UNITED STATES OF AMERICA
BEFORE THE
FEDERAL ENERGY REGULATORY COMMISSION

California Independent System Operator Corporation	**Docket No. ER06-615-___**

REPORT OF THE CALIFORNIA INDEPENDENT SYSTEM OPERATOR CORPORATION ON DEVELOPING SOFTWARE FUNCTIONALITY TO SUPPORT EXPORTS FOR ANCILLARY SERVICES AND MOTION TO ELIMINATE COMMISSION DIRECTIVE

I. Introduction

In accordance with the Commission's June 2012 Order[1] in the captioned proceeding, the California Independent System Operator Corporation (ISO) submits this report concerning the development of software and market rules to support exports of ancillary services above and beyond the ISO's capabilities that existed at the time the ISO initiated its nodal markets in 2009. As discussed below, since initiating its nodal markets, the ISO has adopted market rules to support new dynamic transfer functionality that facilitates the export of ancillary services. These market rules support the directive enunciated by the Commission that the ISO implement this functionality as part of new software releases.[2]

This report weighs the ISO's current functionality, which allows scheduling of ancillary service exports, against the costs and benefits of implementing a more complicated bid-based mechanism. The report concludes that any benefits associated with allowing export bids for ancillary services are difficult to quantify. At

[1] *Cal. Indep. Sys. Operator Corp*. 139 FERC ¶ 61,206 (June 2012).

[2] *Cal. Indep. Sys. Operator Corp*., 116 FERC ¶ 61,274 at PP 348-355 (2006) *(September 2006 MRTU Order*).

this time, the ISO cannot justify the costs to develop an additional, alternative market mechanism—such as an auction market—to support exports of ancillary services.

The ISO also requests, pursuant to Rule 212 of the Commission's Rules of Practice and Procedure, that the Commission find that the ISO has satisfied the directive in the *September 2006 MRTU Order*. To the extent the Commission contemplated that the ISO would develop a bid-based, auction market for ancillary service exports, the ISO asks that the Commission remove any such compliance obligation.[3] Good cause exists to grant this motion. The ISO can effectively support resources that seek to export ancillary services through on-demand obligations and dynamic transfers of energy, including dynamically scheduling exports and pseudo-tie functionality, and thereby achieve the objectives of the *September 2006 MRTU Order*. Accordingly, granting this motion will not create adverse impacts to the market or any specific market participant.

II. Background

As part of the proceedings underlying the development of the ISO's nodal markets, some stakeholders argued that the ISO should develop functionality to support export bids for ancillary services.[4] The Commission directed the ISO to develop software to support ancillary services exports and propose necessary tariff

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[3] The ISO submits this motion pursuant to Rules 212 and 2008(a) of the Commission's Rules of Practice and Procedure, 18 C.F.R. §§ 385.212, 385.2008(a) (2010).

[4] *Cal. Indep. Sys. Operator Corp.*, 116 FERC ¶ 61,274 at PP 348-355 (2006) (*September 2006 MRTU Order*).

See also, Protest of Turlock Irrigation District in Docket Nos. ER02-1656 and ER06-615 dated April 10, 2006 at 23-24 http://elibrary.ferc.gov/idmws/common/opennat.asp?fileID=10994276; Comments and Protest of Western Power Trading forum an Independent Energy Producers Association in Docket ER06-615 dated April 10, 2006 at 104 http://elibrary.ferc.gov/idmws/common/opennat.asp?fileID=10994926

changes.[5] Last year, the ISO requested additional time to examine the benefits of developing functionality in addition to the newly developed dynamic transfer functionality, *i.e.,* functionality to support bids for ancillary services exports, and committed to file a report with the Commission by April 2013 concerning the status of these efforts.[6] The ISO stated that if it identified sufficient benefits from this functionality, it would commence a stakeholder process with the aim to implement this functionality in the spring of 2014. But, the ISO also stated that if the ISO determined the cost of this market functionality outweighs its benefits, the ISO would seek appropriate relief to modify any requirement that it develop and implement bids for ancillary services exports. The Commission accepted the ISO's commitment to examine the benefits of developing market-based ancillary service export functionality and file a report with the Commission by April 2013 concerning the status of its efforts.[7]

III. The ISO has implemented market rules and functionality that permit resources to export ancillary services to external balancing authority areas.

