

# Regional Transmission Organizations: FERC Order 2000

The U.S. Federal Energy Regulatory Commission (FERC) has changed its world. On 20 December 1999, it issued Order 2000, its final rule on regional transmission organizations (RTOs). On 25 February 2000, it followed this with Order 2000-A, which responded to requests for rehearing from many parties with “We meant what we said,” and it also clarified a few fine points.

Order 2000 calls for, but does not quite require, companies owning transmission systems to put the grid under the control of RTOs. FERC requires transmission-owning companies under its jurisdiction to file certain papers by late 2000 or early 2001. These papers can be either proposals to form RTOs or progress reports on the development of RTO proposals.

RTOs will have sole responsibility for operation and expansion of the transmission system, maintaining short-term reliability, establishing and managing tariffs, and responding to requests for service. RTOs are also to solve the parallel flow and congestion management problems.

## Order 2000 Establishments

Order 2000 establishes five things: RTO characteristics and functions, voluntary development, guidance on ratemaking, nonmonetary regulatory benefits, and required filings.

### *RTO Characteristics and Functions*

The four minimum characteristics that an RTO must have are:

- Independence
- Scope and regional configuration
- Operational authority
- Responsibility for short-term reliability.

The eight minimal functions that an RTO must perform are to:

- Administer and design tariffs
- Manage congestion
- Solve the parallel path flow problem
- Manage and provide ancillary services
- Maintain OASIS and post the transmission capability
- Perform market monitoring
- Plan and manage transmission system expansion
- Handle interregional coordination.

### *Voluntary Development*

FERC claims the authority to protect against discrimination and to remove impediments to competition. It believes that RTOs will do these things, but it wants them to be formed voluntarily, not by fiat.

### *Guidance on Ratemaking*

RTOs will be the sole administrators of transmission tariffs. FERC will consider such innovations as:

- A transmission rate moratorium
- Rates of return that include risk premiums
- Nontraditional depreciation
- Rates based on levelized capital recovery
- Combinations or imbedded-cost and incremental-cost pricing
- Performance-based rates.

Tariffs also must send appropriate price signals to market participants as part of a congestion-management system.

### *Nonmonetary Regulatory Benefits*

The order hints at nonmonetary benefits (Could we call these carrots?) from FERC to encourage voluntary formation of RTOs. It promises further unilateral action if the industry fails to cooperate (Could this be a stick?). FERC is emphatic that it “is not proposing to ‘bribe’ transmission-owning utilities” to participate. (The author will resist the temptation to distinguish among bribes, carrots, and sticks.)

### *Required Filings*

All utilities subject to FERC regulation are required to file either a:

- Proposal to form an RTO that will be in operation by 15 December 2001
- Report describing progress toward development of an RTO.

Transmission companies that are now under the control of an independent system operator (ISO) have until 15 January 2001 to file. Other transmission companies must file by 15 October 2000.

### *FERC’s Assumptions and Objectives*

FERC’s stated objectives in doing all of this are to “promote efficiency in wholesale electricity markets and to ensure that electricity consumers pay the lowest price possible for reliable service.” Specifically, FERC seeks to:

- Improve efficiencies in transmission grid management
- Improve grid reliability
- Eliminate discriminatory transmission practices
- Improve market performance
- Have lighter-handed regulation
- Save money.

FERC is unhappy with progress since it issued Order 888 on 10 May 1996. It feels that utilities lagged in providing transmission services in bulk markets. FERC says that poor efficiency and reliability and discrimination may be impeding competitive markets.

FERC asserts that “Competition in wholesale electricity markets is the best way to protect the public interest and ensure that electricity consumers pay the lowest price possible for reliable service.” This assumption, which has never been proven, is the basis for FERC’s interest in restructuring.

FERC wholesale competition experiments in western United States in the 1980s were inconclusive. Order 2000 does cite studies claiming that retail competition will save 9-15% of the country’s annual electricity bill of about \$215 billion. FERC projects that RTOs will save us 1.1-2.4% of this.

## Key Issues

The new regulation occupies only 18 pages. Order 2000 is 727 pages long. Most of the 727 pages consist of the FERC’s discussion of the various issues and its rationale for the decisions it made. Some 259 individuals or organizations filed comments on the earlier draft of Order 2000. FERC attempted to evaluate and respond to them in the final order.

