



REN21 Renewable Energy
Policy Network
for the 21st Century





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

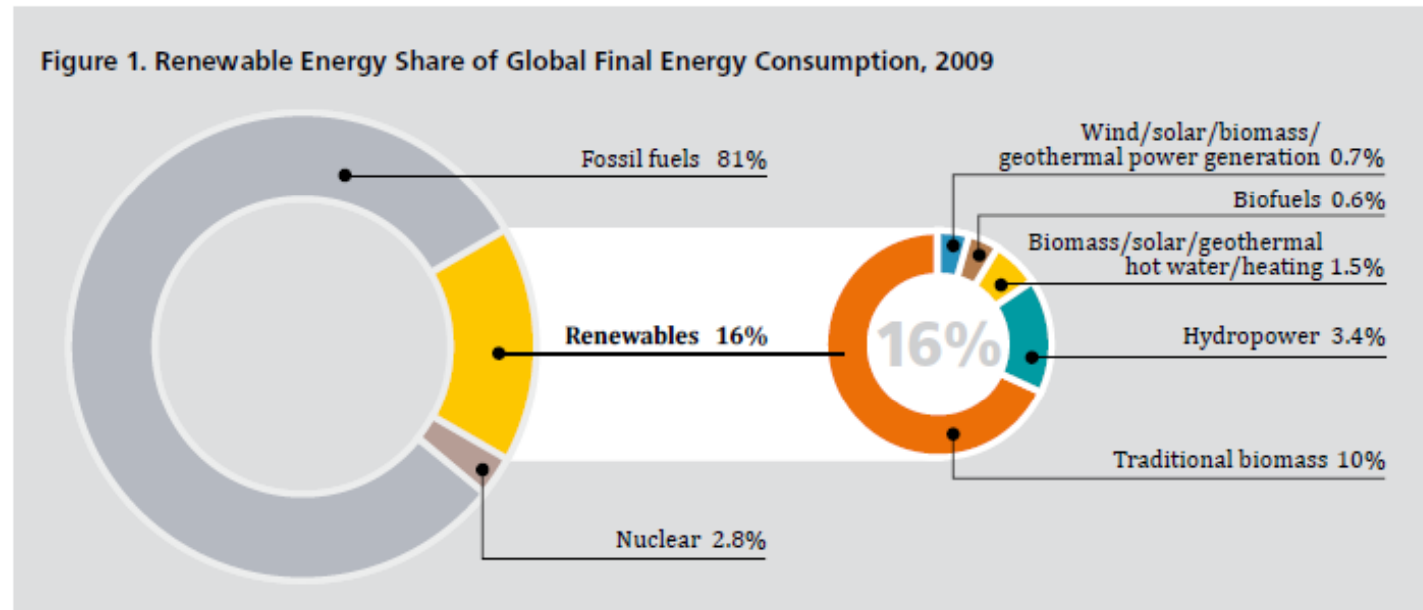


GSR US Launch
Washington DC, 15th November 2011

Mohamed El-Ashry, Chairman of REN21
Alexander Ochs, Director of Climate and Energy, Worldwatch Institute

