



## **Climate negotiations – What matters to the wind industry?**

Updated 9 November 2009

### **1. Wind as a key solution to climate change**

#### ***Climate change is happening, and it is happening fast***

When climate change first started to worry the scientific community in the 1980s, the idea of a carbon free energy economy was still a technological fantasy – maybe it could be achieved in the far distant future. Back then, fossil fuels seemed plentiful, and they were cheaper than ever. Moreover, most renewable energy technologies were in the early stages of development, they were expensive, and they were inefficient.

Back in the 1980s, the dire warnings of scientists largely fell on deaf ears both in the energy business and the political arena. The build-up of CO<sub>2</sub> concentrations in the atmosphere was something that could safely be put in the 'to be worried about in the future' basket.

But much has changed since the 1980s. Since then, we have learned more about how quickly this 'future' is approaching. Climate change is here, it is happening, and much faster than initially thought. Melting polar ice, shrinking glaciers in Greenland, Antarctica and around the globe, rising sea levels, severe weather events, heat waves and droughts are getting ever harder to ignore. The old questions about ways to combat climate change are back on the table, and need to be addressed urgently.

The IPCC's 4<sup>th</sup> Assessment Report showed that climate change is developing faster than previously thought. It also sent the clear message that if we are to have any chance of avoiding the worst and irreversible damages of climate change, then global greenhouse gas emissions must peak and begin to decline before 2020.

In addition, a number of independent studies, such as the report for the British government by former World Bank Chief Economist Sir Nicholas Stern, have highlighted concerns that the economic and social costs associated with the increasing impacts of climate change far outweigh the costs of effective mitigation of greenhouse gas emissions.

Not only has our scientific understanding of the threat we face deepened to the point that no serious policymaker can ignore; public awareness has also increased dramatically, with citizens around the world demanding action and demanding change – the recent 'Earth Hour' campaign is just one example of this public engagement. Citizens are becoming increasingly aware of the threat of climate change every day, as part and parcel of the whole mix of energy insecurity, the scourge of air pollution in major cities around the world, and the economic disaster of the reliance on imported fossil fuels.

#### ***Renewable energy technologies are available - here and now***

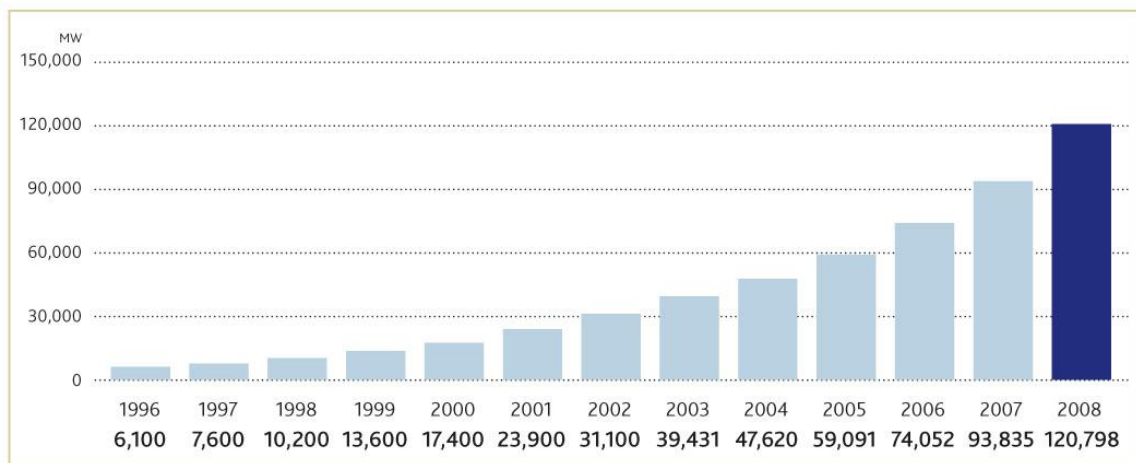
Something else has changed, too. We now have the technology to begin the move to a sustainable energy economy, here and now. In fact, it is already happening; we have entered the renewable

energy age, and investors have flocked to the sector. In 2008, total investment in the clean energy sector reached \$150 billion, up from just 34 billion in 2004. Particularly in the electric power sector, traditional energy giants such as General Electric, Iberdrola, Siemens, EON, Florida Power and Light, RWE, and even French nuclear utility AREVA are staking more and more of their future on renewable energy. Most of the asset investments are going to wind power.

