December 6, 2018

PricewaterhouseCoopers LLP
400 Capital Mall, Suite 600
Sacramento, CA 95814

We are providing this letter in connection with your examination related to management's assertion included as Attachment I that the selected Operating Procedure Elements related to Reliability Data Exchange Requirements listed in Table 2 (the "subject matter") were applied to the Real-time Network Measurement Data and Real-time Balancing Authority Data exchanges ("the criteria") that occurred during the times observed in Table 1 in management's assertion on June 12, 2018 and August 23, 2018 (the "Observation Periods").

Certain representations in this letter are described as being limited to those matters that are material. Items are considered material if, individually or in the aggregate, they could reasonably be expected to influence relevant decisions of intended users that are made based on the subject matter. Materiality used for purposes of this letter is defined as situations where the subject matter is not fairly presented or applied consistently by California Independent System Operator Corporation.

We confirm, to the best of our knowledge and belief, as of December 6, 2018, the date of your report, the following representations made to you during your engagement

1. We are responsible for the subject matter and assertion related thereto.

2. We are responsible for selecting the criteria to be used in the evaluation of the subject matter and the assertion related thereto, and for determining that the criteria are appropriate for our purposes during the Observation Periods.

3. All relevant matters are reflected in the evaluation of the subject matter and the assertion related thereto.

4. We have made available to you:

    a. all information necessary for purposes of the examination.

    b. unrestricted access to personnel of California Independent System Operator ("CAISO") from whom you have requested information.

5. There are no known matters contradicting the subject matter or assertion.

6. There are no communications from regulatory agencies or others affecting the subject matter or assertion, including communications received between the Observation Periods and the date of your report.

7. We are not aware of any material misstatements in the subject matter or assertion.

8. We have disclosed to you all deficiencies in internal control relevant to the engagement of which we are aware.

9. We have no knowledge of any actual, suspected or alleged fraud or noncompliance with laws or regulations affecting the subject matter.

10. With respect to the data exchange requirements listed in Table 2, the Inter-Control Center Communications Protocol IDs ("ICCP IDs") under the "WECC" (Western Electricity Coordinating Council) path name are the only in-scope data points.

11. The mapping of ICCP IDs to the in-scope data exchange requirements provided in Table 2 and 3 is complete and accurate.

12. CAISO makes data points available as prescribed by the North American Electric Reliability ("NERC") standard Interconnection Reliability Operations and Coordination ("IRO")-010-2 "Reliability Coordinator Data Specification and Collection" and the Peak Reliability Coordinator ("Peak RC") data specifications. Peak RC can choose to receive all or some of the available data based on their operational needs. Data capture tests that were performed only contain actual data points that Peak RC chose to receive.

13. There were no events occurring with respect to the operating procedure elements #2.15, 2.19, and 2.21 listed in Table 3 of management's assertion during the observation periods listed in Table 1.

To the best of our knowledge and belief, no events have occurred subsequent to the Observation Periods and through the date of this letter that would have a material effect on the subject matter or assertion.

Mr. Steve Berberich, President and Chief Executive Officer

Mr. Eric Schmitt, Vice President Operations

Ms. Nancy Traweek, Executive Director of System Operations

www.pwc.com

California Independent System Operator Corporation

Opinion on Management's Assertion Regarding Compliance Assessment with Selected Operating Procedures Related to Reliability Data Exchange Requirements

Report of Independent Accountants

To the Management and Board of Governors of
California Independent System Operator Corporation

We have examined the accompanying management assertion of California Independent System Operator Corporation ("ISO") that the Operating Procedure Elements related to the Reliability Data Exchange Requirements listed in Table 2 of management's assertion were applied to Real-time Network Measurement Data and Real-time Balancing Authority Data exchanges occurring during the times observed in Table 1 of management's assertion on June 12, 2018 and August 23, 2018. California Independent System Operator Corporation's management is responsible for its assertion. Our responsibility is to express an opinion on management's assertion based on our examination.

Our examination was conducted in accordance with attestation standards established by the American Institute of Certified Public Accountants. Those standards require that we plan and perform the examination to obtain reasonable assurance about whether management's assertion is fairly stated, in all material respects. An examination involves performing procedures to obtain evidence about management's assertion. The nature, timing and extent of the procedures selected depend on our judgment, including an assessment of the risks of material misstatement of management's assertion, whether due to fraud or error. We believe that the evidence we obtained is sufficient and appropriate to provide a reasonable basis for our opinion.

The scope of our examination was limited to examining that the data was provided by ISO to Peak RC for each of the Real-time Network Measurement Data and Real-time Balancing Authority Data elements referenced in Table 2 of management's assertion. We did not examine the completeness or accuracy of the content of the data elements provided by ISO to Peak RC.

Management has provided additional information in the "Management Narrative to Provide Additional Context to the Process" column of Table 2 in management's assertion. This information was not subject to the examination engagement and we make no comment as to its completeness, accuracy, or appropriateness.

As discussed in management's assertion, there were no events occurring with respect to Operating Procedure Elements #2.15, 2.19, and 2.21 listed in Table 3 in management's assertion during the observation periods listed in Table 1. Therefore, we did not perform any procedures related to Operating Procedure Elements #2.15, 2.19, and 2.21.

In our opinion, management's assertion referred to above is fairly stated, in all material respects.

December 6, 2018

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Management Assertion Regarding Compliance with Selected Operating Procedures

December 6, 2018

Overview

The management of California Independent System Operator Corporation ("ISO") is responsible for the design and implementation of procedures necessary to comply with the reliability data exchange requirement in accordance with the North American Electric Reliability Corporation ("NERC") standard: Interconnection Reliability Operations and Coordination ("IRO")-010-2 "Reliability Coordinator Data Specification and Collection" which became effective January 1, 2017.

The "Operating Procedure Element" in the first column of Table 2 represents a subset of the ISO's operational procedures designed and implemented by management to meet the requirements of the NERC standard and to carry out its data exchange requirements with Peak Reliability Coordinator ("Peak RC") procedures. These selected Operating Procedure Elements are not intended to represent the entire set of procedures designed and implemented for management to meet the NERC standard and data exchange requirements. The selected Operating Procedure Elements are excerpts from Operating Procedure 3130 IRO-010-2 "Reliability Coordinator Data Request Guidelines" version 5.0 included as Appendix 1 to this management assertion and 3130A "Implementation Details for the Reliability Coordinator Data Request" version 2.0 included as Appendix 2. The selected Operating Procedure Elements comprise only the data exchange requirements with Peak RC procedures selected by management on the basis that they related to Inter-Control Center Communications Protocol ("ICCP") data transfer method of Real-time Network Measurement Data and Real-time Balancing Authority Data, and the operating procedures were executed solely by ISO personnel. Real-time Network Measurement Data and Real-time Balancing Authority Data are categories of data that are submitted to the Peak RC as part of situational awareness and monitoring of bulk electric system in real time to ensure reliability and security of the system. A description of what is included in these categories is in the first column of Table 2.

Management Assertion

Management asserts the Operating Procedure Elements related to the Reliability Data Exchange Requirements as listed in Table 2 were applied to Real-time Network Measurement Data and Real-time Balancing Authority Data exchanges occurring during the times observed in Table 1 in management's assertion on June 12, 2018 and August 23, 2018.

The scope of management's assertion does not include the completeness and accuracy of the reported data elements listed in Table 2.

ISO makes data points available as prescribed by Interconnection Reliability Operations and Coordination ("IRO")-010-2 Reliability Coordinator Data Request Guidelines and Peak RC data specification. Peak RC can choose to receive all or some of the available data based on their operational needs. The 5 minute data capture tests that were performed on the observation periods listed in Table 1 only contain actual data points that Peak RC chose to receive.

There were no events that occurred related to the Operating Procedure Elements #2.15, 2.19, and 2.21 listed in Table 3 below during the observation periods listed in Table 1.

Table 1

Observation Period	Date	Operating
1	June 12, 2018	17:15:57 PDT to 17:20:41 PDT
2	August 23, 2018	23:35:10 PDT to 23:40:46 PDT

Table 2

Operating Procedure Element (*Per 3130A, Version No 2.0 (refer to Appendix 2)*)	Management Narrative to Provide Additional Context to the Process (not subject to the examination engagement)
Real-time Network Measurement Data Item 1.5 of Attachment 3130A - Submit the following Real-time Network Measurement Data utilizing designated Western Electricity Coordinating Council ("WECC") Transfer Path data: 1. Actual megawatt ("MW") 2. Scheduled MW, Total Transfer Capability ("TTC")	ISO submits WECC transfer path data for the following paths: 24, 45, 61, 66, and Southern California Import Transmission ("SCIT") Nomogram (East to West and West to East). For each path, ICCP object IDs have been mapped to the corresponding data elements in the Energy Management System ("EMS") model in order to provide the actual MW and scheduled MW, TTC at least every 10 seconds.
Real-time Network Measurement Data Item 1.14 of Attachment 3130A - Submit the following Real-time Network Measurement Data: Any Transmission Operator ("TOP")-provided stability limitation that Peak, in collaboration with the TOP, determines to require submission in Real-time. *For purposes of this assertion, Peak RC requires ISO to submit data for two stability limitations: 1) San Diego Gas & Electric ("SDG&E") Voltage Stability Interconnection Reliability Operating Limits ("IROL") and 2) San Diego Gas & Electric – Comisión Federal de Electricidad ("CFE") Voltage Stability IROL.*	For each IROL, ICCP object IDs have been mapped to the corresponding data elements in the EMS model in order to provide the limit and actual flow at least every 10 seconds.
Real-time Balancing Authority ("BA") Data Item 2.1 of Attachment 3130A - Submit the following Real-time Balancing Authority Data: Instantaneous BA Area Load. *For purposes of this assertion, instantaneous refers to a single data point of demand load for a particular BA Area Load.*	ISO submits a single data point for Instantaneous BA Area Load at least every 10 seconds via ICCP.
Real-time Balancing Authority Data Item 2.2 of Attachment 3130A - Submit the following Real-time Balancing Authority Data: BA Net Actual Interchange as used in Area Control Error ("ACE") calculation.	ISO submits a single data point for BA Net Actual Interchange as used in ACE calculation at least every 10 seconds via ICCP.
Real-time Balancing Authority Data Item 2.3 of Attachment 3130A - Submit the following Real-time Balancing Authority Data: BA Net Scheduled Interchange (as used in ACE calculation).	ISO submits a single data point for BA Net Scheduled Interchange (as used in ACE calculation) for the BA Area at least every 10 seconds via ICCP.
Real-time Balancing Authority Data **Item 2.4 of Attachment 3130A -Submit the following Real-time Balancing Authority Data: BA Instantaneous Area Control Error that is used for NERC reporting requirements.**	**ISO submits a single data point for BA Instantaneous ACE at least every 10 seconds via ICCP.**

