Innovation to Decarbonise the Energy Sector

Goals

- Reduce energy-related CO₂ emissions by nearly 70% by 2050
- Keep global temperature rise well below 2 degrees

Drive renewable energy cost reduction

1. Innovation progress since 2010
   - Solar photovoltaic (PV) module costs – reduced by 80%
   - Wind turbine costs - reduced by 30-40%

2. Enhance technology performance
   - Today’s renewable energy technologies:
     - Need to grow renewable energy share 1.2% yearly to reach 2050 climate goals
     - Could provide 2/3 of the world’s primary energy supply
     - What about the remaining 1/3?

Integrate high shares of renewable energy in power systems

- Enabling technologies
- New ways to operate systems
- Innovative business models + market designs

Create new breakthroughs for end-use sectors

- Find affordable, scalable solutions
- Develop low-carbon technologies for:
  - aviation
  - heavy industry
  - road transport
  - shipping

Action needed now:

- Governments
  - encourage private sector innovation
- Developing new technologies
  - requires decades
  - R&D → demonstration → market
- Innovation goes beyond technology
  - creating new businesses; system integration; wealth creation

To learn more, see Perspectives on the Energy Transition

IRENA
International Renewable Energy Agency