

Case No.: EO-2008-0046

Schedule RJJ-5

Excerpts from Staff Report - FERC Docket No. PL04-16-000

**Staff Report on
Cost Ranges for the Development and Operation
of a Day One Regional Transmission Organization**

Docket No. PL04-16-000



Prepared by the Staff of the
Federal Energy Regulatory Commission

October 2004

(A) Identification of the Minimum Functions Required for a Day One Regional Transmission Organization

Through several orders, the Commission has concluded that certain limited functions provide a suitable beginning that allows a proposed RTO to have a sufficient level of market independence and operational authority to qualify for RTO status.⁴ The Commission’s findings in these orders repeatedly focused on the notion of functional authority over the operations of the transmission grid, independent from market participants, with oversight responsibilities that are intended to remove any barriers to non-discriminatory practices and create robust competition.

Order No. 2000 specified eight functions for RTOs: tariff administration and design, congestion management, parallel path flow, ancillary services, OASIS, market monitoring, planning and expansion, and interregional coordination. The difference between the minimal requirements to operate an RTO and the more complex functions currently performed by, for example, Northeastern ISOs and RTOs is referred to as “Day One” versus “Day Two” RTO functionality.

Figure 1

Figure 1 shows the minimum functions of a Day One RTO, as spelled out in Order No. 2000. To operate as an RTO, the Day One entity must meet the minimum requirements of Order No. 2000, but such operation may not include market-based mechanisms for congestion management or the operation of

	Pre-Day One	Day One	Day Two
Tariff Administration & Design		X	X
Congestion Management			
Redispatch		X	
Market-Based			X
Parallel Path Flow		X	X
Ancillary Services		X	X
OASIS	X	X	X
Market Monitoring		X	X
Transmission Planning		X	X
Interregional Coordination		X	X
Day-Ahead Energy Market			X
Same-Day Energy Market			X
Ancillary Services Market			X
Capacity Market			X

energy markets. A fully functional RTO (or Day Two RTO) will carry out all of the functions to a greater extent, employing market-based mechanisms, and include additional functions.⁵ Staff notes that “Pre-Day One” organizations perform only regional OASIS functions, without actually controlling the transmission facilities. ERCOT, for example, initially operated in this manner.

⁴ See, e.g., Arizona Public Service Company, *et al.*, 101 FERC ¶ 61,033 (2002); Avista Corp., *et al.*, 100 FERC ¶ 61,274 (2002); and Southwest Power Pool, Inc., 106 FERC ¶ 61,110 (February 10, 2004).

⁵ It should be noted that functions such as operating ancillary services and capacity markets are optional programs that some existing RTOs, such as ISO-NE, have chosen to perform.

While Order No. 2000 put forth eight minimum functions that an RTO must perform, some of these functions are unlikely to be fully performed by a Day One RTO. For example, market monitoring takes place on a smaller scale for Day One operations than under the Day Two scheme. Similarly, the Day One RTO will initially have a role in transmission planning, but only at the Day Two point will the RTO become fully responsible for planning. Finally, the extent of congestion management differs between Day One and Day Two entities. The Commission has ruled that full market-based congestion management does not have to be performed when RTO operations commence.⁶ The variation in performing these functions has a direct effect on the resources devoted to them. This Study attempts to capture only those resources that have been classified as Day One functions. This Study does not consider the resources associated with retail access programs. State legislated retail access or retail choice programs are not a requirement of Order No. 2000. While these programs are created by the states, and implemented by the RTO, such programs are considered voluntary, under a Day One or a Day Two RTO.

In order to use information as provided by RTOs and ISOs, Staff organized the cost data into consistent functions. For this, Staff found it useful to rely on the North American Electric Reliability Council (NERC) functional model.⁷ The advent of open-access transmission service and the evolution of competitive markets and new entrants prompted NERC to re-evaluate the functions performed by the traditional control area operator. NERC issued a schematic of functions that can be applied across regions and across different regulatory and institutional structures. This model defines the core functions of control area operators and assigns responsibility for maintaining reliability. It also explains the relationship between and among the entities responsible for performing the tasks within each function. FERC has encouraged the use of the NERC functional model in its RTO policy in order to clarify responsibilities between transmission owners and RTOs/ISOs.⁸

Staff determined the following NERC functions necessary to satisfy the Commission's requirements for becoming an operational RTO: Transmission Service Provider and Reliability Authority. In addition, a transmission support function and organizational management are necessary to develop an adequate framework for the Day One RTO. Finally, the Day One RTO should be responsible for the regional oversight of transmission planning. While not necessarily performing the planning function, oversight

⁶ See Arizona Public Service Company, *supra* note 5; Midwest Independent Transmission System Operator, Inc., 97 FERC ¶ 61,326 (December 20, 2001).

⁷ See Exhibit 2 for a graphic representation.

⁸ See Midwest Independent Transmission System Operator, Inc., 105 FERC ¶ 61,145 (October 29, 2003) and Southwest Power Pool, Inc., 106 FERC ¶ 61,110 (February 10, 2004).

authority and the ability to review expansion is critical for regional reliability.

Transmission Service Provider

The Transmission Service Provider administers the transmission tariff and provides transmission services to qualified market participants. The tasks involved include receiving and processing transmission service requests; maintaining a commercial interface for receiving and confirming such requests (*i.e.*, an open access same-time information system or OASIS); approving or denying transmission service requests; approving interchange transactions; determining and posting available transmission capacity (ATC) values; and allocating transmission losses among the users. The analysis assumes that the RTO will facilitate provision of ancillary services so transmission customers will have a one-stop shop from which to obtain the necessary ancillary services from the underlying transmission and generation owners.⁹

The Transmission Service Provider will perform OASIS and tariff administration and design functions in accordance with Order No. 2000. Market monitoring also falls under the purview of the Transmission Service Provider.

