

ARAB ENVIRONMENT•6
SUSTAINABLE ENERGY
PROSPECTS, CHALLENGES, OPPORTUNITIES

المنتدى العربي للبيئة والتنمية
ARAB FORUM FOR
ENVIRONMENT AND DEVELOPMENT



ARAB ENVIRONMENT 2013
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Renewable Energy

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About REN21

A Multi-stakeholder Policy Network grouping

Science & Academia:

IIASA, ISES, SANEDI, TERI

International Organisations:

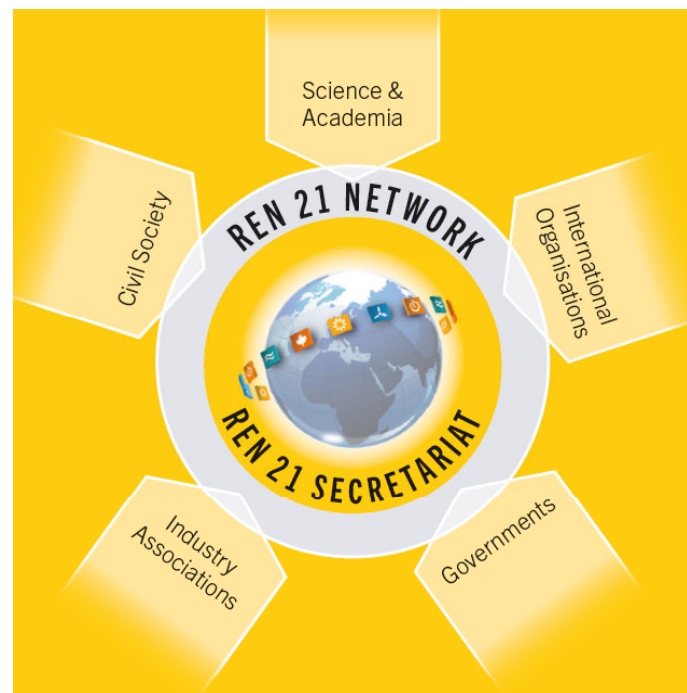
ADB, EC, GEF, IEA, IRENA,
UNDP, UNEP, UNIDO,
World Bank

NGOs:

CURES, GFSE,
Greenpeace, ICLEI, ISEP,
JREF, WCRE, WRI, WWF

Industry Associations:

ACORE, ARE, CEC, CREIA,
EREC, GWEC, IGA, IHA,
WBA, WWEA

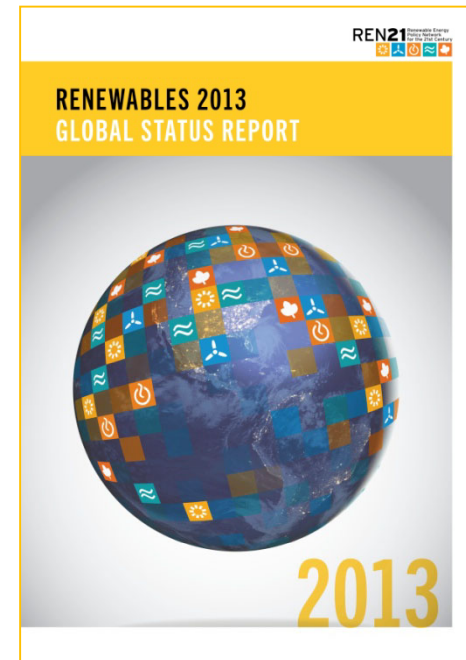


National Governments:

