

Auditing to ensure sustainable energy policy

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Presentation Overview

- Introduction
- Sustainable energy - Energy Technology Perspectives 2010
- Policy options and role for evaluation and auditing
- Energy Efficiency and IEA 25 recommendations
- Progress Reporting at the IEA

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Introducing the IEA

- An autonomous body of the OECD founded in 1974
- An energy policy advisor and think tank
- 28 Member countries
 - **Asia Pacific:** Japan, South Korea, Australia & New Zealand
 - **North America:** USA, Canada
 - **Europe:** UK, Ireland, Germany, France, Belgium, Luxembourg, Spain, Portugal, Italy, Austria, Denmark, Netherland, Greece, Finland, Sweden, Czech Rep, Hungary, Slovak Republic, Turkey, Switzerland, Norway, Poland
- Decision making body:
 - **Governing Board:** Director-Generals of Member countries
 - Standing Committees review IEA programmes and work
- Secretariat: 235 engineers, economists and statisticians

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The IEA Shared Goals

4Es: Energy Security, Economic Development, Environmental Protection, and Engagement Worldwide



1. Diversity, efficiency and flexibility in the energy sector
2. Prompt, flexible (and, when needed, collective) response to energy emergencies
3. Environmentally sustainable provision and use of energy
4. Development of more environmentally acceptable energy sources
5. Improved energy efficiency
6. Continued research, development and market deployment of new and improved energy technologies
7. Undistorted energy prices
8. Free and open trade and a secure framework for investment
9. Co-operation among all energy market participants



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Sustainable Energy – the context

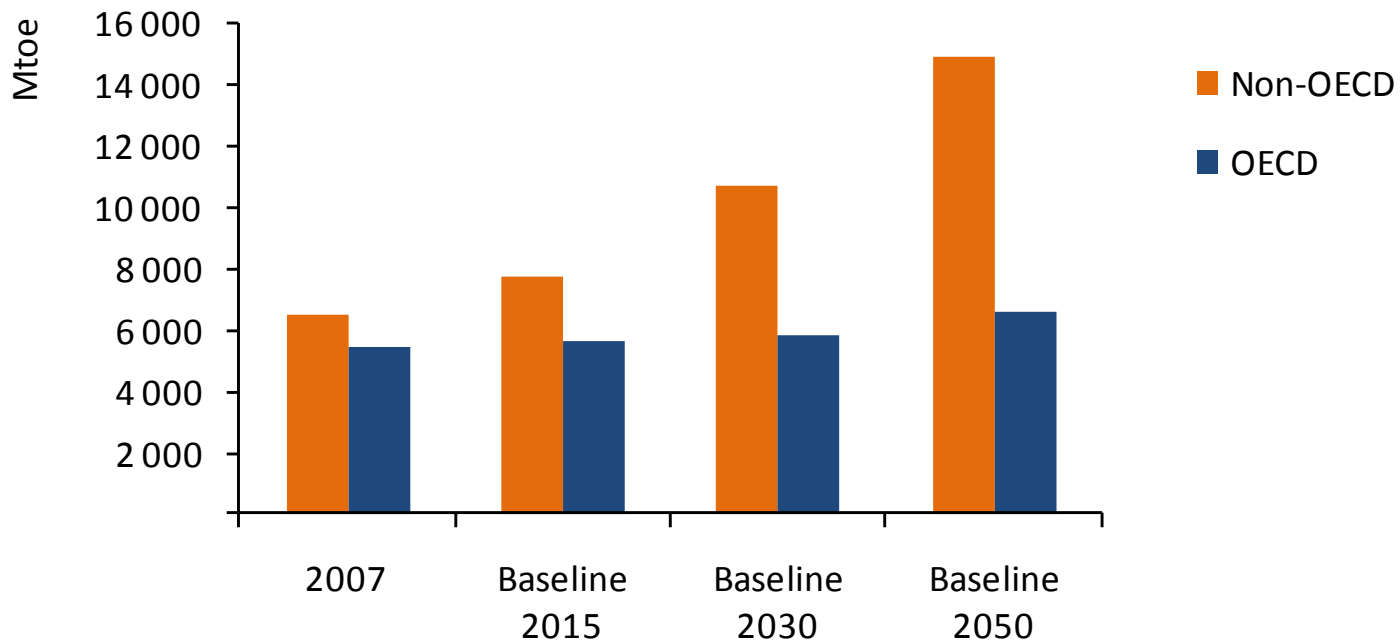
- Need a global energy technology revolution to meet climate change and energy security challenges.
- Some early signs of progress, but much more needs to be done.
 - How can technologies and behavioural change play a role?
 - What policies are needed?
 - What are the costs and benefits?
- Energy Technology Perspectives 2010 provides some estimates of responses to these questions



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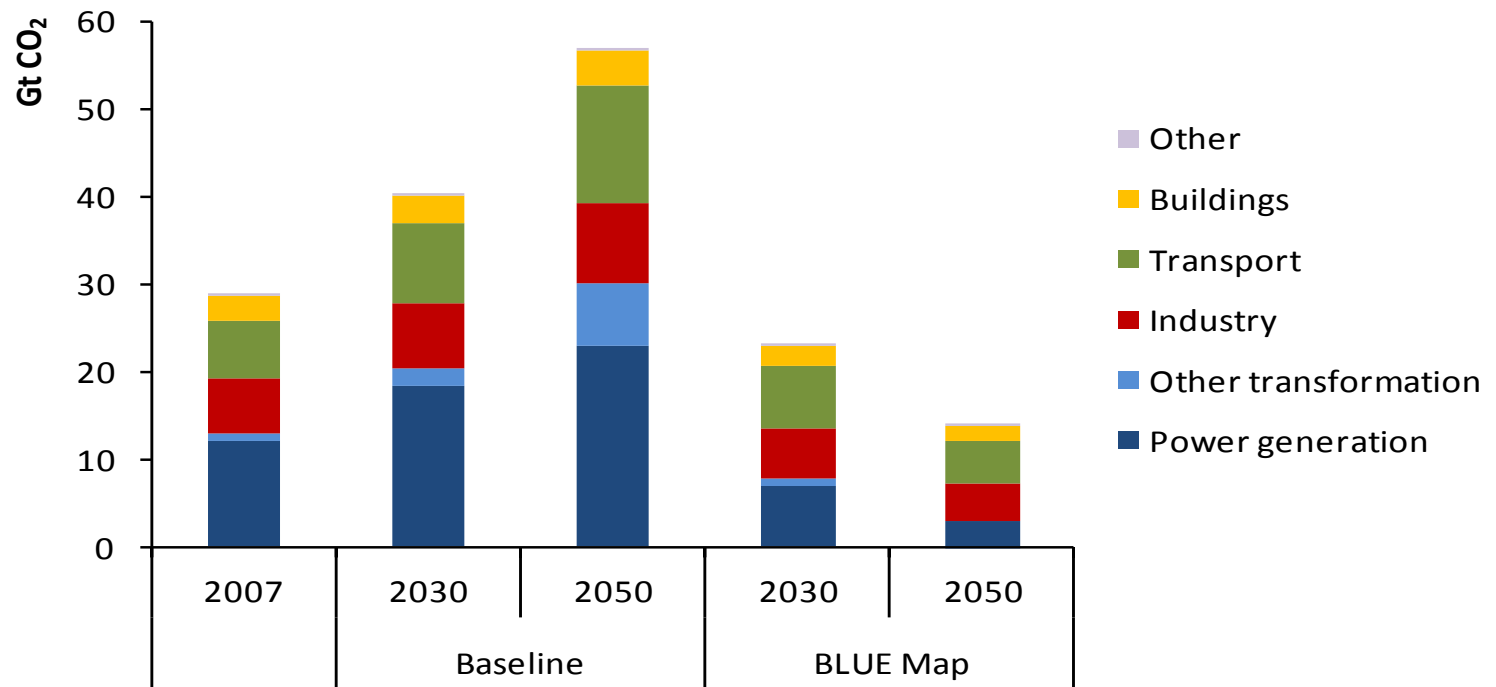
Energy Technology Perspectives 2010

