Revised Discussion Draft
RTO West Credit Issues Overview

From a financial standpoint, providing transmission service in an open market place through an independent, non-profit organization presents issues that previous transmission service models did not contemplate. The model for the Federal Energy Regulatory Commission's Pro Forma Open Access Transmission Tariff (the "OATT") was a single, vertically integrated utility with an obligation to wheel power across its system for third parties, to the extent there was available capacity, using its own generation resources to provide ancillary services. In contrast, RTO West will wheel power across facilities owned by multiple parties, and will provide ancillary services (particularly imbalance energy) through a market system of third-party bids. Like the transmission providers for which the OATT was designed, RTO West will be obligated to serve as transmission customers' provider-of-last-resort for ancillary services. Unlike those transmission providers, however, RTO West will have no resources of its own with which to fulfill this obligation.

When it comes to imbalance energy (supplying energy to meet deviations between scheduled deliveries and actual energy consumption), RTO West will depend on third parties to supply system needs and will also depend on third parties to pay for the supplies they require. As recent events in California have shown, an RTO or other transmission operator can, under adverse market conditions, rapidly find itself deeply in debt to energy suppliers with few options to respond.

As the example calculations accompanying this overview illustrate, if even a small portion of the load using RTO West transmission facilities must be served through imbalance energy within a given time period, costs to purchasers can multiply with astounding speed. RTO West a non-profit, involuntary "middle person" purchasing imbalance energy from suppliers could quickly face insolvency if the parties to whom it supplies imbalance energy (likely to be scheduling coordinators in most cases) cannot or do not settle their financial obligations quickly. High energy market prices compound the problem several fold.

Because of its status as provider-of-last-resort, RTO West could find itself with what amounts to a load service obligation without adequate tools to manage that obligation. RTO West will be at the mercy of a market it doesn't control and dependent on scheduling coordinators to cover its imbalance energy purchases. Meanwhile, market participants will find themselves in a system in which they cannot identify and screen for credit risk the counter-parties with whom they are dealing.

The RTO West Liability and Risk Management Work Group (the "Work Group") has developed this overview and its accompanying attachments to provide recommendations to address the extraordinary exposure RTO West could face with respect to credit risk. The Work Group's view is that a major component of the credit risk for RTO West relates to RTO West's obligations to provide ancillary services to scheduling coordinators, and in particular, imbalance

energy. Credit risks arising from scheduling coordinator transactions are not limited to ancillary services, however. They may well include financial obligations related to charges for real power losses, purchases of transmission rights, scheduling-based grid management fees, and costs to RTO West to manage residual congestion within and between congestion zones.

This paper briefly describes why RTO West needs a comprehensive strategy to manage credit risk. It is accompanied by a matrix of proposed tools to manage RTO West's potential credit exposure (as well as a discussion of possible implications of applying those tools), a draft set of credit requirements for scheduling coordinators, and a draft policy concerning penalties for scheduling coordinators' excessive use of imbalance energy. The inclusion of penalty provisions for over-reliance on imbalance energy is intended as a preventive strategy, to help avoid situations where an RTO must purchase enormous amounts of energy in real time and look to scheduling coordinators to recover the associated expenses.

In Order No. 2000, the Federal Energy Regulatory Commission stated that an "RTO [must] have adequate arrangements in place for the provision of ancillary services." [1] The provision of "adequate arrangements" means that an "RTO could fulfill its ancillary services obligations through a variety of mechanisms, including contractual arrangements, indirect or direct control of specified generation facilities, or market mechanisms."[2]

If the RTO has an unlimited obligation to directly provide imbalance energy to scheduling coordinators, its exposure to corresponding financial consequences is similarly unlimited. Any time a scheduling coordinator seriously delays or defaults in obligations to pay the RTO for imbalance energy, the RTO will somehow have to make up the shortfall. If the RTO itself has limited financial resources (as is likely to be the case with a nonprofit entity such as RTO West), transmission owners and generators fear that they will be required (directly or indirectly) to assume financial responsibly for those payment obligations the RTO cannot satisfy. While in the current market environment generators and transmission owners must address as a cost of doing business customer insolvency, this is completely different from an assumption of responsibility for an RTO's insolvency (or imposition of unrecovered costs). For one thing, generators and transmission owners would not normally expect to be exposed to the consequences of defaults by parties with whom they do not do business. If the RTO becomes a mechanism for spreading costs of scheduling coordinator defaults to generators, transmission owners, and other scheduling coordinators (as has been the case in California, for instance), then the magnitude and unpredictability of the financial risks associated with market participation can increase exponentially.

