UNITED STATES OF AMERICA
BEFORE THE
FEDERAL ENERGY REGULATORY COMMISSION

California Independent System Operator Corporation	))	Docket No. ER06-615-002

POST-TECHNICAL CONFERENCE COMMENTS ON SEAMS ISSUES OF THE CALIFORNIA INDEPENDENT SYSTEM OPERATOR CORPORATION

On September 21, 2006, the Commission issued an order in this proceeding conditionally approving the tariff to implement the Market Redesign and Technology Upgrade ("MRTU") program of the California Independent System Operator Corporation ("CAISO").[1] In the September 21 Order, the Commission directed the "Commission staff to convene a technical conference to assist the CAISO and parties outside the CAISO Control Area to identify seams issues that require resolution."[2]

On December 14 and 15, 2006, the Commission held the technical conference to address seams issues mandated by the September 21 Order. The purpose of the technical conference was to provide parties an opportunity to identify and discuss solutions to resolve seams issues in the West, including alleged seams issues that exist between the CAISO and neighboring systems. On December 21, 2006, the Commission issued a notice inviting all interested persons to file written comments no later than January 16, 2007, on the issues that were the subject of the technical conference. Pursuant to the December 21, 2006, notice, the CAISO hereby submits the following comments on the

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[1] *California Independent System Operator Corp.*, 116 FERC ¶ 61,274 (2006) ("September 21 Order").

[2] *Id.* at P 490.

issues discussed at the December 14-15 technical conference and recommendations for resolving seams issues in the Western Interconnection.

I. EXECUTIVE SUMMARY

The CAISO appreciates the Commission's recognition that seams issues exist across the Western United States today and that the significant seams issues in this region are not the result of the implementation of MRTU. The Commission has also recognized that customers across the West will benefit from the implementation of the MRTU market design, which corrects market flaws that contributed to the 2000-2001 Energy Crisis. No party has demonstrated the existence of any seams issue attributable to the implementation of MRTU that justifies a delay of the benefits to customers of the timely implementation of the MRTU market design. In the comments below, the CAISO responds to certain inaccurate assertions about seams issues made by commenters in this proceeding as well as long-standing opponents of MRTU. Specifically, the CAISO responds to the Control Area Coalition's submission of two whitepapers that incorrectly characterize markets and interchange scheduling practices in the Eastern Interconnection as well as make erroneous factual statements regarding MRTU implementation and the impact of MRTU implementation on the Western Interconnection.

Although parties have identified no issues that warrant a delay in MRTU implementation or modifications to the initial design of MRTU, the implementation of MRTU may require certain modifications to the CAISO's coordination with its neighboring Control Areas. Any proposal for modification should be discussed through individual meetings between the CAISO and its neighbors and reflected in revisions to the existing bilateral Interconnected Control Area Operating Agreements ("ICAOAs")

between the CAISO and its neighboring Control Areas. In the comments below, the CAISO commits to a specific process to address any coordination concerns of neighboring Control Areas related to the implementation of MRTU. The CAISO also commits to work with others in the Western Interconnection, under the auspices of the Western Electricity Coordinating Council ("WECC"), to address the longer-term resolution of West-wide seams issues.

Finally, the CAISO also responds to an issue raised by Southern California Edison Corporation ("SCE") concerning the interrelationship between the state of California's Resource Adequacy ("RA") program and the market rules under MRTU that affects the "firmness" of energy sales from RA resources that are not needed by the CAISO in particular hours. Although the CAISO agrees that the issue warrants attention, the issue is not appropriately addressed through discussions with neighboring Control Areas. Nor is the issue a West-wide seams issue. Rather, the issue should be considered and addressed in the CAISO stakeholder process.

II. COMMENTS

The CAISO agrees with the Commission that seams at the borders between the CAISO and other regions within the West exist today.[3] Indeed, there are seams issues today across the entire Western Interconnection and not only between the CAISO and its neighbors. The CAISO further agrees that it is important to identify and explore ways to resolve any seams issues that could hinder competitive markets in the West.[4] The CAISO further believes that the Western parties should focus on comprehensive solutions to solving seams issues such as more transparent and open redispatch service as currently

[3] September 21 Order at P 8.
[4] *Id.* at P 490.

being evaluated by the Commission in its Order No. 888 reform Rulemaking, and the day-ahead West-wide congestion management process being discussed by the WECC Seams Issues Subcommittee. As discussed below, the CAISO stands ready to work collaboratively to address those issues that impede trade or affect reliability throughout the West.

A. No Party Has Identified a Seams Issue Which Justifies a Delay In MRTU Implementation Or a Modification To the MRTU Design

The CAISO agrees with the Commission that the West will benefit from the timely implementation of a well-functioning California market that eliminates existing market design flaws.[5] Although participants in the December 14-15, 2006, technical conference identified certain issues that may warrant further consideration, no party has identified any issue – nor do any such issues exist – that justify a delay in MRTU implementation. Nor have any parties identified any issue that requires modifications of the MRTU Tariff. As the CAISO has explained in the past, any significant modifications to the MRTU Tariff create a high likelihood that MRTU implementation will be delayed beyond the January 31, 2008, implementation date.[6] MRTU should move forward expeditiously because core features of MRTU, most notably the use of the more accurate Full Network Model, will enhance reliability by ensuring feasible Day-Ahead Schedules. This enhanced reliability will benefit neighboring Control Areas as well as the CAISO Control Area itself.

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[5] *Id.* at P 485.

[6] On December 19, 2006, the CAISO Board of Governors approved a revision to the scope, schedule and budget of MRTU, modifying the implementation date for Release 1 of MRTU from November 2007 to January 31, 2008 (for Trading Day February 1, 2008). This extension will allow the CAISO to implement the Commission's directives, subject to the pending October 23, 2006, Request for Clarification and Rehearing of the September 21 Order.

1. Commission-Approved Design Elements Of MRTU Do Not Create "Seams Issues"

As revealed in the technical conference, several alleged "seams issues" raised by parties are simply attempts to revisit issues the Commission has already addressed in the September 21 Order and prior orders on the conceptual MRTU design, such as the use of locational marginal pricing ("LMP") and the treatment of marginal losses under MRTU. For example, parties raised concern regarding the adoption of marginal losses methodology to account for losses on the system, uses of Inter-SC Trades at interties, and reservation of intertie capacity for CRR auction. These are all market design issues that have been dealt with through the MRTU Tariff filing and pre-tariff conceptual filings process and should not be brought under this process intended for resolution of seams issues between CAISO and its neighbors. It is simply inappropriate for these parties to seek to re-open these issues by characterizing them as seams issues.

