

RENEWABLES 2013 GLOBAL STATUS REPORT



Global Status of Renewable Energy

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2013

www.ren21.net

About REN21

A Multi-stakeholder Policy Network grouping

Science & Academia:

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NGOs:

CURES, GFSE,
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Industry Associations:

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EREC, GWEC, IGA, IHA,
WBA, WWEA



International Organisations:

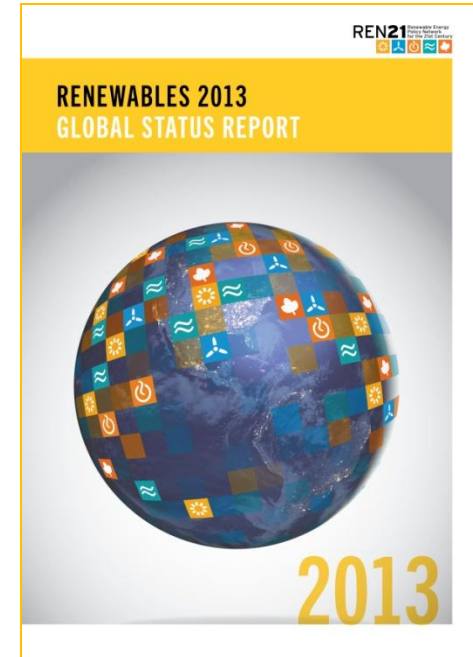
ADB, EC, GEF, IEA, IRENA,
UNDP, UNEP, UNIDO,
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National Governments:

Brazil, Denmark
Germany, India, Norway,
Spain, Uganda, UAE, UK

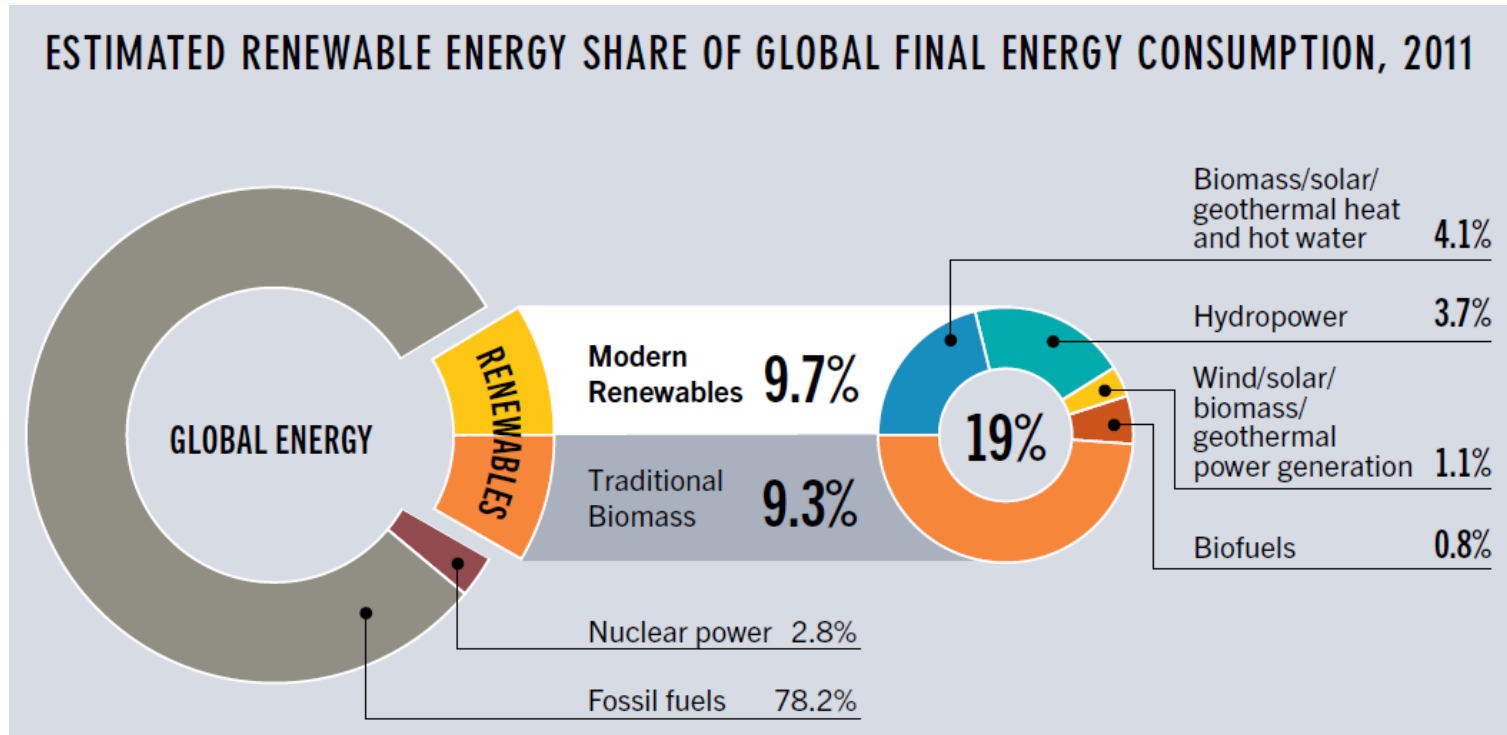
REN21 Renewables Global Status Report

- Launched along with UNEP's Global trends in RE investment.
- Team of over 500 Contributors, researchers & reviewers worldwide.
- The report features:
 - Global Market Overview.
 - Industry Trends.
 - Policy Landscape.
 - Rural Renewable Energy.
- All renewable energy technologies.
- Sectors: power, heating/cooling, transport.
- New elements in 2013:
 - Feature on system transformation.



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Renewable Energy in the World



Source: REN21 Renewables 2013 Global Status Report

- RE supplied an estimated **19%** of **global final energy consumption** in 2011.