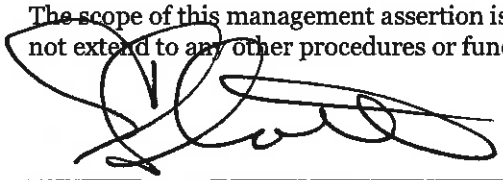
Operating Procedure Element (*Per 3130A, Version No 2.0 (refer to Appendix 2)*)	Management Narrative to Provide Additional Context to the Process (not subject to the examination engagement)
Real-time Balancing Authority Data Item 2.5 of Attachment 3130A - Submit the following Real-time Balancing Authority Data: Balancing Authority ACE Limit ("BAAL") high and low limits instantaneous or if unable then one minute average values. *For purposes of this assertion, ISO provided the high and low limits instantaneous for two data points.*	ISO submits two data points for BAAL high and low limits for the BA Area at least every 10 seconds via ICCP.
Real-time Balancing Authority Data Item 2.6 of Attachment 3130A - Submit the following Real-time Balancing Authority Data: System frequency at multiple locations within the BA as requested by the RC. *For purpose of this assertion, 'as requested by the RC' means the actual data points that Peak RC chose to receive.*	Peak RC requires ISO to submit a single data point for actual frequency for the BA Area at least every 10 seconds via ICCP.
Real-time Balancing Authority Data Item 2.7 of Attachment 3130A - Submit the following Real-time Balancing Authority Data: Balancing Authority Scheduled frequency.	ISO submits a single data point for scheduled frequency for the BA Area at least every 10 seconds via ICCP.
Real-time Balancing Authority Data Item 2.8 of Attachment 3130A - Submit the following Real-time Balancing Authority Data: BA Area ("BAA") Contingency Reserve calculations: 1. Total Required, 2. Total Actual Available, 3. Spinning Required, and 4. Spinning Actual Available.	ISO submits four calculated data points for total required, total actual available, spinning required and spinning actual available for the BA Area at least every 10 seconds via ICCP.
Real-time Balancing Authority Data Item 2.9 of Attachment 3130A - Submit the following Real-time Balancing Authority Data: Balancing Authority Area Actual Generation Total.	ISO submits a single data point for total actual generation for the BA Area at least every 10 seconds via ICCP.
Real-time Balancing Authority Data **Item 2.10 of Attachment 3130A - Submit the following Real-time Balancing Authority Data: Actual Most Severe Single Contingency ("MSSC") of ISO Balancing Authority.**	**ISO submits a single data point for MSSC for the BA Area at least every 10 seconds via ICCP.**

Operating Procedure Element (*Per 3130A, Version No 2.0 (refer to Appendix 2)*)	Management Narrative to Provide Additional Context to the Process (not subject to the examination engagement)
Real-time Balancing Authority Data Item 2.11 of Attachment 3130A - Submit the following Real-time Balancing Authority Data: Real-time status points for units 10 megawatt or greater, or those units with automatic voltage control or black start capability.	ISO submits real-time status points (referred to as UCON (Unit Connected) status points designating that a unit is or is not connected to the network) for units 10 MW or greater, or those units with automatic voltage control or black start capability in the BA Area by exception via ICCP. The status point is indicated is "on" or "offline" and is sent out on the change pursuant to the guidelines in Appendix 1.
Real-time Balancing Authority Data Item 2.12 of Attachment 3130A - Submit the following Real-time Balancing Authority Data: All generators: real-time net MW output.	ISO submits real-time net MW output for all generators in the BA Area in MW at least every 10 seconds via ICCP.
Real-time Balancing Authority Data Item 2.13 of Attachment 3130A - Submit the following Real-time Balancing Authority Data: All generators: real-time net mega volt amps ("MVAR") output.	ISO submits MVAR output for all generators in the BA Area in MVAR at least every 10 seconds via ICCP.
Real-time Balancing Authority Data Item 2.14 of Attachment 3130A - Submit the following Real-time Balancing Authority Data: Dynamic Schedule in MW.	ISO submits a single data point for dynamic schedules for the BA Area in MW at least every 10 seconds via ICCP.
Real-time Balancing Authority Data Item 2.16 of Attachment 3130A - Submit the following Real-time Balancing Authority Data: Balancing Authority total wind MW output.	ISO submits a single data point for BA total wind MW output for the BA Area as a single value - summation of all wind generation currently online. This value represents wind MW at least every 10 seconds via ICCP.
Real-time Balancing Authority Data Item 2.17 of Attachment 3130A - Submit the following Real-time Balancing Authority Data: Balancing Authority total solar MW output.	ISO submits a single data point for BA total solar MW output for the BA Area as a single value summation of all solar generation currently online. This value represents solar generation at the BES level in MW at least every 10 seconds via ICCP.
Real-time Balancing Authority Data Item 2.18 of Attachment 3130A - Submit the following Real-time Balancing Authority Data: Automatic Time Error Correction ("ATEC") component of ACE.	ISO submits a single data point for ATEC component of ACE for the BA Area at least every 10 seconds via ICCP.
Real-time Balancing Authority Data Item 2.20 of Attachment 3130A - Submit the following Real-time Balancing Authority Data: Meter error component of ACE.	ISO submits a single data point for Meter Error component of ACE for the BA Area at least every 10 seconds via ICCP.

Table 3

Operating Procedure Element (*Per 3130A, Version No 2.c (refer to Appendix 2)*)	Management Narrative to Provide Additional Context to the Process (not subject to the examination engagement)
Real-time Balancing Authority Data Item 2.15 of Attachment 3130A - Submit the following Real-time Balancing Authority Data: Pseudo tie real-time dynamic signal in MW.	ISO submits a single data point for each pseudo-tie real –time dynamic signal for the BA Area in MW at least every 10 seconds via ICCP.
Real-time Balancing Authority Data Item 2.19 of Attachment 3130A - Submit the following Real-time Balancing Authority Data: BA frequency bias if a dynamic bias is used.	If dynamic bias is used, ISO submits a single data point for BA frequency bias for the BA Area. ISO uses fixed frequency bias, which changes annually via ICCP.
Real-time Balancing Authority Data Item 2.21 of Attachment 3130A - Submit the following Real-time Balancing Authority Data: Actual change in status of BES generating unit Automatic Voltage Regulators ("AVR"), BES, Power System Stabilizers ("PSS") or BES alternative voltage controlling device lasting for 30 minutes or longer.	ISO submits actual change in status of BES generating unit AVR, BES, PSS, or BES alternative voltage controlling device lasting for 30 minutes or longer. The change of status is indicated as "off" when equipment is out of service via ICCP. For the generators that do not have an assigned data point, the change of status is communicated over the phone pursuant to the guidelines in Appendix 1.

The scope of this management assertion is limited to the Operating Procedure Elements described above and does not extend to any other procedures or functions of the ISO.



Mr. Eric Schmitt, Vice President Operations

Ms. Nancy Traweek, Executive Director, System Operations

Appendix 1

California ISO	Operating Procedure	Procedure No.	3130
		Version No.	5.0
		Effective Date	12/28/17
IRO-010-2 Reliability Coordinator Data Request Guidelines		Distribution Restriction: None	

Table of Contents

Purpose

This procedure identifies the Peak Reliability "Reliability Coordinator Data Request and Specifications for Data Provision, Version 13.1" effective 12/8/17 data request requirements and designates the responsible entities for fulfilling these requirements.

Responsibilities

Participating Transmission Owner (PTO)	As designated, is responsible for fulfilling Peak RC data requests. Entities who have entered into Transmission Control Agreements (TCA) with the ISO and, for the purposes of this procedure, are also NERC Registered Transmission Operators (TOPs). Under a Coordinated Functional Registration (CFR), these entities and the ISO determine which parties are responsible for which NERC standards and requirements. ***Note:*** In the CFR matrix the PTO is also known as the Transmission Entity (TE).
California ISO (ISO)	As designated, is responsible for fulfilling Peak RC data requests. As applicable the ISO may be responsible for requirements as a NERC Registered Balancing Authority (BA), Transmission Operator (TOP), Planning Authority (PA) or Transmission Service Provider (TSP).
Generator Operators (GOPs) and Scheduling Coordinators	As designated, is responsible for fulfilling Peak RC data requests and adhering to ISO processes which fulfill the RC's data requests.

2. Scope/Applicability

2.1 Background

Pursuant to NERC Reliability Standard IRO-010-2 R1, Peak Reliability (Peak) provides a documented specification to applicable functional entities of the data necessary for Peak to perform its Reliability Coordinator (RC) Operational Planning Analyses, Real-time monitoring, and Real-Time Assessments. Specifically, IRO-010-2 R3 requires that each functional entity shall satisfy the obligations of the documented specifications.

