



UNEP

United Nations Environment Programme

**Strict embargo: 9 AM EDT (1 PM GMT / 2 PM UK Summer Time) Wednesday June 3, 2009**

UNEP Executive Director Achim Steiner will launch the report, **Global Trends in Sustainable Energy Investment 2009**, via media teleconference Wednesday June 3 at 9 a.m. U.S. Eastern Time (1 p.m. GMT / 2 p.m. UK Summer Time). To join the call, please dial +1-303-664-6043, conference ID 8309014. Experts are also available for advance interviews. The full report is available for media preview at <http://sefi.unep.org/english/globaltrends2009.html>

## **Economic Crisis Hits EU and US Clean Energy As Emerging Economy Investments Rise 27% to \$36 billion**

### **However Renewables Draw More Investment Than Fossil-Fueled Energy Technologies in '08**

### **Geothermal Sees Fastest Growth — Wind Power Tops Overall Investment, Solar Posts Largest Gains**

**New York/London/Nairobi, 3 June 2009**—\$155 billion was invested in 2008 in clean energy companies and projects worldwide—not including large hydro, a new report launched today says.

Of this \$13.5 billion of new private investment went into companies developing and scaling-up new technologies alongside \$117 billion of investment in renewable energy projects from geothermal and wind to solar and biofuels.

The 2008 investment is more than a four-fold increase since 2004 according to **Global Trends in Sustainable Energy Investment 2009**, prepared for the UN Environment Programme's (UNEP) Sustainable Energy Finance Initiative by global information provider New Energy Finance.

Extremely difficult financial market conditions prevailed during 2008 as a result of the global economic crisis.

Nevertheless investment in clean energy topped 2007's record investments by 5% in large part as a result of China, Brazil and other emerging economies.

Of the \$155 billion, \$105 billion was spent directly developing 40 GW of power generating capacity from wind, solar, small-hydro, biomass and geothermal sources.

A further \$35 billion was spent on developing 25 GW of large hydropower, according to the report.

This \$140 billion investment in 65 GW of low carbon electricity generation compares with the estimated \$250 billion spent globally in 2008 constructing 157GW of new power generating capacity from all sources.

It means that renewables currently account for the majority of investment and over 40% of actual power generation capacity additions last year.

Achim Steiner, UN Under-Secretary General and UNEP Executive Director, said: “Without doubt the economic crisis has taken its toll on investments in clean energy when set against the record-breaking growth of recent years. Investment in the United States fell by two per cent and in Europe growth was very much muted. However, there were also some bright points in 2008 especially in developing economies—China became the world’s second largest wind market in terms of new capacity and the world’s biggest photovoltaic manufacturer and a rise in geothermal energy may be getting underway in countries from Australia to Japan and Kenya”.

“Meanwhile other developing economies such as Brazil, Chile, Peru and the Philippines have brought in, or are poised to introduce policies and laws fostering clean energy as part of a Green Economy. Mexico for example, the Global host of World Environment Day on 5 June, is expected to double its target for energy from renewables to 16 per cent as part of a new national energy policy,” he added.

### **Overall Highlights from the Report**

Wind attracted the highest new investment (\$51.8 billion, 1% growth on 2007), although solar made the largest gains (\$33.5 billion, 49% growth) while biofuels dropped somewhat (\$16.9 billion, 9% decrease).

Total transaction value in the sustainable energy sector during 2008 – including corporate acquisitions, asset re-financings and private equity buy-outs – was \$223 billion, an increase of 7% over 2007. But capital raised via the public stock markets fell 51% to \$11.4 billion as clean energy share prices lost 61% of their value during 2008.

Investment in the second half of 2008 was down 17% on the first half, and down 23% on the final six months of 2007, a trend that has continued into 2009.

One response to the global economic crisis has been announcements of stimulus packages with specific, multi-billion dollar provisions for energy efficiency up to boosts to renewable energies.

“These ‘green new deals’ lined up by some economies, including China, Japan, the Republic of Korea, European countries and the United States contain some serious clean energy provisions. These will help support the market,” said Mr. Steiner.

“However, the biggest renewables stimulus package of them all can come at the UN climate convention meeting in Copenhagen in just over 180 days time. This is where governments need to Seal the Deal on a new climate agreement—one that can bring certainty to the carbon markets, one that can unleash transformative investments in lean and clean green tech,” he added.

