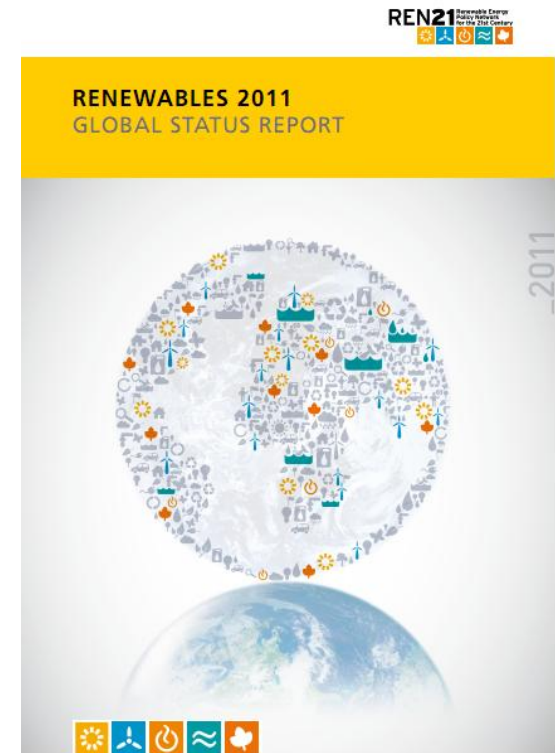


Key Facts and Figures from the REN21 Renewables 2011 Global Status Report



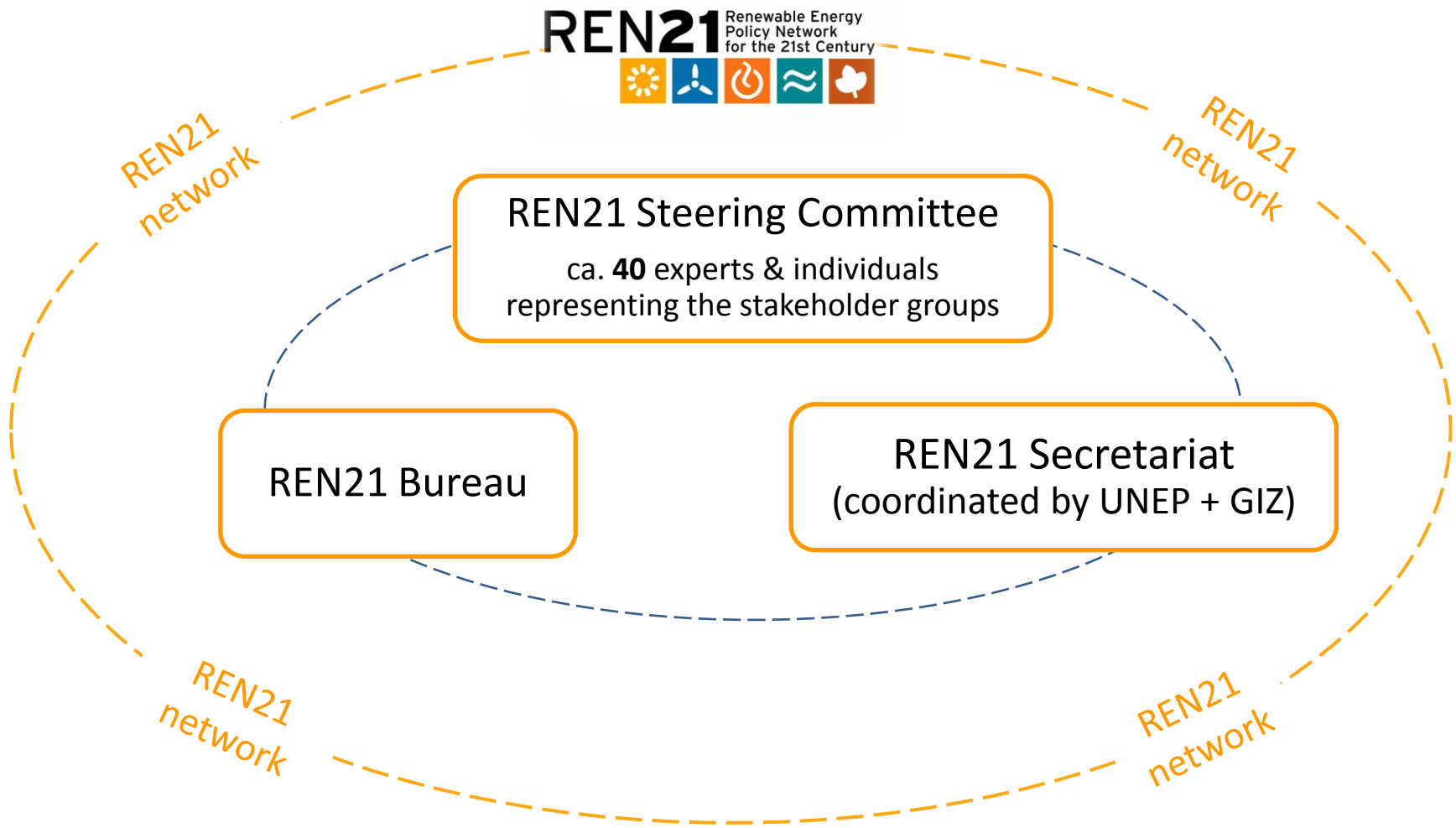
GSR Launch Event
Bonn, 7 October 2011

Janet L. Sawin, REN21 Secretariat

About REN21

- Initiated by the Political Declaration of the **International Conference for Renewable Energies**, in Bonn, Germany, June 2004.
- **Rationale:** enable a **rapid global transition to renewable energy**.
- **REN21's Mission:** Promote policies for worldwide renewable energy expansion through
 - objective **policy guidance**
 - high quality **information**
 - **exchange** among relevant actors
- **Multi-stakeholder** Policy Network grouping:
