

ANCILLARY SERVICES – MODULE 3b

CCA Reserve Market – Describes the proposed operation of the reserve market used by Grid West to cost-effectively obtain contingency and regulating reserves for the CCA. The topics covered include the reserve products, reserve requirements, market timing, market operation, etc.

CCA Reserve Deployment – Describes the procedures to be used in real-time to deploy the reserves of the CCA that were obtained through the Reserve Market.

CCA Participation in Reserve Sharing – Describes the current Northwest Power Pool reserve sharing agreement and discusses the impact of the Pro Rata Reserve Sharing program on the operation of the CCA.

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1.0 EXECUTIVE SUMMARY

As envisioned in the Regional Proposal, Grid West will administer a central reserve market for the Consolidated Control Area (CCA). The CCA reserve market will provide an efficient, cost-effective means to meet the reserve requirements of the CCA. As the CCA reserve market administrator, Grid West will determine the reserve requirements for the CCA system, calculate the obligations of its Transmission Customers, accept and validate Interconnected Operations Services (IOS)¹ offers from the service providers, determine the winning offers and prices, and perform settlement. Grid West will participate as a member of Northwest Power Pool (NWPP) Reserve Sharing Group and provide emergency help to pool members as required.²

Highlights of this paper include:

- Grid West will administer a central day-ahead reserve market to procure regulating, spinning and non-spinning reserves
- The purpose of the reserve market is to meet the reserve requirements of the CCA
- Reserves can be provided by eligible resources inside or outside the CCA.
- Reserve requirements are determined by Grid West to satisfy the NERC and WECC criteria
- The reserve market clearing will occur after the close of the day-ahead transmission scheduling process
- Congestion regions within the CCA will be used where and when required

2.0 PURPOSE

The purpose of this white paper is to review the proposed reserve market design for the Grid West Consolidated Control Area (CCA).

3.0 BACKGROUND

Currently, reserves are carried by individual control areas based on standards set forth by the Western Electricity Coordinating Council (WECC) and the North

¹ IOS are the services used to meet a control area's ancillary services requirements, including operating reserves. IOS and reserves are used interchangeably within this document.

² Given the differently situated regulatory regime in Canada and British Columbia, in particular, the operating assumption is that the Grid West market design will be mirrored in British Columbia, to the extent possible within that regulatory regime. Details regarding the market design in British Columbia are anticipated to be completed as part of detailed design phase of this effort.

American Electric Reliability Council (NERC). As a part of Grid West's Basic Features, at least three control areas are expected to consolidate. One of the benefits of consolidation is the ability to pool regulation requirements. This will lower the amount of regulating reserve required.³ With the formation of a central reserve market, active participation by service providers is expected and Grid West will be able to procure both regulating reserve and contingency reserve at the lowest cost. Non-consolidating parties will continue to make their own reserve arrangements.

4.0 DESCRIPTION OF THE CCA RESERVE MARKET

The primary objective of Grid West's reserve market is to use a market mechanism to efficiently schedule capacity resources at the lowest cost to meet the reserve requirements of the CCA system. To administer the CCA reserve market, Grid West will determine the required reserves for the CCA system, accept offers, calculate obligations of the Transmission Customers⁴, determine winning offers and prices, and settle the market.

4.1 Products

Grid West will procure the following reserve products for the CCA:

- Regulating reserve
- Contingency reserve – spinning
- Contingency reserve – non-spinning

Regulating reserve is an amount of spinning reserve immediately responsive to Automatic Generation Control (AGC) capable of providing sufficient regulating margin to meet NERC Control Performance Standards 1 and 2 (CPS1 and CPS2). It must meet the technical and certification requirements⁵ defined by Grid West. Grid West will determine the total requirement for regulating reserve.

Contingency reserve is operating reserve in addition to the regulating reserve requirement sufficient to meet the NERC Disturbance Control Standard (DCS). At least half of the contingency reserve requirement must be spinning

³ California ISO estimated a reduction of 100 MW of upward regulation capacity for a 1 year period would have saved over \$9.5 million. See "ISO Metered Subsystem (MSS) Option Proposal for Western Area Power Administration –Sierra Nevada Region (Western)", April 7, 2003.

⁴ If IOS are not offered in the DA market sufficient to meet Grid West's CCA requirements, CCA LSEs will be required to offer IOS as necessary to provide adequacy.

⁵ To be addressed in the next layer of TSLG work.

reserve, which can be provided by generators and interruptible/dispatchable loads that are immediately responsive to system frequency and can be fully effective within 10 minutes.

Non-spinning reserve (the remaining part of the contingency reserve requirement) can be provided by generators and interruptible/dispatchable loads that can be fully effective within 10 minutes.

Grid West will need to consider the technical requirements and necessary process (such as dynamic scheduling transfers) to allow resources outside the CCA system to participate in the CCA's reserve market. Grid West will also consider tagging requirements for reserve schedules outside the CCA system.

4.2 Total Reserve Requirements

WECC has established Minimum Operating Reliability Criteria (MORC). MORC addresses the requirements for appropriate regulation performance, contingency reserves, and other reliability standards. As the operator and Balancing Authority of the CCA, Grid West will operate a day-ahead reserve market to procure the necessary reserves to meet the applicable standards to ensure reliability.

Grid West will determine the amount of spinning and non-spinning reserve necessary to comply with WECC's MORC. For regulation, a percentage of forecasted or scheduled demand will generally be used as the total requirement. The percentage will be developed by evaluating the behavior of the loads and resources.

Table 4.2 summarizes the total requirements for each reserve type. In accordance with MORC, the load carried by firm imports is not used in the contingency reserve calculation. In addition, since there are no absolute standards by NERC and WECC on the requirements of regulating reserve, the proposed requirements are discretionary and evolving in nature.

Table 4.2 -- Reserve Requirements

Reserve Product	Total Requirements
Regulating reserve	<ul style="list-style-type: none"> • A percentage of scheduled or forecasted demand.
Contingency reserve – spinning	<ul style="list-style-type: none"> • A minimum of 50 percent of the contingency reserve requirement, where the

	<p>requirement is the higher of:</p> <ul style="list-style-type: none"> ○ 5 percent of load responsibility⁶ carried by hydro and/or wind generation and ○ 7 percent of load responsibility carried by thermal and other generation, <p>or</p> <ul style="list-style-type: none"> ○ MSSC (most severe single contingency) in the system⁷
<p>Contingency reserve – non-spinning</p>	<ul style="list-style-type: none"> ● The balance of the contingency reserve requirement not covered by spinning reserve, plus interruptible imports⁸ and on-demand obligations⁹.

4.3 Reserve Market Timing

Reserve auctions will be conducted as part of the day-ahead scheduling process. Grid West will conduct the reserve auction after the day-ahead schedules are finalized. However, those using Injection/Withdrawal Rights (IWRs) should submit their reserve offers along with their schedules¹⁰.

4.4 CCA Reserve Obligation for Regional Schedules

While Grid West’s transmission services cover the entire Grid West Managed Transmission System (GWMT), Grid West’s reserve market serves to meet the needs of only the CCA. Because of this, not all Transmission Customers will be obligated to pay for the costs of the CCA reserve market or to offer a share of the required reserve if an offer obligation is called upon (as will be discussed in Section 4.5). As a result, there will be a need for Grid West and Transmission Customers to determine responsibility for reserves based on the nature of Transmission Customer transactions.

⁶ Load responsibility includes firm export schedules.

⁷ As a participant in the NWPP Reserve Sharing Group, Grid West is expected to be exempt from the MSSC requirement.

⁸ Although Grid West’s regional schedules are firm, it is possible that a schedule involving Grid West and other control areas may have interruptible segments in another control area.

⁹ On-demand obligations are defined as “firm contractual sales of reserve obligation(s) for which the receiver has the right to call upon with notice of ten (10) minutes or less during the hour of delivery.” See WECC “Reliability Criteria: Part iii - Minimum Operating Reliability Criteria”, [//www.wecc.biz](http://www.wecc.biz).

¹⁰ To be addressed in the next layer of TSLG work.

Table 4.4 describes when a Transmission Customer's schedule is obligated to the CCA reserve market as a function of the schedule's injection and withdrawal points.