Top 5 RE champions

ANNUAL INVESTMENT/ADDITIONS/PRODUCTION IN 2012

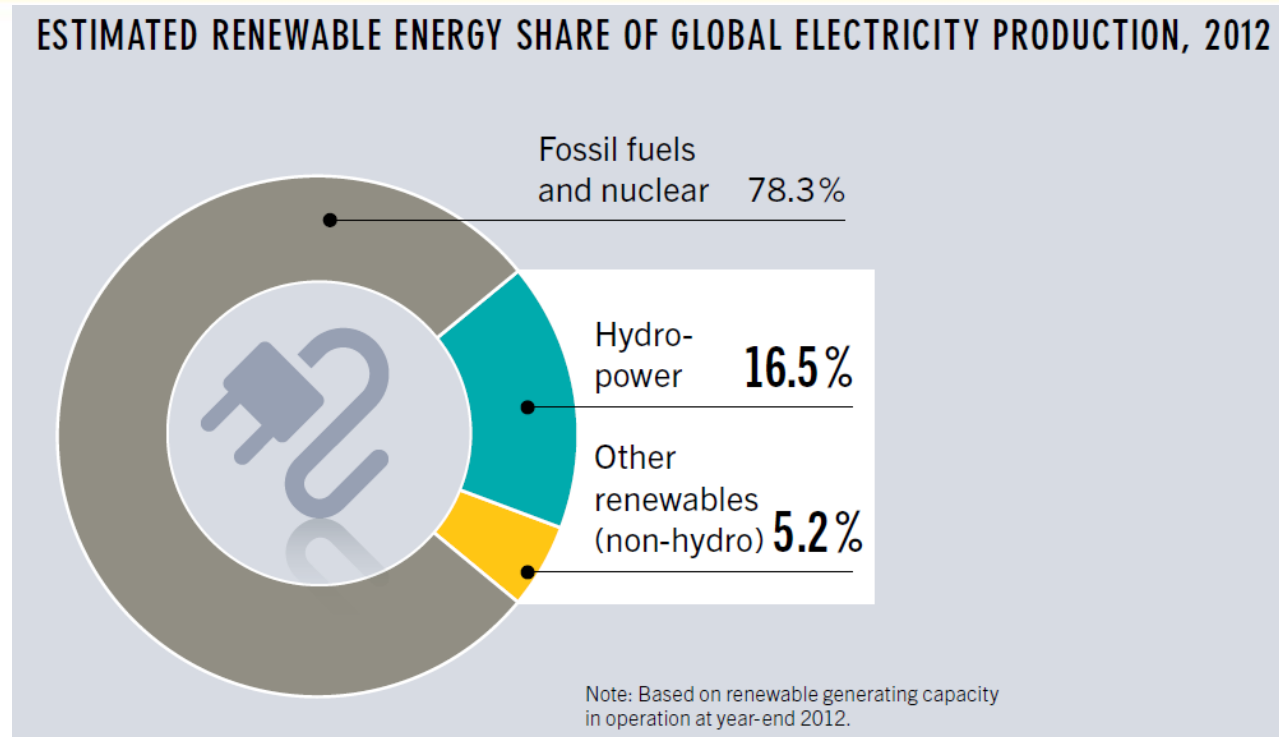
	New capacity investment	Hydropower capacity	Solar PV capacity	Wind power capacity	Solar water collector (heating) capacity ¹	Biodiesel production	Ethanol production
1	China	China	Germany	United States	China	United States	United States
2	United States	Turkey	Italy	China	Turkey	Germany	Brazil
3	Germany	Brazil/Vietnam	China	Germany	Germany	Argentina	China
4	Japan	Russia	United States	India	India	Brazil	Canada
5	Italy	Canada	Japan	United Kingdom	Brazil	France	France

TOTAL CAPACITY AS OF END-2012

	Renewable power capacity (incl. hydro)	Renewable power capacity (not incl. hydro)	Renewable power capacity per capita (not incl. hydro) ²	Biopower capacity	Geothermal power capacity	Hydropower capacity	Concentrating solar thermal power (CSP) capacity
1	China	China	Germany	United States	United States	China	Spain
2	United States	United States	Sweden	Brazil	Philippines	Brazil	United States
3	Brazil	Germany	Spain	China	Indonesia	United States	Algeria
4	Canada	Spain	Italy	Germany	Mexico	Canada	Egypt/Morocco
5	Germany	Italy	Canada	Sweden	Italy	Russia	Australia

Source: REN21 Renewables 2013 Global Status Report

Global Market Overview – Power Markets



Source: REN21 Renewables 2013 Global Status Report

- Renewable energy comprise more than **26%** of **global power generation capacity**.
- **21.7% of global electricity** is produced from renewable energy.
- Renewables accounted for just over half of the estimated 280GW of new electric capacity installed in 2012.

Global Market Overview

■ Heating and Cooling

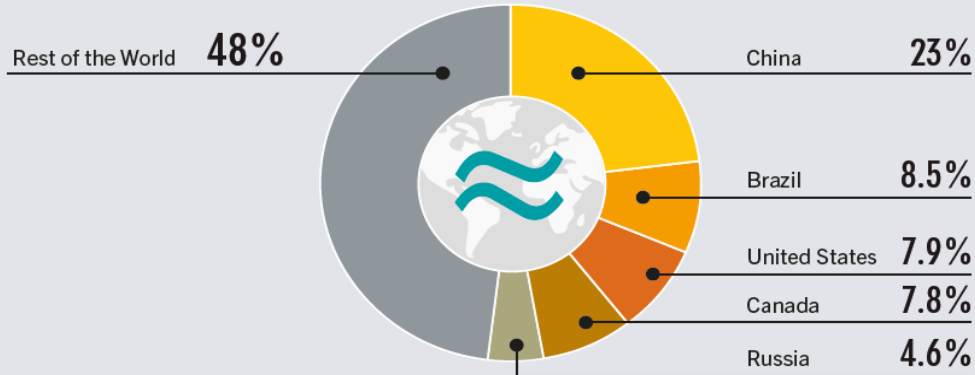
- Transition towards the use of larger systems, increasing use of CHP, for district schemes and industrial purposes.
- Solar collectors are used in more than 56 countries for water (and increasingly for space) heating.

