

## **Greenpeace responses to the CEER public consultation on regulatory aspects of the integration of wind generation in European electricity markets**

### **Question 1: How will the expected growth in wind generation affect the markets in which you operate? What are the key challenges you foresee?**

In line with Europe's Renewable Energy Directive, renewable electricity is expected to increase to about one third of the EU's electricity generation. In the *2008 ENERGY [R]EVOLUTION SCENARIO*, Greenpeace projected the installed capacity of wind energy to reach more than 210 GW by 2020 and 360 GW by 2050.<sup>1</sup> According to more recent projections by the wind industry, the uptake of wind energy is likely to be even more pronounced.

Europe's current grid system has been developed in the 20<sup>th</sup> century to accommodate the centralised and often inflexible power production from large fossil-fuel and nuclear energy based power stations. The large-scale integration of renewable energy sources requires a different structure.

The power system must be flexible to allow large-scale integration of fluctuating renewable energy output. This includes targeted upgrades to the electricity grid to develop a smart and interconnected electricity network structure that is suited to integrating and managing fluctuating input from small and large decentralised renewable energy supplies, as well as balancing variable power supplies across regions.

At the same time, Europe will have to move towards more flexible power generation capacity. No new, large nuclear or coal power stations should be licensed, and existing "baseload" production must be replaced progressively with renewable energy and more flexible, highly efficient and more decentralised plants.

Finally, active demand side management will have to play an increasingly relevant role to respond to fluctuations in power availability and to sustain a robust electricity supply.

### **Question 2: What are the implications for market rules? Can you identify changes which would better facilitate integration of wind generation, including management of intermittency?**

As the predictability of wind power increases closer to the point of actual production, the power system should be managed as close to real time as possible, both on the supply and demand side. A high liquidity of intra-day markets will be essential and cross-border exchanges should be possible on an intra-day basis. Improved interconnection capacity will be required in certain areas and the allocation of interconnection capacity should be linked to the market.<sup>2</sup>

---

<sup>1</sup> Greenpeace, *ENERGY [R]EVOLUTION – A SUSTAINABLE EU-27 ENERGY OUTLOOK*, <http://www.greenpeace.org/eu-unit/press-centre/reports/EU-energy-revolution-report>

<sup>2</sup> see also Greenpeace, *RENEWABLES 24/7 – INFRASTRUCTURE NEEDED TO SAVE THE CLIMATE* <http://www.greenpeace.org/raw/content/international/press/reports/renewables-24-7.pdf>

In line with the Renewable Energy Directive, renewable energy sources should be guaranteed priority access to the grid and adjustments to the electricity network and its management should be made where curtailment of renewable energy sources occurs. The availability of exchange capacity at any given moment should be fully transparent and accessible.

Market rules and management should enable the active management of electricity demand by enabling customers to react to price signals, depending on the availability of (renewable) energy supply.

**Question 3: Would moving the market's gate-closure closer to real-time facilitate the deployment of wind generation? Would this have any adverse consequences on the functioning of the electricity power system?**

As discussed above, gate-closure times closer to real-time are an important step to increase the flexibility of the energy system to integrate variable renewable energy sources and to enable a more precise prediction for wind power availability at the time of trading.

**Question 4: Are emerging cross-border congestion management models compatible with wind generation? Should further attention or priority be given to intraday capacity allocation mechanisms and markets, in light of the issues associated with forecasting wind generation?**

Transparency of interconnector availability and congestion management data should be ensured at all times to allow for the optimal and indiscriminatory use of available capacity. Also, to promote an efficient energy market and to make optimal use of balancing capacity across regions, gate-closure times should be set close to real-time and intra-day trading should be facilitated for cross-border trade.

**Question 5: Should wind generation be subject to the same balancing obligations and the same types of charges as other types of generation?**

Balancing rules and the structure of the power system have been developed on the basis of a largely fossil fuel- and nuclear energy-based power mix. Wind producers should not be subject to the same balancing obligations, as infrastructure and system management rules are currently not suited to the optimal management of modern renewable energy production.

Balancing obligations for wind producers should always be proportionate, depending on the level of wind energy in the system and the respective regional conditions of the power system. Wind power should be considered aggregated, or in the context of virtual power stations in combination with other sources, not per individual turbine or wind farm. By reducing the variability of the power supply, the aggregated generation from different wind farms increases the stability of power output.<sup>3</sup>

Balancing power regulations should provide incentives to flexible power generation capacity. Negative pricing schemes for inflexible power outputs at times of low demand may be an option.

