California ISO

Business Requirements Specification

CRR Auction Efficiency 1B

Document Version: 1.4

Date Created: 8/3/2018

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Revision History

Date	Version	Description
8/03/2018	1.0	Initial document release
10/19/2018	1.1	Updates per final solution and revised FERC Filing
11/28/2018	1.2	Updates to clarify CRR ID numbering and use of Scheduling Coordinator ID in lieu of Business Associate ID. Revised the following BRQs: • BRQ042A • BRQ401
01/15/2019	1.3	Updates for clarifications of CRR Processes Revised the following: • BRQ021 Added the following BRQs: • BRQ075 • BRQ080 Updates for new Individual CRR Details Report in CMRI Added the following BRQs: • BRQ403 • BRQ404
2/19/2019	1.4	Updates for additional data for CRR Details Report in CMRI Added the following BRQ: • BRQ042B Revised the following: • BRQ403

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1. Introduction

1.1 Purpose

The nodal market implemented by the California ISO (CAISO) on April 1, 2009 consists of the standard elements of a market design ubiquitous for CAISOs in the United States; this standard design consists of a real-time market complemented with a day-ahead market, which in turn is complemented with a market for congestion revenue rights (aka financial transmission rights in other CAISOs). The CAISO's design is based on a tiered approach. First, there is an allocation process in which Congestion Revenue Rights (CRRs) are directly allocated to load serving entities. Once the allocation is complete, the CRR auctions are open to any entity qualified to participate in the CRR market, regardless if they have an obligation to serve load or any other type of participation in the CAISO markets.

Since 2012, congestion revenue rights auction revenues that are allocated to load serving entities were on average $130 million less than the congestion payments received by entities purchasing these congestion revenue rights. This shortfall shows that auction valuations are consistently lower than eventual payouts on the products. If congestion revenue rights are truly valued as hedging instruments for market participants, then valuations over time should be greater than the observed payouts on those products.

In early 2017, the CAISO began its initiative to address the CRR auction efficiency. It is concerned about the large CRR payments made to holders of auction CRRs in comparison to the auction revenues collected when releasing the CRRs through the auctions.

The CAISO began its policy stage at a stakeholder working group on December 19, 2017. The policy stage is organized into three tracks: Track 0, Track 1, and Track 2.

- **Track 0:** Process, business rules, and operational guidance. Enhancements do not require tariff changes.
- **Track 1A:**
  - Focuses on enhancements to:
    - Information received and used for the CRR allocations and auction
    - CRR software to support a mechanism to allow market participants to sell previously acquired CRRs into subsequent auctions
  - Enhancements do require changes to the existing CAISO tariff.
- **Track 1B:**
  - Modify percentage (%) of capacity released for allocations and auction
  - Enhance select Settlements capabilities based on FERC decisions and achievable by 12/31/2018
- **Track 2:** Focused on comprehensive design changes, structural matters and market design rules

Project Scope

Only Track 1B is the subject of this Project.

In Track 1B there are six (6) key changes related to the congestion revenue rights settlements process:

1. Targeted reduction of congestion revenue rights payouts on a constraint by constraint basis.
2. Distribute congestion revenues to the extent that CAISO collected the requisite revenue on the constraint over the month.
3. Allocate shortfalls symmetrically to both prevailing-flow and counter-flow congestion revenue rights on shortfall constraints.
4. Allow surpluses on one constraint in one hour to offset deficits on the same constraint in another hour over the course of the month.
5. Only distribute surpluses to congestion revenue rights if the surplus is collected on a constraint that the congestion revenue right accrued a deficit, and only up to the full target payment value of the congestion revenue right.
6. Distribute remaining surplus revenue at the end of the month, which are associated with constraints that collect more surplus over the month than deficits, to measured demand.

1.2 References

All references represent external requirements documents or stakeholder requests developed and submitted by the Business Units.

Project Plan and other relevant documents that precede the BRS are located in Stakeholder Initiatives web page at:

http://www.caiso.com/informed/Pages/StakeholderProcesses/CongestionRevenueRightsAuctionEfficiency.aspx

2. Intellectual Property Ownership

Intellectual property covers a broad array of information and materials, including written works, computer programs, software, business manuals, processes, symbols, logos, and other work products. Determining ownership of intellectual property is very important in preserving rights of the California ISO and helps to avoid intellectual property infringement issues. In considering the business requirements or service requirements to be performed, the business owner of the project must determine intellectual property Ownership.