Even the International Energy Agency has begun to pick up on the renewable energy revolution. In its recent publications, the IEA has started to acknowledge that renewable energy will dominate the power sector in any sustainable energy future. While the IEA's estimates still err on the conservative side, the starting recognition of the role that renewables can play is finally picking up on the explosive development of so-called 'new' renewable energy technologies.

Wind energy is the most developed of 'new' renewable technologies, and its story is indeed remarkable. Global installed capacity growth has averaged over 28% over the last 10 years, doubling installed capacity globally every 2.5 - 3 years. 2008 was another banner year, with more than 27,000 MW installed globally, bringing the total installed capacity up to over 120,000 MW.

GLOBAL CUMULATIVE INSTALLED CAPACITY 1996-2008



### ***Wind power: Potent CO2 saver... and boosting the economy***

Wind power is a key tool in the fight against climate change, with the potential to save billions of tons of CO<sub>2</sub>. But not only does it provide clean power from an inexhaustible indigenous source, it also boosts economic development by creating jobs, channelling investment into a sustainable energy model and saving billions in foreign imports of fossil fuels.

### ***Wind energy and the environment***

While the power sector is far from being the only culprit when it comes to climate change, it is the largest single source of emissions, accounting for about 40% of CO<sub>2</sub> emissions, and about 25% of overall emissions. The options for making major emissions reductions in the power sector between now and 2020 are basically three: energy efficiency and conservation; fuel switching from coal to gas; and renewable energy, primarily wind power.

Modern wind technology has an extremely good energy balance. Wind power does not emit any climate change inducing carbon dioxide nor other air pollutants which are polluting the major cities of the world and costing billions in additional health costs and infrastructure damage. The CO<sub>2</sub> emissions related to the manufacture, installation and servicing over the average 20 year lifecycle of a wind turbine are "paid back" after the first three to six months of operation, while substantial CO<sub>2</sub> savings continue throughout the lifetime of a turbine. Further, in an increasingly carbon-constrained world, wind power is risk-free insurance against the long term downside of carbon intense investments.

The Global Wind Energy Council<sup>1</sup> has presented a scenario showing that wind power is on track to reducing CO<sub>2</sub> emissions by a total of 10 billion tons by 2020, far more than any other power sector technology. It will help revitalise our economies, and create millions of jobs in the process. But this will not happen by itself.

According to the GWEC scenario, global wind energy capacity would increase from the current 120 GW to over 1,000 GW by 2020, generating 2,600 TWh of electricity annually, which would represent around 12 % of global electricity demand. This would save more than 1.5 billion tons of CO<sub>2</sub> per year, adding up to 10 billion tons of CO<sub>2</sub> saved by 2020, and make a substantial contribution to global efforts to curb greenhouse gas emissions.

Given the crucial timeframe up to 2020 during which global emission must start to decline, the speed of deployment of wind farms is of key importance in combating climate change. Building a conventional power plant can take 10 or 12 years or more, and until it is completed, no power is being generated. Wind power deployment is measured in months, and a half completed wind farm is just a smaller power plant, starting to generate power and income as soon as the first turbines are connected to the grid.

#### *An investment and job dynamo*

Wind energy makes sound economic sense.

In contrast to new gas, coal or even a nuclear power plants, the price for fuel over the total lifetime of a wind turbine is well known: it is zero. For conventional generation technologies, the volatility of fuel price developments are a significant risk factor, with oil prices recently fluctuating between 50 and 150 USD in the course of just one year.