2. Concerns That MRTU Implementation Will Exacerbate Loop Flows Are Unfounded And Speculative And Existing Mechanisms Can Effectively Address Any Reliability Concerns

There is no factual basis to support the assertion made by certain parties that MRTU implementation will exacerbate loop flows or increase congestion experienced by other Control Areas. Changes to loop flows can occur whenever system conditions change within any Control Area in an interconnected system. Examples include derates of generation or transmission, the addition of new generation resources, regional increases in demand, and seasonal changes in the use of resources, such as the West-wide predominance of hydro resources in the spring. MRTU does not add or subtract any resources or change the inherent cost structure of the available resources. As it does today, the CAISO will continue to adhere to WECC standards, including respecting path

ratings and utilizing Unscheduled Flow ("USF") procedures to manage congestion on the interties and loop flows.

In fact, the CAISO expects that Real-Time dispatch under MRTU will be very similar to Real-Time dispatch under the currently-effective CAISO market design. Under MRTU, like today, all internal constraints of the CAISO Controlled Grid will be enforced, and interties will be managed in accordance with WECC ratings under the conventional contract path approach. As noted above, under MRTU, the CAISO will continue to rely on WECC USF procedures for managing Real-Time loop flow that are utilized under the current market design. One of the advantages of MRTU compared with today's approach, is that today the CAISO accepts infeasible schedules in the day-ahead because only Inter-Zonal interfaces are considered, whereas in Real-Time all interfaces (Inter-Zonal and Intra-Zonal) are considered. Under MRTU, the Day-Ahead Schedule will be much more aligned with the Real-Time Dispatch and hence will reduce the likelihood of, and need for, costly operator initiated out-of-market generation shifts to ensure reliable operation in real time. This alignment represents one of the real benefits of MRTU.

That is not to say that there will not be any discrepancies between the Day-Ahead Schedule and the Real-Time Dispatch. In addition to the variances between anticipated and actual demand and supply, there may be discrepancies between the Day-Ahead Schedule and Real-Time operations due to the difficulties under current scheduling prices in predicting the net changes in generation patterns that will result from changes in interchange transactions schedules. This is not a discrepancy caused or exacerbated by MRTU. Such discrepancies are instead a problem with the contract path approach used

throughout the West today that does not consider loop flows. The CAISO reflects the West's use of this contract path approach through the use of a radial intertie model today, and MRTU does not change this practice. The CAISO agrees with parties that the contract path approach does create discrepancies between Day-Ahead and Real-Time which lead to Real-Time unscheduled flows and inefficient use of transmission resources. As discussed below, the CAISO stands ready to work with others in the region through the WECC to develop an improved approach based on a West-wide network model and an exchange of Day-Ahead scheduling information. However, these are not reasons to delay the implementation of MRTU.

3. There Should Be No "Hold Harmless" Condition On MRTU Implementation

Some parties have proposed that the implementation of MRTU should be accompanied with a "hold harmless" approach which shields some entities from additional costs allegedly resulting from MRTU. As the Commission correctly noted in the September 21 Order, the MRTU reforms "do not create additional congestion costs, but rather remedy a flawed system that masks the causes of congestion costs and does not provide any mechanism to protect customers against such costs."[7] Under the current market design "some customers [are] subsidizing the cost to serve other customers."[8] A hold harmless provision is not appropriate because the parties who benefit today from a lack of transparency are not entitled to retain the subsidies they receive under the status quo. Moreover, although changes to one control area's dispatch of resources to serve its load can affect flows in other control areas, such impacts are related to the configuration of the interconnected transmission system and the control area boundaries, not to the

[7] September 21 Order at P 9.
[8] *Id.*

algorithms for dispatching and pricing energy from supply resources, and are appropriately addressed through existing procedures for managing inter-control-area flows in the Western Interconnection. In this regard, the ZGlobal Whitepaper misrepresents the rationale for the hold harmless provisions that were implemented by MISO in 2004-5. Those provisions were not related to the implementation of LMP markets, and in fact there is no historical precedent for imposing hold harmless provisions in conjunction with LMP implementation.

The CAISO therefore asks that the Commission encourage parties to focus their efforts on comprehensive improvements to today's practices, such as: (1) the west-wide day-ahead scheduling and congestion management process developed through SSG-WI in 2003, which the CAISO filed with its pre-technical conference comments and which has been identified by the Seams Issues Subcommittee as a work effort for 2007, and (2) development of transparent real-time redispatch service as is currently under consideration by FERC in its Order No. 888 reform Rulemaking Docket RM05-25-000.

4. Whitepapers Filed By The Control Area Coalition Contain Erroneous Factual Assumptions And Draw Erroneous Conclusions

The CAISO also wishes to respond to certain inaccurate assumptions and misstatements contained in two whitepapers filed in this proceeding by the Control Area Coalition on November 30, 2006: the ZGlobal Inc. sponsored whitepaper ("ZGlobal Whitepaper"), which relates to alleged effects of MRTU implementation, and a whitepaper authored by Seth Blumsack of Carnegie Mellon concerning alleged effects of LMP in the Eastern Interconnect (the "Eastern Interconnect Whitepaper"). The CAISO

has studied the ZGlobal Whitepaper and can support the following conclusions, as described more fully in Attachment A[9] hereto:

- The ZGlobal Whitepaper erroneously asserts that MRTU implementation will lead to changes in inter-Control Area scheduling practices. As noted above, the CAISO will continue to comply with WECC scheduling practices. Indeed, it is obligated to do so pursuant to its approved tariff and by statute.[10] Scheduling of inter-Control Areas transactions can result in loop flows which can affect the reliability of third party Control Areas not on the contract path for the transaction. This potential is unrelated to LMP pricing or any other feature of MRTU. WECC path ratings and transmission path scheduling protocols are in place to manage this reality.
- The ZGlobal Whitepaper erroneously asserts that MRTU will substantially change the CAISO's dispatch of generation resources internal to the CAISO Control Area. MRTU does not change the generation resources available to the CAISO or change the configuration of the CAISO or WECC transmission grid. As noted above, the CAISO anticipates that today's Real Time dispatch will be very similar to how resources will be dispatched in Real-Time under MRTU. The CAISO does not deny that dispatch of Control Area resources to meet Control Area load can give rise to loop flows that can contribute to overloads on transmission elements external to the Control Area. This is unrelated to the dispatch algorithm (which is based on economic dispatch of available resources) but rather the configuration of the transmission system

[9] "Overview of CAISO Analysis of the Seams Issues Whitepaper prepared for the Control Area Coalition by ZGlobal Inc." prepared by Scott M. Harvey, Lorenzo Kristov and Mark Rothleder.

