Car CO$_2$ regulation: beyond 2020?

Baltic Investors Forum 4 June 2015
Overview

- '2020' car CO$_2$ target
- 2050 ambition
- 2030 framework
- Impact of CO$_2$ standards on automotive competitiveness
Current legislative framework

EU Regulation elements:

- new car fleet average target of 95g CO₂/km in 2021
- Eco-innovations
- Derogations

Regulation requests the Commission to review the targets and modalities for the period beyond 2020. A wide range of studies have been carried out to provide the necessary information.
PRIMES-TREMOVE modelling to achieve 80% GHG reduction by 2050 compared to 1990: http://ec.europa.eu/clima/policies/roadmap/index_en.htm
Transport 54-67% reduction from 1990 level

Three levers to reduce road transport GHG:

1. **Energy efficiency**: Energy use per unit of activity
2. **Decarbonise energy**: GHG per unit of energy
3. **Activity**: Level or type
Necessary level of ambition?

Average new vehicle GHG emissions per vehicle-km (Car)

Additional measures to be... strengthened or

1. Eco-driver training (road/rail)
2. Speed enforcement for road vehicles
3. Tighter motorway speed limits
4. Further improvements in spatial planning
5. Tighter LDV new vehicle GHG standards (intermediate)
6. Tighter HDV new vehicle GHG standards (intermediate)
7. Further modal shift (passenger and freight) (intermediate)
8. Further maritime efficiency measures
9. Further increase in harmonisation of fuel taxes (intermediate)
10. Tighter LDV+HDV new vehicle GHG standards (high)
11. Further improvements of new ship efficiency
12. Further improvements in new aircraft efficiency

"...the share of energy from biofuels produced from cereal and other starch-rich crops, sugars and oil crops and from other crops grown as main crops primarily for energy purposes on agricultural land shall be no more than 7% of the final consumption of energy in transport in the Member States in 2020"

Provisional estimated indirect land-use change emissions from biofuels (gCO$_{2eq}$/MJ)

<table>
<thead>
<tr>
<th>Feedstock group</th>
<th>Mean*</th>
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</thead>
<tbody>
<tr>
<td>Cereals and other starch-rich crops</td>
<td>12</td>
</tr>
<tr>
<td>Sugars</td>
<td>13</td>
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<tr>
<td>Oil crops</td>
<td>55</td>
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"The Commission does not think it appropriate to establish new targets for renewable energy or the greenhouse gas intensity of fuels used in the transport sector or any other sub-sector after 2020. The assessment of how to minimise indirect land-use change emissions made clear that first generation biofuels have a limited role in decarbonising the transport sector. The Commission has already indicated, for example, that food-based biofuels should not receive public support after 2020. A range of alternative renewable fuels and a mix of targeted policy measures building on the Transport White Paper are needed to address the challenges of the transport sector in a 2030 perspective and beyond."
European Council October 2014 conclusions on the 2030 Climate and Energy framework.

- 30% non-ETS reductions compared to 2005.
- Invites the Commission to:

  "...further examine instruments and measures for a comprehensive and technology neutral approach for the promotion of emissions reduction and energy efficiency in transport, for electric transportation and for renewable energy sources in transport also after 2020".
EU road transport CO₂

Energy union Communication adopted by the European Commission in February 2015:

- "...necessary to fundamentally rethink energy efficiency and treat it as an energy source in its own right"
- "...a continued focus on tightening CO₂ emission standards for passenger cars and vans post-2020"

| Review of Regulations setting emission performance standards to establish post-2020 targets for cars and vans | Commission | 2016 - 2017 |
Commission requested to review and make proposals for LDV CO$_2$ Regulation for period beyond 2020.

Specific issues raised:

- **Assess necessary rate of reduction to be in line with EU long term climate goals**
- **Consider GHG emissions related to energy supply and vehicle manufacturing**
- **Consider whether a utility parameter is still needed and if so whether footprint is more appropriate (for cars)**
Supporting analysis.

- Impact of regulatory approaches
- Impact of regulatory metrics
- Evaluation of current Regulations
- Competitiveness impacts
- Downweighting and utility parameter
- Mileage
- Technologies and costs
- Understanding of the test-real world gap
- Modalities of future Regulation
• Large scale study carried out for EU Commission.
• Completed early 2015
• Industry stakeholders consulted on the approach
• Explores in a detailed way:
  • The mechanisms through which the Regulations impact on business
  • The ways in which the mechanisms can have a differential impact on EU or non-EU industry
  • Assesses possible impacts on vehicle manufacturers, component suppliers, energy suppliers and end users.
The study assessed:

Three elements of competitiveness:

• Cost competitiveness
• Innovation competitiveness
• International competitiveness

From a manufacturer and a manufacturing perspective
Vehicle manufacturer perspective:

- Many possible positive or negative impact pathways for EU OEMs.
- Large net impacts less likely as high number of compliance mechanisms, resources and capabilities.
- Specific element choices could alter possibility of impacts occurring.
- Capability of EU OEMs to develop advanced ICEVs and AFVs may be less e.g. if electrification is an important compliance mechanism.
- Various impact pathways related to ability to manufacture vehicles with CO$_2$-reducing technologies at competitive cost.
- Ability to sell new technologies on EU market better for (some) premium EU OEMs.
- Being a premium or volume manufacturer may have more impact than EU or not.
- Lead time between announcement of target and target year, is expected to affect impacts.
Vehicle manufacturing

No **direct impact** on cost competitiveness of EU manufacturing.

Limited number of possible **indirect impacts:**

- Access to materials and their cost could be different for EU and non-EU OEMs.
- Possible regional differences in component cost for advanced powertrains depending on relative stringency of legislation or whether component are mainly made outside Europe.
- Regional differences in labour costs - impact of unknown sign.
- Some potential pathways relating to differences in costs of capital goods, transport costs and tariffs, and sales volume over which R&D costs can be divided.
Car manufacturers and suppliers

- Impact on product innovation and prioritisation of R&D expenditure.
- Limited resources mean innovation in CO₂ reduction technologies may be at the expense of other innovation.
- Enhances trend of OEM RDI externalisation to Tier 1 suppliers and joint R&D with other OEMs
- Likely increased demand for AFVs, particularly electrification, and innovation requirements - demand for specific R&D personnel.
Car manufacturers and suppliers

- Partly depends on cost competitiveness impacts
- EU strong international competitive positions in cars and components but not LCVs
- Little change in trade competitiveness.
- Likely to be trade-neutral as stringency of legislation will be broadly similar in the EU and main competing regions
- Many positive or negative second-order effects possible.
- Impacts possible in narrow defined markets.
- EU may lose competitiveness in petrol but gain in diesel
- Asian suppliers may benefit for electric components.
- Possible extra inward FDI flows of unclear magnitude.
Technology and costs post 2020
Extreme scenarios exploration
Thank you