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

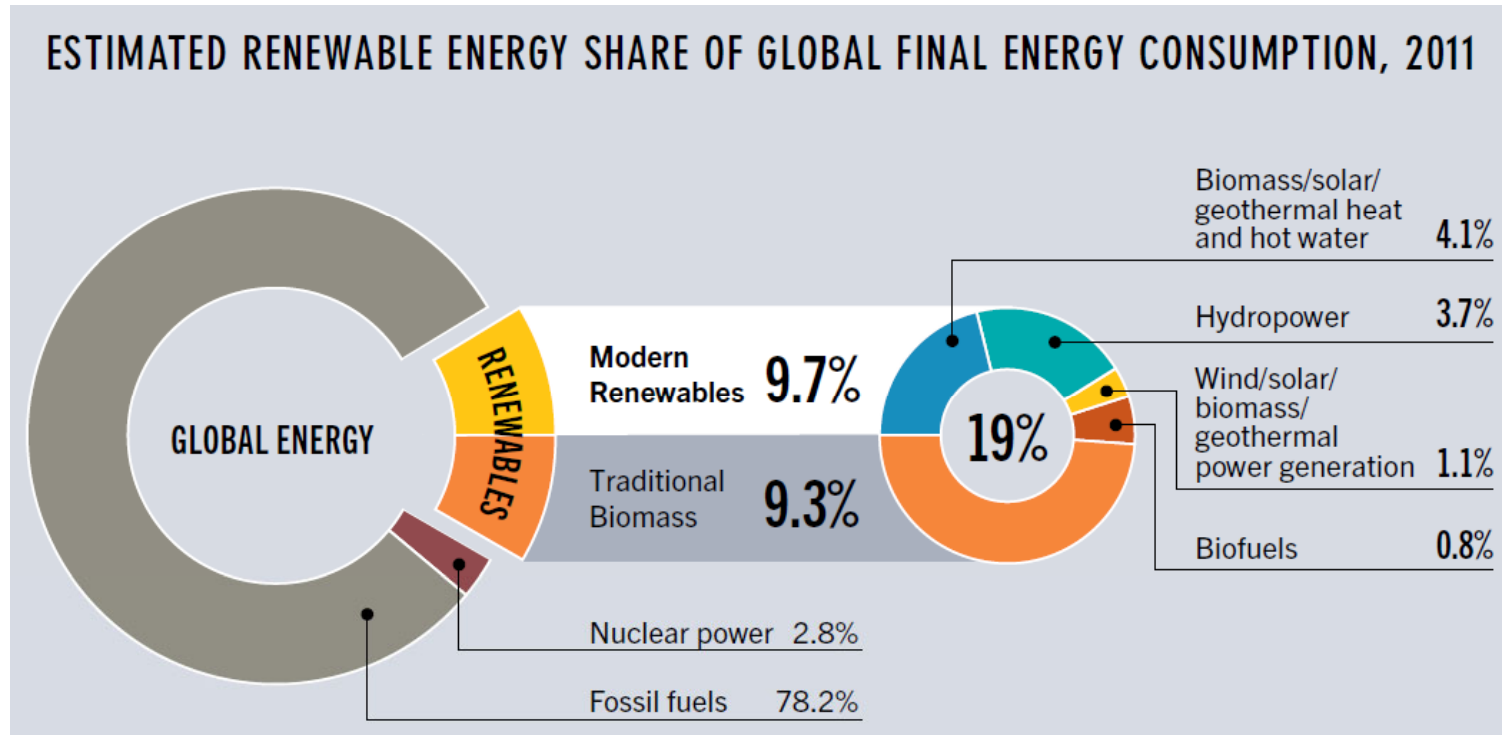
REN21 Renewables Global Status Report

- 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.



www.ren21.net/gsr

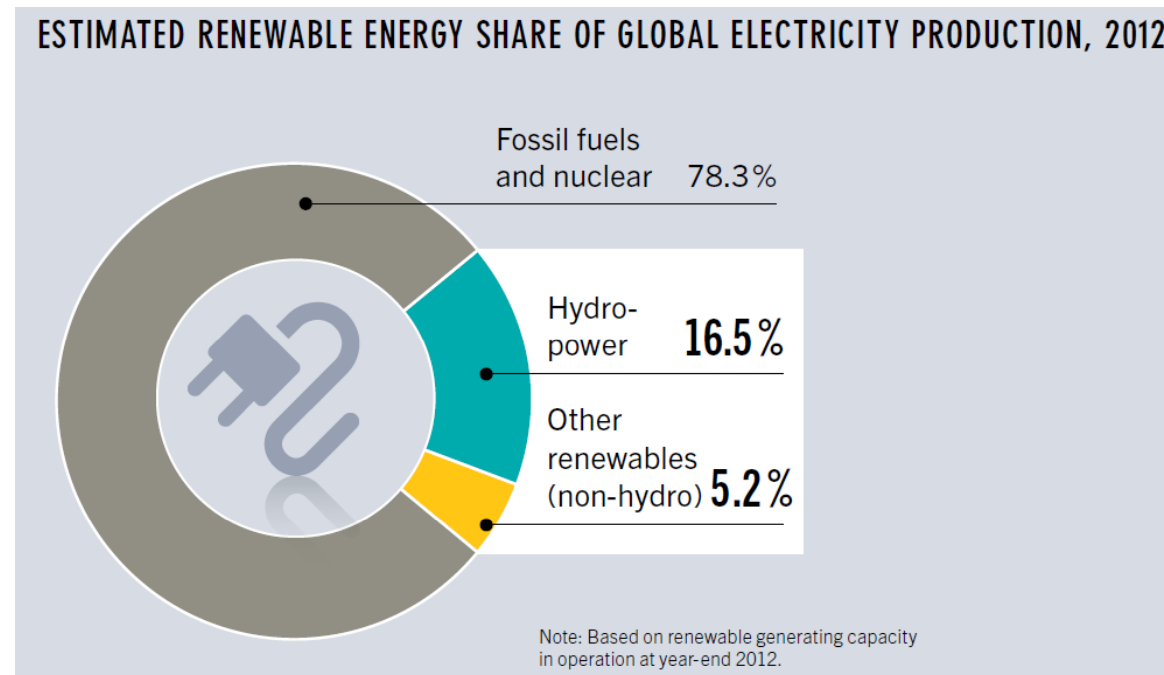
Renewable Energy in the World



Source: REN21 Renewables 2013 Global Status Report

- RE supplied an estimated **19%** of **global final energy consumption** in 2011.
- **UN Secretary General's goal : doubling the share of renewable energy** in the global energy mix from 18 % (base year 2010) to 36 % by 2030.

