IPCC Special Report on Renewable Energy Sources and Climate Change Mitigation

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Special Report on Renewable Energy Sources and Climate Change Mitigation

1. Renewable Energy and Climate Change
   - Introductory Chapter

2. Bioenergy
3. Direct Solar Energy
4. Geothermal Energy
5. Hydropower
6. Ocean Energy
7. Wind Energy

8. Integration of Renewable Energy into Present and Future Energy Systems

9. Renewable Energy in the Context of Sustainable Development

10. Mitigation Potential and Costs
11. Policy, Financing and Implementation

Technology Chapters

Integrative Chapters
Demand for energy services is increasing.

GHG emissions resulting from the provision of energy services contribute significantly to the increase in atmospheric GHG concentrations.
Potential emissions from remaining fossil resources could result in GHG concentration levels far above 600ppm.
The current global energy system is dominated by fossil fuels.

Shares of energy sources in total global primary energy supply in 2008
RE growth has been increasing rapidly in recent years.

- 140 GW of new RE power plant capacity was built in 2008-2009.
- This equals 47% of all power plants built during that period.
The technical potential of renewable energy technologies to supply energy services exceeds current demands.
RE costs are still higher than existing energy prices, but in various settings RE is already competitive.
The contribution of renewable primary energy supply at differential CO2 concentration goals
With increasing mitigation ambition, renewable energy plays an increasingly important role.
Global mitigation costs rise with ambition and unavailability of technologies. With unavailability of some technologies (RE, CCS) more ambitious stabilization goals may no longer be reachable.
Renewable energy contributing to Sustainable Development

- RE can accelerate access to energy, particularly for the 1.4 billion people without access to electricity and the additional 1.3 billion people using traditional biomass.
- RE deployment can reduce vulnerability to supply disruptions and market volatility (energy security)
- Low risk of severe accidents.
- Environmental and health benefits (MDGs)
SD benefits include health improvement, local employment and reduced energy imports.
An increasing number and variety of RE policies – motivated by many factors – have driven escalated growth of RE technologies in recent years.
Enabling Environment and Barriers

- Enabling Environment
  - technology transfer
  - capacity building
  - financing and investment (new finance mechanisms).
Enabling Environment and Barriers

Barriers: country specific, unique challenge of LDC
- Human resources
- Information
- Technical and Infrastructure
- Economic, financial, fiscal
- Institutional
- Cultural and social
The mutually reinforcing cycles of technology development and market deployment drive down technology costs.
Thank you!

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