



Regulation, Risk and Platform Transition

BP Biofuels a growing alternative

17 September 2014

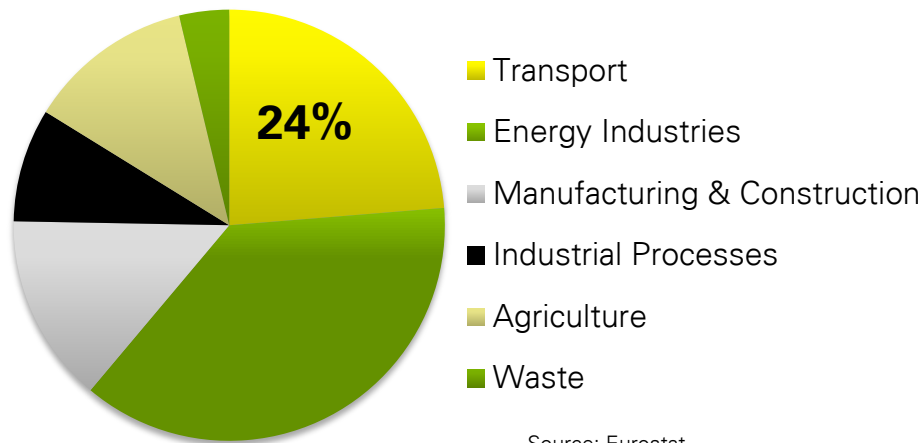


- Transport as an exemplar
- The drivers for action in the transport sector
- The challenge for business
- The challenge for the policymaker
- Concluding thoughts

Attainment of the EU's GHG emission targets and meaningful improvements to security of supply require the transport sector to deliver its share.

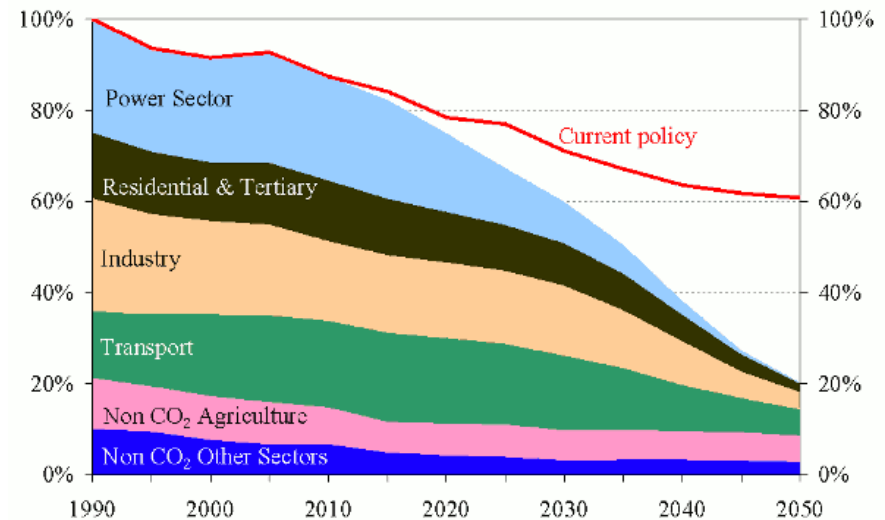


EU's 2012 GHG emissions



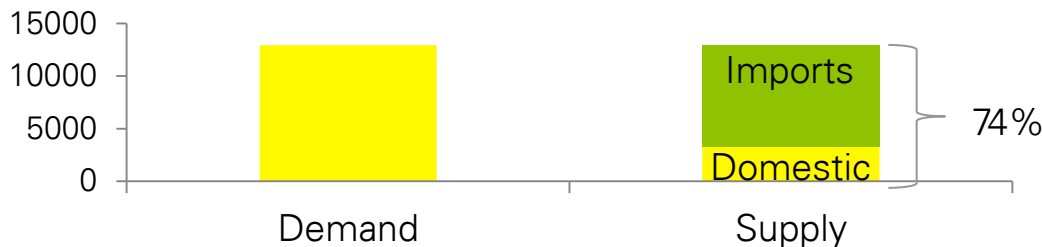
Source: Eurostat

EU 2050 Energy Roadmap



Source: EC

'000 bbl/d EU + Norway 2013 Crude Supply/Demand



Source: BP Statistical Review 2014

The challenge is not merely the deployment of new technologies but the creation of new business models.



