Appendix

COMPLIANCE OF CALIFORNIA INDEPENDENT SYSTEM OPERATOR CORPORATION WITH REQUIRED CHARACTERISTICS AND FUNCTIONS OF A REGIONAL TRANSMISSION ORGANIZATION

This Appendix provides a detailed discussion of the extent to which the the California Independent System Operator Corporation (CAISO) already satisfies the characteristics and functions of a Regional Transmission Organization (RTO), as set forth in the Commission's Order No. 2000,[1] and the efforts underway to further enhance the CAISO's capabilities in these areas within the time-frames prescribed by Order No. 2000.

A. Required Characteristics of an RTO

In Order No. 2000, the Commission established four characteristics that an entity must possess to qualify as an RTO. The status of the CAISO's compliance with each of these characteristics is discussed below.

1. Characteristic 1 – Independence

Order No. 2000 requires that an RTO be independent from Market Participant influence.[2] The CAISO's institutional and governance structures were designed to provide such independence. For example, the CAISO does not own any facilities for the production or transmission of electricity, and, although it

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[1] *Regional Transmission Organizations*, Order No. 2000, 65 *Fed. Reg.* 809 (Jan. 6, 2000), FERC Stats. & Regs, Regs. Preambles ¶ 31,089 (Jan. 6, 2000), *order on reh'g*, Order No. 2000-A, 90 FERC ¶ 61,201, FERC Stats. & Regs, Regs. Preambles ¶ 31,092 (Feb. 25, 2000). These orders collectively are sometimes referred to in this memorandum as "Order No. 2000" or "the RTO Rule."

[2] Order No. 2000 at 31,061.

procures Energy in its Ancillary Services and Imbalance Energy markets, it does so solely on behalf of others. These and other factors permit the CAISO to act as an independent market facilitator rather than a Market Participant.[3]

Order No. 2000 establishes several tests for the independence required of an RTO.[4] The CAISO satisfies each of these.

a. The RTO, its employees, and any non-stakeholder directors must not have a financial interest in any market participant.[5]

The CAISO satisfies this condition, which requires independence from the financial influence of Market Participants. As the Commission found in its October 1997 Order authorizing the CAISO to commence operations, the CAISO is "a not-for-profit, public benefit corporation and therefore will have no financial interest in any market participant."[6] In the October 1997 Order, the Commission

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[3] *See, e.g.,* the CAISO's July 23, 1999, Answer at 19-20 in *California Independent System Operator Corp.*, Docket No. ER99-3158 (citing Annual Report on Market Issues and Performance), indicating that the CAISO is a market facilitator, as opposed to a Market Participant. *See also Pacific Gas and Electric Co. et al.*, 77 FERC ¶ 61,204, 1996 WL 680336 at 61,834-35 (1996); *California Independent System Operator Corp.*, 90 FERC ¶ 61,316, 2000 WL 330464 at 62,047 (2000). The Commission has recognized the distinction between ISOs and Market Participants elsewhere as well. *See e.g. ISO New England, Inc.*, 91 FERC ¶ 61,311, 2000 WL 863242 at 62,065-66 (2000).

[4] *See* Order No. 2000 at 31,063-64. The Commission determined that the CAISO satisfied the independence requirement as applied to ISOs in *Pacific Gas and Electric Co., et al.*, 81 FERC ¶ 61,122 at 61,435 (1997) ("October 1997 Order").

[5] Order No. 2000 at 31,063.

[6] October 1997 Order at 61,454. The independence afforded by the CAISO's not-for-profit structure is at least equal to that of for-profit RTOs the Commission has approved in *GridFlorida, LLC, et al.*, 94 FERC ¶ 61,363 at 61,982-61,986 (2001) ("GridFlorida") and *Carolina Power and Light Co., et al.,* 94 FERC ¶ 61,273 at 62,323-62,331 (2001) ("GridSouth") where transmission owners that are also market participants have passive ownership of the RTO, rights to profit and loss distributions, final approval rights over "fundamental" business decisions, and the ability to own five percent or more

also required the CAISO to prohibit its employees from owning securities of Market Participants, in order to help ensure the independence of the CAISO.[7] This requirement is reflected in the CAISO's Employees Code of Conduct.[8] Moreover, the Code prohibits employees from acting as brokers and otherwise from purchasing or selling electricity except for ordinary personal use, or to the extent necessary to carry out the CAISO's functions.[9] Finally, the Code prohibits employees from being employed by a Market Participant without the express approval of the CAISO's Board of Governors.[10] Taken together, these requirements ensure that the CAISO and its employees have no financial interest in any Market Participant.[11]

Procedures are also in place to ensure the CAISO Board of Governors' independence from Market Participant influences to the greatest possible extent.

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of voting shares. *See GridFlorida* at 62,324-330. Although "the Commission has determined that a variety of organizational forms, including for-profit transcos are acceptable so long as they meet the minimum characteristics and functions," the CAISO's structure will eliminate the concerns over independence in setting market rules and administering the market that have been raised concerning approved for-profit RTOs. *GridFlorida* at 62,329.

7 October 1997 Order at 61,455.

8 *See* Employees Code of Conduct, Sections (a)(4)-(5).

9 *See* Employees Code of Conduct, Sections (a)(1)-(2). For example, the CAISO must purchase and sell electricity to serve the realtime Imbalance Energy market it operates.

10 *See* Employees Code of Conduct, Section (a)(3).

11 Consistent with the Commission's Order on Rehearing of the RTO Rule, FERC Stats. & Regs. Regs. Preambles ¶ 31,092 at 31,373, the CAISO has specific procedures for monitoring and enforcing compliance with all of its rules. Any employee who fails to comply with all applicable federal and state laws or who fails to comply with the Employees Code of Conduct is subject to discipline, which may take the form of a reprimand, suspension without pay, limitation in the scope of responsibilities, monetary

First, the California statute establishing the new, non-stakeholder Board provides that no member of this Board may "be affiliated with any actual or potential participant in any market administered by the Independent System Operator."[12]

Second, both as a matter of state law and pursuant to the by-laws of the CAISO, each of the Governors is required to ignore any parochial financial interests, because each Governor has a fiduciary obligation to perform his duties in good faith in a manner that represents solely the interests of the CAISO.[13]

Third, the CAISO requires all Governors to disclose their financial investments in any entity engaged in the generation, transmission, marketing, or distribution of electricity. This information is available to the public upon request.[14] Disclosure of these interests is intended to ensure that any threat to a Governor's independence will be made readily apparent.

Fourth, the Governing Board operates under an Open Meeting Policy,[15] and the CAISO makes all documents (subject to limited specific exemptions) available to the public.

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fines, or termination. *See* Employees Code of Conduct, Section (b)(5).

[12] California Public Utilities Code § 337 (b) (West 2001) (as amended by 2001 Cal. Stat. A.B. No. 5).

[13] *See* California Corporations Code, Section 5231(a) (all directors of a non-profit, public benefit corporation to perform their duties, in good faith, in a manner they believe to be in the best interests of the corporation). *See also* CAISO Bylaws, Section III, Section 14.1 (same).

[14] Governors Code of Conduct, Section (a)(12).

[15] Letter, Terry M. Winter, CAISO CEO, to Honorable Gray Davis, Governor of California, Aug. 8, 2000. Any interested party can hear Board of Governors' open meetings live by dialing the CAISO's conference line announced in the agenda for each meeting, and/or through the internet.

b. The RTO must have a decision-making process that is independent of control by any Market Participant or class of Market Participants.

In the October 1997 Order, the Commission found that the CAISO's stakeholder Governing Board was structured in a fair and nondiscriminatory manner in accordance with Order No. 888.[16] The Commission determined that the Board was structured in a balanced manner, given that: (i) no one voting class was able to block or veto an action; and (ii) no two classes together were able to form a sufficient majority to force decisions opposed by the rest of the Board.[17]

However, after observing more than two years of CAISO operations, the Commission concluded that CAISO's original stakeholder Board of Governors did not provide a sufficient degree of independence.[18] In its November 1 and December 15 Orders the Commission ordered that the CAISO's stakeholder

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[16] *See* October 1997 Order at 61,446-54. Order No. 888 explained that a fair and nondiscriminatory governance structure is one in which the "ISO [is] independent of any individual market participant or any one class of participants." *Promoting Wholesale Competition Through Open Access Non-Discriminatory Transmission Services by Public Utilities and Recovery of Stranded Costs by Public Utilities and Transmitting Utilities*, Order No. 888, 61 Fed. Reg. 21,540 (May 10, 1996), FERC Stats. & Regs ¶ 31,036, 31,730-31 (1996), *order on reh'g*, Order No. 888-A, 62 Fed. Reg. 12,274 (Mar. 14, 1997), FERC Stats. & Regs. ¶ 31,048 (1997), *order on reh'g*, Order No. 888-B, 62 Fed. Reg. 64,688 (Nov. 25, 1997), 81 FERC ¶ 61,248 (1997), *order on reh'g*, 82 FERC ¶ 61,046 (1998).

[17] *See* October 1997 Order at 61,453. The Commission found that a further check on the independence of the Governing Board's decision-making process was that the Bylaws required the CAISO to submit to the Commission, no more than three years after adoption of the Bylaws, a recommendation as to whether its class structure requires modification. *See* October 1997 Order at 61,453. This recommendation was subsequently preempted by the November 1 Order. *San Diego Gas & Elec. Co.*, 93 FERC ¶ 61,121 at 61,365-67.

[18] *See San Diego Gas & Elec. Co. v. Sellers of Energy, et al.,* 93 FERC ¶ 61,294 (2000) ("December 15 Order").

Board be replaced with a non-stakeholder Board.[19] Subsequently, and under the direction of the State of California, the CAISO seated a new, non-stakeholder Board selected by the Governor of the State of California and comprising consumer advocates and other public representatives not associated with any Market Participant. The state statute establishing the new Board structure required that members of the ISO Governing Board not be affiliated with any actual or potential participant in any market administered by the CAISO.[20] Board members selected through this process are well situated to exercise independent judgment to make decisions that advance the interests of the electricity consumers that rely on the CAISO's nondiscriminatory operation of the transmission system and markets for Ancillary Services and Imbalance Energy.[21] The CAISO bylaws revisions reflecting this change in the Board have been submitted for the Commission's approval in Docket No. ER01-1877-000.

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[19] *Id.* at 61,365-66.

[20] California Public Utilities Code § 337 (b) (West 2001) (as amended by 2001 Cal. Stat. A.B. No. 5).

[21] While a State agency, the California Department of Water Resources ("DWR"), has been required to provide financial support to permit the continuation of service to retail load. Under the Commission's regulations, this participation does not make either DWR or the State a Market Participant. *See* 18 C.F.R. § 35.34(b)((2).

c. The RTO must have exclusive and independent authority under Section 205 of the Federal Power Act, to propose rates, terms and conditions of transmission service provided over the facilities it operates.

The CAISO's Tariff clearly gives the CAISO exclusive and independent authority under FPA Section 205[22] to propose rates, terms, and conditions of transmission service over the facilities it operates.

The CAISO's Tariff provides that "[a]ny amendment or other modification of any provision of this [. … Tariff must be in writing and approved by the CAISO Governing Board in accordance with the bylaws of the ISO," and that the CAISO has a right "unilaterally to make an application to FERC for a change in rates, terms, conditions, charges, classifications of service, [Scheduling Coordinator] Agreement, rule or regulation under FPA Section 205 and pursuant to the FERC's rules and regulations promulgated thereunder."[23] Thus, its Tariff gives the CAISO the exclusive, unilateral right to file, and that right encompasses each of the areas over which Order No. 2000 requires an RTO to have authority.

The CAISO's independent control over transmission rates is also reflected in Amendment No. 27 to the CAISO Tariff filed March 31, 2000, which proposes a methodology for the establishment of a single Access Charge for High Voltage Transmission Facilities under the CAISO Tariff rather than under individual Participating Transmission Owner tariffs. Access charges for Low Voltage Transmission Facilities would remain in the Participating Transmission Owners'

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22 16 U.S.C. § 824d.

23 CAISO Tariff § 19.

tariffs. The Commission has accepted the proposal for filing, and has made it effective as of June 1, 2000, subject to further proceedings.[24]

d. The RTO must provide transmission service and operate the grid in a non-discriminatory manner.