■ Transport

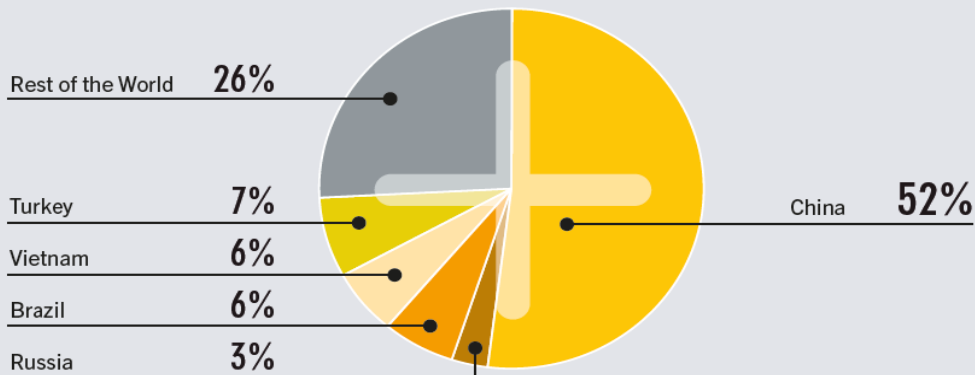
- RE used in the form of liquid and gaseous biofuels, electricity and renewably produced hydrogen for fuel cell vehicles.
- Liquid biofuels provided about 3,4 % of global road transport fuels in 2012.
- Electric transport is being tied directly with renewable energy through policy directives particularly at local level.

Hydropower

HYDROPOWER GLOBAL CAPACITY, SHARES OF TOP FIVE COUNTRIES, 2012



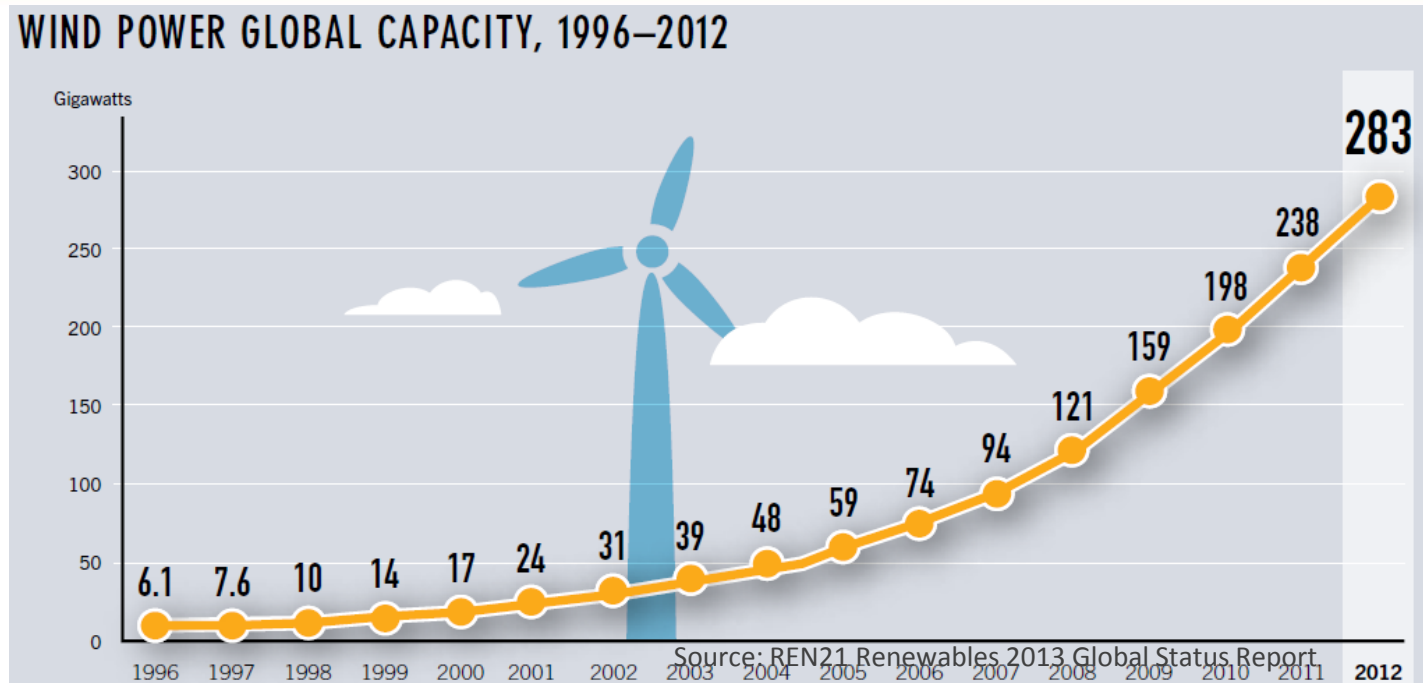
HYDROPOWER GLOBAL CAPACITY ADDITIONS, SHARES OF TOP FIVE COUNTRIES, 2012



Source: REN21 Renewables 2013 Global Status Report

- 30GW of new hydropower was added in 2012, increasing capacity by nearly 3%, bringing installed capacity to 990GW.
- Globally hydropower generated 3,700TWh of electricity in 2012. China alone produced 864 TWh followed by Brazil (441TWh).
- Growing prominence of joint-venture business models involving local and international partnerships as the size of the projects increase.

