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October 10, 2006

Office of Electricity Delivery and Energy Reliability, OE-20,
Attention: Congestion Study Comments
U.S. Department of Energy
Forefall Building, Room 6H-050
1000 Independence Avenue, S.W.
Washington, DC 20585
Filed electronically to congestionstudy.comments@hq.doe.gov

Re: Comments of the American Wind Energy Association, Wind on the Wires, Interwest Energy Alliance, The Wind Coalition, and The Renewable Northwest Project on the Department of Energy's Congestion Study

The American Wind Energy Association (AWEA), Wind on the Wires (WOW), Interwest Energy Alliance, The Wind Coalition, and The Renewable Northwest Project appreciate this opportunity to respond to the Department of Energy's congestion study. We believe that with high and volatile fuel prices, climate change and air quality concerns, water conservation needs, and threats to security from importing fuel, our Nation's vast resources of wind in the middle of the country can and should be tapped. As President Bush stated recently on his Advanced Energy Initiative tour, "areas with good wind resources have the potential to supply up to 20 percent of the electricity consumption of the United States." In this comment we support the identification of corridors that would tap wind resources, seek a clarification about the process to designate such corridors, and advocate for moving forward by working with states on a "Heartland Transmission Corridor" in the upper Midwest.

I. Who We Are

AWEA is a national trade association representing a broad range of entities with a common interest in encouraging the expansion and facilitation of wind energy resources in the United States. AWEA's members include wind turbine manufacturers, component suppliers, project developers, project owners and operators, financiers, researchers, renewable energy supporters, utilities, marketers, customers and their advocates. Many of AWEA's members are interested in developing wind projects in wind-rich areas but are currently prohibited from doing so because of a lack of transmission.

Wind on the Wires works on solving the technical (transmission) and regulatory barriers to interconnecting and delivering new wind power to market in the Upper Midwest. WOW members include nationally prominent wind developers and wind turbine manufacturers, AWEA, non-profit sustainable energy advocacy organizations, and other stakeholders. WOW has been actively involved in transmission planning with utilities and the Midwest Independent System Operator since 2001. WOW members have a substantial interest in the resolution and advancement of the issues in DOE's Notice of Inquiry.

The Renewable Northwest Project is a non-profit renewable energy advocacy organization whose members include environmental and consumer groups, and energy companies. RNP works in Oregon, Washington, Idaho and Montana to increase the development of clean renewable energy resources.

West Wind Wires is a wind industry advocacy program under the auspices of Western Resource Advocates that represents wind in transmission planning and operational forums throughout the Western Electricity Coordinating Council region.

The Wind Coalition is a non-profit corporation advocating for the expansion of wind energy use in Texas and the Southwest Power Pool. The Wind Coalition's members are: AES; Airtricity, Babcock & Brown, LP; John Deere Wind Energy, Gamesa Energia Southwest; GE Energy, LLC; Horizon Wind Energy; Orion Energy LLC; PPM Energy; Renewable Energy Systems (USA); Shell WindEnergy; Siemens; Superior Renewable Energy; Trinity Structural Towers, Inc.; Vestas-Americas, Inc.; Environmental Defense; Public Citizen; Texas Renewable Energy Industries Association; and AWEA.

The Interwest Energy Alliance is a trade association that brings the nation's wind energy industry together with the West's advocacy community. The Alliance's members support state-level public policies that harness the West's abundant renewable energy and energy efficiency resources in Arizona, Colorado, Nevada, New Mexico, Utah and Wyoming.

II. "Conditional Congestion Areas" Should Be Eligible for Corridor Designation

The study recognizes the potential wind development in some regions of the U.S. may be very significant, and designated some of these regions as "Conditional Congestion Areas." The Department suggests that "significant congestion would result if large amounts of new generation resources were to be developed without simultaneous development of associated transmission capacity." We appreciate the assessment of these important areas in need of transmission development.

We are concerned that the category of "Conditional Congestion Areas" may be implemented in a way that continues the "chicken and egg" problem of wind energy development. The problem today is that no generators are constructed until transmission capacity is expanded, and no transmission is built until there are generators requesting service. This problem is the result of state and federal regulatory factors along with the fact that wind generation can be developed much faster than transmission. DOE should not exacerbate the problem by

withholding corridor designation until after sufficient generation has developed. Such a process would not be workable and would not achieve the goals of EPAct.

AWEA seeks clarification that corridors can be designated *before* all the expected generation has been developed in an area. The Department should consider the corridors identified below in the congestion study and in AWEA's previous comments so that the generation can be built and the many goals of wind energy development including the fuel diversity and energy security goals required by EPAct can be advanced. An example of the advantages of designation and transmission development in advance of generation development is attached in a summary of a Heartland Transmission Corridor.