Wind farm owners, however, know how much the electricity they generate is going to cost. No conventional technology (except hydro – the ‘established’ renewable power generating technology) can make that claim. This is of fundamental concern not only to individual utilities and power plant operators, but also to government planners seeking to mitigate their vulnerability to macroeconomic shocks associated with the vagaries of international commodity markets.

In addition, at many sites, wind power is already competitive with new-built conventional technologies, and in some cases much cheaper. Although nothing can compete with existing, embedded conventional generation plant that has already been paid off (and was mostly constructed with significant state subsidies: governments still subsidize conventional technologies at the rate of about 250 billion USD/year), wind power is commercially attractive, especially when taking into account the price of carbon, which is a factor in a growing number of markets.

Already in 2008, over €36.5 billion were invested in wind energy worldwide, and the sector is now employing well over 400,000 ‘green collar’ workers. According to the GWEC scenario, the annual value of global investment in wind energy would reach €149.4 bn by 2020 and account for over 2.2 million jobs.

Although these figures may appear large, they should be seen in the context of the total level of investment in the global power industry. During the 1990s, for example, annual investment in the power sector was running at some €158-186 billion each year.

Especially at times of economic uncertainty and high unemployment rates, any technology which demands a substantial level of both skilled and unskilled labour is of considerable economic importance, and likely to feature strongly in any political decision-making over different energy options.

Regional economic development is also a key factor in economic considerations surrounding wind energy. From Schleswig-Holstein in northern Germany, to Andalucía in Spain; from the US Pacific Northwest to west Texas to Pennsylvania; and from Xinjiang and Inner Mongolia in China to Tamil Nadu and Gujarat in India, the wind power industry is revitalising regional economies, providing

---

<sup>1</sup> See GWEC: Global Wind Energy Outlook 2008. [www.gwec.net/index.php?id=92](http://www.gwec.net/index.php?id=92)

quality jobs and expanding tax bases in rural regions struggling to keep their economies moving ahead in the face of the global flight to the cities.

### *No more imported dirty fuels at volatile prices*

Global demand for energy has been increasing at a breathtaking pace, and this is particularly true in China, India and other rapidly developing economies. This sharp increase in world energy demand will require significant investment in new power generating capacity and grid infrastructure, especially in the developing world.

Industrialised countries face a different but parallel situation. While demand is increasing, the days of overcapacity in electricity production are coming to an end. Many older power plants will soon reach the end of their working lives. The IEA predicts that by 2030, over 2,000 GW of power generation capacity will need to be built in the OECD countries, including the replacement of retiring plants. Just as energy demand continues to increase, supplies of the main fossil fuels used in power generation, are becoming more expensive and more difficult to extract. One result is that some of the major economies of the world are increasingly relying on imported fuel at unpredictable cost, sometimes from regions of the world where conflict and political instability threaten the security of that supply.

In contrast to the uncertainties surrounding supplies of conventional fuels, and volatile prices, wind energy is a massive indigenous power source which is permanently available in virtually every country in the world. There are no fuel costs, no geo-political risk and no supply dependence on imported fuels from politically unstable regions.

Every kilowatt/hour generated by wind power has the potential to displace fossil fuel imports, improving both security of supply and the national balance of payments, which is not only an issue for the United States which sends more than half a trillion dollars a year out of the country to pay its oil bill. This is an even larger issue for poor countries in Africa, Asia and South America whose economies have been devastated by recent oil price hikes.

Wind power also has the advantage that it can be deployed faster than other energy supply technologies. Even large offshore wind farms, which require a greater level of infrastructure and grid network connection, can be installed from start to finish in less than two years, a crucial asset given the pressing threat of climate change.