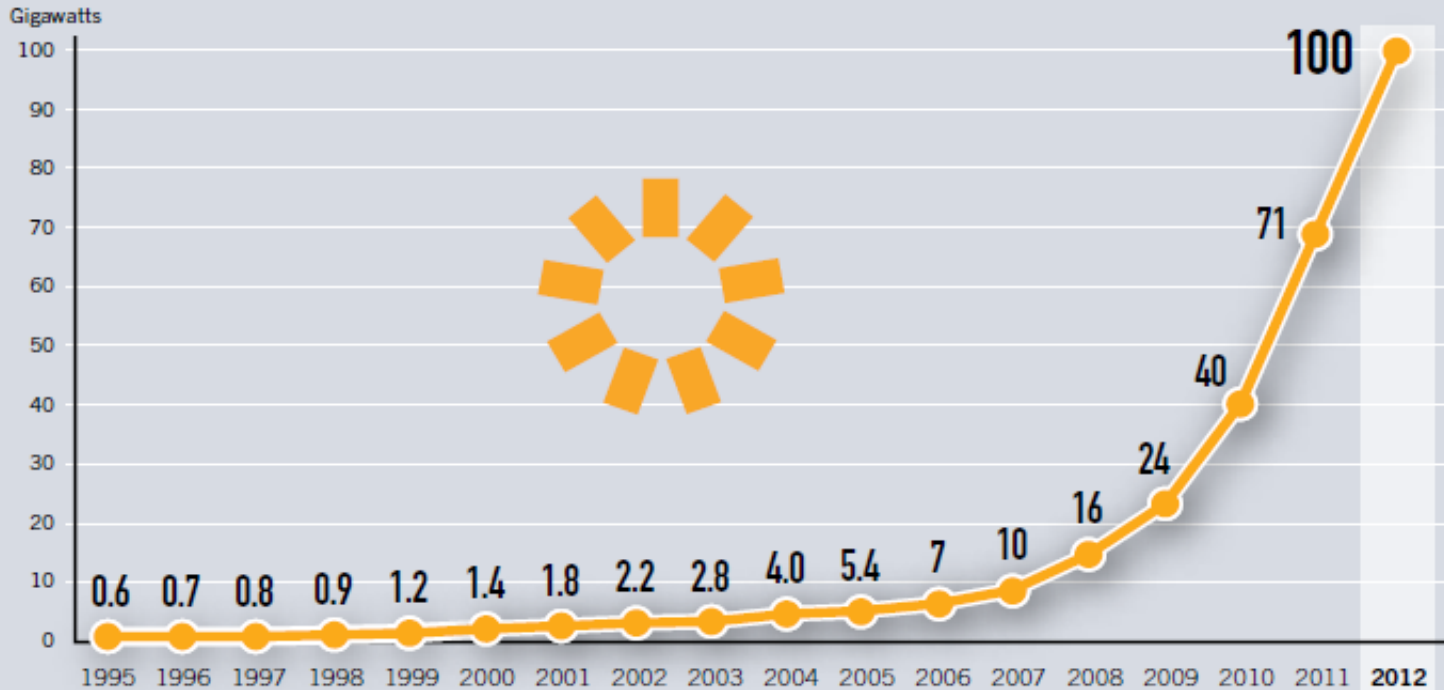
Wind Power



- Almost 45GW of wind power capacity began operation, increasing global wind capacity 19% to 283 GW.
- In **China**, wind power generation increased by **13 GW surpassing** generation from coal and passed nuclear power output for the first time.

Solar Photovoltaics (PV)