OECD and non-OECD primary energy demand with current policies



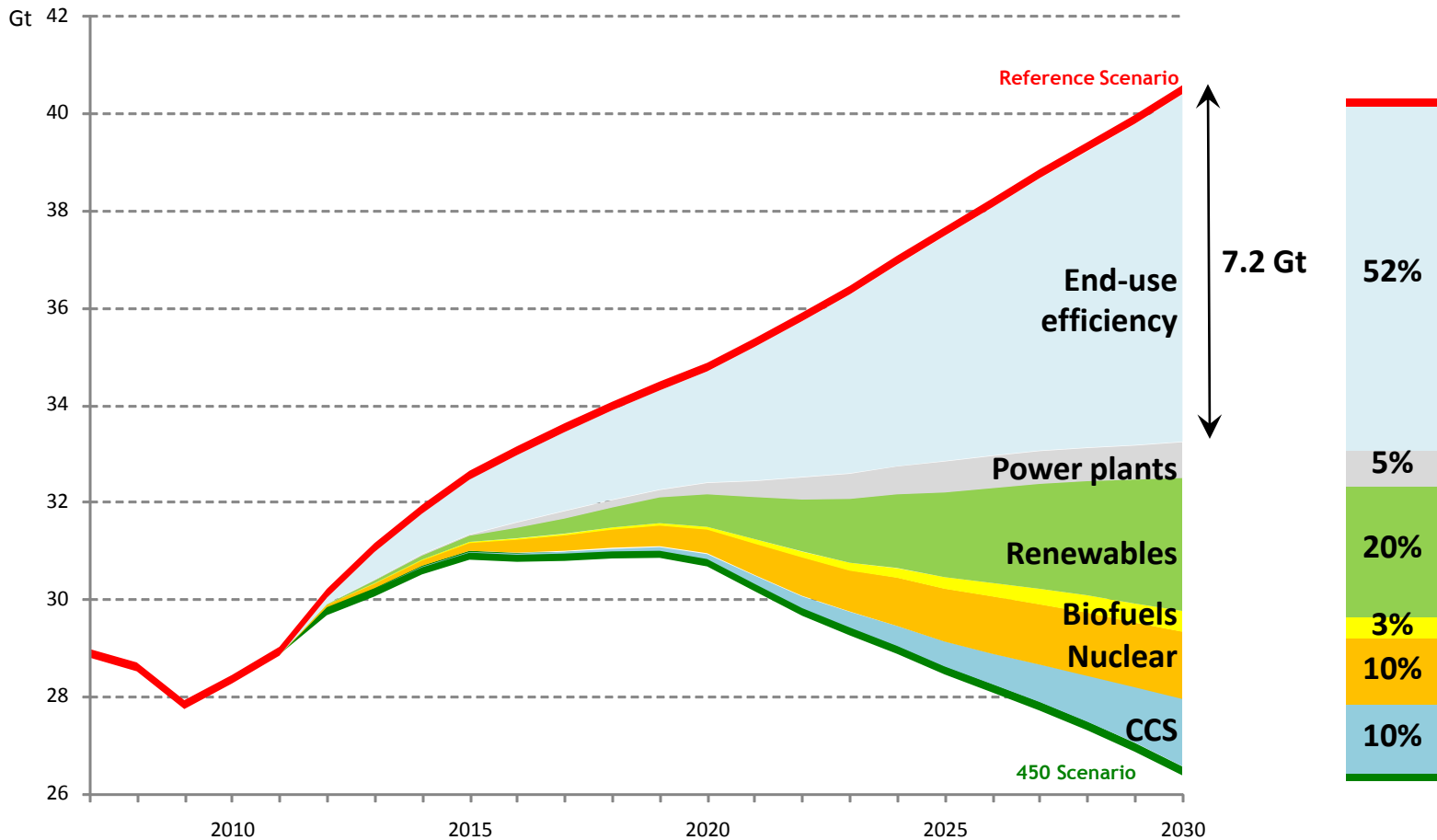
Primary energy demand in non-OECD countries is projected to increase much faster than in OECD countries in the Baseline scenario.

Global energy-related CO₂ emissions Baseline and BLUE Map scenarios



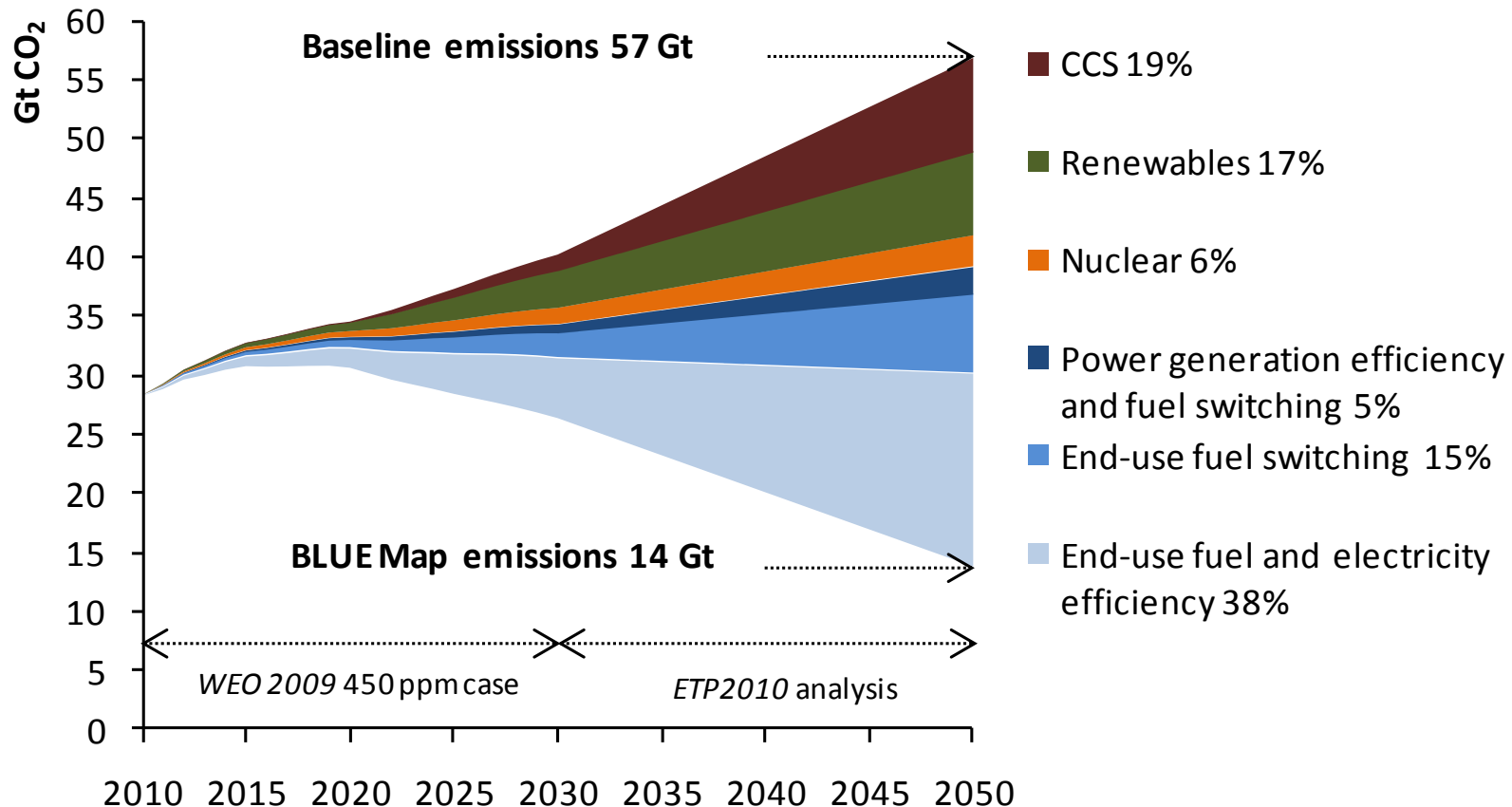
Global CO₂ emissions double in the Baseline, but in the BLUE Map scenario abatement across all sectors reduces emissions to half 2005 levels by 2050.

World Energy Outlook 2009 450 Scenario



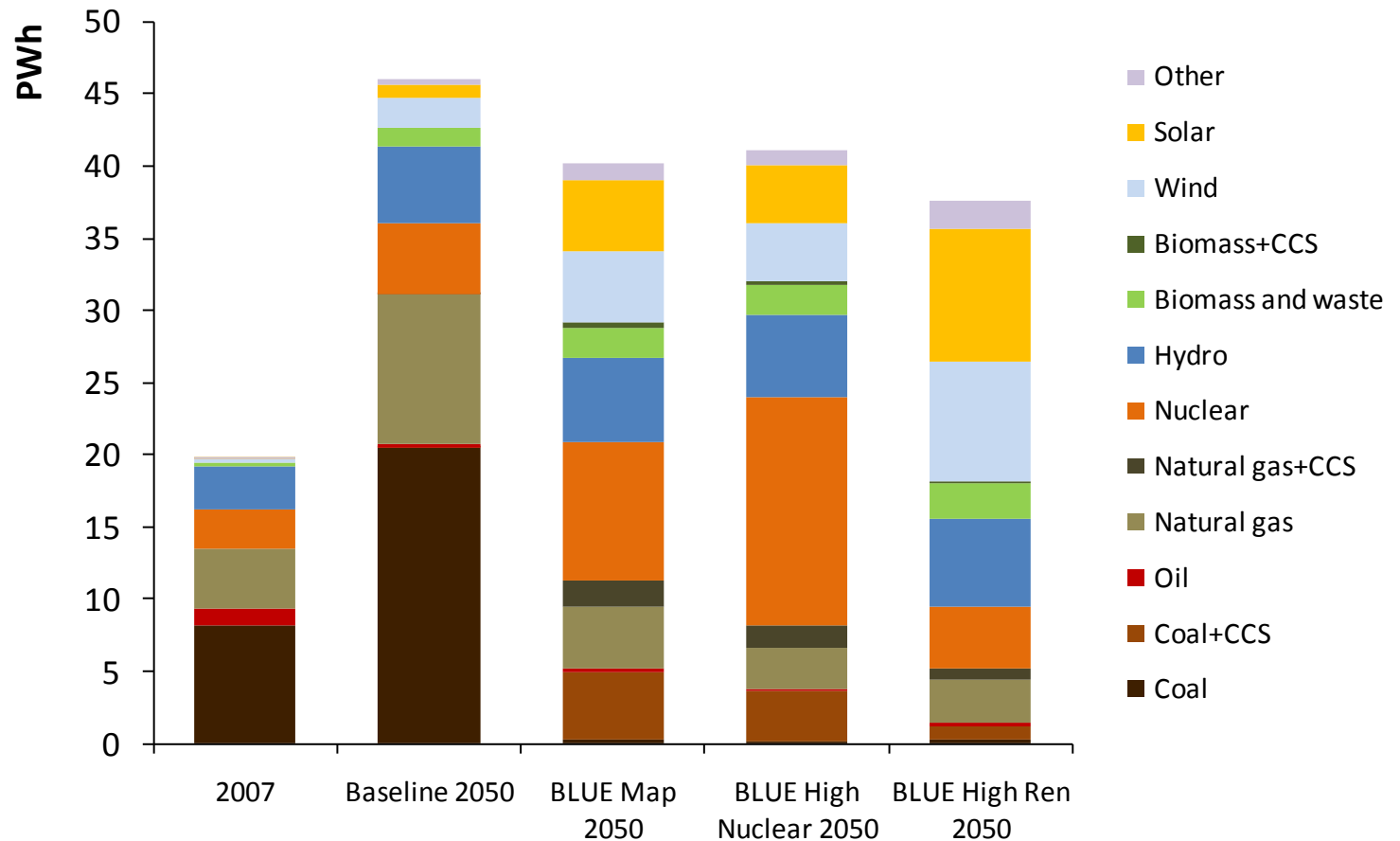
52% of the required cuts in GHG emissions to achieve the 450 scenario is estimated to come from energy efficiency savings by 2030 (WEO 2009)

Key technologies for reducing global CO₂ emissions



A wide range of technologies will be necessary to reduce energy-related CO₂ emissions substantially.

