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Global Wind Energy Council

Views and information on means to achieve the mitigation objectives of Annex I Parties

Introduction

The Global Wind Energy Council (GWEC) welcomes the opportunity to provide our views and information on the means to achieve the mitigation objectives of Annex I Parties, which we trust will assist the deliberations of the AWG. GWEC represents the global wind industry, including the major national and continental associations, as well as the major companies operating globally in this rapidly growing sector.¹

On the basis of the IPCC's 4th Assessment report, GWEC supports reducing emissions with the objective of keeping global mean temperatures below 2°C above pre-industrial levels. We understand that for Annex I parties this means, at least initially, considering emissions reductions in the range of 25-40% below 1990 levels by 2020. We are encouraged by the initial steps that have been taken by the European Union to turn these findings into action, with the recent publication of draft legislation which includes binding targets which require 20% of final energy consumption to be supplied by renewable energy. We trust also that the successful conclusion of the post-2012 negotiations will mean that the European Union as well as the rest of the Annex I Parties will, before the end of 2009, adopt emissions reductions objectives for 2020 well in excess of 30% below 1990 levels.

Scientists, politicians, industry and the rest of civil society will continue to debate the ultimate long term reduction objectives required to meet climate protection goals, including what constitutes 'dangerous' climate change which the signatories to the UNFCCC are pledged to avoid. While this is necessary and useful, it is by definition an inexact endeavor. We continue to learn more about the climate system, and the increasing rapidity with which anthropogenic emissions of greenhouse gases are affecting it. Wherever the debate about long term objectives ends up, we need to build in flexibility to take into account our increasing knowledge and understanding of the human interaction with the climate system as our knowledge, models and technology improve.

However, the very clear message that emerges from the 4th Assessment Report is that if we are to avoid 'dangerous' climate change under anyone's definition, global emissions need to peak and begin to decline before the end of the next decade, and we urge negotiators to focus their efforts on that very clear objective, and on the means needed to achieve it. There is very little use in prognosticating about long term future emissions reductions and potential future technologies if we close off the window for avoiding dangerous climate change by taking

¹ See <http://www.gwec.net>

insufficient action in the next decade. The need to focus on a framework and measures for the critical period up to 2020 is, after all, the objective of these negotiations.

The Power sector

While efforts to mitigate climate change cover nearly the full range of economic activity, much attention is given to the power generation sector, as the single largest source of greenhouse gas emissions. Unfortunately for the purposes of the climate negotiations, most the projections for the mitigation potential of various technologies focus on the period out to 2030, and don't give policymakers much guidance as to what can be achieved in the critical next decade. Also, they do not take into account the rapid development, both in market and technology terms, of renewable energy in general, and wind power in particular, over the past several years.

In terms of available options within the relatively limited time period under consideration, options for making a major difference to emissions in the power sector are fundamentally limited: a) energy efficiency has long been identified as the most cost effective option; b) fuel-switching from coal to gas reduces emissions by about half; and c) renewable energy, primarily wind power, is a maturing technology now deployed in 70 countries and continues to grow at very substantial rates. Other technologies under consideration are not sufficiently mature, or the lead times required mean that they will not make a substantial difference between now and 2020.

Wind Power

Our recently published market data for 2007 indicate that despite rapidly increasing commodity prices (particularly steel and copper) the wind power industry installed more than 20,000 megawatts of clean, emissions free wind power generating plant in 2007. This represents an increase in the annual market in excess of 30%, and an increase of 27% in total installed capacity to bring the global total to more than 94,000 megawatts.² In Europe, more wind power capacity was installed than any other generating technology, accounting for 40% of new power capacity.³ Even without accounting for the price of carbon, wind power is already cost-competitive in many markets, and this will only increase over time as fossil fuels become more scarce and expensive.