SOLAR PV GLOBAL CAPACITY, 1995–2012

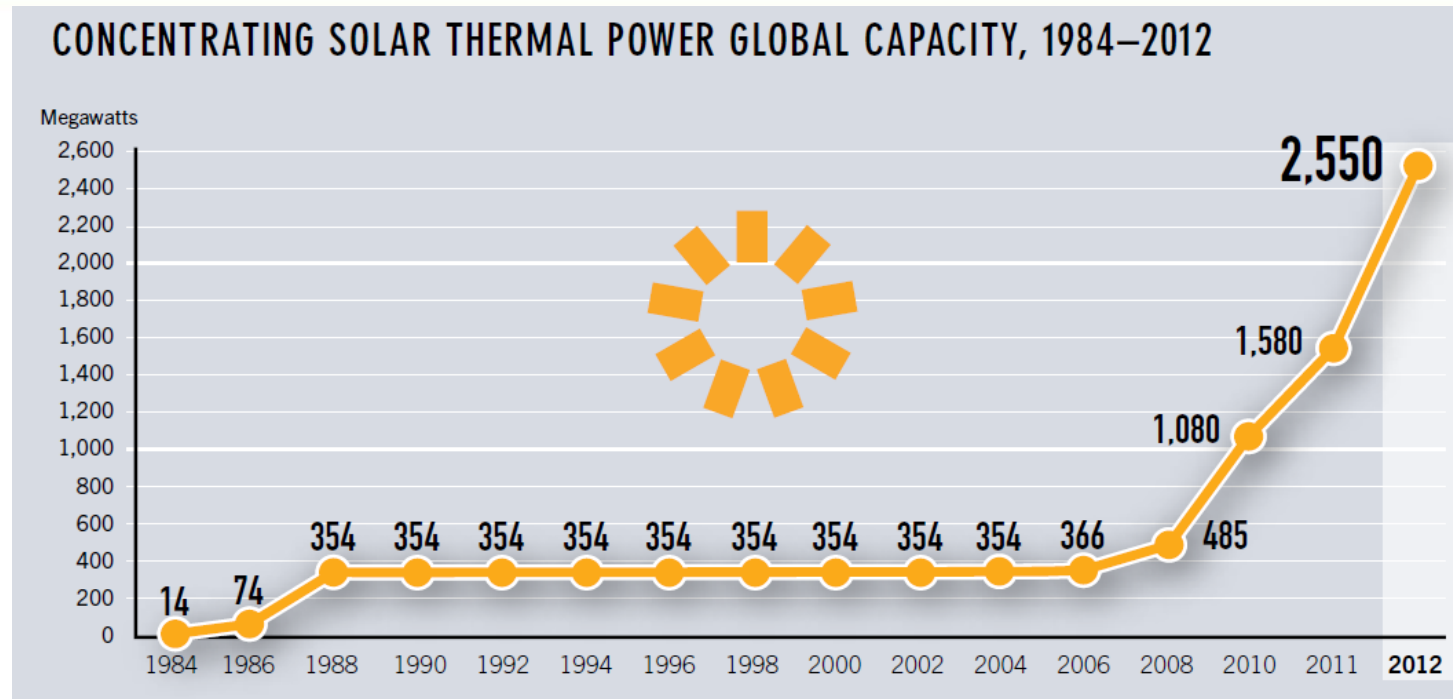


Source: REN21 Renewables 2013 Global Status Report

- Total global operating capacity of solar PV reached the **100 GW** milestone.
- Prices of solar PV modules fell by more than 30 % in 2012.

- By year's end, Australia, **China**, India and Japan had more than 1 GW of total PV capacity installed.
- Australia, **China** and Japan were among the 10 top markets for PV capacity.

Concentrating Solar Thermal Power (CSP)



Source: REN21 Renewables 2013 Global Status Report

- **Interest in CSP is on the rise**, particularly in developing countries, with investment spreading across Africa, the Middle East, **Asia**, and Latin America.
- **China**, India, and South Korea have small pilot plants in operation.

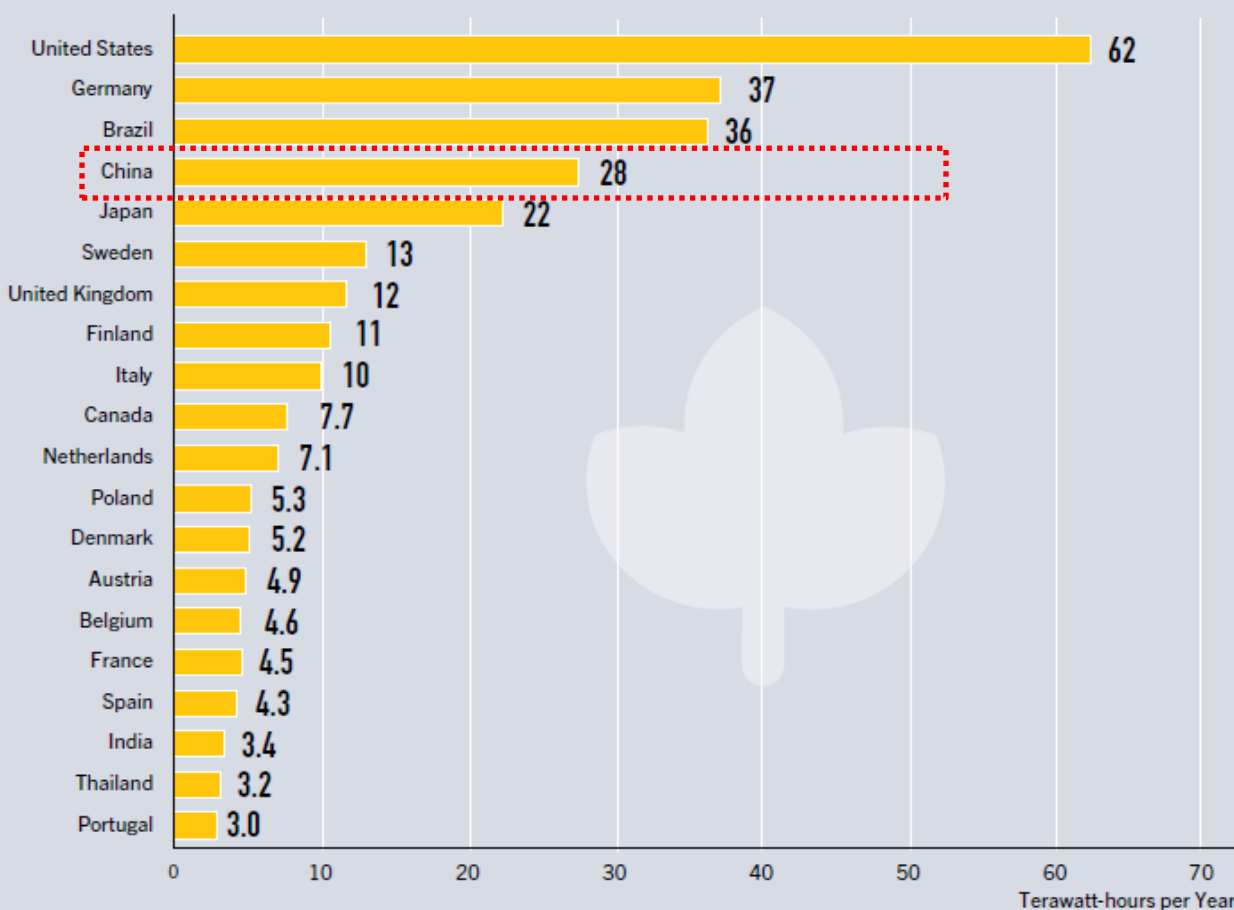
Geothermal Energy



- 233 TWh (805PJ) of district heat and electricity was provided by geothermal resources in 2012.
 - The use of ground-source heat pumps is growing fast and reached an estimated 50 GW_{th} of capacity in 2012.
 - Geothermal electric generating capacity grew by an estimated 300 MW during 2012, bringing the global total to 11.7 GW and generating at least 72 TWh.
-
- 2/3 of global capacity is located in the US, **China**, Sweden, Germany and Japan.