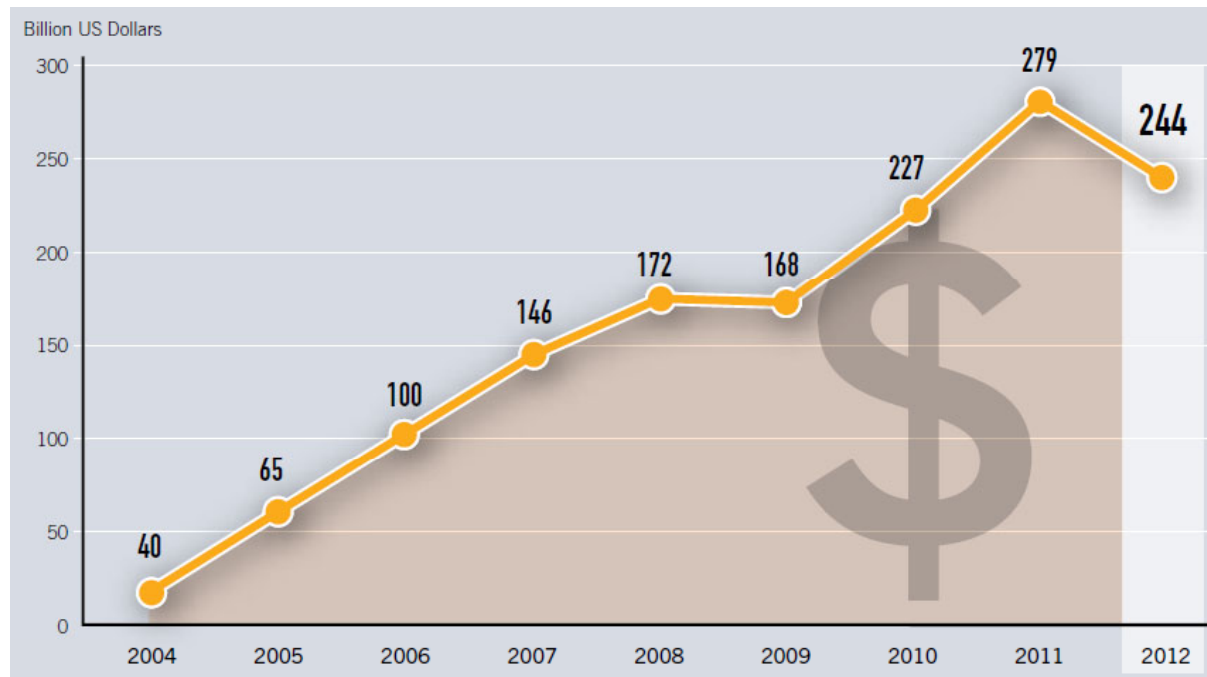
Global Market Overview – Power Markets



Source: REN21 Renewables 2013 Global Status Report

- Renewable energy comprises 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 installed electric capacity in 2012**.

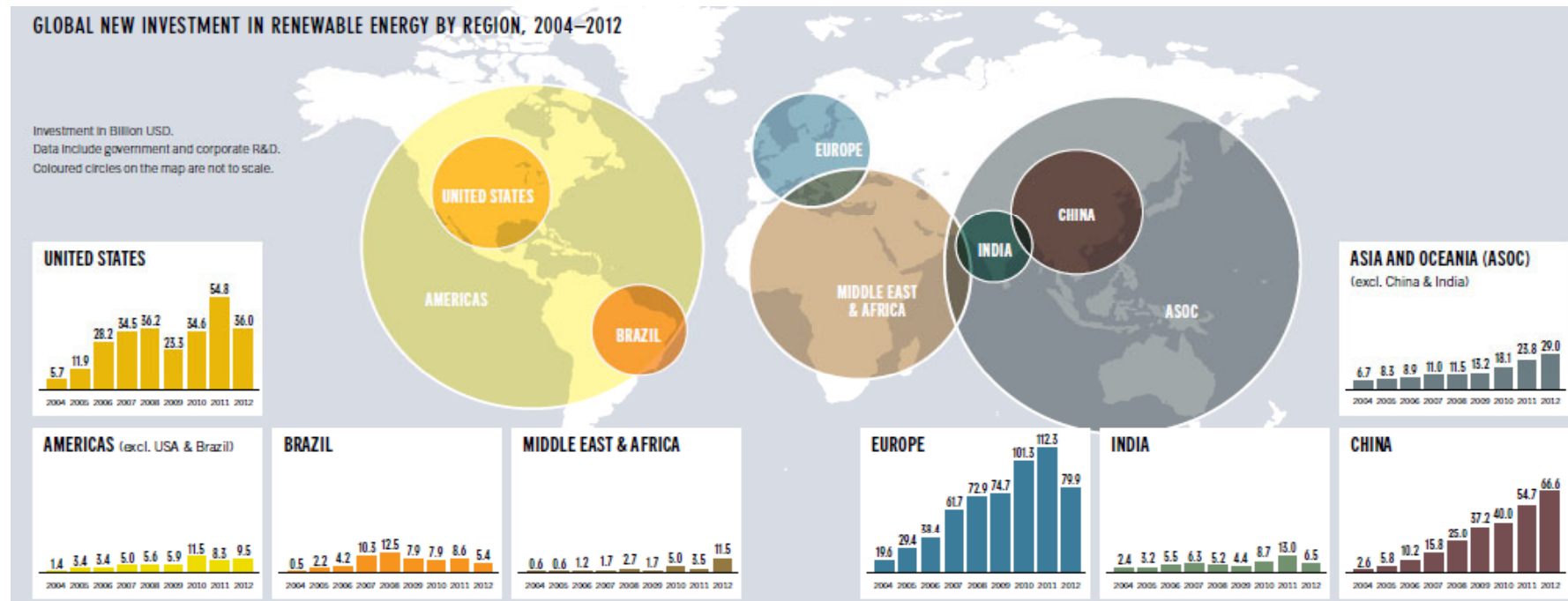
Global New Investment in Renewable Energy