2.1 Guidelines

Intellectual property ownership must be considered by all applicable stakeholders before the services are performed. The level of analysis is two-fold. One, the business owner must determine if the intellectual property necessary to perform the services is owned by the California ISO or whether it must be obtained from a third party. Once it has been determined that the California ISO has secured the proper intellectual property rights to perform the services (i.e., the intellectual property is owned by the California ISO or we have licensed it from a third party), then the second step in the analysis is to consider whether new intellectual property will be created as a result of the business requirements or service requirements to be performed and how that intellectual property will be owned and protected by the California ISO. In order to assist the business owner in the analysis previously described, refer to the California Intellectual Property Policy available at http://www.caiso.com/rules/Pages/LegalPoliciesNotices/Default.aspx, which provides a brief tutorial on what Intellectual Property is and how the California ISO can go about protecting its intellectual property. Contact the Legal Department if you have any questions regarding intellectual property.

2.2 Checklist

There are no impacts to intellectual property based on the requirements stated in this document.

3. Details of Business Need/Problem

3.1 Description

The current CAISO CRR Market Daily Settlement process has resulted in significant financial shortfalls in revenues compared to the payments being made to CRR Holders. These revenue shortfalls are currently allocated to only Load Serving Entities; thus, these market participants bear the full financial burden of the current shortfalls.

The need is to reduce the CRR Market revenue shortfalls through a mechanism that strives to balance the CRR Auction and congestion revenues with the payments to CRR Holders. The concept is to have a situation wherein revenues equal payments such that a “full funding” scenario is achieved.

It is recognized that for individual instances, there will be both deficits and surpluses of revenue for a specific transmission constraint. These scenarios drive the need to manage and equitably distribute both excess revenues and deficits among the CRR Holders.

4. Business Process Impacts

4.1 Business Practice Manual (BPM)

BPM	Description of Impact(s)
Managing Full Network Model	N/A
Congestion Revenue Rights	Yes: a) Daily payouts b) Revised system capacity available for the CRR auction c) Add Appendix for details on CRR 1B
Market Instruments	Yes: Updates to market reports
Outage Management	N/A
Reliability Requirement	N/A
Market Operations	Yes: a) Updates to market reports b) Changes to payment descriptions c) Relocate Appendix F Settlement Rule (Clawback) details to Congestion Revenue Rights BPM
Compliance Monitoring	N/A

BPM	Description of Impact(s)
Metering	N/A
Scheduling Coordinator Certification & Termination	N/A
Rules of Conduct Administration	N/A
BPM Change Management	N/A
Definitions & Acronyms	Yes: New terms included in Tariff Amendment
Settlements & Billing	Yes: a) Modified charge codes b) New charge codes
Credit Management	N/A
Candidate CRR Holder	N/A
Transmission Planning Process	N/A
Direct Telemetry	N/A
Distributed Generation for Deliverability	N/A
Energy Imbalance Market (EIM)	N/A
Generator Interconnection Procedure (GIP)	N/A
Generator Interconnection and Deliverability Allocation Procedures	N/A
Generator Management	N/A
Managing Full Network Model	N/A

4.2 Other

Impact:	Description: (optional)
Market Simulation	**Yes**
Market Participant Impact	**Yes**
Internal Training	**Yes**
External Training	**Yes**
Policy Initiative	**Yes**
Vendor	**Siemens**
Architectural Framework and Roadmap	**No**

5. Business Requirements

The sections below describe the Business Processes and the associated Business Requirements involved in the project. These may represent high level functional, non-functional, reporting, and/or infrastructure requirements. These business requirements directly relate to the high level scope items determined for the project.

5.1 Business Process: Manage Data Inputs and CRR Daily Output Values

This process includes the receipt, management, processing, and publishing of multiple sets of data required to be used for generation of inputs for development of CRR Daily Output Values to be used in Settlements. The input data sets will include results of the DA Market, Settlements Rule adjustments, Circular Scheduling adjustments, and CRR data from the CRR Software system.

