

RTO West Congestion Management Proposal

A. Introduction.

This paper describes the key elements of the RTO West filing utilities' proposal for a congestion management system for RTO West. Section B contains an executive summary of the proposal description. Section C.1 provides some background information to help readers understand the operational framework within which the RTO West congestion management proposal is designed to fit. Section C.2 describes the general market design that will support RTO West operations and settlement related to congestion management. Section C.3 explains the characteristics and use of Financial Transmission Options. Section C.4 describes the process for cataloguing and managing pre-existing transmission contracts and load service obligations that are not converted into Financial Transmission Options. Section D describes some of the additional work needed to develop many of the details related to the proposed congestion management system. Section E describes the expected future role of the RTO West Board of Trustees in monitoring, reviewing, and, if necessary, modifying the RTO West congestion management system.

There are also two appendices to this paper. Appendix A contains a glossary of acronyms and key terms. Appendix B contains Draft Supplemental Procedures and Rules for Cataloguing and Conversion.

B. Executive Summary.

This proposal for an RTO West congestion management system is based on the calculation of locational, bid-based prices at each bus on the RTO West transmission system. It has been developed to mesh with the operational characteristics of the loads, resources, and transmission system within the RTO West geographical area.

RTO West will accept all schedule requests properly submitted to it. The initial period for submitting schedules to RTO West (which can be done only through recognized "Scheduling Coordinators") will be in the day before operations (the "Day-Ahead"). RTO West will use the scheduling requests it receives to analyze the resulting power flows for congestion problems. Except where operationally infeasible, RTO West will procure necessary generation increases and decreases, as well as dispatchable demand response (collectively referred to in this paper as "incs" and "decs"), to implement the schedule requests it has received. Participation in the RTO West inc and dec bidding process will be entirely voluntary.

RTO West will use the bids it receives in a security constrained, least-cost redispatch to calculate the marginal cost of serving the next increment of load at each bus in the system. Congestion charges will be based on the spread in bus prices between each schedule's withdrawal and injection locations (which are then multiplied by the size of the schedule).

While the specific market design and settlement system will be completed once details of RTO West's ancillary services system are developed, this paper describes the congestion management system as a two-settlement model. Assuming a two-settlement model, once the Day-Ahead process is completed, those schedules that have been accepted will become financially firm and the Scheduling Coordinators will be responsible for paying for congestion management actions necessary to implement those schedules.

There will be two bases on which Scheduling Coordinators can hedge themselves financially against congestion charges: Financial Transmission Options (or "FTOs"), which are briefly described below and in more detail in section C.3 of this paper; and Catalogued Transmission Rights (or "CTRs"), which are also briefly described below and in more detail in section C.4 of this paper. Scheduling Coordinators that do not have FTOs or CTRs will nevertheless be able to submit schedule requests, either by specifying a limit on maximum congestion charges they are willing to bear to have the schedule implemented, or by submitting schedule requests with a commitment to pay whatever congestion clearing charges apply.

After the Day-Ahead scheduling period, Scheduling Coordinators will be able to modify their Day-Ahead schedules (as permitted by RTO West scheduling rules yet to be developed), but they will be charged for any applicable congestion clearing needed to implement the modifications. There will be special rules to deal with schedule modifications necessitated by forced outages.

In the two-settlement model, following system dispatch in a given operating hour ("Real-Time"), there will be a second settlement. Scheduling Coordinators will be charged for applicable congestion clearing related to the schedule modifications they submitted, as well as for any imbalance between actual and scheduled energy injections and withdrawals.

As noted above, FTOs are financial hedging tools that allow Scheduling Coordinators to manage their risk of incurring congestion charges. FTOs confer no physical rights to schedule on the RTO West system, and Scheduling Coordinators do not need to obtain FTOs before they are allowed to submit schedule requests. FTOs can be traded freely in secondary markets (subject to any registration rules RTO West may adopt to track ownership), but only Scheduling Coordinators may "redeem" FTOs (that is, submit them to RTO West to receive credit against schedules they submitted to RTO West).

An FTO is the right to receive a credit against congestion charges incurred during a particular hour (specified in the FTO) as determined by the positive price differential between the withdrawal and injection locations specified in the FTO multiplied by the megawatt quantity specified in the FTO.¹ Because they are options, FTOs never become obligations for the holder to pay a given price spread to RTO West. While an FTO's value can be zero (if there is no price spread between its specified withdrawal and injection locations), it cannot be negative. If the

¹ For example, if an FTO is defined by a megawatt quantity for a specified hour between injection point A and withdrawal point B, the price differential would be determined by the locational price at withdrawal point B (for the specified hour) minus the locational price at injection point A.

price spread between an FTO's withdrawal and injection locations is negative, the holder receives no credit.

FTOs do not confer rights to receive cash independent of whether the Scheduling Coordinator has incurred congestion charges; they have value only to the extent they are redeemed to receive credit against congestion charges a Scheduling Coordinator has incurred during the hour specified in the FTO. If a Scheduling Coordinator has FTOs with credit value for a given hour greater than the congestion charges the Scheduling Coordinator has incurred, the credit applied equals the congestion charges. Any surplus value is lost.

The value of FTOs is not dependent upon whether the Scheduling Coordinator holding the FTO submits a schedule request that precisely corresponds to the injection and withdrawal locations specified in the FTO. The credit value generated by a particular FTO may be used to offset congestion charges resulting from any schedules a Scheduling Coordinator has submitted during the hour specified in the FTO.²

RTO West will auction FTOs of various durations (such as one year, one month, one week, and so on) in accordance with its determinations of: (1) what combinations of FTO releases will generate the greatest total auction revenue; and (2) the maximum amount of FTOs it can make available consistent with its guidelines related to system and revenue adequacy. On the basis of these assessments, RTO West will hold periodic advance auctions (such as six months ahead, one month ahead, and so forth) to release FTOs.

FTOs other than those auctioned by RTO West can be issued through two additional processes: (1) voluntary conversion of pre-existing contracts (or, more precisely, the CTRs that reflect them) into FTOs, and (2) system expansion (in which project sponsors may receive FTOs based on the increase in physical capacity their projects deliver). Whatever their origins, all FTOs will be freely tradable in secondary markets.

As previously noted, FTOs are not the only means by which Scheduling Coordinators can hedge against congestion charges. Schedules that are submitted consistent with the terms of a CTR will receive credits equal to any congestion charges associated with those schedules. A CTR will never generate credits greater than the congestion charges resulting from a schedule submitted on the basis of that CTR.

CTRs are the catalogued rights that will enable RTO West to provide transmission service to carry out each Participating Transmission Owner's ("PTO") pre-existing contract and load service obligations. RTO West will manage the aggregate pre-existing obligations using the minimum set of CTRs from the CTR catalogue and the "Congestion Management Assets" (explained in more detail in section C.4 below) each PTO has provided to support its total set of

² This feature is designed to improve liquidity and make FTOs more tradable in the secondary market and should be feasible because the amount of FTOs and CTRs made available on the system are intended to match the available capacity of the system.

The settlement process for schedules submitted on the basis of CTRs will be the same as for schedules submitted with or without FTOs (although RTO West will accommodate PTO actions necessary to honor CTRs that permit Contract Customers' Scheduling Coordinators to modify schedules after Day-Ahead, consistent with the terms of the underlying contract).⁵ Credits related to CTRs will not be flexible like FTOs, because a CTR credit will apply only where the schedule submitted corresponds precisely to the terms of the CTR.

In addition, the RTO West filing utilities recognize that once it becomes operational, RTO West will have both the obligation and the power to assure that all aspects of its market design and operations are workable and consistent with Federal Energy Regulatory Commission ("Commission") orders and policies. This proposal contemplates that the Board of Trustees of RTO West (the "Board") will use its best judgment to balance two important goals: (1) providing adequate opportunity for the proposed congestion management system and the markets that support it to mature and to work out initial minor "kinks"; and (2) protecting PTOs, market participants, end use consumers, and transmission system reliability from unreasonable exposure to harm if there are aspects of the congestion management system that prove unworkable. The Board will have the authority to modify the congestion management approach described in this document if circumstances warrant (subject to certain principles described in section E of this paper). If the Board sees no need for change, it need not make any.

