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• Objectives
  – Delivering Carbon Neutral Electricity in Europe by 2050
  – Ensuring a cost-efficient reliable supply through an integrated market
  – Developing energy efficiency and the electrification of the demand-side to mitigate climate change
Questions about EVS

• Can the Electricity System cope with the electrification of Road Transport?
• Is there a saving in CO₂ emissions or merely a transfer from the tailpipe to the power station?
• Are there other benefits for the electricity system?
Typical daily Electricity Demand
CO2 Emissions

Fleet Tailpipe emissions
- 2010: 150 g/km
- 2015: 130 g/km

Electricity Generation

- COAL: 130 g/km
- GAS: EU Grid average in 2009 - 56 g/km; 80% wind and 20% Gas - 50 g/km
- WIND: 10 g/km
Electricity Generation by Fuel
European Grid

<table>
<thead>
<tr>
<th>Year</th>
<th>Fossil Fuel</th>
<th>Nuclear</th>
<th>Hydro</th>
<th>Other Renewable</th>
</tr>
</thead>
<tbody>
<tr>
<td>2009</td>
<td>52%</td>
<td>12%</td>
<td>28%</td>
<td>8%</td>
</tr>
<tr>
<td>2011</td>
<td>51%</td>
<td>11%</td>
<td>27%</td>
<td>11%</td>
</tr>
<tr>
<td>2020</td>
<td>44%</td>
<td>11%</td>
<td>25%</td>
<td>20%</td>
</tr>
</tbody>
</table>

Fossil Fuel: 2009 (52%) 2011 (51%) 2020 (44%)
Nuclear: 2009 (12%) 2011 (11%) 2020 (11%)
Hydro: 2009 (28%) 2011 (27%) 2020 (25%)
Other Renewable: 2009 (8%) 2011 (11%) 2020 (20%)
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<th>Date</th>
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<tr>
<td>Oct 2009</td>
<td>Declaration on Standardisation</td>
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<td>Sep 2010</td>
<td>Briefing on Emerging Market Models</td>
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<tr>
<td>May 2011</td>
<td>Position on Charging Needs</td>
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<tr>
<td>May 2012</td>
<td>Views on Charging Infrastructure</td>
</tr>
<tr>
<td>Sep 2013</td>
<td>Issues for Organising Market for Public Infrastructure</td>
</tr>
</tbody>
</table>
Summary

• The European Electricity System is ready NOW to power electric vehicles
• $\text{CO}_2$ reductions will happen immediately and increase as the grid decarbonises
• Longer term issues will be managed and benefits will accrue at National Grid Level
• Shorter term issues at distribution level
• All issues easily managed by Smart Charging
Thank You

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