### **Green Energy Costs Coming Down -- Solar Costs Set to Fall 43%**

The investment surge of recent years and softened commodity markets have started to ease supply chain bottlenecks, especially in the wind and solar sectors, which will cause prices to fall towards marginal costs and several players to consolidate. The price of solar PV modules, for example, is predicted to fall by over 43% in 2009.

### **Carbon Markets Continue Upward**

Despite the turmoil in the world's financial markets, transaction value in the global carbon market grew 87% during 2008, reaching a total of \$120 billion. Following the lead of the EU and Kyoto compliance markets, several countries are now putting in place a system of interlinked carbon markets and working towards a global scheme under the UN Framework Convention on Climate Change (UNFCCC).

### **Growth Shifts to the Developing World**

On a regional basis, investment in Europe in 2008 was \$49.7 billion, a rise of 2%, and in North America was \$30.1 billion, a fall of 8%.

These regions experienced a slow-down in the financing of new renewable energy projects due to the lack of project finance and the fact that tax credit-driven markets are mostly ineffective in a downturn.

With developed country market growth stalled (down 1.7%), developing countries surged forward 27% over 2007 to \$36.6 billion, accounting for nearly one third of global investments.

China led new investment in Asia, with an 18% increase over 2007 to \$15.6 billion, mostly in new wind projects, and some biomass plants.

Investment in India grew 12% to \$4.1 billion in 2008. Brazil accounted for almost all renewable energy investment in Latin America in 2008, with ethanol receiving \$10.8 billion, up 76% from 2007. Africa achieved a modest increase by comparison, with investments up 10% to approximately \$1.1 billion.

### **The Greening of Economic Stimulus Packages**

Not surprisingly given market conditions, private sector investment was stalling in late 2008 but government investment looks ready to take up some of the slack in 2009.

Sustainable energy investments are a core part of key government fiscal stimulus packages announced in recent months, accounting for an estimated \$183 billion of commitments to date.

Countries vary significantly in terms of investment and the clarity of their measures. The US and China remain the leaders, each devoting roughly \$67 billion, but South Korea's package is the "greenest" with 20% devoted to clean energy. This green stimuli illustrates the political will of an increasing number of governments for securing future growth through greener economic development.

According to Michael Liebreich, Chairman & CEO of New Energy Finance, "There is a strong case for further measures, such as requiring state-supported banks to raise lending to the sector, providing capital gains tax exemptions on investments in clean technology, creating a framework for Green Bonds and so on, all targeted at getting investment flowing".

“What’s most important is that stimulus funds start flowing immediately, not in a year or so. Many of the policies to achieve growth over the medium term are already in place, including feed-in tariff regimes, mandatory renewable energy targets and tax incentives. There is too much emphasis amongst some policy-makers on support mechanisms, and not enough on the urgent needs of investors right now.”

Between 2009 and 2011 UNEP estimates that a minimum of \$750 billion – or 37% of current economic stimulus packages and 1% of global GDP – is needed to finance a sustainable economic recovery by investing in the greening of five key sectors of the global economy: buildings, energy, transport, agriculture and water.

## **2009 and beyond: Climate change, energy security and green jobs**

New investments in the first quarter of 2009 fell by 53% to \$13.3 billion compared to the same period in 2008, reflecting the depth of the global financial crisis, according to the report, which notes “‘green-shoots’ of recovery during the second quarter of 2009, but the sector has a long way to go this year to reach the investment levels of late 2007 and early 2008.”

Climate change, economic recovery and energy security will spur far greater investments in coming years.

In particular, the growing understanding that global carbon emissions (CO<sub>2</sub>) must peak around 2015 to avoid dangerous climate change (based on the 4th assessment of the Intergovernmental Panel on Climate Change-- UNEP/World Meteorological Organisation) will make clean energy investments national priorities.

Annual investments in renewable energy, energy efficiency and carbon capture and storage need to reach half a trillion dollars by 2020, representing an average investment of 0.44% of GDP.

These levels of investment are not impossible to achieve, especially in view of the recent four year growth from \$35 billion to \$155 billion. However, reaching them will require a further scale-up of societal commitments to a more sustainable, low-carbon energy paradigm.

With the current stimulus packages now in play and a hoped-for Copenhagen climate deal in December, the opportunity to meet this challenge is greater than ever, even seen from the depths of an economic downturn.