At the end of three years of commercial operations, the Board will have an obligation to conduct a thorough, formal evaluation of RTO West's congestion management system. The Board will then need to decide whether it believes the best course is to continue with the congestion management system as then in effect or to modify it.

C. Description of Key Congestion Management Proposal Elements.

C.1. Background: The Northwest's Hydroelectric and Thermal Generating Resources.

The inventory of generation resources within the Northwest Power Pool area (which is largely coincident with the RTO West geographical area) is unique. In the Northwest almost 90% of existing generation capacity (and more than 90% of the energy) is produced by two generation types: hydroelectric projects and baseload thermal plants (such as nuclear and coal-fired generators). Less than 5% of existing capacity consists of intermediate and peaking units. Most of the thermal units are usually loaded at or near capacity unless they are off line for maintenance or forced outages. In contrast the loading levels of hydroelectric units, which generally can reach full output from start-up within minutes, are highly variable.

These characteristics are important to the RTO West congestion management proposal for several reasons. Key among these is the need for a voluntary bid-based system for congestion clearing and a voluntary unit commitment process that allows for coordinated river

⁵ These actions cannot impose costs on RTO West because the PTO's Congestion Management Assets must be sufficient to encompass Contract Customers' full exercise of their contract rights.

operations, which integrate hydro and thermal resources throughout the western system geographically and over the operating season.

The Northwest's coordinated resource system is characterized by interdependency between hydro and thermal resources; dispatch decisions for any given unit can affect the commitment and availability of others. This contrasts with a system in which unit decisions can be independent from one another. To enable the hydro/thermal resource system to operate at greatest efficiency within both energy and non-power constraints (discussed further below), operations must be coordinated to optimize energy production in the system as a whole and over an entire season, rather than individual generators' output within limited trading periods.

Hydroelectric resources tend to be energy-constrained, rather than capacity-constrained. In addition, there are limitations on what individual hydroelectric projects can produce and limitations from the interaction among hydroelectric projects on a single river system. Individual projects can respond quickly to changing system requirements, but only within certain ranges. These ranges are affected by river flow, reservoir level, the maximum rate at which a generation facility can change its output (ramp rate), and non-power constraints with which the facility must comply.

Taken together, hydroelectric projects operating on the same river system encounter additional constraints. Different projects have different capabilities. Some have significant storage capability in their reservoirs, while others must operate to the "run of the river." The coordinated operation of facilities that are upstream from other projects must take into account the downstream effects of operational decisions at the upstream projects. Coordinated operation must also account for the lag time between upstream water releases and the availability of that water for downstream uses.

The coordination of the combined hydro/thermal resource system involves longer time horizons and a larger set of considerations than is typical for individual (independent) hydroelectric or thermal facilities. Hydro and thermal resource dispatch decisions must reflect not only what may occur over the course of a day, but also over the course of a season, a year, or even a longer time period.

On an annual planning basis, the amount of energy (water) available for generation purposes at hydroelectric projects is uncertain. Energy production can vary substantially as to quantity and timing, depending upon regional precipitation, snowpack, and other factors dictated by nature. Because the quantity and timing of water are uncertain until Real-Time, and because there are long-term and short term non-power hydroelectric system constraints that must be accommodated as an integral part of coordinated hydro/thermal system operations, conventional short-term marginal-cost production concepts do not provide accurate measures of the value of a resource. A realistic assessment of the resource value can be made only on a relatively long-term (*i.e.*, seasonal or annual) basis, as opposed to a very short-term (*i.e.*, hour-by-hour) basis.

Because projects of the coordinated hydro/thermal resource system interact with each other, elaborate protocols have been developed over the years to manage the operation of these coordinated resources efficiently. In the Northwest, these protocols include: (1) the Columbia

RTO West's scheduling rules will require that all schedules be balanced. This means that for each schedule request, the amount of energy scheduled for delivery to the injection locations must equal the amount of energy to be delivered to the withdrawal locations (taking into account whatever rules apply concerning provision of real energy losses).

At the close of the period for receiving initial Day-Ahead scheduling requests, RTO West will use the scheduling requests to analyze the resulting power flows for congestion problems. RTO West will then purchase the most economic redispatch available to enable it to implement all schedules as requested. Schedule requests with limit prices less than RTO West's forecast of congestion clearing charges for the hour to which they relate will automatically be withdrawn. Remaining schedules will then become financially firm, and Scheduling Coordinators will become responsible for the congestion clearing charges associated with their schedules. The close of the Day-Ahead scheduling process will be followed by a settlement against those schedules.⁸

The process for clearing congestion that arises during the scheduling process will rely on a system of voluntary bids from generators (and eligible "dispatchable" loads that wish to participate in bidding). Participation in the inc/dec bidding process must be voluntary to avoid disrupting the system of hydroelectric and thermal optimization that is fundamental to the efficient operation of generation resources in the RTO West geographical area. This optimization process relies on operator self-commitment of resources, among other things. To the extent that this voluntary bidding structure raises concerns that markets may not be as deep and liquid as needed for competitive outcomes, the congestion management proposal (together with other elements of the RTO West proposal) provides several tools to address these concerns.

First, RTO West will require that all Scheduling Coordinators submit balanced schedules, which should relieve pressure on Day-Ahead and Real-Time energy markets. Second, the ancillary services provisions are expected to include appropriate penalties for improper reliance on imbalance energy in Real-Time (for example, use resulting from intentionally understating load forecasts). Third, RTO West will make its own independent load forecasts and have a unit commitment process to make sure there are sufficient resources available to meet load in Real-Time. Finally, any problems related to possession or exercise of market power will be dealt with through the market monitoring process.

Through the voluntary bidding process, RTO West will identify the generators (and dispatchable loads) that are willing and able, at a specified price, to comply with RTO West instructions to inc and dec as necessary to clear congestion. RTO West will use these bids in a security constrained, least-cost redispatch to calculate the marginal cost of serving the next increment of load at each bus in the system. Congestion charges (for Day-Ahead and Real-Time

⁸ Once Day-Ahead schedules are accepted, the congestion clearing charges associated with them will become financial obligations. At this stage in the development of the congestion management proposal, the filing utilities believe that this may be best achieved by having a Day-Ahead and Real-Time settlement process. Final market and settlement design will be developed to coordinate with and will be completed when ancillary services procedures are finalized.

discouraged by too much uncertainty. Those who wish to manage risk in this way will be able to do so without requiring RTO West to do it for them. They would likewise bear the costs and risks of these arrangements themselves, rather than through RTO West.

C.3. Description of Financial Transmission Options.

FTOs are the principal tools Scheduling Coordinators will use to manage their risk of incurring congestion charges associated with their schedule requests. The key characteristics of FTOs are that they:

- are financial options, not physical rights;
- are defined with respect to particular injection and withdrawal locations on the RTO West transmission system;
- can be redeemed to receive credits against congestion charges but cannot result in an obligation to pay RTO West a “negative” value;
- are flexible because their credit value can be applied against any congestion charges a Scheduling Coordinator incurs during the operating hour to which the FTO relates, not just charges resulting from a schedule to inject and withdraw energy at the locations defined in the FTO; and
- are freely tradable in secondary markets.

The following discussion elaborates on each of these characteristics.

C.3.a. FTOs Are Financial Options, Not Physical Rights.

An FTO gives the holder the right to receive a credit from RTO West equal to: (a) the congestion price differential (within a specified hour) between its defined withdrawal and injection locations, multiplied by (b) the megawatt quantity specified in the FTO. The congestion price differential is determined by subtracting the congestion price at the injection location from the congestion price at the withdrawal location. For example, an FTO might give the holder the right to receive a credit equal to the difference between the price at withdrawal point B minus the price at injection point A in a specified hour, times 100 megawatts.

Because FTOs are not physical rights, those that hold them cannot use them to impede other parties’ opportunities to submit schedule requests to RTO West, and Scheduling Coordinators without FTOs may nevertheless submit whatever schedule requests they choose to RTO West (so long as they are willing to bear resulting congestion charges).

C.3.b. FTOs Are Defined with Respect to Particular Injection and Withdrawal Locations on the RTO West Transmission System.