In addition to the three conditions described above, Order No. 2000 states that the "overall purpose of the independence standard . . . is to ensure that an RTO will provide transmission service and operate the grid in a non-discriminatory manner."[25] Non-discriminatory operation of the grid by the CAISO is assured in a number of ways. The first stated purpose in the CAISO Bylaws is "to provide open and comparable access to similarly situated customers to the transmission facilities of those Transmission Owners that have transferred operational control of those facilities" to the CAISO.[26] CAISO employees are required to adhere to this principle and to offer open-access transmission service on a non-discriminatory basis.[27] The CAISO Tariff in turn reflects these open-access and non-discrimination standards. First, the CAISO Tariff explicitly states that the CAISO shall provide "open and non-discriminatory access to the ISO Controlled Grid."[28] Second, the CAISO is open to all qualified Scheduling Coordinators who meet the financial and technical criteria to do business with the

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[24] *California Independent System Operator Corp.*, 91 FERC ¶ 61,205 (2000) and *California Independent System Operator Corp* 93 FERC ¶ 61,104.

[25] Order No. 2000 at 31,061.

[26] Bylaws, Section II, Section 1(a).

[27] *See* Employees Code of Conduct, Sections (a)(6)-(10).

[28] CAISO Tariff § 2.1.1.

CAISO.[29] Third, Market Participants that are not or cannot become Scheduling Coordinators still have full access to the ISO Controlled Grid through agreement with a Scheduling Coordinator. Fourth, the Tariff offers all services at non-pancaked rates and on a non-discriminatory basis through a uniform system of Access Charges and usage charges.[30]

2. Characteristic 2 – Scope and Regional Configuration

Order No. 2000 provides that an RTO must serve an appropriate region. The region must be of sufficient scope and configuration to permit the RTO to maintain reliability, effectively perform its required functions, and support efficient and non-discriminatory power markets.[31] The CAISO satisfies these requirements.

a. The CAISO is of sufficient scope to achieve the benefits intended to be realized by RTOs.

Prior to the formation of the CAISO, California had six control areas, three separate primary investor-owned utility control areas (PG&E, SCE, and SDG&E), each significantly smaller than the CAISO's current control area, together with three additional public power control areas. Unlike the eastern United States, California did not have a tight power pool. Instead, a patchwork of geographical

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[29] *See* CAISO Tariff § 2.2.3.

[30] CAISO Tariff §§ 7.1, 7.3. Although the Commission has indicated that RTOs may "charge different rates to non-participating transmission owners within the region so long as the rates are not unduly discriminatory," *GridFlorida* 94 FERC at 62,336, the CAISO charges the same rates to transmission owners who participate in the ISO and those who do not.

[31] Order No. 2000 at 31,076.

monopolies provided integrated systems of Energy generation, transmission, and distribution to their respective customers. The regional monopolies included the three large investor-owned utilities (PG&E, SCE, and SDG&E), as well as municipal utilities (such as the City of Los Angeles Department of Water and Power - whose control area is larger than that of SDG&E - and the Sacramento Municipal Utility District). The loose structure of the California market presented barriers to the development of a competitive electricity market.[32]

The CAISO combined four of California's control areas.[33] The result has been the achievement of a large-scale organization managing transmission service across a wide geographic and market scope. The CAISO controls and supervises one of the largest regional transmission grids in the world. This proposition can be supported under any of the tests for evaluating the scope of an RTO identified by the Commission in Order No. 2000: geographic range, numbers of buyers and sellers, load served, or number of miles of transmission lines under operational control.[34]

- Geographically, the ISO Controlled Grid is the second largest centrally controlled electric transmission grid in the country, covering approximately 124,000 square miles, or 75% of the State

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[32] Indeed, the CAISO is the only operating ISO to combine control areas outside of a pre-existing pool structure. Each of the three major California control areas was as large as most other U.S. states. In many ways, the CAISO is the only operating ISO with experience directly relevant to integrating truly separate and weakly-coordinated control areas, as an RTO must do.

[33] Currently, the City of Pasadena Control Area, which is much smaller than the other three areas, is part of the combined CAISO Control Area. As explained in more detail below, the CAISO has been engaged in significant negotiations to induce additional municipal entities to join the CAISO. *See California Independent System Operator Corp.*, 91 FERC ¶ 61,205 (2000).

[34] Order No. 2000 at 31,083.

of California.[35] This is nearly two-and-a-half times the size of the three-state PJM grid, and about 70% larger than the six-state ISO-NE. The CAISO is nearly two times the size of the initial service area the Commission has approved for the GridSouth RTO.[36]

- The ISO Controlled Grid comprises approximately 25,526 circuit miles of transmission lines.[37]

- The CAISO oversees the dispatch of more than 1143 power plants, more than are interconnected to the national grids of England and France combined, and more than any other ISO.[38]

- The ISO Controlled Grid is connected to power plants meeting up to 45,000 MW of capacity at peak.[39] The CAISO's Control Area is the fifth largest in the world, measured by peak load served. This is a larger peak capacity than is served by either the GridSouth RTO at 34,000 MW or the GridFlorida RTO at 40,000 MW.[40]

- The CAISO has an annual load of approximately 239 million MWHs, which represents about 30% of the load in the Western Systems Coordinating Council ("WSCC").[41]

- Electricity is delivered by the CAISO each year to serve the annual Energy needs of approximately 34 million people (*i.e.*, about 12% of the population of the United States).[42]

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[35] When ERCOT (Texas) begins operations as a single control area on June 1, 2001, it will be the largest. For data on the size of the CAISO grid, *see* *http://*www.caiso.com/aboutus/infokit/PowerGrid.html; http://www.caiso.com/aboutus/infokit/map/

[36] *See GridSouth*, 94 FERC at 61,991. The GridSouth RTO will have an initial service area encompassing 65,000 square miles.

[37] 2000 CAISO Annual Report at 2.

[38] 2000 CAISO Annual Report at 16.

[39] *http://www.caiso.com/aboutus/infokit/PowerGrid.html.*

[40] *See GridSouth*, 94 FERC at 61,991, and *GridFlorida*, 94 FERC at 62,336.

[41] 2000 CAISO Annual Report at 5.

[42] *Compare* 2000 CAISO Annual Report at 1 (CAISO estimate of population served) *with* http://www.census.gov/population/estimates/nation/intfile1-1.txt (U.S. Census Bureau estimate of total U.S. population in 2000).

- The CAISO handles up to 3.5 million transactions or 43 million MWh per month.[43]

- The CAISO settled more than $1.7 billion in market transactions in 1999, and $6.1 billion in 2000.[44]

The transformation of disparate isolated markets in California into an operationally integrated grid required large-scale investments to create the necessary facilities and capability to manage the grid. The CAISO operates a 15,000 square foot primary control room at its headquarters in Folsom, California, with a second control room, providing both daily assistance on dispatch and back-up in the event of an emergency, at its satellite operation center at Alhambra, California. Four redundant computer systems and many innovative software packages were also developed and integrated to manage the system.

These facilities give the CAISO an instant overview of the flow of electricity within the state. They also facilitate transmission access on a non-discriminatory basis, which makes the non-discriminatory power market possible. Such benefits could not have existed in the pre-CAISO world of separate Control Areas.

The CAISO operates six markets, the Real-Time Imbalance Market, four Ancillary Services Markets, and the Congestion Management Market.[45] As one

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[43] 2000 CAISO Annual Report at 14.

[44] 1999 CAISO Annual Report at 1; 2000 CAISO Annual Report at 26.

[45] *See* http://www.caiso.com/aboutus/infokit/Markets.html

of three WSCC Security Coordinators, the CAISO also monitors transmission security for the most populous portion of the 16-state WSCC region.[46]

b. The CAISO is well-situated to accommodate regional expansion of the grid it operates.

The CAISO is structured to permit rapid, uncomplicated expansion, and has been engaged in negotiations with non-member California transmission owners, both municipalities and other public power entities, regarding their joining the CAISO as Participating Transmission Owners[47] (although for a variety of reasons, discussed in detail below in Section D(2), so far only one has decided to do so[48]). The CAISO is structured so such entities can easily be integrated into the ISO Controlled Grid without incurring significant cost. Existing computer and telecommunication facilities and services can accommodate the entry of all of the remaining electric utility entities in California with only software upgrades and extensions of the ISO Controlled Grid. The OASIS system can readily accommodate new members. No major investments would be required.

The platform on which the CAISO operates can also easily accommodate integration and coordination with facilities and Control Areas outside California,

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[46] *See* http://www.caiso.com/aboutus/infokit/ControlCenter.html

[47] All of the transmission-owning entities in the state are involved in settlement discussions in Docket ER00-2019-000 regarding the CAISO's Transmission Access Charge, which is designed to facilitate the remaining transmission-owning entities joining the ISO Controlled Grid.

[48] The Commission approved the application of the City of Vernon Light & Power Department to become a Participating Transmission Owner and transfer operational control of its interests in transmission facilities to the CAISO, effective January 1, 2001. *See California Independent System Operator Corp., et al.*, 94 FERC ¶ 61,141 (2001).

also at reasonable costs, should the conditions that would support such growth develop.

In addition, because transmission owners do not, either passively or otherwise, hold ownership interests in the CAISO, there is no buy-in requirement for new entities who wish to participate. The potential that a membership premium may be required from new entities that wish to join an RTO may create a barrier to their participation.[49]

In sum, the CAISO is properly structured and positioned to efficiently accommodate expansion.

c. The CAISO in its existing configuration is of sufficient regional scope to satisfy each of the regional configuration factors identified by the Commission, and in fact does so.

In Order No. 2000, the Commission indicated that it will use "regional configuration factors" to evaluate RTO scope and size by examining whether the RTO is capable of accomplishing certain functions.[50] As the summary below demonstrates, the CAISO is not only capable of performing each of these functions, but is already doing so. (Each of these functions is discussed in more detail in Section B, below, on required functions.)

- Making accurate and reliable Available Transmission Capacity ("ATC") determinations. The CAISO makes accurate and reliable ATC calculations for the facilities it operates on an hourly basis. The calculations are posted on the CAISO OASIS.

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[49] Although the Commission disallowed a set minimum premium to join the GridSouth RTO stating that it may "serve to deter expansion of the GridSouth RTO," the Commission stated that it would allow the GridSouth Board to negotiate the proper amount of any buy-in premium. *See GridSouth* at 62,014.

[50] *See* Order No. 2000 at 31,082-84.

- Resolving loop flow issues. The CAISO has internalized loop flow and addressed loop flow problems over its entire transmission system. Previously, loop flow issues existed between each of the control areas.

- Managing transmission congestion. The CAISO manages transmission congestion over its system, and is currently working to develop an improved congestion management.

- Offering transmission service at non-pancaked rates. The CAISO has converted four control areas into a single, large control area, resulting in the elimination of pancaked transmission rates within the large energy trading area of the ISO Controlled Grid .

- Improving Operations. The CAISO offers simplicity and "one-stop shopping" by reserving and scheduling transmission use over the entire region, allowing the allocation of resources as regional transmission demand is assessed. Scheduling Coordinators depend on information provided by the CAISO to make their day-to-day market trading and power scheduling decisions. The CAISO provides a wealth of information: forecast loads and actual loads to identify the Energy consumption of Californians for a given day, public market information for past days, and technical information that contains data and operational procedures to assist Market Participants.[51]

- Planning and coordinating transmission expansion. The CAISO currently oversees transmission planning for its grid. The CAISO is discussing further coordination and modification of its planning function with the stakeholders to clarify the planning function and to integrate more fully the long-term planning function with the shorter-term Congestion Management functions.

[51] *See* http://www.caiso.com/marketops; http://www.caiso.com/marketops/OASIS/index.html.

d. The CAISO, in its existing configuration, satisfies the factors identified in Order No. 2000 for the evaluation of boundaries.

The CAISO's existing configuration satisfies the factors identified in Order No. 2000 for the evaluation of RTO boundaries.[52] The CAISO within its current boundaries has promoted competition, efficiency, and reliability.

i. The CAISO encompasses one contiguous geographic area.