## **Global Trends in Sustainable Energy Investment 2009 -- Sector Hi-lites**

### **WIND**

Wind attracted the highest new investment (\$51.8 billion, 1% growth on 2007), confirming its status as the most mature and best-established sustainable generation technology. Wind’s leading position continues to be driven by asset finance, as new generation capacity is added worldwide, particularly in China and the US.

### **SOLAR**

Solar continues to be the fastest-growing sector for new investment (\$33.5 billion, 49% growth on 2007), with compound annual growth of 70% between 2006 and 2008.

Solar's growth reflects the easing of the silicon bottleneck and falling costs, which are expected to decline 43% in 2009. Solar project financing underwent the most dramatic growth in 2008, rising 71% to \$22.1 billion.

## BIOFUELS

Investment in biofuels fell 9% in 2008 down to \$16.9 billion. Although the technology is well established, particularly in Brazil, it has suffered for the past two years from over-investment in early 2007, followed by a fall from grace caused by a combination of high wheat prices, lower oil prices and an increasingly heated food-versus-fuel controversy.

Biofuels technology investment is now focused on finding second-generation / non-food biofuels (such as algae, crop technologies and jatropha): the second half of 2008 saw next-generation technology investment exceed first-generation for the first time.

## GEOHERMAL

Geothermal was the highest growth sector for investment in 2008, with investment up 149% and 1.3 GW of new capacity installed. The competitive cost of electricity from geothermal sources and long output lifetimes have made this an attractive investment despite the high initial capital cost.

## ENERGY EFFICIENCY

New private investment in energy efficiency was \$1.8 billion – a fall of 33% on 2007 – although this figure doesn't capture the investments made by corporates, governments and public financing institutions.

The energy efficiency sector recorded the second highest levels of venture capital and private equity investment (after solar), which will help companies develop the next generation of sustainable energy technologies for areas such as the smart grid. Energy efficiency also attracted more than 33% of the estimated \$180 billion in green stimulus measures.

## **Global Trends in Sustainable Energy Investment 2009 -- Regional Hi-lites**

### ***EUROPE***

Europe continues to dominate sustainable energy new investment with \$49.7 billion in 2008, an increase of 2% on 2007 (37% CAGR from 2006-2008). This investment is underpinned by government policies supporting new sustainable energy projects, particularly in countries such as Spain, which saw \$17.4 billion of asset finance investment in 2008.

### ***NORTH AMERICA***

New investment in sustainable energy in North America was \$30.1 billion in 2008, a fall of 8% compared to 2007 (15% CAGR from 2006-2008). The US saw a slow-down in asset financing following the glut of investment in corn based ethanol in 2007. Also, the number of tax equity providers fell for wind and solar projects due to the financial crisis.

### ***AFRICA***

#### **South Africa -- Feed-in Tariffs Kick Start Green Investment**

On 31 March 2009, South Africa announced 'feed-in' tariffs that guarantee a stable rate-of-return for renewable energy projects. South Africa is hoping to spur the sort of investment spurred in Germany and Denmark through feed-in tariff schemes.

### **Sub-Saharan Africa -- Geothermal Kenya & Sweet Sorghum Ethanol**

Elsewhere in Sub-Saharan Africa, lack of finance is the principal barrier to sustainable energy roll-out. However, some notable progress was made in 2008.

In Kenya, a number of investments are underway; including the continent's first privately financed geothermal plant and a 300MW wind farm planned for construction near Lake Turkana.

In Ethiopia, French wind turbine manufacturer Vergnet signed a EUR 210 million supply contract in October 2008 with the Ethiopian Electric Power Corporation for the supply and installation of 120 one MW turbines.

In Angola, Brazilian industrial conglomerate Odebrecht set up an Angolan sugar cane processing plant and plans to steer its production from ethanol to sugar when it comes online late next year. UK-based Cams Group announced plans for a 240 million liter per year sweet sorghum ethanol facility in Tanzania.

### **North Africa -- Sun and Wind**

Renewable energy in North Africa remains focused on Morocco, Tunisia and Egypt, particularly in solar and wind. Egypt recently announced its expectation that wind farms in the Saida area will produce 20% of the country's energy needs by 2020. Morocco's government has also outlined plans to meet 10% of its power needs with renewable energy sources.

## **ASIA**

### **China - Asia's Green Energy Giant**

By 2008, China was the world's second largest wind market by newly installed capacity and the fourth largest by overall installed capacity. Between 5GW and 6.5GW of new capacity was installed and commissioned in 2008, bringing total capacity to 11GW to 12.5GW.

