

The revolution to create a clean-energy future based on renewables is under way

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The renewables sector is growing rapidly. Renewable energy provided over 30% of new electricity production globally in 2011, up from less than 5% in 2005. Countries not actively engaging in this new market are at risk of missing the boat in terms of quality jobs, innovation, exports, energy security and economic resilience.

- In 2011, global investment in renewable energy hit a record \$257bn US dollars, a sixfold increase over 2004, and 94% higher than 2007, the year in which the global recession struck.
- Gains in the growth of renewables have continued despite strong economic and, in some cases, political headwinds.¹ For comparison, investment in nuclear energy in 2011 was only \$16bn US. The nuclear market is forecasted to decline to just \$5 bn annually for the next four years.²
- In 2011 alone, a total of 70,200 MW of new capacity in wind and solar was added globally; these can generate as much electricity as 18 large conventional power plants.³
- In 2011, more than 70% of the newly installed capacity in EU27 countries was from renewable technologies, with 32,000 MW added to capacity that year.⁴
- In the solar industry, by January 2012 the price of solar-PV modules had dropped to just under \$1 per Watt-peak (Wp) of installed capacity from more than \$4/Wp in 2008. Global installed capacity increased to more than 65 GW⁵ from 4.5 GW in 2005.
- In Germany, generation from wind and solar alone reached a peak on 25 May 2012, covering 29 GW of the electricity load and generating 297 GWh of power, 25% of daily generation⁶. Overall in 2011, Germany's renewable energy capacity provided 123 TWh of electricity — more than 20% of the country's total — and avoided 85 million tonnes of CO₂.⁷
- In Spain, wind power generation reached a peak on 24 September 2012, covering 64% of the country's electricity supply. During the first nine months of 2012, renewable energy covered 31.3% of Spanish electricity demand.⁸

¹ Global Trends in Renewable Energy Investment 2012, UNEP

<http://fs-unep-centre.org/publications/global-trends-renewable-energy-investment-2012>

² Governmentwide Strategy Could Help Increase Commercial Benefits from U.S. Nuclear Cooperation Agreements with Other Countries, GAO, Nov 2010

<http://www.gao.gov/assets/320/311924.pdf>

³ Nuclear data: IAEA/PRIS

<http://www.iaea.org/cgi-bin/db.page.pl/pris.reaopag.htm>

Wind data: GWEA

<http://www.gwec.net/publications/global-wind-report-2/global-wind-report-2010-2/>

Solar PV data: Greenpeace/EPIA

http://www.epia.org/uploads/tx_epiapublications/Global-Market-Outlook-2016.pdf

⁴ Wind in Power, 2011 European statistics, EWEA

http://www.ewea.org/fileadmin/ewea_documents/documents/publications/statistics/Stats_2011.pdf

⁵ Solar Power: Darkest Before Dawn, McKinsey

http://www.mckinsey.com/client_service/sustainability/latest_thinking/solar_powers_next_shining

⁶ Fraunhofer Institute

<http://www.ise.fraunhofer.de/en/downloads-englisch/pdf-files-englisch/news/electricity-production-from-solar-and-wind-in-germany-in-2012.pdf>

⁷ Development of renewable energy sources in Germany 2011, updated July 2012, German Federal Ministry for the Environment, Nature Conservation and Nuclear Safety

http://www.erneuerbare-energien.de/files/english/pdf/application/mspowerpoint/ee_in_deutschland_graf_tab_en.ppt

⁸ Red Eléctrica de España, online statistics

http://www.ree.es/ingles/operacion/comprobar_ines.asp?Fichero=01102012

- The growth of renewable energy is not just a phenomenon in Europe and the developed world. Developing economies accounted for 35% of 2011's \$257bn of investment, with developed countries at 65%. India showed the fastest growth among the largest national renewable energy markets, with investment surging 62% to \$12bn.⁹
- The basic drivers pushing RE growth are only becoming more urgent – the need for improved energy security, the desire to reduce energy poverty in rural communities, and the dynamic of continued technological innovation.
- Strong RE policies have played a major role in driving growth, despite recent setbacks, for example in Europe and the US. At least 118 countries, with more than half developing countries, had renewable energy targets in place by early 2012, up from 109 as of early 2010.¹⁰