2.2 Scope / Applicability

The data requested includes real-time facility data, schedule type data, facility outage information, and electrical equipment modeling data. This data is necessary for the RC to carry-out its functions, as defined by the NERC Reliability Standards, including:

- Real-Time Situational Awareness
- System Alarms and Visualizations
- Advanced Applications and other Network Analysis Tools
- Future, Next Day and near Real-Time Engineering Study Analysis
- Analysis, Event Analysis, Trends, Forecasts, etc.

IRO-010-2 provides that TOPs and BAs may provide the operating data described in Operating Procedure Attachment 3130A Implementation Details for Peak RC's IRO-010 Data Request to the RC on behalf of Generation Owners, Generation Operators, Load Serving Entities and Transmission Owners to the extent they are authorized by those entities to do so. Accordingly, by providing any such data to the ISO, these entities give their consent that the ISO may provide this data directly to the RC. If any such entity objects in writing to the ISO supplying this data to the RC, or if any such entity does not provide any of the data listed in this document below to the ISO, it is the responsibility of that entity to provide the data directly to the RC. The applicable TOP or BA will also notify the RC that such entity is responsible for supplying this data directly to the RC.

TOPs, who are not a party to the Coordinated Functional Registration Agreement with the ISO, are responsible for providing their own operating data, described in Operating Procedure Attachment 3130A Implementation Details for Peak RC's IRO-010 Data Request, directly to the RC.

3. Procedure Detail

3.1 Data Transfer Types

Each applicable entity that is required to provide data to Peak RC shall appoint one or more contacts who are responsible for working with the RC in order to provide the requested data in the specified format.

The specified formats and security protocols have been previously recognized as mutually agreeable. The appointed contact person(s) shall notify Peak via the data.request@peakrc.com email of any instances where the specified formats or security protocols are not agreeable to the entity. Peak will collaborate with the entities to resolve data conflicts in a mutually agreed upon manner that ensures System reliability.

The formats for the data to be delivered to the RC are as follows:

Inter Control Center Protocol Data (ICCP):

- Real time Analog and Status point data as detailed in Operating Procedure Attachment 3130A Implementation Details for Peak RC's IRO-010 Data Request.
- The data provider must include data quality along with the data. This data quality shall follow the ICCP Data Quality Standards as described in the IEC ICCP User's Guide (870-6-505).
- If real-time ICCP data transfer is unavailable for any reason, the responsible entity will provide critical real-time system data via phone to the RC real-time desk. Data or data points that are considered critical may change based on current system conditions. It is expected that the RC and Responsible Parties will communicate and coordinate on which data is needed at a particular time as well as a periodicity for providing updates until the normal data communication methods are back in place.
- Implementation notes for submitting data to the ISO and PTOs are included in Operating Procedure 3140A, TOP-003-3 TOP - BA Data Request and Specifications for Data Provision

Electric Industry Data Exchange (EIDE):

- Schedule type data as identified in Operating Procedure Attachment 3130A Implementation Details for Peak RC's IRO-010 Data Request to be delivered

electronically on a daily basis as designated within the table, by Electric Industry Data Exchange protocol (EIDE) over https.

- If the ISO is unable to perform EIDE over https, then the EIDE formatted files can be delivered to a Peak Secure File Transport Protocol (SFTP) site. Peak Reliability's EMS technical staff will work with each entity's technical staff on either implementation.

RC Coordinated Outage System (COS):

- COS is the primary mechanism for required outage submittals. This central outage system has a Web front-end for easy data entry. Submissions can be automated via a Web Services API by working directly with the system vendor. COS Users Manuals are supplied by Peak RC.
- Scheduled and unscheduled outages are to be submitted in accordance with the Peak Reliability Outage Coordination Process.
- If COS is unavailable, the ISO shall send outage information to the following email addresses: rc.outages@peakrc.com and ops.engineering@peakrc.com .
- Implementation notes for submitting data to the ISO and PTOs are included in Operating Procedure 3140A, TOP-003-3 TOP - BA Data Request and Specifications for Data Provision

Topology Update Process for the West-wide System Model (WSM):

- The WSM topology updates will be provided through the RC Model Update Process. Model updates details are in Operating Procedure Attachment 3130A Implementation Details for Peak RC's IRO-010 Data Request and are required no less than 30 days prior to the actual change in the network (additions, deletions or changes in energized equipment).
- Implementation notes for submitting data to the ISO and PTOs are included in Operating Procedure 3140A, TOP-003-3 TOP - BA Data Request and Specifications for Data Provision:
  - The ISO's process requires a request from the PTO, an email from the PTO to an ISO email PTOmodelupdaterequest@caiso.com which directs information to both the ISO and the RC
  - Any follow up questions must be managed between the PTO and the RC
  - Per the BPM for Managing Full Network Model – "It is anticipated that most periodic updates to the FNM will occur on a 30-60 day cycle; however, some periodic updates may involve longer time intervals. The time variability of the update process underscores the

necessity and requirement for Market Participants to provide the CAISO with full and complete data and information well in advance of the time that the Market Participant expects its new or modified facilities to connect to or disconnect from the grid."

- See the current Full Network Model Schedule posted on the public website at: http://www.caiso.com/market/Pages/NetworkandResourceModeling/Default.aspx
- ISO's Transmission Registry Business user documentation is located at the following link: http://www.caiso.com/Pages/documentsbygroup.aspx?GroupID=6CB3BA36-B21A-47E6-BAA9-BF76090A087E.

Other data formats:

- Other data formats and submittal processes include the use of email, upload to Peak's secure website www.peakrc.org, RMT messages and phone calls to Peak's Reliability Coordinator System Operators (RCSO).

Request details:

Operating Procedure Attachment 3130A Implementation Details for Peak RC's IRO-010 Data Request contains the specific data Peak requires from each Responsible Party and contains columns which denote the:

- Request Number (Req #) – Used for document coordination and communication purposes.
- Responsible Party – Applicable entity responsible for ensuring its data is being provided to Peak RC.
- Data Request Effective Date – Effective date per Peak's document
- Data Item - Specific data being requested.
- Data Transfer Method – Method by which data is provided to Peak RC.
- Data Update Frequency – Periodicity for providing the specified data.
- Responsible for Submission to RC – in accordance with the functional registration for the applicable entity or the CFR. If related to the CFR will designate either Single ISO, Single PTO, Each or Split.
- Supporting Entity & Tasks – as applicable PTO, GOP and/or Scheduling Coordinators adhere to ISO processes which in turn will fulfill the RC's data request.

Additional Data Item details are contained in Peak's Guidance documentation located at:
https://www.peakrc.com/whatwedo/IRO010/Documents/Forms/AllItems.aspx

4. Supporting Information

Operationally Affected Parties

Public, Peak RC

References

Resources studied in the development of this procedure and that may have an effect upon some steps taken herein include but are not limited to:

CAISO Tariff	
NERC Standards	BAL-001-2 BAL-002-2 BAL-002-WECC-2a EOP-005-2 EOP-010-1 EOP-011-1 IRO-010-2 IRO-017-1 TOP-001-3 TOP-002-4 TOP-003-3
Transmission Control Agreement (TCA)	http://www.caiso.com/rules/Pages/ContractsAgreements/Default.aspx
Coordinated Functional Registration (CFR) Matrix	CFR Agreements

Definitions

Unless the context otherwise indicates, any word or expression defined in the Master Definitions Supplement to the CAISO Tariff shall have that meaning when capitalized in this Operating Procedure.

The following additional terms are capitalized in this Operating Procedure when used as defined below:

None.

Version History

Version	Change	Date
1.0	Initiated new document	1/01/15
1.1	Removed comments & minor formatting.	1/06/15
2.0	Updated and changed organization of Procedure detail	4/15/15
3.0	New section notes added to 2.9.1, 2.19, 3.3.1, 3.4.2, 3.5.1, 3.5.2, 3.5.3, 3.6.1, 3.6.2, 3.7.1, 3.7.2, 3.8.1, 3.8.2, 5.1, 5.2.1, 5.7.1, 5.8.1, 6.6.1. Removed section notes from 4.1, 5.1, 5.2, 5.3, 5.1. Added note in section 2.2. Changed Distribution Restriction to "None" and noted "Public, Peak RC" under Operationally Affected Parties. Section 3.6: Changed TBC note at the end to reference 5.13, not 5.14.	4/15/16
4.0	Updated for IRO-010-2 effective 1/1/17; no requirements have changed as of 1/1/17; In 2016 implementations the following changes occurred and were implemented in January and April: 2.9.1 replaced 2.9, 3.3.1 replaced 3.3, 3.5.1 replaced 3.5, 5.2.1 replaced 5.2, 5.7.1 replaced 5.7, 6.6.1 replaced 6.6	1/1/17
4.1	Updated per Peak RC's Data Request Specification version 12.2 effective 4/1/17; Updated numbering throughout the document; Updated language throughout the document to be consistent with the DR; New or completely re-written requirements as of 4/1/17 include: 1.5, 1.14, 2.5, 2.8, 2.21, 3.2, 4.1, 5.1 – 5.14, 6.10, 6.12, 7.1, 7.2 and 7.4	4/1/17
5.0	Split OP 3130 table content into spreadsheet format to create new attachment 3130A; Verified consistency with Peak RC's DR v13.1 effective 12/8/17. Refer to yellow highlighted changes throughout document.	12/28/17

5. Periodic Review Procedure

Review Criteria Will be reviewed based on current Peak RC Data Request requirements. Will provide to PTOs for review and comment in advance of changes being implemented. Otherwise there are no additional specific review criteria identified for this procedure, follow instructions in Procedures 5510 and 5520.

Frequency Review as recommended in Procedures 5510 and 5520.

Incorporation of Changes There are no specific criteria for changing this document, follow instructions in Procedures 5510 and 5520.