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.
- **New investment in the Arab countries** totaled **USD 1.9 billion in 2012**, a 56% increase from 2011 and a 6 fold increase compared to 2004

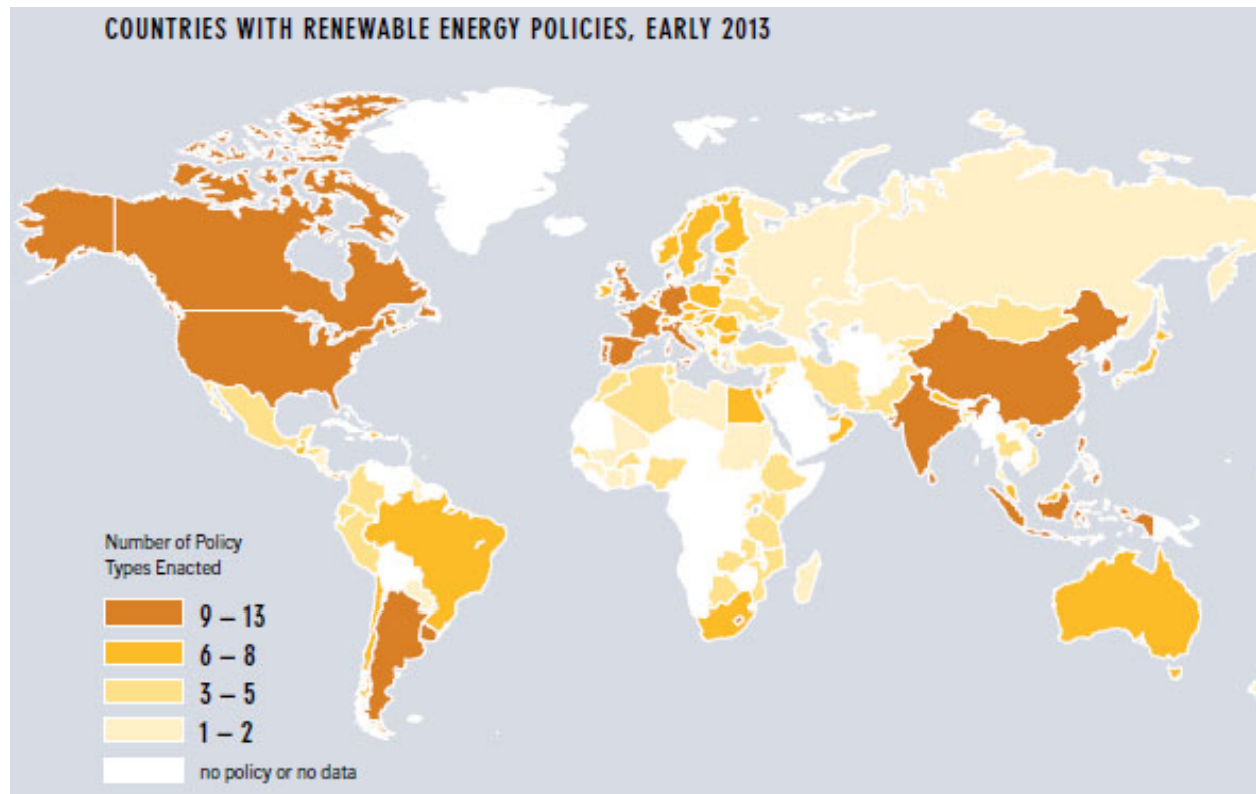
Renewable Energy and Jobs



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.