Reliability Authority

The Reliability Authority, as defined in the NERC model, ensures the real-time operating reliability of the interconnected bulk electric transmission systems within a Reliability Authority Area.¹⁰ Activities include, but are not limited to: (1) enforcement of operational reliability requirements; (2) monitoring of all reliability-related parameters within the Reliability Authority Area, including generation dispatch and transmission maintenance; (3) revision authority for transmission and generation maintenance plans; (4) development and enforcement of interconnection reliability operating limits to protect against instability and cascading outages; (5) approval/denial authority over bilateral schedules from a reliability perspective; and (6) direction of emergency procedures and system restoration.

⁹ The NERC Reliability Function Model includes other responsibilities, including a Balancing Authority, which has the responsibility to maintain load-interchange-generation balance within its area of responsibility. Many of the authorities for this function are served through the provision of ancillary services under an Open Access Transmission Tariff (OATT).

¹⁰ A Reliability Authority Area is the collection of generation, transmission and loads within the boundaries of the Reliability Authority. This boundary coincides with one or more Balancing Authority Areas, which are the areas in which a controlling Organization maintains a load-resource balance.

To perform these duties, the Transmission Service Provider needs to communicate with market participants, generators, transmission owners and operators and distribution owners. This communication often requires hardware and software interconnectivity to achieve the real-time monitoring and actions necessary to maintain the reliable operation of the grid. These systems are often embodied in energy management (EMS) and Supervisory Control and Data Acquisition (SCADA) systems.¹¹

The RTO will perform other reliability-related Day One functions as described in Order No. 2000. These functions include congestion management, parallel path flow, ancillary services, transmission planning and interregional coordination.

Support Functions

While the NERC Model was used to determine the necessary operational functions of an RTO, Staff determined that additional cost centers were needed to capture the required administrative functions of a Day One RTO. Accordingly, two additional cost categories were included in the analysis—Transmission Support and Management.

Transmission Support

Transmission Support function, as Staff has defined it, includes the systems (hardware and software) and other necessary capital assets for the settlements and billing, and customer service operations. This list, while not exhaustive, best reflects the support services necessary in the provision of transmission service.

Management

The second support function is the day-to-day management of the transmission organization. The services included in this function include human resources, finance, administrative support, and building operations. Accordingly, the systems (*e.g.*, executive and decision support systems and general web service), furniture, and related assets were included in the Day One operations.

(B) Representative Study Group

After Staff determined the functions necessary for a Day One RTO, investment

¹¹ EMS systems, often characterized as the communication system with the generators and their operation, are typically embodied in a SCADA system, which, while collecting generator and transmission flow data, also can monitor and collect data on discrete facilities (breakers, lines, generator nodes, etc.) for purposes of monitoring the grid.

and expense profiles were developed. Staff reviewed the operations of existing ISOs and RTOs to determine a representative group for a Day One RTO. With the exception of the PJM Interconnection, LLC (PJM), Staff excluded ISOs and RTOs that developed from a tight power pool. As a result, the Midwest Independent Transmission System Operator (Midwest ISO), the Electric Reliability Council of Texas (ERCOT), the Southwest Power Pool (SPP), and PJM were selected for study.¹² This review did not select the Northeast entities (ISO-New England and New York ISO) or the California Independent System Operator, Inc. (CAISO) as representative examples.¹³ These entities, among other things, began operations with full Day Two market functions. As such, their costs were not representative of Day One RTO costs.

SPP is unique in this analysis, and the results for it should be interpreted accordingly. At the time of this Study, SPP had only been granted conditional RTO status.¹⁴ The costs and expenses reflected in this Study are accurate for the services SPP currently provides, but are not necessarily reflective of a fully operational Day One RTO. For example, one of the functions of a Day One RTO is market monitoring, but funds for an independent market monitor are not included in SPP's budget. In contrast, SPP has been able to draw on the formation and operating experience of other RTOs, reducing the outlay required for start-up.

Information sources utilized in the Study include industry interviews, industry submissions, FERC Form No. 1 documents, and data from Commission audit staff. The ISO and RTO cost submissions were derived from actual and budgeted costs, and were developed in summary format in an effort to respond to the scope of this Study; they do not represent actual current revenue requirements. The information, in some instances, was purported to be illustrative of what each entity believed it would cost to replicate and administer its organization. Some actual data from a specific reporting period, indicated as representative of the Day One operations defined in this Study, was also submitted. Each entity denoted the specific time frame in its development that is representative of Day One RTO functions. For example, the Midwest ISO and ERCOT identified end-of-year 2002 numbers as the best representation of their Day One costs and expenses.

¹² While it is recognized that the PJM area operated as an experienced power pool, the detailed data provided by PJM staff allowed for analysis, assignment and inclusion of PJM costs in the development of a Day One RTO.

¹³ A cursory review of the data from the NYISO and ISO-NE indicated that, because they evolved out of tight power pools, were not representative of the Day One RTO development this Study attempts to capture. Review of the CAISO financial data indicated that it would not lend itself to identification of the Day One functionality with reasonable results.

¹⁴ Southwest Power Pool, Inc., *supra*, note 8. *See also* Southwest Power Pool, Inc., 108 FERC ¶ 61,003 (July 2, 2004).