As illustrated by the description above of FTO's character as financial options, FTOs are tied to specified injection and withdrawal locations on the RTO West transmission system. This means that a Scheduling Coordinator that wishes to schedule a transaction on the RTO West system does not have to acquire physical rights for the individual paths over which the power actually flows. For Scheduling Coordinators, the ability to hedge with an FTO requires only that the Scheduling Coordinator identify its desired schedule quantities and injection and withdrawal locations. These terms are the basis on which the credit value of the FTO is calculated.

C.3.c. FTOs Can Be Redeemed To Receive Credits Against Congestion Charges but Cannot Result in an Obligation to Pay RTO West a Negative Value.

Building on the example provided in section C.3.a above, suppose a Scheduling Coordinator wishes to hedge a future schedule for 100 megawatts between injection point A and withdrawal point B in a particular operating hour. The Scheduling Coordinator could obtain an FTO for 100 megawatts between A and B during that hour. Assuming for the sake of this example that the locational price at B is \$1.00 higher than the locational price at A (resulting in a positive price spread of \$1.00), then the credit available from the FTO will be \$100.

It is important to note that an FTO is not a right to receive cash independent of whether the Scheduling Coordinator that holds the FTO has incurred congestion charges. Only Scheduling Coordinators that have scheduled with RTO West can redeem FTOs. In this sense, FTOs are somewhat like "scrip": they have value only to the extent they are redeemed to receive credit against congestion charges a Scheduling Coordinator has incurred during the hour specified in the FTO. Thus, if a Scheduling Coordinator has FTOs with credit value for a given hour greater than the congestion charges the Scheduling Coordinator has incurred, the credit applied will equal, but not exceed, the congestion charges. Any surplus value is lost.¹³

Because they are options, FTOs will never become obligations for the holder to pay RTO West for the congestion price differential between the specified injection and withdrawal locations.¹⁴ If the price differential is negative, the holder receives no credit. The holder is not required to make a payment to RTO West. To again use the example provided above, suppose that rather than having a value of \$1.00, the congestion price spread between B and A is -\$1.00 (resulting in a theoretical credit value of -\$100). In this case, the amount of credit the Scheduling Coordinator would receive against congestion charges by redeeming the FTO would be zero. The Scheduling Coordinator would not have to pay RTO West an additional \$100. (Note that these examples do not take into account whatever price a Scheduling Coordinator may

¹³ This provides a natural incentive for Scheduling Coordinators to trade any FTOs with expected value greater than they can use in their own schedules.

¹⁴ An FTO's value will be zero if there is no price differential between its specified withdrawal and injection points.

have paid if it purchased the FTO through the RTO West auction or bought it from another party.)

C.3.d. FTOs Are Flexible.

Although the credit value of an FTO is determined by reference to the price differential between its specified withdrawal and injection locations, the usefulness of an FTO as a financial hedge is not limited to schedules that precisely correspond to those injection and withdrawal locations.¹⁵ So long as the Scheduling Coordinator that holds an FTO submits any schedules that result in congestion charges during the operating hour defined in the FTO, the Scheduling Coordinator will have some opportunity to receive credit value for that FTO.

To further build on the example in section C.3.c (in which the FTO between A and B has a positive credit value of \$100), suppose the Scheduling Coordinator submits no schedule requests between A and B. Instead, the Scheduling Coordinator submits a schedule for 100 megawatts between injection point X and withdrawal point Y. Suppose further that the congestion charge for the X-to-Y schedule is \$150 and the Scheduling Coordinator has no FTOs tied to X and Y for that hour. Because the Scheduling Coordinator has the A-to-B FTO with a credit value of \$100 and congestion charges in that hour of more than \$100, the Scheduling Coordinator receives a full credit of \$100 against the charges for the X-to-Y schedule. The A-to-B FTO functions as a partial hedge against the schedule the Scheduling Coordinator actually submitted, so the Scheduling Coordinator will have to pay RTO West only the \$50 net congestion charge for the X-to-Y schedule.

C.3.e. FTOs Are Freely Tradable in Secondary Markets.

Although only Scheduling Coordinators can redeem FTOs (as explained above), FTOs may be freely traded in secondary markets. RTO West may adopt rules that enable it to verify the validity of FTOs and track their ownership as appropriate, but these will not constrain holders' ability to buy and sell them among whatever counter-parties they choose.

The filing utilities envision that although the basic terms that define a particular FTO may not be altered by Scheduling Coordinators or any other holder, FTOs could be broken down and resold in temporal and quantity subparts. For example, if a Scheduling Coordinator has an FTO for 100 megawatts between A and B for a specified operating hour every day for a period of six months, the Scheduling Coordinator could resell less than all of that FTO in two ways. First, the Scheduling Coordinator could sell, for example, three months of the FTO to a third party and keep the remaining three months. Second, the Scheduling Coordinator could sell a fraction of the megawatt amount, say, 50 megawatts, and keep the remaining 50 megawatts for its own use.

¹⁵ RTO West may re-examine this policy if it determines that: (1) flexible use of FTOs is having an unacceptable adverse impact on liquidity or providing opportunities for gaming; or (2) there is another acceptable method to accommodate flexible use of FTOs.

C.3.f. How FTOs Will Become Available.

RTO West will release additional FTOs through an auction process. The auctions, which will be held at periodic intervals (such as six months ahead, one month ahead, and so forth), will release FTOs of various durations (such as one year, one month, one week, etc.). RTO West will determine what sets of FTOs it will auction based on two key considerations: (1) what combinations of FTO releases will generate the greatest total revenue; and (2) the maximum amount of FTOs it can release consistent with its feasibility and risk management criteria, which will include at least the following four elements:¹⁶

First, RTO West will analyze its ability to issue FTOs based on the unencumbered physical capacity on the transmission system. RTO West will assess how many rights it will need to honor outstanding claims (taking into account both expected use of CTRs and any FTOs currently available for redemption) without needing to purchase additional redispatch to clear congestion. As further explained in section C.3.h below, RTO West will provide pre-scheduling opportunities to Scheduling Coordinators scheduling on the basis of CTRs to voluntarily “lock down” their schedules, which will help increase the certainty with which RTO West can assess the expected use of CTRs.

Second, RTO West will identify opportunities to release FTOs by filling small “gaps” in available capacity through redispatch options. For example, suppose RTO West believes that the capacity to honor a 100-megawatt schedule between injection points A and B is available for 8,720 hours during the year. RTO West would therefore conclude that it is likely to require redispatch for 40 hours to create a full one-year strip of 8,760 hours. RTO West could sell the one-year strip despite the gap if it determines doing so is within its risk management policies.

Third, as described in section C.2 above, RTO West will facilitate a forward market for redispatch (including both generator incs and decs and demand response) to allow market participants to create additional hedging capacity among themselves on a bilateral basis.

Fourth, RTO West will have a process to respond to demand for FTOs that cannot be supported without significant redispatch based upon market participants’ willingness to assume the costs and risks. Say, for example, RTO West determines that there are market participants willing to pay \$300 for a 100-megawatt FTO from A to B, but that additional schedules from A to B beyond those RTO West already anticipates will likely require purchase of redispatch. If RTO West were to determine that its expected cost of redispatch necessary to honor an additional 100-megawatt schedule was less than \$300, it could elect to release an additional 100-megawatt FTO to market participants willing to pay the market price.

Implementation of this fourth element is dependent, however, on RTO West’s ability to: (1) manage resulting cashflow variations through its congestion management reserve account; and (2) fully allocate (on a going forward basis) the costs and risks associated with issuing FTOs

¹⁶ This all occurs in a simultaneous auction, where market participants indicate their willingness to pay the inc/dec cost of releasing additional capacity.

supported by redispatch to the purchasers of those FTOs. RTO West cannot be certain of actual redispatch costs until the scheduling process that determines a particular FTO's credit value (based on locational inc and dec bids) is completed. This means that someone (either RTO West or FTO purchasers) must either: (1) stand ready to make up the difference if RTO West's advance estimate of redispatch cost is wrong; or (2) bear these costs of obtaining a hedge through a forward redispatch purchase or option. Whenever RTO West must use its reserve account to make up for underestimated redispatch costs, it will recover the shortfall from the auction revenues it receives from future FTO purchasers.