Renewable Energy Policy Landscape

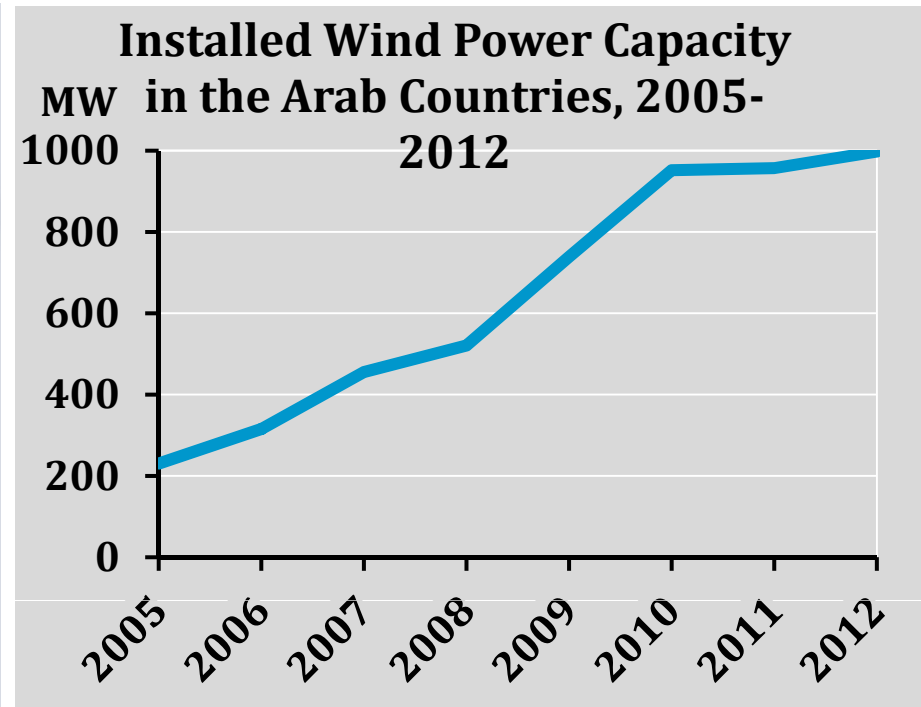
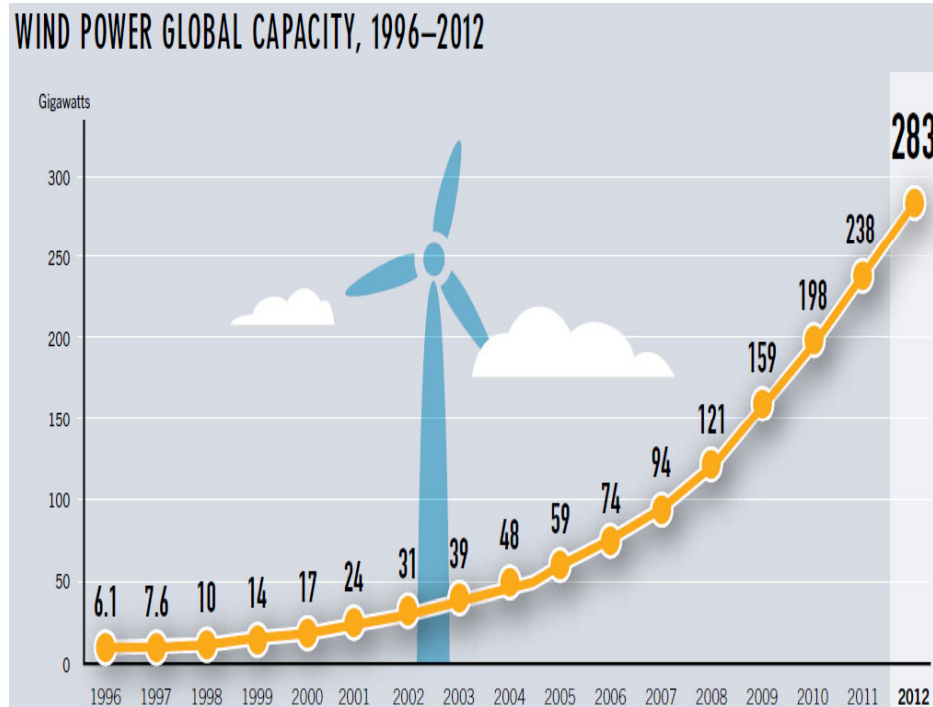


- At least **138 countries** had renewable energy targets by the end of 2012.
- The number of countries with renewable energy targets more than doubled between 2005 and 2012.

Arab Countries Market Overview: Renewable Energy

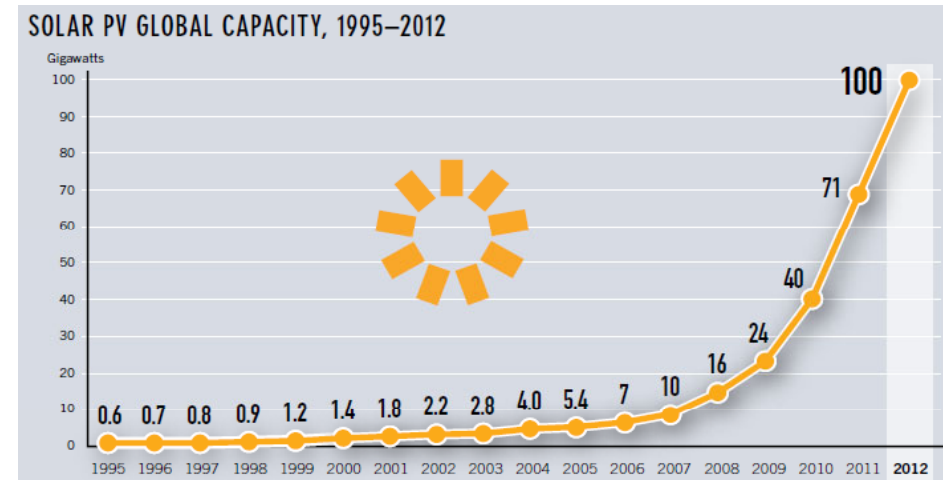
- RE markets have evolved rapidly in recent years with a diverse range of countries announcing projects and policies in the region
- **Energy Consumption** in the region **increased by 15%** between 2007 and 2010 due largely to population growth and economic progress
- In the Net Oil-Importing countries (NOIC), **RE use increased by almost 20%** over this same time period and gained market shares over conventional sources
- **Hydro** for electricity generation and **biomass** for cooking and heating are the two dominant renewable energy sources
- Given the **declining cost** of modern **renewables** and the **increasing costs of fossil fuels** technologies like wind and solar have been considered in all AFED countries to meet growing energy needs