Bioenergy

BIOWATER GENERATION OF TOP 20 COUNTRIES, ANNUAL AVERAGE 2010–2012



Source: REN21 Renewables 2013 Global Status Report

- **Use of biomass** in the heat, power and transport sectors **increased 2–3% to approximately 55 EJ.**
- **Bio-power capacity** was up 12% to nearly 83 GW, with notable **increases in some BRICS countries.**
- In 2012, around 350 TWh of electricity was generated world wide (bio-power).

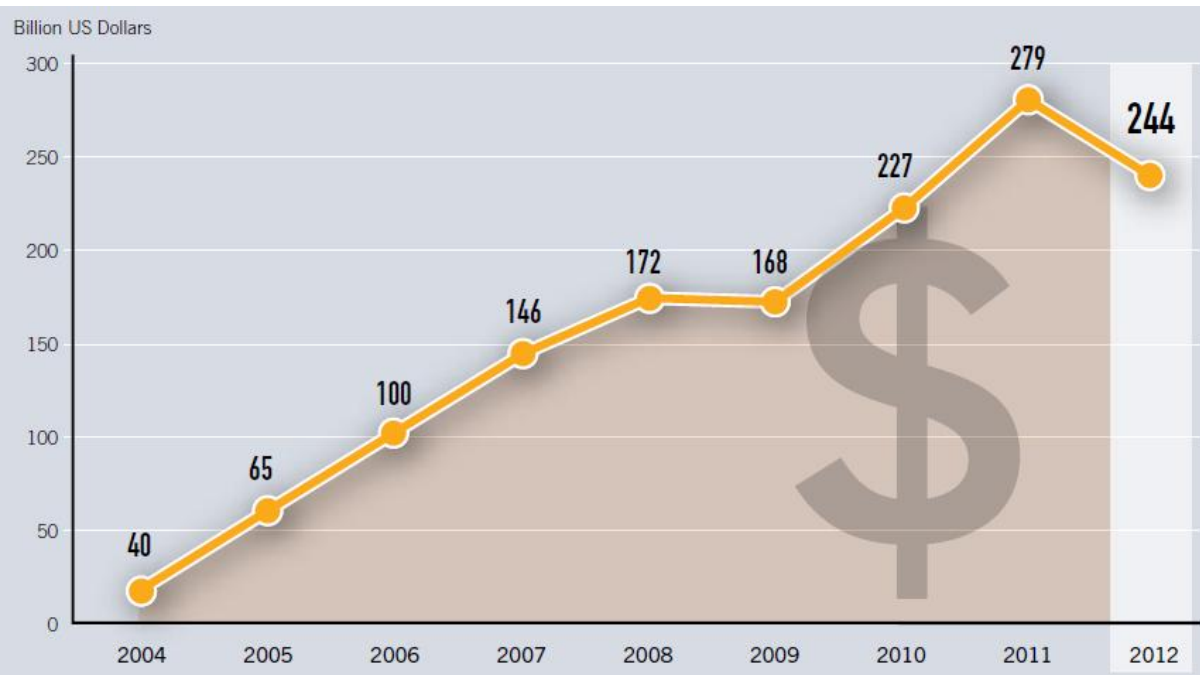
Renewable Energy and Jobs



Data source: IRENA, Renewable Energy and Jobs 2013

- Worldwide renewable energy employment continues to increase.
- An estimated **5.7 million people** work in the renewable energy sector.
- The bulk of employment remains concentrated in Brazil, **China**, India, the EU, and the United States.

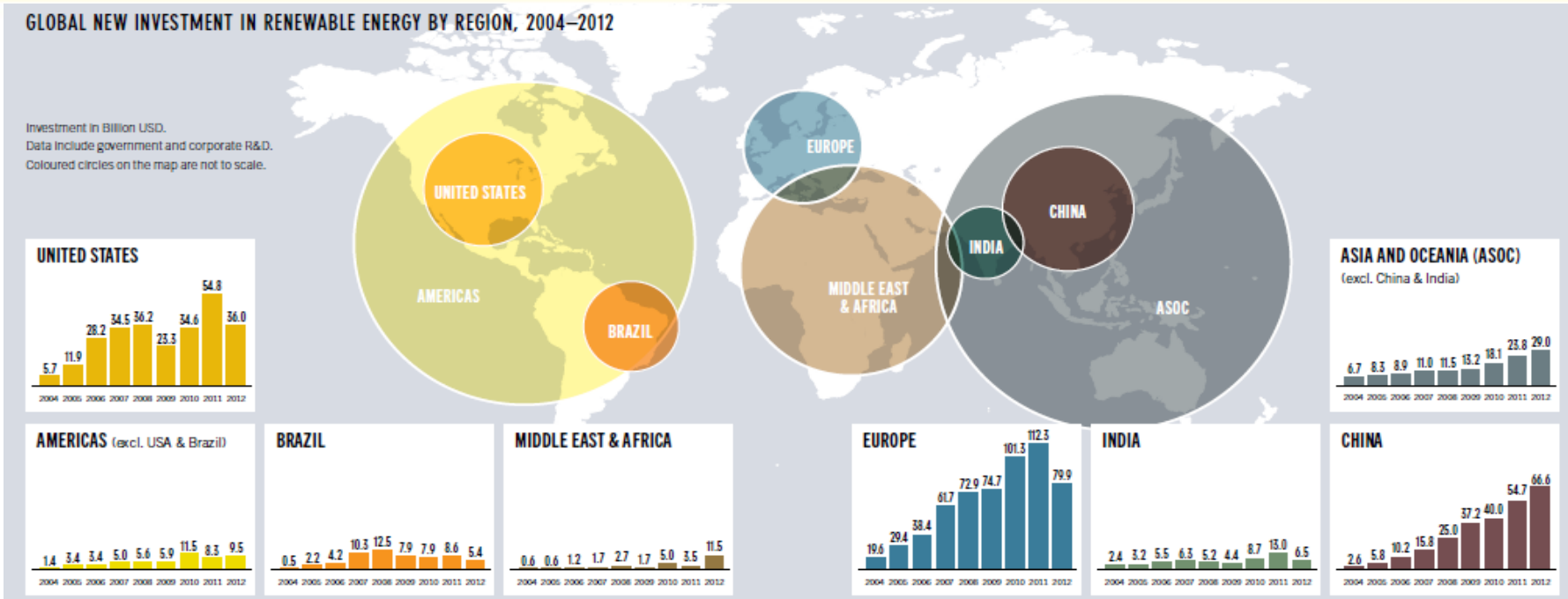
Global New Investment in Renewable Energy