The input data will be used in multiple calculations to generate the core data sets to be used for generation of the Hourly and Daily Settlement-related Values for CRRs.

The outputs of this process will include CRR Notional Values, CRR Constraint-Specific Offset Values, Clawback Values and Circular Scheduling Values based on Net Modeled Flow criteria.

These outputs will be used for various settlement-based activities in other system (s).

5.1.1 Business Requirements

ID#	Business Feature	Requirement Type	Potential Application(s) Impacted
CRR1B-BRQ003	**DA Administrative Pricing** In the event of a DA Administrative Pricing event where no DA results exist, then the system shall use the simple hourly average of the FMM transmission constraint shadow prices resource schedule flow FMM MW, and RTPD shift factors	Deferred	CRRS

ID#	Business Feature	Requirement Type	Potential Application(s) Impacted
CRR1B-BRQ006	**Receipt of CRR Ownership Data** System to receive CRR ownership data from CRR Software system and store each CRR with the following minimum attributes: • CRR ID • CRR Holder BAID • CRR Type • Hedge Type • Source and Sink • MW Capacity • TOU • Effective Trade Date	Core	CRRS
CRR1B-BRQ008	**CRR Clawback Data** • CRR 1B Module shall receive CRR Settlement Rule (“Clawback”) intermediate data at the following granularity: netted CRR, transmission constraint, monitored element, trade hour. • CRR 1B Module shall also receive the current total daily CRR Clawback adjustment per TOU.	Core	CRRS
CRR1B-BRQ010	**Circular Scheduling Data** System shall receive and store CRR adjustment-related data relative to the Circular Scheduling Rule.	Core	CRRS
CRR1B-BRQ012	**OTC/TTC Data Used by the Market** System shall receive data relative to the operational transmission capability and the total transmission capability for each transmission element associated with a Merchant TOR type CRR, (i.e., CRR type) for every trade hour	Core	CRRS

ID#	Business Feature	Requirement Type	Potential Application(s) Impacted
CRR1B-BRQ021	**SF Assumption for NGC** For Nodal Grouping Constraints, the system shall provide shift factor (SF) data. System shall output the SF in the format of the Cnode/Anode to nodal grouping constraints (same format as other existing SF data). For cases where there is more than one generator at a node (POD), the calculated shift factor shall be distributed to all physical generator locations pro-rata based on their physical output for the hour. Example: Resource 1 generates 40 MW, resource 2 generates 60 MW, both have same POD and the POD has a binding nodal constraint. Resource 1's Pnode should have a SF of 0.4 and resource 2's Pnode should have a SF of 0.6, relative to the constraint.	Core	CRRS
CRR1B-BRQ022	**SF Data for ISL Constraints** For ISL constraints system shall provide shift factor data according to the SP-TIE and TIE-ISL mapping information. System shall output the SF in the format of the Cnode/Anode to ISL constraints.	Core	IFM/RTM
CRR1B-BRQ024	**Merchant TOR ITC/ISL Association** For each Merchant TOR CRR, system shall determine the associated transmission constraint for the source-sink pair by associating the source CRR location with the corresponding intertie constraint/intertie scheduling limit (ITC/ISL).	Core	CRRS
CRR1B-BRQ025	**Merchant TOR CRR MW Scaling By Derate** For Merchant TOR type CRRs, system shall adjust the time of use (TOU)-specific CRR MW value to the transmission derate.	Core	CRRS

ID#	Business Feature	Requirement Type	Potential Application(s) Impacted
CRR1B-BRQ026	**IFM MW Flow by Constraint by Contingency** System to calculate IFM MW Flow for each Constraint ID for each hour. Basic formula: ***IFM MW Flow per Constraint =*** ***Sum [(Constraint shift factor at a location) X (IFM Flow MWs at a location)]***	Core	CRRS
CRR1B-BRQ0027A	**IFM Flow MW Calculation** For each pricing node, the IFM injection MW, $IFMMW_{n,t}$ is determined for each trade hour as: ***Sum of all physical resource and virtual schedules for that trade hour for that location***.	Core	CRRS
CRR1B-BRQ028	**CRR Implied Flow Calculation** For each constraint, the implied flow for each CRR_q flowing from source to sink (prevailing flow) on that constraint for each hour must be calculated. The basic formula is: ***$CRR_{q,k,m,t}$ Implied Flow =*** ***(CRR_q MW) X ($SF^{src}_{q,k,m,t}$ - $SF^{snk}_{q,k,m,t}$)*** If a shift factor does not exist at a source or sink location, assume a shift factor of zero except for nodal group constraints (refer to BRQ021 for details).	Core	CRRS