Renewable Energy in 2010

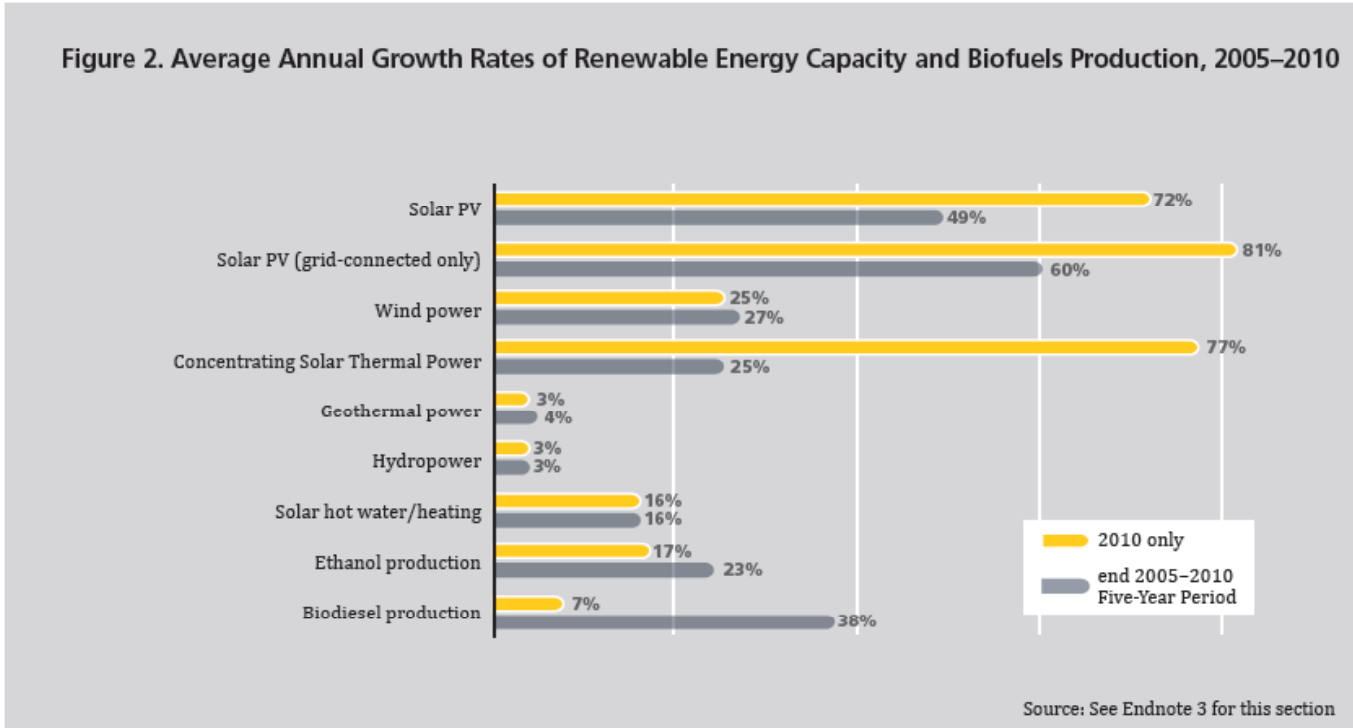
Renewables 2011 Global Status Report



- 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

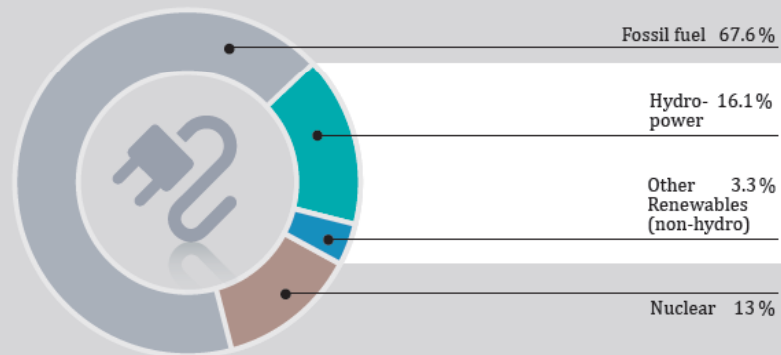


- From the **end of 2005** through **2010**, global capacity of many renewable energy technologies grew at rates ranging **15%** to nearly **50%** annually
- **Solar PV** increased the **fastest**, followed by **biodiesel** and **wind**
- In several countries the growth rates for these RET **far exceed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

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
- 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 direct jobs** in renewable energy industries exceeded **3.5 million**