Data source: UNEP FS/ BNEF Global Trends in Renewable Energy Investment 2013

- Global new investment in renewable power went down 12% from the previous year's record (still the second highest ever).
- **Installed capacity, which continued to grow due to falling technology costs.**
- The most dramatic shift yet in the balance of investment activity between developed and developing economies.

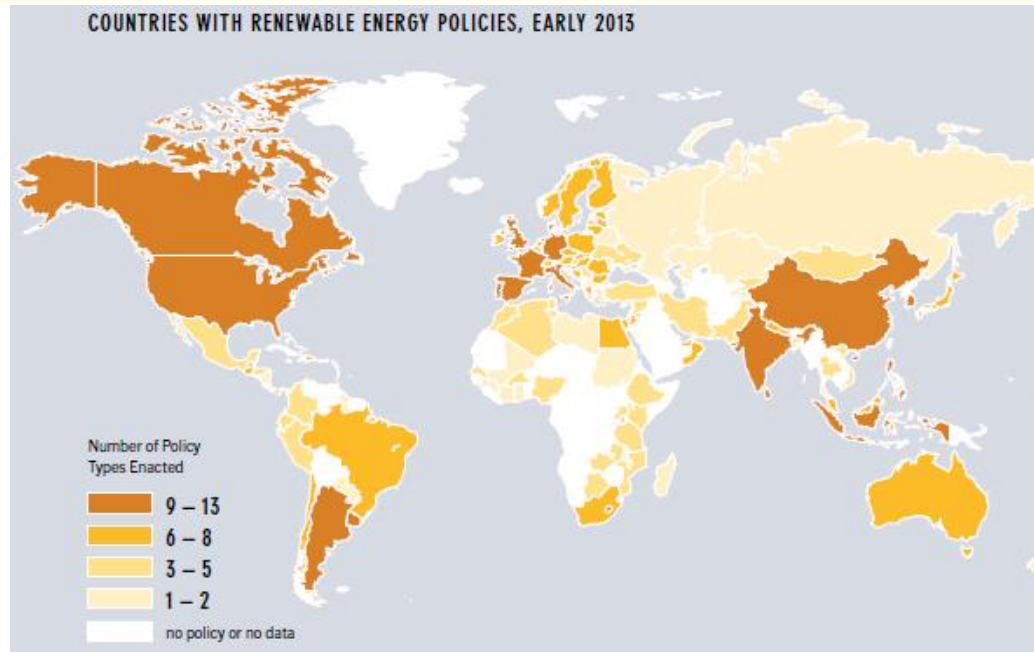
Investment Flows



Data Source: UNEP FS/ BNEF Global Trends in Renewable Energy Investment 2013

- **Developing countries** reached USD 112 billion, representing 46% of the world total; this was up from 34% in 2011, and continued an unbroken eight-year growth trend.
- **Developed economies** fell 29% to USD 132 billion, the lowest level since 2009.
- **China** invested nearly 67 billion USD in renewable energy in 2012.