Wind Power Capacity



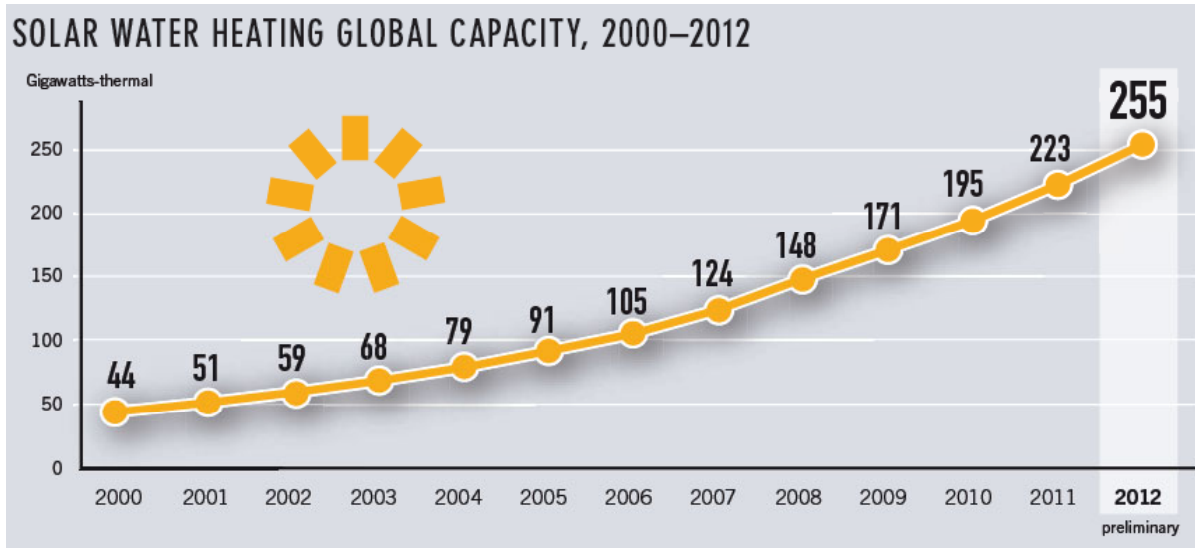
- Wind is the **second largest power source** in the region after hydro
- Total of **1 GW of wind capacity by the end of 2012** across 7 countries
- **Egypt** is the leader in the region with **550 MW** installed capacity, followed by **Morocco** at 291 MW and **Tunisia** at 154 MW

Solar Power Capacity



- Similar to global trends, **solar PV** has been growing most rapidly in the region
- **All the Arab countries** use solar PV to meet a part of their electricity demand
- In 2011, **30% of the countries operating CSP plants in the world were located in the Arab region**: Algeria, Egypt and Morocco
- In 2013, these countries were joined by the UAE which operates **the world's largest CSP plant**, Shams 1, with an installed capacity of 100 MW

Solar Water Heating (SWH)

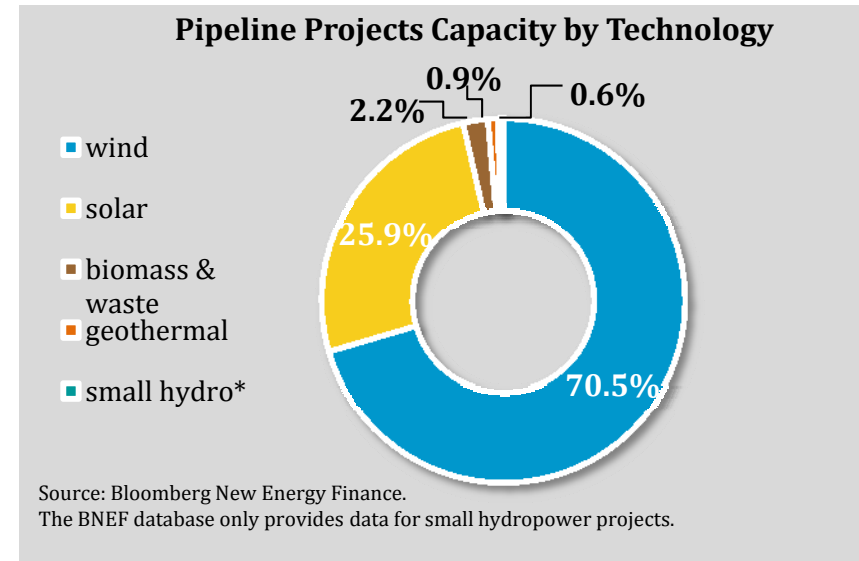
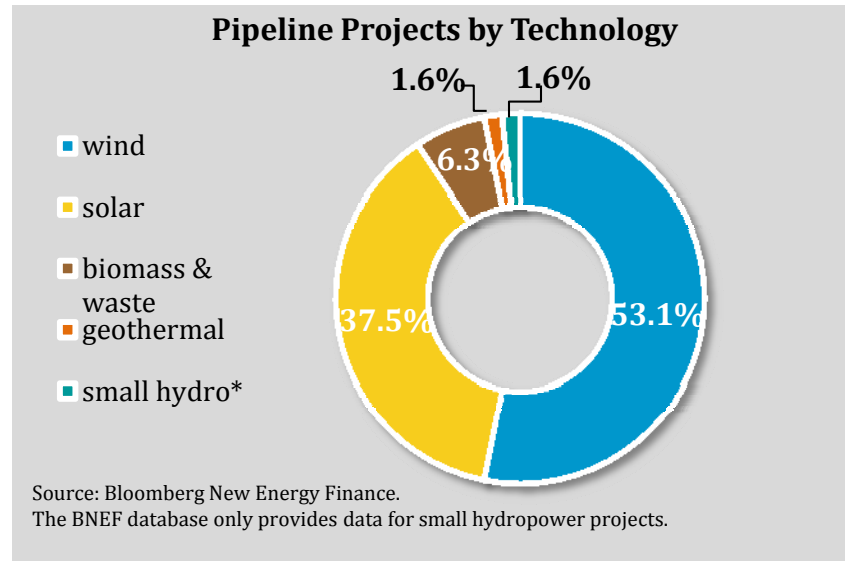