ID#	Business Feature	Requirement Type	Potential Application(s) Impacted
CRR1B-BRQ0028A	**CRR Portfolio Aggregation (Aggregated CRR_q)** For all Obligation CRRs in a CRR Holder's portfolio, the system shall aggregate all Implied CRR Flows per constraint. The aggregation is performed by constraint/TOU/trade hour by CRR Holder. In this sense, CRR Holder is defined as the SC who holds the CRR in its portfolio, designated by the BA_ID in the CRR Ownership data. CRR Holder does **not** imply the parent-level company used in the CRR Clawback. For all Option CRRs, no netting shall be applied, and the CRR 1B calculations shall apply at the individual CRR level. When used below, the term "aggregated CRR" stands for the notion above (including the un-aggregated Option CRRs).	Core	CRRS Settlements
CRR1B-BRQ029	**Notional CRR Value Calculations** For each aggregated CRR_q, the Constraint-specific Notional CRR Value for each hour shall be calculated. The basic formula is: ***Constraint-specific Notional CRR_q Value = $CRR_{q,k,m,t}$ Implied Flow X Constraint Shadow Price*** Note: MT-TOR CRR notional values shall reflect applicable transmission derates.	Core	CRRS
CRR1B-BRQ030	**Alpha Calculation** For each aggregated CRR_q flowing from source to sink (prevailing flow) over a specific constraint, the proportion (%) of that aggregated CRR_q to all other aggregated CRRs with implied flow over the constraint for each hour must be calculated. Note: For Merchant-TOR CRRS, the alpha calculation shall use the CRR MW value adjusted by applicable transmission derates.	Core	CRRS

ID#	Business Feature	Requirement Type	Potential Application(s) Impacted
CRR1B-BRQ031	**CFD Calculation** For each binding constraint, the system shall calculate the congestion flow difference between the total IFM scheduled flow and the total of aggregated CRR implied flow. Note: For Merchant-TOR CRRs, the CRR MW applied in the CFD calculation shall reflect applicable transmission derates.	Core	CRRS
CRR1B-BRQ032	**CRR Clawback MW Conversion from Revenue** For each CRR_q flowing from source to sink (prevailing flow) over a specific constraint, the system shall calculate the CRR Clawback MW from the CRR Clawback CRR-level revenue adjustment, per constraint, divided by the transmission constraint shadow price of the same constraint	Core	CRRS
CRR1B-BRQ032A	**Circular Scheduling MW Conversion from Revenue** For each CRR_q flowing from source to sink (prevailing flow) over a specific constraint, the system shall calculate the Circular Scheduling MW from the Circular Scheduling CRR-level revenue adjustment, per constraint, divided by the transmission constraint shadow price of the same constraint.	Core	CRRS
CRR1B-BRQ035	**Offset Revenue (Revenue Adjustment)** For each aggregated CRR_q, a constraint-specific Offset Revenue value for each hour must be calculated. Calculations for Obligations and Options will be performed independently.	Core	CRRS

ID#	Business Feature	Requirement Type	Potential Application(s) Impacted
CRR1B-BRQ037	**Option Vs. Obligation CRR Treatment – Settlement Value** For the 1B calculation, there shall not be a minimum cap on either the notional nor offset values. Obligation CRRs may be paid or charged, and thus, there is no minimum cap on the settlement value. For the CRR 1B calculation, Option CRRs should undergo the same calculation as Obligation CRRs because, although the total settlement must never be less than zero, an individual constraint's contribution to that settlement may be less than zero.	Core	CRRS
CRR1B-BRQ038	**Constraint-Specific Offset Congestion Revenue** The Congestion Revenue Surplus/Deficit for each Constraint ID will be identified and stored for applicable hours of a day.	Core	CRRS
CRR1B-BRQ039	**Notional Value** Notional Values shall be calculated for all aggregated CRRs in a child-level CRR Holder's portfolio.	Core	CRRS
CRR1B-BRQ041	**Hourly To Daily Aggregation** System shall aggregate all hourly results for a given trading date to the trade date, by aggregated CRR, transmission constraint, and contingency case. This applies to the Notional Revenue, the Offset Revenue, the CRR Clawback Revenue, and the Circular Scheduling Revenue.	Core	CRRS