## **2. The road to Copenhagen - What matters to the wind industry?**

Even in this time of financial crisis and economic downturn, the climate issue remains high on the agenda. The first commitment period of the Kyoto Protocol is coming to an end in 2012. While this agreement is not perfect, it is the only international policy tool we have to curb carbon emissions and combat climate change, and coming to an agreement for the period post-2012 is essential.

In December 2007, at COP 13 in Bali, the participating countries agreed that the negotiations should be formally launched and successfully concluded by COP 15, to be held in December 2009 in Copenhagen. However, the last 14 months have seen little progress, and there is now pressure to meet the December deadline.

Danish authorities expect up to 18,000 people in Copenhagen for two weeks. In addition to the negotiators, this includes Heads of State and Government; Environment, Energy and Finance Ministers; thousands of reporters from outlets around the world and advocates representing business and industry, environmental groups, research NGOs, trade unions and indigenous people's groups.

For the wind sector, the outcome of these negotiations is critical, and the wind power industry has mounted the Wind Power Works<sup>2</sup> campaign during this 'Year of the Climate', to highlight the key role of wind power in meeting greenhouse gas emission reduction targets.

---

<sup>2</sup> See <http://www.windpowerworks.net>

In particular, three points are of key interest to the wind industry: the rigour of the emissions reduction targets, technology transfer agreements and an expanded carbon market.

**Targets** - The emission reduction targets for industrialised countries under consideration (minus 25-40% in 2020 compared with 1990 levels) are much greater than those under the Kyoto Protocol's first commitment period. If targets in this range are agreed and enforced, this will have an immediate impact on the framework conditions of the wind sector. Firstly, the price of carbon will rise substantially and drive energy investment decisions.

We are already beginning to see this as a result of the modest targets agreed by the EU, most clearly in the recent decision by a major German utility to cancel a series of new coal-fired power plants in the wake of the EU's landmark '20/20/20' decision agreed in December 2008. Under the new emissions trading rules where electricity producers need to buy emission reduction credits at auction to compensate for their emissions, the price risk of new coal-fired generation capacity was deemed too high.

We have also seen plans for dozens of new coal-fired power plants cancelled in the US, merely in the anticipation of a price for carbon. With a new climate agreement in place, this trickle should turn into a flood.

In reality, reaching an international agreement on substantial targets will be hard. Although negotiators in Bali agreed to negotiate in the 25-40% reduction range, only the EU has to date agreed to a 20% cut by 2020 (to be increased to 30% as part of a new international agreement), and to sourcing 20% of its final energy demand from renewable sources by the same date.

In the US, President Obama pledged to return the country to 1990 levels by 2020, which would mean an approximately 16% reduction below today's levels. This may be ambitious given the recent history of the US, but nowhere near enough.

Australia has announced very disappointing national targets – 4% below 1990 levels (5% below 2000 levels) by 2020.

Japan, Canada and Russia, the other notable players among industrialized countries, have yet to lay their cards on the table.

**The flexible mechanisms:** The Kyoto Protocol's Clean Development Mechanism (CDM) has already had a substantial impact on wind energy development in China and India. The CDM also impacts to a lesser extent other developing countries, and income from Certified Emission Reductions (CERs) can make a substantial contribution to a project's profitability. There are more than 25,000 MW of wind power projects currently in the CDM pipeline<sup>3</sup>.