Appendix

3130A Implementation Details for Peak RC's IRO-010 Data Request

Appendix 2

California ISO	Operating Procedure Attachment	Procedure No.	3130A
		Version No.	2.0
		Effective Date	September 27, 2018
#REF!		Distribution Restriction: None	

Category	Request Number	Responsible Party	Data Request Effective Date	Data Item	Data Transfer Method	Data Update Frequency	Responsible for Submission to RC	Supporting Entity & Task(s)
Real-time Network Measurement Data	1.1	Transmission Operator	January, 2009	Real-time status points for all BES equipment and other non-BES equipment that impact the BES (See Guidance document Section VII.(a))	ICCP	By exception	Single - PTO	PTO also provides to ISO
Real-time Network Measurement Data	1.2	Transmission Operator	January, 2009	Real-time MW measurements, or ampere if MW not available, for all BES equipment and other non-BES equipment that impact the BES (See Guidance document Section VII.(a))	ICCP	10 sec	Single - PTO	PTO also provides to ISO
Real-time Network Measurement Data	1.3	Transmission Operator	January, 2009	Real-time MVAR measurements for all BES equipment and other non-BES equipment that impact the BES (See Guidance document Section VII.(a))	ICCP	10 sec	Single - PTO	PTO also provides to ISO
Real-time Network Measurement Data	1.4	Transmission Operator	January, 2009	Voltage measurements for all busses associated with BES equipment and other busses associated with non-BES equipment that impact the BES (See Guidance document Section VII(a))	ICCP	10 sec	Single - PTO	PTO also provides to ISO
Real-time Network Measurement Data	1.5	Transmission Operator	April 1, 2017	Designated WECC Transfer Path data 1) Actual MW 2) Scheduled MW, Total Transfer Capability (TTC)	ICCP	10 sec	Single - ISO	Data PTO provides for 1.1 and 1.2 supports this calculation
Real-time Network Measurement Data	1.6	Transmission Operator	January, 2009	LTC tap position measurements for LTCs with high side voltage > 100kV	ICCP	10 sec	Single - PTO	PTO also provides to ISO
Real-time Network Measurement Data	1.7	Transmission Operator	January, 2009	Phase shifter phase tap position	ICCP	10 sec	Single - PTO	PTO also provides to ISO
Real-time Network Measurement Data	1.8	Transmission Operator	January, 2009	MW/MVAR measurements for measured loads. These loads may be equivalent representations of your distribution system.	ICCP	10 sec	Single - PTO	PTO also provides to ISO
Real-time Network Measurement Data	1.9	Transmission Operator	January, 2009	RAS Arming Status for all schemes that have an impact to the BES. An armed RAS implies that it is 1) In service and 2) Ready to perform an action (trip a unit for example) if a specific condition occurs on the power system.	ICCP	10 sec	Single - PTO	PTO also provides to ISO
Real-time Network Measurement Data	1.10	Transmission Operator	March 31, 2015	RAS in-service status for all schemes that have an impact to the BES	ICCP (preferred, if available) or phone notification to the Reliability Coordinator System Operator upon status change	ICCP – 10 sec / Phone Notification – As soon as practicable	Single - PTO	PTO also provides to ISO
Real-time Network Measurement Data	1.11	Transmission Operator	March 31, 2015	RAS associated analog arming values (e.g. Amp, MW, MVAR). (See Guidance document Section VII.(a))	ICCP	10 sec	Single - PTO	PTO also provides to ISO
Real-time Network Measurement Data	1.12	Transmission Operator	March 31, 2015	Status of Non-RAS devices that perform automatic post-contingency actions based on certain parameters such as under voltage or overloaded facilities. This may include, but is not limited to, certain generator run-back schemes, under-voltage facility tripping schemes and current Protection System status when functionality is affected . This is not a request for under-voltage or under-frequency load shedding information.	ICCP (preferred, if available), phone notification to the Reliability Coordinator System Operator or RMT message upon status change.	ICCP – 10 sec / Phone notification or RMT message – As soon as practicable	Single - PTO	PTO also provides to ISO
Real-time Network Measurement Data	1.13	Transmission Operator	January, 2009	Dynamic equipment ratings including all facilities with ratings that vary with real-time system or ambient conditions (temp-driven Facility Ratings, Topology-driven Facility Ratings)	ICCP (if available)	10 sec	Single - PTO	PTO also provides to ISO
Real-time Network Measurement Data	1.14	Transmission Operator	April 1, 2017	Any TOP-provided stability limitation that Peak, in collaboration with the TOP, determines to require submission in Real-time.	ICCP	10 sec	Single - ISO	
Real-time Balancing Authority Data	2.1	Balancing Authority	January, 2009	Instantaneous BA Area Load (See Guidance document Section VII.(b))	ICCP	10 sec	Single - ISO	
Real-time Balancing Authority Data	2.2	Balancing Authority	January, 2009	BA Net Actual Interchange (as used in ACE calculation)	ICCP	10 sec	Single - ISO	
Real-time Balancing Authority Data	2.3	Balancing Authority	January, 2009	BA Net Scheduled Interchange (as used in ACE calculation)	ICCP	10 sec	Single - ISO	
Real-time Balancing Authority Data	2.4	Balancing Authority	January, 2009	BA Instantaneous ACE that is used for NERC reporting requirements	ICCP	10 sec	Single - ISO	

Category	Request Number	Responsible Party	Data Request Effective Date	Data Item	Data Transfer Method	Data Update Frequency	Responsible for Submission to RC	Supporting Entity & Task(s)
Real-time Balancing Authority Data	2.5	Balancing Authority	August 14, 2017	BAAL high and low limits instantaneous or if unable then one minute average values	ICCP	10 sec for instantaneous or 1 min	Single - ISO	
Real-time Balancing Authority Data	2.6	Balancing Authority	January, 2009	System frequency at multiple locations within the BA as requested by the RC	ICCP	10 sec	Single - ISO	
Real-time Balancing Authority Data	2.7	Balancing Authority	January, 2009	BA Scheduled frequency	ICCP	10 sec	Single - ISO	
Real-time Balancing Authority Data	2.8	Balancing Authority	April 1, 2017	BA Area (BAA) Contingency Reserve obligation (as defined in the NERC Glossary and WECC Regional Standards) or, if the BAA is part of a Reserve Sharing Group (RSG), the BAA's allocated obligation as defined by the RSG. 1) Total Required, 2) Total Actual Available, 3) Spinning Required, 4) Spinning Actual Available	ICCP	10 sec	Single - ISO	
Real-time Balancing Authority Data	2.9	Balancing Authority	January, 2009	BA Area Actual Generation Total	ICCP	10 sec	Single - ISO	
Real-time Balancing Authority Data	2.10	Balancing Authority	January, 2009	Actual Most Severe Single Contingency (MSSC) of your Balancing Authority. This value should not be a static Pmax of th largest generator, rather the actual MW output. This is NOT a request for the RSG MSSC.	ICCP	10 sec	Single - ISO	
Real-time Balancing Authority Data	2.11	Balancing Authority or Generator Operator	January, 2009	Real-time status points (UCON status point designating unit is or is not connected to the network) for units 10 MW or greater, or those units with automatic voltage control or black start capability	ICCP	By exception	Single - ISO	
Real-time Balancing Authority Data	2.12	Balancing Authority	January, 2009	All generators - real-time net MW output	ICCP	10 sec	Single - ISO	
Real-time Balancing Authority Data	2.13	Balancing Authority	January, 2009	All generators - real-time net MVAR output	ICCP	10 sec	Single - ISO	
Real-time Balancing Authority Data	2.14	Balancing Authority	June 1, 2015	Dynamic Schedule real-time dynamic signal used in ACE calculation for each dynamic schedule. This is not the anticipated energy on the tag, rather a real-time calculation of MWs associated with the dynamic schedule	ICCP	10 sec	Single - ISO	Per TOP-003 Data Request, Dynamic scheduling data submitted by host BA
Real-time Balancing Authority Data	2.15	Balancing Authority	June 1, 2015	Pseudo tie real-time dynamic signal. This is a real-time calculation of MWs associated with each pseudo tie used in ACE calculation. Note: This is not an alternate method for inclusion in congestion management procedures pursuant to INT-004-3.1.	ICCP	10 sec	Single - ISO	
Real-time Balancing Authority Data	2.16	Balancing Authority	September, 2010	Balancing Authority total wind MW output. This is a single value - summation of all wind generation currently online. This value should represent wind generation at the BES level.	ICCP	10 sec	Single - ISO	
Real-time Balancing Authority Data	2.17	Balancing Authority	March 31, 2015	Balancing Authority total solar MW output. This is a single value - summation of all solar generation currently online. This value should represent solar generation at the BES level.	ICCP	10 sec	Single - ISO	
Real-time Balancing Authority Data	2.18	Balancing Authority	March 31, 2015	ATEC component of ACE	ICCP	10 sec	Single - ISO	
Real-time Balancing Authority Data	2.19	Balancing Authority	March 31, 2015	BA frequency bias if a dynamic bias is used	ICCP	10 sec	Single - ISO	
Real-time Balancing Authority Data	2.20	Balancing Authority	March 31, 2015	Meter error component of ACE	ICCP	10 sec	Single - ISO	