Besides the RTO West release of FTOs through its auction process, RTO West will be able to issue FTOs through two other processes: (1) voluntary conversion of pre-existing contracts (or, more precisely, the CTRs that reflect them) into FTOs; and (2) system expansion (in which project sponsors receive FTOs based on the increase in physical capacity their projects deliver). Whatever their origins, any FTO will be freely tradable in secondary markets as described in section C.3.e above.

C.3.g. Voluntary Conversion of CTRs to FTOs.

This congestion management proposal provides that conversion of pre-existing contracts is voluntary for all Contract Customers (whether the Contract Customers are PTOs or non-participating third parties). While this section focuses on the process of converting CTRs to FTOs, it is important to note that under the RTO West congestion management proposal there are actually two types of contract conversion. For convenience, this paper will refer to these types of conversion as the "CTR election path" and the "FTO election path." Under the CTR election path, which is described in further detail in section C.4 and in Appendix B, a Contract Customer suspends one or more of its pre-existing contracts with a PTO and substitutes for it a direct scheduling relationship with RTO West. The Contract Customer does not receive FTOs. Instead, the Contract Customer's Scheduling Coordinator schedules on the basis of CTRs specified in the PTO's catalogue for the suspended contract or contracts.

Under the FTO election path, the Contract Customer follows a process similar to that for the CTR election path, but with a different outcome: the Contract Customer receives FTOs instead of the ability to schedule against CTRs. The RTO West filing utilities believe that there will be incentives for Contract Customers to voluntarily choose the FTO election path with respect to at least certain types of pre-existing contracts (such as those providing for simple point-to-point service in a specified quantity). With a simple contract, conversion to an FTO will be a straight-forward process (as further described in Appendix B).

For example, suppose there is a contract for 100 megawatts from a point of injection A to a point of withdrawal B, which the Contract Customer may exercise during all hours of the year. If the Contract Customer chooses an FTO election path conversion for this contract, the Contract Customer would receive an FTO from A to B for 100 megawatts for 8,760 hours a year for the remaining term of the contract. This FTO will provide the same hedging against congestion costs from A to B as the underlying contract provided. With an FTO, the Contract Customer now has an instrument that can be readily traded in secondary markets (for all or only a portion of the specified hours and quantity), and that can be used to receive credit against congestion

costs incurred between any injection and withdrawal locations on the RTO West system. If not converted (or converted through the CTR election path), the congestion rights for this contract are limited to credits against congestion costs for schedules only between A and B and cannot be traded or “subdivided.”

The RTO West pricing model has also taken into account that there should not be disincentives, from a pricing perspective, that would discourage voluntary conversion of pre-existing contracts. For example, the RTO West pricing model’s “Transmission Reservation Fee” or “TRF” does not operate to expose a party to new charges resulting from conversion it could have avoided by choosing not to convert.

FTO election path conversion of pre-existing contracts will increase the number of FTOs available for trading in the secondary market. If, after an initial period of operating experience, RTO West determines that the incentives for voluntary contract conversion are not working as expected, it may need to further evaluate FTO conversion incentives.

C.3.h. Voluntary Pre-Schedule “Lock-Down” for CTR Contract Customers.

Contract Customers that do not wish to pursue conversion through the FTO election path will have a way to make capacity they do not need available for others’ use: a voluntary pre-schedule process in which the Contract Customer’s Scheduling Coordinator “locks down” its intended CTR schedule. The pre-scheduling process will take place in the period before the Day-Ahead (the “Pre-Day-Ahead”). A Contract Customer will work voluntarily through its Scheduling Coordinator to offer (either for a limit sell price or as a price-taker if it so chooses) to pre-schedule its CTRs. In doing so, the Contract Customer’s Scheduling Coordinator will relinquish flexibility it would otherwise have had under the terms of the CTR.

Through the Pre-Day-Ahead scheduling process, RTO West will gain greater certainty with respect to its Real-Time operations. When CTRs that provide for scheduling flexibility are pre-scheduled, RTO West will learn how those CTRs will actually be used. RTO West will no longer have to leave “room” to accommodate all expected uses. This will allow RTO West to assess how much capacity will become available on its system because of the Pre-Day-Ahead lock-down, and release FTOs supported by that capacity.¹⁷

RTO West will auction the FTOs it is able to release because of the Pre-Day-Ahead lock-down and provide compensation to Scheduling Coordinators according to the additional value (through increased sales of FTOs) their decision to lock down has provided.

¹⁷ The filing utilities envision that the Pre-Day-Ahead lock-down would be available, at a minimum, on the day before Day-Ahead. To the extent RTO West determines that it is advantageous to offer opportunities for earlier voluntary lock-down, RTO West could offer this opportunity in connection with other forward FTO auctions. RTO West would provide compensation to participating Scheduling Coordinators according to a formula it develops to assess the additional value provided by the early lock-down election.

Once a Scheduling Coordinator has committed to a Pre-Day-Ahead schedule, that Scheduling Coordinator (or the Contract Customer on whose behalf the Scheduling Coordinator is acting) will receive both the benefit and risk associated with that decision. The benefit is the opportunity to receive compensation from RTO West based on resulting FTO sales. The risk is that if the Scheduling Coordinator subsequently modifies a schedule submitted in the Pre-Day-Ahead, the Scheduling Coordinator will bear whatever charges result from the schedule modification. Because the Scheduling Coordinator is acting on behalf of a Contract Customer whose rights under pre-existing contracts are to be honored through the CTRs in question, the Scheduling Coordinator and the affected Contract Customer will need to make suitable arrangements between themselves concerning how to allocate the risks and benefits associated with voluntary early lock-down.

RTO West's decision to auction additional FTOs on the basis of CTR flexibility that is released through the Pre-Day-Ahead scheduling process will not adversely affect any PTO's Congestion Management Assets. For example, the PTO whose Congestion Management Assets support a CTR that is locked down in the pre-schedule process will not incur an obligation to provide increased redispatch services resulting from RTO West's decision to accept additional schedules on the basis of the lock-down.

By the same token, the PTO whose Congestion Management Assets support a CTR will not be able to "block" the ability of a Scheduling Coordinator entitled to schedule against that CTR to voluntarily participate in the Pre-Day-Ahead scheduling process (such as by claiming that the Scheduling Coordinator has breached a contract prohibition against the Contract Customer reselling transmission capacity). This is analogous to provisions governing conversion of CTRs to FTOs, under which PTOs must allow Contract Customers that wish to convert to do so (subject to requirements that conversion must not increase the burden on the PTO's Congestion Management Assets).

C.3.i. Long-Term FTOs.

From time to time, RTO West may be able to offer FTOs for durations of more than one year on the basis of unencumbered system capacity. The buyer would receive FTOs associated with the unencumbered capacity for whatever term is defined in the auction process for those FTOs.¹⁸

RTO West may, subject to its risk management guidelines and Commission approval, sell long-term FTOs supported through purchase of redispatch. This sale would take place only at a price that is sufficient to recover all redispatch costs necessary to support the FTOs.

RTO West may also issue FTOs as compensation for investments in system expansion. This could happen in one of two ways. First, a PTO might be required to expand its system to

¹⁸ Unencumbered capacity means the capacity RTO West determines to be available after accounting for all existing obligations over the period in question (taking into account forecasted load growth for that period as well).

maintain the sufficiency of its Congestion Management Assets. If the expansion were greater than required to achieve sufficiency, RTO West could issue long-term FTOs in exchange for the additional capacity. Second, RTO West may issue long-term FTOs to parties willing to finance the construction of facilities that increase transmission capacity on the system.

C.4. Description of Approach to Service Under Pre-Exiting Contracts and Load Service Obligations That Are Not Converted to FTOs.