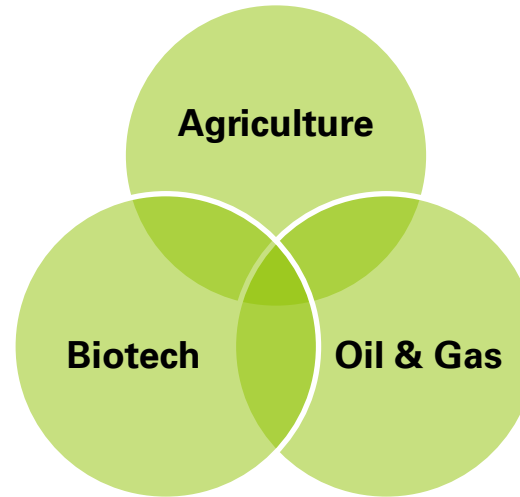
- **Complexity**

- **Multiple Risks**

- Market
- Technology
- Regulatory

- **High Cost / Long-term**

- Cost to first commercial gal: \$1- \$2 bill
- Technology Lead Times : 10yrs+
- Asset Economic Lifetime 30yrs
- Time to Sector Scale-Up 30 yrs +



The aim of policy is therefore to create an environment that is an investable proposition

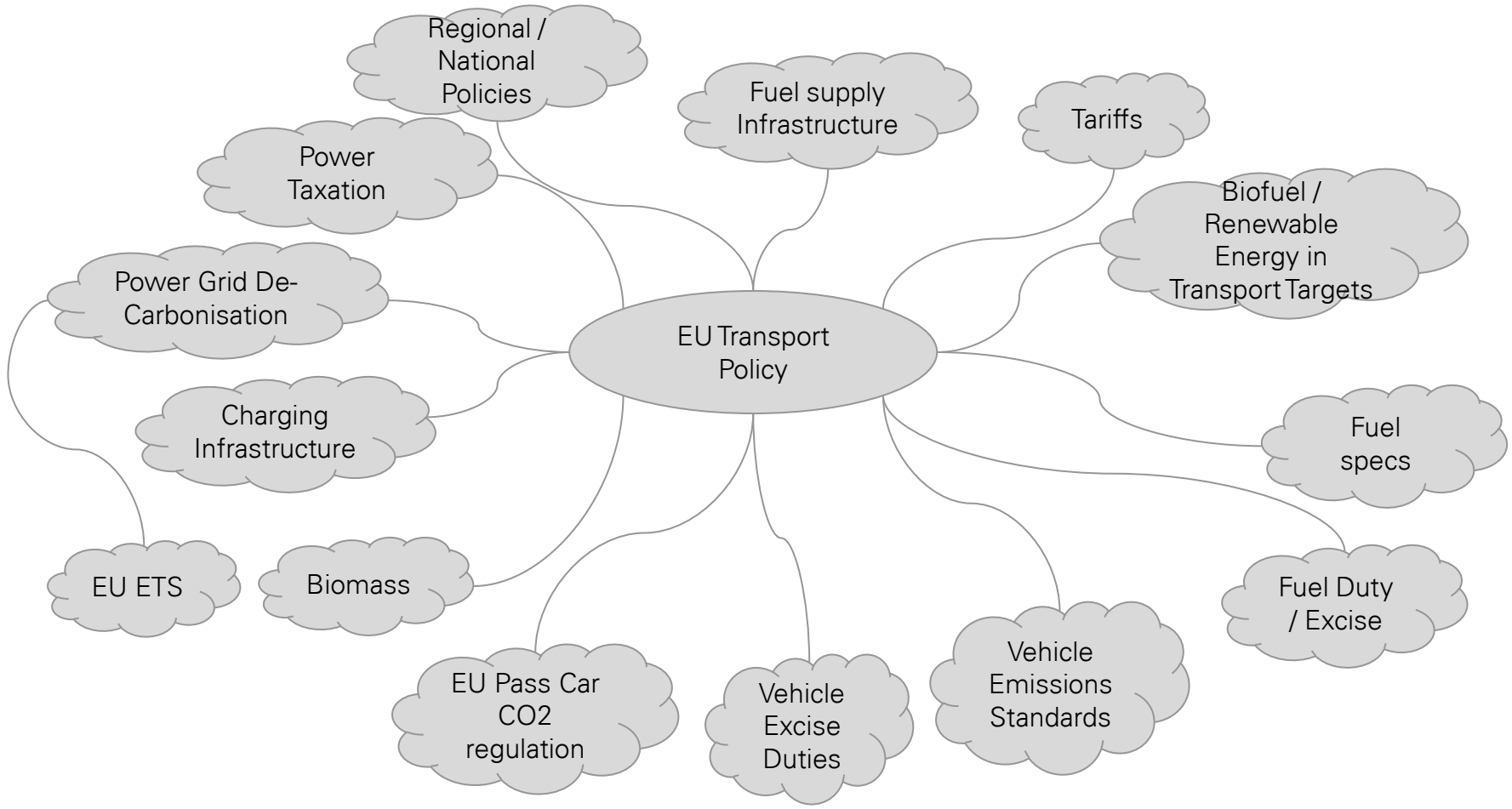


Consistency

Transparency

Longevity

Current EU Transport policy environment very disjointed.



EU transport sector conundrums



Fuels Taxation

Av. EU ¹ Duty & VAT	€/m ³	€/GJ	Implied Carbon Tax €/t CO _{2e} ²
Diesel	722	19.8	237
Gasoline	854	26.5	316
Ethanol	839	39.6	900
Biodiesel - RME	751	22.4	431
BEV/Power ³ – UK, Grid average		2.4	18
– UK, Coal			8.7

1 Average Germany, France, UK, Italy, Spain, Poland