[10] *See* MRTU Tariff Section 34.17.5; California Public Utilities Code § 345 (1996).

and control area boundaries. When these constraints are identified and material, the procedures can be developed and put into place. Significantly, the ZGlobal Whitepaper does not identify any external constraint that currently or prospectively is, or would be, affected.

- The ZGlobal Whitepaper erroneously asserts that the CAISO's use of a radial model of external Control Areas for the purpose of predicting the impact of changes in interchange transactions schedules on internal CAISO transmission constraints will adversely impact the reliability of external control areas even though the CAISO uses a radial model today. The CAISO uses a radial model in part because WECC scheduling practices are based on the radial model. In fact, the use of the radial model by the CAISO has no implications for external control areas and is only relevant as to how the CAISO predicts impact of interchange transactions on the transmission constraints internal to the CAISO's Control Area.
- The ZGlobal Whitepaper asserts that "hold harmless" provisions are needed to protect external Control Areas from adverse effects of MRTU. Not only does the ZGlobal Whitepaper fail to identify any adverse effects, it mischaracterizes the circumstances that resulted in the negotiation of the "hold harmless" provisions agreed to in connection with the Midwest Independent System Operator's implementation of inter-Control Area dispatch within its footprint and the expansion of the PJM footprint in 2004 and 2005. The context did not concern implementation of LMP but rather change in the Control Area boundaries and elimination of tags for transactions within the

expanded MISO and PJM footprints. No such expansion of the CAISO Control Area is occurring as a part of LMP implementation.

The Eastern Interconnect Whitepaper also contains factually incorrect statements and faulty analysis. As discussed in Attachment B hereto, a letter from Andrew L. Ott, Vice President of Markets at PJM, to the CAISO, the Eastern Interconnect Whitepaper has the following errors:

- The Eastern Interconnect Whitepaper erroneously states that the PJM market contains seventeen zones analogous to Control Areas. Rather, the PJM market is operated as a single electrical Control Area with separate transmission tariff zones.
- The Eastern Interconnect Whitepaper incorrectly attributes the increase of Transmission Loading Relief ("TLR") activity to Regional Transmission Organization ("RTO") market formation. In actuality, this increase is based on the outdated TLR process of the North American Electric Reliability Corporation process and its contract-path fiction, which in turn creates much of the unscheduled loop flow that is observed.
- The Eastern Interconnect Whitepaper fails to note that TLR activity has decreased in 2006, a sign that PJM and Midwest ISO expansion is helping to correct the situation. In fact, PJM has experienced a decline in both the number of TLRs implemented and the duration of TLRs since 2004 when numerous PJM market integrations occurred.
- The Eastern Interconnect Whitepaper incorrectly asserts that physical market operators now have fewer alternatives in dealing with market

flows. In fact, RTO markets provide constraint relief and better alternatives to maintain grid reliability for physical market operators, since RTO markets can more accurately quantify and control unscheduled power flows through the flow-based congestion management system and LMP pricing.

The CAISO brings these errors to the attention of the Commission because these inaccuracies, and others discussed in Attachments A and B to these comments, unjustly and inappropriately distort the impact of MRTU implementation on seams in the Western region. Although the CAISO is committed to an open and extensive discussion of seams concerns, inaccuracies such as these serve only to obscure the real issues at hand.

B. The CAISO Is Committed To Working With Neighboring Control Areas To Consider Any Modifications to Interconnected Control Area Operations

The implementation of MRTU may create certain coordination issues at the boundaries of the CAISO with its neighbors. Because each of the Control Areas interconnected with the CAISO has unique features, these issues are not amenable to a "one size fits all" approach. Instead, the most effective way to address such issues is through cooperation between neighboring Control Areas on a bilateral basis. Indeed, the most appropriate approach to resolving such inter-Control Area issues are agreements between neighboring Control Areas which can be reflected in modifications to the existing bilateral Interconnected Control Area Operating Agreements between the CAISO and its neighboring Control Areas. This approach is consistent with the Commission's recognition, in the September 21 Order, that the CAISO has demonstrated

that it is taking regional reliability into consideration by entering into Interconnected Control Area Operating Agreements with its neighboring Control Areas.[11]

The CAISO intends to identify any issues that should be addressed based on an exchange of data with those Control Areas embedded within the CAISO Control Area and immediately adjacent to the CAISO Control Area. The CAISO will then propose changes to existing ICAOAs based on these issues and meet with neighboring Control Areas to reach agreement on appropriate modifications to the ICAOAs.

The CAISO notes that each embedded or adjacent Control Area is likely to raise different coordination issues. These differences are why the existing Interconnected Control Area Operating Agreements are individual agreements with different terms and conditions. It would be counter-productive to abandon these existing ICAOAs and start from scratch with a single West-wide agreement, as proposed by some parties. For those neighboring Control Areas who do not currently have an ICAOA with the CAISO (*e.g.*, new Control Areas that have formed in the past few years), the CAISO is prepared to develop a *pro forma* Interconnected Control Area Operating Agreement that can be used as a basis for bilateral discussions with any interconnected Control Area that wishes to enter into an agreement with the CAISO.

C. The CAISO Is Committed To Working With Others In the West To Address West-wide Seams Issues

For those seams issues that affect the Western region generically, efforts are already underway through the WECC to consider these issues. In mid-2006, the WECC formed the Seams Issues Subcommittee ("SIS"). The CAISO has been an active participant in the WECC SIS and plans to participate in the SIS meeting scheduled for

[11] September 21 Order at P 488.

January 17 to 18, 2007. The CAISO believes that the SIS is the appropriate forum to consider West-wide seams issues. For example, the SIS should consider solutions to the flaws with the current contract path approach in the West, which creates discrepancies between Day-Ahead and Real-Time which lead to Real-Time unscheduled flows and inefficient use of transmission resources. The CAISO anticipates that the WECC's seams resolution efforts will be longer-term activities that extend well beyond MRTU start-up in January of next year. The CAISO believes that topics such as congestion management at the regional level to reduce unscheduled flows and revisions to tagging requirements, in terms of both data requirements and timelines, are areas where collaborative effort across the west could yield significant benefits for all parties involved.