ID#	Business Feature	Requirement Type	Potential Application(s) Impacted

CRR1B-BRQ042A	**Daily Output Data Publication**
	System output components shall consist of:
	• Trade Date
	• Scheduling Coordinator ID (SCID)
	• CRR ID
	  ○ For Obligations, CRR ID will be zero (0) to reflect aggregation by SCID
	  ○ For Options, CRR ID is same as identified in CRR Software system
	• Hedge Type
	• CRR Type
	  ○ For Obligations, CRR Type will be identified as AGG to reflect aggregation
	  ○ For Options, CRR Type is same as identified in CRR Software system
	• Transmission Constraint
	• Contingency Case
	• Interval Start Time
	• Interval End Time
	• Daily Notional Revenue
	• Daily Offset Revenue
	• Daily CRR Clawback Revenue
	• Daily Circular Scheduling Revenue
		Core	CRRS

ID#	Business Feature	Requirement Type	Potential Application(s) Impacted

CRR1B-BRQ042B	**Output Data Publication – Individual CRR Data**
	
	System output components shall include:
	• Trade Date
	• Scheduling Coordinator ID (SCID)
	• CRR ID
	  ○ CRR ID is the same as received from CRR Software system
	• Hedge Type
	• CRR Type
	  ○ CRR Type is the same as received from CRR Software system
	• Transmission Constraint
	• Contingency Case
	• Interval Start Time
	• Interval End Time
	• Hourly Notional Revenue
	• Hourly Offset Revenue (At Constraint Level – Not at CRR Level)
	• Hourly CRR Clawback Revenue
	• Hourly Circular Scheduling Revenue
	• MT_TOR derate factor described in BRQ025. If a CRR was not derated, the derate factor is 1.
	• CRR award MW.
		Core	CRRS

ID#	Business Feature	Requirement Type	Potential Application(s) Impacted
CRR1B-BRQ075	**Prevailing Flow Definition** CRR flow values are considered to be in the prevailing direction if their sign is the same as the IFM flow value reported in the cleared value field in the out constraints table. Otherwise the CRR flow is in the counterflow direction. Example: Assume IFM cleared value = 90, CRR A flow = 20, CRR B flow = -10 CRR A is in the prevailing direction because the sign is the same as IFM (both positive). CRR B is in the counterflow direction because the sign is opposite of IFM (IFM positive, CRR B negative)	Core	CRRS
CRR1B-BRQ080	**SF Data for HVDC Constraints** For HVDC constraints, system shall provide shift factor (SF) data. System shall output the SF in the format of the Cnode/Anode to HVDC constraints (same format as other existing SF data).	Core	Market Systems

5.2 Business Process: Manage Clawback Data

5.2.1 Business Requirements

ID#	Business Feature	Requirement Type	Potential Application(s) Impacted
CRR1B-BRQ200	**Intermediate Data Set** System shall publish intermediate subset of data generated in the Clawback calculations. Data to include hourly data for potential Clawback.	Core	CRRS

5.3 Business Process: Manage CRR Settlements

The current CRR settlement process will be replaced with the Constraint-specific CRR settlement process. The new process will involve receipt and use of several sets of data that will be applied for calculating applicable charge code values within the Settlements system. Calculation of existing charge codes will be modified to support the new CRR Constraint-based criteria. Settlement values will be calculated for allocating surplus revenues on both a daily and monthly basis.