As explained above in section C.3, FTOs are the primary tools Scheduling Coordinators use to hedge against congestion charges. CTRs are the means through which RTO West and its PTOs will address transmission service related to non-converted, pre-existing transmission contracts and load service obligations (as well as transmission service related to contracts converted through the CTR election path). CTRs are fundamental to the RTO West congestion management proposal for two reasons: because conversion of pre-existing contract rights to FTOs is voluntary and because CTRs allow RTO West to manage rights related to pre-existing transmission contracts and load service obligations on a “netted” basis in a way it could not if all parties were compelled to convert their pre-existing rights and obligations to FTOs.¹⁹

Even after PTOs transfer operational control and management of their transmission facilities to RTO West, they must continue to provide for the fulfillment of the contractual transmission service obligations they have undertaken before RTO West begins operations. Similarly, those PTOs with load service obligations must continue to fulfill those obligations using the transmission facilities they have built or contracted for. It is crucial that they be able to do so reliably without facing involuntary price shocks.

Because RTO West will be the sole provider of transmission services across the transmission facilities that become part of the RTO West system (though continuing to be owned by the PTOs), RTO West will take on the responsibility of fulfilling transmission service obligations under pre-existing transmission contracts and load service obligations (whether converted or not). To fulfill these obligations, RTO West will need: (1) relevant contractual information; and (2) the use of PTO facilities and operational mechanisms necessary to support these transmission services. These needs are addressed through a process known as “cataloguing.”

¹⁹ The critical issue here is that all the potential rights the parties might elect to exercise under the pre-existing contracts and load service obligations are greater than the set they can exercise in practice at any one time. To avoid diminishing Contract Customers’ rights, full conversion would require issuing more FTOs than could be simultaneously honored (because options within each set of contract rights would have to be included in the FTOs issued). Contract Customers would re-sell the options they did not need for a particular schedule to others, rather than simply forgoing the other options under the contracts, as they would be required to do under the original contract’s terms. Using the CTR mechanism solves this problem because it allows RTO West to honor the rights that are actually exercised through submitted schedules without having to issue credits to others for rights that previously could not have been exercised simultaneously.

Cataloguing is the process through which two sets of information related to PTO transmission service obligations are compiled: (1) the nature and extent of each PTO's outstanding transmission service obligations related to pre-existing transmission contracts and load service obligations (whether or not they are converted);²⁰ and (2) the Congestion Management Assets each PTO will make available to RTO West so that RTO West can honor and manage, in the aggregate, all service related to those obligations. A proposed set of procedures and rules related to cataloguing CTRs for each PTO, as well as for converting CTRs into FTOs, is included with this paper as Appendix B.

The concept of Congestion Management Assets begins with the physical facilities each PTO agrees to allow RTO West to operate and provide transmission service across. These include such facilities as transmission lines, substations, phase shifters, and other hardware. To the extent these physical facilities alone are not adequate to support all of the pre-existing obligations a PTO identifies in its catalogue, the PTO will have two options: (1) to expand its physical system; or (2) to make available to RTO West an adequate range of contractual and operational mechanisms. Contractual and operational mechanism may include items such as remedial action schemes (RAS), redispatch services, and rights to restrict service under pre-existing contracts. The catalogue entries for each PTO's Congestion Management Assets will list both physical facilities and any necessary contractual and operational mechanisms.

Each PTO's Congestion Management Assets must balance with its CTRs and converted obligations. In other words, each PTO has an obligation to provide to RTO West (and reflect in the cataloguing process), Congestion Management Assets that are at a minimum sufficient to satisfy its outstanding pre-existing transmission contracts and load service obligations the PTO brought with it when it joined RTO West. These obligations encompass whatever is necessary support a Contract Customer's full exercise of its underlying contract rights (including the ability, if a contract so provides, to modify schedules after the close of Day-Ahead scheduling).

RTO West will test the sufficiency of each PTO's catalogued Congestion Management Assets, measured against all of the rights under or based on the PTO's pre-existing transmission contracts and load service obligations in the aggregate (not on an individual contract-by-contract basis). If RTO West's testing reveals that a PTO's Congestion Management Assets are not sufficient to cover all of the PTO's CTRs and converted obligations, the PTO will be obliged to make up any shortfall. RTO West will also perform an additional sufficiency test to make sure that when expected simultaneous use of all PTOs' CTRs and converted obligations are considered, there are sufficient Congestion Management Assets, on an aggregate PTO basis, to make good on them. For purposes of this sufficiency test, RTO West will be limited to relying on PTO-supplied Congestion Management Assets other than physical transmission facilities only as necessary to honor the obligations of the PTO that supplied those Congestion Management Assets.

²⁰ These terms will define the CTRs that each PTO may use to schedule transmission service related to those contracts and obligations (or, in cases where a Contract Customer has converted a contract through the CTR election path, the CTRs related to the contract that may be used by the Contract Customer's Scheduling Coordinator to submit schedules consistent with the underlying contract rights).

transmission systems and Congestion Management Assets of all PTOs at once. RTO West may therefore be able to take advantage of flexibility and diversity within and between CTR sets in ways that PTOs could not when managing their individual systems in isolation from one another. This will facilitate more efficient use of whatever physical capacity is available across the PTOs' combined systems.

As mentioned above, Contract Customers that do not wish to convert their contract rights to FTOs will have two choices: (1) they can maintain their existing service with their PTOs (in which case the PTO is responsible for submitting schedules to RTO West as necessary to honor the Contract Customer's rights under the non-converted transmission agreement); or (2) they can convert their contracts through the CTR election path and arrange with their own Scheduling Coordinators to submit schedules on the basis of those CTRs. In either case, any congestion charges associated with schedules that do not conform to the terms of the corresponding CTRs would be the responsibility of the party that submitted the schedule.

Under the first option, the Contract Customer sees essentially no difference in the exercise of its contract rights when comparing pre- and post-RTO West circumstances. From the Contract Customer's point of view, the PTO continues to be the party that provides the contract services. From the PTO's point of view, it relies on RTO West to honor the CTRs that enable the PTO to implement the schedules it receives from its Contract Customers.

Under the second option, the Contract Customer, RTO West, and the PTO will enter into a three-way suspension agreement that will relieve the PTO of its transmission service obligations under the pre-existing transmission agreement and shift those obligations to RTO West. The Contract Customer and the PTO must agree on both the process and the outcome of the cataloguing process (or their inability to agree must be resolved through dispute resolution), because the Contract Customer will thereafter be bound by the provisions of the catalogue concerning its ability to submit schedules linked to CTRs. In effect, the Contract Customer makes a trade-off: in exchange for the ability to deal directly with RTO West in scheduling transmission service on the basis of CTRs, the Contract Customer must recognize that the CTRs accurately reflect the underlying contract and agree that it will look only to RTO West (not the PTO) to resolve problems with RTO West's delivery of CTR service.

After the initial cataloguing process for CTRs and Congestion Management Assets is completed (and RTO West has satisfied itself of the individual and aggregate sufficiency of the PTOs' Congestion Management Assets), each PTO's catalogue will need to be periodically updated.²² The timing of catalogue updates will need to be coordinated with RTO West's FTO auction process. In particular, RTO West will need current catalogue provisions before it determines what FTOs it should release through its auctions (because RTO West must take into account anticipated use of its transmission system to honor CTRs as part of that determination).

²² In addition, any cataloguing errors discovered after the initial cataloguing process is completed will be corrected by reference to the underlying transmission contract or load service obligation. Billing errors discovered before settlement that have resulted from cataloguing errors will also be corrected, subject to whatever rules RTO West implements concerning correction of erroneous bills.

There are a number of events that might trigger the need to update a PTO's catalogue entries (adhering always to the principle that each PTO's CTRs and Congestion Management Assets must balance). One of the most important of these is load growth. When a PTO has an obligation under a pre-existing contract or based on load service to provide transmission capacity to accommodate load growth, the PTO will be allowed to revise its catalogue whenever these obligations are triggered. Any changes to a PTO's Congestion Management Assets would also need to be recorded. Moreover, a pre-existing contract might expire or its terms may permit periodic modifications or elections among different terms and conditions. The related catalogue entries will need to accurately reflect these. Each time the terms of a particular PTO's catalogue entries change, RTO West will need to repeat its individual and aggregate adequacy testing to make sure that each PTO continues to meet its obligations.

D. Further Work To Develop Details.

This paper is intended to be a high-level description of the key elements of the congestion management proposal for RTO West. The filing utilities propose to do further detailed work in the following areas:

- ancillary services;
- the scheduling and settlement processes (including such matters as how losses should be factored into scheduling; dynamic scheduling; equitable means for accommodating intermittent resources; and the rules and procedures for dealing with planned and forced facilities outages);
- recommendations concerning use of nodes and hubs that subsume more than one bus;
- the FTO auction process;
- coordinated operation of phase shifters and DC ties; and
- testing and validation of the congestion management proposal.