Category	Request Number	Responsible Party	Data Request Effective Date	Data Item	Data Transfer Method	Data Update Frequency	Responsible for Submission to RC	Supporting Entity & Task(s)
Real-time Balancing Authority Data	2.21	Balancing Authority	August 14, 2017	Actual change in status of BES generating unit Automatic Voltage Regulators (AVR), BES Power System Stabilizers (PSS) or BES alternative voltage controlling device lasting for 30 minutes or longer	ICCP (Preferred if available) or phone notification to the Reliability Coordiantor System Operator	As soon as practicable	Single - ISO	GOP - Notifies Scheduling Coordinator and PTO Grid Control Center PTO – Notifies ISO Trans Dispatcher Scheduling Coordinator – Notifies ISO Gen Dispatcher and submits outage card to the ISO
Forecast Data	3.1	Balancing Authority	January, 2009	Hourly BA Net Scheduled Interchange forecast through the end of the next business day	EIDE / Secure FTP	Daily submission by 10AM Pacific Prevailing Time	Single - ISO	
Forecast Data	3.2	Balancing Authority	August 14, 2017	Hourly Total Contingency Reserve Requirement forecast of BA Area (BAA) for each day up to and including the next business day, or, if the BAA is part of a Reserve Sharing Group (RSG), the BAA's forecast allocated obligation for each day up to and including the next business day as defined by the RSG. 1) Total Spinning Reserve Requirement 2) Total Contingency Reserve Requirement	EIDE / Secure FTP	Daily submission by 10AM Pacific Prevailing Time	Single - ISO	
Forecast Data	3.3	Balancing Authority	March 31, 2015	Hourly BAA load forecast. Required each day for the current day through the next four business days. (See Guidance document Section VII.(c))	EIDE / Secure FTP	Daily submission by 10AM Pacific Prevailing Time	Single - ISO	
Forecast Data	3.4	Balancing Authority	April 1, 2016	Hourly BAA load forecast. Required each hour for the next 4 hours. (See Guidance document Section VII.(c))	EIDE / Secure FTP	Hourly submission received 10 min prior to the hour	Single - ISO	
Forecast Data	3.5	Balancing Authority	April 1, 2016	Hourly Unit Commitment for all BAA generation that qualifies per the BES definition and any non-BES generation (As determined by Peak) that are necessary to support the accuracy of Operational Planning Analyses and to determine SOL exceedance on BES Facilities. Required each day for the current day through the next four business days.	EIDE / Secure FTP	Daily submission by 10AM Pacific Prevailing Time	Single - ISO	
Forecast Data	3.6	Balancing Authority	April 1, 2016	Hourly Unit Commitment for all BAA generation that qualifies per the BES definition and any non-BES generation (As determined by Peak) that are necessary to support the accuracy of Operational Planning Analyses and to determine SOL exceedance on BES Facilities. Required each hour for the next four hours.(See Guidance document Section VII.(c))	EIDE / Secure FTP	Hourly submission received 10 min prior to the hour	Single - ISO	
Forecast Data	3.7	Balancing Authority	April 1, 2016	Hourly Unit Dispatch MW for all BAA generation that qualifies per the BES definition and any non-BES generation (as determined by Peak) that is necessary to support the accuracy of Operational Planning Analyses and to determine SOL exceedance on BES Facilities. Required each day for the current day through the next one business day. (See Guidance document Section VII.(c))	EIDE / Secure FTP	Daily submission by 10AM Pacific Prevailing Time	Single - ISO	
Forecast Data	3.8	Balancing Authority	April 1, 2016	Hourly Unit Dispatch MW for all BAA generation that qualifies per the BES definition and any non-BES generation (as determined by Peak) that is necessary to support the accuracy of Operational Planning Analyses and to determine SOL exceedance on BES Facilities. Required each hour for the next four hours. (See Guidance document Section VII.(c))	EIDE / Secure FTP	Hourly submission received 10 min prior to the hour	Single - ISO	

Category	Request Number	Responsible Party	Data Request Effective Date	Data Item	Data Transfer Method	Data Update Frequency	Responsible for Submission to RC	Supporting Entity & Task(s)
Forecast Data	3.9	Balancing Authority	April 1, 2016	Hourly Operational Maximum MW for all BAA generation that qualifies per the BES definition and any non-BES generation (as determined by Peak) that are necessary to support the accuracy of Operational Planning Analyses and to determine SOL exceedance on BES Facilities. Required each day for the current day through the next four business days. (See Guidance document Section VII.(c))	EIDE / Secure FTP	Daily submission by 10AM Pacific Prevailing Time	Single - ISO	
Forecast Data	3.10	Balancing Authority	April 1, 2016	Hourly Operational Maximum MW for all BAA generation that qualifies per the BES definition and any non-BES generation (as determined by Peak) that are necessary to support the accuracy of Operational Planning Analyses and to determine SOL exceedance on BES Facilities. Required each hour for the next four hours.(See Guidance document Section VII.(c))	EIDE / Secure FTP	Hourly submission received 10 min prior to the hour	Single - ISO	
Forecast Data	3.11	Balancing Authority	April 1, 2016	Hourly Operational Minimum MW for all BAA generation that qualifies per the BES definition and any non-BES generation (as determined by Peak) that are necessary to support the accuracy of Operational Planning Analyses and to determine SOL exceedance on BES Facilities. Required each day for the current day through the next four business days. (See Guidance document Section VII.(c))	EIDE / Secure FTP	Daily submission by 10AM Pacific Prevailing Time	Single - ISO	
Forecast Data	3.12	Balancing Authority	April 1, 2016	Hourly Operational Minimum MW for all BAA generation that qualifies per the BES definition and any non-BES generation (as determined by Peak) that are necessary to support the accuracy of Operational Planning Analyses and to determine SOL exceedance on BES Facilities. Required each hour for the next four hours. (See Guidance document Section VII.(c))	EIDE / Secure FTP	Hourly submission received 10 min prior to the hour	Single - ISO	
Documentation and Procedures	4.1	Balancing Authority and Transmission Operator	April 1, 2017	Emergency Operations Plans	Upload to peakrc.org > Operations > EOP-011 or email	Anytime the plan is updated	Each - ISO and PTO	
Documentation and Procedures	4.2	Transmission Operator	July, 2011	Restoration Plans	Upload to peakrc.org > Operations > TOPRestPlanSubmit or email	Annually and/or anytime the plan is updated	Single - ISO	
Documentation and Procedures	4.3	Transmission Operator	July, 2011	Under voltage and under frequency load shed Plans	Upload to peakrc.org > Operations > Operating Procedures or email	Anytime the plan is updated	Each - ISO and PTO	
Documentation and Procedures	4.4	Transmission Operator	July, 2011	Path procedures	Upload to peakrc.org > Operations > Operating Procedures or email	Anytime the plan is updated	Single - ISO	
Documentation and Procedures	4.5	Transmission Operator	March 1, 2015	Geomagnetic Disturbance Operating Procedures	Upload to peakrc.org > Operations > TOPGMDProcedures or email	Anytime the plan is updated	Each - ISO and PTO	
Documentation and Procedures	4.6	Balancing Authority and Transmission Operator	March 31, 2015	Other procedures as appropriate or as requested by the RC, including documented mitigation plans, fire/weather protocols, regulator protocols that could cause inability to follow Operating Instructions, technical information concerning protective relays and voltage schedules.	Upload to peakrc.org > Operations > Operating Procedures or email	Anytime the plan is updated	Each - ISO and PTO	
Scheduled and Unscheduled Outage Information	5.1	Balancing Authority and Transmission Operator	April 1, 2017	Forced Automatic and Forced Emergency generation and Transmission outages on Facilities/equipment identified in the In-Scope Outage Categories section of the Peak Reliability Outage Coordination Process	Phone notification to the Reliability Coordinator System Operator (RSCO) or RMT message	As soon as practicable	Single - ISO	PTO – Notifies ISO Trans Dispatcher and submits outage card to the ISO GOP - Notifies Scheduling Coordinator Scheduling Coordinator - Notifies ISO Gen Dispatcher and submits outage card to the ISO