Table 4.4 -- CCA Reserve Obligation

Schedule	Injection Point Location	Withdrawal Point Location	CCA Reserve Obligation
Internal	CCA	CCA load	Yes
Export firm	CCA	Outside CCA	Yes
Import firm	Outside CCA	CCA	No
Non-CCA	Outside CCA	Outside CCA	No
Wheeling	Outside GWMT	Outside GWMT	No

4.5 Reserve Market Resource Participation

Grid West will procure necessary reserve capacity from voluntary offers of IOS. If there are insufficient IOS offers to meet Grid West's total requirements, Grid West will request additional offers from Transmission Customers (load-serving entities (LSEs) within the CCA) whose offers are below their obligation.

4.6 Self-provision

Self-provision of reserves is not explicit in Grid West's reserve markets. A Transmission Customer can achieve the same objective as self-provision by making reserve offers equal to its reserve requirement and acting as a price taker, i.e. offering reserve capacity at a minimum price¹¹. Existing Transmission Customers who self-provide reserves can continue to do so through their Transmission Owners if they so desire.

4.7 Congestion Regions

Grid West will recognize congestion regions whenever there is actual or potential internal congestion within the CCA. Grid West will procure the required reserve products for each congestion region as necessary. For each of the reserve products, Grid West will evaluate the anticipated congestion within the CCA system using the day-ahead proposed schedules and the historical patterns of transmission use to determine if the product will be acquired on a CCA-wide basis or on a smaller congestion region basis. Grid West will make available the congestion region information to Grid West

¹¹ To be addressed in the next layer of TSLG work.

participants. Since costs for reserve services in constrained areas may be higher, charges to LSEs may vary by the location of load served.

4.8 IWR Submission for External Resources

For offers to be delivered from a location within the CCA, no IWRs are needed. For resources located in another host control area, Grid West will accept IOS offers having the ability to deliver the service to the CCA boundary or internal points.

Grid West accepts the following types of IWRs for reserve offers from external resources:

- IWR from external injection point to a withdrawal point within CCA, or
- IWR from external injection point to an aggregated withdrawal point within CCA¹².

Grid West will consider the IWRs associated with the IOS offers in assessing transmission availability for delivering the services.

4.9 Reserve Sharing

Grid West's participation as a member of the Northwest Power Pool Reserve Sharing Group is discussed in the Reserve Sharing white paper.

4.10 Reserve Market Evaluation and Clearing Price

Offer evaluation will be based on the following rules:

- Day-ahead offers will be evaluated independently for each of the 24 settlement periods of the operating day and for each congestion region if used;
- Grid West will determine the winning offers simultaneously for the three reserve products;
- Grid West will select the offers with the lowest capacity prices as winning offers¹³;
- The clearing price for a reserve product for a settlement period and for a location will be the highest capacity price of the winning offers.

¹² We assume that Grid West will allow IWRs from an injection point to an aggregated location such as zones, areas, CCA, etc.

¹³ Generally, Grid West uses only capacity offer prices to determine winning offers. However, Grid West may consider energy prices in the reserve offer if the deployment of reserve has a major negative impact to the real-time imbalance prices.

4.11 Cost Recovery

The costs of reserves will be allocated to the parties whose needs are met by Grid West. Metered load values¹⁴ will be needed for the allocation (interchange schedules will be deemed delivered). However, since the type of resources used to supply the demand influences the allocation calculation, the allocation will be based on a computed allocation quantity, as described in Table 4.11 below.

Table 4.11 -- Reserve Costs Allocation Quantity

Reserves	Cost Recovery Allocation Quantity
Regulating reserve	Metered load value
Spinning reserve	Contingency obligation= 5 percent demand carried by hydro and/or wind generation, 7 percent demand carried by thermal or other generation, 0 percent load carried by firm import
Non-spinning reserve	Contingency obligation= 5 percent demand carried by and/or wind generation, 7 percent demand carried by thermal generation, 0 percent demand carried by firm import, 100 percent carried by interruptible imports

An overview of the cost allocation process follows.

- Grid West computes the allocation quantities for each customer after receiving all the metered values for each settlement period, each reserve product and each location (congestion region), using the formula described in Table 4.11.
- Grid West computes the total allocation quantities for each settlement period, each reserve product and each location.
- Grid West computes the share fraction for each customer, each reserve product, each settlement period, and each location. The share fraction is the ratio of the customer's allocation quantities to the total allocation quantities of the relevant product, period and location.

¹⁴ In the next layer design, Grid West will look into various metering arrangements such as where generations are behind the load meters and decide if any adjustments to the metered values are needed.

- The cost for a customer is the product of the total cost and relevant share fraction of each settlement period, each reserve product and each location.

5.0 ROLES AND RESPONSIBILITIES

Grid West will:

- Manage the certification process of reserve resources
- Determine the reserve requirements
- Notify Transmission Customers whose offers are below their obligation when total reserve offers are insufficient to meet the total requirements
- Administer the reserve market auction
- Allocate the reserve costs to participants
- Implement dynamic transfers for reserve resources external to CCA

The Transmission Customers will:

- Inform Grid West how their reserve share will be provided if required by Grid West
- Pay their share of reserve market costs to procure reserves

The reserve service providers will:

- Offer reserves and
- Follow Grid West dispatch instructions for awarded reserves¹⁵

The host Balancing Authority of external reserve service providers will:

- Coordinate with Grid West for dynamic schedule implementation

6.0 MARKET BENCHMARKS

The design of the Grid West's reserve market will be functionally similar to the ancillary market of several RTOs (California ISO, ERCOT). The unique features for Grid West's reserve market are:

- Reserve offers will be voluntary unless a reserve shortage is determined by Grid West
- CCA system and GWMT have different boundaries

¹⁵ Reserve deployment is discussed in a separate paper.

- Auction of the three reserve types¹⁶ is simultaneous

Other markets, such as MISO and PJM, have developed integrated and centralized energy and reserve markets. Must offer obligations arise out of installed capacity markets or other long-term adequacy mechanisms.

7.0 TECHNOLOGY SOLUTIONS

A software application is needed for the reserve auction and required validation. The functionality can be part of the scheduling system.

8.0 COST DRIVERS

Costs associated with the reserve market operation will be mainly in the area of auction system software and personnel identified.

9.0 DESIGN ISSUES FOR CONSIDERATION IN NEXT DEVELOPMENT LAYER

The next layer of design should include a review of the following design issues:

- *The need for RMR* - Grid West will need to answer the question how system reliability for the CCA is maintained when there are not sufficient resources offered into the markets. If responsibility rests with Grid West, RMR may be considered as one means to meet this responsibility.
- *Market power and monitoring* - Grid West will need to develop monitoring procedures to ensure market rules are followed.
- *Reserve schedule tags* - Grid West will need to study and determine if dynamic scheduling is to be tagged.

¹⁶ CAISO switched from sequential auctions to “rational buyer” approach.

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1.0 EXECUTIVE SUMMARY

During real-time operations, Grid West will deploy regulating reserve and contingency reserve obtained through the Reserve Market. These reserves will be deployed as part of Real-time Balancing Service (RBS) to respond to load changes, facilities outages, reserve-sharing events, etc.¹

Highlights of this paper include:

- Grid West will deploy regulating reserve to meet North American Electric Reliability Council (NERC) Control Performance Standards.
- Grid West will dispatch balancing resources so regulation resources can maintain the required regulation capacity.
- During generation outages or activation of the Northwest Power Pool (NWPP) Pro Rata Reserve Sharing program (PRRS), Grid West will deploy contingency reserve as necessary to maintain system reliability.
- During normal operations, Grid West may use excess contingency reserve (spinning and non-spinning) as a source of imbalance energy if the reserve providers have agreed on such and if Grid West can maintain sufficient reserves to ensure reliability.

2.0 PURPOSE

The purpose of this white paper is to discuss the proposed reserve deployment design. Specifically, this paper discusses the deployment of both regulating reserve and contingency reserve during real-time operations.