national to local governments, industry, academia, INGOs, NGOs, civil society

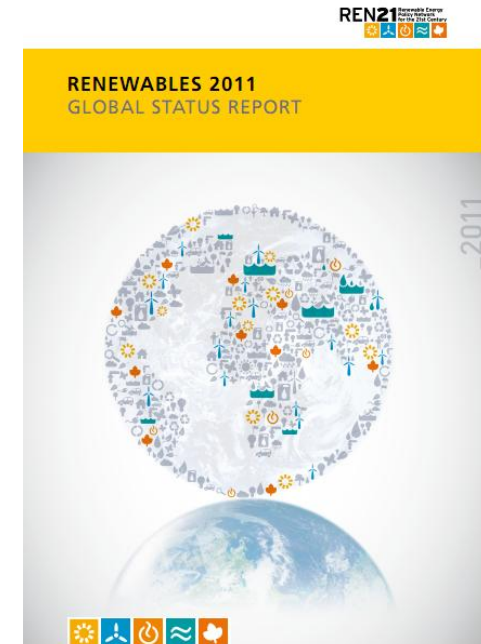
Organisation of REN21



REN21 Renewables Global Status Report

www.ren21.net/gsr

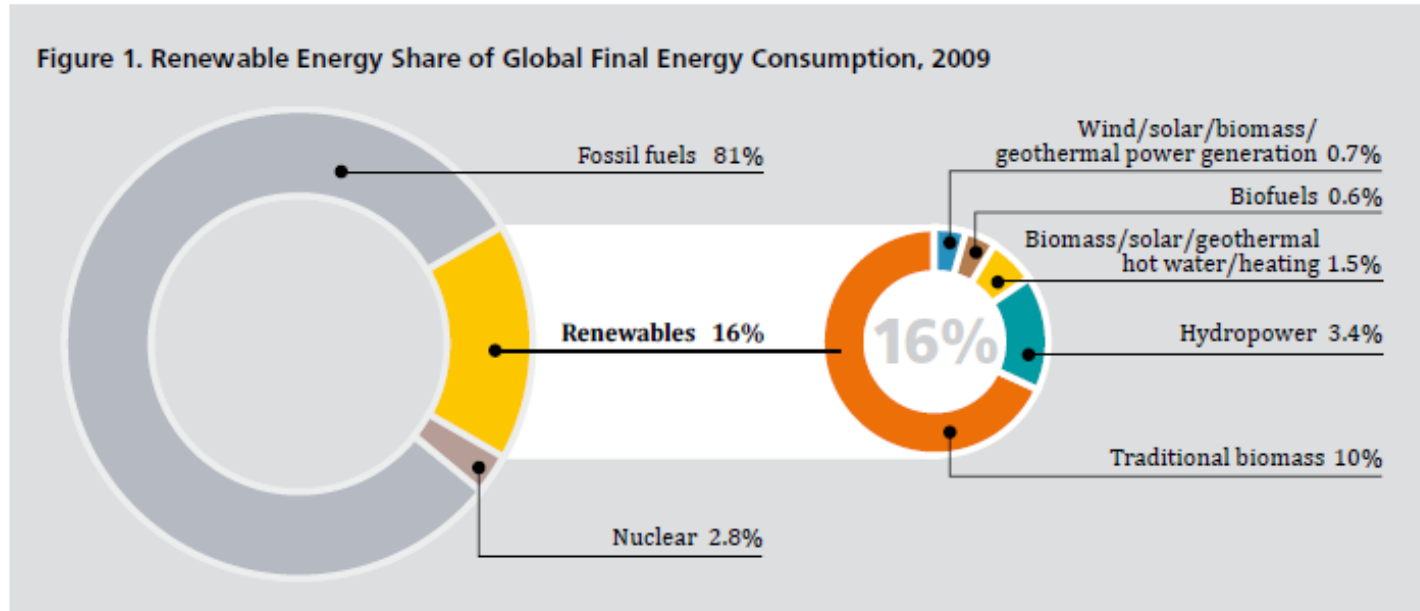
- Annual publication since **2005**
- Comprehensive overview of global renewable energy **situation & key trends**
Global Market Overview, Investment Flows, Industry Trends, Policy Landscape, Rural Renewable Energy
- All renewable energy technologies
- Sectors: power, heating/cooling, transport
- **NO** analysis, potentials, forecasting
- team of over **150 researchers & reviewers** worldwide
 - Lead author & chapter authors
 - Technology contributors & Regional contributors
 - REN21 Secretariat research support team