In Order No. 2000, the Commission explained that the goals of competition, efficiency, and reliability could best be achieved if the RTO has "control over all transmission facilities within a large geographic area, including the transmission facilities of non-public utility entities."[53] The ISO Controlled Grid encompasses over 75% of the State of California, with the only non-members being government-owned entities. As discussed elsewhere, the CAISO is actively seeking to induce these entities to join, including pursuing ongoing settlement efforts involving its Transmission Access Charge in order to craft a compromise that will increase participation by government-owned entities.[54]

In addition, the CAISO acts as Control Area Operator for the combined electric systems of its Participating Transmission Owners, as well as the systems of government-owned entities within their former control areas. Its

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[52] *See* Order No. 2000 at 31,084.

[53] Order No. 2000 at 31,084-31,085.

[54] *See e.g. California Independent System Operator Corp.*, 91 FERC ¶ 61,205 (2000).

responsibilities as Control Area Operator include maintenance of grid reliability, maintenance of grid voltage and frequency, managing and eliminating Operational Transfer Capability violations, interchange with other control areas, maintaining an adequate supply of operating reserves, managing loop flow issues, securing Ancillary Services satisfying WSCC criteria and NERC standards, and meeting other WSCC criteria and NERC standards.

ii. The CAISO's operational authority encompasses a highly interconnected portion of the Western Interconnection.

Order No. 2000 states that the transmission grid of an RTO should include facilities that are highly integrated and interdependent.[55] The ISO Controlled Grid fits this description, in part because of the transmission upgrades constructed since the CAISO merged the separate control areas. Furthermore, the CAISO's authority under its Tariff to specify that facilities turned over to it satisfy Commission and CAISO criteria ensures that it can maintain the integrated and interdependent character of the Grid in the future as well.[56]

iii. The CAISO represents an efficient consolidation of Control Areas while respecting important institutional boundaries.

Prior to the formation of the CAISO, each of the existing utilities whose facilities now constitute the Control Area under the operation of the CAISO worked together regionally in certain contexts. For example, the California investor-owned utilities that are now Participating Transmission Owners entered

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[55] Order No. 2000 at 31,084.

[56] CAISO Tariff § 3.1.

into agreements to coordinate access to the California Oregon Intertie (COI) with the California municipal utilities that participated in a project to expand the capacity of that interface. The combination of these utilities' Control Areas in the CAISO maintains this historic relationship -- a factor recognized as important by the Commission.[57] At the same time, the combination of these Control Areas has created efficiencies that have benefited the market, as discussed above.

iv. The scope of the CAISO is sufficient to address market power concerns.

The Commission has emphasized that an RTO region should not be dominated by a few buyers or sellers of Energy, and that Market Participants should not be able to exercise transmission market power through the collection of congestion fees on a critical corridor.[58] The markets operated by the CAISO include approximately 63 Scheduling Coordinators that are sellers and buyers of wholesale Energy, including public utilities, merchant generators, energy marketers, load aggregators, municipalities, state agencies, federal agencies and others with a host of varying interests and market strategies. Recent market stresses have disclosed the existence of substantial Generation market power, at all system load levels. The CAISO, under directives given by the Commission in its December 15 Order, implemented a price cap regime to mitigate market power while longer-term market reforms are pursued.[59] This mitigation regime

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[57] Order No. 2000 at 31,085.

[58] *Id.* at 31,084-85.

[59] The CAISO has been proceeding since January 2000 with a full-scale market redesign effort, aimed in part at preventing and addressing exercises of market power by generators or transmission owners. *See* Congestion Management Reform

was modified in the Commission's April 26 Order. As the CAISO has explained in its Request for Rehearing of that Order, however, the new mitigation measures prescribed by the Commission are inadequate to prevent the exercise of market power or to assure just and reasonable wholesale rates. Correction of the myriad deficiencies in the wholesale price control regime prescribed by the Commission is indispensable to the continued viability of electricity markets in California and the West, and to the prospects for formation of a broader RTO in the West. If Western utilities and the State authorities to whom they are accountable lack confidence that the Commission will vigorously and effectively police wholesale market power to ensure just and reasonable rates, they will be reluctant to form a Western Interconnection-wide RTO, in which effective federal regulation will be even more important to protect consumers.

As demonstrated in the analyses presented to the Commission by the CAISO's Department of Market Analysis ("DMA"), while the California Generation market is substantially deconcentrated, this is not enough to prevent suppliers from exercising market power either during system emergencies or in other hours. Thus, while the transmission grid operated by the CAISO is large enough to incorporate a substantially deconcentrated generation market (as required by Order No. 2000), the experience of the past year leaves no doubt that relatively low market concentration alone is insufficient to assure workably competitive power markets.

Recommendation, Rev. 1.1, issued July 28, 2000. While progress has been delayed by efforts to address the current crisis, upon completion of this market redesign, California's electricity markets should be equipped with the most advanced and efficient procedures and systems available anywhere to combat market power.

v. The scope of the CAISO has promoted competition, efficiency, and reliability.

The fundamental goal of the Commission, in evaluating boundaries of an RTO, is to determine whether the boundaries serve to promote competition, efficiency, and reliability. The CAISO's scope will permit it to achieve each of these goals. As explained in more detail in other sections, the CAISO is of sufficient scope to: (1) assure non-discrimination and enhance efficiency of transmission and Ancillary Services; (2) maintain and enhance reliability sufficient to facilitate necessary real-time communication and to provide protocols and working relationships for communication during System Emergencies; (3) encourage (though not, without effective price mitigation, to ensure) competitive Energy markets; (4) promote overall operating efficiency; (5) allow for non-discriminatory interconnection; and (6) facilitate efficient expansion of the transmission grid. As the Commission stated on rehearing of Order No. 2000, "one of the considerations in evaluating scope and regional configuration is whether the RTO can support open and transparent markets, including ancillary service markets."[60] The CAISO, one of the first independent transmission system operators in the country, has been working continually for over three years to improve and streamline its market structures. And the CAISO relies on competitive markets to a greater extent than any other system operator. Unlike the CAISO, each of the eastern ISOs was formed by restructuring a pre-existing tight power pool, and each relies on a centrally-operated market in which the ISO

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[60] Order No. 2000 Rehearing at 31,372.

itself optimizes and dispatches energy and ancillary services resources based on its own analysis of each resource's most efficient use. By contrast, the CAISO was designed to accept the allocations of resources made by the competitive markets themselves to the greatest extent possible. However, when the markets are not competitive, effective mitigation of market power is necessary for this (or any) model to function effectively.

3. Characteristic 3 - Operational Authority

Order No. 2000 requires that "an RTO must have operational authority for all transmission facilities under its control and also must be security coordinator for its region."[61] The CAISO fully satisfies these requirements.

a. The CAISO has full operational authority over all facilities that form the ISO Controlled Grid .

California Assembly Bill No. (1996) 1890 (A.B. 1890), the legislation that mandated creation of the CAISO, provided that "[i]t is the intention of the Legislature that California's publicly owned electric utilities and investor-owned electric utilities should commit control of their transmission facilities to the Independent System Operator."[62] A.B. 1890 charged the CAISO with ensuring "efficient use and reliable operation of the transmission grid . . . ."[63] Thus, the CAISO was granted centralized control of the state-wide transmission grid.

This operating authority over the grid is implemented through the CAISO Tariff and the CAISO's agreements with Transmission Owners, Generators,

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61 Order No. 2000 at 31,090.

62 A.B. 1890, Section 330(m).

63 *Id.* at Section 345.

Loads, and Utility Distribution Companies. The CAISO directs the operators of all facilities forming part of the ISO Controlled Grid , with the Tariff requiring the CAISO to "establish a WSCC approved Control Area and control center to direct the operation of all facilities forming part of the ISO Controlled Grid , Reliability Must-Run Units and Generating Units providing Ancillary Services."[64] Section 2.3 of the Tariff details the CAISO's responsibility to direct the operation of the transmission facilities under both normal and System Emergency conditions. For example, the CAISO has full authority to "control the output of Generating Units that are selected to provide Ancillary Services and Imbalance Energy" (unless doing so would impair public health or safety).[65] Further, the CAISO is the sole entity authorized to declare that a System Emergency exists; a declaration by the CAISO of a System Emergency is binding on all Market Participants until the CAISO announces that the System Emergency is over.[66] Moreover, various protocols in the Tariff make clear that the CAISO is responsible for operating, monitoring, and maintaining the ISO Controlled Grid under both normal and System Emergency conditions.[67]

The CAISO's operational authority over grid facilities is also expressed in its agreements with different classes of entities. Section 4.1.1 of the agreement

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64 CAISO Tariff § 2.3.1.1.1; *see* § 2.3.1.1.3

65 CAISO Tariff §§ 2.3.1.1.3(e) and 2.3.1.2.1.

66 CAISO Tariff § 2.3.2.1.

67 *See*, *e.g.*, Ancillary Services Requirements Protocol, Section 1.1; Demand Forecasting Protocol, Section 1.1; Dispatch Protocol, Section 1.1; and CAISO Market Monitoring and Information Protocol, Section 1.1.

between the CAISO and Participating Transmission Owners (the Transmission Control Agreement or "TCA") provides that the transmission lines and associated facilities in the CAISO's control area are to be placed under the CAISO's operational control. Moreover, the CAISO's *pro forma* agreements with generators (the Participating Generator Agreement or "PGA") and loads (the Participating Load Agreement or "PLA"), both specify that the CAISO "is responsible for the efficient use and reliable operation of the ISO Controlled Grid . . . ."[68] Similarly, the CAISO's Utility Distribution Operating Agreement with the Utility Distribution Companies ("UDCs"), provides that "[t]he CAISO shall operate the ISO Controlled Grid in accordance with the ISO Tariff and the Transmission Control Agreement . . . . The UDC will abide by and will perform all of the obligations under the ISO Specifications and the ISO Operating Procedure . . . ."[69]

The CAISO is thus fully authorized under its Tariff and agreements to exercise the type of operational authority required by the Commission in Order No. 2000.[70]

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[68] PGA, § 2.1; PLA § 2.1.

[69] UDC Operating Agreement §§ 3.3, 3.4.1.

[70] In fact, the operational control the CAISO currently exercises over the transmission grid exceeds the level of operational authority to be exercised by RTOs the Commission has approved to date. For example, In the GridSouth RTO, the RTO does not consolidate the three different control areas under its direction, and transmission owners will continue to operate their own systems subject to the "overall direction" of GridSouth. GridFlorida will operate a "hierarchical" RTO in which the RTO will exercise operation control by communicating with existing control area operators. See 94 FERC at 61,994. *Id.* at 62,338.

b. The CAISO has full operational authority, which it has exercised over the ISO Controlled Grid .

During the more than three years it has been in existence, the CAISO has exercised full Operational Control of the ISO Controlled Grid . The CAISO has directed the owners of the transmission facilities making up the ISO Controlled Grid in the operation of their transmission facilities; it has also directed the operation of other electric plant affecting the reliability of those transmission facilities in order to ensure reliable, non-discriminatory transmission access.[71] The exercise of Operational Control includes each of the specific functions the Commission discussed in Order No. 2000.[72] Thus, the CAISO routinely performs, or specifically directs the performance of, the following functions:

- Switching transmission elements into and out of operation on the transmission system (*e.g.*, transmission lines and transformers) ;
- Monitoring and controlling real and reactive power flows;
- Monitoring and controlling voltage levels; and
- Scheduling and operating reactive resources.

In addition, the CAISO directs emergency response activities on the ISO Controlled Grid , performs settlement and billing functions, and manages congestion, among many other activities.

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[71] *See* definition of "Operational Control" in Appendix A of the CAISO Tariff (Master Definitions Supplement).

[72] Order No. 2000 at 31,090-92.

c. The CAISO is the security coordinator for its facilities.

Order No. 2000 requires the RTO to be the NERC security coordinator for its region.[73] Prior to the formation of the CAISO, each of the separate utilities in the region operated as security coordinator for its own facilities. With the formation of the CAISO and the subsequent consolidation of the Control Areas, the NERC security coordinator function was assumed by the CAISO. The Tariff specifically provides that the CAISO "shall be the WSCC security coordinator for the ISO Controlled Grid,"[74] and CAISO dispatchers assure that the grid operates under the NERC standards administered by WSCC.