In particular, the filing utilities recognize that congestion management and the provision of ancillary services are tightly related. It is therefore expected that the pricing of the ancillary services (and Interconnected Operations Services) markets will be compatible with bidding for and pricing of services to manage congestion on RTO West system. This may include the need to merge the market for balancing energy with the congestion management redispatch market.

The filing utilities also recognize the importance of congestion management and ancillary services as they relate to the larger goal of seamless western markets. The filing utilities intend that further work related to the RTO West congestion management proposal will mesh with the interregional coordination activities currently underway among representatives of RTO West, the California ISO, and WestConnect.

E. Comprehensive Review After Three Years.

The filing utilities intend that RTO West Board will use its best judgment to balance two important goals for the congestion management system described in this paper: (1) providing adequate opportunity for the congestion management system and the markets that support it to mature and to work out initial minor “kinks”; and (2) protecting PTOs, market participants, end use consumers, and transmission system reliability from unreasonable exposure to harm if there are aspects of the congestion management system that prove unworkable.

The filing utilities therefore contemplate that the Board will have, from the beginning of RTO West’s commercial operations, the authority to modify the congestion management approach set out in this document if circumstances warrant (subject to certain principles described below). If the Board sees no need for change, it need not make any. At the end of three years of commercial operations, however, the Board will have an obligation to conduct a thorough, formal evaluation of RTO West’s congestion management system. The Board will then need to decide whether it believes the best course is to continue with the congestion management system as then in effect or to modify it.

If the Board elects to modify the congestion management system (either during the initial three years of commercial operation or because of its formal evaluation at the end of three years), it must do so in a way that protects rights under pre-existing contracts and load service obligations and that neither expands nor diminishes whatever transmission- or congestion-related rights are then outstanding (whether based on CTRs or on FTOs). In addition, in adopting any modified approach to congestion management, the Board must consider whether the congestion management system as modified:

- a. accommodates broad participation;
- b. sends efficient price signals to all users about the consequences of their transmission usage decisions;
- c. provides least-cost redispatch of generation (from the voluntary redispatch bid stack) to relieve the expected congestion;
- d. encourages use of transmission rights by those that value them most highly;
- e. sends signals for appropriate investment (generation, including generator location; transmission; demand-response; etc.);
- f. accommodates self-tracking and self-provision as alternatives to purchasing ancillary services from RTO West;
- g. facilitates development of hedging tools;
- h. provides for liquidity and tradability;

- i. provides incentives that enhance RTO West's ability to determine available system capacity in advance of Day-Ahead scheduling;
- j. does not impede reliability;
- k. promotes the ability to detect and respond to gaming and market power abuse;
- l. supports a broad, seamless market; and
- m. supports a Board determination that there is reasonable proportionality between costs incurred and benefits to customers.

F. Appendices.

Appendix A – Glossary of Acronyms and Key Terms

Appendix B – Draft Supplemental Procedures and Rules for Cataloguing and Conversion

Appendix A

Glossary of Acronyms and Key Terms

Board – the Board of Trustees of RTO West.

California Oregon Border – an energy trading hub in the Northwest.

Catalogued Transmission Right – a right based on an entry in a Participating Transmission Owner’s catalogue (which identifies its obligations under pre-existing transmission agreements and load service obligations) that specifies the Participating Transmission Owner’s right to schedule RTO West transmission service as necessary to fulfill those obligations.

Cataloguing – the process through which RTO West and a Participating Transmission Owner work together to compile necessary information related to (1) the nature and extent of the Participating Transmission Owner’s outstanding transmission service obligations related to non-converted, pre-existing transmission contracts and load service obligations (which defines the Catalogued Transmission Rights that the Participating Transmission Owner may use to schedule RTO West transmission service related to those contract and obligations); and (2) the Congestion Management Assets the Participating Transmission Owner will make available to RTO West so that RTO West can honor and manage all Participating Transmission Owners’ Catalogued Transmission Rights.

COB – California Oregon Border.

Commission – the Federal Energy Regulatory Commission.

Congestion Management Assets – the physical facilities and contractual and operational mechanisms that each Participating Transmission Owner makes available to RTO West so that RTO West has the means to honor and manage all Participating Transmission Owners’ Catalogued Transmission Rights. Physical facilities may include transmission lines, substations, phase shifters, and other hardware. Contractual and operational mechanism may include items such as remedial action schemes (RAS), redispatch services, and rights to restrict service under pre-existing contracts.

Contract Customer – the transmission customer that receives transmission service from a Participating Transmission Owner under non-converted, pre-existing transmission contract or load service obligation. A Contract Customer may be a merchant or affiliate of a Participating Transmission Owner or a third party.

Conversion – the voluntary process through which a Contract Customer translates rights under pre-existing transmission agreements into Financial Transmission Options.

CTR – Catalogued Transmission Right.

Day-Ahead – the day before a given operating day.

Dec – a decrease in generation output (or an increase in dispatchable load) in response to an RTO West instruction

Financial Transmission Option – a financial instrument that the gives the holder the right to receive a credit from RTO West equal to (a) the congestion price differential (within a specified hour) between its defined withdrawal and injection locations, multiplied by (b) the megawatt quantity specified in the instrument.

FTO – Financial Transmission Option.

Inc – an increase in generation output (or a decrease in dispatchable load) in response to an RTO West instruction

MCHC – Mid-Columbia Hourly Coordination Agreement.

Mid-Columbia Hourly Coordination Agreement – the agreement under which hydroelectric project operators coordinate Real-Time operation of the hydroelectric generation projects in the Mid-Columbia area.

Pacific Northwest Coordination Agreement – the agreement under which resources in the Pacific Northwest are coordinated to maximize the firm load carrying capability of those resources (within the limits of applicable non-power constraints).

Participating Transmission Owner – an owner of transmission facilities that has entered into an agreement with RTO West providing for RTO West to exercise operational control and management of the Participating Transmission Owner's transmission facilities

PNCA – Pacific Northwest Coordination Agreement.

Pre-existing transmission agreements (or contracts) – any agreement (or load service obligation) under which a Participating Transmission Owner is obligated to provide transmission service at the time it joins RTO West.

PTO – Participating Transmission Owner.

Real-Time – in the timeframe during a given operating hour.

Scheduling Coordinator – an entity that has met the technical and financial requirements necessary to qualify for eligibility to submit transmission service schedule requests to RTO West.

Appendix B

Draft Supplemental Procedures and Rules for Cataloguing and Conversion

1. Cataloguing Procedures.

As explained in the accompanying discussion paper, there are two types of contract conversion available to any party that receives service under a pre-existing PTO transmission service contract or load service obligation (the “Contract Customer”): the CTR election path and the FTO election path. Under either path, the Contract Customer that chooses to convert a pre-existing transmission contract will enter into a three-way suspension agreement with the PTO and RTO West. The Contract Customer will agree to be bound by the terms of the CTRs that are included in the PTO’s catalogue with respect to the PTO’s pre-existing transmission service obligations to the Contract Customer.¹

Both types of conversion, as well as RTO West’s ability to provide transmission service to PTOs as necessary to fulfill their obligations under non-converted transmission agreements and load service obligations, depend on accurate cataloguing of each PTO’s pre-existing obligations to its Contract Customers. At a minimum, the CTR cataloguing process will need to record the following information:

- Term – the start and end date during which the obligation is to be honored.
- Injections – the catalogue will include specified injections, which will be defined in terms of injection locations and maximum amounts to be honored at each location
- Withdrawals – the catalogue will include specified withdrawals, which will be defined in terms of withdrawal locations and maximum amounts to be honored at each location.
- Relationship between injections and withdrawals – The sum of the maximum amounts at the injection locations do not necessarily have to equal the sum of the maximum amounts at the withdrawal locations.
- Special rules –to the extent that there are special limitations or exceptions that cannot be captured by the set of injections and withdrawals, special rules would govern the

¹ If the Contract Customer and the PTO are not able to agree on the CTRs, the matter must be resolved through dispute resolution before conversion proceeds.

use of the CTR. This may be, for example, a description of the limits of permitted schedule changes or a description of the interdependency between maximums allowed at particular injection and withdrawal locations (*e.g.*, the injection limit at location A is 100 megawatts and the injection limit at location B is 75 megawatts, however the sum of injections at A and B must not exceed 125 megawatts).