Renewable Energy investment provides quality jobs now and for the future:

- The transformation to a greener economy could generate 15 to 60 million additional jobs globally over the next two decades and lift tens of millions of workers out of poverty, according to the International Labour Organisation (ILO).¹¹
- The scenario for increasing renewable energy in Greenpeace's Energy [R]evolution, if realised, would provide 22.6 million energy jobs worldwide by 2020, compared to 17.8 million in a business-as-usual scenario.¹²
- Renewable energy has already created 380,000 jobs in Germany.¹³

Renewable energy the quickest, cheapest and fairest way of providing energy access to rural communities:

- Investment in modern renewable energy sources is the fastest and most affordable way of providing reliable energy services to the 2 billion people who currently lack access to energy, mainly in sub-Saharan Africa and in India.
- Distributed renewable energy solutions are powering villages in a fraction of the time that it takes to build new centralised infrastructure, and providing other benefits, such as local jobs, investment, better health, and empowerment of local communities.
- For rural areas, cost-effective solutions with low operating costs and flexible, small-scale deployment options include clean biomass and off-grid renewable-energy technologies, such as solar PV. To provide universal access to energy by 2030, financing for these solutions must be ramped up by around five times current levels.

The scale of renewable energy investment and policy support needs to be ramped up if the 2°C climate ambition is to be met:

- Between 1992 and 2012, 22% of all the newly installed power plants worldwide used renewable energy technologies, such as wind and solar (the figure for 2011 was 40%). 75% of new installations were fossil fuel power plants which will operate for at least another decade and will emit billions of tonnes of CO₂.
- RE transformation is already happening, and to keep the world on a 2°C pathway it needs to happen on an even bigger scale. A recent report from PricewaterhouseCoopers (PwC) found that even if the current rate of decarbonisation doubles, this would still lead to emissions consistent with a devastating 6°C of warming. To have a more than 50% chance of avoiding 2°C (as agreed at the Copenhagen climate summit) will require a six-fold improvement in the rate of decarbonisation.¹⁴
- In 2011, renewable sources covered about 20% of the global electricity demand. If the world's governments are to meet their promise to limit the temperature rise to 2°C, Greenpeace's Energy [Re]volution shows that renewable energy must grow to 65% of global electricity production by 2035. The Energy [R]evolution further shows how it is feasible for 94% of the world's electricity to come from renewable energy sources by 2050. Nuclear energy could be phased out and the number of fossil fuel-fired power plants, especially coal plants, could be drastically reduced.

⁹ Global Trends in Renewable Energy Investment 2012, UNEP

¹⁰ Renewables Global Status Report 2012, REN 21

¹¹ http://www.un.org/en/sustainablefuture/pdf/Rio+20_FS_JobsandSocial.pdf

¹² <http://www.greenpeace.org/international/Global/international/publications/climate/2012/Energy%20Revolution%202012/ER2012.pdf>

¹³ See ref 7

¹⁴ <http://press.pwc.com/GLOBAL/News-releases/current-rates-of-decarbonisation-pointing-to-6oc-of-warming/s/47302a6d-efb5-478f-b0e4-19d8801da855>

It makes financial sense:

Future costs of electricity generation: In the short term, the costs of electricity generation in the Energy [R]evolution scenario will be marginally higher than under the reference scenario (which is based on the International Energy Agency's projections), but in the long term, electricity from renewables will be significantly cheaper than electricity from other sources.

The future electricity bill: The shift to renewables and an increase in energy efficiency would stabilise energy expenses and, in the long term, cut electricity costs by 40%.

Fuel cost savings: Implementing the Energy [R]evolution would require an additional annual investment of \$705bn (compared to the IEA reference case) but would save \$1,320bn¹⁵ in fuel costs a year, worldwide (average annual fuel costs savings 2011 – 2050). So every dollar invested in the Energy [R]evolution concept would pay off twice.

For more information, contact:
pressdesk.int@greenpeace.org

Greenpeace International
Ottho Heldringstraat 5
1066 AZ Amsterdam
The Netherlands
Tel: +31 20 7182000

greenpeace.org

¹⁵ <http://www.energyblueprint.info>