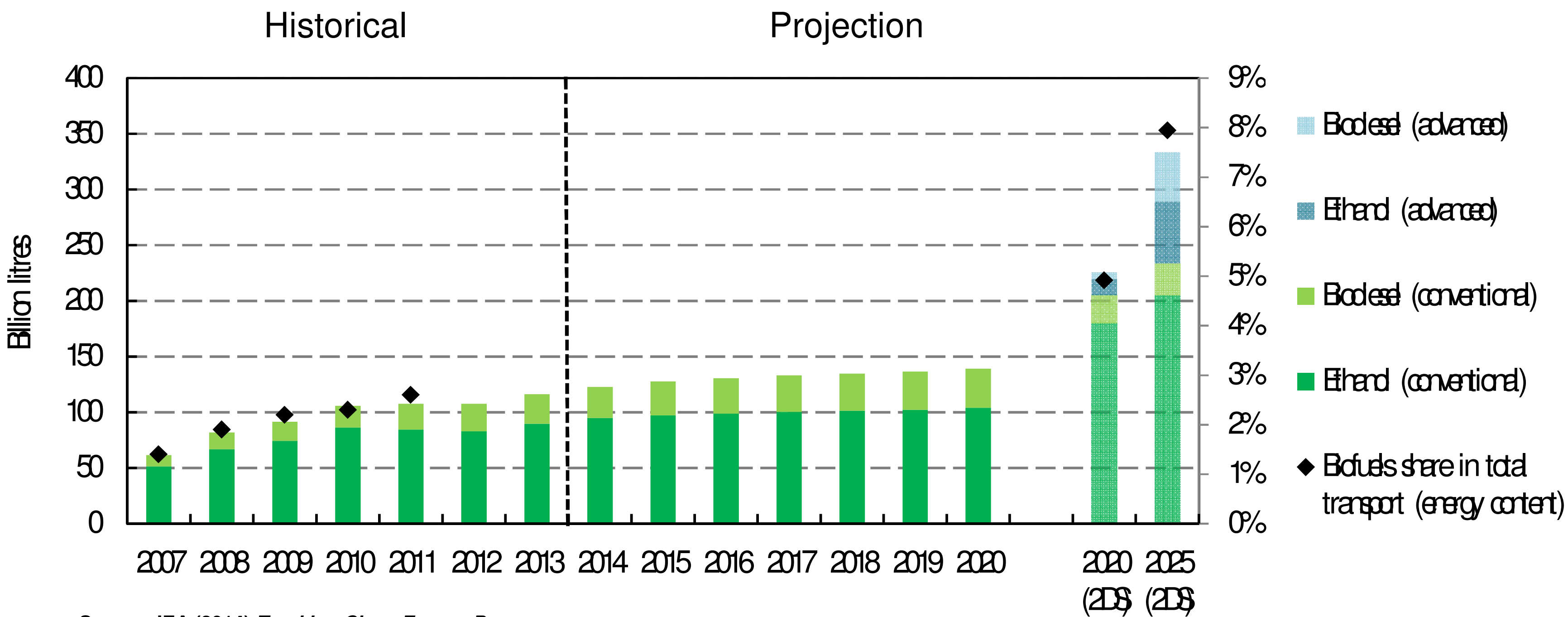
# Advanced biofuels expand - slowly




**Note: Does not include hydrotreated vegetable oil (HVO)**

- **Industry currently enters large-scale production with first commercial plants coming online**
- **Operating capacity at 2 billion litres in 2013 could grow to 4 billion litres (65 kb/d) in 2020**
  - → **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**

# Biofuels production falling behind targets of IEA Biofuel Roadmap




Source: IEA (2014) *Tracking Clean Energy Progress*

- **In a low $CO_2$ 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

- Shifting policy grounds in established markets undermine medium-term growth in biofuel production
- Emerging markets continue expanding production as bills for oil import and fossil fuel subsidies rise
- Advanced biofuels currently in the "valley of death" with promising projects coming forward – will they make it to the market?
- Stable, long-term policy framework, including clear sustainability guidelines, will be vital for further growth

# Thank you for your attention!

- **Medium-Term Renewable Energy Market Report 2014**
  **www.iea.org/topics/renewables**


- **Medium-Term Oil Market Report 2014**
  **www.iea.org/publications/oilmarketreport/**


- **Technology Roadmap: Biofuels for Transport**
  **www.iea.org/roadmaps**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