2. Conversion Procedures and Principles.

Conversion (whether through the CTR election path or the FTO election path) is available only to Contract Customers that are willing to establish a relationship with RTO West through a Scheduling Coordinator. From the date of conversion forward, the transmission service relationship is directly between the Contract Customer and RTO West. The PTO is no longer involved in fulfilling transmission service obligations to the Contract Customer under the pre-existing transmission contract.

There are several steps in the process of converting a pre-existing contract to direct RTO West service. Each of the steps is grounded in the parties' ability to rely on the integrity of both the cataloguing process and the steps related to conversion.

With respect to the cataloguing process, Contract Customers will need assurance that there will be no opportunity for the PTO to diminish the obligations it has to honor all its pre-existing contract and load service obligations. This principle means that a PTO may not, through the cataloguing process, overstate its rights to curtail or limit its transmission service obligations to its Contact Customers.

For purposes of this Appendix B, the terms "curtail" and "curtailment" are intended in the sense they are used under the FERC Order 888 Open Access Transmission Service Tariff. They relate to a system operator's right to physically interrupt transmission service, on a pro-rata basis, as necessary to preserve system reliability in Real-Time.

Other terms that excuse the transmission provider's performance under a transmission service contract are referred to in this paper as "contract restrictions." These may include the ability to refuse, interrupt, or decrease service to preserve system reliability in Real-Time or for other reasons.

The cataloguing process will assume that all CTRs are subject to RTO West's curtailment as necessary to preserve system reliability in Real-Time. The cataloguing process may not incorporate any contract restrictions that are not specified in the terms of the pre-existing transmission agreement (including any tariff provisions that apply to the agreement). RTO West's testing to assure the sufficiency of a PTO's Congestion Management Assets will require that the assets be sufficient to fully meet all contract obligations in accordance with their terms.

The workability of the conversion process depends not only on the accuracy of the cataloguing process, but also on the ability of PTOs that provide Congestion Management Assets to be assured that the conversion process will not cause the Contract Customer's rights to expand

beyond what the Contract Customer is entitled to under the pre-existing agreement and will not increase the burden on the PTO's Congestion Management Assets.

With the principles set forth above in as the foundation, the steps for a Contract Customer to convert its rights under pre-existing transmission agreement are described below. A Contract Customer must convert a contract for the entire remaining term of the contract. After conversion, the Contract Customer may not return to a transmission service relationship with the PTO except with the PTO's agreement.

A Contract Customer must also convert a contract in its entirety. For example, if a contract is for 100 MWs, it may not be converted for 50 MWs and left unconverted for 50 MWs – all 100 MWs' worth of rights must be converted. A Contract Customer may, however, make its election with respect to conversion on a contract-by-contract basis (that is, a Contract Customer that wishes to convert the rights under a specified contract need not convert all of the contracts it has with the affected PTO or any contracts with other PTOs). In addition, a Contract Customer does not have to convert all contracts through a single election path (that is, it does not have to choose to convert exclusively on the basis of CTRs or exclusively on the basis of FTOs). Each contract that is converted can be through the CTR election path or the FTO election path as the Contract Customer chooses, but CTRs and FTOs cannot be combined under a single contract conversion.

A Contract Customer must complete the steps for conversion with reasonable lead-time before any significant FTO auction (such as an annual or six-month auction).

Steps for Conversion:

1. The Contract Customer voluntarily initiates the conversion process, and must specify which contract or contracts it wishes to convert, and whether (with respect to each contract to be converted) it chooses the CTR election path or the FTO election path.
2. The PTO and the Contract Customer must agree that the CTRs in the PTO's catalogue that describe the PTO's transmission service obligations to the Contract Customer accurately reflect the Contract Customer's rights under the contract (or contracts) the Contract Customer has elected to convert.
3. If the Contract Customer and the PTO cannot agree on the accuracy of the CTRs related to contracts the Contract Customer wishes to convert, the matter will be resolved through the RTO West dispute resolution process.
4. The Contract Customer, PTO, and RTO West must enter into a three-way suspension agreement with respect to any contracts to be converted. Among other things, the suspension agreement will provide that the PTO is released from its transmission service obligations to the Contract Customer and the Contract Customer agrees to be bound by the terms of the applicable CTRs set forth in PTO's catalogue.

5. If the Contract Customer has chosen to convert a contract through the CTR election path, the conversion process is complete with Step 4. The Contract Customer will be responsible for arranging for its own Scheduling Coordinator to submit schedules against the CTRs in the PTO's catalogue that relate to the contract the Contract Customer has converted through the CTR election path. If the Contract Customer has chosen to convert a contract through the FTO election path, the conversion process must continue through Steps 6, 7, 8, 9, and 10.
6. Based on the agreed-upon CTRs or the arbitrator's determination of what CTRs are necessary to honor the PTO's obligations to the Contract Customer, the Contract Customer selects a single feasible dispatch for each month (for both on-peak and off-peak) covered by the CTR, which must take into account any contract restrictions.
7. RTO West will test the Contract Customer's selected feasible dispatch set to make sure it: (1) is consistent with the CTR; (2) provides FTOs with equivalent (but not greater) value; and (3) doesn't increase the burden on the PTO's Congestion Management Assets.
8. The PTO will have the right to receive notice of the conversion and review RTO West's determinations concerning the feasible dispatch and FTOs to be issued.
9. Both the Contract Customer and the PTO will have rights to invoke RTO West's dispute resolution process if they do not agree with RTO West's determinations made under Step 7.
10. Once the conversion process is completed, RTO West and the PTO must update the PTO's catalogue of CTRs and Congestion Management Assets as necessary to reflect the conversion.

There are numerous additional details with respect to the conversion process that would need to be worked out, but the foregoing are key steps that should be followed, consistent with the principles set forth above in section 2 of this Appendix B.

3. Cataloguing and Conversion Rules.

The congestion management proposal contemplates that rules for cataloguing and converting PTOs' pre-existing contracts and load service obligations will be consistent for all PTOs (and other parties who wish to convert pre-existing contracts to RTO West service), but will be structured into a variety of categories tailored to fit different types of contracts. Thus, while a given type of contract (say, "Category A"), would be subject to identical rules for all parties who have "Category A" contracts, the rules for "Category A" contracts as a group might not be identical to the rules for "Category B" contracts as a group.

The cataloguing process for CTRs will also reflect the commercial boundaries of RTO West's congestion management process. While pre-existing transmission agreements and load

service obligations may relate to a wide range of facilities, RTO West will manage congestion only on facilities that are part of the “RTO West Controlled Transmission System.” The RTO West Controlled Transmission System will consist of the major transmission paths under RTO West’s operational control, together with any other PTO facilities that have a significant effect on the major paths’ transfer capability. Accordingly, CTRs will need to identify injection and withdrawal points on the RTO West Controlled Transmission System because congestion clearing costs are assessed only with respect to those facilities.

With that background, presented below are suggested sets of cataloguing and conversion rules for a range of contract and load service obligation types. The rules for cataloguing describe how the PTO with the obligation to provide transmission service to fulfill a contract or a load service obligation will identify those obligations within its catalogue with RTO West. The rules for conversion to FTOs describe how the Contract Customer can convert those contract rights into FTOs.

These categories set out below may not be exhaustive, but they are intended to encompass most types of contracts and load service obligations we have identified so far.

Each PTO’s catalogue entries will be periodically updated as necessary to reflect such items as load growth (when provided for in the underlying contract or load service obligation), changes in PTO Congestion Management Assets, changes to or the exercise of elective rights under pre-existing contracts included in the catalogue, etc. Any errors in cataloguing will be corrected promptly upon discovery by reference to the underlying contract that governs the right.

RTO West will correct any billing error resulting from a cataloguing error that is discovered before the bills become final. Any billing disputes that arise as a result of a catalogue error will be resolved through RTO West’s dispute resolution process.

