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Energy for Sustainable Development

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Challenges requiring actions on Energy

- a. equity in energy services (the 2 billion w/o access)
- b. affordable energy services (@\$100/bbl??)
- c. secure supplies, from households to nations
- d. local and regional environmental challenges
- e. climate change mitigation
- f. ancillary risks

=> Major Energy System Changes Needed!

These challenges must be addressed

jointly

adequately

timely

Energy and Development

- Access to modern forms of energy a prerequisite for reaching the Millennium Development Goals
- **2 billion** people have **no access to electricity** and an additional **2 billion** people have **access to unreliable** electricity.
- **2 billion** people cook using traditional fuels.

Clean Cooking Fuels

- Biogas, LPG, alcohols, kerosene, electricity
- Benefits
 - Health
 - Time spent
 - Reduced emissions of
 - Hydrocarbons from incomplete combustion
 - Black carbon

Energy and development topics also in focus of the

Global Network on Energy for Sustainable Development

(a type II WSSD Partnership, facilitated by UNEP)

www.GNESD.org

Russian-Roulette Chance ($p = 5/6$) of Holding 2°C-Line:

**80% Reduction of Global GHG Emissions by 2050,
Relative to 1990 Levels**

(According to GCM-Ensembles Calculations)

Negative Emissions after 2070 !



this translates into a need for a major energy system transformation

Main elements:

- Energy end-use efficiency
- Renewable energies
- Carbon Capture and Storage
- **Efficiency and Renewables are INSTRUMENTS for addressing all the challenges at the same time!**

Example of savings by reconstruction

Before reconstruction



over 150 kWh/(m²a)

Reconstruction according to the passive house principle



15 kWh/(m²a)