There are three factors that cause an RTO's risks associated with imbalance energy to be of such great concern: (1) the fact that imbalance energy is used to make up the shortfall between the amount of energy that a scheduling coordinator or load serving entity schedules and delivers to its customers and the amount of energy those customers actually consume; (2) the fact that an RTO may have significant difficulties in terminating service to a delinquent scheduling coordinator; (3) the fact that the price of energy used to provide imbalance energy is

[1] Order No. 2000, FERC Stats. & Regs. ¶ 31,089 at 31,141 (2000) at 31,140.
[2] Id. at 31,141.

unpredictably volatile and subject to extreme and sustained price spikes. The third factor could cause even the most creditworthy counter-party to become uncreditworthy virtually overnight.

To deal with financial exposure from defaulting scheduling coordinators, RTO will need, at a minimum, the ability to disqualify defaulting scheduling coordinators from further participation in the RTO West system. Even this remedy, however, will require a contingency plan to supply and schedule power to the customers of disqualified scheduling coordinators. This means that someone must take on the financial and technical responsibility previously borne by the disqualified scheduling coordinator. There are essentially two options: (1) someone must guarantee the financial and scheduling obligations of the scheduling coordinator, or (2) everyone using the RTO system must share in the financial and scheduling burden created by defaulting scheduling coordinators. The second option, however, poses serious risks both to RTO West's solvency and to system stability. If there were no fallback plan for serving customers of disqualified scheduling coordinators, the only other recourse available would be service termination.

For numerous regulatory, operational, and political reasons, an RTO may not be able to terminate service to a defaulting scheduling coordinator. From an operational standpoint, it may be impossible to isolate from the transmission system the loads being served by a defaulting scheduling coordinator. Customer-specific transmission connections are likely to be the exception, rather than the rule.

Even in those cases where it might be technically feasible to terminate transmission deliveries, it may be inequitable. For example, it may be that the customers have paid their scheduling coordinator, but the scheduling coordinator has not paid RTO West. Interrupting power to end-use customers in those cases would unfairly penalize innocent parties.

Leaving aside fairness issues, disrupting power deliveries at the transmission system level (as opposed to meter-by-meter at the distribution level) could have intolerable consequences with respect to health and safety risks and economic disruption. For example, it may be that a customer of a defaulting scheduling coordinator is a municipal power system with thousand of residential, commercial, and industrial customers.

The infeasibility of service termination for non-payment creates the problem of a quasi-load-service-obligation for RTO West. At the same time, it could expose RTO West, generators, and transmission owners to significant financial liability and increased rates for transmission service. In severe circumstances it could threaten RTO West's financial viability. For all these reasons, the Work Group believes it is necessary to do everything possible to assure the creditworthiness of scheduling coordinators that do business with RTO West, and to strongly discourage reliance on imbalance energy as a means to serve load.

The attached documents are intended to help address the unique credit risk problems for RTOs that are described in this overview.

Illustrative Examples of Price Exposure for Imbalance Energy - Various Load, Price, and Duration Assumptions

MW of Load	% Served w/ IE	IE Price	Exposure for 1 hour	Exposure for 100 hours	Exposure for 500 Hours
100	0.05	$50	$250	$25,000	$125,000
100	0.05	$300	$1,500	$150,000	$750,000
100	0.05	$750	$3,750	$375,000	$1,875,000
100	0.75	$50	$3,750	$375,000	$1,875,000
100	0.75	$300	$22,500	$2,250,000	$11,250,000
100	0.75	$750	$56,250	$5,625,000	$28,125,000
500	0.05	$50	$1,250	$125,000	$625,000
500	0.05	$300	$7,500	$750,000	$3,750,000
500	0.05	$750	$18,750	$1,875,000	$9,375,000
500	0.75	$50	$18,750	$1,875,000	$9,375,000
500	0.75	$300	$112,500	$11,250,000	$56,250,000
500	0.75	$750	$281,250	$28,125,000	$140,625,000
2000	0.05	$50	$5,000	$500,000	$2,500,000
2000	0.05	$300	$30,000	$3,000,000	$15,000,000
2000	0.05	$750	$75,000	$7,500,000	$37,500,000
2000	0.75	$50	$75,000	$7,500,000	$37,500,000
2000	0.75	$300	$450,000	$45,000,000	$225,000,000
2000	0.75	$750	$1,125,000	$112,500,000	$562,500,000

MW of Load = the amount of load that an entity is serving
% Served with IE = the amount of that load that is being served out of the Imbalance Energy market
IE Price = the price that the RTO West is charging for 1 MWh of Imbalance Energy
Exposure for 1 Hour = the amount owed by that entity for one hour with the described characteristics
Exposure for 100 Hours = the amount owed by that entity for 100 hours with the described characteristics
Exposure for 500 Hours = the amount woed by that entity for 500 hours with the described characteristics

This table illustrates that 1) as the amount of load served with imalance energy increases, the market exposure to that entity increases significantly (unless collateralized) and that 2) as the price of imbalance energy increases, the market's exposure to that entity increases significantly (unless collateralized).