In the ISO's markets, resources can supply ancillary services to the ISO balancing authority area from internal resources and external resources. The ISO's software and market systems also support the export of energy from resources within the ISO balancing authority area to satisfy ancillary services obligations in other balancing authority areas. In addition, the ISO now has market rules to

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[5] *September 2006 MRTU Order* at P 355.

[6] *See* Motion for Extension of Time to implement certain Commission Mandated Enhancements filed in Docket ER06-615-000 on March 28, 2012. http://elibrary.ferc.gov/idmws/common/opennat.asp?fileID=12929376

[7] *Cal. Indep. Sys. Operator Corp*. 139 FERC ¶ 61,206 (June 2012) at P 28.

support dynamic energy schedules that could support ancillary services obligations of other balancing authority areas.

Pursuant to tariff revisions approved by the Commission in 2009 at the start of the ISO's nodal market, entities could arrange to export ancillary services prior to the hour ahead scheduling process by entering into commitments with other balancing authority areas known as on-demand obligations.[8] These commitments obligate ISO scheduling coordinators to serve loads outside the ISO balancing authority area. The ISO tariff expressly allows a scheduling coordinator to engage in these transactions provided that (1) it is using export transmission capacity available in real-time, and (2) the resource capacity providing energy to satisfy the on-demand obligation is not under a reliability must run contract or resource adequacy capacity obligation and has not been paid a residual unit commitment availability payment for the trading hour.

Importantly, the ISO's market can also now support dynamic transfers of energy to other balancing authority areas.[9] This is a new feature that did not exist at the time of the Commission's *September 2006 MRTU Order*. Pursuant to tariff revisions approved by the Commission in 2011, the ISO has authority to support dynamically transferred exports of supply resources, which permit market participants to provide firm energy outside the ISO that can be dispatched within the time period required to support ancillary service obligations.[10] This authority can

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[8] ISO tariff section 8.3.7.

[9] *Cal. Indep. Sys. Operator Corp*. 136 FERC ¶ 61,239 (September 2011). *See also* Appendix M of the ISO tariff.

[10] *Cal. Indep. Sys. Operator Corp*. 136 FERC ¶ 61,239 (September 2011). *See also* Appendix N of the ISO tariff.

enable resources that have a contractual obligation to export ancillary services or market based rate authority to sell ancillary services with the ability to do so. For example, a resource could dynamically transfer all, or a portion of, the actual real-time output of a specific or aggregation of generators within the ISO balancing authority area to another balancing authority area provided that it meets ISO tariff requirements, such as being technically feasible.[11] Under this approach, the ancillary service would be treated as a firm energy schedule and could be dispatched by the ISO on a five minute basis to honor ancillary service export obligations. Based on this authority, the ISO now has essentially met the directive in the Commission's *September 2006 MRTU Order*.[12]

IV. There does not appear to be significant stakeholder interest in the development of software to support export bids for ancillary services.

The ISO does not accept bids or operate an auction market for exports of ancillary services. As part of its 2011 stakeholder initiatives catalog process, the ISO received comments from various market participants concerning whether to pursue the development of market software to support bid-based exports of ancillary services. Neighboring balancing authority areas and independent generator interests expressed support for developing this functionality.[13] Load serving entities recommended that the ISO make this matter a low priority item.[14]

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[11] ISO tariff section 4.5.4.3.2.

[12] *September 2006 MRTU Order* at P 355

[13] *See* ISO's final market design initiatives catalog for 2011 at 25. http://www.caiso.com/Documents/Final2011MarketDesignInitiativeCatalog.pdf

[14] *Id.*

In the 2012 stakeholder initiatives catalog process only one stakeholder (an independent generator) provided comments concerning developing additional market software to support export of ancillary services. Those comments expressed support for the ISO to defer this initiative to future years.[15] Based on this most recent feedback from stakeholders, interest in developing another market mechanism – such as bidding functionality – to support exports for ancillary services has decreased significantly since 2006.

V. Allowing export bids for ancillary services may yield limited benefits for some ISO market participants, but these benefits are not quantifiable.