Decarbonising the power sector –a new age of electrification?

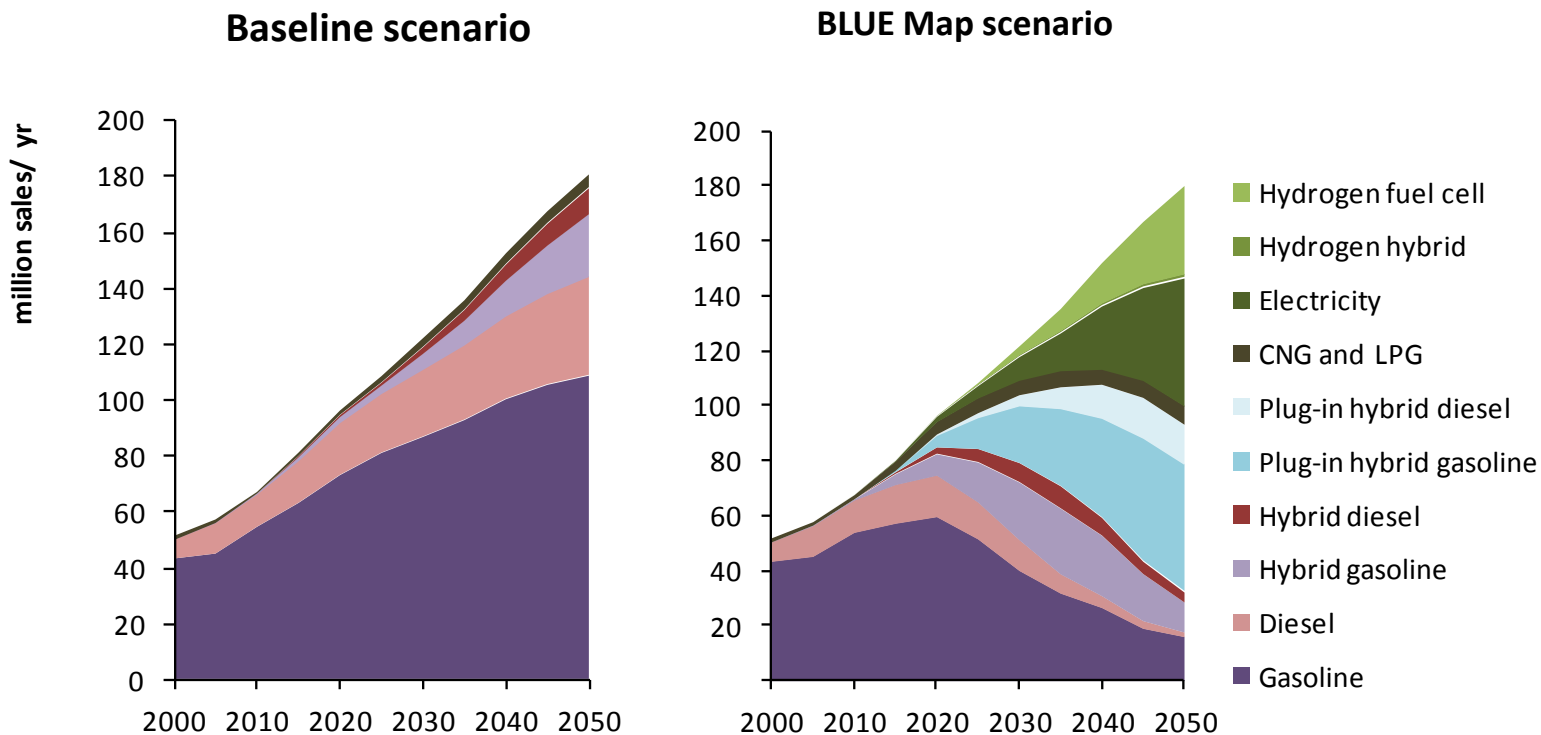


A mix of renewables, nuclear and fossil-fuels with CCS will be needed to decarbonise the electricity sector.

Evolution of light-duty vehicle sales by technology

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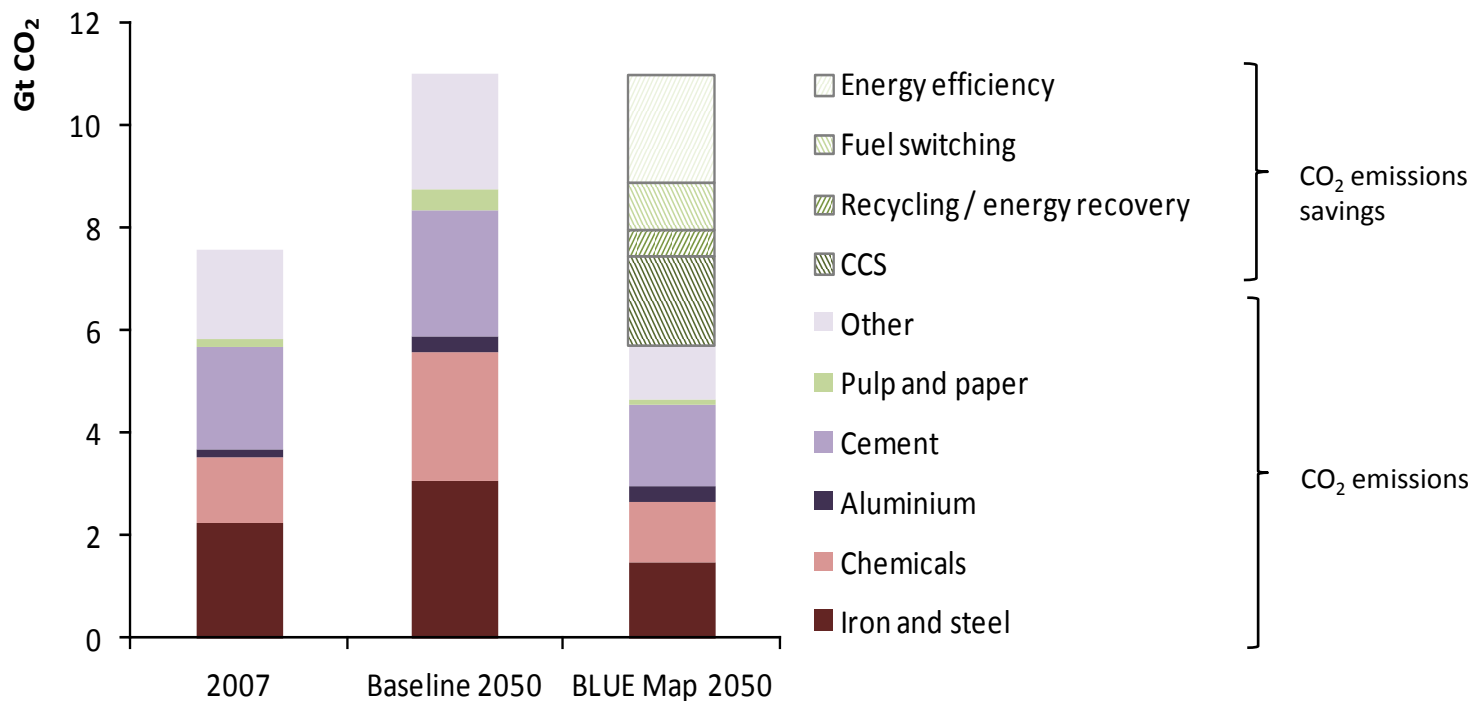
Scenarios &
Strategies
to 2050



In the BLUE Map scenario advanced technologies, such as plug-in hybrid, all-electric and fuel-cell vehicles, dominate sales after 2030.