This chart also illustrates what happens when there is a confluence of events in which both the price of imbalance energy imbalance and the amount of it used to serve load are very high and demonstrates why the commerical liability team believes that it is critical to have a number of strong tools in place to mitigate both price spikes and prevent heavy reliance on the IE market for serving load.

Analysis of Annual Energy Imbalance Risk USING ILLUSTRATIVE DATA

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Case A--10% RTO West Load Underscheduled

Price of Imbalance Energy ($/MWHr)	$50	$100	$250	$500	$750
Days of Underscheduling	60	60	60	60	60
Hours of Underscheduling per day	10	10	10	10	10
Total Hours of Underscheduling	600	600	600	600	600
% of Year Underscheduled (%Hours)	6.85%	6.85%	6.85%	6.85%	6.85%
RTO West Annual Load (Average MW)	35,000	35,000	35,000	35,000	35,000
Percent of Regional Load Underscheduled	10.0%	10.0%	10.0%	10.0%	10.0%
MWHrs of Imbalance Energy Needed to Balance Schedules	2,100,000	2,100,000	2,100,000	2,100,000	2,100,000
Cost of Imbalance Energy	$105,000,000	$210,000,000	$525,000,000	$1,050,000,000	$1,575,000,000
Estimated Annual Transmission Fixed Costs (Company Rate Plus Uplift)	$2,000,000,000	$2,000,000,000	$2,000,000,000	$2,000,000,000	$2,000,000,000
Cost of Imbalance Energy as a Percent of Annual Fixed Costs	5.25%	10.50%	26.25%	52.50%	78.75%
Annual Cost of Financing 100% Imbalance Reserve with 100% Debt at 9.5%	$ 9,975,000	$ 19,950,000	$ 49,875,000	$ 99,750,000	$ 149,625,000
Imbalance Energy Reserve Costs as a Percent of Annual Fixed Costs	0.50%	1.00%	2.49%	4.99%	7.48%
*% RTO West Load Met by BPA	40.0%	40.0%	40.0%	40.0%	40.0%
Imbalance Energy Risk to BPA	$ 42,000,000	$ 84,000,000	$ 210,000,000	$ 420,000,000	$ 630,000,000
Book Value of Transmission (Net of Depreciation)	$ 2,500,000,000	$ 2,500,000,000	$ 2,500,000,000	$ 2,500,000,000	$ 2,500,000,000
Imbalance Energy Cost as a Percent of Book Value	1.7%	3.4%	8.4%	16.8%	25.2%
*% RTO West Load Met by PacifiCorp	22.0%	22.0%	22.0%	22.0%	22.0%
Imbalance Energy Risk to PacifiCorp	$ 23,100,000	$ 46,200,000	$ 115,500,000	$ 231,000,000	$ 346,500,000
Book Value of Transmission (Net of Depreciation)	$ 1,400,000,000	$ 1,400,000,000	$ 1,400,000,000	$ 1,400,000,000	$ 1,400,000,000
Imbalance Energy Cost as a Percent of Book Value	1.7%	3.3%	8.3%	16.5%	24.8%
*% RTO West Load Met by Idaho	7.0%	7.0%	7.0%	7.0%	7.0%
Imbalance Energy Risk to Idaho	$ 7,350,000	$ 14,700,000	$ 36,750,000	$ 73,500,000	$ 110,250,000
Book Value of Transmission (Net of Depreciation)	$ 226,000,000	$ 226,000,000	$ 226,000,000	$ 226,000,000	$ 226,000,000
Imbalance Energy Cost as a Percent of Book Value	3.3%	6.5%	16.3%	32.5%	48.8%
*% RTO West Load Met by TransConnect Utilities	22.0%	22.0%	22.0%	22.0%	22.0%
Imbalance Energy Risk to TransConnect Utilities	$ 23,100,000	$ 46,200,000	$ 115,500,000	$ 231,000,000	$ 346,500,000
Book Value of Transmission (Net of Depreciation)	$ 1,285,000,000	$ 1,285,000,000	$ 1,285,000,000	$ 1,285,000,000	$ 1,285,000,000
Imbalance Energy Cost as a Percent of Book Value	1.8%	3.6%	9.0%	18.0%	27.0%
*% RTO West Load Covered by Other SCs	9.0%	9.0%	9.0%	9.0%	9.0%
Imbalance Energy Risk to SCs Other than Filing Utilities	$ 9,450,000	$ 18,900,000	$ 47,250,000	$ 94,500,000	$ 141,750,000
Book Value of Transmission (Net of Depreciation)	$ 300,000,000	$ 300,000,000	$ 300,000,000	$ 300,000,000	$ 300,000,000
Imbalance Energy Cost as a Percent of Book Value	3.2%	6.3%	15.8%	31.5%	47.3%

*Footnote - These are just illustrative numbers to demonstrate the relationship between price, percentage of load served through the Imbalance Energy Market and the amounts of exposure created.