3.0 BACKGROUND

Grid West, as the operator of the CCA, will procure regulating reserve and contingency reserve in the day-ahead process to meet CCA requirements. Contingency reserve includes spinning and non-spinning reserves.

¹ Given the differently situated regulatory regime in Canada and British Columbia, in particular, the operating assumption is that the Grid West market design will be mirrored in British Columbia, to the extent possible within that regulatory regime. Details regarding the market design in British Columbia are anticipated to be completed as part of detailed design phase of this effort.

Grid West will deploy these reserves in real-time operation as part of the Real-time Balancing Service (RBS). For regulation services, Grid West will issue Automatic Generation Control (AGC) signals to regulating resources to meet the Control Performance Standard (CPS) criteria. Contingency reserve is made up of spinning and non-spinning reserves, which are used during system contingencies in the CCA, or in the case of PRRS, elsewhere in the NWPP. If Grid West can still maintain sufficient reserves, part of the contingency reserve may also be used to reduce real-time imbalance energy costs.

4.0 DEPLOYMENT OF THE CCA RESERVES

4.1 Reserve Monitoring

During real-time operations, Grid West will monitor reserves in the CCA to verify adequate reserves exist to meet the reserve requirements per the Western Electricity Coordinating Council (WECC) standards.

The reserve requirements for real-time operations are evaluated based on real-time conditions and available reserve resources.

4.2 Deployment of Regulation

Grid West will automatically dispatch regulating reserve by sending AGC signals to generation owners. The CCA's Area Control Error (ACE) will be distributed to regulation resources according to a set of proportional participation factors.

Grid West will dispatch balancing resources so regulation resources will maintain the required regulating reserve capacity.

Regulating resources will not be used to set real-time imbalance energy clearing prices. However, the energy output associated with regulation resources will be settled based on the real-time imbalance energy clearing prices.

4.3 Deployment of Contingency Reserve

Grid West will deploy contingency reserve capacity to provide the required energy when any one of the following applies:

- An outage results in a capacity shortage within the CCA.
- A NWPP reserve-sharing member requests assistance through the PRRS.
- Other reserve obligations are called upon.

Grid West will dispatch all contingency reserve resources on a proportional basis if possible. It will also consider transmission constraints in deploying contingency reserve. During a contingency or activation of PRRS, contingency reserve resources will not set the real-time imbalance energy clearing prices.

The settlement price for the energy output from the deployed contingency reserve has not been determined. Two options have been identified:

1. The higher of applicable real-time locational imbalance price (LIP) or energy offer price; or
2. The applicable real-time LIP and a premium.

As a result of contingency reserve deployment, the CCA may become deficient of required contingency reserve. Under this condition, Grid West will dispatch available balancing resources as necessary to restore contingency reserve requirements within 60 minutes.

The details of the pricing methods are to be further investigated in the next development layer.

4.4 Deployment of Contingency Reserve in Normal Operation

When excess contingency reserve exists, Grid West may use the excess as a source of imbalance energy. However, the following conditions must be met:

- Grid West can maintain its required operating reserve margin per WECC standards
- The contingency reserve offer is not flagged as “contingency-only”
- The contingency reserve resources will benefit the CCA’s participants

When these conditions have been met, contingency reserve offers will be put into the balancing stack and will be deployed and settled in the same manner as other balancing offers.

In deploying contingency reserve, Grid West will ensure sufficient reserves are maintained. Grid West will also consider transmission constraints in deploying contingency reserve.

5.0 ROLES AND RESPONSIBILITIES

Grid West will:

- Issue AGC signals to regulation resources and monitor their performance
- Issue dispatch instructions for contingency reserve resources and monitor their performance
- Monitor and manage reserves in real-time
- Participate in the NWPP PRRS agreement
- Settle reserve and energy output
- Implement dynamic transfers for reserve resources external to CCA

The NWPP will:

- Continue to coordinate reserve-sharing implementation

Reserve service providers will:

- Follow Grid West's AGC signals or dispatch instructions

The host Balancing Authority of external reserve service providers will:

- Coordinate with Grid West for dynamic transfer implementation

6.0 MARKET BENCHMARKS

Other markets, such as MISO and PJM, have developed integrated and centralized energy and reserve markets. In an integrated market such as PJM, the reserve capacity clearing price is influenced by the capacity offer price, the energy price and its opportunity cost. Because of the high degree of integration of energy and reserve, reserve offers are considered to be part of the available economic resources allowed to set real-time clearing prices.

The design of Grid West's reserve deployment is similar to several existing RTOs (e.g., California ISO², ERCOT). The California ISO treats reserves in real-time the same as other economic balancing resources. However, the California ISO has a replacement reserve market and real-time reserve sources for additional

² California ISO is in the midst of redesigning its market.

requirements if needed. Reserve deployment at ERCOT is based on the proportional principle similar to the proposed design for Grid West.

The unique features for Grid West's reserve deployment are:

- No replacement or supplemental reserve and
- NWPP reserve sharing participation

7.0 TECHNOLOGY SOLUTIONS

Regulation deployment is conducted using an AGC system. In the future, an improved method of AGC deployment may be considered.

Software for reserve monitoring and deployment of contingency reserve may need to be developed. Moreover, tracking of reserve deployment and reserve sharing must be in place for settlement purposes. Grid West will leverage existing software in its information system development.

8.0 COST DRIVERS

The reserve deployment process must be in place for reliable system operation. The costs drivers are related to market and operational systems and personnel.

9.0 DESIGN ISSUES FOR CONSIDERATION IN NEXT DEVELOPMENT LAYER

- *Deployment under transmission constraint* - When transmission congestion is present to restrict the deployment from reserve resources, Grid West should modify the proposed procedures based on proportionality to avoid overloading the system and consider proper incentives for resources in the constrained location.
- *Ramp rate consideration* - In deploying reserve resources, Grid West will need to consider the different ramp rates of reserve resources in order to meet the system load and balance the system. In addition, Grid West will need to consider if rules are needed to provide incentives to resources having faster ramp rates.
- *Dynamic scheduling* - For resources outside the CCA, the implementation of dynamic scheduling will need to be developed.



CCA Reserve Deployment

- *Additional reserve needs after the day-ahead market* - When there is additional need for reserves after the day-ahead market due to outages or major changes to schedules or weather, Grid West must develop a means other than the day-ahead market to procure additional reserves to ensure reliability.



1.0 EXECUTIVE SUMMARY

Grid West will continue to participate in the current Northwest Power Pool (NWPP) Pro Rata Reserve Sharing program (PRRS).

Under Grid West, multiple Balancing Authorities within the Consolidated Control Area (CCA) will consolidate into one. As a result, the existing PRRS procedure will need to be updated. Grid West will work together with Northwest Power Pool and the Pacific Northwest Security Coordinator (PNSC) to revise the program. The PNSC has operational control of PRRS.¹

2.0 PURPOSE

The purpose of this white paper is to discuss the impact of PRRS on the operation of the CCA.

3.0 CURRENT RESERVE SHARING

The reserve sharing program in the Grid West region is currently managed by the NWPP, a voluntary and member-based organization. The benefits of reserve sharing include a reduced contingency reserve requirement for members of a reserve sharing group.

The PNSC performs real-time monitoring, accepts valid requests from participants, determines the appropriate reserve sharing obligations of participants, sends dynamic adjustments to members' net scheduled interchange (NSI) as necessary to effect energy transfers, and determines energy settlement amounts.

Real-time reserve signals are integrated directly into the Area Control Error (ACE) equations of the member Balancing Authorities. The integrated hourly values are used to generate interchange schedules that are used for settlement. Settlement can be either financial or physical (i.e., in-kind energy return).

¹ Given the differently situated regulatory regime in Canada and British Columbia, in particular, the operating assumption is that the Grid West market design will be mirrored in British Columbia, to the extent possible within that regulatory regime. Details regarding the market design in British Columbia are anticipated to be completed as part of detailed design phase of this effort.

4.0 GRID WEST RESERVE SHARING

Grid West will continue to participate in the NWPP PRRS program. The current sharing mechanism is tier-based: a priority order of participation is used based on the proximity of the requesting control area to its surrounding control areas and the availability of transmission capacity. For example, if an outage in BC Hydro's system results in activation of PRRS, resources from Alberta and Pacific Northwest Zone (including Oregon, Washington and Montana) are dispatched first. If more help is needed, resources from Idaho Power would be dispatched.