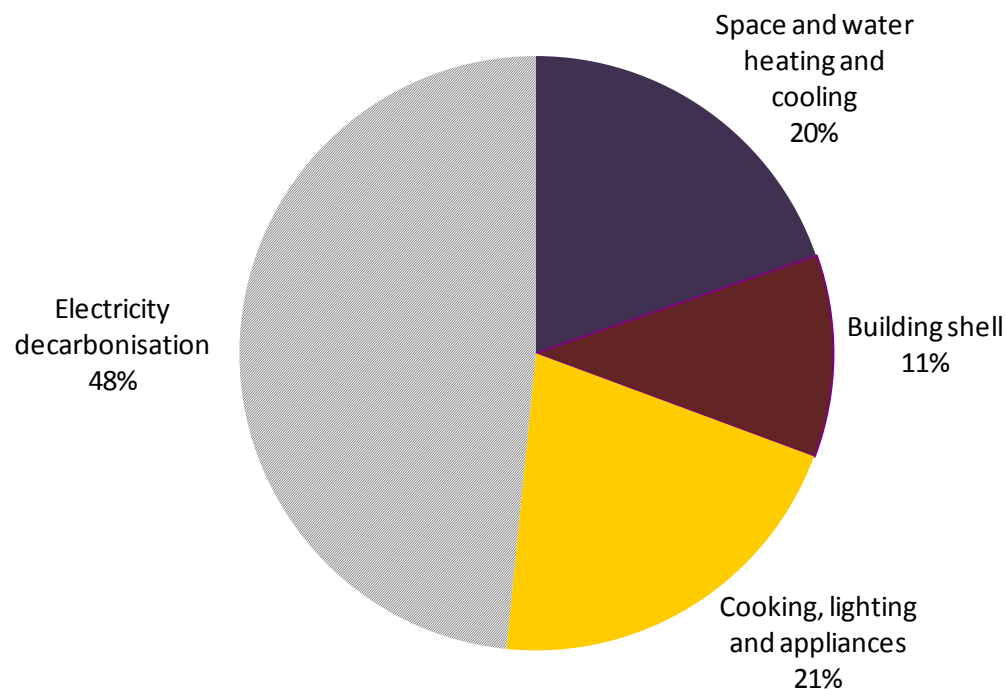


Direct energy and process CO₂ emissions in industry by sector



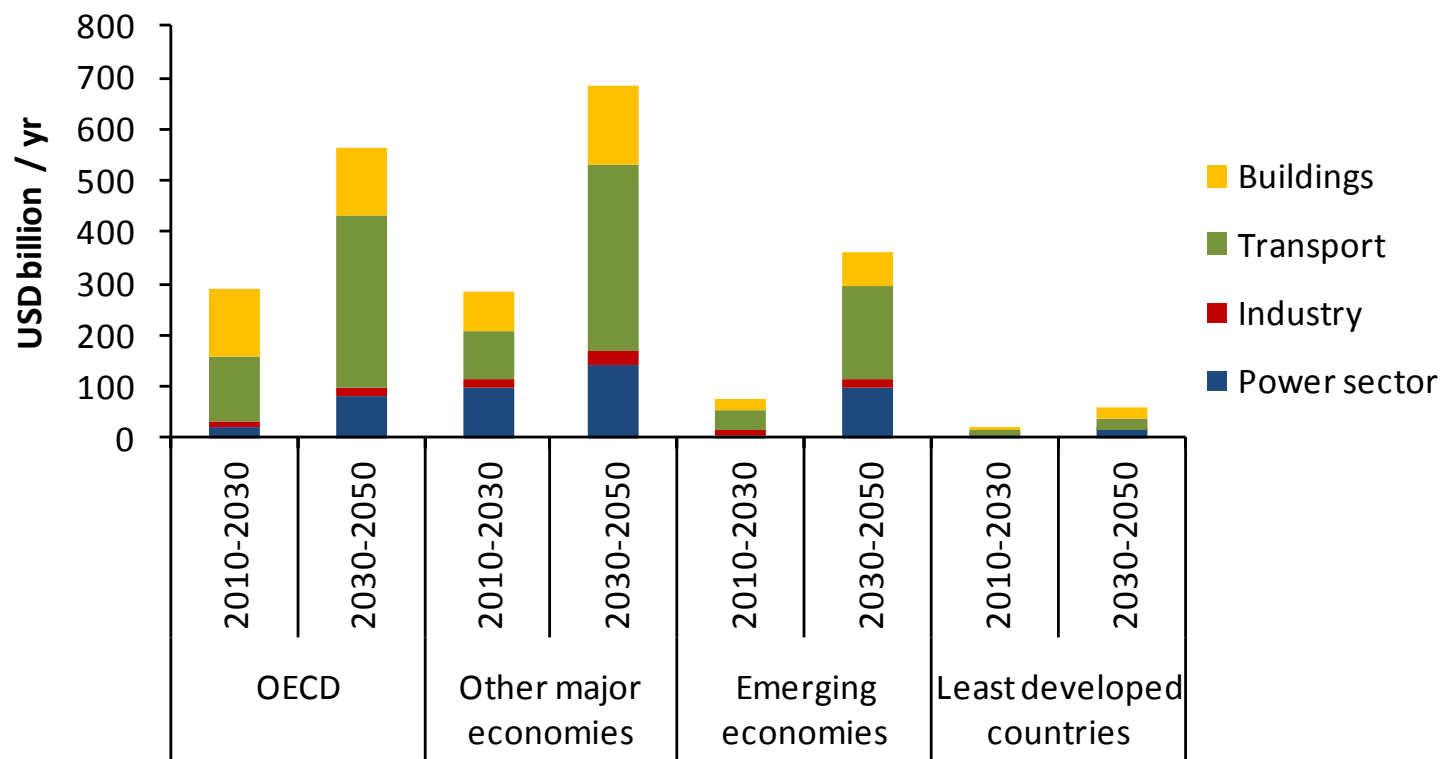
Energy efficiency and CCS are the two most important abatement options in industry.

Contributions to CO₂ emissions reductions in the buildings sector



Decarbonisation of the electricity sector contributes around half of the emissions reduction in the buildings sector.

Additional investment needs in the BLUE Map scenario

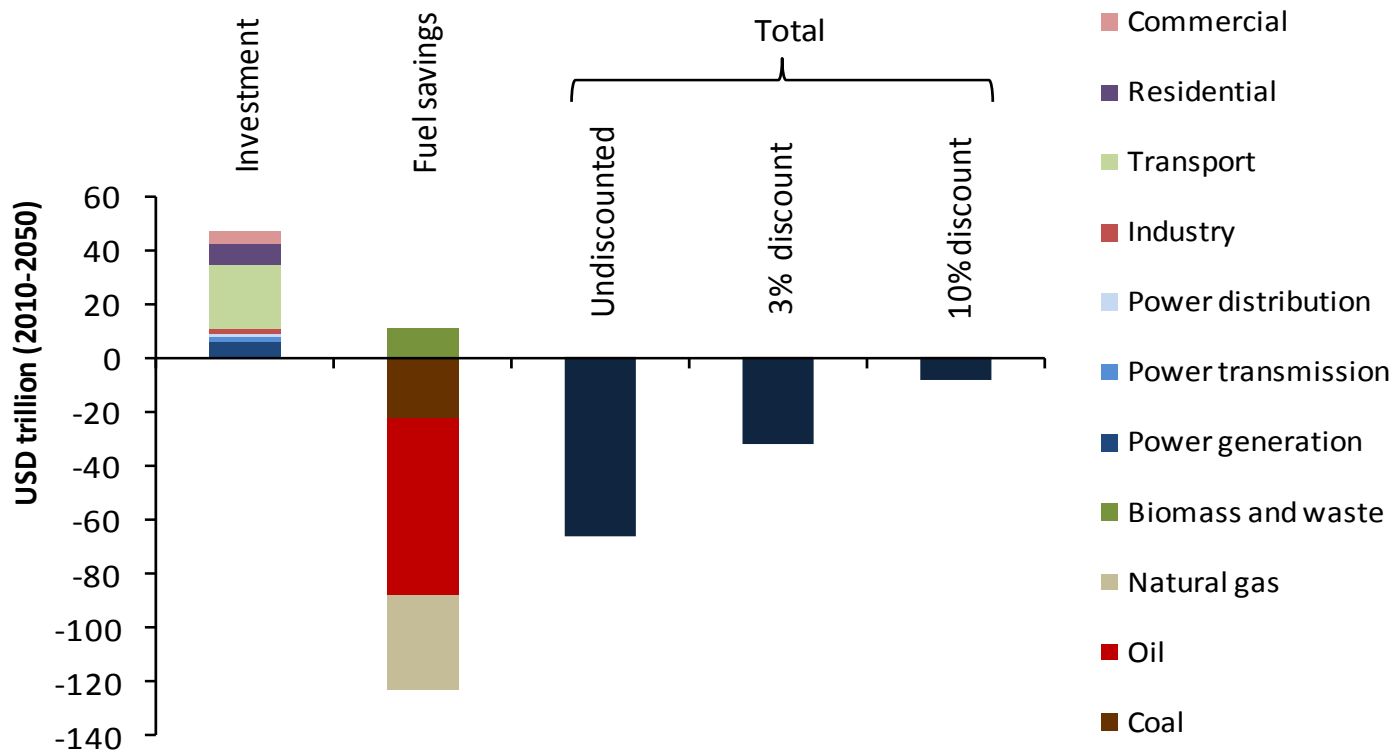


Over the period to 2050, most of the additional investment in low-carbon technologies will be needed in non-OECD countries.

Additional investment and fuel savings, 2010-2050

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to 2050



Even using a 10% discount rate, fuel savings in the BLUE Map scenario more than offset the additional investment required.



Technology Policies

- Carbon pricing is important, but should be complemented by other market-based and regulatory policies
- Technology policy to be tailored to technology's stage of development and reflect good design principles
- Public RD&D spending must at least double
- Enabling actions are also needed:
 - Private sector leadership
 - Expanded human capacity
 - Greater government outreach and planning on infrastructure needs
 - Expanded, more effective international collaboration

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Policy measures – technology and demand-side measures for energy efficiency and carbon mitigation

- Fiscal measures – carbon taxes and low carbon tax incentives
- Market-based instruments – cap and trade
- Regulation – CO2 regulation for cars
- Carbon finance – project and sectoral
- Voluntary approaches
- Education and training
- Public-private R&D investment

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Role of evaluation and audits of energy policies

'Evaluation is important for determining the extent to which a policy has met or is meeting its objectives and that those intended to benefit have done so'. (UK National School of Government)

- Different kinds of evaluation: impact evaluation, implementation evaluation, economic evaluation;
- To ensure value for money;
- To compare policy measure against several criteria:
 - Effectiveness (energy savings)
 - Efficiency (least cost to society and the exchequer)
 - Administrative burden
 - Equity / fairness
 - Future-proofing
- To continuously improve policy design and implementation.