The CAISO performs each of the RTO responsibilities required by Order No. 2000. These responsibilities, which are similar to those the CAISO has assumed as NERC security coordinator,[75] are as follows:

- Performing load-flow and stability studies to anticipate, identify, and address security problems;
- Exchanging security information with local and regional entities;
- Monitoring real-time operating characteristics, such as the availability of reserves, actual power flows, interchange schedules, system frequency and generation adequacy; and
- Directing specific actions to maintain reliability, including firm load shedding.

Finally, since it began operations, the CAISO has collected information and produced reports that assess the efficiency of its operational arrangements,

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[73] *Id.*

[74] CAISO Tariff 31,090-91 § 2.3.1.1.6.

[75] *See* NERC Operating Manual, Policy 9–Security Coordinator Procedures, at http://www.nerc.com/~oc/opermanl.html.

and has sought to modify its Tariff to improve those arrangements.[76] The CAISO will continue to review those arrangements, issue reports and propose necessary modifications, in accordance with the requirements of Order No. 2000.[77]

4. Characteristic 4 – Short-Term Reliability

Order No. 2000 requires that "the RTO must have exclusive authority for maintaining the short-term reliability of the grid that it operates."[78] The Commission defined "short-term" as transmission reliability responsibility short of grid capacity enhancement.[79]

The CAISO is under a California statutory obligation to maintain power system reliability, and the Commission has found that the CAISO has exclusive authority for maintaining such short-term reliability. In the October 1997 Order approving the CAISO, the Commission found that it complied with the ISO principle that an "ISO should have the primary responsibility in ensuring short-term reliability of grid operations. Its role in this responsibility should be well-defined and comply with applicable standards set by NERC and the regional reliability council."[80]

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[76] *See, e.g.,* Amendment No. 14, *AES Redondo Beach, L.L.C., et al.*, 87 FERC ¶ 61,208 (1999) (Ancillary Services redesign); Amendment No. 17, *California Independent System Operator Corp.*, 88 FERC ¶ 61,182 (1999) (revised outage coordination protocol and pro forma PLA).

[77] *See* Order No. 2000 at 31,091-92.

[78] *Id.*

[79] *Id.* at 31,103-4.

[80] *See* October 1997 Order at 61,456-57 (1997).

The Commission has established four responsibilities that an RTO must possess to give it exclusive authority for maintaining short-term reliability. As the following discussion indicates, the CAISO currently has such responsibilities and has had them since it became operational.

a. The CAISO has exclusive authority for receiving, confirming, and implementing all interchange schedules.

First, Order No. 2000 requires that "the RTO must have exclusive authority for receiving, confirming and implementing all interchange schedules, which are often coincident with schedules for unbundled transmission service."[81] Consistent with the Commission's recognition that "[t]his function will automatically assumed by RTOs that operate a single control area,"[82] the CAISO has assumed this function for the merged Control Areas it now operates as a single integrated control area.[83] As operator of one of the largest Control Areas in the country, the CAISO is responsible for maintaining interchanges with other Control Areas and is the entity that receives, confirms, and implements all interchange schedules with such other Control Areas. All imports into and exports out of the CAISO control area, including the management of Congestion

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81 Order No. 2000 at 31,104.

82 *Id.*

83 The CAISO's authority in this area is most direct with respect to transactions that utilize the ISO Controlled Grid , i.e., those transmission facilities owned by Participating Transmission Owners over which the CAISO exercises Operational Control pursuant to the TCA. The CAISO Control Area also includes transmission facilities owned by other entities, principally government-owned utilities, over which the CAISO does not exercise Operational Control. The CAISO can only accept schedules for the use of those facilities if submitted by a Scheduling Coordinator in accordance with the CAISO's ISO Tariff, as discussed in the text.

for those imports and exports, are the responsibility of the CAISO.[84] To implement that authority, the CAISO has executed Interconnected Control Area Operating Agreements that specifically provide for the coordination of scheduling and dispatch at the interconnections.[85]

The CAISO's exclusive authority over interchange scheduling is confirmed in the CAISO Tariff. Eligible customers may transmit Energy or Ancillary Services *into*, *out of*, or *through* the ISO Controlled Grid *only* if scheduled with the CAISO through a Scheduling Coordinator. Scheduling Coordinators, in turn, are entities that: (i) are certified by the CAISO; (ii) have entered into a Scheduling Coordinator Agreement ("SCA") with the CAISO; (iii) meet specified financial and technical requirements; and (iv) have agreed to abide by the CAISO's rules, protocols, and instructions.[86] Accordingly, by requiring all transactions into, out of, or through the ISO Controlled Grid to be scheduled by an entity certified by the CAISO and contractually required to abide by the CAISO's rules, the CAISO can assure that it maintains ultimate control over the interchange scheduling process.

This control over interchange scheduling is further reinforced elsewhere in the Tariff. For example, Appendix C gives the CAISO the responsibility for

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[84] The fact that the CAISO exercises such control was made clear by its Amendment No. 25 to the CAISO Tariff which subjects Regulation from resources outside the CAISO control area to CAISO technical and contractual requirements. Amendment No. 25 was approved in *California Independent System Operator Corp.* 90 FERC ¶ 61,316 (2000).

[85] *See* § 5.1 of Interconnected Control Area Operating Agreement.

[86] CAISO Tariff §§ 2.2.3 and 2.2.3.1; *see also* the *pro forma* "Scheduling Coordinator Agreement" in Appendix B to the CAISO Tariff.

developing, resolving, and confirming all net schedules with adjacent Control Areas.[87] Section 2.2.8 confirms the CAISO's exclusive authority for adopting final schedules and making required adjustments thereto.[88] The CAISO's control over interchange scheduling is also provided for with respect to maintenance scheduling, with the CAISO being responsible for the coordination of scheduling maintenance outages on its facilities with operators of adjacent Control Areas.[89]

Order No. 2000 also discusses access to and treatment of commercially sensitive interchange scheduling information.[90] Because the CAISO is not a Market Participant, there are no concerns regarding its ability to gain a potential unfair competitive advantage or to provide information to its wholesale merchant personnel, since it has none. Moreover, the CAISO has instituted procedures for the treatment of confidential information, including interchange scheduling information, to protect it against release to third parties.[91] Pursuant to the CAISO Tariff the CAISO is required to maintain the confidentiality of all information provided by Market Participants that is deemed confidential or commercially sensitive under Section 20.3.2.[92] These provisions ensure the confidentiality of the schedules and transactions that, if disclosed, could give a competitor an

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87 CAISO Tariff Appendix C, Sheet 368, items 37 and 38.

88 CAISO Tariff §§ 2.2.8.1, 2.2.8.3, 2.2.8.4. *See also id.* at 2.2.13.2.

89 See Outage Coordination Protocol §§ 3.1.6, 5.2.

90 Order No. 2000 at 31,104.

91 CAISO Tariff § 20.3.

92 *Id.*

unfair advantage in the Energy markets. Market Participants acting as Scheduling Coordinators or otherwise engaging in transactions on the ISO Controlled Grid are also bound by the CAISO Tariff's requirement to protect confidential information.[93]

b. The CAISO has the right to order redispatch of any generator connected to transmission facilities it operates if necessary for the reliable operation of those facilities.

The second responsibility that an RTO must assume to satisfy the Short-Term Reliability Characteristic is "the right to order the redispatch of any generator connected to the transmission facilities it operates, if necessary for the reliable operation of the transmission system."[94] The RTO must also develop procedures allowing generators to offer their services and be compensated if they are redispatched in order to support system reliability.[95] The Commission has recognized that the CAISO's Tariff and PGAs allow it to order the redispatch of any Generator connected to the ISO Controlled Grid for reliability purposes.[96]

The CAISO's authority over redispatch is well-developed in its Tariff and agreements with Generators. Section 5.1.3 of the CAISO Tariff provides that each Generator must take specified actions at the direction of the CAISO should the CAISO deem them necessary to maintain reliability.[97] Similarly, Section 5.6

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93 *Id.*

94 Order No. 2000 at 31,104.

95 Order No. 2000 at 31,103; *see* Order No. 2000 Rehearing at 31,373.

96 *California Independent System Operator Corp.*, 90 FERC ¶ 61,006 at 61,010 (2000) ("Amendment No. 23 Order").

97 CAISO Tariff § 5.1.3.

provides that all Generating resources scheduled over the ISO Controlled Grid are subject to supervisory control by the CAISO during threatened or actual System Emergencies. In such cases, the CAISO may order any Generating Unit to be brought on- or off-line, to increase or curtail output, or to alter scheduled deliveries of Energy and Ancillary Services into or out of the ISO Controlled Grid , if such action is reasonably necessary to prevent an imminent or threatened System Emergency or to permit the CAISO to retain control over the system during an emergency.[98]

Generators are contractually bound to adhere to these Tariff provisions. The PGA states specifically that a Participating Generator "will comply with all applicable provisions of the ISO Tariff, *including Section[s] . . . . 5*"; thus, the terms of the Tariff are specifically incorporated into the PGA.[99] Further, in submitting bids, generators warrant that they will comply with CAISO dispatch instructions.[100]

The Commission has found that these provisions of the CAISO's Tariff and related agreements provide the CAISO with the authority to order redispatch "when the [CAISO] deems it necessary to protect system reliability."[101] The

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98 CAISO Tariff § 5.6.1.

99 *See Pro Forma* PGA § 4.2 (emphasis added). "Participating Generators" are those Generators connected to the ISO Controlled Grid , whereas other Generators in the CAISO Control Area are defined in the CAISO tariff as "Generators". Generators do not currently have to abide by the CAISO's orders, but they have voluntarily done so in System Emergencies.

100 *Id*. at § 4.3.1.

101 Amendment No. 23 Order, 90 FERC ¶ 61,006 at 61,010.

CAISO's authority over redispatch as necessary to resolve or prevent emergencies was undercut, however, by the Commission's Order denying the CAISO this power under certain financial circumstances.[102] The CAISO continues to believe that suppliers of generation services to the public have certain obligations under the FPA, and should not be treated in every instance identically with private, profit-making entities. Nevertheless, the CAISO still retains sufficient redispatch authority to satisfy the requirements of Order No. 2000.

c. The CAISO has authority over all requests for scheduled transmission outages to ensure that the outages can be accommodated within reliability standards.

The Commission has held that "when the RTO operates transmission facilities owned by other entities, the RTO must have authority to approve and disapprove all requests for scheduled outages of transmission facilities to ensure that the outages can be accommodated within established reliability standards."[103] The Commission has approved provisions of the CAISO Tariff giving the CAISO responsibility for coordinating and approving all outages of transmission facilities forming part of the ISO Controlled Grid .[104]

These Tariff provisions are consistent with the requirements of Order No. 2000, in that they give the CAISO authority to: (1) be apprised of all outage schedules; (2) review and test such proposed outage schedules against reliability

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[102] Ca*lifornia Independent System Operator et al.*, 94 FERC ¶ 61,132 (2001), *rehearing pending*.

[103] Order No. 2000 at 31,092.

[104] *See*, *e.g., Pacific Gas & Electric Co., et al.*, 81 FERC at 61,456-57.

criteria; (3) approve specific requests for scheduled outages; (4) require changes to schedules when the schedules do not meet reliability criteria; and (5) update and publish maintenance schedules as needed.[105]

The CAISO has an Outage Coordination Office that is responsible for Maintenance Outages of all facilities forming part of the ISO Controlled Grid, as well as certain Generation Units.[106] The CAISO also coordinates and approves outages required for new construction and work on de-energized and live transmission facilities.[107] Prior to taking a transmission facility out for service, the operator of the transmission facility must obtain the approval of the Outage Coordination Office.[108] Each year, a transmission facility operator must provide the CAISO with a program of all Maintenance Outages it wishes to undertake during the following year.[109] Additionally, the CAISO has established a procedure for short-term scheduling of Maintenance Outages, subject to 72 hours advance notice.[110] The CAISO has ultimate authority for approving such requests upon evaluation of reliability schedules.[111] As required by the

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105 Order No. 2000 at 31,104-05.

106 CAISO Tariff §§ 2.3.3, 2.3.1.1.4; *see also* TCA at Section 7.

107 CAISO Tariff §§ 2.3.3.1, 2.3.1.1.5. (*See also* Outage Coordination Protocol, Section s 3 and 5.)

108 CAISO Tariff § 2.3.3.2; *see* TCA at Section 7.

109 CAISO Tariff § 2.3.3.5; *see* TCA at Section 7.

110 CAISO Tariff § 2.3.3.5.

111 CAISO Tariff § 2.3.3.5.3. Under some circumstances, this authority extends to other California control area transmission facilities, even if not part of the ISO Controlled Grid . Further, the CAISO may exercise temporary operational control over the facilities

Commission,[112] approval is based on accommodation of state, regional, and national reliability standards.