D. The CAISO Stakeholder Process is the Appropriate Arena for Considering and Addressing the Relationship Between the RA Program and the Market Rules under MRTU

The only "seams" issue identified by any party as specifically associated with MRTU in connection with the December 14-15, 2006 Seams Technical conference was in the statement made by Pedro J. Pizarro, Senior Vice President, Power Procurement, Southern California Edison:

> We are not here today to say that there are absolutely no seams issues associated with MRTU. We are aware of an emerging MRTU-related seams issue that definitely needs to be addressed. That issue has to do with the curtailment priorities of Resource Adequacy (RA) resources during conditions when there is not sufficient supply to meet desired demand. The MRTU design must ensure that those entities that have paid for RA resources to serve their load are able to receive the reliability benefits of those resources. We believe those entities should have a higher priority to utilize those RA resources than entities that have not paid for the RA benefits of the resource. *At the same time, the MRTU design must also be able to accommodate the sales of firm energy exports – where "firm" is defined pursuant to a WSPP agreement. Western entities have been making such sales for years to the benefit of customers both inside and outside California.* [Emphasis added.]

The CAISO understands SCE's concern as primarily related to the fact that in any given period, and particularly during off-peak periods, load serving entities ("LSEs") will have resources designated as RA resources that will not be needed by the CAISO on a given day (or longer time period) but may not be sold as "firm" pursuant to a Western Systems Power Pool ("WSPP") agreement.

The CAISO agrees that RA resources contracted by LSEs that are not needed should be made available to the market – whether to meet load internal or external to the CAISO Control Area. Nothing in the MRTU Tariff prevents excess RA resources from being sold—it is only the contractual "firmness" as defined under the WSPP agreement that is in question. As the CAISO continues to investigate this issue, it has become apparent—like many issues in our industry—that this issue has more complexities than might first appear and more than one potential way that it can be resolved. One aspect of this issue is clear, however. The issue is really not a "seams" issue requiring control-area-to-control-area negotiations and agreements. The issue relates to the RA program and its interaction with CAISO market rules. The appropriate place to consider all the nuances of the issue and potential solutions is the CAISO stakeholder process in conjunction with the California Public Utilities Commission and other Local Regulatory Authorities. The CAISO is committed to engaging in this process and coming up with an effective non-discriminatory solution consistent with the CAISO's resource and software constraints and without delaying the implementation of MRTU.

Finally, it should not be overlooked that that excess power from RA resources can be sold under the MRTU Tariff and will be valued by the market place based on its actual firmness regardless of whether it meets the WSSP contractual definition. If the RA

program is modified or the MRTU Tariff is modified to permit excess RA capacity to be sold as "firm" under the WSPP agreement and if there is added value to the market place, LSEs may have to pay more for RA capacity as well.

III. CONCLUSION

Wherefore, for the reasons discussed above, the CAISO respectfully requests that the Commission consider the foregoing comments on the issues discussed at the December 14-15 technical conference and accept the CAISO's recommendations for resolving seams issues in the Western Interconnection in a manner that will not delay the benefits to customers of the timely implementation of the MRTU market design.

Respectfully submitted,

/s/ Sidney M. Davies

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ATTACHMENT A

Overview of CAISO Analysis of the Seams Issues Whitepaper prepared for the Control Area Coalition by ZGlobal Inc.

Scott M. Harvey, Lorenzo Kristov and Mark Rothleder

January 16, 2007

The MRTU Seams Issues Whitepaper prepared for the Control Area Coalition by ZGlobal Inc. ("ZGlobal Whitepaper") asserts that MRTU implementation will lead to changes in inter-control area scheduling practices between the CAISO and adjacent control areas and to changes in the CAISO's dispatch of generation resources internal to the CAISO control area to meet control area load, both of which will adversely impact the reliability of control areas external to the CAISO. The ZGlobal Whitepaper further asserts that elements of the MRTU market design will hinder bilateral contracting between buyers and sellers in the western region and adversely impact western power markets in other ways. None of these assertions are correct.

The ZGlobal Whitepaper incorrectly asserts that inter-control area transaction scheduling under MRTU will adversely affect the reliability of adjacent control areas.

It is well known that the scheduling of inter-control area transactions can result in unscheduled parallel flows (loop flows) that can adversely affect the reliability of third party control areas not located on the contract path for the inter-control area transaction. Importantly, this potential is unrelated to the use of LMP pricing, or to any other feature of the MRTU design, but exists on any transmission system on which multiple control areas and parallel transmission paths are present and where prevailing scheduling practices abstract from physical power flows. It is also well known that the WECC path rating and transmission path scheduling practices[1] and related unscheduled flow mitigation procedures are implemented precisely to address the potential adverse effects of parallel flows associated with such inter-control area interchange transactions. The ZGlobal Whitepaper discussion of the reliability impacts of interchange transactions implicitly assumes that the CAISO will no longer follow WECC scheduling practices under MRTU, but there is no basis for such an assertion. Not only will MRTU implementation have no effect on CAISO compliance with WECC scheduling practices, the CAISO is required to comply with these WECC scheduling practices by tariff and by statute.

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[1] These practices are sometimes referred to as "contract path" scheduling in which the flow effects of a schedule on the parallel transmission system are not considered.

The ZGlobal Whitepaper incorrectly concludes that the use of a radial model to represent control areas external to the CAISO for the purpose of analyzing the impact of interchange schedules on internal CAISO transmission constraints will result in real-time flows that will adversely affect the reliability of adjacent control areas.

The ZGlobal Whitepaper alleges that the use of a radial representation of the interties between the CAISO and external control areas will somehow result in changes in interchange scheduling practices that would adversely impact the reliability of external control areas. The ZGlobal Whitepaper reaches this conclusion despite the fact that this is precisely the same model that the CAISO uses today for scheduling interchange transactions, and despite the fact that the radial model will initially be employed by the CAISO precisely because WECC scheduling practices for interchange transactions are based on such a radial model for scheduling purposes, with parallel flows accounted for in the path rating system. In fact, the use of the radial model by the CAISO has no implications for external control areas, relative to existing practices, and it is relevant only to how the CAISO predicts the impact of interchange transactions on the transmission constraints internal to the CAISO control area.

Contrary to the assertions of the ZGlobal Whitepaper, the dispatch of CAISO control area generation to meet CAISO load under MRTU will not adversely impact the reliability of adjacent control areas.

It is possible for the dispatch of control area resources to meet control area load to give rise to parallel flows that can contribute to overloads on transmission elements external to the control area. Importantly, the potential for such external effects is unrelated to either the dispatch algorithm used to meet control area load (such as LMP, today's CAISO zonal market with out-of-sequence re-dispatch, or any of the methods used by non-market neighboring control areas to balance their systems in real time), or to the method used to price power purchased by control area load or purchased from control area generation. Rather, the potential for such effects is instead a result of the physical configuration of the transmission system and control area boundaries. Where such external effects are identified and material, procedures are put in place to address them. The ZGlobal Whitepaper suggests that such external effects of control area dispatch are important, but fails to provide any example of a transmission constraint external to the CAISO on which there is currently or prospectively such a material impact of the CAISO dispatch that is not accounted for by an existing procedure.