5.3.1 Business Requirements

ID#	Business Feature	Requirement Type	Potential Application(s) Impacted
CRR1B-BRQ304	**Daily Settlement Values** Capability to generate and publish Daily CRR Settlement Value based on following inputs: • Constraint-specific Notional Value for each aggregated CRR_q that has implied flow across the constraint • Constraint-specific Settlement Value for each aggregated CRR_q that has implied flow across the constraint • Constraint-specific Offset Revenue Value for each aggregated CRR_q that has implied flow across the constraint • Clawback revenue for each aggregated CRR_q that has implied flow across the constraint • Circular scheduling revenue for each aggregated CRR_q that has implied flow across the constraint	Core	Settlements
CRR1B-BRQ310	**Daily CRR Deficit Amount** For each CRR by CRR Type, constraint, and contingency, system shall calculate the Daily CRR Deficit Amount.	Core	Settlements
CRR1B-BRQ311	**Daily CRR Surplus Amount** For each CRR by CRR Type, constraint, and contingency, system shall calculate the Daily CRR Surplus Amount.	Core	Settlements
CRR1B-BRQ312	**Daily CRR Settlement Values** System shall calculate a Daily CRR Settlement Value for each CRR by Constraint, and Contingency. These will include: • **Daily CRR Obligation Settlement Values** • **Daily CRR Options Settlement Values** - **Merchant - TOR** - **Non-Merchant TOR**	Core	Settlements

ID#	Business Feature	Requirement Type	Potential Application(s) Impacted
CRR1B-BRQ314	**CRR Balancing Account** System shall calculate the CAISO CRR Balancing Account as: CRRBalancingAccountAmount = Sum(AS Congestion Revenue + ETC/TOR Credit Amount + CRRAuction Revenue + IFM Congestion Revenue + Sum(DailyCRRPayment) –Daily CRRSurplus Amount)	Core	Settlements
CRR1B-BRQ315	**CRR Balancing Account Allocation** System shall allocate the CRRBalancingAccount as described in BRQ314 to Scheduling Coordinators' pro-rate portion of SC Daily Measured Demand to CAISO Daily Measured Demand less that portion of Measured Demand associated with Balanced ETC and TOR.	Core	Settlements
CRR1B-BRQ316	**Total Daily CRR Surplus** System shall accrue the Total Daily CRR Surplus Amount in an Accrual amount to be distributed at end of the month.	Core	Settlements
CRR1B-BRQ317	**Monthly CRR Surplus Amount** System shall calculate the Monthly CRR Surplus Amount by CRR, constraint, contingency.	Core	Settlements
CRR1B-BRQ318	**Monthly CRR Deficit Amount** System shall calculate the Monthly CRR Deficit Amount by CRR, constraint, and contingency.	Core	Settlements
CRR1B-BRQ318A	**Monthly CRR Notional Value Amount** System shall calculate the Monthly CRR Notional Value Amount by CRR, constraint, and contingency	Core	Settlements

ID#	Business Feature	Requirement Type	Potential Application(s) Impacted
CRR1B-BRQ318B	**Monthly CRR Clawback Amount** System shall calculate the Monthly CRR Clawback Amount by CRR, constraint, and contingency	Core	Settlements
CRR1B-BRQ318C	**Monthly CRR Circular Scheduling Amount** System shall calculate the Monthly CRR Circular Scheduling Amount by CRR, constraint, and contingency	Core	Settlements
CRR1B-BRQ318D	**Monthly CRR Constraint Settlement Values** System shall calculate a Monthly CRR Settlement Value for each CRR by Constraint, and Contingency.	Core	Settlements
CRR1B-BRQ318E	**Monthly CRR Settlement Values** System shall calculate a Monthly CRR Settlement Value for each CRR by Contingency.	Core	Settlements
CRR1B-BRQ318F	**Monthly CRR Settlement Reversal** System shall calculate a Monthly CRR Settlement Reversal Amount for each CRR by Contingency.	Core	Settlements
CRR1B-BRQ319	**Monthly CRR Surplus Distribution Amount** System shall calculate the Monthly CRR Surplus Distribution Amount to be paid to CRR Holder.	Core	Settlements
CRR1B-BRQ319A	**Publish Monthly CRR Surplus Distribution Amount** System shall publish Monthly CRR Surplus Distribution amount at BAID level	Existing	Settlements
CRR1B-BRQ320	**Monthly CRR Surplus Allocation Amount** System shall calculate the Monthly CRR Surplus Allocation Amount.	Core	Settlements

ID#	Business Feature	Requirement Type	Potential Application(s) Impacted
CRR1B-BRQ321	**Monthly Allocation to Measured Demand** System shall allocate the Monthly CRR Surplus Amount, as described in BRQ320, to Scheduling Coordinators' pro-rate portion of SC Monthly Measured Demand to CAISO Monthly Measured Demand less that portion of Monthly Measured Demand associated with Balanced ETC and TOR.	Core	Settlements

5.4 Process: Manage CRR Reports

Reports will be generated on adjustments to Notional CRR Values. These reports will be based on transmission constraints and associated data, including congestion-specific flow amounts.

