Low-carbon energy technology roadmaps

Technology Roadmaps:
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Key technologies for reducing global CO₂ emissions

- **6°C Scenario** – business-as-usual; no adoption of new energy and climate policies
- **2°C Scenario** - energy-related CO₂-emissions halved by 2050 through CO₂-price and strong policies

### Sectors

- **Power generation** 41%
- **Industry** 19%
- **Transport** 19%
- **Buildings** 13%
- **Other transformation** 8%

### Technologies

- **End-use fuel and electricity efficiency** 38%
- **End-use fuel switching** 9%
- **Renewables** 30%
- **Power generation efficiency and fuel switching** 2%
- **Nuclear** 7%
- **CCS** 14%

**Energy Technology Perspectives 2014**
Overview of IEA roadmap process

- Engage cross-section of stakeholders
- Identify a baseline:
  - Where is technology today?
- Establish a vision:
  - What is the deployment path needed to achieve 2050 goals?
- Identify technical, regulatory, policy, financial, public acceptance barriers
  - What are the near term action items?
- Develop implementation action items for stakeholders
Roadmap logic

- Goal to achieve
- Milestones to be met
- Gaps to be filled
- Actions to overcome gaps and barriers
- What and when things need to be achieved
Technology roadmaps status

2009

2010

2011

2012

2013

2014

2015 • Hydrogen

Low-carbon energy technology roadmaps
Hydrogen Roadmap Status

- July 2013 Roadmap Kickoff and European workshop
  - Scope, Technology Status and Development Needs
  - Hydrogen in Europe
- Transport model assumptions circulated for comment
- January 2014 North America Workshop in US
- June 2014 Asia Workshop in Japan
- Carry out missing analysis and refine roadmap
- Circulate final draft for stakeholder review (Q4 2014)