



## REGIONAL TRANSMISSION ORGANIZATIONS

### *Background and Principles*

---

Wind generation is an environmentally attractive electric power source approaching competitive economics and experiencing growing market acceptance in several regions of the United States. Over the past 20 months, over 1000 MW of new wind generation have been installed in this country. Unlike firm generation, wind is an intermittent resource. Wind power is generated only when the wind is available. In addition, wind resources are often most plentiful in remote areas. These characteristics make transmission a very important issue for wind.

Transmission rules and tariffs that result from the development of Regional Transmission Organizations (RTOs) under FERC Order 2000 will have a large impact on the continued success of wind power. The National Wind Coordinating Committee (NWCC)<sup>1</sup>, a multi-party collaborative organization formed in 1994 to support the development of sustainable markets for wind power, held a Transmission Workshop

and Business Meeting March 1-3, 2000, in Lakewood, CO at which the organization addressed RTO transmission issues. As a result of two days of in-depth discussion and debate, the diverse group of participants who attended the Workshop and Business Meeting arrived at a set of "RTO Transmission Principles." Those initial principles have been revised to reflect discussion with members unable to attend the March meeting, and the resulting NWCC RTO Principles articulated below are acceptable to the entire NWCC.

The Principles address transmission issues that affect wind power, but do not seek special treatment for wind as a particular fuel source. The NWCC members believe that the principles reflect mainstream views, and that their adoption would benefit all energy market participants with an interest in open, competitive markets. They also believe the principles are consistent with the four required characteristics and eight required functions of RTOs outlined in FERC's Order 2000.

The NWCC seeks to engage in dialogue with other organizations and interests around this initial set of principles. Interested parties should contact the NWCC Senior Outreach Coordinator, Kevin Bryan, at 1-888-764-WIND, or kbryan@resolv.org.

---

<sup>1</sup> The NWCC is a consensus-based collaborative endeavor formed in 1994 that includes representatives from electric utilities and their support organizations, state legislatures, state utility commissions, consumer advocacy offices, wind equipment suppliers and developers, green power marketers, environmental organizations, and local, state, tribal, regional, and federal agencies. The NWCC identifies issues that affect the use of wind power, establishes dialogue among key stakeholders, and catalyzes activities to support the development of an environmentally, economically, and politically sustainable commercial market for wind power. More than 2,500 individuals from diverse sectors and wind resource areas across the country have participated in the NWCC's collaborative efforts.

## **NWCC REGIONAL TRANSMISSION ORGANIZATION PRINCIPLES**

**While recognizing regional differences and needs, RTOs should cover large contiguous areas and coordinate with each other to widen trading areas and ensure transmission system reliability.**

Explanation: The best wind resources are generally located in remote areas that are distant from electric loads. Wind will benefit from RTOs that encompass large contiguous areas and that create a large and easily accessible trading zone. RTOs are encouraged to widen trading zones through coordination of standard business and trading arrangements, and improve regional reliability through regional coordination. RTO administration and oversight can become more complex for large RTOs. Hence RTOs should avoid becoming too large to operate efficiently.

**RTOs should eliminate pancaking of transmission rates within and between RTOs.**

Explanation: RTOs should, whenever practical, eliminate rate pancaking within and across RTOs. Rate pancaking, the charges that result from a utility being subject to multiple tariffs or zones when transmitting energy from resources to loads, can especially hurt remote resources such as wind. RTOs should strive to make transmission of electricity across RTOs as easy and transparent as possible for sellers and buyers of electricity. These goals should be attained while assuring transmission investors get a fair return on investment and recover prudent costs.

**RTO decision-making should provide for non-transmission owner participation in accordance with FERC Order 2000**

Explanation: RTOs must be open to input from non-transmission owner stakeholders. This is consistent with one of the four FERC required characteristics: that RTOs be independent of market participants. This principle does not suggest or imply how this should be done, for example whether the RTO should have a stakeholder Board of Directors or whether stakeholder input should be gathered through participation on working committees or advisory boards.

**RTOs should mitigate seams issues between RTOs and have sufficient authority to resolve seams problems.**

Explanation: RTOs must have sufficient authority to resolve operating and rate issues with neighboring RTOs. Creating simple rules for transmitting through several RTOs should be a goal of any RTO concept.

**RTOs should adopt interconnection requirements that are fair, non-discriminatory, and standardized.**

Explanation: Wind generators should be able to interconnect to an RTO through a standard, easily administered, non-discriminatory interconnection procedure. Any necessary interconnection studies should be done expeditiously, and at as low a cost to the wind generators as possible. The complexity of interconnection studies and hardware standards should be proportionate to the actual potential impact of the generator.

**R**TOs should accommodate the presence of and need for real-time markets as well as forward markets.

Explanation: Wind resources fluctuate moment to moment, and wind generators may need access to real-time balancing markets to balance between actual and scheduled deliveries, as well as a real-time energy market for wind generators to sell into when wind resources are available. RTOs should also encourage the development of forward markets for all sources.

**A**ncillary services should be based on competitive market prices.

Explanation: Robust and competitive ancillary service markets will lower the cost of ancillary services for transmission customers and encourage new services and products that may benefit intermittent renewables. Use of penalties as related to ancillary services should be discouraged, and other measures such as “make up”

provisions, or real-time sales or purchases should be used in lieu of penalties. Use of penalties if the generator fails to operate as instructed by an RTO is acceptable.

**R**TO pricing policies should support efficient competitive markets that treat intermittent resources fairly.

Explanation: Efficient, competitive markets for transmission services will best serve both consumers and suppliers of electricity.

**R**TO transmission planning processes should be transparent and open to all resource options.

Explanation: All RTO participants should be able to provide input into an RTO’s transmission planning process. RTOs should also consider all alternatives such as distributed generation and demand side options, as well as additional transmission to alleviate transmission congestion or to improve system reliability.

These RTO Principles were discussed and deliberated by the National Wind Coordinating Committee members at the March 2000 NWCC Meeting. Through subsequent discussions and revisions reflecting input from NWCC members unable to attend the March meeting, the Principles are acceptable to the entire NWCC.

**NWCC Members and Associate Members include  
representatives from:**

**Consumer Groups**

**Economic Development Organizations**

Agricultural Interests  
Rural Development

**Electric Power**

Co-operatives  
Investor Owned Utilities  
Public/Municipal Utilities

**Environmental Organizations**

Conservation/Wildlife Groups  
Renewable Energy Advocates

**Federal Government**

Bureau of Land Management  
Department of Energy  
Fish and Wildlife Service  
National Renewable Energy Laboratory

**Green Power**

Marketers  
Traders

**State Government**

Legislatures  
State Energy Offices  
Regulatory Agencies  
State Environmental Agencies

**Tribal Governments**

**Wind Industry**

Developers  
Manufacturers  
Suppliers  
Consultants

*For more information, or to receive copies of NWCC publications, contact:*

***National Wind Coordinating Committee***

***c/o RESOLVE***

***1255 23<sup>rd</sup> Street, N.W., Suite 275***

***Washington, DC 2003***

***e-mail: [nwcc@resolv.org](mailto:nwcc@resolv.org)***

***(888) 764-WIND***

***[www.nationalwind.org](http://www.nationalwind.org)***

The production of this document was supported by the National Renewable Energy Laboratory under the subcontract YAM-9-29210-01 and the Department of Energy under Financial Assistance Award DE-FG03-00SF22100. Financial support by the National Renewable Energy Laboratory and the Department of Energy does not constitute an endorsement by these institutions of the views expressed in this document.