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Renewable Energy in 2010

Renewables 2011 Global Status Report

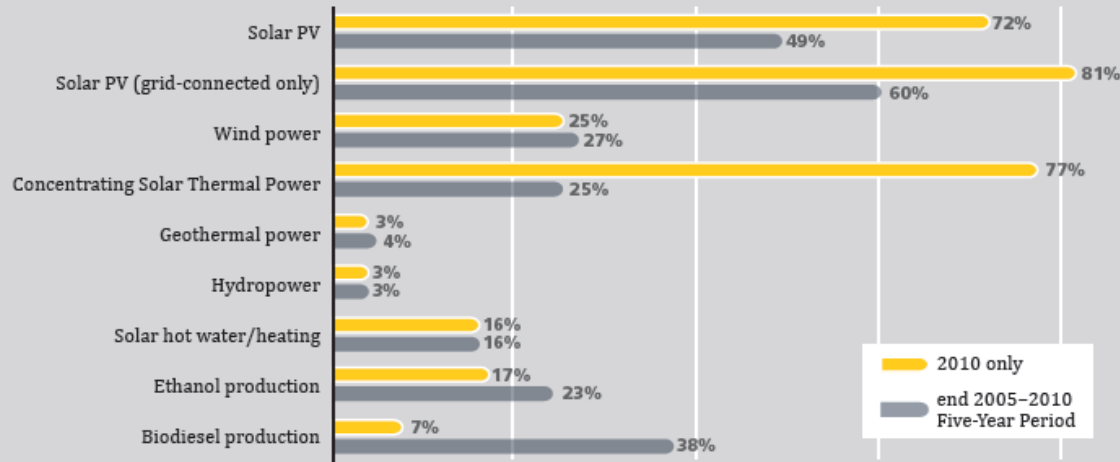


- In 2009, RE supplied an estimated **16%** of **global final energy consumption**
- Global energy consumption **rebounded** in 2010 (+5,4%) after downturn in 2009
- **Renewable energy**, which experienced no downturn in 2009, continued to **grow strongly** in all end-use sectors

Renewable Energy in 2010

Renewables 2011 Global Status Report

Figure 2. Average Annual Growth Rates of Renewable Energy Capacity and Biofuels Production, 2005–2010

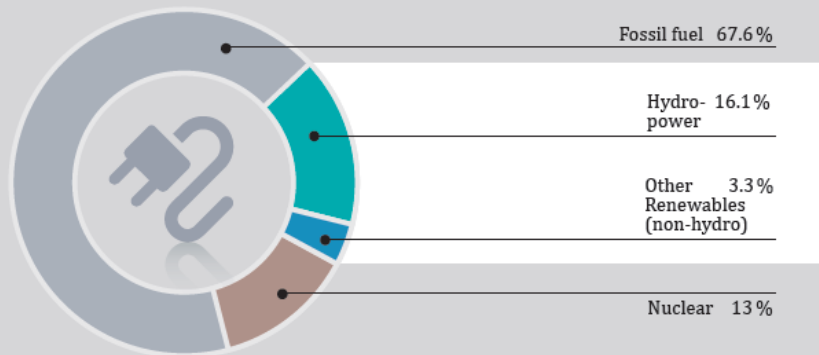


Source: See Endnote 3 for this section

- From the **end of 2005** through **2010**, global capacity of many renewable energy technologies grew at rates ranging **15%** to nearly **50%** annually
- **Solar PV** increased the **fastest**, followed by **biodiesel** and **wind**
- In several countries the growth rates for these RET **far exceed global averages**