-90%

Figure 2.
Wind Power Capacity, Top Ten Countries, 2008

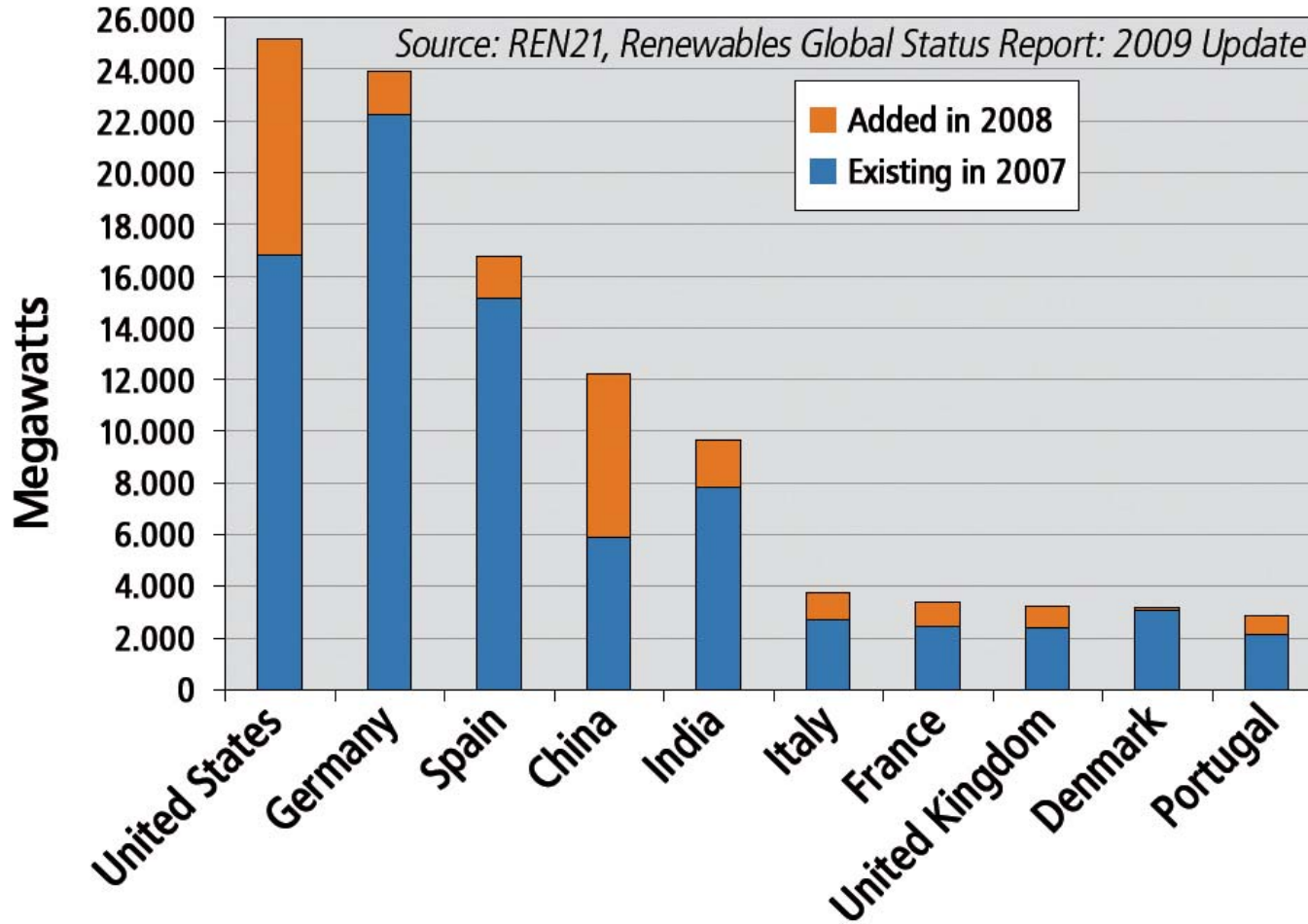
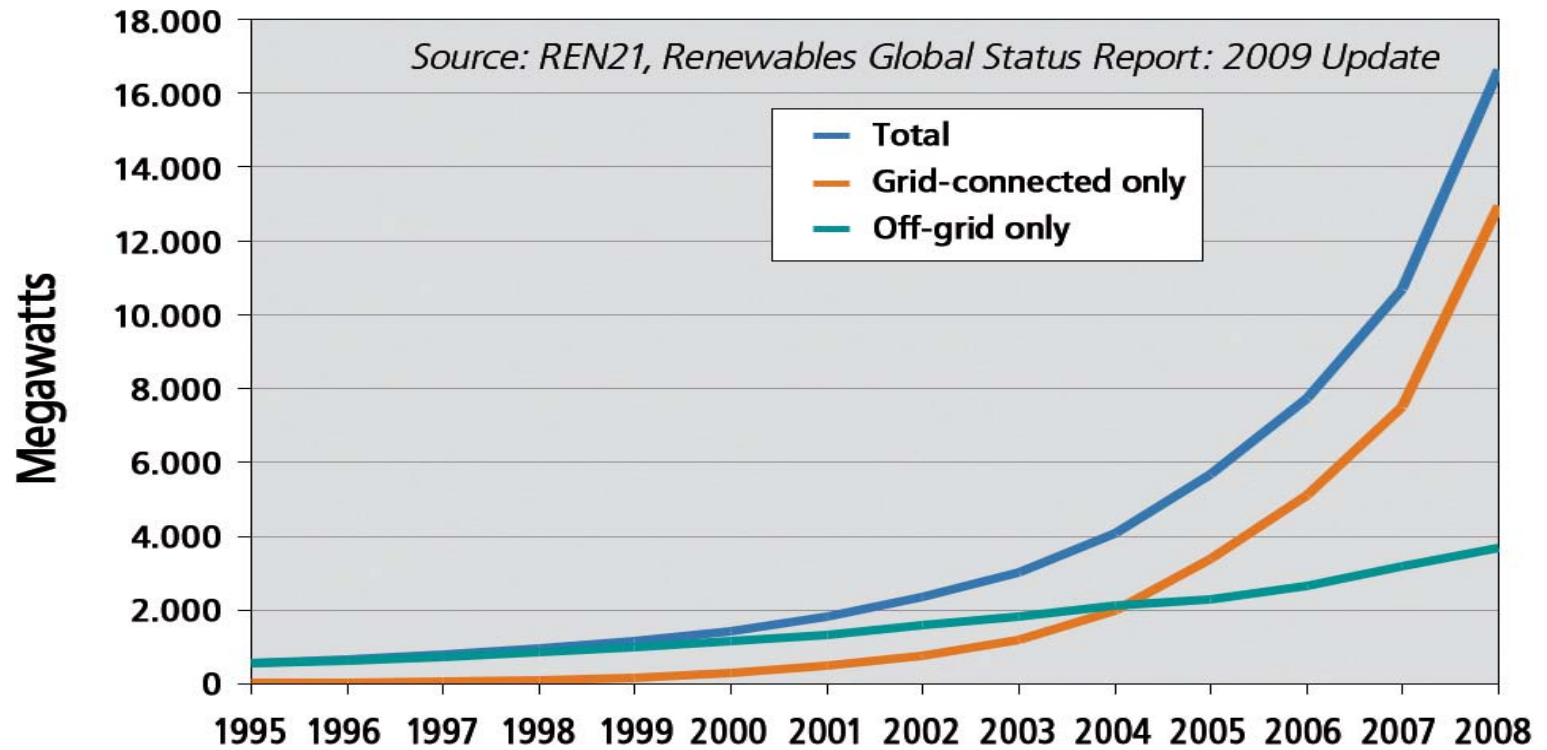
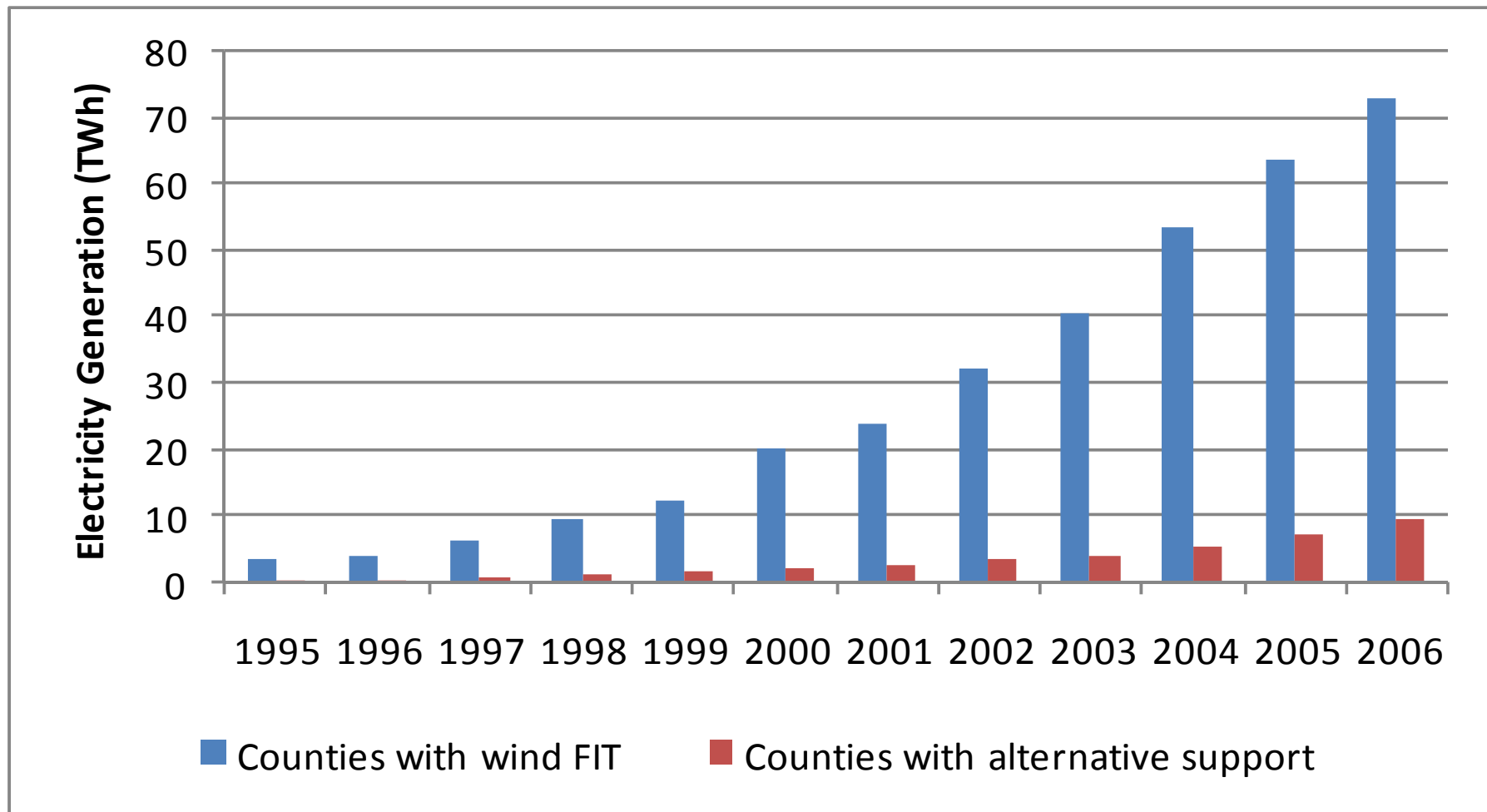


Figure 3.
Solar PV, Existing World Capacity, 1995–2008



Wind generation in the EU-27

(a comparison between countries with wind FITs and countries with alternative mechanisms of support in 2006)



Source: EC 2008

Supporting the GEA:

International Organizations

UNDESA
UNDP
UNEP
UNIDO
World Bank
IIASA

Country Governments/Agencies

Austria
Brazil
European Union
Italy
Sweden
USA

Corporations

Petrobras
TEPCO
First Solar

Industry groups

WEC
WBCSD

Foundations

UN Foundation
Climate Works



www.GlobalEnergyAssessment.org

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