

Energy Revolution Launch Brief

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In these times of economic crisis, the need to support Greenpeace's 'Energy [R]evolution: A Sustainable World Energy Outlook' takes on an increased impetus, as it shows how tackling climate change by investing in renewable energy systems and energy efficiency will also help stabilise the global economy.

This is the second edition of the Energy [R]evolution. Since the publication of the first edition in January 2007, more countries are seeing the environmental and economic benefits provided by renewable energy.

The total fuel cost savings for the power sector calculated in the Energy [R]evolution Scenario would reach USD18.7 trillion by 2030, or USD 750 billion annually. On top of that, cost savings made by reducing energy demand through energy efficiency measures amount to trillions of dollars in the transport and heating sector, in addition to the savings noted above for power generation.

The situation today:

Currently governments and citizens are suffering from ever-increasing energy prices, which fluctuate according to the vagaries of the global markets. For instance, the Brent crude oil price was at USD 55 per barrel when we launched the first Energy [R]evolution report. By mid-2008 it had reached a peak of over USD 140 per barrel and has subsequently dropped to around USD 70. Other fuel prices have also become unpredictable. Coal, gas and uranium have been following the same trends. This not only affects industry and transport costs, but also domestic electricity bills.

By investing in renewable technologies, this would simply no longer be a factor. By contrast, with the exception of biomass, all other renewable energy sources don't need fuel once installed. They deliver energy independently from the global energy markets and at stable prices.

For example, the additional costs for coal power generation from today until 2030, under a business as usual scenario, could be as high as USD 15.9 trillion: this would cover the entire investment needed in renewable and cogeneration capacity to implement the Energy [R]evolution Scenario.

The opportunity:

OECD Governments are at a crossroads when it comes to securing their future energy supply systems, as hundreds of power plants need to be replaced. The overall global level of investment required in new power plants up to 2030 is around USD 11 to 14 trillion. The main driver for investment in new generation capacity in these countries will be the retirement of ageing power plants.

Utilities will make their technology choices within the next five to ten years based on national energy policies - in particular market liberalisation, renewable energy and CO₂ reduction targets. At a time when governments are searching for stable investment opportunities, financing renewable technologies such as wind and solar are among the most intelligent options.

Investing in renewable technologies also provides extra employment opportunities. Wind and Solar generation are more labour-intensive than coal and nuclear plants, and therefore can provide much-needed jobs. For example, in Germany, over 235,000 people are employed by the renewables industry. The solar industry provides more jobs than the entire nuclear industry in Germany. The wind industry in Germany employs over 85,000 people – more than twice as the amount of mining workers in the country.

The Global Wind Energy Council estimates that 2.1 million jobs can be created by 2030 in wind energy industries, and the European Photovoltaic Industry Association estimates that 2 million people will be working in their industry globally by 2020. So an Energy [R]evolution can help spur growth – a key factor for a world on the brink of recession.

The investment required for power generation in the Energy [R]evolution Scenario is USD 14.7 trillion, whereas business as usual is approximately USD 11 trillion. Therefore, an extra USD 3 trillion needs to be invested in the next two decades. Put into context, the average annual investment required to implement this is USD 139 billion. This would lower fuel costs by 25% - saving an annual amount in the range of USD 750 billion.

Such sums are not unrealistic when compared to the recent financial bailouts in the US and Europe - where 2.5 trillion euros were pumped into their economies in an attempt to restore economic stability - or the Iraq war, which has cost well over 1 trillion euros. It is also clear from recent financial bailouts that, when the political will is there, money follows.

The average annual investment in the power sector in the scenario between 2005 and 2030 is approximately USD 590 billion. This is equal to the current amount of global subsidies for fossil fuels in under two years. Therefore the subsidies used for fossil fuels could be stripped away and applied instead to renewable energy and energy efficiency measures.

These investment and technological decisions are taking place globally. Most investments in new power generation will take place in China, followed by North America and Europe. South Asia, including India, and East Asia, in countries such as Indonesia, Thailand and the Philippines, will also be priorities for investments.

What are the impediments?

Within Europe, the EU emissions trading scheme may have a major impact on whether the majority of investment goes into fossil fuel power plants or renewable energy and co-generation. A well-designed Cap & Trade system in the US could have a similar impact on renewables and efficiency in the US. In developing countries, international financial institutions will play a major role in future technology choices, as could a strengthened UN Kyoto deal which could help pay for renewable energy and energy efficiency uptake, by providing funds from developed countries to lower emissions in developing countries.

The future of renewable energy development will strongly depend on political choices made by both individual governments and the international community. At the same time Greenpeace believes that strict technical standards are needed to ensure that only the most efficient fridges, heating systems, computers and vehicles are on sale. Consumers have a right to buy products that don't increase their energy bills and won't destroy the climate.

Renewables can deliver

Unfortunately, many people still believe that renewable energy technologies are not capable of delivering what we need. Decades of technical progress have seen renewable energy technologies such as wind turbines, solar photovoltaic panels, biomass power plants, solar thermal collectors and many others move steadily into the mainstream.

The global market for renewable energy is growing dramatically. In 2007, its turnover was over USD 70 billion, almost double the previous year. Renewable energy technologies vary widely in their technical and economic maturity, but there are a range of sources which offer increasingly attractive options. These include wind, biomass, photovoltaic, solar thermal,

geothermal, ocean and hydroelectric power. Their common feature is that they produce little or no greenhouse gases, and rely on virtually inexhaustible natural sources for their 'fuel'.

Some of these technologies are already competitive and will become increasingly economical as they develop technically and are mass-produced. Meanwhile, the price of fossil fuels will continue to rise as CO₂ emissions are given a monetary value, making renewables even more competitive.

Time for change

The time for making the shift from fossil fuels to renewable energy, however, is still relatively short if emissions are to be reduced. But if the world carries on its business as usual, then decisions taken to construct a coal or gas power plant today will result in more CO₂ emissions, and increased dependency on fossil fuels and their future costs, for the next four decades.

The power industry and utilities need to take more responsibility for reducing emissions, because today's investment decisions will define the energy supply of the next generation. We strongly believe that this should be the 'solar generation'. Politicians from the industrialised world urgently need to rethink their energy strategy, while the developing world should learn from the developed world's past mistakes and invest in renewables instead of coal and nuclear, building economies on the strong foundations of a sustainable energy supply.

Renewable electricity could more than double its share of the world's energy supply - reaching up to 30% by 2020. All that is lacking is the political will to promote its large scale deployment in all sectors at a global level. Coupled with far reaching energy efficiency measures, by 2030 about half of global electricity could come from renewable energies.

In the context of today's economic instability, investing in renewable energy technologies is a 'win-win-win' scenario: a win for energy security, a win for the economy and a win for the climate.

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