2 Based on typical life-cycle GHG emissions as defined in EU RED

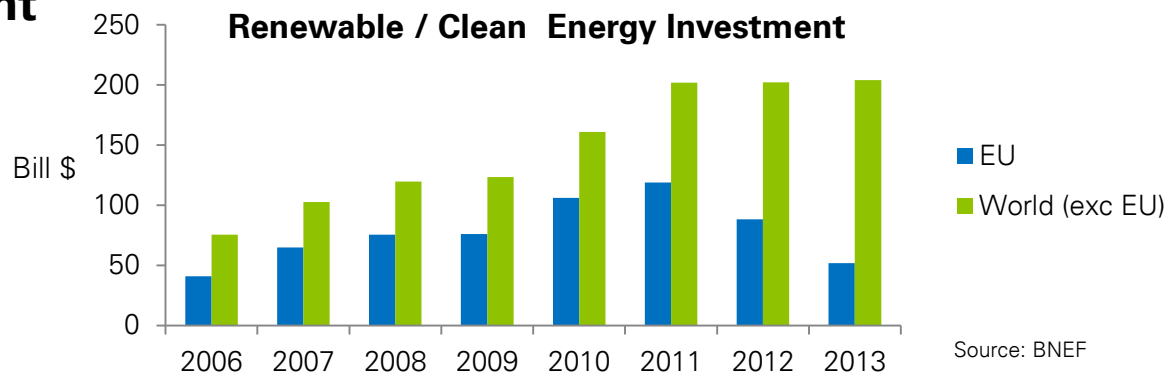
3 Source: DECC based on 2013 VAT

UK Grid CI 2012 5 yr rolling average – 482.3 g CO_{2e}/KWh.

EU Passenger Car Targets

- Effective carbon prices 950 – 3800 €/te CO₂.
- Incentives of up to 30,000 € / car (< 50 g CO₂/km - tailpipe)

EU Investment



To conclude ...



- Markets are inherently risk adverse, with the incumbent as the default setting.
- Re-positioning systems/ developing platforms entails significant investment not just in terms of technologies, but also in new business models.
- Highly complex systems, with high levels of interdependence. Risk of unintended consequences.
- Private sector – increasing cost of capital.
- Regulation
 - Consistent
 - Transparent
 - Long-Lasting
 - Joined-Up



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