Three sets of issues loom the largest:

- Politico-equity issues (voluntary RTOs, organizational forms, and independence)
- Econo-engineering issues (congestion management, short-term reliability)
- Tariffs.

### *Voluntary Approach*

As noted previously, “voluntary” does not mean “without incentives or sanctions.” As part of the voluntary approach it has adopted, FERC has not defined geographical boundaries for RTOs. FERC wants RTOs to be regional in size and scope, and it wants the participants to define the boundaries.

### *Organizational Form and Independence*

FERC opted for flexibility. It will allow an RTO to be a transco (which owns the transmission system outright), an ISO (which operates it but does not own it), or some combination of the two.

How much independence should the RTO have? This took up the largest single block (86 pages, 12% of the total text) of Order 2000. FERC set three requirements:

- The RTO, its employees, and certain directors must not have financial interest in any market participant
- The RTO’s decision-making process must not be under control of any market participant or class of participants
- The RTO must have independent and exclusive authority to file tariffs.

Whether a market participant could own equity in the RTO and how much it could own were intensely contested. FERC decided to permit passive ownership. Active ownership will be allowed only during a 5-year transition. FERC will scrutinize on a case-by-case basis proposals with more than 5% active ownership by a single market participant.

Whether stakeholders could have seats on RTO boards and whether the boards should be made up completely of outsiders were also debated fiercely. Some complicated proposals were floated for mechanisms to keep things fair. FERC declined to set any hard or fast rules. Again it opted for case-by-case review to ensure independence.

### *Congestion Management*

This difficult topic occupied 54 pages of the order. This and a closely related topic, short-term reliability, represent econo-engineering problems that seemed to weigh as heavily in the de-

bate and in FERC’s considerations as the politico-equity problems described previously.

The technical problem is that competing demands for transmission services might exceed the capability. How is this limited resource to be shared? FERC laid down two principles:

- Lowest-cost generators should have priority
- Transmission capacity should be given to participants who value it most highly.

These objectives can conflict. Sorting this all out is left as a task for the RTOs, and FERC gave them 1 year to solve it. FERC favors a market mechanism with tradable transmission rights.

### *Short-Term Reliability*

FERC concluded that the RTO will be the NERC security coordinator for its region. Among other things, it will be responsible for actions to maintain reliability, such as load shedding, and all other actions that will affect the facilities under its control.

A huge issue, of course, is how much control the RTO will have over generators. FERC concluded that the RTO will have the right to redispatch any generator as needed for reliable operation of the transmission system. It prefers that this be done through a market system. It recognizes that some reliability issues cannot be handled in this way. The RTO will not have control over normal generator dispatch or commitment, and not necessarily over generator maintenance scheduling.

The RTO will have exclusive authority for implementing all interchange schedules. It will have veto power over maintenance of transmission facilities it operates. It will not establish facility ratings. It will report to FERC if reliability standards established by others impede its ability to provide service.

### *Tariffs*

Tariffs (including authority to review and approve new interconnections) represented the third major set of issues. The RTO will:

- Be the sole administrator of its own open access tariff
- Have sole authority for evaluating and approving requests for transmission services, including new interconnections.

FERC wants tariffs to eliminate rate pancaking, manage congestion, internalize parallel path flows, and provide incentives to operate and expand efficiently. FERC also wants transmission owners who do not join the RTO to be treated fairly. It looks for innovative proposals, particularly performance-based rates. It adds that transmission prices must reflect the cost of providing the service.

FERC favors license-plate rates. These provide access to all of the regional transmission system for a single fee. The fee may depend on the customer’s location.

## About the Author

**Hyde M. Merrill** is an electrical engineering graduate of the University of Utah and MIT (PhD 1972). He was with the American Electric Power Company for 7 years, spent a year at MIT on a visiting appointment, and worked for nearly 2 decades at Power Technologies, Inc. He founded Merrill Energy LLC in 1998 to provide advanced capabilities in risk analysis and strategic planning to all stakeholders in modern and traditional power markets. He is a member of Eta Kappa Nu, Tau Beta Pi, and Sigma Xi, and is a registered professional engineer in New York. He is an IEEE Fellow.

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Sidebar:

### **RTO Functions**

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- Manage congestion
- Solve the parallel path flow problem
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