

**Federal Energy Regulatory Commission
Technical Conference:
Assessing the State of Wind Energy in Wholesale Electricity Markets
Docket No. AD04-13-000**

Wednesday, December 1, 2004
Denver, Colorado

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I would like to thank the commission for the invitation for UWIG to participate in this conference. I would like to provide a perspective on European wind industry developments, and begin with a brief mention of the Utility Wind Interest Group (UWIG), a non-profit corporation whose mission, simply put, is to accelerate the appropriate integration of wind power into the electric system. The UWIG has established an ongoing international utility collaboration through cooperation with CIGRE (International Conference of Large Electric Systems).

The Global Wind Industry has experienced rapid growth and development in last 5 years, resulting in

- 40,000 MW of wind capacity worldwide at beginning of 2004
 - 28,000 MW Europe (70%)
 - 6,400 MW US (16%)
 - 5,600 MW rest of world (14%)
- Europe has made use of market incentives backed by national targets to promote the production of clean energy to achieve this growth.

Europe has important high penetration experience with wind power.

- Countries currently with highest wind capacity are Germany, Spain, and Denmark
- Their ability to manage the system depends on the quality of the wind forecast, which ranges from the good, to the bad, and sometimes the ugly.
- Denmark experienced approximately 20% of annual electric energy production from wind in 2003, and is planning to accommodate increasing wind capacity for the foreseeable future, with a very positive attitude.
 - In some hours wind and CHP (must run units) exceeded 100% of load
 - The system depends on strong interconnections with its neighbors, and requires increasing amounts of reserve capacity, which can be self-provided or procured from the market. Improved communication and control capability are being pursued to improve system operations under high penetration.

There are two major policy drivers behind the significant growth in Europe:

- First is the Kyoto Protocol – December 1997. The EU countries are parties to the 1992 UN Framework Convention for Climate Change, which set emissions reduction targets for developed countries.
- Second is the Renewable Energy Systems Directive 2001/77/EC, which assigns indicative, individual renewable energy production targets to member states, and establishes a basis to review future need for mandatory targets. Under this framework, wind would contribute 5.5% to electric supply in 2010. This framework is backed up by national legislation in individual countries.
- It is important to recognize that this policy is driven by strong public support.

Much of the European policy is based on the recognition of External Costs of energy production, dealing with impacts on health and the environment.

- EU ExternE project, conducted with the 15 member states for the past 10 years, estimates wind externalities of .26 eurocent/kwh, and coal at 2-15 eurocent/kwh.
- The report estimates these costs between 85-170 billion Euros annually, exclusive of global warming and climate change
- It is the belief of a broad cross-section of European policymakers that “Until external costs are fully integrated, some form of market incentives or support is required to develop the technology”.

Market Incentives and Support Mechanism

- Support systems are provided for in the EU Renewable Energy Directive, and are generally broken down into two major categories, Fixed Price Support Systems and Fixed Quantity Systems.
- The most successful of the Fixed Price systems has been the Fixed Feed-in Tariff, under which operators are paid a fixed price per unit of output with extra cost paid by all consumers (Germany, Spain, Denmark)
 - German subsidy app. 1 Euro/mo for average household
- Under the Fixed Quantity Renewable Quota Support System, national government decisions are made on the level of renewable electricity to be achieved during some period, leaving market forces to establish the price

I would now like to move to the specific WindForce 12 National Policy

Recommendations, as presented in the May 2004 report, which calls for legislation to:

- Establish legally binding targets for renewable energy
- Provide defined and stable returns for investors
- Introduce electricity market reforms, consisting of
 - Streamlined and uniform planning and permitting procedures
 - Removal of discriminatory grid access and transmission pricing barriers
 - End of subsidies to fossil fuel and nuclear power
 - Internalizing social and environmental costs of energy

It is important to recognize the Public Policy Driven nature of developments in Europe:

- European utilities have generally accommodated the policy, recognizing it as part of their job.

- Operating rules have been modified accordingly.
 - Utilities have not been hurt financially – costs are passed on to ratepayers and taxpayers.
- There is growing recognition that wind needs fair – not preferential – treatment in electricity markets.
- **This is most likely to occur with leadership from the public policy sector, including legislators and regulators.**

A plea for more policy leadership illustrates the situation of the European utility executive:

- “The EU should make it compulsory for European power companies to produce or trade green power, says the boss of a leading European utility. Only in this way can the Netherlands meet its target of 9% renewables by 2010, says Ludo van Halderen, CEO of Dutch power marketer Nuon, one of the world’s top 10 owners of wind power generation.”
- There is much to be learned from the European experience.

These comments will be provided as a filing in the docket, along with a more detailed vugraf presentation, which includes additional material and references to the original source documents from which this information was obtained.