Order No. 2000 also held that transmission owners are entitled to compensation for actual costs incurred if RTO-approved maintenance subsequently is rescheduled.[113] The Commission has approved an amendment to the CAISO Tariff providing that the CAISO will compensate transmission owners for direct and verifiable costs in the event that previously-approved maintenance must be rescheduled.[114]

In its discussion of transmission maintenance approval in Order No. 2000, the Commission also encouraged the development of performance standards for transmission facilities.[115] The CAISO's agreements with Participating Transmission Owners already provide for such standards and permit the CAISO to impose penalties thereunder to ensure both adequate maintenance and system reliability.[116]

The CAISO currently has authority to approve or disapprove Maintenance Outages of Generating Units that have been designated as Reliability Must-Run

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of a Participating Transmission Owner that are not part of the ISO Controlled Grid under limited circumstances (*e.g.*, to prevent or remedy an imminent system emergency). TCA at Section 4.5.2.

112 Order No. 2000 at 31,104-105.

113 Id. at 31,105.

114 *See California Independent System Operator Corp.*, 91 FERC ¶ 61,341 (2000).

115 Order No. 2000 at 31,105.

116 *See* TCA at §§ 14.1, 14.4, 14.5, and Appendix C. *See also* CAISO Tariff § 2.3.2.9.3 (sanctions for both transmission and generation where practices prolonged or contributed to an outage).

(RMR) Units, as well as changes in scheduled maintenance of non-RMR generating units.[117] Pursuant to the Commission's April 26 Order,[118] the CAISO has filed with the Commission a proposal to apply these same outage coordination requirements to all Generating Units owned by any Participating Generator.[119] The proposed Tariff revisions also make explicit that Participating Generators are required to provide the CAISO with timely explanations of Forced Outages, so that the CAISO can report questionable outages to the Commission. Under the CAISO's proposal, Participating Generators may obtain compensation for direct and verifiable costs incurred due to a "last-minute" cancellation of a previously approved Maintenance Outage. The ISO anticipates that this coordinated approach to Generator outage scheduling will reduce the need for rescheduling or modification of approved Generator Maintenance Outages to address or prevent System Emergency conditions. The Commission recognizes that the CAISO needs such authority in order to ensure transmission system reliability, particularly under the difficult circumstances now existing in California.[120] Finally, the CAISO makes aggregate information regarding planned generation outages available to the market to assist it in identifying available

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117 CAISO Tariff § 2.3.3.1.7

118 *San Diego Gas & Electric Co. v. Sellers of Energy, et al..*, 95 FERC ¶ 61,115 at 61,355-56 (2001).

119 *See* CAISO's Compliance Filing, May 11, 2001, Docket No. EL00-95-000 et al.

120 *See* October 1997 Order at 61,514.

capacity and possible congestion conditions caused by such outages.[121] This authority is consistent with Order No. 2000's preference for RTO proposals that include some authority over generation maintenance schedules.[122]

One of the challenges faced by the CAISO in this area is the fact that some major transmission facilities in California and interconnections with other control areas are owned by entities that are not Participating Transmission Owners. The CAISO's ability to coordinate outages of its facilities with the facilities of these other entities is limited. While the non-Participating Transmission Owner entities generally have cooperated well with the CAISO in the past, closer coordination is needed to ensure grid reliability. Ultimately, the best solution to this problem will be to induce the non-Participating Transmission Owner entities to join the CAISO, a solution toward which CAISO has and will continue to put significant resources.

d. The CAISO operates under reliability standards at least as stringent as those established by NERC, and will report to the Commission if these or other standards prevent it from providing reliable, non-discriminatory transmission service.

The Commission requires that "the RTO must perform its functions consistent with established NERC (or successor) reliability standards, and notify the Commission immediately if implementation of these or any other externally established reliability standards will prevent it from meeting its obligation to

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[121] *See* CAISO Tariff §§ 5.5.1; 5.5.2, Outage Coordinator Protocol; §§ 2.2; 2.3. Those sections provide for the CAISO to obtain the details of planned maintenance of Participating Generators. Consistent with Order No. 2000 (at 31,105), the CAISO does not make individual generation maintenance data available to other market participants and retains its confidentiality.

[122] Order No. 2000 at 31,105.

provide reliable, non-discriminatory transmission service."[123] The CAISO meets this requirement.

Pursuant to its Tariff, the CAISO must operate "the ISO Controlled Grid to meet planning and Operating Reserve criteria no less stringent than those established by the WSCC and NERC.[124] The CAISO is also bound by Local Reliability Criteria submitted to the CAISO by each Participating Transmission Owner pursuant to Section 2.2.1(v) of the TCA.[125] The TCA also provides that the CAISO, Participating Transmission Owners, and other participants in the market are to develop reliability criteria for the ISO Controlled Grid that "shall be in compliance with the reliability standards promulgated by NERC, WSCC, Local Reliability Criteria and Nuclear Regulatory Commission grid criteria related to operating licenses for nuclear generating units."[126]

Moreover, the CAISO Tariff provides that the CAISO may establish more stringent criteria than those established by WSCC, NERC, or the Local Reliability Criteria[127] should this be necessary to ensure reliable, non-discriminatory, and efficient transmission service.

The CAISO also confirms that it will inform the Commission immediately if implementation of any change in the reliability standards identified above would

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123 *Id.* at 31,106.

124 CAISO Tariff § 2.3.1.3.1.

125 CAISO Tariff § 2.3.1.3.1.

126 TCA at § 5.1.5.

127 CAISO Tariff § 2.3.1.3.2.

create a threat to the CAISO's ability to provide reliable, nondiscriminatory service. Thus, the CAISO satisfies this aspect of Order No. 2000's Short-Term Reliability requirement as well.

B. Required Functions of an RTO

In addition to the four required characteristics, Order No. 2000 sets forth eight functions that an RTO must perform. The CAISO currently performs each of these functions.

1. Function 1-- Tariff Administration and Design

a. Rule Requirements.

Order No. 2000 requires an RTO to be the sole provider of transmission services on the grid that it operates, as well as the sole administrator of its own open access transmission tariff.[128] This function includes the requirement that the RTO have independent authority to file tariff changes.[129] In addition, the RTO, and not Transmission Owners, must have sole authority "for the evaluation and approval of all requests for transmission service, including requests for new interconnections." Finally the RTO tariff must not provide for multiple Access Charges.

b. CAISO Function

The CAISO satisfies the requirements of this function in all respects. The CAISO is the sole provider of transmission service over the transmission facilities

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[128] Order No. 2000 at 31,108.

[129] *Id.*

it operationally controls. The CAISO is charged with providing open and non-discriminatory access on its grid to all Eligible Customers.[130] The CAISO acts as transmission provider in the strongest sense of the phrase, actually controlling all scheduled access to the ISO Controlled Grid. All requests for transmission service on the ISO Controlled Grid must be submitted to the CAISO in the form of transmission schedules. These requests for service are then evaluated and either approved or denied by the CAISO, pursuant to the terms of its Tariff.[131] In this manner, all transmission service through the ISO Controlled Grid is fully controlled and administered by the CAISO.

As explained in Section A.3, above, the CAISO has exclusive and independent authority over its FERC-approved Tariff, including the ability to file changes to the Tariff. Section 19 of the Tariff provides unambiguously that the CAISO has this authority, which is defined as a "unilateral" right. Moreover, as also explained above, the CAISO's operations for over three years confirm the CAISO's unfettered ability to exercise this right, with many tariff filings having been made over the strong objections of Market Participants.[132]

The CAISO also has the authority to review and approve requests for new interconnections. The process currently in effect is a collaborative one in which the Participating Transmission Owner establishes standards and performs studies regarding the interconnection, in collaboration with the CAISO. The

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130 CAISO Tariff at § 2.1.1.

131 CAISO Tariff at § 2.2.2.

132 *See* discussion at A.3, above.

CAISO, however, has ultimate authority in the interconnection process, subject to dispute resolution in accordance with the CAISO Tariff. In addition to the CAISO's general obligation to provide non-discriminatory access, no interconnection and actual flow of Energy will take place until the Generator "has demonstrated to the ISO's reasonable satisfaction that it has complied with or is capable of complying with all of the requirements of [the CAISO Tariff section governing interconnection]."[133] Moreover, although the Participating Transmission Owner's standards govern interconnection in the first instance, the CAISO's revised standards and protocols, filed with the Commission as Amendment 39 to the CAISO Tariff on April 2, 2001, will be paramount and will supersede those of the Participating Transmission Owner if there is a conflict.[134]

The CAISO also ensures that it has control of interconnection through the TCA. Under that agreement, the CAISO and the Participating Transmission Owner agree to permit interconnection in a non-discriminatory manner.[135] The Participating Transmission Owner also agrees to perform necessary studies and other tasks to support requested interconnections.[136] The CAISO, in turn, is required to review and develop consistent interconnection standards across its grid,[137] to coordinate the review of requests, and forward any additional

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133 CAISO Tariff at § 5.7.1.

134 CAISO Tariff at § 5.7.2.

135 TCA at § 10.2.

136 *Id.* at § 10.3.

137 *Id.* at § 10.4.1.

comments or requests regarding the interconnection to the Generator requesting interconnection.[138]

The CAISO has sought to make certain aspects of its interconnection process more responsive to market forces through a stakeholder process.[139] The CAISO's original effort in this direction was not accepted by the Commission due to questions regarding the CAISO's Congestion Management process. Based on subsequent discussions with stakeholders, the CAISO filed with the Commission revisions to its interconnection procedures and rules as Amendment 39. These revisions set forth clear, uniform, and non-discriminatory procedures for interconnecting new generating capacity to the ISO Controlled Grid; these procedures also clearly establish cost responsibilities of new generators, reducing uncertainty and risk and allowing more effective planning.[140]

Finally, the Access Charge for the transmission of power throughout the ISO Controlled Grid is a single, non-pancaked charge.[141] This is consistent with the Commission's requirement that the tariff of an RTO not have multiple access charges.[142] Revisions to the Access Charge methodology are the subject of settlement judge proceedings established on Amendment No. 27.[143]

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138 *Id*. at § 10.4.2.

139 *See California Independent System Operator Corp.*, 88 FERC ¶ 61,221 (1999); *California Independent System Operator Corp.*, 90 FERC ¶ 61,086 (2000).

140 *See e.g.* Comprehensive Market Reform Long Term Grid Planning and New Facility Connection Presentation, Aug. 18, 2000 at 27-31 (http://www.caiso.com/clentserv.).

141 CAISO Tariff § 7.

142 The Commission found in the October 1997 Order that the CAISO complied with

In sum, the CAISO satisfies each of the tests that the Commission has established for the Tariff Administration and Design Function.

2. Function 2 – Congestion Management

a. Rule Requirements

Order No. 2000 requires RTOs to "ensure the development and operation of market mechanisms to manage congestion," and dictates that the market mechanisms be operated either by the RTO itself or by an unaffiliated entity.[144] The RTO must take "an active role in developing and implementing any congestion" solutions and must provide transmission customers with efficient price signals.[145] The Order does not prescribe a specific congestion pricing method, noting that the particular circumstances of an individual RTO will dictate the method best suited for it, but it does require that (i) the market mechanism assure that Generation dispatched to alleviate congestion is the Generation that can serve loads at least cost and (ii) limited transmission capacity be allocated to Market Participants that value it most highly.[146] Finally, the Commission will require an RTO to have "effective protocols for managing congestion" in place at

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a requirement similar to this RTO function that "an ISO should provide open access to the transmission system and all services under its control at non-pancaked rates pursuant to a single, unbundled, grid-wide tariff that applies to all eligible users in a non-discriminatory manner." October 1997 Order at 61,455-56.

[143] *See California Independent System Operator Corp.*, 91 FERC ¶ 61,205 at 61,730 (2000).

[144] Order No. 2000 at 31,109.

[145] *Id.* at 31,126.