These reports will include public information as well as private information associated with the CRR Holder and/or representative Scheduling Coordinator.

5.4.1 Business Requirements

ID#	Business Feature	Requirement Type	Potential Application(s) Impacted
CRR1B-BRQ400	**Public Reports** System shall receive and publish on a daily basis hourly data related to transmission constraints affecting Notional CRR Values, including but not limited to the following: • Trade Date • Interval Start • Interval End • Transmission Constraint ID • Contingency Case • Total Notional Value • Total Offset Value - Positive Offset value equals Surplus - Negative Offset value equals Deficit Total Notional Values and Total Offset Values reflect aggregation of all applicable CRRs.	Core	OASIS

ID#	Business Feature	Requirement Type	Potential Application(s) Impacted

CRR1B-BRQ401	**Private Reports**
	System shall receive and publish hourly data related to CRRs and transmission constraints, including but not limited to the following:
	• Trade Date
	• Scheduling Coordinator ID (SCID)
	• CRR ID
	  ○ For Obligations, CRR ID will be zero (0) to reflect aggregation by SCID
	  ○ For Options, CRR ID is same as identified in CRR Software system
	• CRR Type
	  ○ For Obligations, CRR Type will be identified as AGG to reflect aggregation
	  ○ For Options, CRR Type is same as identified in CRR Software system
	• Hedge Type
	• Transmission Constraint
	• Contingency Case
	• Interval Start Time
	• Interval End Time
	• Hourly Notional Revenue
	• Hourly Offset Revenue
	• Hourly CRR Clawback Revenue
	• Hourly Circular Scheduling Revenue
		Core	CMRI

ID#	Business Feature	Requirement Type	Potential Application(s) Impacted

CRR1B-BRQ403	**CMRI Individual CRR Report Data**
	System shall receive hourly data related to **individual** CRRs and transmission constraints, including the following:
	• Trade Date
	• Scheduling Coordinator ID (SCID)
	• CRR ID
	  ○ CRR ID is the same as ~~indicated in~~ received from CRR Software system
	• CRR Type
	  ○ CRR Type is the same as ~~indicated in identified in~~ received from CRR Software system
	• Hedge Type
	• Transmission Constraint
	• Contingency Case
	• Interval Start Time
	• Interval End Time
	• Hourly Notional Revenue
	• Hourly Offset Revenue (At Constraint Level – Not at CRR Level)
	• Hourly CRR Clawback Revenue
	• Hourly Circular Scheduling Revenue
	• MT_TOR Derate Factor
	• CRR award MW
		Core	CMRI

CRR1B-BRQ404	**CMRI Individual CRR Report** System shall make available hourly data identified in BRQ403 for access by Scheduling Coordinators.	Core	CMRI

6. Appendix: Acronym Definition

Acronym	Definition
AGG	Aggregation of Obligation CRRs
APNode	Aggregated Pricing Node
BAID	Business Associate Identification
CNode	Connectivity Node
CRR	Congestion Revenue Right
CRRS	CRR Settlement Rule System
ETC	Existing Transmission Contract
ETCC	Existing Transmission Contract Calculator
FMM	Fifteen-Minute Market
IFM	Integrated Forward Market
ISL	Intertie Scheduling Limit
ITC	Intertie Constraint
LMP	Location Marginal Pricing
MCC	Marginal Cost of Congestion
MT_TOR	Merchant Transmission Ownership Right
MRID	Master Resource Identifier
MW	Mega Watt
NGC	Nodal Grouping Constraint
OTC	Operating Transfer Capability
PNode	Pricing Node

Acronym	Definition
RTPD	Real Time Pre-Dispatch
SF	Shift Factor
SP	Scheduling Point
TOR	Transmission Ownership Right
TOU	Time of Use
TTC	Total Transfer Capability