The ISO recognizes that developing software functionality and market rules to support bid-based exports of ancillary services may in theory assist external balancing authority areas to manage variable energy resources, above and beyond the ISO's current on-demand and dynamic scheduling options. In theory, export bids could also reduce ancillary service costs in external balancing authority areas by creating an increased portfolio of supply resources to satisfy their ancillary service obligations. As one adjacent balancing authority area noted in its comments to the 2011 stakeholder initiatives catalog, the opportunity to submit export bids for ancillary services would be beneficial "from time to time."[16]

Developing software to facilitate export bids for ancillary services may also provide some revenue opportunities for resources within the ISO's balancing

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[15] See ISO's Stakeholder Initiative Catalog as of December 4, 2012 at 38. http://www.caiso.com/Documents/2012_StakeholderInitiativesCatalog.pdf

[16] *See* Bonneville Power Administration's comments dated October 31, 2011. http://www.caiso.com/Documents/BPA_Comments_Revised2011MarketDesignInitiativeCatalog.pdf

authority area with flexible operating capacity. These benefits, however, are difficult to quantify.

The ISO could consider a resource's export opportunity in two time frames. In the day-ahead timeframe, if a resource elected to export ancillary services, it would need to remove itself from the ISO's ancillary services and energy market. This is because the ISO market procures 100 percent of its ancillary services obligation in the day-ahead timeframe and co-optimizes it with energy dispatch.[17] Under this scenario, it is difficult to assess the value of export bids without knowing the demand or willingness of external balancing authority areas to make a day-ahead commitment.

An export potentially could also arise in the real-time, but this would mean that the capacity in question would not be available to the ISO market for energy dispatch or real-time ancillary services procurement at the same time the resource desired to export ancillary services. If the resource is not needed in the ISO market, it is difficult for the ISO to quantify the benefits to this resource based on an opportunistic export to a neighboring balancing authority.

The ISO does not believe functionality to support bids for exports for ancillary services will benefit load within the ISO's balancing authority area. The ISO market relies on bids and self-schedules to procure ancillary services to meet the ISO's obligations. Energy and ancillary services are co-optimized in the ISO market and ISO load benefits from this least-cost security constrained optimization. If ISO market participants wanted to offer ancillary services outside of ISO, that desire

[17] ISO tariff section 8.3.1.

might reflect that ancillary services costs (i.e., the capacity and energy opportunity cost payments) are lower within the ISO than outside of it. Under this assumption, allowing additional export capability for ancillary services does not provide clear benefits to load within the ISO balancing authority area.

Also, permitting export bids for ancillary services would not increase the reliability of the ISO grid. The ISO does not determine its procured amount of ancillary services based on price. Rather, the ISO procures ancillary services pursuant to requirements based on ISO grid conditions as well as requirements of the North American Electric Reliability Corporation and Western Electricity Coordinating Council reliability standards. Adding an ancillary services export bid functionality will not allow the ISO to deviate from these requirements.

VI. The costs and resource commitments to design, test, and implement software to support export bids for ancillary services outweighs any putative benefits at this time.

Any effort to design and implement additional market functionality to support exports for ancillary services will require consideration of a number of factors, including the actual costs for ISO market participants that would result from this effort. In the case of introducing export bids for ancillary services, this will certainly create additional costs for ISO market participants. This functionality would require an optimization and is essentially a bid to bill endeavor. The ISO estimates that software design, testing, and implementation costs could easily amount to over $2 million in ISO costs alone. This estimate is based on similar capital projects that involve software functionality that interfaces with multiple ISO market systems. Market participants would also incur design, testing, and implementation costs associated with their market systems. This would be a costly endeavor for a

functionality that might only be used from “time to time” and which stakeholders have not identified as a priority. Incurring these significant additional costs is not consistent with the ISO’s goal of demonstrating fiscal responsibility by not incurring additional costs absent a benefit to the market.