Three key benefits of energy efficiency

- **Improve energy security** by reducing the reliance on foreign energy imports
- **Improve economic prosperity** by reducing the amount of energy used per unit of GDP
- **Reduce greenhouse gas emissions** by reducing overall energy consumption

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Example: IEA 25 energy efficiency recommendations



- Significant energy savings at low cost;
- Address market imperfections or barriers;
- Address significant gaps in existing policy;
- High degree of political support



25 energy efficiency policy recommendations across 7 priority areas

1. Across sectors

- 1.1 Measures for increasing investment in energy efficiency;
- 1.2 National energy efficiency strategies and goals;
- 1.3 Compliance, monitoring, enforcement and evaluation of energy efficiency measures;
- 1.4 Energy efficiency indicators;
- 1.5 Monitoring and reporting progress with the IEA energy efficiency recommendations themselves.

2. Buildings

- 2.1 Building codes for new buildings;
- 2.2 Passive Energy Houses and Zero Energy Buildings;
- 2.3 Policy packages to promote energy efficiency in existing buildings;
- 2.4 Building certification schemes;
- 2.5 Energy efficiency improvements in glazed areas.

3. Appliances

- 3.1 Mandatory energy performance requirements or labels;
- 3.2 Low-power modes, including standby power, for electronic and networked equipment;
- 3.3 Televisions and “set-top” boxes;
- 3.4 Energy performance test standards and measurement protocols.

4. Lighting

- 4.1 Best practice lighting and the phase-out of incandescent bulbs;
- 4.2 Ensuring least-cost lighting in non-residential buildings and the phase-out of inefficient fuel-based lighting.

5. Transport

- 5.1 Fuel-efficient tyres;
- 5.2 Mandatory fuel efficiency standards for light-duty vehicles;
- 5.3 Fuel economy of heavy-duty vehicles;
- 5.4 Eco-driving.

6. Industry

- 6.1 Collection of high quality energy efficiency data for industry;
- 6.2 Energy performance of electric motors;
- 6.3 Assistance in developing energy management capability;
- 6.4 Policy packages to promote energy efficiency in small and medium-sized enterprises.

7. Utilities

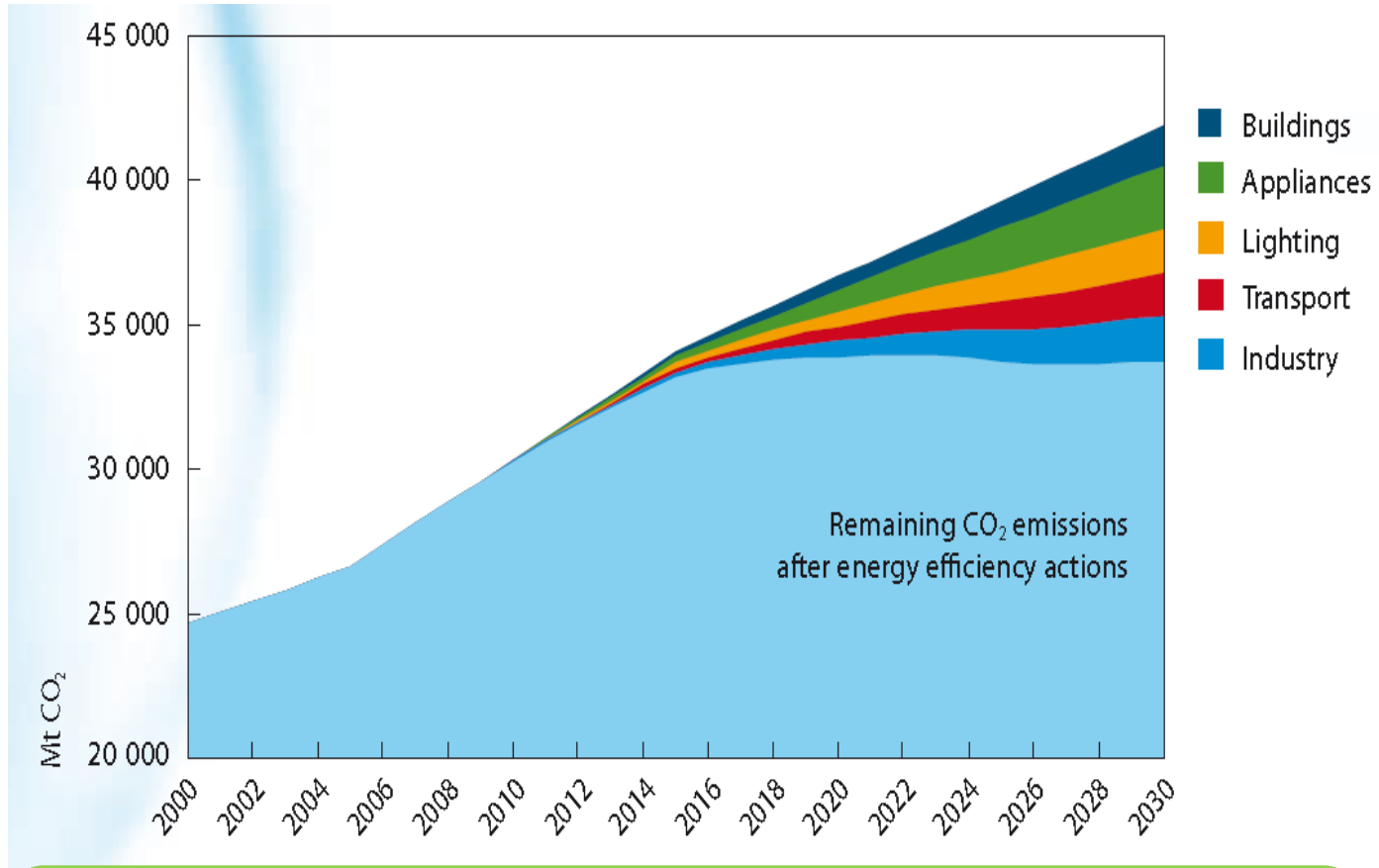
- 7.1 Utility end-use energy efficiency schemes.

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Cross-sectoral



Global implementation of recommendations could save around 8.2 GtCO₂/yr by 2030; this is equivalent to 20% of global reference scenario energy related CO₂ emissions in 2030

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Worldwide Implementation Now

Energy utilities



Progress report approach

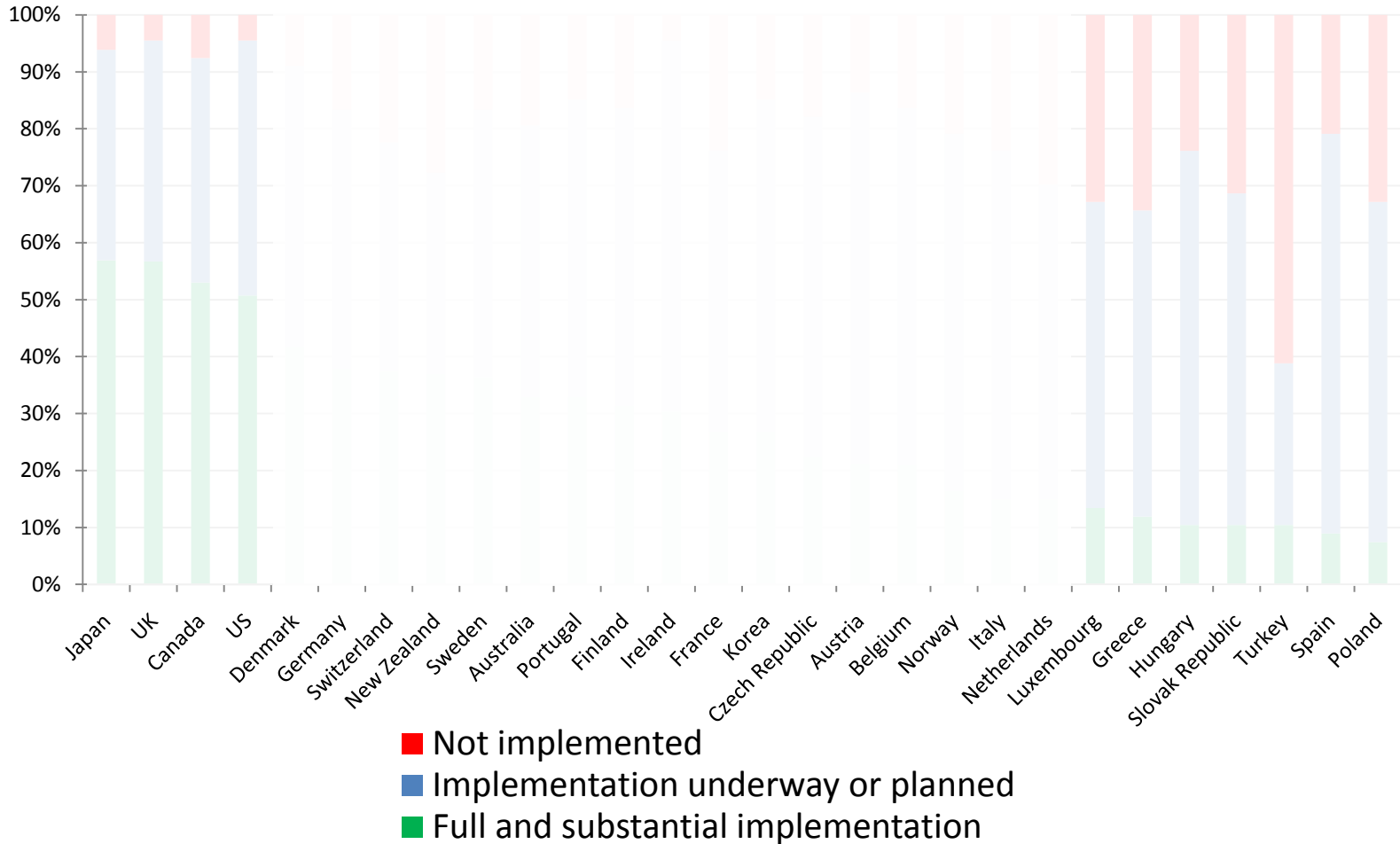
- Countries requested to fill in Excel survey
- Focus on outcomes, not just policies implemented
- Space for “Comments” allowing flexibility
- Simplified colour grading applied to each country
- Politically very sensitive