China became the world's largest PV manufacturer in 2008, with 95% of its production for the export market.

Some 800MW of biomass power was added in 2008, bringing the total installed capacity for agriculture waste-fired power plants up to 2.88GW. Development of biofuels has all but ground to a halt, mostly due to high feedstock costs.

### **India - Pressing Need for Grid Improvements and Clean Power Generation**

In 2008 the largest portion of new investment in India went to the wind sector, growing 17% -- from \$2.2 billion to \$2.6. Thanks to a supportive policy environment, solar investment grew from \$18 million in 2007 to \$347 million in 2008, most of which went to setting up module and cell manufacturing facilities.

Small hydro investment in India grew nearly fourfold to \$543 million in 2008, while biofuels investment stalled and fell from \$251 million in 2007 to only \$49 million in 2008.

## **Japan – A New Push for Sustainable Energy**

In December 2008, Japan unveiled a new \$9 billion subsidy package for solar roofs, granting JPY 70,000 (\$785)/kW for rooftop PV installation. For the first time in three years, domestic shipments of solar cells rose between April to September (up 6%), indicating a fundamental change in domestic solar demand.

Geothermal also seems to be reawakening in Japan, after a twenty-year lull. In January 2009, plans for a 60MW geothermal plant were announced.

## **Australia – Geothermal and Wind Gaining Support**

The Australian government has set up a A\$500m (\$436 million) Renewable Energy Fund to accelerate the roll-out of sustainable energy in the country. A\$50 million has already been committed to helping geothermal developers meet the high up-front costs of exploration and drilling.

Geothermal is expected to provide about 7% of the country's baseload power by 2030. Wind will also benefit from Australia's new push for sustainable energy, and is expected to provide most of the 20% renewable energy by 2020 target.

## **Other Asian Countries -- Philippines, Thailand, Malaysia**

In late 2008, the Philippine government signed a new Renewable Energy Law, offering specific incentives (mainly tax breaks) for renewable generation -- a first for Southeast Asia and perhaps a model for other countries. Thailand and Malaysia have been talking about introducing renewable energy legislation for some time; and other countries are planning biofuel blending mandates, similar to those introduced by the Philippines in 2007 and subsequently by Thailand.

## ***LATIN AMERICA***

### **Brazil - World's Largest Renewable Energy Market**

About 46% of Brazil's energy comes from renewable sources, and 85% of its power generation capacity thanks to its enormous hydropower resources and long-established bioethanol industry.

Some 90% of Brazil's new cars run on both ethanol and petrol (all of which is blended with around 25% ethanol). By the end of 2008, ethanol accounted for more than 52% of fuel consumption by light vehicles.

Brazil is now moving into wind. The government has announced a wind-specific auction to take place in mid-2009, for the sale of approximately 1GW of wind energy per year.

Brazil also has a global leader in renewable energy financing. In 2008 the Brazilian Development Bank (BNDES) was the largest provider globally of project finance to renewable energy projects.

### **Chile, Peru, Mexico and the rest of Latin America**

Brazil accounted for more than 90% of new investment in Latin American, but several other countries are looking to implement regulatory frameworks supportive of renewable energy.

Chile's recently approved Renewable Energy Legislation is responsible for regulating the country's renewable energy sector, where small hydro, wind and geothermal projects have become increasingly attractive for investors. It requires electricity generators of more than 200MW to source 10% of their energy mix from renewables.

In 2008 Peru introduced legislation that requires 5% of electricity produced in the country to be derived from renewable sources over the next five years, including financial incentives such as preferential feed-in-tariffs and 20-year PPAs for project developers.

Mexico has a non-mandatory target to source 8% of its energy consumption from renewable sources by 2012. However a new national energy plan expected at the end of June 2009 is expected to double that target.

**Contacts:**

Nick Nuttall, UNEP Spokesperson/Head of Media, on Tel: + 254 20 7623084, Mobile: + 254 733 632755 / +41 79 596 57 37, e-mail: [nick.nuttall@unep.org](mailto:nick.nuttall@unep.org)

Terry Collins, Tel: +1-416-538-8712; Mobile: +1-416-878-8712, email: [TerryCollins@rogers.com](mailto:TerryCollins@rogers.com)

Jim Sniffen, UNEP Programme Officer, New York, Tel: +1-212-963-8094 or 8210 [info@nyo.unep.org](mailto:info@nyo.unep.org)

\* \* \* \* \*