

Renewable energy: World invests \$244 billion in 2012; shift to developing countries underway

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Concentrated solar power systems use mirrors or lenses to concentrate a large area of sunlight, or solar thermal energy, onto a small area. Credit: Dii / UNEP

For only the second time since 2006, global investments in renewable energy in 2012 failed to top the year before, falling 12% mainly due to

dramatically lower solar prices and weakened US and EU markets.

However, 2012 was the second highest year ever for renewable energy investments, which total \$1.3 trillion since 2006. And there was a continuing upward trend in developing countries in 2012, with investments in the South topping \$112 billion vs \$132 billion in developed countries—a dramatic change from 2007, when developed economies invested 2.5 times more in renewables (excluding large hydro) than developing countries, a gap that has closed to just 18%.

The 2012 global investment total for renewable energy (including small hydro-electric projects) was \$244 billion. In previous years, global investments totaled \$279 billion (2011), \$227 billion (2010), \$168 billion (2009), \$172 billion (2008), \$146 billion (2007) and \$100 billion (2006).

Renewable energies have rapidly become a vital part of the [global energy](#) mix and account for an ever-growing share of electric capacity added worldwide.

Total [renewable power](#) capacity worldwide exceeded 1,470 GW in 2012, up 8.5% from 2011. Wind power accounted for about 39% of renewable power capacity added followed by hydropower and solar PV, which each accounted for approximately 26%. Solar PV capacity reached the 100 GW milestone, surpassing bio-power to become the third largest renewable technology in terms of capacity in operation, after hydro and wind.

The main issue holding back investment last year: ongoing renewable energy policy instability in important developed-economy markets, according to twin reports issued today:

- [Global Trends](#) in Renewable Energy Investment 2013 (fs-unep-

centre.org), the 6th edition of the Frankfurt School – UNEP Centre/BNEF report, based on data from Bloomberg New Energy Finance (<http://www.bnef.com>). The report has become the standard reference for global renewable [energy investment](#) figures. The 2013 edition includes a foreword from UN Secretary General Ban Ki-moon.

- The REN21 Renewables 2013 Global Status Report (<http://www.ren21.net/gsr>), now the most frequently-referenced report on renewable energy market, industry and policy developments.

The sister publications were launched jointly by Achim Steiner, UN Under-Secretary-General and UNEP Executive Director, Arthouros Zervos, Chairman of REN21, Michael Liebreich, Chief Executive of Bloomberg New Energy Finance, and Ulf Moslener, Head of Research of the Frankfurt School - UNEP Collaborating Centre for Climate & Sustainable Energy Finance.

According to Mr. Steiner, "The uptake of renewable energies continues world-wide as countries, companies and communities seize the linkages between low carbon Green Economies and a future of energy access and security, sustainable livelihoods and a stabilized climate. There has been a dramatic increase in number and size of projects. There have also been sharp falls in manufacturing costs and in the selling prices of wind turbines and photovoltaic panels, contributing to a shake-out in the industry in 2012. This is not only normal in a rapidly growing, high tech industry but is likely to lead to even more competition, with even bigger gains for consumers, the climate and wider sustainability opportunities."

"More and more countries are set to take the renewable energy stage—only last week the global host of World Environment Day, Mongolia, invited me to tour its first 50MW wind farm, which is the start of its ambitious plan to harness the wind and the sun to power its

future and supply clean energy to China and the region. Like many other nations it has seen the logic and the rationale of embracing a green development path and is seizing this with both hands."

Says Mr. Zervos: "2012 has been another record year for the installation of renewables worldwide and it is encouraging to see that 138 countries all around the world have put renewable energy targets and policy frameworks in place. However, some people believe that most renewable energy technologies can only supplement the established electricity system. REN21's 2013 Global Status Report demonstrates the right policies can drive the successful integration of larger shares of renewables in the energy mix. What is needed is the political will to enact the necessary policies and measures; it is time to address this remaining hurdle."

Additional highlights:

New record for installations of solar and wind

Globally, solar PV installations reached a record 30.5 gigawatts (GW) in 2012 but overall investment was down from the previous year due to a fall of 30%-40% in PV system prices. Those lower costs spurred bigger investment in small-scale solar, rising from \$77 billion in 2011 to \$80 billion in 2012, while spending on large-scale solar projects of more than 1MW fell 24% to \$52.7 billion.

