The Energy Union
Heating and cooling: 46% of final energy

Transport: 33% of final energy

Electricity: 21% of final energy

RES: Target 2020
- Share 2014:
  - Heating and cooling: 16.6%
  - Transport: 5.7%
  - Electricity: 25.7%

RES in 2015 = >16%
Fuels used in HEATING

- Gas: 46%
- Coal: 15%
- Oil: 10%
- Other: 4%
- Biomass: 11%
- RES tech: 7%
- Nuclear: 7%
- Low carbon: 25%
CO₂ emissions per m² in Residential Buildings

- IE: highest emissions
- NO: lowest emissions
Ireland: effectiveness of different policy instruments

<table>
<thead>
<tr>
<th>Policy Instrument</th>
<th>Very Effective</th>
<th>Partly Effective</th>
<th>Not Effective at All</th>
<th>Not Implemented</th>
</tr>
</thead>
<tbody>
<tr>
<td>Energy certification of buildings</td>
<td>71%</td>
<td>29%</td>
<td>83%</td>
<td>17%</td>
</tr>
<tr>
<td>EE requirements for new buildings</td>
<td>83%</td>
<td>17%</td>
<td>21%</td>
<td>8%</td>
</tr>
<tr>
<td>Energy labelling of products</td>
<td>62%</td>
<td>17%</td>
<td>21%</td>
<td>4%</td>
</tr>
<tr>
<td>Energy audits for companies</td>
<td>67%</td>
<td>17%</td>
<td>21%</td>
<td>4%</td>
</tr>
<tr>
<td>Financial incentives for private households</td>
<td>63%</td>
<td>4%</td>
<td>29%</td>
<td>4%</td>
</tr>
<tr>
<td>EE requirements for renovated buildings</td>
<td>67%</td>
<td>4%</td>
<td>29%</td>
<td>4%</td>
</tr>
<tr>
<td>Financial incentives for SMEs</td>
<td>54%</td>
<td>38%</td>
<td>8%</td>
<td>4%</td>
</tr>
<tr>
<td>Inspection heating/air-conditioning systems</td>
<td>48%</td>
<td>26%</td>
<td>26%</td>
<td>4%</td>
</tr>
<tr>
<td>Energy taxation</td>
<td>41%</td>
<td>42%</td>
<td>13%</td>
<td>4%</td>
</tr>
<tr>
<td>Programmes for local energy planning</td>
<td>30%</td>
<td>36%</td>
<td>30%</td>
<td>4%</td>
</tr>
<tr>
<td>National Energy Efficiency Funds</td>
<td>29%</td>
<td>59%</td>
<td>8%</td>
<td>4%</td>
</tr>
<tr>
<td>Smart metering</td>
<td>33%</td>
<td>42%</td>
<td>25%</td>
<td>4%</td>
</tr>
<tr>
<td>Targeted advice for households</td>
<td>25%</td>
<td>50%</td>
<td>21%</td>
<td>4%</td>
</tr>
</tbody>
</table>

Smart homes ... the future is now!
Energy-intensive industries are exposed

Share of energy in % of production costs – selected sectors in Germany (2010)

- Cement, lime and plaster
- Clay building materials
- Basic iron and steel
- Pulp, paper and paperboard
- Glass
- Basic pharmaceuticals
- Non-ferrous metals (incl. aluminium)
- Wood and cork
- Average manufacturing
- Furniture
- Automotive
- Consumer electronics

Source: European Commission
% of total production costs
Thank you!

For more info:
ec.europa.eu/energy
Evolution of Average Energy Requirement in Buildings (120m² single family home)

- **Traditional building < 1985**: Heat requirement = 210 kw per m² per year
- **Building from mid 1980s**: Heat requirement = 130 kw per m² per year
- **Building from mid 1990s**: Heat requirement = 90 kw per m² per year
- **Low energy house**: Heat requirement = 70 kw per m² per year
- **Passive house standard**: Heat requirement = 40 kw per m² per year

Heat recuperation in Passive House: 25
Air heating requirement (losses via air exchange): 5
Heating requirement (losses via roof, walls, windows, etc.): 15
Hot water: 15

Source: Viessmann / IWO Germany, Eurofuel, 2013