Renewable Energy Policy Landscape

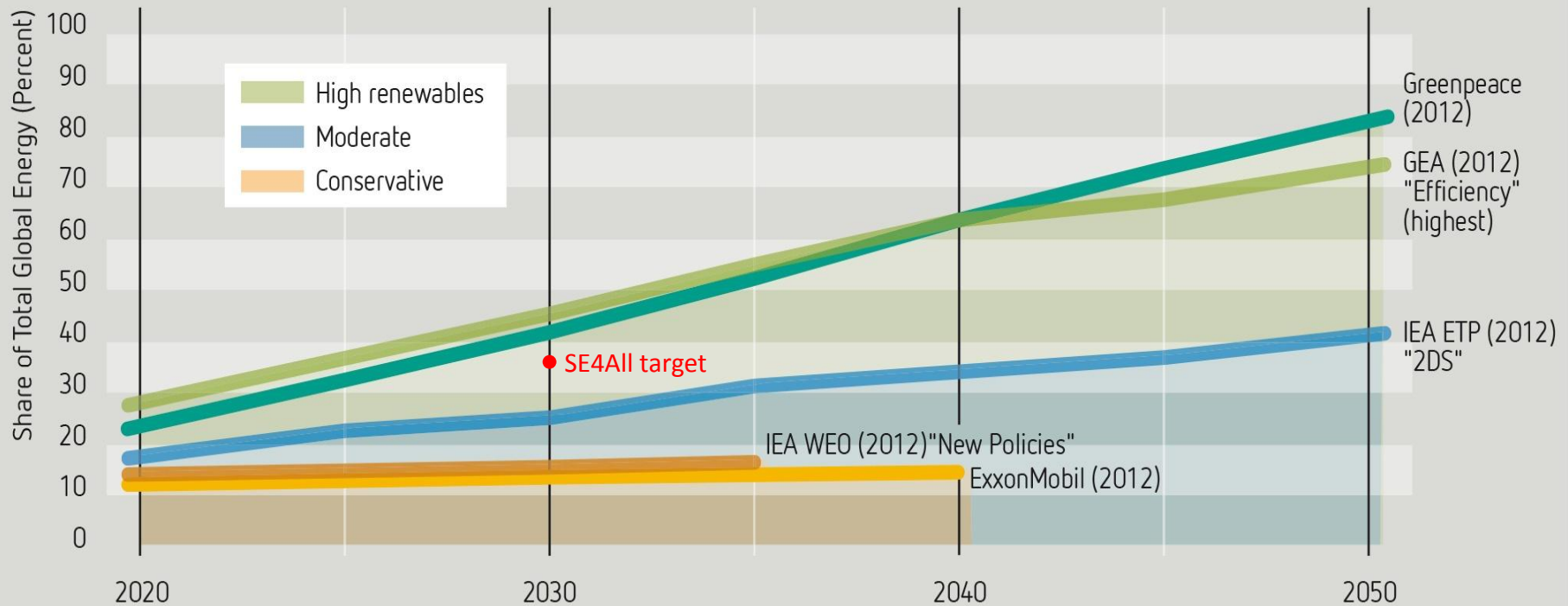


Source: REN21 Renewables 2013 Global Status Report

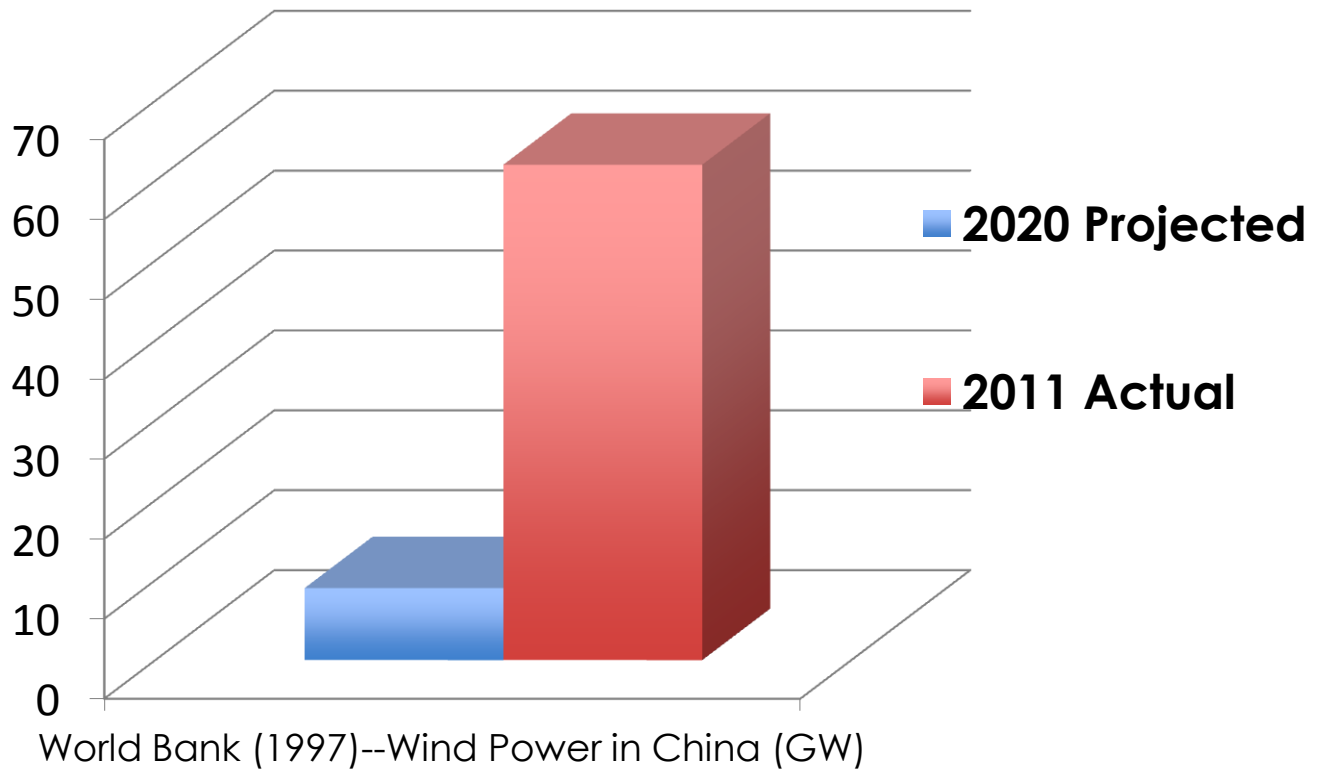
- At least **138 countries had renewable energy targets by the end of 2012.**
- The number of countries with renewable energy targets more than doubled between 2005 and 2012.
- Policymakers are increasingly aware of the potential national development impacts of renewable energy.

Future outlook – what is in the cards?

Figure 1: Conservative, Moderate, and High-Renewables Scenarios to 2050



Historic Projections Fall Short...



In conclusion

- Achieving the SE4All objective of doubling the share of renewable energy by 2030 globally will take bold policy action aimed at tripling the share of modern renewables incl. sustainable hydropower.
- Stable and predictable policy frameworks are key for the industry.
- Both centralised and decentralised renewables will be needed.
- Phasing-out of untargeted fossil fuel subsidies is indispensable (RE support is still 6 times less than fossil fuel subsidies).
- Integration of renewable energy will become more important as the renewable energy shares increase.

REN21 Flagship Products & Activities

REN21 FLAGSHIP PRODUCTS AND ACTIVITIES

Renewables Global Status Report

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Renewables Interactive Map

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Renewables Global Futures Report

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