Because multiple Balancing Authorities will consolidate into the CCA, the existing procedures will need to be updated. Grid West will work together with the NWPP and PNSC to revise the program. It is expected that this revision will be relatively minor in nature. Grid West will be a member of the NWPP and meet the reserve obligation of its CCA. In the above example, if Idaho Power were part of the CCA PRRS would need to be modified to reflect this consolidation.

The following issues related to reserve sharing will impact Grid West's operations:

- **Transmission Reliability Margin (TRM):** In a case where Grid West is requesting help from PRRS, it must have available transmission capability for such purposes. Therefore, to the extent that Grid West chooses to rely on PRRS it must ensure sufficient transmission capacity for this purpose. This could impact the calculation of Available Flowgate Capability (AFC) and the Transmission Rights Reconfiguration Service (RCS) processes.
- **Settlement Prices:** Currently, energy settlement for reserve sharing is based on the daily Dow Jones Mid-Columbia Index for On-Peak and Off-Peak Firm Energy. Since this is different than the Real-Time Balancing Service (RBS) settlement price, Grid West may incur a shortfall or a surplus. However, since PRRS energy settlements are small, these price imbalances are not likely to be significant. Grid West could work with NWPP members to explore the possibility of using Grid West's RBS clearing prices for the energy settlement.
- **In-kind Return:** If energy settlement for reserve sharing is physical (i.e., energy output is to be returned in kind), Grid West will need to develop necessary tracking and settlement procedures.
- **Dynamic Transfers for External Resources:** When Grid West provides reserve energy during activation of PRRS, PNSC will adjust the CCA's NSI so that the CCA's internal resources will ramp up to produce the required energy. However, when the CCA has external resources that provide contingency

reserve, an additional adjustment to the CCA's scheduled interchange will be needed. Grid West will need to develop procedures to allow for dynamic adjustments to its interchange schedules.

5.0 ROLES AND RESPONSIBILITIES

Grid West will:

- Supply reserve under the NWPP Pro Rata Reserve Sharing program as requested;
- Request reserve under PRRS when outages in the CCA exceed its contingency reserve obligation as defined by NWPP; and
- Settle reserve sharing energy according to the PRRS procedures.

The NWPP and PNSC will:

- Continue to coordinate reserve sharing implementation and
- Work with Grid West to update the program as needed.

6.0 TECHNOLOGY SOLUTIONS

The communication requirements to the PNSC can leverage existing systems. ICCP communication systems are used to communicate with the NWPP Reserve Sharing system.

7.0 COST DRIVERS

There are no major costs drivers for reserve sharing since this process is in place for many Transmission Owners.

8.0 DESIGN ISSUES FOR CONSIDERATION IN NEXT DEVELOPMENT LAYER

The next layer of design should include a review of the following design issues:

- *Congestion impact to reserve sharing* - Grid West will need to investigate if transmission capacity should be set aside in day-ahead and post-day-ahead for reserve-sharing purposes, and how the reserve sharing will be received or provided in real time when transmission capacity is insufficient.



CCA Participation in Reserve Sharing

- *Settlement prices* - Grid West will explore the possibility to use its real-time imbalance energy price to settle energy due to reserve sharing agreement.
- *Dynamic transferring of reserve sharing* - For reserve resources outside the CCA, the implementation of reserve sharing could be complicated depending on the configuration of the receiving and delivering control areas and dynamic scheduling arrangements.

SETTLEMENT – MODULE 3c

CCA Settlement Metering – Describes the process associated with the collection and management of CCA settlement meter data including what data is required and who is responsible for providing it.

Settlement & Invoicing – Describes the proposed process for market settlement and invoicing. The topics covered include settlement statements, periodic invoicing, payment issues, and an illustrative timeline for settlement and invoicing.

Dispute Resolution – Describes the proposed dispute resolution process for resolving settlement, billing disputes, certification and translation disputes.

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1.0 EXECUTIVE SUMMARY

As a part of the Grid West Basic Features, Grid West performs settlement for services it provides. Transmission Customers who use these services are billed accordingly by Grid West. The bills come in the form of settlement statements and invoices. In order to calculate some of the charges and credits found on the statements and invoices, Grid West needs to obtain settlement meter data. This paper describes the process associated with the collection and management of the Consolidated Control Area (CCA) settlement meter data. Additional metering requirements are discussed within the Real-Time Monitoring white paper.¹

Highlights of this paper include:

- Grid West requires meter data to perform settlement of the CCA Real-Time Balancing Service (RBS)
- Grid West does not need meter data for Transmission Customers in non-CCA host control areas
- Grid West will leave the existing tie-line meters in place at boundaries between consolidating control areas
- Grid West will need tie-line metering data for bordering Balancing Authorities (BA)
- Generators in a non-CCA host control area will participate in the RBS through use of dynamic schedules—they will not need to submit generation meter data
- Appropriate meter data is required for the entire CCA, including:
 - Load meter data provided at an aggregated level (e.g., tie line meters, POD meters, etc.)
 - Generation meter data provided for each meter measured on the low voltage side of the transformer
- Load within the CCA should have revenue quality meters at the same level that it is scheduled (e.g., bus, load zone)
- Not all generators within the CCA need revenue quality meters, only those participating in the RBS
- In most cases, existing metering infrastructure should be sufficient

¹ Given the differently situated regulatory regime in Canada and British Columbia, in particular, the operating assumption is that the Grid West market design will be mirrored in British Columbia, to the extent possible within that regulatory regime. Details regarding the market design in British Columbia are anticipated to be completed as part of detailed design phase of this effort.



2.0 PURPOSE

The purpose of this white paper is to discuss the proposed settlement metering design. The scope of the paper includes defining what settlement meter data is required and who is responsible for providing it. This paper does not cover real-time monitoring (e.g., SCADA, ICCP, etc.) A separate paper has been created to cover these topics. See the Real-Time Monitoring white paper for additional details.

3.0 BACKGROUND

Currently, many existing control areas require hourly scheduling and conduct hourly imbalance calculations. To calculate imbalance, control areas require meter data. When Grid West is formed, at least three control areas are expected to consolidate to form the CCA. Similar to other control areas, Grid West will need meter data for generation, actual interchange and load to calculate hourly imbalance charges for the CCA. Transmission Customers within the CCA will be required to provide both generator and load meter data as appropriate. Transmission Customers in non-CCA host control areas will not be required to submit meter data to Grid West except for BAs bordering the CCA that are responsible for providing the tie-line meter data.

4.0 METERING STANDARDS

Grid West metering standards will apply only to those participating in Grid West CCA services. Examples of these standards include: metering accuracy, monitoring, and validation (VEE) processes. Metering Standards are not discussed in this white paper, but will be defined in subsequent layers of design.

5.0 METERING PROCESS

5.1 Overview

In order to perform settlement, Grid West needs three types of meter data:

- Generation meter data
- Load meter data
- Interchange meter data

5.2 Generation Meter Data

All generators within the CCA that participate in the RBS are required to have revenue quality metering. The definition of revenue quality will be covered in a subsequent design phase. Transmission Customers, or a designated third-party service provider (Metering Agent), must electronically submit generation (injection) data to Grid West through the Market Information System using the Electric Industry Data Exchange (EIDE) protocol. Generation data supplied to Grid West should be “net” injection values.

5.2.1 Unit and Site Metering

Generation can be metered at either the unit level or at the site/project level. For example, a combined cycle project can be modeled as two generators or as one. If it is modeled as one, it can only be offered into the reserve market or balancing service as a single unit and metering can be submitted at the project level. Alternatively, if it is modeled as separate units, each must be offered into the reserve market or balancing service separately and meter data must be submitted for each unit.

5.2.2 Jointly Owned Units

For jointly owned units, each Transmission Customer must coordinate the designation of a third-party service provider (Metering Agent) with the other owner(s), since this Metering Agent designation should be identical for each of the unit owners.

