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# The Role of Technology and Collaboration in Meeting Global Energy Challenges

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#### **Tracking Clean Energy Progress**







# Need to understand key integration

issues

#### ETP 2012



A sustainable energy system is a smarter, more unified and integrated energy system

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## ETP 2014: The age of electrification

- Increased electrification is occurring in all scenarios the fasted growing energy vector in the energy system
- Need to deepen our understanding of key issues opportunities and risks
  - 1. Decarbonising energy supply: Is solar the answer?
  - 2. The enabling role of natural gas: Flexibility vs. Base load
    - Incl. CCS ability to expand the role of natural gas?
  - **3. Electrified transport** how quickly and how far can we go?
  - 4. Systems integration **is energy storage a game changer**?
  - 5. **Financing** low carbon electricity generation and capacity
  - Partner country focus: high efficiency power generation in India



2.014

## Energy RD&D: declining share but more wisely spent



IEA government RD&D expenditure

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*Energy RD&D has slipped in priority in IEA member countries.* 

#### Supporting Low-Carbon Technologies: The right policy at the right time

#### ETP 2012



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#### ETP 2015: How can Innovation increase Climate Change mitigation ambitions

- Innovation and RDDD can have a fundamental role in enabling deep carbon emission reduction
- Innovation encompasses a wide range of options:
  - Developing new technologies and approaches
  - Using available technologies in novel ways
- Difference between short term and long term needs
  - Identify what needs to be done when

# Relationship between Energy Technology and Energy Policy

#### Technology R&D supports policy

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- Focus development efforts on areas with the highest potential contribution priority policy objectives
- Provide key information on technology impact to enable successful policy development and implementation

#### Policy supports Technology R&D

- Channel resources to achieve R&D objectives
- Address non-technical barriers to technology deployment

# Communication between policy and technical experts is key

- Science can highlight policy opportunities and risks
- Policy direction must prioritise R&D efforts



#### IEA's programme of work in energy technology

Where do we need to go?

Where are we today?

How do we get there?





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Energy Security
Environmental Protection
Economic Growth
Engagement Worldwide