III. Critical Corridors for Wind Energy

The Department seeks comment on the following questions:

Would designation of one or more National Corridors in these areas be appropriate and in the public interest? Are key transmission constraints creating the transmission congestion? What is the magnitude of the problem?

On March 6, 2006 AWEA suggested nine transmission corridors that are important to wind energy development and provided references to regional planning studies in which they are evaluated. These are re-stated below along with the amount of wind energy available at the end of these corridors in a cost range of \$60/MWh or below, based on analysis by the National Renewable Energy Laboratory provided to the Western Governors Association Clean and Diversified Energy Advisory Committee. These include:

1. Northern New Mexico to San Diego as identified in the *Report of the Imperial Valley Study Group*, Documents on the Palo Verde—Devers #2 project, and the *Report of the Phase III Study of the Central Arizona Transmission System*. 15,000 MW available.
2. Eastern Oregon/ Washington to Portland/Seattle as identified in the *Report of the BPA Infrastructure Technical Review Committee*. 45,000 MW available.
3. Tehachapi to Vincent Substation, identified in *Report of the Tehachapi Collaborative Study Group*. 5,000 MW available.
4. Southern Wyoming to Denver, as identified in RMATS Recommendation 1. 40,000 MW available.
5. Southern Wyoming to Las Vegas, as identified in RMATS Recommendation 2. 60,000 MW available.
6. Eastern Colorado to Denver, as identified in RMATS Recommendation 2. 4,000 MW available.
7. Western Kansas and Oklahoma to Kansas City, identified in SPP's *Kansas/Panhandle Sub-Regional Transmission Study*. 10,000 MW available.
8. Eastern North Dakota to Minneapolis, first identified in Midwest ISO's *MTEP 03* with subsequent study in MTEP '05. 50,000 MW available.
9. South Dakota to Minneapolis, first identified in Midwest ISO's *MTEP 03* with subsequent study in MTEP '05. 60,000 MW available.

In total these corridors could unlock 289,000 MW of wind energy. Pursuing this development would go a long way towards achieving the Energy Policy Act's goals of energy security and fuel diversity.

We believe as a first step, the Department should pro-actively work to develop the Dakotas corridors, which we call a "Heartland Transmission Corridor," described in the one-page attachment to this filing. We encourage the Department to begin by working with states on cost allocation and siting coordination to develop these transmission plans.

Comparison of the Congestion Study and AWEA's proposed corridors

The Department's August 2006 Congestion Study confirms that the corridors AWEA recommended are among the top congestion corridors in the nation. The August 2006 Congestion Study review of Western Interconnection lists the most congested corridors on page 35. This list includes corridors that AWEA identified with both congestion and the potential wind resources that serve National Interest and satisfy criteria enumerated in the EPAct. These are:

- North and Eastern Arizona to Southern Nevada and Southern California;
- In the Rocky Mountains, the Bridger West line from Wyoming to Utah to Nevada;
- Montana to Washington and Oregon.

The Department displayed additional corridors with existing or near-term congestion in the graphic on page 32. These include the following corridor that AWEA recommended the Department scrutinize with the criteria defined by the EPAct:

- Wyoming to Denver.

In the Eastern Interconnection, the August 2006 Congestion Study provides in Figure 3-4 a graphic representation of the Midwest congested corridors, as well as references in the text at pages 23, 24¹ and 53² showing the corridors identified by AWEA:

- South and North Dakota to Illinois;
- Iowa and Southern Minnesota

We appreciate the recognition of these corridors and believe the consistency between AWEA's comments and the Department's analysis confirms the importance of these corridors. They

¹ "Significant additional transmission investments are likely to be required ...to deliver wind power from the North Central Plains (the Dakotas) to Chicago and other Midwest markets." DOE August Report, p. 24.

² "Across North Dakota, South Dakota, Minnesota and Wisconsin, there is over 300 GW of potential wind generation capacity. ...Tapping this potential would be very beneficial for the Great Plains economy, and enhance the Nation's energy security and fuel diversity." DOE August Report, p. 53.

have been addressed by both ground-up local and regional planning studies and nationwide analysis through the congestion study. From either perspective it is clear where the excellent wind resources are and how they can be tapped.

IV. Further responses to the Department's questions

How and where should DOE establish the geographic boundaries for a National Corridor?