[146] *Id.* at 31,125.

its startup, but will allow one year after startup for implementation of the market mechanisms required by the Order.[147]

b. CAISO Function

Since its inception, the CAISO has had in place a market-based system to manage and alleviate Congestion. That system, developed before the CAISO began operations, originally appeared capable of managing both inter-zonal and intra-zonal Congestion effectively.[148] It used locational zonal prices to identify the value of access to congested interfaces, and accepted bids by Scheduling Coordinators to allocate capacity to those Scheduling Coordinators who placed the highest value on such access.

Subsequently, however, in response to concerns expressed by the Commission, and in conformance with the Commission's order on Amendment No. 23,[149] the CAISO initiated a comprehensive review of its Congestion Management System ("CMS").

The CAISO began the process of overhauling the CMS through an open and active stakeholder process pursuant to the Commission's Order on Amendment No. 23 to the CAISO Tariff. It engaged in extensive discussions on the elements of a new CMS, as well as related elements of redesigned markets. The Commission initially directed the CAISO to file its Congestion Management

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147 *Id.* at 31,128.

148 It was approved by the Commission as consistent with a similar ISO principle. "An ISO should identify constraints on the system and be able to take operation actions to relieve those constraints within the trading rules established by the governing body. These rules should promote efficient trading." 81 FERC at 61,457-58.

149 *California Independent System Operator Corp.*, 90 FERC ¶ 61,006 (2000).

Redesign proposal no later than January 31, 2001.[150] The submission of a revised CMS design has been delayed by the CAISO's focus on meeting the immediate challenge of maintaining reliable service, and by ongoing changes in market design resulting from efforts to stabilize the markets. However, the CAISO believes that it can submit a long-term CMS design proposal by the end of 2001, for implementation in late 2002 or early 2003. Thus, in a time-frame that is certainly reasonable considering the exigencies confronting California's electricity markets, the CAISO expects to have a second-generation congestion management system in operation with enhancements that will improve its ability to ensure the most efficient possible use of scarce transmission capacity when congestion is present.

3. Function 3 -- Parallel Path Flow

a. Rule Requirement

The Order requires the RTO to have in place measures to address parallel path flows ("loop flows") within its region at the time of RTO startup. For parallel path flows between regions, the RTO will have up to three years after startup to implement ameliorative measures.[151]

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[150] The Commission acknowledged that there is no evidence that the current Congestion Management system contributed to high prices during the past summer, but reiterated its earlier conclusion that the current Congestion Management system is fundamentally flawed and needs to be overhauled or replaced. Therefore, the Commission required that the proposal, at a minimum, include a larger number of zones that significantly address congestion on the system.

[151] Order No. 2000 at 31,129.

b. CAISO Function

The CAISO satisfies this requirement. The CAISO's approach to scheduling transmission services eliminates the problems associated with loop flows within and between the systems of the Participating Transmission Owners. This is because contract paths play no part in determining the level of the transmission Access Charge, the allocation of Access Charge revenues, or the responsibility of Market Participants for usage charges.[152] As for loop flow issues outside the CAISO region, these currently are resolved by compliance with the Unscheduled Flow Mitigation Procedures for the California sub-region under policies applicable in the WSCC.[153] The CAISO is the designated administrator of these procedures in its agreements with neighboring Control Areas and coordinates with these Control Areas on this issue.[154] Within the three-year window provided in Order No. 2000, the CAISO intends to implement a coordination agreement with other entities in the region as they form to develop and implement measures to continue to address loop flow issues, building upon established WSCC procedures.

4. Function 4 - Ancillary Services

a. Rule Requirements

Order No. 2000 requires the RTO to serve as "provider of last resort for all Ancillary Services required by Order No. 888 and subsequent orders," although it

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152 CAISO Tariff § 7.1 et seq.

153 *See* WSCC Unscheduled Flow Mitigation Plan, Rev. Dec. 26, 1996, Att. 1.

154 *See* Interconnected Control Area Operating Agreement, § 7.2

need not supply these services itself.[155] However provided (through contractual arrangements, by direct or indirect control of generation, or via market mechanisms), the Ancillary Services must be provided for in the RTO transmission tariff.[156] Market Participants must have the option to self-provide or to arrange with third parties for their Ancillary Services needs, and the RTO must determine whether such arrangements are adequate.[157] The RTO should determine the minimum amounts of each Ancillary Service and the locations at which they are provided. The RTO is to be responsible for promoting the development of competitive Ancillary Services markets "wherever feasible" and must provide real-time balancing markets to ensure non-discriminatory access to the grid.[158]

b. CAISO Functions

The CAISO meets Order No. 2000's Ancillary Services requirements. The Commission, in its October 1997 Order, found that the CAISO complies with a similar ISO principle that: "An ISO's transmission and ancillary services pricing policies should promote the efficient use of and investment in generation, transmission, and consumption."[159]

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155 Order 2000 at 31,140.

156 *Id.* at 31,141.

157 *Id.*

158 *Id.* at 31,142-43.

159 81 FERC at 61,459.

First, the CAISO Tariff provides that the CAISO is the supplier of last resort of Ancillary Services to maintain the reliability of the ISO Controlled Grid .[160] The CAISO establishes the required technical standards for such services and determines their adequacy.[161] All such services are acquired competitively. For some services, Regulation, Spinning, Non-Spinning, and Replacement Reserves, the CAISO operates Day-Ahead and Hour-Ahead Markets for the least-cost procurement of the service, consistent with reliability requirements.[162] The other two Ancillary Services, Voltage Support and Black Start capability, are procured through contracts,[163] and the CAISO seeks suppliers for these services through competitive procurement processes. Second, the CAISO permits Market Participants to self-supply Ancillary Services or to procure them through trades from third parties within or outside the CAISO Control Area (where technically feasible).[164] The Commission has approved amendments to the CAISO Tariff to expand the availability of Ancillary Services resources from outside the CAISO Control Area to allow for the import of Regulation.[165] The

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160 CAISO Tariff at § 2.5.1.

161 CAISO Tariff at § 2.5.2; *see* Ancillary Services Requirements Protocol (establishing basic and specific standards).

162 CAISO Tariff at § 2.5.5.

163 "The ISO shall contract for Voltage Support annually (or for such other period as the ISO may determine is economically advantageous) and on a daily or hourly basis as required to maintain system reliability. The ISO shall contract annually (or for such other period as the ISO may determine is economically advantageous) for Black Start Generation." CAISO Tariff at §§ 2.5.5. *See also* §§ 2.5.18 and 2.5.19.

164 CAISO Tariff at §§ 2.5.1, 2.5.7.4, *et seq.*, 2.5.20 *et seq.* Voltage Support and Black Start remain subject to exclusive procurement by the CAISO. *Id.* at § 2.5.20.4.

165 *See California Independent System Operator Corp.*, 90 FERC ¶ 61,316 (2000).

Tariff also gives the CAISO specific authority to schedule Ancillary Services and to determine the required quantity and location of the Ancillary Services, consistent with the CAISO's reliability requirements.[166] The CAISO also monitors and controls the dispatch of Generation providing Ancillary Services.[167]

The CAISO operates a real-time Imbalance Energy market (a spot market) that is available to sellers throughout the entire Western Region of the United States, exceeding the requirements of Order No. 2000.[168] The CAISO accepts Supplemental Energy bids to assist in meeting imbalance needs,[169] and then selects the least-cost resource available to satisfy Imbalance Energy requirements in real-time;[170] customers pay for all imbalances incurred.[171] Under the original design, it was anticipated that this market would be utilized to meet no more than approximately five percent of the Control Area Load. However, increasingly over time, and especially during the high-load periods of the summer of 2000, more and more load began "migrating" to the real-time market, so that what had been intended as an imbalance market became a full-fledged, real-time Energy market in which twenty percent or more of total system Energy was often traded.

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166 CAISO Tariff at §§ 2.5.3, 2.5.4, and 2.5.21. *See Id*. at § 2.5.3.5.

167 *Id*. at §§ 2.5.3, 2.5.22.10, 2.5.25, *et seq*.

168 CAISO Tariff at § 2.5.22, *et seq*.

169 *Id*. at § 2.5.22.4, *et seq*.

170 *Id*. at § 2.5.22.6.

171 *See e.g. California Independent System Operator Corp.*, 91 FERC ¶ 61,324

Accordingly, in its December 15 Order, the Commission specified steps to be taken to correct the "migration" problem until California's Generation scarcity situation was ameliorated. Among other things, the Commission ordered the CAISO to establish a penalty charge for deviations in excess of the greater of 10 MW or five percent of an entity's hourly load requirements. Loads in excess of this deviation band that are not scheduled in the Day-Ahead or Day-Of Markets will be assessed a penalty charge of two times the CAISO's real-time Energy cost for any purchase of balancing energy during the hour, not to exceed $100/MWh. The Commission directed the CAISO to disburse at the end of the billing period all penalty revenues (revenues above costs) *pro rata* to the loads that scheduled accurately and that did not exceed the five percent deviation band for that hour. The Commission also directed the CAISO to no longer pay generators that schedule in the real-time market both the replacement reserve and energy prices for this generation, thus removing the incentive for generators to wait for the real-time market to schedule their energy.[172] Finally, the Commission directed that the CAISO should consider other market design changes that would address the "migration" problem.[173]

Southern California Edison and Pacific Gas & Electric have requested that the Commission suspend the underscheduling penalty pending resolution of the

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(2000).

172 93 FERC ¶ 61,294.

173 *Id.*

current crisis in California's electricity markets.[174] The Commission has deferred action on the substance of this request.[175] Because the extremely weak financial condition of these two utilities makes it impossible for them to forward contract as contemplated, and because the resulting underscheduling penalties are creating a further drain on their finances (with over $400 million in such penalties to date), the CAISO believes that it is imperative that the Commission suspend the penalty. The CAISO believes that such an action in support of the public interest would be in no way inconsistent with its compliance with the requirements of Order No. 2000, which provide considerable flexibility in how Ancillary Services requirements are to be met.

Function 5 – OASIS and Available Transmission Capability (ATC)

a. Rule Requirements

Order No. 2000 requires the RTO to be the single OASIS site administrator for the transmission facilities under its control.[176] The RTO must also calculate the ATC values and develop procedures through which the validity of its ATC values may be determined. It is also to coordinate its ATC values with adjacent regions.[177]

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[174] The CAISO made a similar proposal in its Amendment 38, filed with the Commission on March 20, 2001. While the Commission has rejected this portion of the proposed Amendment, SCE's and PG&E's request remains pending in Docket No. EL01-34-000 et al. *See California Independent System Operator Corp.*, 95 FERC ¶ 61,199 (2001) at 61,691-692.

[175] 95 FERC ¶ 61,025.

[176] Order No. 2000 at 31,145.

[177] *Id.* at 31,145-46; Order No. 2000 Rehearing at 67.

b. CAISO Functions

The CAISO satisfies this function. It operates the single OASIS information system for the ISO Controlled Grid . It also calculates TTC and ATC for the facilities it operates based on the information provided by Participating Transmission Owners.[178] The information is based on capacity ratings established for the equipment by the WSCC, and any derating must be fully justified by the Participating Transmission Owner. The CAISO has the authority to investigate information that appears unreliable, consistent with the obligation in Order No. 2000 to verify the information.[179] While the Commission has expressed confidence in the accuracy and reliability of the CAISO's past ATC calculations,[180] the CAISO is in the process of further upgrading its OASIS, putting into place, among other things, additional methods for producing even greater assurance that the information it receives to calculate ATC is reliable. These calculations are used in order to schedule transactions and determine the number of Firm Transmission Rights that can be made available.[181]

Through the CAISO's web-based scheduling interface, Scheduling Coordinators receive current and non-discriminatory access to TTC and ATC

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[178] CAISO Tariff at Appendix C, line O, Original Sheet No. 365.

[179] Order No. 2000 Rehearing at 67.

[180] *California Independent System Operator Corp.*, 87 FERC ¶ 61,143 at 61,576 (1999) ("we have no concern regarding the ISO's capability of performing [ATC and FTR] calculations accurately and reliably").