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

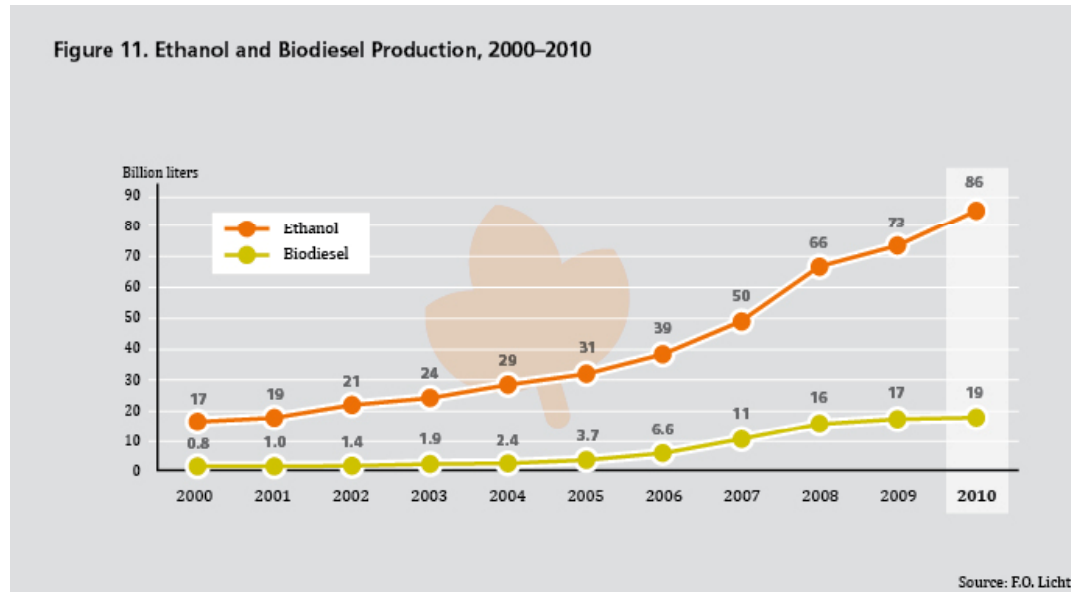
■ Solar thermal

- 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



■ Ethanol

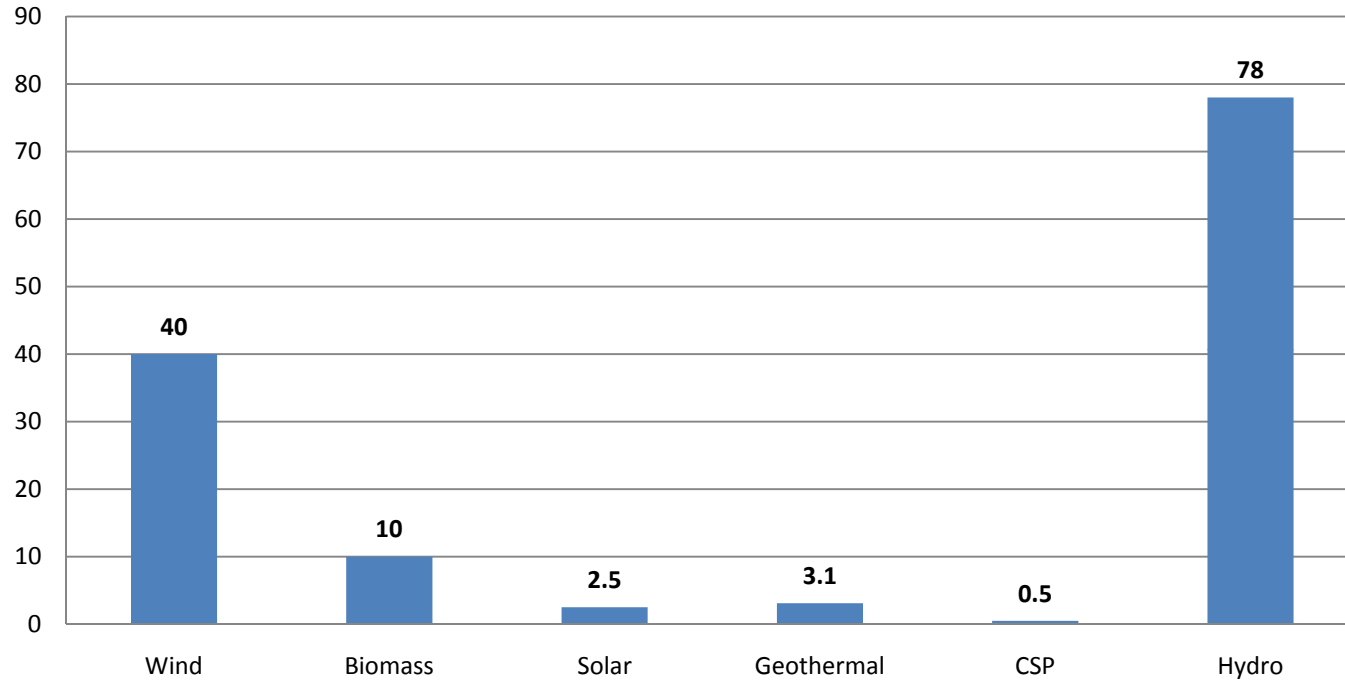
- Production up 17% to 86 billion liters
- US and Brazil = 88% global market

