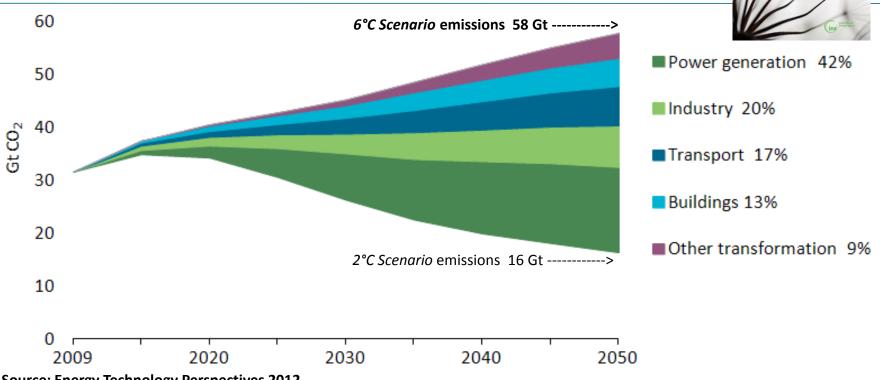


Low-carbon energy technology roadmaps



Key technologies for reducing global CO₂ emissions



Source: Energy Technology Perspectives 2012

- 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





Energy Technology

Perspectives 2012

IEA Roadmap Definition

"A technology roadmap is a dynamic set of technical, policy, legal, financial, market & organizational requirements identified by all stakeholders involved in its development. The effort shall lead to improved and enhanced sharing and collaboration of all related technology-specific RDD&D information among participants.

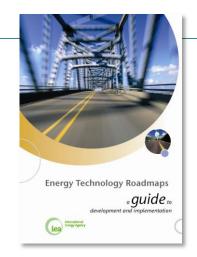
The goal is to accelerate the overall RDD&D process in order to deliver an earlier uptake of the specific energy technology into the marketplace".





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





Low-carbon energy technology roadmaps



Roadmap Tasks

- Scoping phase reviewing existing work and identifying issues
- One or more workshops with experts from industry, government, academia...
- Develop draft roadmap
- Circulate draft of roadmap to wider stakeholder group
- Carry out missing analysis and refine roadmap
- Publish roadmap





Technology roadmaps status





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)