[181] The CAISO's methodology for calculating the quantities available for FTRs also has been found reasonable. *See California Independent System Operator Corp.*, 88 FERC ¶ 61,156, 61,526-27 (1999).

information on transmission capacity and scheduling.[182] Through its Public Market Information ("PMI") display, the CAISO also publishes additional information about the markets it operates, including current data on transmission system conditions, load forecasts, Operating Reserve and Ancillary Service requirements, total and available capacity of inter-zonal interfaces, scheduled line outages, and generator meter losses. The CAISO also publishes information on prices for its various markets, as well as quantities procured.[183]

6. Function 6 - Market Monitoring

a. Rule Requirements

Order No. 2000 provides that an RTO must adopt a market monitoring plan that meets certain standards.[184] The plan must provide objective information about the markets the RTO operates and must evaluate the behavior of Market Participants to determine whether this behavior is adversely affecting the RTO's ability to provide non-discriminatory transmission service. The plan must also assess how the RTO's markets and other markets affect each other. The RTO is to identify the markets that it will monitor (transmission, ancillary services, congestion management, and others), and examine the structure, compliance with rules, behavior of participants, and market power issues presented by the operation of those markets. The market monitoring plan should also identify and justify proposed sanctions for market misconduct, and how they

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182 CAISO Tariff at § 6.1, *et seq*.

183 *Id; see* http://www.caiso.com/marketops/OASIS/index.html.

184 Order No. 2000 at 31,156

will be implemented. Finally, the plan should indicate the type, frequency, and recipients of reports that will be issued.[185]

b. CAISO Functions

In its December 15 Order, the Commission outlined both short-term and long-term strategies for addressing market power in California, ordering that, in the short term, market power be mitigated through certain modifications to the CAISO's price cap regime.[186] Subsequently, in its April 26 Order, the Commission adopted a new price mitigation regime.[187] While the CAISO believes that this new mitigation regime has serious deficiencies (for the reasons set forth in the CAISO's Request for Rehearing), the CAISO's larger market monitoring process complies with Order No. 2000's requirements. The CAISO has presented numerous reports to the Commission identifying specific instances and patterns of the exercise of market power by suppliers in the markets that use the ISO Controlled Grid . It has presented recommendations regarding how to mitigate the rampant exercise of market power. It is ultimately up to the Commission, however, to permit the CAISO to establish and implement effective mechanisms to limit prices to just and reasonable levels.

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185 *Id*. at 31,157-58.

186 93 FERC ¶ 61,294. For the longer term, the Commission has directed the CAISO to consider less intrusive, narrowly tailored market protection mechanisms, and has directed the CAISO to work with the Commission's staff to develop such long-term mechanisms. Such mechanisms could take the form of the ex ante identification of conditions or behavior that would trigger specific market mitigation actions. The CAISO's DMA has been monitoring and analyzing these market power issues for many months, as well as exploring possible solutions.

187 95 FERC at 61,358.

The CAISO Tariff provides in Sections 2.6 and 16.3 that the CAISO will monitor the operation of the markets it administers to identify and institute corrective action in response to exercises of market power or other abuses, or to improve the efficiency of the markets.[188] The CAISO has put in place the tools that it will need to carry out this responsibility over the long term.

The CAISO has established a specific and detailed market plan that is appended to its Tariff as the Market Monitoring and Information Protocol ("MMIP"). The CAISO has also established a Department of Market Analysis ("DMA"),[189] assigned to monitor and analyze market performance and to develop market design modifications to improve performance. In addition, the CAISO has established a Market Surveillance Committee, an external, funded, independent committee empowered to issue reports to the Board, the public, and the Commission without CAISO management or Board approval.[190] This committee consists of nationally recognized experts capable of assessing market performance and making recommendations where it finds improvement warranted. This committee has free access to whatever market data it needs to conduct its assessments.[191] Where monitoring reveals a potential or actual exercise of market power in the CAISO's markets, the MMIP requires that the

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188 CAISO Tariff Volume III, Appendix L, Sheet No. 491, *et seq.*

189 *See* Market Monitoring and Information Protocol § 3. The DMA includes three Ph.D. economists, a Ph.D. statistician, a Ph.D. in Energy Management and Policy, and two M.S. economists. The DMA has its own market monitoring hardware and software.

190 *Id.* at § 6.1, *et seq.*

191 *Id.* at §§ 6.1, 6.2.

DMA take or recommend corrective action (including publication of relevant market information, recommendation of amendments to the CAISO Tariff or protocols, or recommendation for action by regulatory or antitrust enforcement agencies).[192] For activities in outside markets, the DMA is empowered to recommend corrective action to the appropriate regulatory agencies.[193] The corrective action recommended can include fines, penalties, or other sanctions, as approved by the Commission.

The DMA has designed an information system and criteria for evaluating collected market data in accordance with the MMIP,[194] and produces quarterly reports providing the results of its evaluation to the Market Surveillance Committee and the CAISO's CEO,[195] including recommended actions. The DMA also produces quarterly reports for the CEO and Market Surveillance Committee and an annual report for the Board of Governors.[196] These reports, as well as certain data collected by the CAISO, are made available to the public through the CAISO's website.[197] Additionally, the MMIP provides that the DMA shall submit annual and special reports to the Commission and other regulatory agencies, as required by the Board of Governors.[198]

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192 *Id.* at §§ 2.3.1, 2.3.2, 2.3.3.

193 *Id.*

194 *Id.* at § 4.1.1.

195 *Id.* at § 4.4.1.

196 *Id.*

197 *See id.* at §§ 8.1, 8.2.

198 *Id.* at §§ 4.4.2, 8.3. The Commission has acknowledged that the CAISO is

The Market Surveillance Committee is similarly charged with evaluating market data, either at the request of the DMA, the CEO, or Governing Board, or on its own motion, and preparing reports.[199] The Committee's reports, including recommendation, are to be made publicly available.[200] In addition, consistent with the Commission's direction in the November 1 and December 15 Orders, the MSC's reports will be submitted to the Commission at the same time they are made available to the ISO's Board of Governors.

7. Function 7- Planning and Expansion

a. Rule Requirements

Order No. 2000 requires an RTO to have ultimate responsibility in its region for transmission planning and expansion to support efficient, reliable, and non-discriminatory service, and to exercise this responsibility in a manner that

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committed to producing annual public reports on market power abuses and market design flaws. *See* FERC SR ¶ 32,541 at 33,780 (RTO NOPR).

[199] *Id*. at § 6.2.

[200] *Id*. at §§ 6.3.1, 6.3.2. While the CAISO is still studying the longer-term MMIP procedures that should be put in place, it has concluded that local market power will likely need to be treated differently from system-wide market power. Local market power mitigation ("LMPM") is expected to be a long-term feature of the California electricity market. The Commission has indicated that its proposed market power mitigation measures are temporary and will be terminated at the end of a 12-month transition period (i.e., by May 29, 2002). In contrast, LMPM is not a temporary measure – it will be needed as long as there are local transmission constraints that require the services of location-specific resources to ensure reliability, in areas where there is no workable competition for these services. In some areas of the grid these services will be needed continually (e.g., daily), and in other areas they may be needed periodically (e.g., seasonally, or when there are facility outages or derates). The market design reform proposal being developed by the CAISO includes mechanisms for procuring local resources needed for local reliability, with specific measures to mitigate local market power.

coordinates with appropriate state regulatory authorities.[201] This responsibility encompasses decisions to build, arrangement for the construction of projects, and compensation for construction, including ultimate allocation of costs.[202] In addition, the Commission has identified three separate requirements that must be satisfied by an RTO in assuming this responsibility: (1) the RTO must encourage market-motivated operating and investment actions for preventing and relieving congestion; (2) it must accommodate efforts by state regulatory commissions to create multistate agreements to review and approve new transmission facilities, coordinated with programs of existing Regional Transmission Groups (RTGs) where necessary; and (3) it must file a plan with the Commission with specified milestones that will ensure that it meets the overall planning and expansion requirement no later than three years after initial operation, if the RTO is unable to satisfy this requirement when it commences operation.[203]

b. CAISO Functions

The planning process adopted originally by the CAISO satisfies many of the features required by the Commission for the planning function, and the further enhancements currently being formulated will assure that most of the remaining features will be satisfied even before the RTO filing deadline.[204] In

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201 Order No. 2000 at 31,163.

202 *Id.* at 31,164; Order No. 2000 Rehearing at 31,181.

203 *Id.* at 31,163-64.

204 *See e.g.* Comprehensive Market Reform Long Term Grid Planning and New Facility Connection Presentation, Aug. 18, 2000 at 7-24

addition, as discussed above, the CAISO is conducting an analysis of congestion management that will result in a revised Congestion Management program. Once implemented, the combination of the congestion management program and the revised planning process will allow the CAISO to satisfy the requirement to have in place a system that provides the proper price signals and incentives for market solutions to congestion, within Order No. 2000's three-year timeframe. The CAISO therefore satisfies the requirements of the Planning Function.

At the present time, the CAISO involves Participating Transmission Owners and other Market Participants in a planning process covering a minimum five-year planning horizon.[205] This process places upon the CAISO the responsibility to review, suggest changes to, and approve plans developed in the first instance by Transmission Owners in coordination with the CAISO, and also permits the CAISO and other sponsors to propose new projects required for reliability or economic reasons.[206] The existing planning process also provides for the CAISO to consider lower cost alternatives to proposals regarding reliability projects.[207] Disputes concerning the need for or suggested changes to a project are to be resolved through the CAISO's alternative dispute resolution procedure.[208] Once a project is determined to be required, the existing Tariff

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(http://www.caiso.com/clientserv/congestionreform.html).

205 CAISO Tariff § 3.2.2

206 *Id.* at §§ 3.2.1; 3.2.1.1; 3.2.1.2; 3.2.2.2.

207 *Id.* at §§ 3.2.1.2.

208 *Id.* at §§ 3.2.1.1.3.3; 3.2.2.2.

provides that the Participating Transmission Owner is required to construct the project, subject to certain conditions regarding siting and related approvals.[209] As required by Order No. 2000, the existing process also provides for a method of compensating transmission owners for the costs they incur, allocating costs efficiently, and assuring cost recovery.[210] Finally, the planning and regional coordination requirement of Order No. 2000 is fully recognized in the CAISO's existing planning process, which requires that the CAISO participate in the WSCC and applicable RTGs.[211]

Over the past three years, the CAISO has implemented this planning process, reviewing plans submitted by each of the Participating Transmission Owners. The process has resulted in the CAISO approving more than 100 individual transmission projects. In addition, in its role as regional transmission coordinator, the CAISO has worked in a variety of regional forums to develop various planning standards and to coordinate the development of the ISO Controlled Grid with other transmission systems in the region. The CAISO has also completed a state-mandated study identifying transmission obstacles and recommending resolutions under California statute AB 970.

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209 *Id.* at § 3.2. Also, in its December 15 Order, the Commission found that the CAISO Tariff lacked adequate procedures for the interconnection of new generators or existing generators seeking to increase the rated capacity of their facilities. The Commission directed the ISO to file revised generation interconnection procedures. These revised procedures were filed with the Commission as Amendment No. 39 to the CAISO Tariff on April 2, 2001.

210 *Id.* at §§ 3.2; 3.2.7; 3.2.8.2.

211 *Id.* at § 3.2.2.4.

The CAISO believes that it will be able to submit the enhancements to its Planning and Expansion process requested by the Commission later this year.[212] The CAISO's enhanced planning process will provide additional assurance that the ISO Controlled Grid is reliable and expanded in a manner necessary to support and facilitate increased reliability and efficiency in California, as well as the possibility of future development of regional markets. Moreover, the planning process will continue to encourage market-motivated operating and investment actions for preventing and relieving congestion, and will accommodate efforts by state regulatory commissions to create multi-state agreements to review and approve new regional transmission facilities, and coordinate with programs of existing regional transmission groups where necessary.

8. Function 8 - Interregional Coordination

a. Rule Requirement

Order No. 2000 requires RTOs to develop mechanisms for coordinating their activities with other regions.[213] If the mechanisms are not in place at the time an RTO proposal is filed, the RTO must propose a schedule to report its progress in achieving such coordination.[214] This function is designed to assure that there is sufficient integration of both reliability practices (such as parallel path flow), standards for ancillary services, and TLR procedures, and market interface

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[212] The CAISO's planning and expansion process is far more detailed and developed than either GridFlorida RTO's process, which is projected to take five years to implement, 94 FERC 62,364-62,367, or GridSouth RTO, whose planning protocol does not yet include procedures for interconnection of new generation. 94 FERC at 62,007-62,010.