■ Biodiesel

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

Market Overview – United States

Renewable Electric Power Capacity in the US in 2010/GW

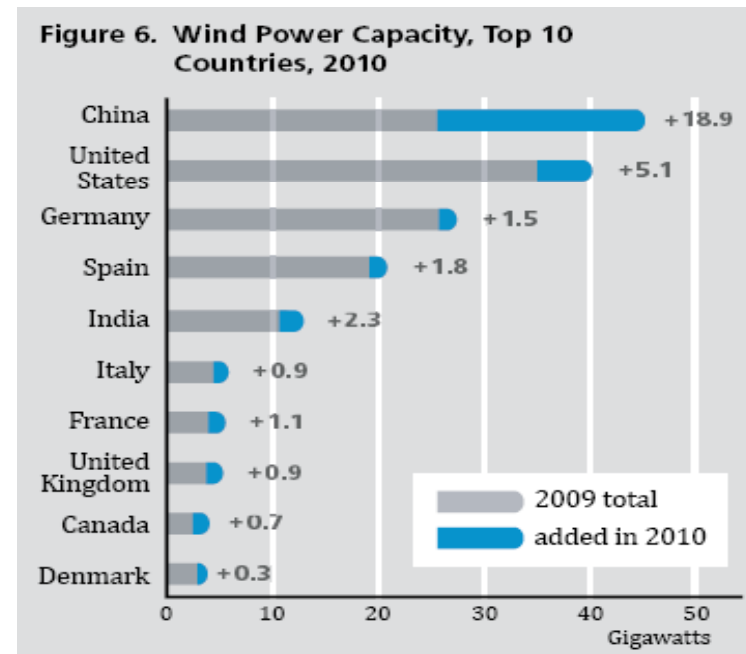


- Total modern renewable capacity in the US: 56GW
- Renewable accounted for 25% of electricity capacity additions in 2010 & 11.6% of existing electric capacity

Market Overview – United States

Wind

- 5GW installed in 2010 for a total of 40.2GW
- 2.3% of electricity generation from wind in 2010 compared to 1.8% in 2009
- US and Canada accounts for 15% of global wind market
- State of Texas has more than one quarter of US wind capacity (10.1GW)
- The State of Iowa met 15% of its electricity needs through wind power in 2010



