Regulation, Risk and Platform Transition

BP Biofuels a growing alternative

17 September 2014
Regulation, Risk and Platform Transition

- 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

- **Transport**: 24%
- **Energy Industries**: 20%
- **Manufacturing & Construction**: 16%
- **Industrial Processes**: 10%
- **Agriculture**: 9%
- **Waste**: 7%

Source: Eurostat

### EU 2050 Energy Roadmap

- **Power Sector**: 100%
- **Residential & Tertiary**: 80%
- **Industry**: 60%
- **Transport**: 40%
- **Non CO₂ Agriculture**: 20%
- **Non CO₂ Other Sectors**: 0%

Current policy: 80%

Source: EC

### EU + Norway 2013 Crude Supply/Demand

- **Demand**: 15,000 bbl/d
- **Supply**: 10,000 bbl/d
- **Domestic**: 7,400 bbl/d
- **Imports**: 2,600 bbl/d

Source: BP Statistical Review 2014

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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.

- Power Grid De-Carbonisation
- Charging Infrastructure
- EU Pass Car CO2 regulation
- EU ETS
- Biomass
- Regional / National Policies
- Fuel supply Infrastructure
- Tariffs
- Biofuel / Renewable Energy in Transport Targets
- Fuel specs
- Fuel Duty / Excise
- Vehicle Emissions Standards
- Vehicle Excise Duties
- Power Taxation

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**EU transport sector conundrums**

- **Fuels Taxation**
  
<table>
<thead>
<tr>
<th>Av. EU¹ Duty &amp; VAT</th>
<th>€/m³</th>
<th>€/GJ</th>
<th>Implied Carbon Tax €/t CO₂e²</th>
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</thead>
<tbody>
<tr>
<td>Diesel</td>
<td>722</td>
<td>19.8</td>
<td>237</td>
</tr>
<tr>
<td>Gasoline</td>
<td>854</td>
<td>26.5</td>
<td>316</td>
</tr>
<tr>
<td>Ethanol</td>
<td>839</td>
<td>39.6</td>
<td>900</td>
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<tr>
<td>Biodiesel - RME</td>
<td>751</td>
<td>22.4</td>
<td>431</td>
</tr>
<tr>
<td>BEV/Power³ – UK, Grid average</td>
<td>2.4</td>
<td></td>
<td>18</td>
</tr>
<tr>
<td>– UK, Coal</td>
<td></td>
<td></td>
<td>8.7</td>
</tr>
</tbody>
</table>

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

- **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**

![Renewable / Clean Energy Investment](chart)

Source: BNEF
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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