Installed wind capacity also hit a new record of 48.4GW, up from 42.1GW in 2011. Dollar investments fell 10%, however, reflecting a large number of projects financed in 2011 and completed in 2012. Costs also fell, with average prices paid for onshore turbines falling by a few percentage points compared with 2011.

Both policies and targets still play an important role in creating the

conditions necessary to encourage renewable energy development and deployment. As the sector has continued to mature revisions to historic policies have become increasingly common and a slate of new policies are beginning to emerge.

Geographic shift

The acceleration in the geographical shift in renewables deployment is a widening trend towards an increasing number of countries, particularly in the developing world. Of the 138 countries globally with renewables targets or policies in place, two thirds are in the developing world. At the lead is China, which in 2012 consolidated its position as the world's dominant renewable energy market player—up 22% to \$67 billion, thanks largely to a jump in solar investment. Elsewhere there were particularly sharp increases in South Africa, Morocco, Mexico, Chile and Kenya, with Middle East and Africa showing the highest regional growth of 228% to \$12 billion. This development is particularly encouraging in view of the interlinked nature of the UN Secretary General's Sustainable Energy for All objectives of universal access to modern energy services, doubling of both the global rate of improvement in energy efficiency and the share of renewable energy in the global energy mix by 2030.

In the US, the market leader in 2011, investment was down 34% to \$36 billion, mainly due to uncertainties over US policy. Investment in Italy and Spain was also hit by abrupt changes in policy, and concern about future support for the sector.

Germany added another 7.6 GW of solar capacity in 2012 (representing 27% of the world's new added capacity) but the nation's overall investment in renewables slipped 35% to \$20 billion. The major reasons: lower solar cost and a drop in wind power investment.

The brightest news from amongst the developed countries was Japanese, where investment in renewable energy (excluding research and development) surged 73% to \$16 billion, thanks largely to a boom in small-scale solar on the back of new feed-in tariff subsidies for installations.

Jobs

In 2012, an estimated 5.7 million people worldwide worked directly or indirectly in the renewable energy sector. Although a growing number of countries invest in renewable energy, the bulk of employment remains concentrated in a relatively small number of countries, including Brazil, China, India, members of the EU, and USA. Employment is growing in other countries, and there are increasing technicians and sales staff job numbers in off-grid sector of the developing world. For example, selling, installing, and maintaining small solar panels in rural Bangladesh employs 150,000 people directly and indirectly.

Shift towards regional and local policies

Despite a slowdown in national level policy support in 2012, local governments made increasing use of their authority to regulate, make expenditure and procurement decisions, provide for and ease the financing of renewable energy projects, and influence advocacy and information sharing.

Several cities are working with their national governments to advance renewable energy, a phenomenon seen in India, Brazil, China, Indonesia, India, Japan and South Africa. Elsewhere, particularly, in the EU and USA, cities have begun organising themselves from the bottom up. Europe's Covenant of Mayors has seen a significant increase in signatories, with 1,116 new cities and towns joining in 2012, committing

to a 20% CO₂ reduction target and plans for climate mitigations, energy efficiency, and [renewable energy](#). In Germany, cities are assessing the impact of the "Energiewende" (energy transition policy) and adopting measures to address the variability of solar and wind power and to shift consumption patterns.

Example developments

- Morocco saw the go-ahead for a \$1.2 billion investment to finance the Masen Ouarzazate solar thermal project.
- In the Indian state of Gujarat a 605 MW PV solar park was completed in April 2012 that is expected to save around 8 million tonnes of CO₂ and 900,000 tonnes of natural gas per year.
- Close to \$1 billion was announced for a 396MW wind project in Oaxaca State, Mexico.
- After the shift away from a nuclear power-dependent energy policy in the wake of the Fukushima nuclear accident, TEPCO commissioned its first three solar plants in 2011 and 2012 at Kawasaki and Mt. Komekura for a total of 30MW.
- Warren Buffett's MidAmerican Holdings launched an \$850 million bond issue in February 2012 to finance its 550MW Topaz Solar Farm in California, only to see it oversubscribed by more than \$400 million.
- \$5 billion of 'green' bonds were issued in 2012, a 44 per cent increase over 2011.
- The phenomenon of crowd sourcing—in which capital is raised from large numbers of small investors—took off in small-scale solar in Europe and the United States.

More information: The reports in full are publicly available from June 12 at www.ren21.net/gsr and fs-unep-centre.org

Provided by UNEP

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