Category	Request Number	Responsible Party	Data Request Effective Date	Data Item	Data Transfer Method	Data Update Frequency	Responsible for Submission to RC	Supporting Entity & Task(s)
Scheduled and Unscheduled Outage Information	5.2	Balancing Authority	April 1, 2017	Any planned individual generating unit derate of > 50 MW reduction of available capacity (30 minutes or more in duration) shall be submitted to COS per the instructions of the COS Manual and per the Short-Range Study Window Process Outage Submission Timeline	COS	In accordance with the Short-Range Submittal Timeline specified in the Peak Reliability Outage Coordination Process	Single - ISO	GOP - Notifies Scheduling Coordinator Scheduling Coordinator – submits outage card to the ISO
Scheduled and Unscheduled Outage Information	5.3	Balancing Authority	April 1, 2017	Any generating unit derate of > 50 MW reduction of available capacity (other than planned derates, and 30 minutes or more in duration), shall be submitted to COS per the instructions of the COS manual	COS	As soon as practicable	Single - ISO	GOP - Notifies Scheduling Coordinator Scheduling Coordinator - Notifies ISO Gen Dispatcher and submits outage card to the ISO
Scheduled and Unscheduled Outage Information	5.4	Balancing Authority	April 1, 2017	Any Forced Automatic or Forced Emergency generating unit derate of > 50 MW reduction of available capacity (30 minutes or more in duration)	Phone notification to the Reliability Coordinator System Operator (RSCO) or RMT message	As soon as practicable	Single - ISO	GOP - Notifies Scheduling Coordinator Scheduling Coordinator - Notifies ISO Gen Dispatcher and submits outage card to the ISO
Scheduled and Unscheduled Outage Information	5.5	Balancing Authority	April 1, 2017	Any planned Automatic Voltage Regulator (AVR) or Power System Stabilizer (PSS) outage (30 minutes or more in duration) on a BES facility	COS	In accordance with the Short-Range Submittal Timeline specified in the Peak Reliability Outage Coordination Process	Single - ISO	GOP - Notifies Scheduling Coordinator and PTO Grid Control Center Scheduling Coordinator – Notifies ISO Gen Dispatcher and submits outage card to the ISO
Scheduled and Unscheduled Outage Information	5.6	Balancing Authority	April 1, 2017	Any Automatic Voltage Regulator (AVR) or Power System Stabilizer (PSS) outage (other than planned outages, and 30 minutes or more in duration) on a BES facility	COS	As soon as practicable	Single - ISO	GOP - Notifies Scheduling Coordinator and PTO Grid Control Center PTO – Notifies ISO Trans Dispatcher Scheduling Coordinator – Notifies ISO Gen Dispatcher and submits outage card to the ISO
Scheduled and Unscheduled Outage Information	5.7	Transmission Operator	August 14, 2017	Total Transfer Capability (TTC) values for each WECC Path, adjusted to account for planned outages or operating conditions (See Guidance document Section VII.(e))	COS	In accordance with the Short-Range Submittal Timeline specified in the Peak Reliability Outage Coordination Process	Single - ISO	
Scheduled and Unscheduled Outage Information	5.8	Transmission Operator	August 14, 2017	Total Transfer Capability (TTC) values for each WECC Path, adjusted to account for unplanned outages or operating conditions(See Guidance document Section VII.(e)) Note: Adjustments to TTC due to Forced Emergency and Forced Automatic conditions are also required to be submitted via phone/RMT Message per 5.9 below.	COS	As soon as practicable	Single - ISO	
Scheduled and Unscheduled Outage Information	5.9	Transmission Operator	August 14, 2017	Notification to RCSOs of Total Transfer Capability (TTC) adjustments for WECC Paths due to a Forced Automatic or Forced Emergency outage Note: Also requires separate COS entry per 5.8 above.	Phone notification to the Reliability Coordinator System Operator (RSCO) or RMT message	As soon as practicable	Single - ISO	
Scheduled and Unscheduled Outage Information	5.10	Balancing Authority and Transmission Operator	August 14, 2017	Planned outages of telemetering and control equipment	COS	As soon as practicable	Single - ISO	PTO –Submits outage card to the ISO GOP - Notifies Scheduling Coordinator Scheduling Coordinator - Submits outage card to the ISO
Scheduled and Unscheduled Outage Information	5.11	Balancing Authority and Transmission Operator	August 14, 2017	Unplanned telemetering and control equipment outages of 30 minutes or more in duration	ICCP or RMT message	As soon as practicable	Single - ISO	PTO – Notifies ISO Trans Dispatcher and submits outage card to the ISO GOP - Notifies Scheduling Coordinator Scheduling Coordinator - Notifies ISO Gen Dispatcher and submits outage card to the ISO
Scheduled and Unscheduled Outage Information	5.13	Transmission Operator	April 1, 2017	Operational Planning Analysis for next-day operations.	Upload to peakrc.org > Operations > Entity Studies	When Operational Planning Analysis is completed	Single - ISO	
Scheduled and Unscheduled Outage Information	5.14	Transmission Operator	April 1, 2017	Operating Plan(s) for next-day operations	Upload to peakrc.org > Operations > Entity Studies or COS as applicable	When Operating Plans have been identified	Single - ISO	

California ISO	Operating Procedure Attachment	Procedure No.	3130A
		Version No.	2.0
#REF!		Effective Date	September 27, 2018
		Distribution Restriction: None	

Category	Request Number	Responsible Party	Data Request Effective Date	Data Item	Data Transfer Method	Data Update Frequency	Responsible for Submission to RC	Supporting Entity & Task(s)
Real-time Network Measurement Data	1.1	Transmission Operator	January, 2009	Real-time status points for all BES equipment and other non-BES equipment that impact the BES (See Guidance document Section VII.(a))	ICCP	By exception	Single - PTO	PTO also provides to ISO
Real-time Network Measurement Data	1.2	Transmission Operator	January, 2009	Real-time MW measurements, or ampere if MW not available, for all BES equipment and other non-BES equipment that impact the BES (See Guidance document Section VII.(a))	ICCP	10 sec	Single - PTO	PTO also provides to ISO
Real-time Network Measurement Data	1.3	Transmission Operator	January, 2009	Real-time MVAR measurements for all BES equipment and other non-BES equipment that impact the BES (See Guidance document Section VII.(a))	ICCP	10 sec	Single - PTO	PTO also provides to ISO
Real-time Network Measurement Data	1.4	Transmission Operator	January, 2009	Voltage measurements for all busses associated with BES equipment and other busses associated with non-BES equipment that impact the BES (See Guidance document Section VII(a))	ICCP	10 sec	Single - PTO	PTO also provides to ISO
Real-time Network Measurement Data	1.5	Transmission Operator	April 1, 2017	Designated WECC Transfer Path data 1) Actual MW 2) Scheduled MW, Total Transfer Capability (TTC)	ICCP	10 sec	Single - ISO	Data PTO provides for 1.1 and 1.2 supports this calculation
Real-time Network Measurement Data	1.6	Transmission Operator	January, 2009	LTC tap position measurements for LTCs with high side voltage > 100kV	ICCP	10 sec	Single - PTO	PTO also provides to ISO
Real-time Network Measurement Data	1.7	Transmission Operator	January, 2009	Phase shifter phase tap position	ICCP	10 sec	Single - PTO	PTO also provides to ISO
Real-time Network Measurement Data	1.8	Transmission Operator	January, 2009	MW/MVAR measurements for measured loads. These loads may be equivalent representations of your distribution system.	ICCP	10 sec	Single - PTO	PTO also provides to ISO
Real-time Network Measurement Data	1.9	Transmission Operator	January, 2009	RAS Arming Status for all schemes that have an impact to the BES. An armed RAS implies that it is 1) In service and 2) Ready to perform an action (trip a unit for example) if a specific condition occurs on the power system.	ICCP	10 sec	Single - PTO	PTO also provides to ISO
Real-time Network Measurement Data	1.10	Transmission Operator	March 31, 2015	RAS in-service status for all schemes that have an impact to the BES	ICCP (preferred, if available) or phone notification to the Reliability Coordinator System Operator upon status change	ICCP – 10 sec / Phone Notification – As soon as practicable	Single - PTO	PTO also provides to ISO
Real-time Network Measurement Data	1.11	Transmission Operator	March 31, 2015	RAS associated analog arming values (e.g. Amp, MW, MVAR). (See Guidance document Section VII.(a))	ICCP	10 sec	Single - PTO	PTO also provides to ISO
Real-time Network Measurement Data	1.12	Transmission Operator	March 31, 2015	Status of Non-RAS devices that perform automatic post-contingency actions based on certain parameters such as under voltage or overloaded facilities. This may include, but is not limited to, certain generator run-back schemes, under-voltage facility tripping schemes and current Protection System status when functionality is affected . This is not a request for under-voltage or under-frequency load shedding information.	ICCP (preferred, if available), phone notification to the Reliability Coordinator System Operator or RMT message upon status change.	ICCP – 10 sec / Phone notification or RMT message – As soon as practicable	Single - PTO	PTO also provides to ISO
Real-time Network Measurement Data	1.13	Transmission Operator	January, 2009	Dynamic equipment ratings including all facilities with ratings that vary with real-time system or ambient conditions (temp-driven Facility Ratings, Topology-driven Facility Ratings)	ICCP (if available)	10 sec	Single - PTO	PTO also provides to ISO
Real-time Network Measurement Data	1.14	Transmission Operator	April 1, 2017	Any TOP-provided stability limitation that Peak, in collaboration with the TOP, determines to require submission in Real-time.	ICCP	10 sec	Single - ISO	
Real-time Balancing Authority Data	2.1	Balancing Authority	January, 2009	Instantaneous BA Area Load (See Guidance document Section VII.(b))	ICCP	10 sec	Single - ISO	
Real-time Balancing Authority Data	2.2	Balancing Authority	January, 2009	BA Net Actual Interchange (as used in ACE calculation)	ICCP	10 sec	Single - ISO	
Real-time Balancing Authority Data	2.3	Balancing Authority	January, 2009	BA Net Scheduled Interchange (as used in ACE calculation)	ICCP	10 sec	Single - ISO	
Real-time Balancing Authority Data	2.4	Balancing Authority	January, 2009	BA Instantaneous ACE that is used for NERC reporting requirements	ICCP	10 sec	Single - ISO	