[213] Order No. 2000 at 31,167.

[214] *Id.* at 31,167.

practices, such as scheduling, congestion management, and data used in the calculation of TTC and ATC.[215]

b. CAISO Functions

The CAISO meets the requirements of Order No. 2000 concerning interregional coordination, and is continuing to develop further enhancements in this area. First, with respect to coordination, as explained above with respect to the Planning Function, the CAISO's Tariff explicitly provides that the CAISO is the entity charged with coordinating with regional entities, such as the WSCC and RTGs.[216]

Second, the Commission has recognized that the CAISO has taken on the task of developing appropriate regional integration solutions, and has found that the CAISO complies with a related ISO principle that "[a]n ISO should develop mechanisms to coordinate with neighboring control areas."[217] As part of this effort, the CAISO has entered into Interconnected Control Area Operating Agreements with neighboring Control Areas.[218] Such Agreements provide for coordination with neighboring control areas on interface and reliability issues such as mitigating adverse conditions, loop flow, Ancillary Services, emergency

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215 *Id.* at 31,170-71.

216 CAISO Tariff at § 3.2.2.4.

217 81 FERC at 61,460.

218 The CAISO has a much more detailed and developed interregional coordination strategy than other RTOs approved by the Commission to date. While the CAISO has already taken significant steps to facilitate interregional coordination, neither the GridFlorida RTO nor the GridSouth RTO have yet developed any interregional coordination arrangements. *See GridFlorida*, 94 FERC at 62,368, and *GridSouth* 94 FERC at 62,011.

assistance, exceeding real time operating limits, relay actions, and voltage control.[219] The CAISO has also been a participant in the development of the Western Electricity Coordination Council, which will be (among other things) a coordination forum for regional entities in the Western Interconnection.

Finally, the CAISO has been active in attempting to resolve technical interface and reliability problems with newly developing regional organizations before problems arise in practice. Thus, in connection with the development of the Mountain West Independent System Administrator, the CAISO sought, through informal discussions as well as formal participation in regulatory proceedings, to make sure that Scheduling, Ancillary Services markets, and other technical aspects of the Mountain West Independent System Administrator proposal were compatible with the procedures used in the CAISO's region.[220]

C. Open Architecture

1. Rule Requirements

Order No. 2000 requires that RTOs address how they intend to implement the principles of open architecture. Among the changes for which RTO's should be prepared are changes in facility ownership, changes in geographical scope, changes in market support structures, changes in operational needs brought about through experience, and changes in technology.[221] Order No. 2000 also

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[219] *See, e.g.*, Interconnected Control Area Operating Agreement with Sierra Pacific Power Co.

[220] *See, e.g.,* Motion to Intervene and Request for Technical Conference, filed by the CAISO on Aug. 23, 1999 in docket ER99-3719.

[221] Order No. 2000 at 31,170-72.

requires the RTO's to address the concern that some members may not wish to be bound to a fundamentally changed entity.[222]

2. CAISO Structure

. Because it has been developed from the "ground up," the CAISO has significant flexibility to accommodate changes to its structure. Since its inception, the CAISO has continually reviewed and monitored the efficiency of its existing Tariff and operational structure. As the Commission has recognized, time pressures required "many compromises between practicality and ideal market structures" at CAISO startup.[223] In addition, the Commission approved a staged approach to CAISO implementation.[224] Consequently, where a market structure has not been optimal or has not kept pace with market changes, the CAISO has proposed and implemented improvements, as evidenced in the nearly forty Tariff amendments that have been filed with the Commission, reflecting changes in services (such as Amendment No. 9, dealing with Firm Transmission Rights),[225] or changes to improve operations of the markets (for example, Amendment No. 14, improving the Ancillary Services Market).[226] The CAISO is currently undergoing even more far-reaching changes in response to the crisis in California's electricity markets. Moreover, the CAISO has been able to make

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222 Order No. 2000 Rehearing at 31,381.

223 81 FERC ¶ 61,122 at 61,446.

224 *Id.* at 61,435.

225 88 FERC ¶ 61,106 (1999).

226 87 FERC ¶ 61,208 (1999).

changes necessary to accommodate technological improvements. For example, in Amendment No. 22, the CAISO made modifications in its scheduling software to allow the CAISO, for the first time, to incorporate automatic validation of Existing Contract schedules to assure that the priorities associated with Existing Contracts are properly assigned.[227]

D. Other Issues

1. Rate Issues.

a. Rule requirements.

In Order No. 2000, the Commission established two rate requirements that all RTOs must satisfy. The first, referred to as "a central goal" of RTO policy, is that the RTO tariff must eliminate rate pancaking.[228] The second is that the RTO must have a congestion pricing mechanism that dispatches generators at least cost and assures use of the constrained transmission system by those who value it most.[229]

Other ratemaking issues were discussed as enhancements that could also be considered. First, the Commission encouraged RTOs to consider the reciprocal waiver of access charges.[230] Second, while the Commission did not require uniform Access Charges, permitting RTOs to maintain license-plate rates for a fixed term, it required that a filing be made at the end of that term to justify

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227 89 FERC ¶ 61,229 (1999).

228 Order No. 2000 at 31,174.

229 *Id.* at 31,177.

230 *Id.* at 31,175.

continued use of license-plate rates. An RTO with license-plate rates must also identify how transmission expansion will be priced and how such pricing will affect the incentives for efficient expansion.[231] Third, Order No. 2000 permits RTOs to file a separate rate for non-Participating Transmission Owners in the RTO region, but that rate difference must be justified.[232] Fourth, the Commission encouraged RTOs to seek performance-based rates (PBR) and provided guidance on how PBR proposals would be evaluated.[233] Finally, the Commission identified certain other transmission pricing mechanisms that might be appropriate for RTOs if justified in individual filings.[234]

b. CAISO Conformance.

i. Required elements

The CAISO satisfies the two required rate elements. As explained previously, the CAISO does not permit pancaked rates and it is in the process of developing a revised approach to Congestion Management that will enhance the effectiveness of the existing system.

231 *Id.* at 31,177-78.

232 *Id.* at 31,180

233 *Id.* at 31,182-85.

234 *Id.* at 31,191-94.

ii. Ratemaking enhancements

The CAISO has also made progress in most of the enhancement areas identified by the Commission.

(A) Reciprocal waivers of charges

As described in the CAISO's submission to which this Appendix is attached, the CAISO will work with various California parties and other proposed RTOs to develop a proposal that will waive, under appropriate circumstances, the CAISO's Wheeling Access Charge for the transmission of electricity from or through the CAISO's Controlled Grid to or between other approved and operating RTOs that afford reciprocal waivers of access charges. The CAISO believes that this policy will both encourage inter-regional trading and promote the integration and coordination of RTOs in the West.

(B) Uniform Access Charges

Since its inception, the CAISO has operated under license-plate rates that the Commission has found acceptable.[235] The CAISO has proposed that, after a suitable transition period, a uniform, grid-wide transmission Access Charge for high-voltage transmission (that is, transmission lines operated at greater than 200 kV, together with associated facilities) be implemented on the CAISO grid. Transmission at lower voltages would still be subject to license-plate rates. This is similar to proposals for the initial use of license plate rates that have been approved by the Commission for other RTOs.[236] Under the CAISO's proposal,

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[235] *See Pacific Gas and Electric Corp., et al.*, 81 FERC at 61,455-56.

[236] *See GridFlorida* 94 FERC at 62,248.

new high-voltage transmission systems that are incorporated into the ISO Controlled Grid and capital additions to that grid would be rolled into the grid-wide uniform charge because of the grid-wide benefits that such expansions provide.[237] This rate methodology became effective June 1, 2000 and was implemented on January 1, 2001, pending an ultimate settlement in the proceeding, in which discussions before a settlement judge continue.

(C) Rates to non-Participating Transmission Owners

The CAISO does not charge different rates for non-Participating Transmission Owners. Other RTOs have sought authorization to charge non-participating Transmission owners different rates.[238]

(D) Incentive rates

As the CAISO explained in its comments on the NOPR, from its inception the CAISO has been committed to hiring and retaining world-class employees and encouraging them to operate a cost-effective CAISO. The compensation of every CAISO employee is significantly dependent upon the achievement by the CAISO of its corporate mission. This incentive mechanism, while not falling under traditional concepts of PBR in that it does not affect the Transmission Access Charge, produces the proper culture to allow the CAISO to achieve its mission in a cost-effective manner. The Commission has recognized that such a

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237 *Id.*

238 *See GridFlorida*, 94 FERC at 62,336.

mechanism is one method to provide the benefits of PBR in the context of a non-profit entity.[239]

(E) Other ratemaking mechanisms

The CAISO does not yet see the need to adopt additional ratemaking mechanisms. It has been in operation for over three years and has undertaken the Access Charge Settlement process on the basis of existing mechanisms. It will, however, continue to evaluate whether such changes may improve its efficiency and assist in achieving its goals.

2. Participation by Public Power and Cooperative Entities.

In Order No. 2000, the Commission made clear that a properly formed RTO should include public power and governmental entities, a finding reemphasized on rehearing.[240] The CAISO has from its inception sought to include the participation of such entities. As of this date, one such entity has become a Participating Transmission Owner; a number of others participate in the CAISO on other bases.[241] Still others have been the target of extensive efforts by the CAISO to obtain participation. The principal difficulty in obtaining such participation is that these entities are concerned that joining the CAISO might have an adverse effect on their tax-exempt status. Of additional concern is

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239 Order No. 2000 at 31,184.

240 Order No. 2000 at 31,201; Order No. 2000 Rehearing at 31,391.

241 Public power entities have signed the necessary agreements to become Scheduling Coordinators that utilize the ISO Controlled Grid and Utility Distribution Companies whose distribution activities are integrated with those of the Participating Transmission Owners as part of the CAISO Control Area, and have executed Participating Generator Agreements and Participating Load Agreements.

that all of these entities have pre-existing contracts upon which they can rely to make use of the CAISO's facilities, sometimes at lower cost and with higher priority than otherwise would be the case. To obtain participation, either these entities must be willing to pay more than their existing contract rate or other participants in the CAISO must be willing to subsidize their entry.

The efforts to overcome these obstacles include the negotiation of a proposed Access Charge Settlement, intended to encourage these public entities to join by offering a transition mechanism to protect them cost shifting. This includes a proposal to permit public power entities that are vertically integrated in one zone to operate as Metered Subsystems, allowing them to enter the ISO Controlled Grid as integrated systems. The CAISO will also continue to seek other solutions that will allow other public power and governmental entities to join the CAISO. Even though these entities are not members of the CAISO, the CAISO has been able to coordinate fully transmission functions with them and is fully interconnected with them. Thus, as required by Order No. 2000, the CAISO has made provisions for interconnection with non-CAISO facilities.[242]

3. <u>Treatment of Existing Contracts</u>.

In Order No. 2000, the Commission determined that it would evaluate contract reform proposals on an individual basis.[243] The CAISO explained in its comments on the NOPR that it has experienced significant problems and inefficiencies resulting from the fact that Existing Contract holders are able to rely

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242 *See* Order No. 2000 at 31,086; Order No. 2000 Rehearing at 31,375.

243 Order No. 2000 at 31,205-07.

upon their contractual rights to schedule transactions (which provide for scheduling up to 20 minutes before real-time) rather than adhering to the Hour-Ahead Scheduling timeline required by the CAISO Tariff. Such differences have forced the CAISO to be conservative in its determination of ATC (since an Existing Contract holder may choose to use its rights after all other services are scheduled), which can lead to projections of "phantom congestion."

The Access Charge Settlement proposed by the CAISO would assist in resolving these inefficiencies because parties joining under the Settlement would convert their Existing Contracts into Firm Transmission Rights and agree to adhere to the CAISO scheduling timelines and protocols. The Access Charge Settlement can thus go far toward resolving the scheduling inefficiencies that result from Existing Contracts.

If the Access Charge Settlement is not adopted, or not all holders of Existing Contracts join, the CAISO will continue to negotiate a resolution to these concerns. If it cannot, the CAISO may then propose that the Commission modify Existing Contracts in the CAISO region to the extent scheduling, information gathering, and metering provisions in those Existing Contracts differ from the CAISO's Tariff.