Example:

[..\..\EEWP\Austria Progress Reporting Completed \(with new info\).xls](..\..\EEWP\Austria Progress Reporting Completed (with new info).xls)

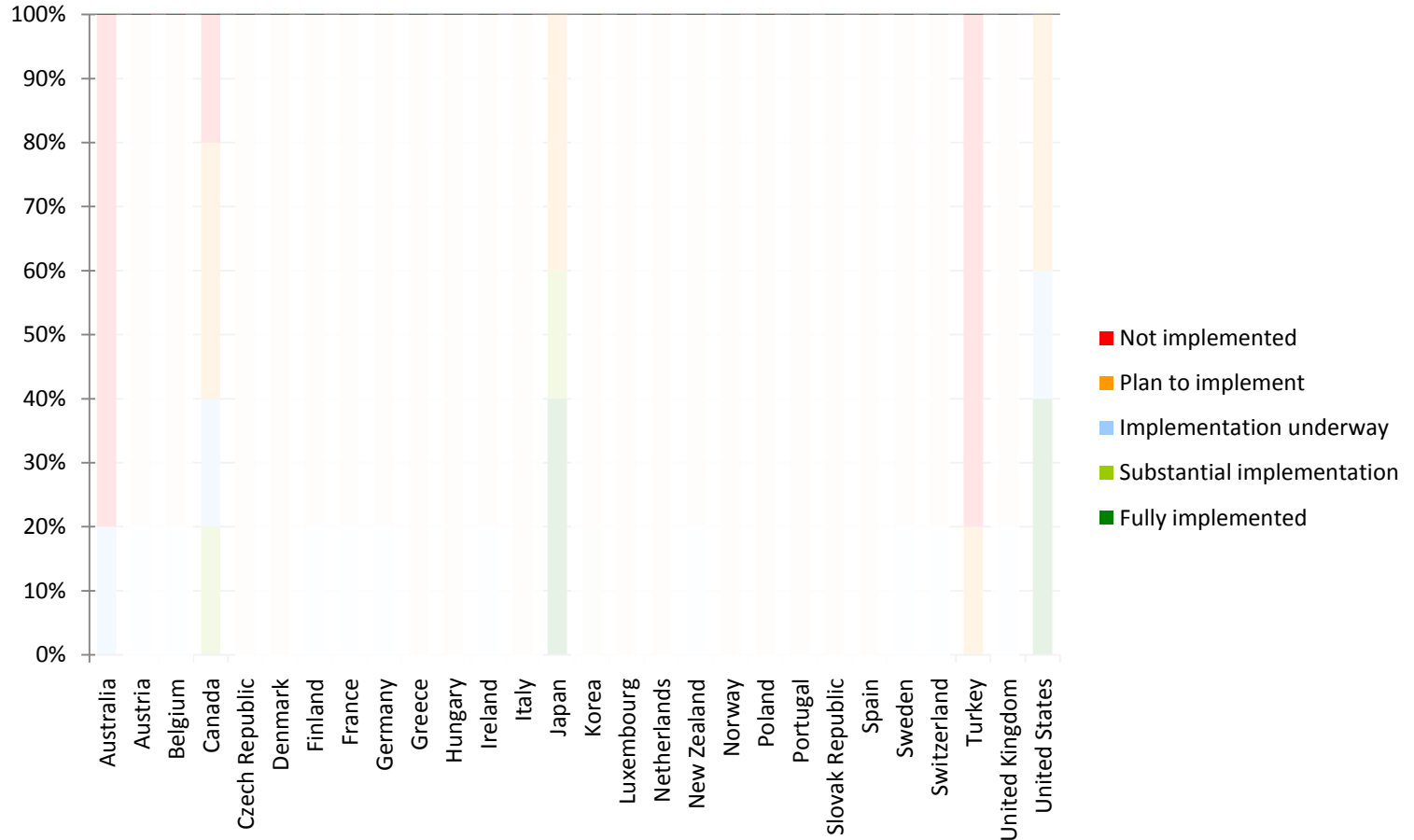
Progress level
Fully implemented
Substantial implementation
Implementation underway
Plan to implement
Not implemented.
Data not available to the IEA.
Not applicable

How does implementation compare across countries – all recommendations?



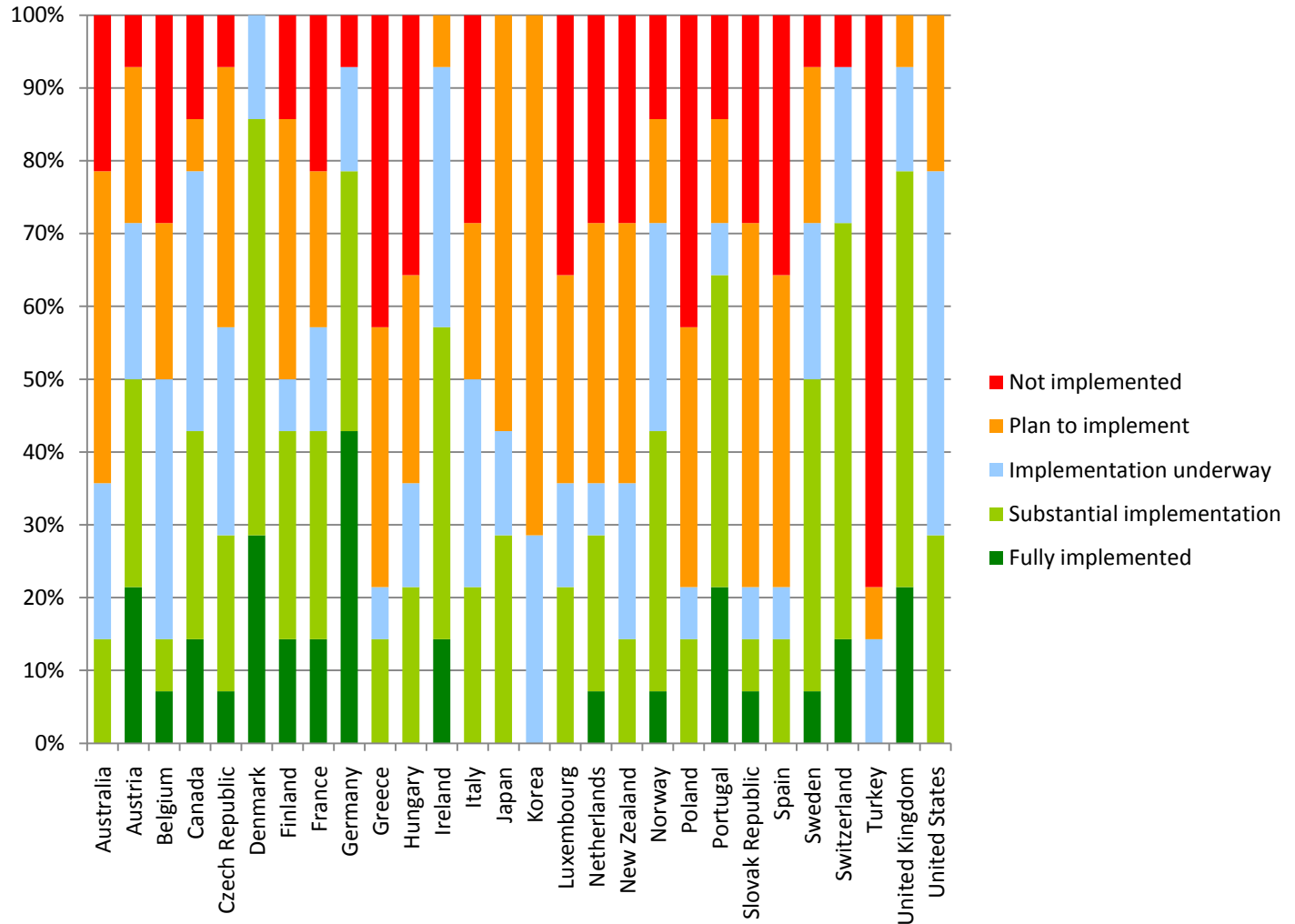
No country has ‘fully’ or ‘substantially’ implemented more than 57% of the relevant recommendations.

Implementing energy efficiency policies for *transport*



All countries need to devote more attention to improving the energy efficiency of their transport fleet.

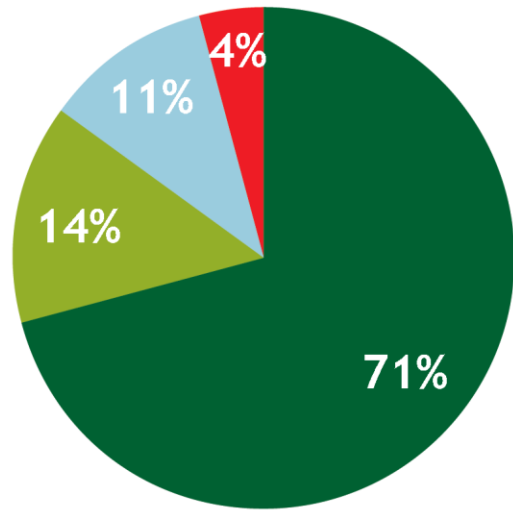
Implementing energy efficiency policies for *buildings*



Few countries have strong enough policies to capture the huge energy efficiency potential in buildings.