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Real-time Balancing Authority Data	2.6	Balancing Authority	January, 2009	System frequency at multiple locations within the BA as requested by the RC	ICCP	10 sec	Single - ISO	
Real-time Balancing Authority Data	2.7	Balancing Authority	January, 2009	BA Scheduled frequency	ICCP	10 sec	Single - ISO	
Real-time Balancing Authority Data	2.8	Balancing Authority	April 1, 2017	BA Area (BAA) Contingency Reserve obligation (as defined in the NERC Glossary and WECC Regional Standards) or, if the BAA is part of a Reserve Sharing Group (RSG), the BAA's allocated obligation as defined by the RSG. 1) Total Required, 2) Total Actual Available, 3) Spinning Required, 4) Spinning Actual Available	ICCP	10 sec	Single - ISO	
Real-time Balancing Authority Data	2.9	Balancing Authority	January, 2009	BA Area Actual Generation Total	ICCP	10 sec	Single - ISO	
Real-time Balancing Authority Data	2.10	Balancing Authority	January, 2009	Actual Most Severe Single Contingency (MSSC) of your Balancing Authority. This value should not be a static Pmax of th largest generator, rather the actual MW output. This is NOT a request for the RSG MSSC.	ICCP	10 sec	Single - ISO	
Real-time Balancing Authority Data	2.11	Balancing Authority or Generator Operator	January, 2009	Real-time status points (UCON status point designating unit is or is not connected to the network) for units 10 MW or greater, or those units with automatic voltage control or black start capability	ICCP	By exception	Single - ISO	
Real-time Balancing Authority Data	2.12	Balancing Authority	January, 2009	All generators - real-time net MW output	ICCP	10 sec	Single - ISO	
Real-time Balancing Authority Data	2.13	Balancing Authority	January, 2009	All generators - real-time net MVAR output	ICCP	10 sec	Single - ISO	
Real-time Balancing Authority Data	2.14	Balancing Authority	June 1, 2015	Dynamic Schedule real-time dynamic signal used in ACE calculation for each dynamic schedule. This is not the anticipated energy on the tag, rather a real-time calculation of MWs associated with the dynamic schedule	ICCP	10 sec	Single - ISO	Per TOP-003 Data Request, Dynamic scheduling data submitted by host BA
Real-time Balancing Authority Data	2.15	Balancing Authority	June 1, 2015	Pseudo tie real-time dynamic signal. This is a real-time calculation of MWs associated with each pseudo tie used in ACE calculation. Note: This is not an alternate method for inclusion in congestion management procedures pursuant to INT-004-3.1.	ICCP	10 sec	Single - ISO	
Real-time Balancing Authority Data	2.16	Balancing Authority	September, 2010	Balancing Authority total wind MW output. This is a single value - summation of all wind generation currently online. This value should represent wind generation at the BES level.	ICCP	10 sec	Single - ISO	
Real-time Balancing Authority Data	2.17	Balancing Authority	March 31, 2015	Balancing Authority total solar MW output. This is a single value - summation of all solar generation currently online. This value should represent solar generation at the BES level.	ICCP	10 sec	Single - ISO	
Real-time Balancing Authority Data	2.18	Balancing Authority	March 31, 2015	ATEC component of ACE	ICCP	10 sec	Single - ISO	
Real-time Balancing Authority Data	2.19	Balancing Authority	March 31, 2015	BA frequency bias if a dynamic bias is used	ICCP	10 sec	Single - ISO	
Real-time Balancing Authority Data	2.20	Balancing Authority	March 31, 2015	Meter error component of ACE	ICCP	10 sec	Single - ISO	

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Real-time Balancing Authority Data	2.21	Balancing Authority	August 14, 2017	Actual change in status of BES generating unit Automatic Voltage Regulators (AVR), BES Power System Stabilizers (PSS) or BES alternative voltage controlling device lasting for 30 minutes or longer	ICCP (Preferred if available) or phone notification to the Reliability Coordiantor System Operator	As soon as practicable	Single - ISO	GOP - Notifies Scheduling Coordinator and PTO Grid Control Center PTO – Notifies ISO Trans Dispatcher Scheduling Coordinator – Notifies ISO Gen Dispatcher and submits outage card to the ISO
Forecast Data	3.1	Balancing Authority	January, 2009	Hourly BA Net Scheduled Interchange forecast through the end of the next business day	EIDE / Secure FTP	Daily submission by 10AM Pacific Prevailing Time	Single - ISO	
Forecast Data	3.2	Balancing Authority	August 14, 2017	Hourly Total Contingency Reserve Requirement forecast of BA Area (BAA) for each day up to and including the next business day, or, if the BAA is part of a Reserve Sharing Group (RSG), the BAA's forecast allocated obligation for each day up to and including the next business **day as defined by the RSG.** 1) Total Spinning Reserve Requirement 2) Total Contingency Reserve Requirement	EIDE / Secure FTP	Daily submission by 10AM Pacific Prevailing Time	Single - ISO	
Forecast Data	3.3	Balancing Authority	March 31, 2015	Hourly BAA load forecast. Required each day for the current day through the next four business days. (See Guidance document Section VII.(c))	EIDE / Secure FTP	Daily submission by 10AM Pacific Prevailing Time	Single - ISO	
Forecast Data	3.4	Balancing Authority	April 1, 2016	Hourly BAA load forecast. Required each hour for the next 4 hours. (See Guidance document Section VII.(c))	EIDE / Secure FTP	Hourly submission received 10 min prior to the hour	Single - ISO	
Forecast Data	3.5	Balancing Authority	April 1, 2016	Hourly Unit Commitment for all BAA generation that qualifies per the BES definition and any non-BES generation (As determined by Peak) that are necessary to support the accuracy of Operational Planning Analyses and to determine SOL exceedance on BES Facilities. Required each day for the current day through the next four business days.	EIDE / Secure FTP	Daily submission by 10AM Pacific Prevailing Time	Single - ISO	
Forecast Data	3.6	Balancing Authority	April 1, 2016	Hourly Unit Commitment for all BAA generation that qualifies per the BES definition and any non-BES generation (As determined by Peak) that are necessary to support the accuracy of Operational Planning Analyses and to determine SOL exceedance on BES Facilities. Required each hour for the next four hours.(See Guidance document Section VII.(c))	EIDE / Secure FTP	Hourly submission received 10 min prior to the hour	Single - ISO	
Forecast Data	3.7	Balancing Authority	April 1, 2016	Hourly Unit Dispatch MW for all BAA generation that qualifies per the BES definition and any non-BES generation (as determined by Peak) that is necessary to support the accuracy of Operational Planning Analyses and to determine SOL exceedance on BES Facilities. Required each day for the current day through the next one business day. (See Guidance document Section VII.(c))	EIDE / Secure FTP	Daily submission by 10AM Pacific Prevailing Time	Single - ISO	
Forecast Data	3.8	Balancing Authority	April 1, 2016	Hourly Unit Dispatch MW for all BAA generation that qualifies per the BES definition and any non-BES generation (as determined by Peak) that is necessary to support the accuracy of Operational Planning Analyses and to determine SOL exceedance on BES Facilities. Required each hour for the next four hours. (See Guidance document Section VII.(c))	EIDE / Secure FTP	Hourly submission received 10 min prior to the hour	Single - ISO	

Category	Request Number	Responsible Party	Data Request Effective Date	Data Item	Data Transfer Method	Data Update Frequency	Responsible for Submission to RC	Supporting Entity & Task(s)
Forecast Data	3.9	Balancing Authority	April 1, 2016	Hourly Operational Maximum MW for all BAA generation that qualifies per the BES definition and any non-BES generation (as determined by Peak) that are necessary to support the accuracy of Operational Planning Analyses and to determine SOL exceedance on BES Facilities. Required each day for the current day through the next four business days. (See Guidance document Section VII.(c))	EIDE / Secure FTP	Daily submission by 10AM Pacific Prevailing Time	Single - ISO	
Forecast Data	3.10	Balancing Authority	April 1, 2016	Hourly Operational Maximum MW for all BAA generation that qualifies per the BES definition and any non-BES generation (as determined by Peak) that are necessary to support the accuracy of Operational Planning Analyses and to determine SOL exceedance on BES Facilities. Required each hour for the next four hours.(See Guidance document Section VII.(c))	EIDE / Secure FTP	Hourly submission received 10 min prior to the hour	Single - ISO	
Forecast Data	3.11	Balancing Authority	April 1, 2016	Hourly Operational Minimum MW for all BAA generation that qualifies per the BES definition and any non-BES generation (as determined by Peak) that are necessary to support the accuracy of Operational Planning Analyses and to determine SOL exceedance on BES Facilities. Required each day for the current day through the next four business days. (See Guidance document Section VII.(c))	EIDE / Secure FTP	Daily submission by 10AM Pacific Prevailing Time	Single - ISO	
Forecast Data	3.12	Balancing Authority	April 1, 2016	Hourly Operational Minimum MW for all BAA generation that qualifies per the BES definition and any non-BES generation (as determined by Peak) that are necessary to support the accuracy of Operational Planning Analyses and to determine SOL exceedance on BES Facilities. Required each hour for the next four hours. (See Guidance document Section VII.(c))	EIDE / Secure FTP	Hourly submission received 10 min prior to the hour	Single - ISO	
Documentation and Procedures	4.1	Balancing Authority and Transmission Operator	April 1, 2017	Emergency Operations Plans	Upload to peakrc.org > Operations > EOP-011 or email	Anytime the plan is updated	Each - ISO and PTO	
Documentation and Procedures	4.2	Transmission Operator	July, 2011	Restoration Plans	Upload to peakrc.org > Operations > TOPRestPlanSubmit or email	Annually and/or anytime the plan is updated	Single - ISO	
Documentation and Procedures	4.3	Transmission Operator	July, 2011	Under voltage and under frequency load shed Plans	Upload to peakrc.org > Operations > Operating Procedures or email	Anytime the plan is updated	Each - ISO and PTO	
Documentation and Procedures	4.4	Transmission Operator	July, 2011	Path procedures	Upload to peakrc.org > Operations > Operating Procedures or email	Anytime the plan is updated	Single - ISO	
Documentation and Procedures	4.5	Transmission Operator	March 1, 2015	Geomagnetic Disturbance Operating Procedures	Upload to peakrc.org > Operations > TOPGMDProcedures or email	Anytime the plan is updated	Each - ISO and PTO	
Documentation and Procedures	4.6	Balancing Authority and Transmission Operator	March 31, 2015	Other procedures as appropriate or as requested by the RC, including documented mitigation plans, fire/weather protocols, regulator protocols that could cause inability to follow Operating Instructions, technical information concerning protective relays and voltage schedules.	Upload to peakrc.org > Operations > Operating Procedures or email	Anytime the plan is updated	Each - ISO and PTO	
Scheduled and Unscheduled Outage Information	5.1	Balancing Authority and Transmission Operator	April 1, 2017	Forced Automatic and Forced Emergency generation and Transmission outages on Facilities/equipment identified in the In-Scope Outage Categories section of the Peak Reliability Outage Coordination Process	Phone notification to the Reliability Coordinator System Operator (RSCO) or RMT message	As soon as practicable	Single - ISO	PTO – Notifies ISO Trans Dispatcher and submits outage card to the ISO GOP - Notifies Scheduling Coordinator Scheduling Coordinator - Notifies ISO Gen Dispatcher and submits outage card to the ISO