For the first time in the last two decades, more than 50% of the annual market for wind power was outside Europe, with the fastest growing markets in the US, Spain and China. The wind industry is currently substantially ahead of the 'advanced' scenario predictions based on the industry's performance through 2005, which has wind power contributing approximately 2600 terawatt hours of electricity per year by 2020, or somewhere between 12 and 16% of global electricity supply, depending on how demand develops. This would provide CO₂ emission reductions of about 1.5 billion tones of CO₂ per year by 2020, and around 8.3 billion tones cumulatively over the period.⁴ Just over half of this would be in Annex I

² See:

[http://www.gwec.net/index.php?id=30&no_cache=1&tx_ttnews\[tt_news\]=139&tx_ttnews\[backPid\]=4&cHash=6691aa654e](http://www.gwec.net/index.php?id=30&no_cache=1&tx_ttnews[tt_news]=139&tx_ttnews[backPid]=4&cHash=6691aa654e)

³ See:

[http://www.ewea.org/index.php?id=60&no_cache=1&tx_ttnews\[tt_news\]=1270&tx_ttnews\[backPid\]=259&cHash=716f623cd5](http://www.ewea.org/index.php?id=60&no_cache=1&tx_ttnews[tt_news]=1270&tx_ttnews[backPid]=259&cHash=716f623cd5)

⁴ See: 'Global Wind Energy Outlook', 2006, pp. 58-59, available at: <http://www.gwec.net/index.php?id=65>

countries. Of course, with the right policies and measures, an effective global carbon market and the continuous improvements in the technology, this number could even be higher.

Renewable Energy across the power sector

Besides wind power, solar photovoltaics continue to enjoy annual growth rates of around 50%, ‘repowering’ of large hydro dams with more efficient turbines, the relatively environmentally benign exploitation of small hydro, and the very recent ‘renaissance’ of concentrating solar thermal power plants, mean that there are a variety of commercially available renewable energy technologies whose potential has just begun to be exploited.

A scenario prepared by the German Aerospace Center and regional corresponding institutes from each of the 10 IEA regions for the European Renewable Energy Council and Greenpeace International⁵ showed how the combination of these technologies could provide mitigation in the power sector in excess of 5 billion tons per annum by 2020, at a cost lower than a ‘business-as-usual’ approach. This scenario relies entirely on existing technologies which are already available in the marketplace, and whose rapid scale-up is already under way. Furthermore, the cost comparisons were done with very conservative projections of future fossil fuel prices, well below current market rates for oil, coal and gas. However, concerted policies and measures at national and international levels will be necessary for the full potential of these technologies to be reached.

Mechanisms

GWEC supports the continual enhancing of the effectiveness and the implementation of legally binding economy wide carbon caps on Annex I countries as the most effective means to drive investment towards the non-polluting technologies which must power our economy in the future. Along with national (or in the case of the EU, regional) policy frameworks, these are the most effective means for transforming the electricity sector, if the caps are stringent enough and the price of carbon is not artificially constrained.

At the same time, there are tremendous opportunities for realizing cost-effective emissions reductions through the deployment of renewable power generation technologies in developing economies which are not yet in a position to accept economy-wide caps.

The CDM has in fact been an effective tool in focusing investment on renewable energy technologies in developing countries, primarily wind and small hydro power – for instance, there are now more than 14,000 megawatts of wind energy projects in the CDM pipeline - but the vast majority of this investment is in two countries: India and China. The reasons for this are many, and different in each case, but suffice it to say that one objective of the post-2012 regime ought to be to facilitate the broad dissemination of existing, market-ready clean power technologies beyond India and China.

GWEC supports the development of a mechanism based on the establishment of ‘no regrets’ baselines for emissions in the power sector via an internationally agreed methodology, and then for countries to attract clean power investment in the electricity sector on the basis of carbon credits generated if emissions fall below the ‘no regrets’ target. There are significant methodological issues to be resolved, but GWEC believes that this would be well worth the

⁵ See W. Krewitt, S. Simon, W. Graus, S. Teske, A. Zervos, O. Schäfer, “The 2 °C scenario—A sustainable world energy perspective” Energy Policy, Volume 35, Issue 10, Pages 4969-4980. Also <http://www.energyblueprint.info>

effort and could streamline the process for generating very large scale investments in the clean power sector in developing countries, without the limitations of the project-based approach currently employed for the CDM.

Conclusion

Renewable energy in general and wind power in particular is clean, inexhaustible, requires no fuel, can be deployed very rapidly, and can make a major difference in power sector emissions between now and 2020, the critical period during which global emissions must peak and begin to decline. GWEC and its sister associations would be ready and willing to provide the Parties with any and all information requested on the studies cited above or the technologies discussed.