5.3 Load Meter Data

All loads within the CCA are required to have revenue quality metering. The definition of revenue quality will be covered in a subsequent design phase. Furthermore, load must be metered at the same granularity it is scheduled (e.g., bus, load zone). For example, assume Transmission Customer A submits a balanced schedule from Generator 1 to Load 2, where Load 2 is a specific load bus. Under this scenario, Transmission Customer A must submit load meter data for the specific load bus. In contrast, if Transmission Customer A submits a balanced schedule from Generator 1 to Load 2, where Load 2 is a load zone, the Transmission Customer is required to submit load at the load zone level. Load zones are discussed below.

Transmission Customers, or their Metering Agent, must electronically submit hourly load (withdrawal) data to Grid West through the Market Information System using the EIDE protocol.

5.3.1 Load Zones

To simplify the scheduling and settlement processes, load zones may be used. Load zones are defined as either the metered value associated with a set of load busses, or the load within a metered boundary including a set of load busses. For each zone, the load is calculated as either the total of all metered load busses in the zone, or the total metered generation within the zone minus metered net actual interchange. The creation of load zones occurs during the registration process. Typically, load zones will be similar to existing control area settlement areas.

5.4 Interchange Meter Data

In order to account for all energy, control areas are responsible for reporting net actual interchange. In addition, to the extent necessary for metering load zones, existing interchange meters between consolidating control areas that are internal to the CCA will need to be maintained and reported. These values are needed for settlement.

6.0 METER DATA EXCHANGE

Transmission customers participating in the CCA are required to electronically submit hourly meter data, as appropriate, to ensure timely settlement. Transmission Customers may submit meter data themselves or designate a Metering Agent to submit the data on their behalf. However, at all times, Grid West should maintain a financial, legal and operational relationship with the Transmission Customer. Once Grid West is in possession of the meter data, it is responsible for ensuring the data is acceptable for settlement.

7.0 TIMING

Grid West will perform at least two settlements for a given Operating Day. Settlement meter data is required for each settlement. The more quickly Grid West can collect meter data from Transmission Customers and neighboring Balancing Authorities, the more quickly it can perform settlement. In the proposed design, Transmission Customers and Balancing Authorities must submit meter data two days prior to the settlement of a given Operating Day. For example, if an initial settlement is planned for 10 days after the Operating Day,

meter data should be due eight days after the Operating Day. This gives Grid West two days to perform validation of the submitted data.

8.0 ROLES AND RESPONSIBILITIES

Table 8.1 provides an overview of the roles and responsibilities for settlement metering:

Table 8.1 – Settlement Metering Roles & Responsibilities

Timeline	CCA Transmission Owner	Grid West CCA Transmission Customer	Designated Metering Agent	Grid West
By two days after the Operating Day	<ul style="list-style-type: none"> ▪ Submit actual interchange data 	<ul style="list-style-type: none"> ▪ Submit hourly generation meter data (DP) ▪ Submit hourly load meter data 	<ul style="list-style-type: none"> ▪ Submit hourly generation meter data (DP) ▪ Submit hourly load meter data 	<ul style="list-style-type: none"> ▪ Validate meter data

9.0 MARKET BENCHMARKS

Load meter data can be acquired using one of two different approaches. Under a centralized approach, load values are “built up” through a centralized aggregation process. The centralized model is commonly used in markets where retail choice is supported and individual service point metering is performed. In contrast, within the decentralized model, Transmission Customers within the CCA are responsible for aggregating (and integrating) meter data to the wholesale level prior to submitting it to Grid West. Since Grid West does not support retail choice, we recommend a decentralized metering model.

A comparison of the proposed meter data management process with existing RTO/ISO is given in table 9.1:

Table 9.1 – Settlement Metering Benchmarks

Attribute	Grid West	ERCOT	PJM	MISO
Retail vs. Wholesale	Wholesale	Retail	Wholesale	Wholesale
Profiling	No	Yes	No	No
Generation Metering	Submitted	Submitted & Polled	Submitted	Submitted
Load Metering	Load Zone (and Nodal)	Aggregated	Load Zone (and Nodal)	Load Zone (and Nodal)
Model	Decentralized	Centralized	Decentralized	Decentralized
Granularity	Load Zone (and Nodal)	Service Point	Load Zone (and Nodal)	Asset

10.0 TECHNOLOGY SOLUTIONS

The primary applications associated with the meter data management process are:

- Meter Data Acquisition & Storage System
- Market Information System
- Electric Industry Data Exchange (EIDE) Protocol

11.0 COST DRIVERS

The primary cost drivers for metering include:

- Metering standards (e.g. revenue quality requirements)
- Number of metering points
- Commercial model business rules
- Metering granularity

12.0 DESIGN ISSUES FOR CONSIDERATION IN NEXT DEVELOPMENT LAYER

- *Load Zone Definition* – How will load zones be defined? Who will be responsible for defining them?
- *Load Zone Weighting* – How will the load zone prices be weighted (e.g., load weighted, time weighted)?



CCA Settlement Metering

- *Nodal Settlement Implications* – Recently FERC has instructed PJM and other RTOs to develop approaches for settling loads at nodal levels. What, if any, is the impact to our metering methodology?
- *Residual Load* – Are there situations where the submitted load data do not match the Net Actual Interchange? If so, how are the MWhs accounted for?
- *Metering Standards* – Metering standards need to be defined for Grid West. For example, what is the definition of revenue quality?
- *Time Standard* – What time standard will be used for Grid West? How will daylight savings be accommodated?

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1.0 EXECUTIVE SUMMARY

As a part of the Regional Proposal, Grid West will provide regional and CCA services. Transmission Customers who use these services will be billed accordingly by Grid West. The bills come in the form of settlement statements and invoices. The description of each charge found on these statements/invoices will be defined within the protocols.¹

Highlights of this paper include:

- Tariff billing for pre-existing services will continue to be performed by individual Transmission Owners.
- Market settlement will be performed using a hourly interval.
- Grid West will perform at least two settlements for a given Operating Day.
- Initial settlement is performed at least Y^2 days after the Operating Day.
- Final settlement is performed at least Z^3 days after the Operating Day.
- Ad-hoc re-settlement will be performed for exceptional circumstances.
- Settlement statements are generated daily – they are snapshots of a given Transmission Customer's net position for a given Operating Day.
- Settlement statements do not initiate the payment process.
- Invoices are summaries of settlement statements and are either generated weekly or monthly.
- Invoices initiate the payment process.
- Grid West will implement a standard Account Receivable process.

2.0 PURPOSE

The purpose of this white paper is to discuss the proposed market settlements and invoicing design. Tariff billing for new long-term service will be discussed in subsequent design phases. Dates contained within this white paper are illustrative. Dates may be modified later in the design process to meet the specific needs of Grid West and its Transmission Customers.

¹ Given the differently situated regulatory regime in Canada and British Columbia, in particular, the operating assumption is that the Grid West market design will be mirrored in British Columbia, to the extent possible within that regulatory regime. Details regarding the market design in British Columbia are anticipated to be completed as part of detailed design phase of this effort.

² Y depends on when meter data is available.

³ Z depends on when the initial dispute period ends



3.0 BACKGROUND

Currently, Transmission Customers take Open Access Transmission Tariff (OATT) services from various Transmission Providers. They are billed for the services they use. As a part of the formation of Grid West, some Transmission Customers may take new and/or additional services from Grid West. These customers will receive statements and invoices from Grid West for those services. The charges for these services will be defined in the protocols.

4.0 GRID WEST MARKET SETTLEMENT

The Grid West market settlement process includes the financial settlement for Grid West regional and CCA services. This process is applicable to both new service and those taking optional Grid West services. Anyone taking service using existing contracts and not taking additional optional market services will not receive a statement/invoice from Grid West.

Transmission Customers meeting their System Access Requirement will have access to optional Grid West market services. Market settlement is concerned with the collection of charges and the distribution of payments associated with Grid West market services. Charges and credits resulting from market services will be calculated based on the regulated tariff that has been approved by the Federal Energy Regulatory Commission (FERC). These services include, but are not limited to:

- Reconfiguration Service
- Reserve Market Service
- Real-Time Balancing Service

Grid West will produce daily settlement statements. An initial and final settlement statement will be generated for each Operating Day. Settlement statements will include daily, monthly and annual charges as well as any administrative and miscellaneous fees. Each statement will consist of two parts: 1) statement summary 2) statement detail. Both will be posted to the Market Information System. Transmission Customers are responsible for retrieving them.