Global Market Overview – Power Markets

Figure 3. Renewable Energy Share of Global Electricity Production, 2010



Source: See Endnote 6 for this section

- Renewable electric power capacity worldwide reached **1,320 GW (+8%)** in 2010
- Renewable capacity comprises about **25 % of total global power-generating capacity**
- Renewable energy delivered close to **20% of global electricity production**
- RE accounted for roughly **half** of the 194 GW of **new power generating capacity**

- **Heating and Cooling**

- Modern biomass accounts for the largest share of renewable heating, followed by solar thermal and then direct geothermal heat.
- Trends toward increasing use for industrial heat, and use of solar for cooling, ground-source heat pumps.

- **Transport**

- RE used in form of electricity, hydrogen, biogas, liquid biofuels.
- Limited but growing quantities of biogas and electricity in some countries.
- Biofuels accounted for 2.7% of global road transport fuels in 2010.

Industry Trends

Key General Trends

- RE industry saw **continued growth** in manufacturing, sales and installation
- **Cost reductions** (especially in PV) contributed to growth
- Changing policy landscape in many countries → industry uncertainties and negative outlook
- Trends:
 - **Internationalisation**
 - **Industry consolidation** (notably in the biomass and biofuel sector) as traditional energy companies moved into RE
 - Development of **vertically integrated supply chains**
 - **Manufacturers expanding into project development**
- **Worldwide jobs** in renewable energy industries exceeded **3.5 million** in 2010.

Global Markets and Industries – Technology Trends

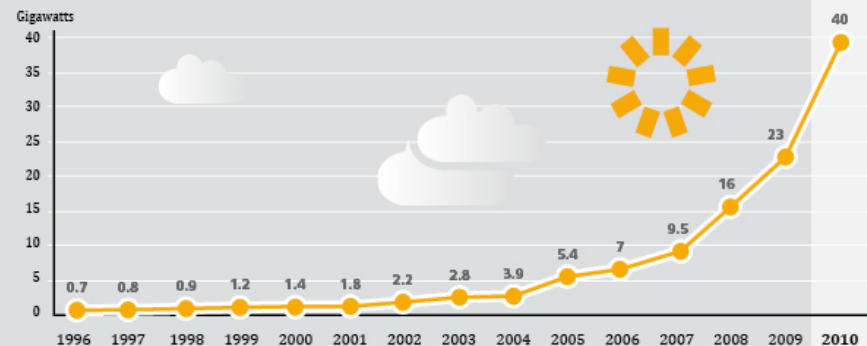
■ Wind power

- Led for total new capacity (+39 GW added for global total ~ 198 GW)
- China ~50% of world market
- Market held steady with 2009, but substantial increase in manufacturing capacity

■ Solar PV

- ~17 GW added for total of 40 GW (+72% over 2009)
- For first time, Europe added more PV than wind, led by Germany (with 44% of global capacity)
- Cell manufacture continued shift to Asia
- Cost reductions continued

Figure 7. Solar PV, Existing World Capacity, 1995–2010



Source: PV News, EPIA

Global Markets and Industries – Technology Trends

■ Solar thermal

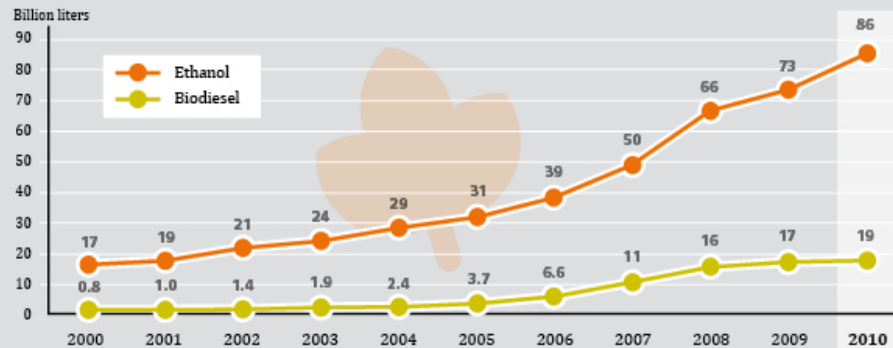
- Capacity increased by estimated 16% in 2010 to about 185 GWth
- China continues to dominate world market and manufacturing
- EU trend toward combination systems

■ Biomass power and heat

- Data gathering a challenge due to diverse feedstocks and conversion systems
- Use of modern biomass totaled 11,600 PJ heat in 2008, and an estimated 62 GW power capacity by end of 2010.
- Markets expanding steadily
- Notable trends include:
 - Pellets for heat and power
 - Biomethane injection
 - Small-scale biogas plants in China and India