**Question 6: Should TSOs engage in research and development (R&D) to address issues associated with a large share of wind generation included in the network? If so, how should the regulatory framework require or support this?**

---

<sup>3</sup> Greenpeace, A NORTH SEA ELECTRICITY GRID [R]EVOLUTION, <http://www.greenpeace.org/eu-unit/press-centre/reports/A-North-Sea-electricity-grid-%28r%29evolution>

As TSOs will have to manage the integration of wind energy, they should engage in research and development in line with European renewable energy objectives, and under the premise of creating the optimal conditions for increasing quantities of wind power in the system.

**Question 7: Should wind generators face the same types of network charges as other new generators, calculated using the same methodology? What is needed to provide a sufficient incentive for generation in choosing where to locate? What is needed to provide an appropriate balance of risk among market players? When should this not be the case?**

Europe's current electricity network has been developed and paid for under monopolistic market structures to suit the centralised fossil fuel- and nuclear energy-based power stations of the time. Modern renewable technologies, such as wind farms, are often located in different geographic regions than conventional power plants and require a different network structure. It is important that network charges do not discriminate against wind developments that are remote from historically supported network structures.

At the same time, transparency of network charges is of high relevance and all related data should be accessible at any moment.

**Question 8: Broadly, what is the appropriate allocation of responsibilities, risk and cost among market players in developing new network infrastructure (e.g. ahead of or in response to new generation connections)? Should this be different for wind generation? Where is harmonisation required?**

In many parts of Europe, the power grid is more than half a century old and will have to undergo refurbishments, irrespective of the power source. The power grid is an important element for all types of electricity production and beneficial to stability of the energy system.

At the same time, as mentioned above, grid developments will be important to modernise the structure of the historically grown grid system to make it suitable for the integration of modern renewable energy sources. In the same way that the current grid to connect nuclear and fossil-fuel based power production has been paid by consumers under monopolistic structures, renewable energy producers should not have to bear the cost for network extensions today.

It should be the role of energy regulators to create an appropriate incentive structure for network developments and modernisation, so as to accommodate variable and decentralised renewable energy sources. Cooperation and integration of network planning should lead to a coordinated approach for an optimised EU-wide network system. Financial incentives, such as the revision of TEN-E, should support this approach.

**Question 9: Do you agree that the “supergrid” issues for regulators identified in 5.1 are relevant? Is there anything else European regulators should be considering?**

Greenpeace supports the generally positive assessment of a supergrid for the integration of renewable energy. In planning new interconnectors and transmission capacity, the existing infrastructure should be exploited as much as possible, but additional capacity will be required in certain regions.<sup>4</sup> Investments in expanding or adding transmission capacity should be channelled specifically to support the particular needs and regional characteristics of renewable energy output.

---

<sup>4</sup> See for example see also Greenpeace, RENEWABLES 24/7 – INFRASTRUCTURE NEEDED TO SAVE THE CLIMATE

<http://www.greenpeace.org/raw/content/international/press/reports/renewables-24-7.pdf>

Transmission system and distribution system operators should make all relevant grid data accessible so that independent institutions can develop grid optimisation concepts.

**Question 10: Is the current ownership structure of the offshore lines or their regulatory framework a potential issue for the integration of offshore networks? Are there other considerations affecting this ownership structure?**

Although a meshed power network has demonstrable advantages over pointed offshore power lines that connect individual wind farms to the shore,<sup>5</sup> different regulatory frameworks can hamper the development of meshed network projects. Better coordination and integration of the regulatory frameworks and ownership rules for offshore lines are therefore essential.

For example, Greenpeace welcomes the initiative of nine North Seas countries to coordinate network developments as a positive step.

**Question 11: Do you agree that the Regional Initiatives should be used to address the issues associated with the development of regional projects? What challenges does this present?**

Regional initiatives could facilitate the coordination and integration of network planning, especially offshore, to support the development of optimised network structures for the integration and balancing of renewable energy sources.

**Question 12: What other issues should European regulators consider in relation to the integration of wind generation?**

Current network planning practices are based on a short-term oriented economic assessment. Instead, the long-term costs and wider benefits to the European economy, society and environment should be taken into account when planning, regulating and licensing network developments.

Renewable energy sources only sustainable energy sources available. The urgency of climate change, challenges of security of supply and economic constraints require a focussed strategy for renewable energy and energy efficiency. The premise of any power system management should therefore be the modernisation of the power network suited to the nature of renewable energy sources and their optimal integration into the electricity markets and networks.

*For further information please contact Frauke Thies, EU Energy Policy Adviser, frauke.thies@greenpeace.org*

---

<sup>5</sup> Greenpeace, A NORTH SEA ELECTRICITY GRID [R]EVOLUTION, <http://www.greenpeace.org/eu-unit/press-centre/reports/A-North-Sea-electricity-grid-%28r%29evolution>