The settlement summary is intended to provide a high-level overview of a given Operating Day. It will include a net position for each charge type. The settlement detail is intended to provide enough detail such that Transmission Customers can verify their charges.

4.1 Grid Management Charge

Grid West must recover its operational costs (e.g., employees, systems and facilities) associated with providing Grid West services. Since many of the Grid West services are optional (e.g. Reserve Market), Grid West may chose to separate the Grid Management Charge into separate categories. Participants using various services will be charged a fee for the use of each service.

5.0 GRID WEST INVOICING

Market settlement does not initiate the payment process. Instead it provides a financial snapshot of a particular Transmission Customer's net position on a given Operating Day. To initiate the payment process, Grid West will generate weekly (or monthly) invoices and publish them on the Market Information System. Each invoice will be a summary of all of the settlement statements a Transmission Customer has received since the last invoice cycle. Each invoice will be prepared on a net basis and each Transmission Customer will be either a net payee or a net payer.

6.0 PAYMENT PROCESS

The payment process occurs in two steps:

1. Transmission Customer owing monies to Grid West will remit the amount shown on the invoice no later than the close of Business Day on the relevant payment date.
2. Grid West will calculate the amount available for distribution to Transmission Customers. Grid West will make payments no later than the Business Day following the invoice due date.

If a Transmission Customer does not pay in full, then Grid West will not collect enough monies to pay out all obligations. Grid West may implement a "short-pay" process under these conditions. The short-pay process will be designed as a part of subsequent design phases.

7.0 SETTLEMENT AND INVOICING TIMELINE

Market settlement occurs along a fixed timeline. In developing its market settlement timeline, Grid West needs to determine how many settlements should be performed per Operating Day and when those should occur. The formation of the settlement timeline can be a significant cost driver. Timeline decisions

impact staffing levels and complexity. As Grid West develops its settlement timeline, several factors should be considered:

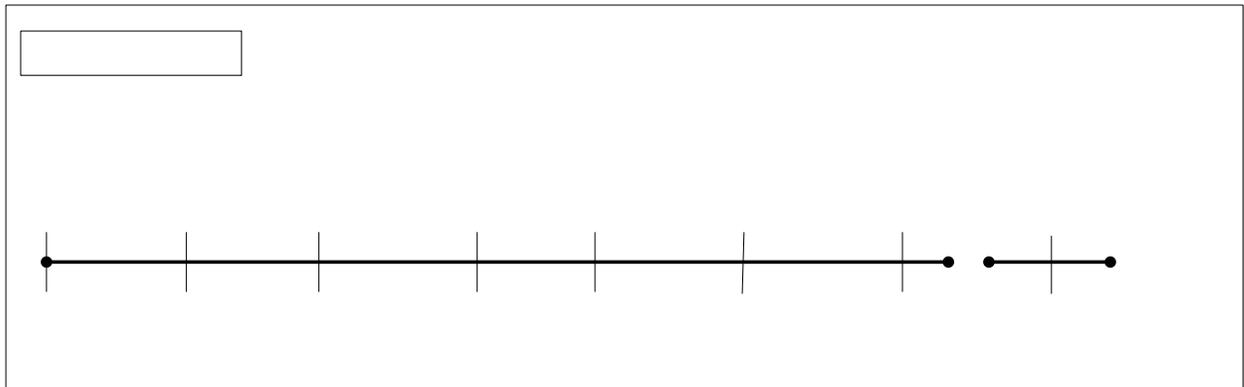
- Metering scope (centralized vs. decentralized)
- Payments/cash flow
- Quality of meter data
- Disputes timeline
- Credit impact
- Staffing impacts
- Complexity of charges and/or settlement statements
- Degree of automation

RTOs/ISOs perform multiple settlements per Operating Day for several reasons. The primary reason is because the inputs into the process change over time. For example, meter data may initially be estimated and later updated with actuals. Once the RTO/ISO has more accurate meter data, it typically executes another settlement run for the same Operating Day, and the Transmission Customer is billed for the difference in quantity between the estimated and actual meter readings. If the metered value does not change, the Transmission Customer's final bill would be zero. Additionally, participants are often concerned with risk management and cash flow. They want to understand their net position as soon as possible. Moreover, generators want to get paid for their services in a timely manner.

These interests are often at odds with one another. Timeliness and accuracy are tradeoffs. Most RTOs/ISOs have at least three settlements per Operating Day and the trend is to perform the initial settlement within 10 days of the Operating Day. However, Grid West does not support retail metering and meter data is an input to only one service (the Real-Time Balancing Service). Therefore, Grid West can likely initially operate the market with only two settlements per Operating Day. Finally, since there are no financial markets (e.g. virtual bidding, financial transmission rights), a 10-day settlement window may be acceptable to the parties involved.

Table 7.1 is an example of a potential Grid West settlement timeline:

Figure 7.1 – Illustrative Settlement and Invoicing Timeline



8.0 ROLES AND RESPONSIBILITIES

Table 8.1 provides an overview of the roles and responsibilities for settlement and invoicing:

Figure 8.1 – Illustrative Settlement and Invoicing Roles & Responsibilities

Timeline	Transmission Customer	Grid West
By two days after the Operating Day	<ul style="list-style-type: none"> Submit hourly meter data Submit hourly load meter data 	<ul style="list-style-type: none"> Validate meter data
OD + 10 BD	<ul style="list-style-type: none"> 	<ul style="list-style-type: none"> Perform initial settlement Generate statement summary Generate statement detail
OD + 10 BD	<ul style="list-style-type: none"> Download statement 	<ul style="list-style-type: none">
OD + 20 BD	<ul style="list-style-type: none"> Submit dispute (if required) 	<ul style="list-style-type: none">
OD + 27 BD	<ul style="list-style-type: none"> 	<ul style="list-style-type: none"> Post dispute status
OD + 50 BD	<ul style="list-style-type: none"> 	<ul style="list-style-type: none"> Post dispute response
OD + 55 BD	<ul style="list-style-type: none"> 	<ul style="list-style-type: none"> Perform final settlement Generate statement detail Generate statement summary
OD + 55 BD	<ul style="list-style-type: none"> Download statement 	<ul style="list-style-type: none">
OD + 65 BD	<ul style="list-style-type: none"> Submit dispute (if required) 	<ul style="list-style-type: none">
OD + 72 BD	<ul style="list-style-type: none"> 	<ul style="list-style-type: none"> Post dispute status