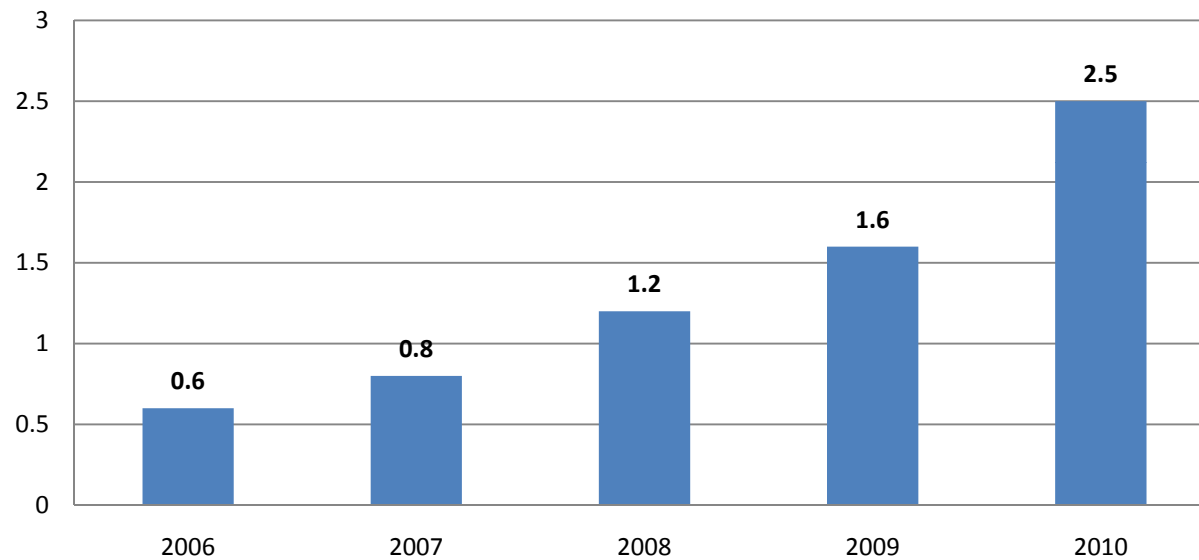
Biomass

- The US is the leader in the world for biomass power generation.
- Total installed capacity: 10.4 GW
- Electricity production in 2010: 48TWh

Market Overview – United States

Solar

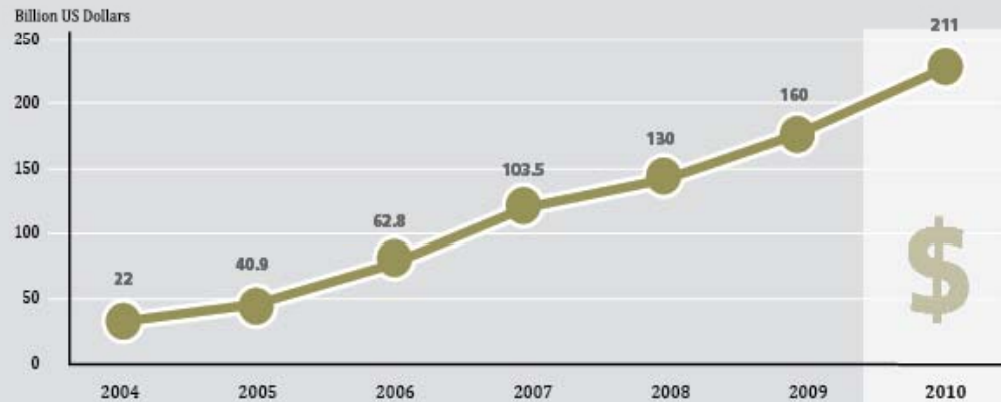
Solar PV Capacity in the US 2006 - 2010/ GW



- 0.9 GW of Solar PV added in 2010
- Within the US, California leads with 30% of solar PV market share.