Moreover, the underlying premise for the ZGlobal assertions is that MRTU implementation will lead to substantial changes in the CAISO dispatch of control area generation resources to meet control area load. This is simply not the case. MRTU implementation will not change the generation resources available to the

CAISO nor will it change the configuration of the CAISO,WECC transmission grids or any control area boundaries. The ZGlobal assertions are particularly implausible in light of the well known reality that the most significant changes under MRTU concern replacement of infeasible day-ahead schedules with day-ahead schedules that are feasible on the CAISO grid. External control areas obviously have never observed the flow impacts of the infeasible schedules that are being eliminated, precisely because these schedules were infeasible.

If changes in the dispatch of control area generation to meet control area load frequently had material effects on transmission constraints external to the individual control area, this would give rise to concerns every time a new generation resource began or ceased operation within any WECC control area. It is a telling comment on the validity of the ZGlobal assertions that the ZGlobal Whitepaper can point to no such effects. Furthermore, MRTU implementation does not even involve changes in generation resources but only changes in the CAISO dispatch system and changes that make the CAISO dispatch more like that of other large WECC control areas that on a daily basis are planning and in real-time are dispatching the sets of resources and imports that are necessary to balance the system and maintain reserves in a secure and reliable manner.

The ZGlobal Whitepaper mischaracterizes the reasons for the "hold harmless" mechanisms implemented in conjunction with the implementation of MISO's real-time dispatch and incorrectly suggests that similar concerns will exist for MRTU implementation.

The ZGlobal Whitepaper asserts that hold harmless provisions such as those implemented in conjunction with the implementation of MISO's real-time dispatch are needed to protect external control areas against potential adverse effects from MRTU implementation. Not only does the ZGlobal Whitepaper fail to identify any such adverse effects, as outlined above, but it misrepresents the nature of the concerns that led to hold harmless provisions in the context of MISO implementation of inter-control area dispatch within its footprint and expansion of the PJM footprint during 2004 and 2005. The reliability issue arising in 2004 and 2005 in the east did not concern LMP implementation but rather grew out of changes in control areas boundaries and elimination of tags for transactions within the expanded MISO and PJM footprints. No such expansion of CAISO control area boundaries will accompany MRTU implementation, hence no change in the types of transactions that require tagging. MRTU implementation is simply a matter of implementing a new pricing and dispatch mechanism within existing control area boundaries, a change which did not require any hold harmless provisions when LMP was implemented in the existing PJM control area in 1998, in the existing NYPP control area in 1999, or in the ISO-NE control area in 2003.

It is noteworthy that the "examples" of adverse impacts on which the ZGlobal assertions are premised are not only entirely hypothetical, they do not even take account of WECC transmission path scheduling practices. Nor do the examples point to any specific dispatch practices under MRTU that would predictably adversely affect external control areas. Indeed, the examples appear to have some internal inconsistencies and are difficult to reproduce based on the information provided.

MRTU implementation will not adversely affect external control areas in the WECC. The kind of effects on external control areas described in the ZGlobal Whitepaper can arise, but they are unrelated to MRTU implementation and the WECC has procedures to manage these kinds of external effects, precisely because they arise from the nature of the transmission system, not from implementation of a particular pricing system. Moreover, there is no historical precedent, nor reasoned basis, for imposition of hold harmless provisions in conjunction with the implementation of LMP pricing within the existing CAISO control area.

That said, the CAISO reiterates its support for efforts proposed under WECC to develop west-wide, coordinated procedures for identifying and managing inter-control area power flows more efficiently and transparently. The CAISO believes it would be in all western parties' interests to pursue (1) the west-wide day-ahead scheduling and congestion management process developed through SSG-WI in 2003, which the CAISO filed with its pre-technical conference comments and which has been identified by the WECC Seams Issues Subcommittee as a work effort for 2007, and (2) development of transparent real-time redispatch service as was proposed by the Transparent Dispatch Advocates and is currently under consideration by FERC in its Order No. 888 reform Rulemaking Docket RM05-25-000.

ZGlobal's alleged impediments to bilateral contracting created by MRTU are without foundation.

First, the ZGlobal Whitepaper commits a serious flaw of logic in asserting that, because existing bilateral contracts were not developed for an LMP market, the MRTU design will impede the development of bilateral contracts in the future. The fact that vibrant bilateral contracting markets exist in the other regions that utilize LMP pricing demonstrates that ZGlobal's conclusion is unfounded. Buyers and sellers in the west are just as capable as those in the east of formulating workable bilateral contracts under LMP, once the market rules are established and transparent locational pricing is in operation.

Second, ZGlobal's attribution of market timeline differences to MRTU is incorrect. MRTU does not alter the day-ahead timeline that exists today, and it improves upon today's hour ahead timeline considerably by allowing bilateral

transactions on the interties to be scheduled 60 minutes closer to the start of the operating hour than they are today. Moreover, the fact that the CAISO's day-ahead energy market occurs hours later than the western bilateral trading market, which ZGlobal asserts is a major problem, is actually a major benefit to buyers and sellers in the west because it allows them a new opportunity to meet their residual needs in a transparent pool market when they are unable to complete the full extent of their desired bilateral contracts for the next day.

Third, although the introduction of LMP-based marginal losses does represent a significant change from today's assessment of losses in the CAISO's markets, ZGlobal's examples used to illustrate the severity of the problem are flawed and ignore both the cost of losses under today's market design and the ability of market participants to self-provide losses under MRTU.

ATTACHMENT B

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January 15, 2007

Mr. Charles King
Vice President, Market Development
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California ISO
P.O. Box 639014
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Dear Mr. King:

As you requested, I have reviewed the paper entitled "Seams Issues in the Eastern Interconnect," dated November 30, 2006, which was prepared by Seth Blumsack from the Carnegie Mellon Electricity Industry Center for the Control Area Coalition("Blumsack Paper"). The paper contains a number of factually incorrect statements, the analysis contained therein regarding Transmission Loading Relief (TLR) history in the PJM Interconnection (PJM), including areas that have integrated into PJM, is incomplete and therefore forms inaccurate and misleading conclusions.