Operating Day

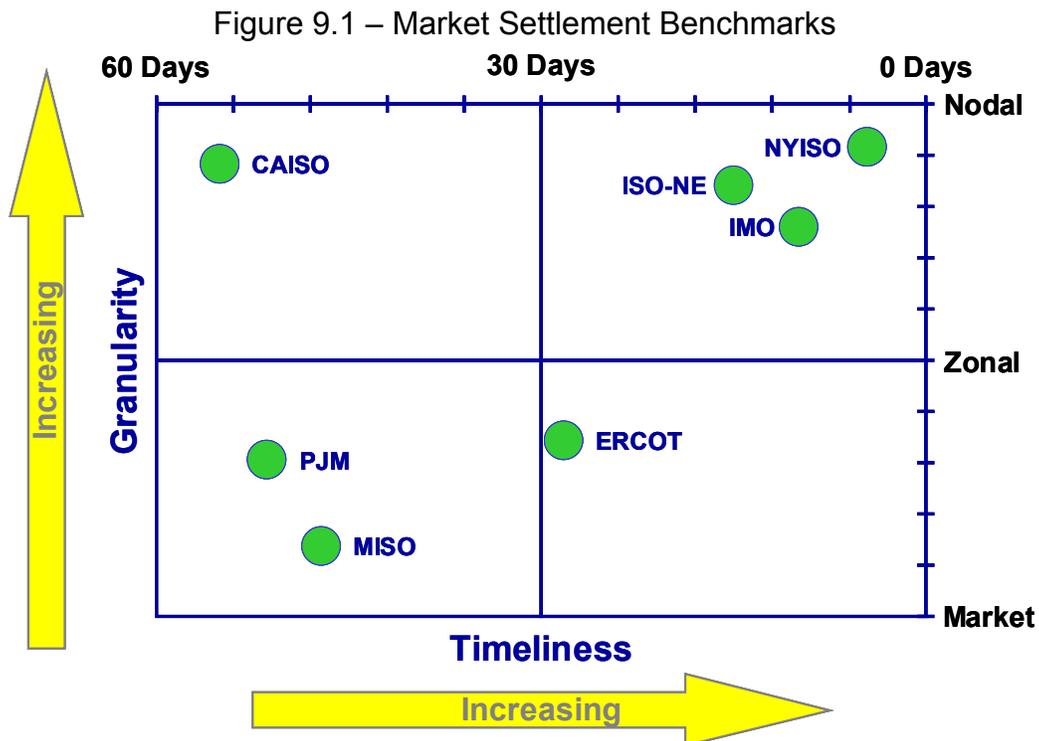
OD + 10 BD

OD

OD + 95 BD	▪	▪ Post dispute response
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9.0 MARKET BENCHMARKS

Table 9.1 provides a comparison of the proposed settlement process with other RTO/ISOs:



10.0 TECHNOLOGY SOLUTIONS

The primary applications associated with the settlement and billing process are:

- Settlement System
- Credit Management
- Risk Management
- Market Information System

11.0 COST DRIVERS

The primary cost drivers for settlement include:

- Settlement frequency
- Number of charge types
- Separation of Tariff Billing for Market Settlement
- Dispute process

12.0 DESIGN ISSUES FOR CONSIDERATION IN NEXT DEVELOPMENT LAYER

The next layer of design should include a review of the following design issues:

- *Paying Agent* - In Layer 3, the need for a paying agent will be considered, particularly with regard to tariff payments made for the collection of the Transmission Owners' fixed costs. In the RTO West Stage 2 framework, a paying agent was found to be useful to minimize the movement of funds between parties and to assure that revenues were not diverted or applied to obligations other than those for which they were designated. A Paying Agent would be an entity retained under an agreement between Grid West and a Transmission Owner to receive, hold and distribute funds derived from Grid West's coordinated operations of the Transmission Owners' respective transmission systems
- *Credit Management* – Grid West Basic Features does not include a Day-Ahead energy market, financial rights, or virtual bidding. Therefore, it likely does not need a sophisticated credit management solution. However, additional analysis should be performed in the Layer 3 design.
- *Risk Management* – Does Grid West require a risk management system?
- *Short-pay Scenario* – In some cases, Grid West Transmission Customers may not pay their invoices in full. As a result, Grid West will not have collected enough funds to cover its obligations to the generators. What sort of short-pay process, if any, should be implemented?



Settlement & Invoicing

- *Tariff Billing* – What will Grid West’s role be in the settlement of long-term services?
- *Charge Type Definition* – What are the inputs, determinants, and outputs for each charge type?
- *Settlement Accuracy* –What degree of accuracy (e.g., significant digits) should be applied to settlement calculations?

13.0 APPENDIX A: ILLUSTRATIVE CHARGE TYPE MATRIX

Service	Sub-Service	Charge Type	Data Requirements	
Reserve Service - CCA	Regulation	Regulation Up Capacity Payment to MP	<ul style="list-style-type: none"> • Awarded Regulation Up Offers • Regulation Up Clearing Price 	
		Regulation Charge	<ul style="list-style-type: none"> • Participant Regulation Requirement • Regulation Up/Down Clearing Price 	
	Non-Spinning Reserve	Non-Spinning Reserve Capacity Payment to MP	<ul style="list-style-type: none"> • Awarded Non-Spinning Reserve Offers • Non-Spinning Reserve Clearing Price 	
		Non-Spin Charge	<ul style="list-style-type: none"> • Participant Non-Spin Requirement • Non-Spin Clearing Price 	
	Spinning Reserve	Spinning Reserve Capacity Payment to MP	<ul style="list-style-type: none"> • Awarded Spinning Reserve Offers • Spinning Reserve Clearing Price 	
		Spinning Charge	<ul style="list-style-type: none"> • Participant Spinning Requirement • Spinning Clearing Price 	
	Black Start Service *	Black Start Payment to MP	<ul style="list-style-type: none"> • Black Start Contract Amount 	
		Black Start Charge	<ul style="list-style-type: none"> • Total Black Start Payments • Participant Load Ratio Share 	
	Real-Time Balancing Service – CCA	Real-Time Energy Service	Real-Time Energy Payments to MP	<ul style="list-style-type: none"> • Awarded Offers by Participant • Real-Time Locational Price



Settlement & Invoicing

		Real-Time Energy Charge	<ul style="list-style-type: none"> • Real-Time Locational Price • Dispatch Instructions • Generation Meter Data • Load Meter Data • Dead band • Uninstructed Deviation Penalty
System Access Requirements	N/A	System Access Charge	<ul style="list-style-type: none"> • Company Rate • Scheduled MWhs
Reconfiguration Service	Reconfiguration Service	Reconfiguration Payment	<ul style="list-style-type: none"> • Awarded Offers by Participant • Market Clearing Price
		Reconfiguration Charge	<ul style="list-style-type: none"> • Awarded Bids by Participant • Market Clearing Price
		Surplus Revenue Distribution to R3A	<ul style="list-style-type: none"> • Surplus Revenue • R3A

1.0 EXECUTIVE SUMMARY

As a part of the Regional Proposal, Grid West will provide both regional and CCA services. Transmission Customers who use these services will be billed accordingly by Grid West. The bills come in the form of settlement statements and invoices. Transmission Customers have the ability to dispute erroneous charges found within their statements and/or invoices. Additionally, Transmission Customers with pre-existing contracts may seek certification or translation of transmission rights to participate in Grid West markets. Billing, certification and translation disputes that cannot be resolved as a part of the Grid West dispute process may enter into a secondary dispute process or Alternative Dispute Resolution (ADR) process. The ADR process described here would be administered by a neutral third-party arbitrator.¹

Highlights of this paper include:

- Grid West will manage the dispute resolution process for billing, certification, and translation disputes
- A neutral third party will manage the ADR process for billing, certification, and translation disputes
- Disputes are submitted through the Market Information System
- Disputes are submitted within 10 days² of the statement/invoice date
- Grid West evaluates disputes within seven days of receipt
- Grid West posts a resolution within 30 days of receipt
- Transmission Customers may move the dispute into ADR at the conclusion of the Grid West dispute process
- ADR decisions involving billing, certification and translation disputes should be made within 90 days of receipt

2.0 PURPOSE

The purpose of this white paper is to discuss the proposed dispute resolution design for billing, certification and translation disputes. Any dates contained within this white paper are illustrative. Dates may be modified later in the design process to meet the specific needs of Grid West and its Transmission Customers.

¹ Given the differently situated regulatory regime in Canada and British Columbia, in particular, the operating assumption is that the Grid West market design will be mirrored in British Columbia, to the extent possible within that regulatory regime. Details regarding the market design in British Columbia are anticipated to be completed as part of detailed design phase of this effort.

² These dates are illustrative. They may be changed to better address the needs of Grid West and/or its Transmission Customers



Dispute Resolution

The ADR process for billing, certification and translation disputes may be distinct from the process used for other disputes under the Grid West Bylaws and Transmission Agreements. If a more general approach to all disputes is developed as the tariff and transmission agreements are developed, that method may be applied rather than the process suggested here. The method suggested illustrates how billing, translation and certification disputes could be resolved in the absence of a more comprehensive Grid West ADR process.

3.0 BACKGROUND

Currently, Transmission Customers receive bills for Open Access Transmission Tariff (OATT) services provided by various Transmission Providers. If Transmission Customers disagree with their charges, they can dispute them with their Transmission Provider under the provisions of their tariff. Additionally, if the Transmission Customer and Transmission Provider are unable to come to a resolution, they may enter into an arbitration process. This process will remain the same for Transmission Customers that continue to receive pre-existing OATT services from Transmission Owners.

