EWEA
THE EUROPEAN WIND ENERGY ASSOCIATION

Climate protection: more wind power = less CO_2

Fighting global warming with non-polluting, sustainable wind power

Climate change, primarily brought on by the release of greenhouse gases from burning fossil fuels, is one of the greatest threats to the world. Wind power is a key solution and can be rapidly deployed. 43% of all new EU power generating capacity installed in 2008 was wind power, which plays a significant role in reducing greenhouse gas emissions. The 65 GW of EU wind energy capacity installed by the end of 2008 will avoid the emission of 108 million tonnes (Mt) of CO_2 annually – equivalent to taking 55 million cars off the road and equal to 24% of the EU-27's Kyoto obligation. By 2020, a predicted 180 GW of installed wind power could avoid the emission of 328 Mt of CO_2 annually, equal to 44% of the EU's 20% greenhouse gas reduction target.

	2008	2012	2020	2030
Million tonnes of CO_2 saved	108	165	328	575
% of EU emission reduction obligations	24% of EU-27's Kyoto obligation	37% of EU-27's Kyoto obligation	44% of EU-27's GHG reduction target	–
Annual avoided CO_2 costs*	€ 2.7 billion	€ 4.1 billion	€ 8.2 billion	€ 14.4 billion
Annual avoided fuel costs**	€ 6.1 billion	€ 10.4 billion	€ 20.5 billion	€ 34.6 billion

* Assuming €25/t CO_2 ** Assuming a $90/barrel oil price

Source: EWEA – Pure Power, March 2008

Wind power is an important solution to the climate change crisis

As stated by the Intergovernmental Panel on Climate Change[1], limiting the global average temperature increase to not more than 2°C above pre-industrial levels will require a reduction in global emissions of at least 80% from 1990 levels by 2050, which means global greenhouse gas emissions will have to peak by 2015 and decline thereafter.

Wind power, as the frontrunner renewable technology, offers emissions-free power and, unlike nuclear and carbon capture and storage (CCS), can be deployed immediately and begin reducing CO_2 emissions within the window of opportunity outlined by the IPCC.

Because wind turbines do not consume fuel and their operation and maintenance expenses are low, the marginal cost of wind power is minimal. Therefore, an increase of wind power in the electricity mix means that the most expensive and polluting technologies (oil, coal and gas) are pushed out of the market. For the EU as a whole, it is assumed that each kWh of wind power displaces a kWh created by the energy mix of coal, oil and gas at the time of production. On average in the EU, each GWh produced by wind energy saves approximately 780 tonnes of CO_2.

[1] IPCC Assessment Report 4 Working Group III, Mitigation in the long term

The new EU Emissions Trading System (ETS)

In December 2008, the EU agreed on a 20% reduction of greenhouse gas emissions by 2020 compared to 1990 (rising to 30% if other developed countries make comparable efforts in the framework of a new global climate change agreement). The revised ETS incorporates a much needed shift away from free allocations of allowances to auctioning, introducing 100% auctioning of allowances in the power sector from 2013.

Auctioning is the simplest and most effective allocation method, allowing the creation of an undistorted carbon price signal. In contrast to free allocation, auctioning prevents windfall profits and implements the polluter pays principle (art. 174 of the Treaty establishing the EC) which states that “environmental damage should as a priority be rectified at source and that the polluter should pay”.

Nevertheless, the new EU climate legislation is far from being ambitious enough. The IPCC has stated that to enable the global average temperature increase to be limited to not more than 2°C above pre-industrial levels, domestic emissions in industrialised countries must be reduced by 25% to 40% by 2020.

The EU agreement made in December 2008 allows for at least half of the reduction effort to be met by external credits in non-EU countries. It means that the domestic reductions to which Europe commits are closer to 8% (and would increase to approximately 12% if an international agreement is reached in December 2009 in Copenhagen) than the 25% to 40% by 2020 that the IPCC says is necessary to limit global warming.

A future global climate agreement

Although the Kyoto Protocol is a welcome first step in addressing the serious threat of climate change, further action must be taken post-2012, the end of the Protocol’s commitment period. The Bali Road Map agreed in December 2007 and further advanced in Poznan in December 2008 should lead to a new global climate treaty at Copenhagen in December 2009. The new proposals need to be ambitious otherwise the battle against climate change may be lost.

Key objectives

- Ensure ambitious targets for emission reduction are achieved at global and regional levels.
- Establishment of well-functioning and technology-neutral carbon markets.
- Ensure domestic efforts in the industrialised countries are compatible with the 25% to 40% reduction by 2020, communicated by the IPCC. The use of external credits, e.g. through the CDM mechanism, should be additional to the domestic efforts needed in the developing world.
- Ensure there is no interference of climate legislation with current national support schemes for renewable energies, which are delivering more than CO_2 benefits, e.g. energy security, indigenous energy and reduced SO_2, NO_x and PM emissions.

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EWEA supports WIND POWER WORKS

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