Below, I have listed some of the inaccuracies contained in the paper along with my comments and analysis regarding them:

1. The Blumsack paper asserts on page 3 that:

   "PJM has seventeen "zones," (roughly corresponding to control areas) in its footprint…" .

   PJM Observation: This statement is not accurate. The PJM market is operated as a single electrical control area. The zones to which Mr. Blumsack refers are transmission tariff zones not separate control areas.

2. The Blumsack paper claims the following:

   "Seams effects have also been felt within and between RTOs. TLRs in PJM and MISO have increased, as have total and average congestion costs. Unanticipated seams effects in the Northeast have included inconsistencies in the way that LMPs, ATC, and aggregate system models are calculated across RTO boundaries. These seams issues create perceived uncertainty among market participants. The three Northeastern RTOs1 have formed a cooperative working group to identify and address these and other seams issues that might arise."

Loop flows and other unanticipated parallel flows are noticeably increasing the stress on the existing transmission grid. In the Eastern Interconnect, stress on the system can be measured by examining the incidence of TLR events over time. TLRs are not used in the WECC, which has its own emergency overload procedure. TLRs are a NERC approved set of hierarchical command-and-control procedures for reducing stress on the system in order to keep equipment on the system operating within its predefined limits.
When invoked, the TLR procedure rations physical access to the transmission grid according to system needs and the type of transmission service (firm versus non-firm, for example) that various entities have purchased from the transmission owner. Thus, calling a sufficiently severe TLR event effectively gives the transmission owner authority to cut schedules according to the firmness of the schedule, the transmission service, or the purchase/sale agreement.

One sign of increasing stress on the system due to increased utilization of the grid for long-distance wholesale transactions, is the increase in the incidence of TLRs. Figure 3.3 shows the annual number of TLR events between 1997 and 2005. The aggregate number of TLRs of Level 2 or higher (when transmission owners begin restricting access to the grid) has increased by several orders of magnitude since the onset of restructuring and market operations in the Eastern Interconnect, from less than 50 in 1997 to nearly 2,500 in 2005.

Unsurprisingly, the greatest contributor to the rapid increase in the incidence of TLR events has been within the borders of the various RTO markets. Figure 3.5 shows the annual number of TLRs in PJM and MISO. However, the increase in grid utilization due to RTO market activity has increased the incidence of TLR events even in non-RTO territories. Annual TLR events between 1997 and 2005 for three reliability coordinators in the Southeastern U.S. (TVA, SPP, and Entergy) are shown in Figure 3.6."

PJM Observations

The paper points out correctly that in fact that TLR activity in the Eastern Interconnection has continued to increase since the program was put in place in July of 1997 through 2005. However, the paper inaccurately attributes this activity to RTO market formation. In fact, with open transmission access, more interregional transactions have occurred into and out of areas where no organized markets exist. The real issue is that many of the interregional transactions outside of RTO markets are based on the outdated NERC TLR process which is based on a contract-path models that do not reflect the realities of power system operation. This contract path scheduling practice creates much of the unscheduled loop flow that has been observed. Consequently, TLR activity has also increased.

The RTO market formation has actually improved the situation by providing more accurate flow-based methods to manage interregional congestion. Therefore, as I will discuss later in this document, the organized RTO markets are not the problem, in fact they are the solution to the increasing unscheduled flow problem that has caused the increasing TLR trend. In addition, the Blumsack paper fails to note that this increasing trend in the number of TLRs called has reversed starting in October 2005. Figure 1 below shows the total number of TLRs by month from July 1997 with a rolling 12-month average trend. This data shows that while there are a few months, since October 2005, where the number of TLRs called is higher, the overall trend has started to decline. This recent decline in the number of TLRs, which was overlooked by the Blumsack Paper, is evidence that the Midwest Independent Transmission System Operator (MISO) market growth and the PJM expansion actually have begun help the situation.

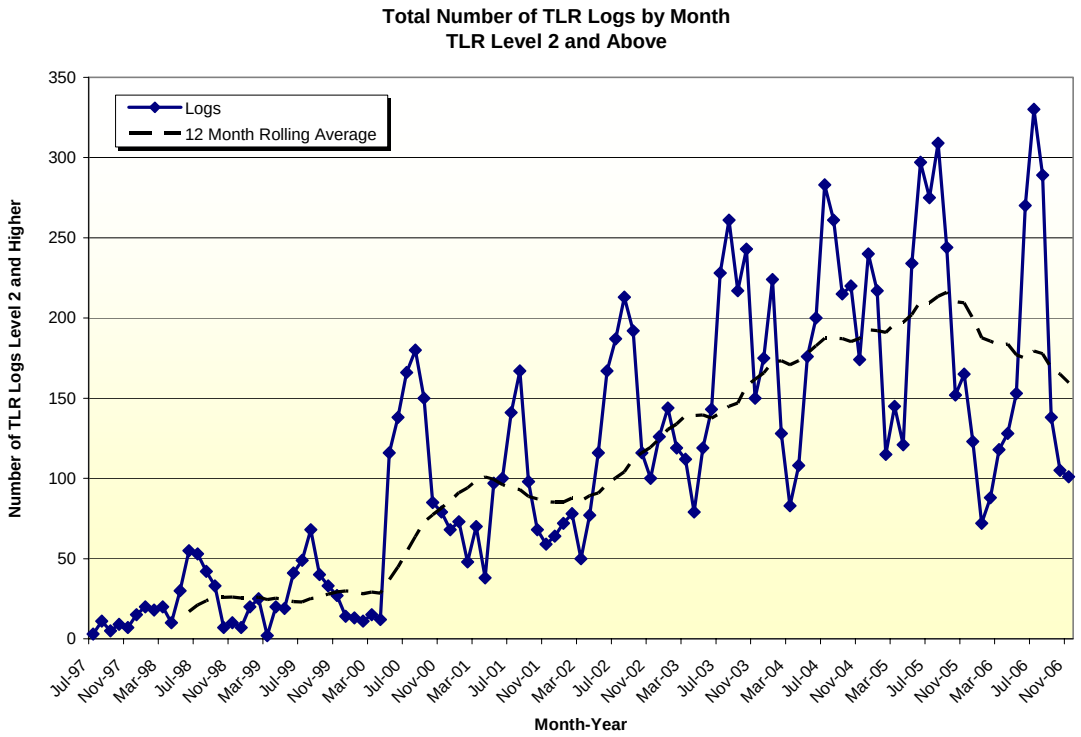

Figure 1: Number of TLRs by Month

3. The Blumsack paper notes:

"Unsurprisingly, the greatest contributor to the rapid increase in the incidence of TLR events has been within the borders of the various RTO markets." The graph where this evidence is

presented only considers the number of TLRs called by MISO and PJM. See Figure 2 below.