Analysis of Annual Energy Imbalance Risk USING ILLUSTRATIVE DATA

5/10/01

Case B--20% RTO West Load Underscheduled

Price of Imbalance Energy ($/MWHr)		$50	$100	$250	$500	$750
Days of Underscheduling		60	60	60	60	60
Hours of Underscheduling per day		10	10	10	10	10
Total Hours of Underscheduling		600	600	600	600	600
% of Year Underscheduled (%Hours)		6.85%	6.85%	6.85%	6.85%	6.85%
RTO West Annual Load (Average MW)		35,000	35,000	35,000	35,000	35,000
Percent of Regional Load Underscheduled		20.0%	20.0%	20.0%	20.0%	20.0%
MWHrs of Imbalance Energy Needed to Balance Schedules		4,200,000	4,200,000	4,200,000	4,200,000	4,200,000
Cost of Imbalance Energy		$210,000,000	$420,000,000	$1,050,000,000	$2,100,000,000	$3,150,000,000
Estimated Annual Transmission Fixed Costs (Company Rate Plus Uplift)		$2,000,000,000	$2,000,000,000	$2,000,000,000	$2,000,000,000	$2,000,000,000
Cost of Imbalance Energy as a Percent of Annual Fixed Costs		10.50%	21.00%	52.50%	105.00%	157.50%
Annual Cost of Financing 100% Imbalance Reserve with 100% Debt at 9.5%	$	19,950,000	$ 39,900,000	$ 99,750,000	$ 199,500,000	$ 299,250,000
Imbalance Energy Reserve Costs as a Percent of Annual Fixed Costs		1.00%	2.00%	4.99%	9.98%	14.96%
% RTO West Load Met by BPA		40.0%	40.0%	40.0%	40.0%	40.0%
Imbalance Energy Risk to BPA	$	84,000,000	$ 168,000,000	$ 420,000,000	$ 840,000,000	$ 1,260,000,000
Book Value of Transmission (Net of Depreciation)	$	2,500,000,000	$ 2,500,000,000	$ 2,500,000,000	$ 2,500,000,000	$ 2,500,000,000
Imbalance Energy Cost as a Percent of Book Value		3.4%	6.7%	16.8%	33.6%	50.4%
% RTO West Load Met by PacifiCorp		22.0%	22.0%	22.0%	22.0%	22.0%
Imbalance Energy Risk to PacifiCorp	$	46,200,000	$ 92,400,000	$ 231,000,000	$ 462,000,000	$ 693,000,000
Book Value of Transmission (Net of Depreciation)	$	1,400,000,000	$ 1,400,000,000	$ 1,400,000,000	$ 1,400,000,000	$ 1,400,000,000
Imbalance Energy Cost as a Percent of Book Value		3.3%	6.6%	16.5%	33.0%	49.5%
% RTO West Load Met by Idaho		7.0%	7.0%	7.0%	7.0%	7.0%
Imbalance Energy Risk to Idaho	$	14,700,000	$ 29,400,000	$ 73,500,000	$ 147,000,000	$ 220,500,000
Book Value of Transmission (Net of Depreciation)	$	226,000,000	$ 226,000,000	$ 226,000,000	$ 226,000,000	$ 226,000,000
Imbalance Energy Cost as a Percent of Book Value		6.5%	13.0%	32.5%	65.0%	97.6%
% RTO West Load Met by TransConnect Utilities		22.0%	22.0%	22.0%	22.0%	22.0%
Imbalance Energy Risk to TransConnect Utilities	$	46,200,000	$ 92,400,000	$ 231,000,000	$ 462,000,000	$ 693,000,000
Book Value of Transmission (Net of Depreciation)	$	1,285,000,000	$ 1,285,000,000	$ 1,285,000,000	$ 1,285,000,000	$ 1,285,000,000
Imbalance Energy Cost as a Percent of Book Value		3.6%	7.2%	18.0%	36.0%	53.9%
% RTO West Load Covered by Other SCs		9.0%	9.0%	9.0%	9.0%	9.0%
Imbalance Energy Risk to SCs Other than Filing Utilities	$	18,900,000	$ 37,800,000	$ 94,500,000	$ 189,000,000	$ 283,500,000
Book Value of Transmission (Net of Depreciation)	$	300,000,000	$ 300,000,000	$ 300,000,000	$ 300,000,000	$ 300,000,000
Imbalance Energy Cost as a Percent of Book Value		6.3%	12.6%	31.5%	63.0%	94.5%