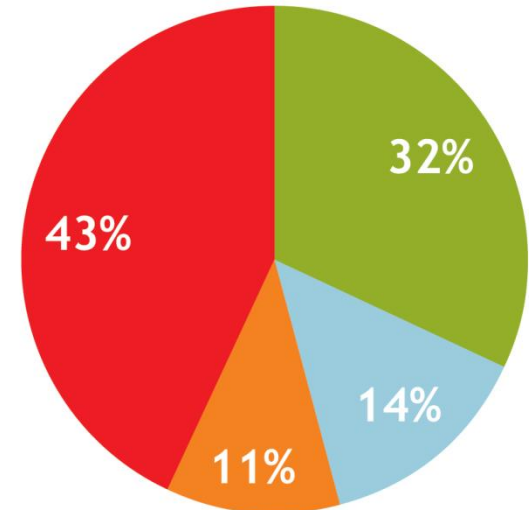
Energy Efficiency Policy

Implementing energy efficiency policies for *appliances and equipment*



- Fully implemented
- Substantial implementation
- Implementation underway

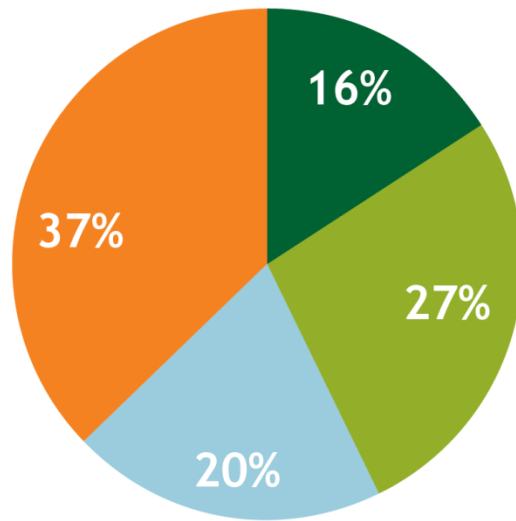
Good coverage of policies for set-top boxes and standby power in all IEA countries.



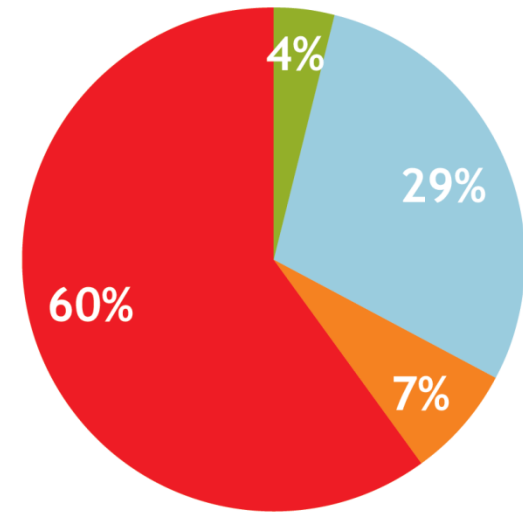
- Plan to implement
- Not implemented
- Not applicable

Policies for TVSPs very limited. More policy attention needed on maintaining stringency of MEPS

Implementing energy efficiency policies for *industry*



- Fully implemented
- Substantial implementation
- Implementation underway



- Plan to implement
- Not implemented
- Not applicable

Generally good policy support for energy audits and information provision to SMEs

Policies for energy efficiency standards for electric motors need implementing

Other sectors

Lighting

More policy attention needed for energy efficiency in non-residential lighting in all countries.

Utilities

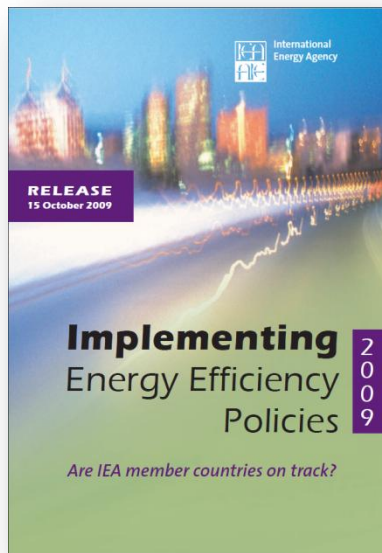
All countries need to continue to consider how to incentivize utilities to promote energy efficiency.

Cross-sectoral

All countries need to increase enforcement, compliance and evaluation efforts and expand energy efficiency financing.



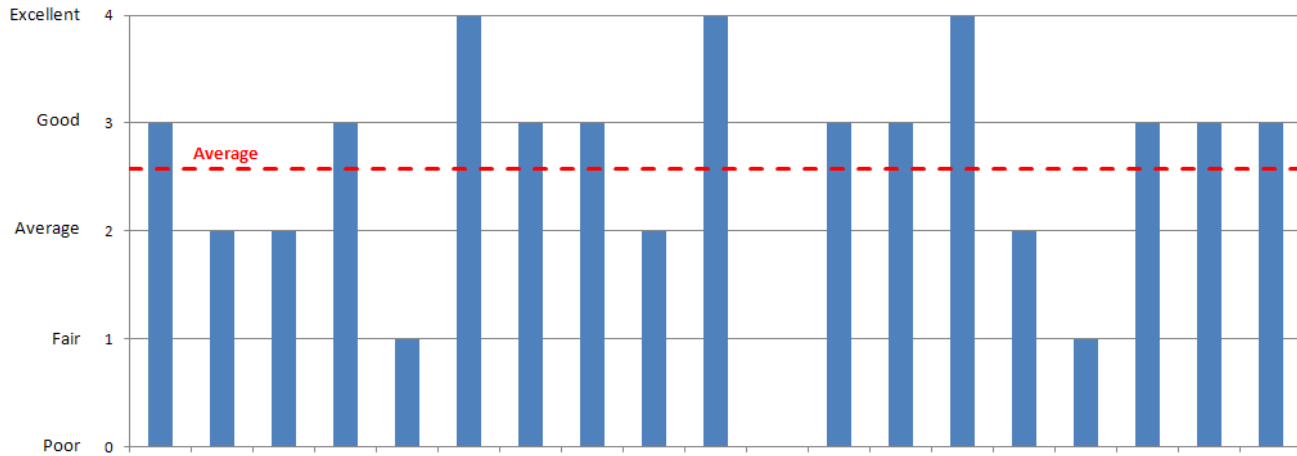
Member country evaluation of IEA secretariat progress report process



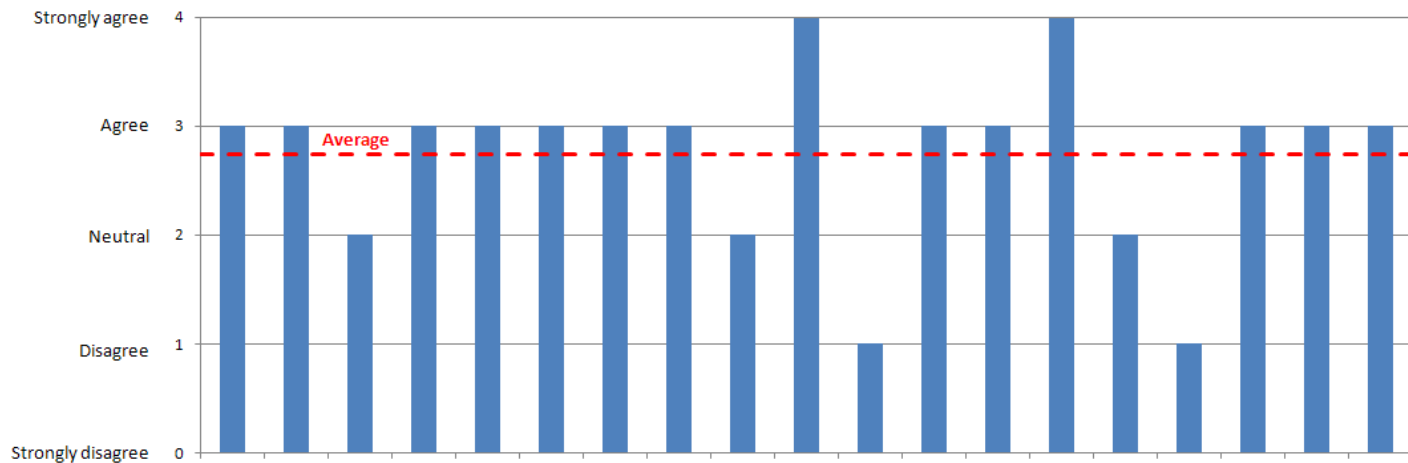
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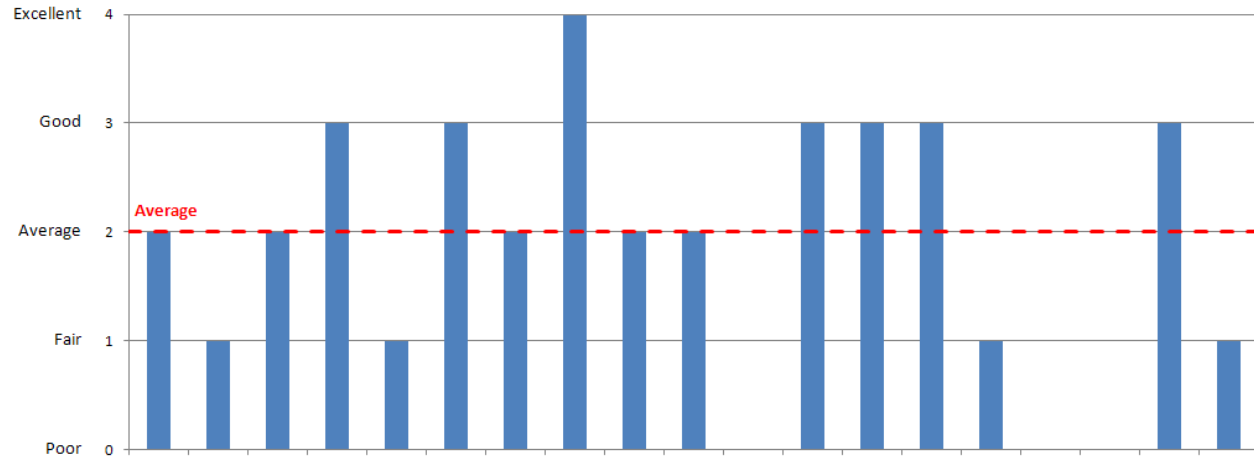
A. Please rate the usefulness to your work of the book