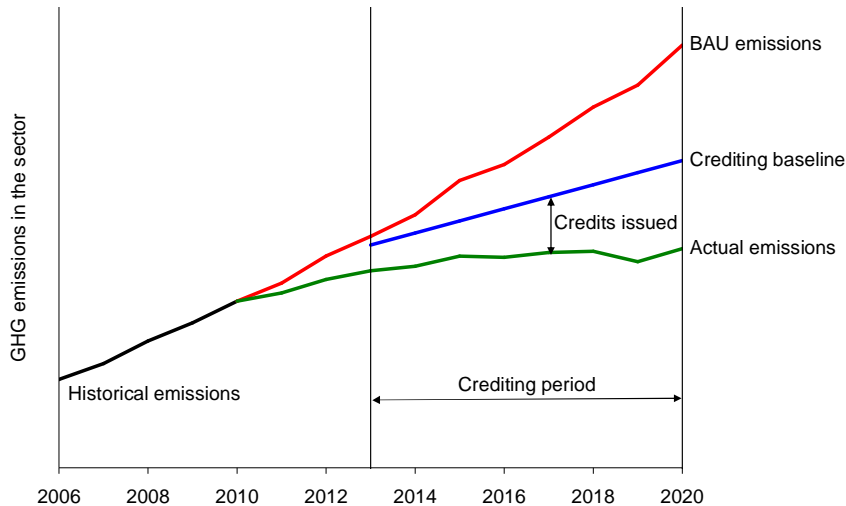
While this unique mechanism has made a good start, it can and must be expanded and improved, creating the conditions for wind energy and other clean development in a much broader range of developing and emerging economy markets.

To achieve this, the wind industry is arguing in favour of a Sectoral Crediting Mechanism which would provide a much broader means for industrialising countries to use the carbon markets and private finance to decarbonise their power sectors. For developing countries, preliminary analysis has shown that such a mechanism could leverage hundreds of billions of dollars for clean energy investment in the developing world between now and 2020, and result in emissions reductions of many hundreds of millions of tons.

The basic concept for the sectoral mechanism is quite simple.

---

<sup>3</sup>See <http://www.cdmpipeline.org>



- define a voluntary 'no regrets' target on the basis of national efforts with some assistance from international funding for the electricity sector in a given industrialising country; the target would be 'no regrets' in the sense that there would be no penalty for not reaching the target.
- any reductions *below* the 'no regrets' target would generate tradable credits;
- technology cooperation and other funding could be utilised to create the conditions which would facilitate both domestic and international capital investments in clean energy technologies.

**Technology transfer.** The discussion surrounding technology transfer has been going on in various UN forums for 20 years, but has been largely abstract. Discussion was based on the notion that a) governments owned technology; and b) they would give it away; and c) that there is some theoretical model from which a mechanism could be derived to achieve this.

There is some indication that this discussion might now be changing. But there is a fundamental confusion between the relative roles of public and private sector which needs to be overcome before the UN system can come up with anything that will be useful in the real world.

The aim must be to reach an agreement that works to support the rapid and widest possible diffusion of existing renewable energy and energy efficiency technologies, as well as adaptation technologies. Some say that reaching robust agreements in all four pillars laid out in the Bali Roadmap (mitigation, adaptation, technology and finance) is too much to achieve in time for Copenhagen.

### 3. Deal or no deal in Copenhagen?

The clock is continuing to tick, and we are now just 30 days away from the opening of the COP15 meetings in Copenhagen, the last of six intense meetings during 2009. The COP15 was set to result in a new climate agreement, but this is looking increasingly unlikely.

During the last round of negotiations in Barcelona (2-6 November 2009), it became increasingly clear that the possibility of a full-fledged legally binding international climate agreement has just about reached zero. With African countries walking out of the negotiations, and news from the US that the Senate was definitely not going to complete its version of the domestic climate bill before the end of the year, UNFCCC Executive Secretary Yvo de Boer started an open exercise in managing expectations by discussing a 'Plan B'.

The best outcome of Copenhagen at this stage would be a political framework agreement, driven by up to 50 Heads of State and Government that are rumoured to attend the COP15. Such a political agreement would include a clear timeline and a mandate to finish work on the details of a post-2012 climate regime with a specific deadline. This can be either a meeting in June 2010 or the COP16 in Mexico at the end of 2010. Negotiators would then have a framework, a mandate and a timeline to

finish the job. The problem with this Plan B is that most of the more difficult questions will be left unresolved, including the issue of the legal form of the final outcome.

(Please see separate document for a more in-depth analysis of the Barcelona round of negotiations.)