Global Markets and Industries – Technology Trends

Figure 11. Ethanol and Biodiesel Production, 2000–2010



Source: E.O. Licht

■ Ethanol

- Production up 17% to 86 billion liters
- US and Brazil = 88% global market

■ Biodiesel

- 7% increase to nearly 19 billion liters
- Europe continued to lead (53% total output), but operated at average capacity of 50% or lower

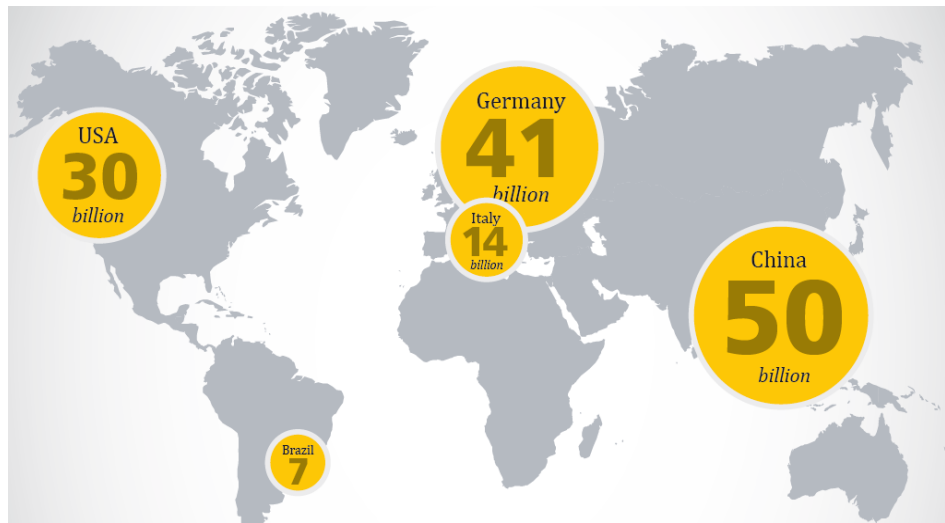
Investment Flows

Figure 12. Global New Investment in Renewable Energy, 2004–2010



- Total global investment in RE jumped in 2010 to a record of **\$211 billion** and exceeded:
 - **\$226 billion** including estimated **\$15 billion** invested in **solar hot water**
 - **~\$270 billion** including the **\$40–45 billion** invested in **large hydropower (>50 MW)**.
- Total 2010 investment in new RE capacity (not including large hydro) was \$203 billion

Investment Flows



- **China** attracted nearly **\$50 billion**, making it the leader for the second year in a row.
 - For the first time, financial new investment in RE in **developing countries surpassed** that in developed economies.
-
- More public money to the RE sector through **development banks** than through **government stimulus** packages.
 - BNEF data show that **13 development banks** worldwide provided **\$13.5 billion of finance** for RE projects in 2010.
 - **3 leading development banks** in RE project finance were European Investment Bank (\$5.4 billion), Brazil's BNDES (\$3.1 billion), Germany's KfW (\$1.5 billion).

Policy Landscape

Policy Targets

- Doubling of countries with RE targets or policies in five years: **55** in 2005 to **118** in early 2011.
- Targets in at least **96 countries**; more than half are **developing countries**.
- Many targets and policies also exist at **state, provincial** and **local** levels.
- Targets represent commitments to:
 - **Shares of electricity** (typically 10–30%)
 - **Total primary energy**
 - **Heat supply**
 - **Installed capacities** of specific technologies,
 - **Shares of biofuel** in road transport fuels over 1-2 decades.
- Many countries **met 2010** targets (some data not available), **some exceeded**.

Policy Landscape

Policy Developments

- **Renewable power generation** policies exist in at least 96 countries, more than half of which are developing or emerging economies.
- **Fuel blending mandates** now exist in 31 countries at the national level and in 29 states/provinces around the world.
- In policies for RE **heating and cooling**, trend toward regulatory approaches that mandate energy shares or equipment installation.
- **Green power purchasing** and **utility green pricing programs** are increasing thanks to support policies, private initiatives, utility programs, government purchasing.
- **Local governments** are playing an increasing role in RE development, setting targets and enacting local mandates and support policies.

The Renewables Interactive Map

Home Page



- Informs on **renewable energy policy**
- Tracks **worldwide RE** development
- **Gathers and shares** information on RE policy and development
- Provides automatic & easy to use **reports**

www.map.ren21.net

Thank You

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