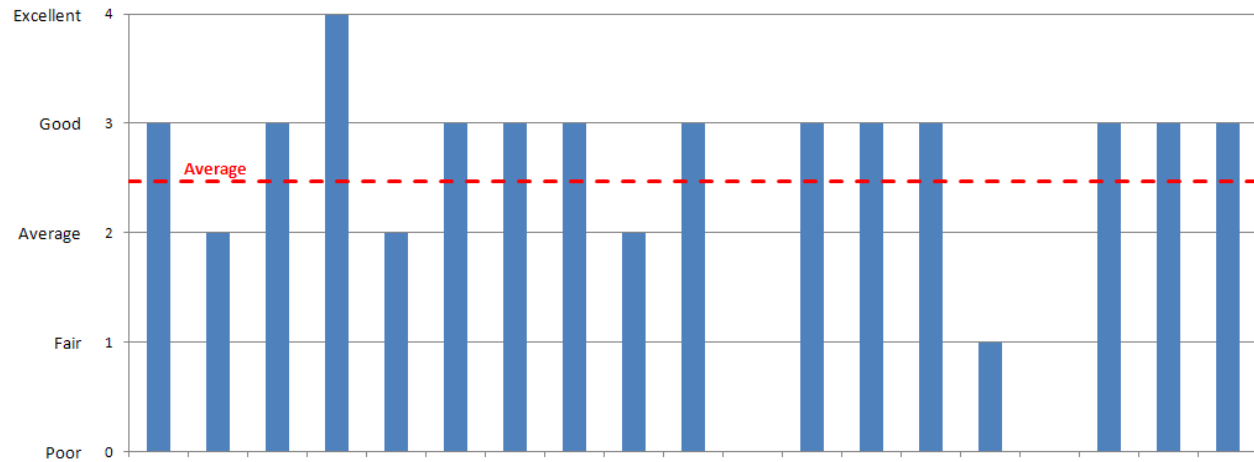
B. The final book met my overall expectations



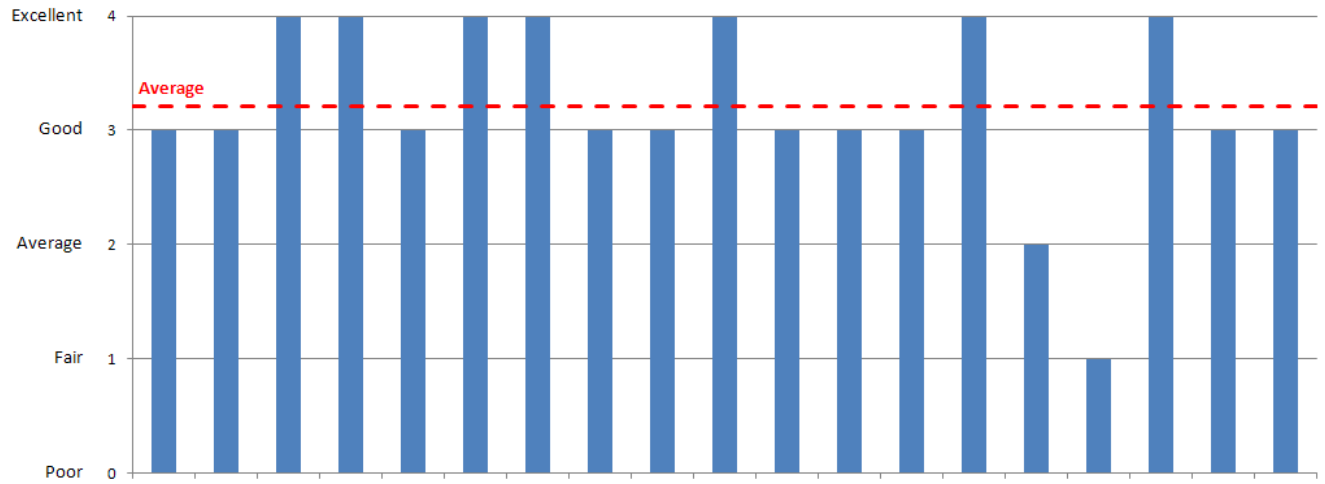
Ci. Ease of use of the self-evaluation questionnaire



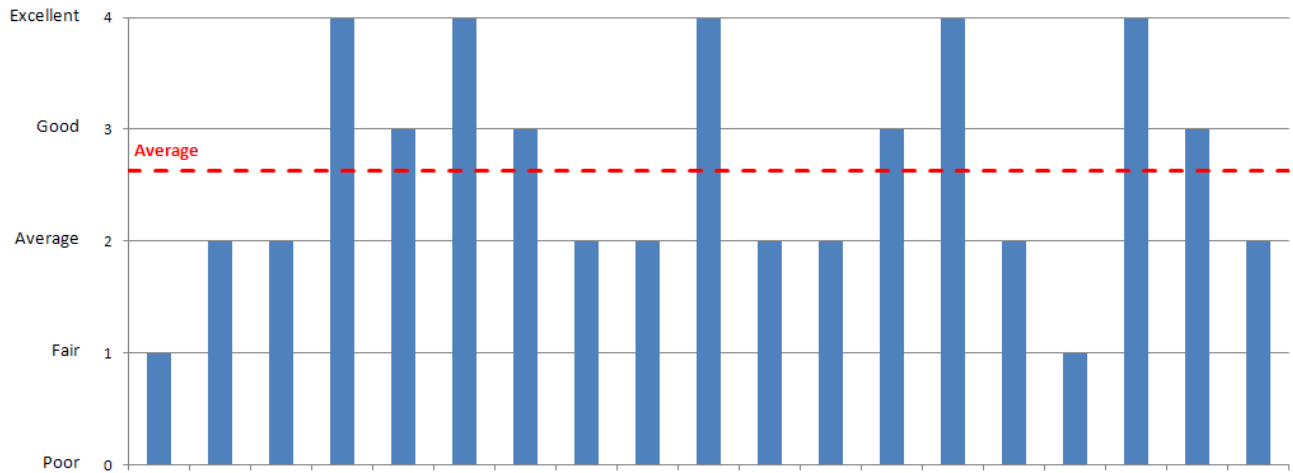
Cii. The thoroughness of the self-evaluation questionnaire



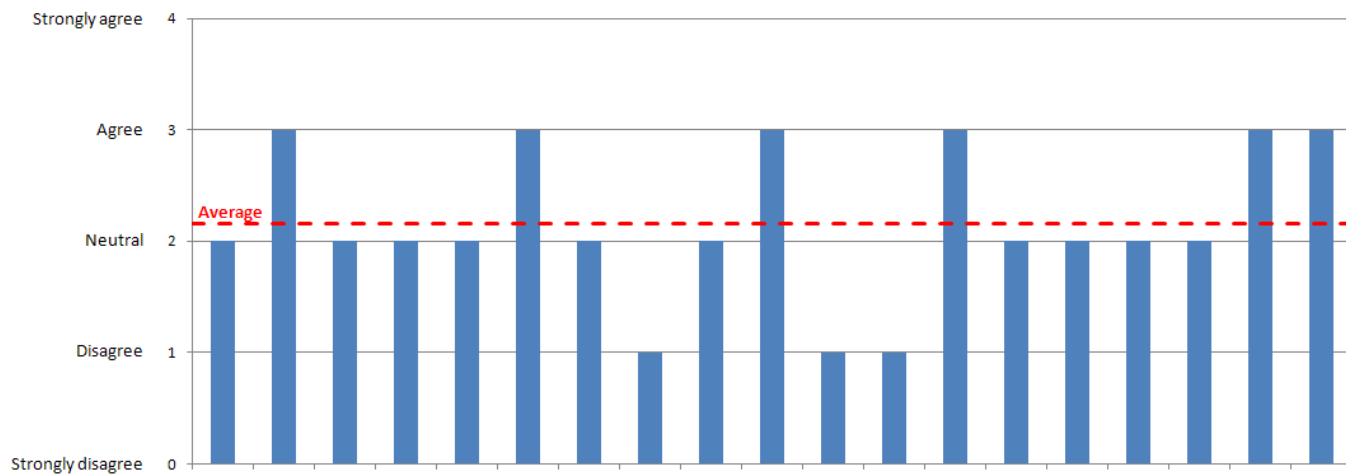
Ciii. The quality of interaction with the IEA



Civ. The degree of opportunity to respond to IEA comments



D. 31 March 2009 was an appropriate cut off date



Key messages

- Rapid, large-scale deployment of low carbon technologies and behavioural change is needed to halve CO₂ emissions by 2050
- Fuel savings may outweigh additional investments
- Governments must take lead to set the policy framework, but industry also has a role
- Policy audit is essential to ensure effective and efficient policymaking
- Ideas for discussion:
 - metrics,
 - how to measure energy savings (negawatts),
 - interaction between policies



For more information:

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