3.1 Rules for Cataloguing and Conversion Related to Load-Based Obligations

(a) Cataloguing as CTRs

The load-based obligation category covers obligations that are tied to following firm load (a load service obligation and network contracts are examples). The location of the load defines the set of withdrawals with maximums based on the actual load served. Because the load is not known ahead of time, the catalogue will state an estimate of the maximum based on a load forecast. Each Scheduling Coordinator exercising CTRs based on these types of obligations will give RTO West a revised maximum load forecast at during the Day-Ahead scheduling process.

When cataloguing load-based obligations, the PTO will specify a set of injections based on the physical and contract resources the PTO uses to serve the particular load. Although the maximum injection at each injection point is equal to the physical capacity of the system, the sum of the injections should not exceed the corresponding contract (or load service) obligation at the time of scheduling. If a load-based contract is tied to physical facilities or specifies contract

resources, the generation limit specified in the contract is the maximum permitted injection at the time of scheduling.

Some load-based obligations (such as General Transfer Agreement (GTA) service) represent network and point-to-point service across more than one PTO's system. The transferring PTOs will catalogue² the rights from the Points of Replacement to the Points of Delivery much as the other load-based obligations above. In addition, they will be required to coordinate their catalogue entries to ensure consistency.

If a contract or load service obligation is subject to service restrictions or addresses ancillary services, the catalogue entry for that contract or load service obligation will include a "special rules" section that describes those restrictions or ancillary service provisions.

(b) Conversion to FTOs

The filing utilities believe that if RTO West is able to identify workable rules with respect to conversion of network contracts or load service obligations, there are potential benefits from these conversions. These rules will be designed to protect against unintended consequences. They must also ensure that conversion does not enable the Contract Customers to obtain greater rights than granted by the contract and that neither the PTO nor other market participants are harmed by the conversion.

3.2 Rules for Cataloguing and Conversion Related to Demand-Based Contracts

(a) Cataloguing as CTRs

The demand-based obligation category covers obligations that are tied to contracts that specify demand limits. For most contracts the demand is fixed and the procedure is fairly straightforward. The contract's points of delivery define the set of withdrawal points. The maximum withdrawal quantity will be as specified in the contract. The set of injections will be based on the points of receipt or points of integration with maximums based on the demand specified in the contract.

In some cases, demand-based contracts act like ownership-based contracts and would need to be catalogued in a similar fashion (see the description under Ownership for the appropriate catalogue rules). An example of this type of contract would be a contract that gives a right to transmit between points A and B in both directions so long as the net usage is within the demand limit for that direction. In that case the catalogue rules for a bi-directional, simultaneous "ownership-based" contract would be appropriate.

² For example a GTA between PTOs would show up in the catalogue of both PTOs. The PTO receiving GTA service would show it as a contractual asset and the PTO providing GTA service would show the contractual obligation.

(b) Conversion to FTOs

The Contract Customer with rights under a demand-based contract may convert its demand-based contract rights using standard conversion procedures – that is, the Contract Customer would specify a single feasible dispatch, and the FTOs into which the contract rights convert would correspond to the injection and withdrawal points and demand maximums specified in the contract. Point-to-point contracts with a single point of delivery and a single point of receipt may have no “optionality” to lock down, so the resulting FTOs could correspond exactly to the terms specified in the underlying CTR. With contract with multiple points of receipt and points of delivery, the Contract Customer may convert its demand-based contract using the standard conversion procedures.

In cases of demand-based contracts that have properties similar to a bi-directional, simultaneous “ownership-based” contract (described below under section 3.3(a)(1)), the conversion rules for a bi-directional, simultaneous “ownership-based” contract would apply.

3.3 Rules for Cataloguing and Conversion Related to Ownership and Ownership-Like Rights

(a) Cataloguing as CTRs

The ownership obligation category covers obligations that are tied to ownership (either direct or by lease) of a transmission facility. The point of injection and point of withdrawal are defined as either end of the transmission line segment (denominated in the examples below as A and B, with assumed line ratings of 100 MWs from A to B and 75 MWs from B to A).

Ownership rights may take the form of bi-directional and simultaneous use, bi-directional and non-simultaneous use, or uni-directional use (the rules for each of which are described separately below). Because each form has slightly different implications they will need to be treated differently.

1. Bi-directional and Simultaneous Use

The bi-directional and simultaneous use category is for contracts under which the Contract Customer has the ability to use the path in either direction and at the same time. The net of the two schedules must be within the line rating for the net flow. For example assume schedule 1 is 200 MWs injected at A and withdrawn at B, schedule 2 is 125 MWs injected at B and withdrawn at A. This nets to 75 MWs injected at A and withdrawn at B. Note that each schedule individually exceeds the path rating (noted above) but that the net use is within the rating. This implies that the two schedules must be linked and that if one schedule is altered then the other schedule must be adjusted so that the net use is within the applicable path rating. The catalogue for this type of obligation would show both points as injections and both points as withdrawals. The maximums would be governed by special rules that would represent the interdependency (injection (A) - withdrawal (A) must be between +100 and -75 and injection (B) - withdrawal (B) is between +75 and -100).

2. Bi-directional and Non-simultaneous Use

The bi-directional and non-simultaneous use category is for contracts under which the rights holder has the ability to use the path in either direction but not at the same time (up to 100 MWs from A to B OR up to 75 MW from B to A). The catalogue for this type of obligation would show both points as injections and both points as withdrawals with the associated directional line limits as the maximum (in this example Injection set = [100 @ A, 75 @ B] and Withdrawal set = [75 @ A, 100 @ B]).

3. Uni-directional Use

The uni-directional use category is for contracts under which the rights holder has the ability to use the path in only one pre-defined direction (up to 100 MWs from A to B). The catalogue for this type of obligation would be similar to a uni-directional demand based contract (e.g. PTP) in that there is a single point of injection and a single point of withdrawal specified with the associated directional line limit as the maximum (in this example Injection set = [100 @ A] and Withdrawal set = [100 @ B]).

(b) Conversion to FTOs

The Contract Customer may convert its ownership/leased-based contract using the standard conversion procedures with the following exception:

In the case of bi-directional rights with simultaneous use, the rights-holder may convert its contract using the standard rules except that the CTR should be first translated into two separate CTR with the path rating for each direction establishing the maximum injection and withdrawal amounts (in the earlier example one CTR would be 100 MWs injection at A and withdrawal at B, and the other would be a 75 MW injection at B and withdrawal at A). The conversion would then be applied to either or both CTRs, but the conversion process outcome is limited by the interdependence of simultaneous use so that it does not create more FTOs than the rights underlying the contract. (Thus, in the earlier example positing a maximum simultaneous use of 125 MW, the resulting FTOs could not be greater than the simultaneous maximum.)

3.4 Rules for Cataloguing and Conversion Related to the Pacific Northwest Coordination Agreement (PNCA)

(a) Cataloguing as CTRs

The regional coordination agreement category is for obligations that are tied to multi-party resource operating agreements. Because these agreements are resource based (rather than load-based), transfer of power can be viewed to be between resources. These agreements do not guarantee service to load, so the Contract Customer would be responsible for getting power from its resource to its load via a separate transmission agreement. This means that both the points of injections and points of withdrawals are defined at the resources identified (and coordinated) in the agreements. Because each agreement has slightly different implications, they will need to be treated separately.

The catalogue should capture the range of possibilities of Pacific Northwest Coordination Agreement (“PNCA”) transactions (In Lieu Energy, Provisional Energy Return, Interchange Energy, etc.). The points of injections and points of withdrawals would be each of the Coordinated System resources (as submitted annually in PNCA planning). This sets up a resource-to-resource exchange in which each party’s normal load serving transmission agreements would be used to take the energy from its resource to its load). The maximum amounts of injections and withdrawals would be based on the most recently completed annual operating plan and the interchange estimates derived from the range of maximum and minimum Interchange Energy amounts out of the annual PNCA Headwater Benefits study. The catalogue for PNCA transactions should be updated annually after the PNCA Final Regulation is complete (to capture resource additions and operating plan changes).

(b) Conversion to FTOs

Given the special nature of the PNCA, it will not be eligible for conversion into FTOs.