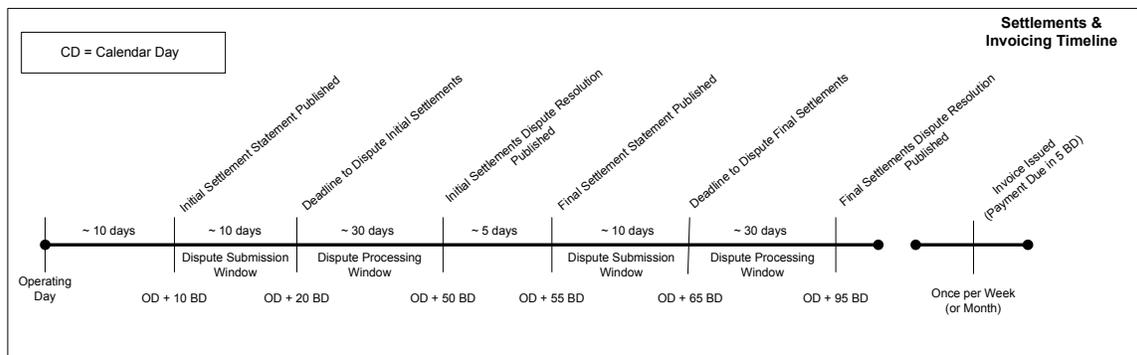
As a part of Grid West's Basic Features, Transmission Customers may take service from Grid West. Certain services, such as Reconfiguration, may require Transmission Customers to certify and/or translate their existing transmission rights. Transmission Customers will have a process for disputing the results of the certification and/or translation. Additionally, Transmission Customers will be able to dispute the charges found on settlement statements/invoices. The dispute resolution process for these types of disputes will be centralized and managed by Grid West.

4.0 GRID WEST DISPUTE PROCESS

4.1 Billing Disputes

Grid West will produce both settlement statements and invoices for services it provides to Transmission Customers. Statements are typically generated daily. They provide a snapshot of each Transmission Customer's net position for a particular Operating Day. Invoices are generated either weekly or monthly. They summarize a week's or month's worth of settlement statements for each Transmission Customer and trigger the payment process. Table 4.1 provides an overview of the proposed settlements and invoicing timeline.

Figure 4.1 – Illustrative Settlements and Invoicing Timeline



Both statements and invoices include a set of charges related to specific services. Transmission Customers may dispute any of the charges contained within a statement or invoice. Additionally, Transmission Customers may dispute the determinants and calculations they believe are incorrect. Errors occur for a variety of reasons, including: 1) inaccurate meter data, 2) inaccurate prices, and 3) inaccurate calculations. However, Transmission Customers should remit payments in full for disputed charges. For systemic errors (e.g., metering errors), special timelines may apply.

A Transmission Customer initiates the billing dispute process by submitting a dispute through the Market Information System. Billing disputes should be based on the current approved version of the protocols. Grid West will evaluate each received dispute for completeness. Since statements and invoices contain hundreds of line items, each billing dispute should be submitted with at least a minimum amount of information, including:

- Operating Day
- Statement/Invoice ID
- Settlement Interval
- Charge Type
- Billing Determinant
- Reasons for Billing Dispute
- Requested Remedy
- Supporting Data

4.2 Certification or Translation Disputes

Transmission Customers with pre-existing contracts seeking certification or translation of their transmission rights can use the dispute resolution process to resolve any dispute arising from the certification or translation process.

4.3 Dispute Administration

Grid West will manage the dispute process for billing, certification and translation disputes. It has several responsibilities including notifying all parties involved in a billing dispute, evaluating/reviewing disputes, and tracking the status of a dispute.

After a dispute is submitted, it is evaluated for completeness. If the dispute is not complete (e.g. missing information), it may be sent back to the Transmission Customer. If the billing dispute is timely and complete, Grid West will accept it and initiate the review and evaluation process. To minimize costs, Grid West should make all reasonable attempts to resolve disputes during the Grid West billing dispute period.

4.4 Dispute Resolution

If Grid West grants a Transmission Customer's billing, certification or translation dispute, it may take the following actions depending on the type of dispute:

- Billing Dispute - an adjustment will be made, as needed, to the next settlement statement or invoice. In some extreme cases, a resettlement of the entire market may be required.
- Certification Dispute – an adjustment will be made to the Transmission Customer's existing rights certificate.
- Translation Dispute – an adjustment will be made to the Transmission Customer's Injection Withdrawal Right value.

5.0 ADR PROCESS

Transmission Customers who don't resolve their billing, certification or translation dispute through the Grid West dispute process described above will have the option of moving their dispute into the ADR process. However, not all disputes can be moved to the ADR process. Only disputes that fall within a pre-defined list of "actionable" ADR events can enter into the ADR process. These events should be defined within the Grid West protocols.

The ADR process will be administered by a neutral arbitrator. The proceedings are confidential and the results are legally binding. For billing disputes, the cost of the proceedings will be assigned to the non-prevailing party or as otherwise determined by the arbitrator. For certification or translation disputes, each party

will bear its own costs plus a share of the arbitrator’s costs as determined by the arbitrator.

6.0 ROLES AND RESPONSIBILITIES FOR BILLING DISPUTES

Table 6.1 provides an overview of the roles and responsibilities for billing disputes:

Table 6.1 – Dispute Roles & Responsibilities

RCS Timeline	Transmission Customer	Grid West	Arbitrator
Within 10 days of the statement or invoice	<ul style="list-style-type: none"> Submit billing dispute 		
Within 7 days of receiving billing dispute		<ul style="list-style-type: none"> Review/evaluate billing dispute Post initial dispute response (“Open”, “Deferred”, etc.) 	
Within 30 days of receiving billing dispute	<ul style="list-style-type: none"> Submit additional dispute information, as required 	<ul style="list-style-type: none"> Gather required dispute information Evaluate the merit of the dispute Publish dispute resolution Perform misc adjustment, if required Resettle the market, if required 	
Within 10 days of dispute resolution	<ul style="list-style-type: none"> Submit ADR request to the Grid West Arbitrator 		
Within 7 days of ADR request			<ul style="list-style-type: none"> Review/evaluate ADR request Post initial ADR response (“Open”, “Deferred”, etc.)
Within 90 days of ADR request			<ul style="list-style-type: none"> Publish ADR resolution

7.0 MARKET BENCHMARKS

Table 7.1 provides a comparison of the proposed dispute process with existing RTO/ISOs:

Table 7.1 – Dispute Benchmarks

Design Attribute	GRID WEST ³	ERCOT	SPP	MISO
Dispute Timeline	▪ 10 Business Days	▪ 10 Business Days	▪ 10 Business Days	▪ 10 Business Days
Dispute Medium	▪ Submitted through the Market Information System	▪ Submitted through the Market Information System	▪ Submitted through the Market Information System	▪ Submitted through the Market Information System
ADR Process	▪ Yes	▪ Yes	▪ Yes	▪ Yes
ADR Decision Period	▪ 90 Days	▪ 120 Days	▪ 90 Days	▪
ADR Cost Allocation	▪ Each party shall be responsible for its own costs incurred during this ADR Procedure and for a pro rata share of the cost of the mediator or arbitrators	▪ Each party shall be responsible for its own costs incurred during this ADR Procedure and for a pro rata share of the cost of the mediator or arbitrators	▪ Each party shall be responsible for its own costs incurred during this ADR Procedure and for a pro rata share of the cost of the mediator or arbitrators	▪

8.0 TECHNOLOGY SOLUTIONS

The primary applications associated with the billing dispute process are:

- Dispute Tracking System
- Market Information System

³ Proposed dates. Dates may change in subsequent layers of design.

9.0 COST DRIVERS

The primary cost drivers for disputes include:

- Degree of automation
- Accuracy of market/commercial system calculations

10.0 DESIGN ISSUES FOR CONSIDERATION IN NEXT DEVELOPMENT LAYER

The next layer of design should include a review of the following design issues:

- *Certification/Translation Dispute Resolution* - Details of the dispute resolution process for certification and translation ADR to be developed later.