Source: REN21 Renewables 2013 Global Status Report



- Solar Hot Water Heating accounts for about 4.8 million square meter of collector area, representing **3.3 GWth of installed capacity**
- Mostly of which is in the Net Oil-Importing Countries where successful promotional schemes, in particular the **PROSOL programme in Tunisia** and the **PROMASOL programme in Morocco**

RE Pipeline Projects

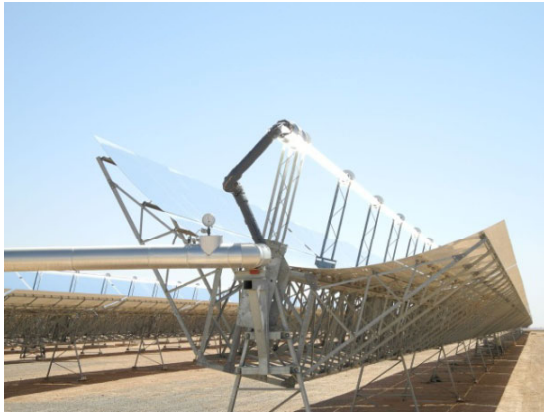


- As of April 2013, **64 projects**, totaling **almost 6 GW** of new renewable capacity were in the pipeline (hydro excluded) – **a 4 fold increase over existing capacity**
- 4.1 GW is wind capacity and 1.5 GW is solar capacity
- **In addition, over the next 2 or 3 years Saudi Arabia** will introduce three tendering rounds that will account for about **7 GW of RE capacity**, with the introductory bidding round scheduled for the first half of 2013

Policy Landscape

- **20 of the 22 Arab countries now have policy targets**, up from 5 in 2007, with at least 17 countries having technology specific targets
- The targets would result in non-hydro renewable energy capacity of **46 GW by 2020** and **104 GW by 2030**, which compares with some 1.4 GW today
- Net Oil-Exporting Countries account for **90% of the region's announced 104 GW capacity additions**
- As of early 2013, **16 of the Arab countries** had enacted at least one **renewable energy enabling policy**, such as feed-in tariffs (FITs), net metering, fiscal incentives, and public financing
- The Arab Countries Renewables Status Report provides a comprehensive policy table giving an overview of applied instruments in the region on a country-by-country basis
- The rising interest and activity in RE occurs at a time of ongoing regional political uncertainty, raising **concerns about the financing of renewable energy**

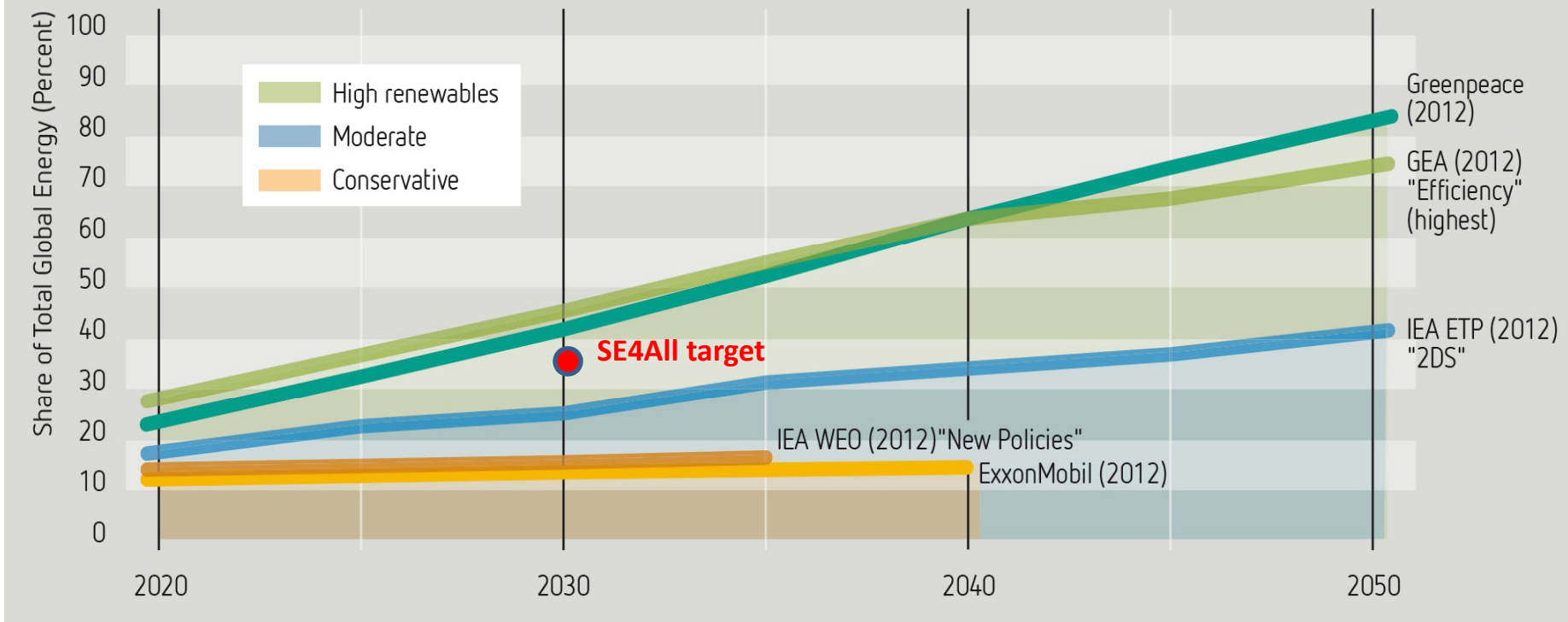
Local Manufacturing and Value Chains in RE