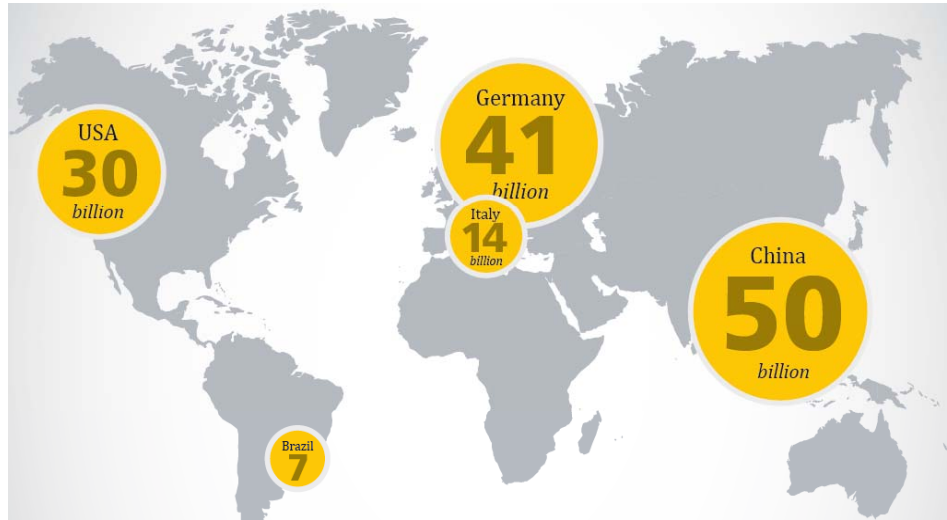
Investment Flows

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

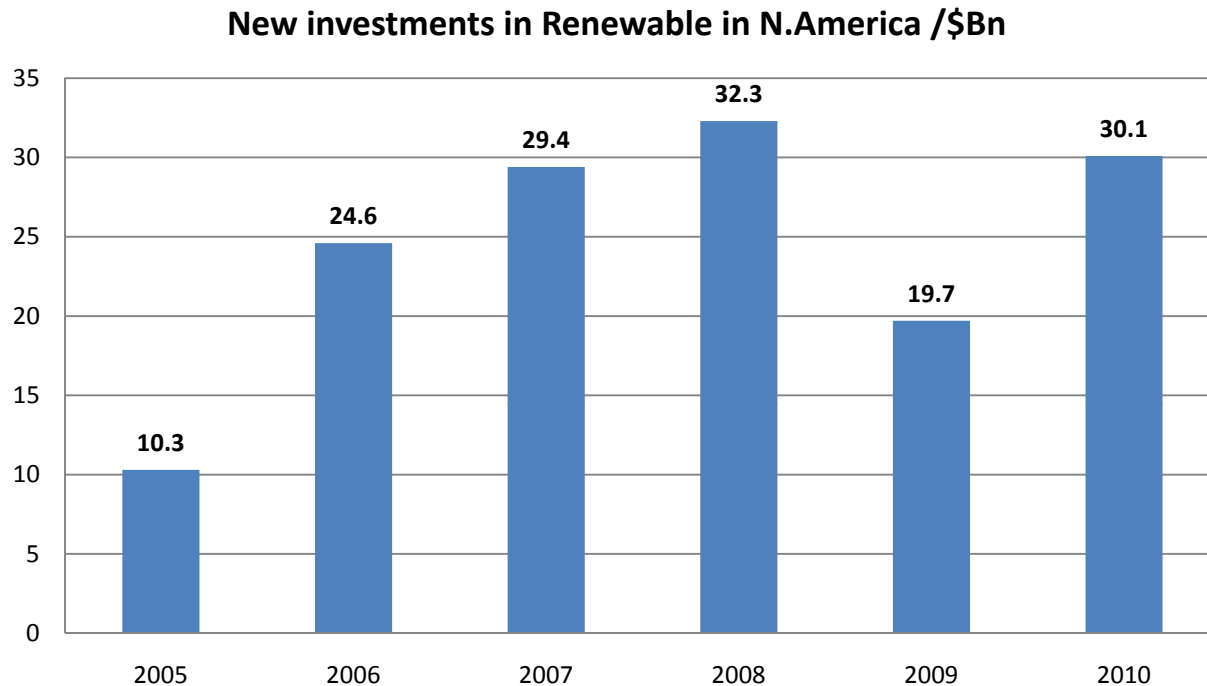
Investment Flows



- **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).

Investment Flows : United States



Source: BNEF, 2011

- New Investment in the US was about \$25 billion in 2010.
- This represented an increase of 58% compared to 2009.
- Most of the investment was in the wind sector.

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.



Policy Landscape

United States – Major Developments at State Level

30 states has RPS policies and 6 more states have non binding policy goals, e.g.

- New York RPS requirement was extended from 24% in 2015 to 29% in 2015 (for investor owned utility)
- New RPS enacted in California for 33% of electricity by 2020
- California set to reach 20% RPS target by 2012 (originally by 2016)
- Delaware RPS : municipal and investor owned utilities to purchase 25% share of electricity from in-state source by 2026 (3.5% of PV)

Policy Landscape

United States – examples of targets and policies

Targets:

- Los Angeles ,CA: 1.3 GW of Solar PV by 2020
- San Francisco, CA: 50 MW of Renewables by 2012

Policies:

- Green Pricing programs offered in more than 850 utilities
- Green Power purchase in the US reached 30 TWh in 2009 compared to 18TWh in 2007
- Gainesville, FL: Feed in tariff for solar PV implemented
- New York, NY: Net metering offered for renewable installations up to 2 MW capacity

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

Further Information:

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