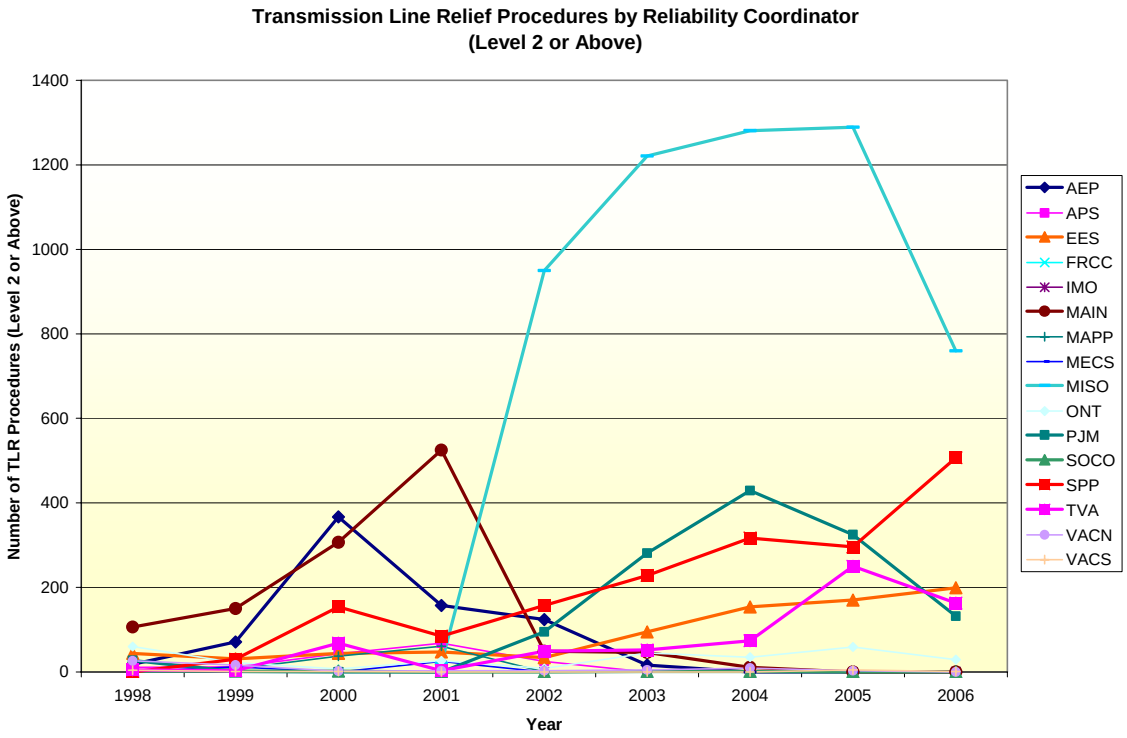

Figure 2: Transmission Line Relief Procedures by Reliability Coordinator

PJM Observations:

The Blumsack paper fails to recognize the number of TLRs that have historically been called by entities who joined RTO markets prior to their integration into either PJM or MISO. In addition, this graph only shows data through the end of 2005 which omits the more recent reversing trend . Figure 3 below provides a better representation of the number of TLRs called by entities prior to their integration into PJM and by PJM following their integration. A review of the more accurate depiction shown in Figure 3 demonstrates that, contrary to Mr. Blumsack's assertion, TLRs did not increase substantively when Allegheny, AEP and Dominion were integrated into PJM. In fact, as PJM has expanded and implemented more interregional coordination agreements, the TLR activity has substantially reduced from pre-integration levels.

Figure 3 clearly shows that while the number of TLRs called by PJM did in fact increase, they have started to decline as traditional constraints became internalized into PJM. PJM only utilizes TLRs on facilities that are significantly impacted by loop flows created by external entities scheduling energy into, out of, or through the PJM footprint compared to internal PJM re-dispatch options. PJM's analysis indicates that this loop flow is sourcing from areas that use contract path scheduling rather than LMP-based markets.

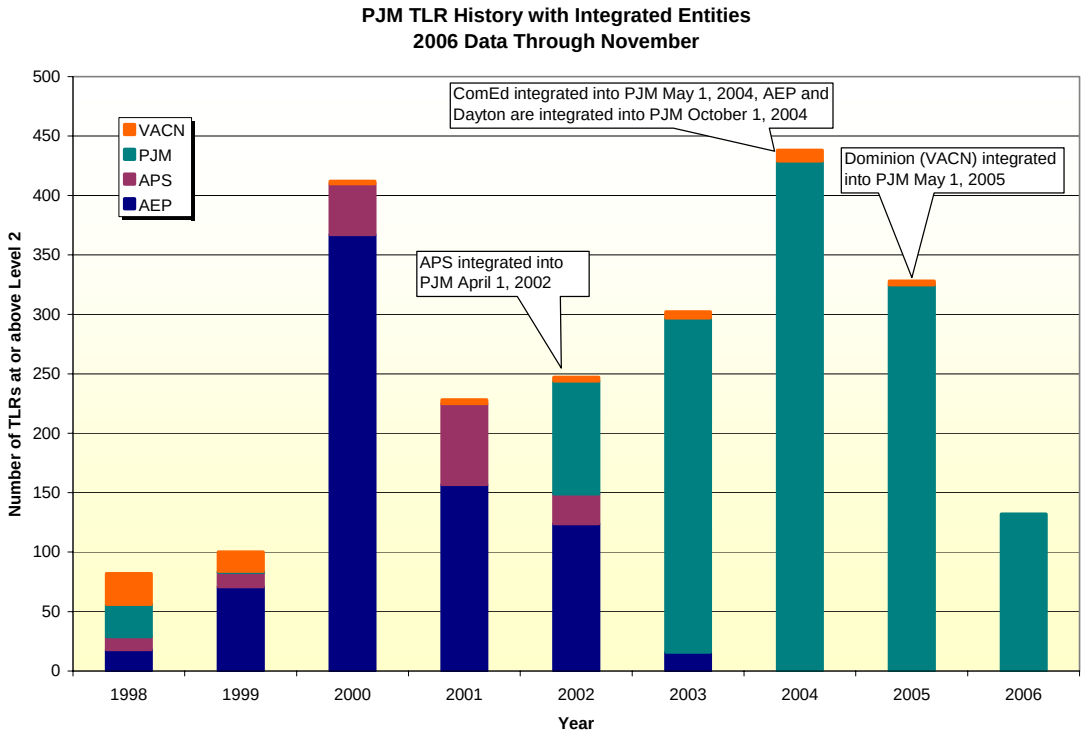

Figure 3: PJM and Integrated Entities TLR History with Integration Dates

4. The Blumsack paper also claims *"the increase in grid utilization due to RTO market activity has increased the incidence of TLR events even in non-RTO territories."* The paper also provided a graph comparing the number of TLRs called for SPP, Entergy, and SPP through the end of 2005.