In the transmission studies identifying the needed transmission for the proposed National Corridors recommended by AWEA, specific electrical facilities are used to identify the corridors. This provides the tightest, most conservative definition of the geography of the proposed National Corridors. The Department may prefer to make a more pragmatic finding regarding the geographic scope, so as to allow alternative configurations of the transmission expansion, to accommodate both siting needs, and power flow needs. For example, a large upgrade for an east-west constraint may necessitate an additional upgrade on a north-south transmission element that would not be included in a very narrow definition of a National Corridor. The Department's August 2006 Congestion Study illustrates this point in discussing the binding elements of a corridor between Batesville, Arkansas and Oklahoma City include a transformer at Fort Smith, north of the straight line route that connects Batesville and Oklahoma City.

Would transmission enhancements diversify an area's generation sources and moderate overdependence upon particular generation fuels? What would be the likely magnitude of these changes for energy security, energy price volatility, and improved energy supply in the event of an emergency?

Transmission enhancements in the proposed Corridors would certainly diversify generation sources and increase energy security. In some areas of the U.S. with large wind installations and small populations, wind energy has become 5% of the electricity supply. These areas did not have a diversity of generation resources, and in some cases are over-dependent on natural gas or coal. These areas now benefit from reduced energy price volatility and more secure energy supply in areas of hydro or imported coal.

To simplify a discussion of the benefits of energy security, energy price volatility, and improved supply in the event of an emergency, we define the emergency conditions that threaten consumers as any sort of fuel shortage. The lines proposed by AWEA provide protection against fuel shortages because wind energy reduces the need for any fuel.

Long distance electricity transmission could provide energy resources from areas unaffected by the supply disruption, which would be a great benefit. If the supply disruption were systemic, and hydro resources and coal supplies must be conserved due to limited deliveries, wind generation in the areas proposed will provide a substitute energy supply, and extend the coal

stored at power plants and the water stored behind dams. This benefit would be a direct megawatt-hour benefit for each megawatt-hour provided from the wind resource.

Would transmission enhancements further national energy policy or national security in ways not identified under the preceding criteria?

Yes, the added transmission and the dispersed nature of wind add resiliency the network of the electric system. This is the benefit that the Office of Energy Delivery and Electric Reliability was advised in the National Energy Technology Laboratory Smart Grid report “A Systems View of the Modern Grid- Appendix A3: Tolerates Security Attack”, April 13, 2006. “The increased use of renewable energy sources can reduce the consequences of disruptions to the grid and should be considered from a national perspective when examining ways to enhance the security of the nation’s energy sector.” Page A3-5

Heartland Transmission Corridor

Background

Wind Potential - Across North and South Dakota, Minnesota, Iowa and Wisconsin there is over 300 GW of potential wind generation capacity and some of the best wind resources in the Nation. Markets for wind power in the Midwest are strong and are driven by voluntary commitments by utilities as well as legislative and regulatory activity. The enormous wind potential in the Upper Midwest to deliver to markets east and south could provide consumers with economical clean energy, benefit the Great Plains economy, diversify our fuel mix and enhance the Nation's energy security. However, to tap the wind to serve markets several states away (Great Lakes region population centers) and along the way (Minnesota, Iowa, Wisconsin), major transmission infrastructure will be required.

Current Transmission Activity in the Midwest –

- **Midwest Independent System Operator (MISO)** - Within the 2006 MISO Transmission Expansion Planning (MTEP) process, MISO is studying transmission to move a 10% level of wind power across the MISO footprint (20,000 MW). Superior and economical wind resources are located on the western edge of the MISO footprint and loads and higher priced energy markets are in the eastern part of MISO.
- **CapX 2020 Project** - Utilities in Minnesota initiated the CapX 2020 project to construct transmission to serve growing load in Minnesota. The CapX utilities are seeking approval for 3 new 345 kV transmission lines across Minnesota that will provide “backbone” infrastructure that stretches from the Dakotas, through Minnesota and into Wisconsin. The new CapX transmission will largely be used to serve Minnesota load, however it will have significant positive impacts on reliability of the grid in the Midwest and allow for delivery of more wind power.

Federal Transmission Activity – In August 2006, the U.S. Department of Energy released the National Electric Transmission Congestion Study in response to Section 1221 (a) of the Energy Policy Act of 2005. The study identified the Dakotas to Minnesota geographic area as a “Conditional Congestion Area,” meaning that there is some transmission congestion presently, but significant congestion would result if large amounts of new [wind] generation were developed without additional transmission capacity. DOE concluded that “affirmative government and industry decisions will be needed in the next few years to begin development of some of these generation resources and the associated transmission facilities.”

Summary

Designation of a Heartland Transmission Corridor would allow the Nation to tap into one of the best wind resources, deliver economical and clean energy to electric consumers, positively benefit the region's economy, diversify our fuel mix, help address national energy security issues, and bring transmission reliability benefits to the Midwest. Designation of a Heartland Transmission Corridor is consistent with transmission planning efforts currently underway in the MISO footprint.