Beyond building the functionality and integrating it to the ISO’s existing market systems, the ISO expects that providing export bid functionality for ancillary services would require a significant coordination effort with other balancing authority areas with respect to the scope, timing, and logistics of this effort. These specific costs must also be weighed against the theoretical benefits. For example, one of the difficulties in implementing a market mechanism for ancillary services exports would be the timing of such an export. As explained, the ISO procures 100 percent of its ancillary services need in the day-ahead market and co-optimizes it with energy.[18] Buyers of ancillary services outside the ISO would potentially have to adjust their procurement timeframe to the day-ahead. If few or no buyers adjust their procurement practices, efficiency gains from supporting export bids for ancillary services may be lost altogether. Given the lack of interest in this market functionality, the ISO does not believe it can justify designing, testing, and implementing it. Even if there was greater demand, this is a significant software change and may require redesigning other aspects of import and export functionality. Finally, as explained earlier, the ISO market currently supports the ability to export firm energy in real-time to support ancillary services obligations.

[18] ISO tariff section 8.3.1.

There are other costs to consider in assessing whether it is a worthwhile endeavor to allow export bids for ancillary services. For example, ancillary services awarded or set aside for export would also need to secure firm transmission from other external transmission providers. In addition, designing and implementing software to permit export bids for ancillary services would displace available ISO resources to work on other important market enhancements that will result in enhanced interchange ability with other balancing authorities. The ISO is currently working to revise market rules pursuant to Commission Order 764 to provide 15 minute financially binding schedules for internal resources, load, and interties.[19] In addition, the ISO is working to develop a real-time energy imbalance market that will allow for efficient real-time dispatch across multiple balancing authorities in the Western Electricity Coordinating Council. These efforts will improve market liquidity and coordination with neighboring balancing authorities and compliance with Commission Order 764. The ISO believes it should allocate its limited resources to pursue these activities that will serve to more effectively promote the Commission's broader strategic goals. Affected interests need to assess the lost opportunity of pursuing these and other market enhancements, if the ISO were to commit resources to develop functionality to support export bids for ancillary services at this time.

[19] *Integration of Variable Energy Resources* 139 FERC ¶ 61,246 (2012).

VII. Other organized electricity markets in the United States do not provide their participants with the opportunity to submit bids to export ancillary services.

Based on the ISO's research, it does not appear that other organized markets in the United States permit export bids for ancillary services. These markets use bidding mechanisms to support the efficient procurement of their own ancillary service obligations and not to support the ancillary service obligations of external entities. The ISO has contacted representatives of other organized electricity markets in the United States and has not received any indication that they intend to design market functionality to support export bids for ancillary services. Indeed, requiring a bid clearing process to facilitate exports of ancillary services could unjustly provide external balancing authorities with the benefit of an organized market.[20] Also, it is important to keep in mind that the ISO market is the mechanism that the ISO has established to procure the ancillary services it requires. In that respect, the market is comparable to the efforts that external entities employ to satisfy their own ancillary services obligations (e*.g.,* through bi-lateral contracts and/or requests for proposals to provide ancillary services).

VIII. Conclusion

While some theoretical benefits exist for developing functionality to support export bids for ancillary services, the ISO's market will not realize the majority of

[20] *See generally, Midwest Independent Transmission System Operator, Inc*. 129 FERC P 61283 (2009), rejecting arguments that Midwest ISO's proposal to afford balancing authorities whose loads and resources are connected to an integrating transmission owner's facilities the opportunity to meet their NERC reserve obligations by obtaining contingency reserves from Midwest ISO's Energy and Operating Reserves Markets during the Transmission Owner's integration creates an inappropriate preference because all transmission owners agreeing to integrate into the Midwest ISO can receive contingency reserve service pending their integration. The Commission did not require the Midwest ISO to provide this service to external transmission owners who had not agreed to integrate their systems into the Midwest ISO.

these economic benefits because the ISO does not establish ancillary service procurement requirements for other balancing authority areas or optimize their dispatch of energy and ancillary services. Moreover, the ISO's current market design allows for internal resources to sell capacity from a resource to a buyer outside of the ISO. As such, the ISO market contains features that scheduling coordinators may rely on to export ancillary services and adequately satisfies the objectives of the *September 2006 MRTU Order*. If the *September 2006 MRTU Order* in fact intended that the ISO consider developing and implementing a bid-based, auction market functionality to support export for ancillary services, such a requirement imposes undue burdens on the ISO and will impose unnecessary costs on ISO market participants. Accordingly, to the extent the *September 2006 MRTU Order* contemplated that the ISO would develop software to support bid-based exports of ancillary services, the ISO requests that the Commission eliminate such requirement.

Respectfully submitted,

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Dated: April 30, 2013

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