PJM Observations:

During 2005, the Tennessee Valley Authority (TVA) and PJM have been working closely to address seams issues. Several agreements went into effect during the 2005-2006 to address these issues. Figure 4 provides an expanded look through November 2006 which shows that while the number of TLRs for the Southwest Power Pool (SPP) and Entergy continue to increase, the number of TLRs called by TVA is down considerably for 2006 through the end of November. PJM has experienced a decline in both the number of TLRs implemented and the duration of TLRs since 2004 when numerous PJM market integrations occurred. MISO has also seen a reduction in the number of TLRs called to date in 2006.
Considering their distant location relative to the RTO markets, the continued increase in TLR activity in Entergy and SPP is more likely caused by increases in interregional transactions that have occurred in areas where no organized markets exist. The real issue is that many of these transactions continue to be scheduled based on contract-path methods which create additional unscheduled flows because actual flow patterns have proven to be different than the outdated contract path models. As observed by the data in PJM, MISO and TVA, the RTO market formation has actually improved the situation by providing more accurate flow-based methods to manage interregional congestion.

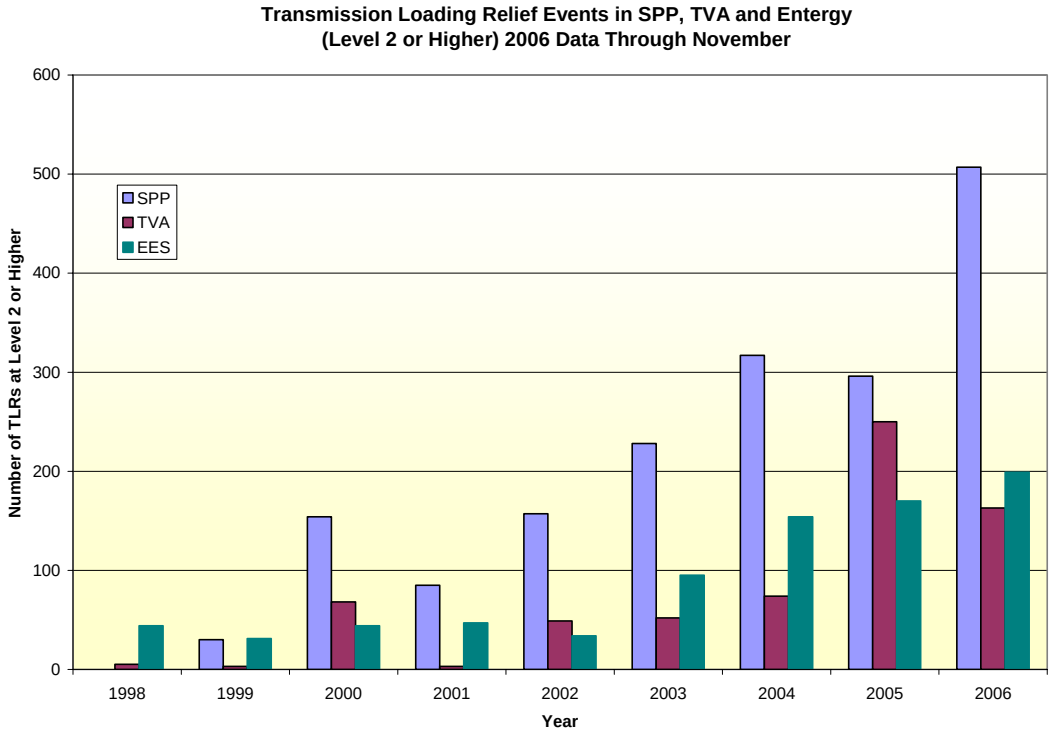

Figure 4: Transmission Loading Relief Events for SPP, TVA and Entergy

5. The Blumsack paper, on page 7, also states the following:

"Transactions that take place entirely within an RTO footprint are generally not required to be tagged. This is true even if the transaction crosses multiple control areas within the RTO footprint, since all transactions within the RTO market are assumed to be using "network" transmission service. The expansion of RTO markets in the eastern
interconnect has meant that fewer long-distance interchange transactions are tagged. Since tagged transactions constitute the pool of transactions that a transmission owner could cut if forced to invoke a TLR, this gives transmission owners in physical markets fewer options to ensure reliability of the system. That is, if transmission owners in physical markets could see individual tagged transactions that involve wheeling into RTO markets, these individual transactions could be cut under the TLR protocol."

PJM Comments
The statement listed above is quite misleading because it does not recognize PJM and MISO's implementation of market-to-non-market congestion management protocols. Under these protocols both PJM and MISO are required to provide market flow data to NERC and will redispatch to ensure that flow relief is provided if TLR procedures are invoked by a physical market operator on an eligible flowgate. Therefore contrary to the statements in the Blumsack paper, the RTO markets do, in fact, provide constraint relief for physical market operators. In fact, the dispatch-based flow relief that PJM and MISO provide is superior to the transaction tagging process because the dispatch is based on actual power flow rather that the contract path approach employed in the tagging process. Therefore, the Blumsack paper is incorrect in asserting that physical market operators have fewer alternatives in dealing with market flows. The fact is, they have better alternatives to maintain grid reliability because their neighboring RTO markets can more accurately quantify and control unscheduled power flows through the flow-based congestion management system and LMP pricing. Mr. Blumsack also recognizes PJM and MISO efforts in additional interregional congestion coordination later in the paper in reference to seams agreements with TVA. PJM clarifies that PJM in fact has seams agreements with <u>all</u> of its neighbors.

If you have any additional questions on these subjects, please do not hesitate to contact me.

Sincerely,

/s/ *Andrew L. Ott*

Andrew L. Ott
Vice President, Markets, PJM

Certificate of Service

I hereby certify that I have this day served a copy of this document upon all parties listed on the official service list compiled by the Secretary in the above-captioned proceedings, in accordance with the requirements of Rule 2010 of the Commission's Rules of Practice and Procedure (18 C.F.R. § 385.2010).

Dated this 16th day of January, 2007 at Folsom in the State of California.

/s/ Sidney M. Davies
Sidney M. Davies
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