



IPCC Highlights May 2011

**The IPCC Special Report:
*Renewable Energy Sources
And Climate Change Mitigation (SRREN)***

May 2011

Introduction

This document highlights a few key facts that are important to understand the new IPCC report. Facts and figures are either from the negotiated *Summary For Policymakers* (SPM) or the underlying detailed full report and its Technical Summary.

NOTE: The summary below **does not** contain direct quotes from the original text but WWF's summaries on substance.

All quotes can be attributed to Dr Stephan Singer, Director of Global Energy Policy, WWF international. They express WWF's analysis of findings from the new IPCC Special Report *Renewable Energy Sources And Climate Change Mitigation (SRREN)*.

Key findings of the IPCC report on renewable energy

WWF's analysis of the landmark IPCC report on renewable energy identifies a number of highlights. These are (can be quoted as WWF's analysis):

1. "In order to keep the planet below the 2-degree danger threshold agreed by the UNFCCC, global GHG emissions need to start to decline by 2015; this is only possible through rapid upscaling of renewable energy policies as soon as possible in as many countries as possible.
2. "Assessment of long-term available fossil fuel resources and reserves in the ground, both conventional and unconventional ones, by far outweigh the *cumulative* historic consumption (since 1750) of these carbon reservoirs which is roughly less than 5% of the carbon still remaining in the ground today. Burning the remaining coal reserves alone would add the equivalent of approximately 42,000 Gigatons of carbon dioxide emissions (GtCO₂), burning the remaining known natural gas reserves would add about 7,000 GtCO₂. In comparison, even Business-as-Usual scenarios project global emissions of "no more" than 3,000 to 5,000 GtCO₂ (2005 – 2100). Stringent climate policy

scenarios permit no more than approximately 1000 – 1500 GtCO₂ emissions between now and 2100.

3. “Renewable energy (RES) contributes today about 13% of total primary energy supply, of which wind, solar and geothermal together provide about 0.5%. The remainder consists of hydropower and biomass. And the majority biomass is traditional, highly inefficient and often polluting. For instance, more than 1 million people in developing countries die annually as a result of in-door smoke and respiratory diseases resulting from use of inefficient wood and other organic fuels. About 2% of fuel for road transport is powered by biofuels, mainly bioethanol.
4. “Regarding electricity, renewable energy contributes about 19% of which the overwhelming majority is hydropower with 16%. Electricity energy systems are better prepared to be powered by renewables and have the largest potential for growth in a low-carbon and renewables-powered world; systems that are today based on liquid fuel supply will have to change.
5. “Despite its small present share, renewable electricity is growing fastest. Recent growth rates of wind and solar were in the range of 30% and 50% annually in the last two years. In 2009, almost half of all new power capacity globally came from renewables, mainly wind and solar.
6. “*All countries* have access to one or several sources of renewable energy, in contrast to fossil fuels and nuclear.
7. “The *technical* potential of renewable energy (which is smaller than the *theoretical* potential as it includes some constraints already) exceeds by far the current and any projected future energy demand for power and heat globally. Wind alone could deliver today’s global energy supply, geothermal energy can deliver more than twice the global energy demand, and solar power on its own can deliver between 3 and 100 times more than the present global energy consumption.
8. “In some regions total system costs of selected renewables producing electricity are already cost-competitive with other fuels today. Wind, geothermal and solar power costs range from about 4 to 25, 4 to 15 and 8 to >90 US\$cents per kWh. In addition, further drastic cost reductions are expected with higher deployment rates and more efficient technologies. These expected cost reductions are much *steeper* than those of nuclear and various fossil fuel technologies.
9. “In 2010 more than 100 countries – and this doubled from 2005 - have some policies and financial measures in place to boost renewables. These include 2020 RES and specific renewable energy technology targets, feed-in-tariffs, reduced tax rates, preferred grid access, research, sustainability criteria for bioenergies etc. These policies need to be greatly enhanced, made consistent for investors security and technology learning should be shared equitably.
10. “IPCC estimates that realistic deployment levels of bioenergy from various sources, including constraints of biodiversity, water scarcity and food security, could be in range of 100 to 300 Exajoule (EJ) eventually.

11. "Implementation of sustainability frameworks and standards for bioenergy can reduce potential negative impacts, including water consumption as a key parameter.
12. "Most bioenergy usages have positive climate benefits.
13. "Second-generation bioenergy (ligno-cellulosis) can substantially reduce the pressure on agricultural land and food production and further improve GHG balances
14. "Carbon capture and storage in biomass is essential for climate protection in the long term. Generally, for low GHG concentration scenarios (<450 ppm), the amount of bioenergy needs may rise substantially.
15. "Hydropower has various negative and positive environmental and social impacts. Projects need to conform with strict sustainability criteria for being acceptable and overcome potential negative impacts.
16. "In order to overcome energy poverty in developing countries, off-grid and decentralised renewable energy is often best suited to provide energy services cost-effectively. Also, highly efficient modern biomass stoves are the best technologies to improve substantially the health impact of traditional biomass burning of no more than maximum 20% energy conversion efficiency. This will also reduce pressure on local biomass resources."

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