- Policymakers are increasingly aware of the potential national development impacts of renewable energy
- Several countries have developed policy frameworks to stimulate local manufacturing and innovation, especially for solar and wind
- This interest is particularly strong in Saudi Arabia, UAE, Egypt, Morocco, Tunisia
- The report provide an overview of the different approaches undertaken in these 5 Arab countries to foster domestic renewable energy industries

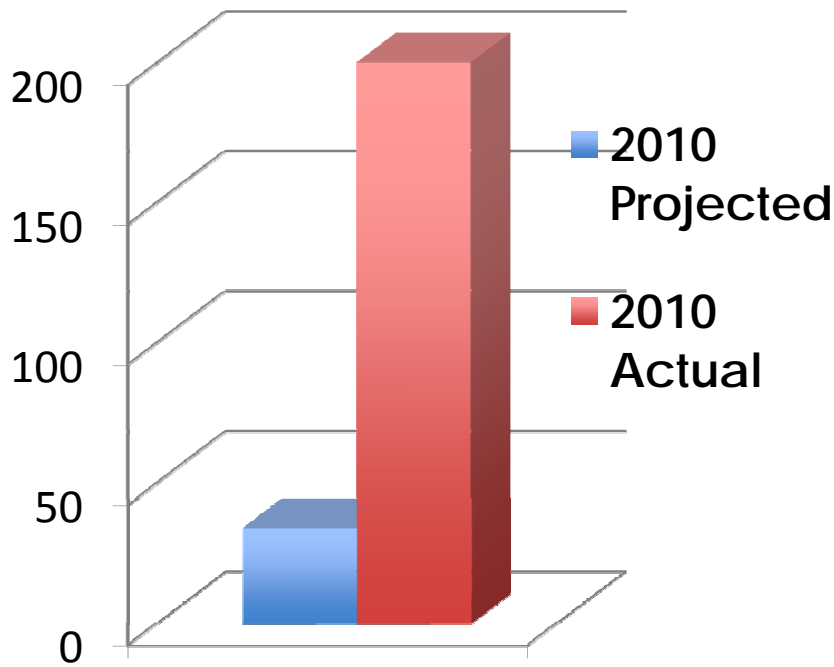
Future outlook – what is in the cards?

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

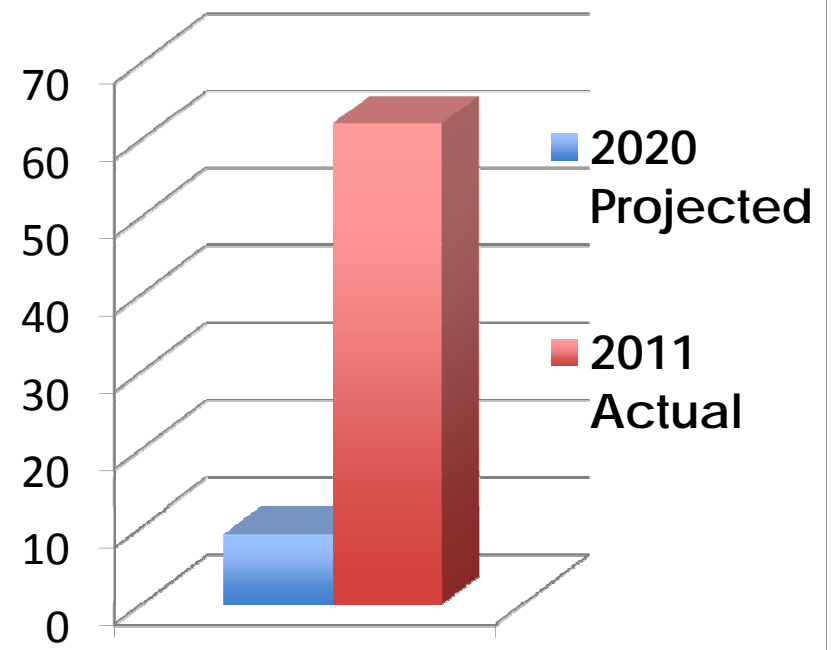


Data source REN21 Renewables Global Futures Report, 2013

Historic Projections Fall Short...



IEA (2000) -- Wind Power Globally (GW)



World Bank (1997)--Wind Power in China (GW)

Data source REN21 Renewables Global Futures Report, 2013

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



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Renewables Global Status Report

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Renewables Interactive Map

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The True Cost of Electric Power



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