Category	Request Number	Responsible Party	Data Request Effective Date	Data Item	Data Transfer Method	Data Update Frequency	Responsible for Submission to RC	Supporting Entity & Task(s)
Scheduled and Unscheduled Outage Information	5.2	Balancing Authority	April 1, 2017	Any planned individual generating unit derate of > 50 MW reduction of available capacity (30 minutes or more in duration) shall be submitted to COS per the instructions of the COS Manual and per the Short-Range Study Window Process Outage Submission Timeline	COS	In accordance with the Short-Range Submittal Timeline specified in the Peak Reliability Outage Coordination Process	Single - ISO	GOP - Notifies Scheduling Coordinator Scheduling Coordinator – submits outage card to the ISO
Scheduled and Unscheduled Outage Information	5.3	Balancing Authority	April 1, 2017	Any generating unit derate of > 50 MW reduction of available capacity (other than planned derates, and 30 minutes or more in duration), shall be submitted to COS per the instructions of the COS manual	COS	As soon as practicable	Single - ISO	GOP - Notifies Scheduling Coordinator Scheduling Coordinator - Notifies ISO Gen Dispatcher and submits outage card to the ISO
Scheduled and Unscheduled Outage Information	5.4	Balancing Authority	April 1, 2017	Any Forced Automatic or Forced Emergency generating unit derate of > 50 MW reduction of available capacity (30 minutes or more in duration)	Phone notification to the Reliability Coordinator System Operator (RSCO) or RMT message	As soon as practicable	Single - ISO	GOP - Notifies Scheduling Coordinator Scheduling Coordinator - Notifies ISO Gen Dispatcher and submits outage card to the ISO
Scheduled and Unscheduled Outage Information	5.5	Balancing Authority	April 1, 2017	Any planned Automatic Voltage Regulator (AVR) or Power System Stabilizer (PSS) outage (30 minutes or more in duration) on a BES facility	COS	In accordance with the Short-Range Submittal Timeline specified in the Peak Reliability Outage Coordination Process	Single - ISO	GOP - Notifies Scheduling Coordinator and PTO Grid Control Center Scheduling Coordinator – Notifies ISO Gen Dispatcher and submits outage card to the ISO
Scheduled and Unscheduled Outage Information	5.6	Balancing Authority	April 1, 2017	Any Automatic Voltage Regulator (AVR) or Power System Stabilizer (PSS) outage (other than planned outages, and 30 minutes or more in duration) on a BES facility	COS	As soon as practicable	Single - ISO	GOP - Notifies Scheduling Coordinator and PTO Grid Control Center PTO – Notifies ISO Trans Dispatcher Scheduling Coordinator – Notifies ISO Gen Dispatcher and submits outage card to the ISO
Scheduled and Unscheduled Outage Information	5.7	Transmission Operator	August 14, 2017	Total Transfer Capability (TTC) values for each WECC Path, adjusted to account for planned outages or operating conditions (See Guidance document Section VII.(e))	COS	In accordance with the Short-Range Submittal Timeline specified in the Peak Reliability Outage Coordination Process	Single - ISO	
Scheduled and Unscheduled Outage Information	5.8	Transmission Operator	August 14, 2017	Total Transfer Capability (TTC) values for each WECC Path, adjusted to account for unplanned outages or operating conditions(See Guidance document Section VII.(e)) Note: Adjustments to TTC due to Forced Emergency and Forced Automatic conditions are also required to be submitted via phone/RMT Message per 5.9 below.	COS	As soon as practicable	Single - ISO	
Scheduled and Unscheduled Outage Information	5.9	Transmission Operator	August 14, 2017	Notification to RCSOs of Total Transfer Capability (TTC) adjustments for WECC Paths due to a Forced Automatic or Forced Emergency outage Note: Also requires separate COS entry per 5.8 above.	Phone notification to the Reliability Coordinator System Operator (RSCO) or RMT message	As soon as practicable	Single - ISO	
Scheduled and Unscheduled Outage Information	5.10	Balancing Authority and Transmission Operator	August 14, 2017	Planned outages of telemetering and control equipment	COS	As soon as practicable	Single - ISO	PTO –Submits outage card to the ISO GOP - Notifies Scheduling Coordinator Scheduling Coordinator - Submits outage card to the ISO
Scheduled and Unscheduled Outage Information	5.11	Balancing Authority and Transmission Operator	August 14, 2017	Unplanned telemetering and control equipment outages of 30 minutes or more in duration	ICCP or RMT message	As soon as practicable	Single - ISO	PTO – Notifies ISO Trans Dispatcher and submits outage card to the ISO GOP - Notifies Scheduling Coordinator Scheduling Coordinator - Notifies ISO Gen Dispatcher and submits outage card to the ISO
Scheduled and Unscheduled Outage Information	5.13	Transmission Operator	April 1, 2017	Operational Planning Analysis for next-day operations.	Upload to peakrc.org > Operations > Entity Studies	When Operational Planning Analysis is completed	Single - ISO	
Scheduled and Unscheduled Outage Information	5.14	Transmission Operator	April 1, 2017	Operating Plan(s) for next-day operations	Upload to peakrc.org > Operations > Entity Studies or COS as applicable	When Operating Plans have been identified	Single - ISO	

Category	Request Number	Responsible Party	Data Request Effective Date	Data Item	Data Transfer Method	Data Update Frequency	Responsible for Submission to RC	Supporting Entity & Task(s)
Scheduled and Unscheduled Outage Information	5.15	Balancing Authority	October 1, 2017	Deliverability capability constraints for capacity and energy reserve requirements shall be communicated to the RC	Upload to peakrc.org > Operations > Entity Studies	When next-day studies identify constraints	Single - ISO	
Power System Modeling Information	6.1	Transmission Operator	January, 2009	Circuit breakers, disconnects and switches: connectivity and normal status. Applicable for all equipment > 100kV and other lower kV BES equipment.	Secure FTP or email	30 days prior to actual network change	Single - PTO	PTO also provides to ISO
Power System Modeling Information	6.2	Transmission Operator	January, 2009	Transformers: connectivity, high/low side tap ranges and per-unit impedance. Applicable for all equipment > 100kV and other lower kV BES equipment.	Secure FTP or email	30 days prior to actual network change	Single - PTO	PTO also provides to ISO
Power System Modeling Information	6.3	Transmission Operator	January, 2009	Shunt devices: connectivity, nominal MVAR. Applicable for all equipment > 100kV and other lower kV BES equipment.	Secure FTP or email	30 days prior to actual network change	Single - PTO	PTO also provides to ISO
Power System Modeling Information	6.4	Transmission Operator	January, 2009	Lines: connectivity, per-unit impedance and charging susceptance. Applicable for all equipment > 100kV and other lower kV BES equipment.	Secure FTP or email	30 days prior to actual network change	Single - PTO	PTO also provides to ISO
Power System Modeling Information	6.5	Transmission Operator	January, 2009	Series Capacitor/Reactor: connectivity and per-unit impedance. Applicable for all equipment > 100kV and other lower kV BES equipment.	Secure FTP or email	30 days prior to actual network change	Single - PTO	PTO also provides to ISO
Power System Modeling Information	6.6	Transmission Operator	January 15, 2016	HVDC Line: A one-line diagram that shows the entire configuration of the HVDC line including breakers/switches, converter transformers, DC poles, converters, DC lines (monopole or Bipolar, ground return or line return), as well as the following equipment parameters for both sides: Converter Transformer: • 2 winding or 3 winding • Nominal kV on each winding • Tap changer: lowest, highest, and nominal step number, step size, AVR status • R and X DC Pole: • Regulation Schedule for Voltage, Current, and MW, including setpoint and deviation • Regulation type (on Voltage, MW or MVar) Converter: • X0 (Constant term of valve group reactance) • X1 (First-order term of valve group reactance) • Amp rating • Min and max extinction angle • Min and max firing angle • Nominal kV • Bridge number DC Line: • R (positive sequence series resistance)	Secure FTP or email	30 days prior to actual network change	Single - PTO	PTO also provides to ISO
Power System Modeling Information	6.7	Transmission Operator	January, 2009	Phase shifter: connectivity, per-unit impedance, phase tap range, nominal tap, impedance tables and step size in degrees. Applicable for all equipment > 100kV and other lower kV BES equipment.	Secure FTP or email	30 days prior to actual network change	Single - PTO	PTO also provides to ISO
Power System Modeling Information	6.8.1	Transmission Operator	October 1, 2017	Generators: connectivity, gross and net MW maximum and reactive capability curves (if no curve available, MVAR minimum and maximum required); List of units normally on AVR- a list shall include voltage setpoint(s) with High and Low range representing voltage regulation criteria.	Secure FTP or email	Initial Submission, then for changes 30 days prior to actual network change	Single - ISO	GOP also provides to ISO
Power System Modeling Information	6.9	Transmission Operator	January, 2009	Loads: connectivity and conforming/non-conforming status	Secure FTP or email	30 days prior to actual network change	Single - PTO	PTO also provides to ISO
Power System Modeling Information	6.10	Transmission Operator	August 14, 2017	Facility Ratings, system voltage limits and stability limitations	Email	In accordance with the Peak Reliability SOL Methodology and per the RC Instructions on Peakrc.com	Single - PTO	PTO also provides to ISO
Power System Modeling Information	6.11	Transmission Operator	January, 2009	Spreadsheet of all transmission and generation ICCP object ID data available for the entities Area. Also include SCADA definition relating to each object ID.	Secure FTP or email	Periodic update of ICCP points available (monthly updates when the point list has changed)	Split - 1. PTO - Transmission ICCP object IDs 2. ISO - Generation ICCP object IDs	
Power System Modeling Information	6.12	Transmission Operator	April 1, 2017	Dated BES station single line drawings and Peak requested Non-BES station single line drawings	Hard copy shipping or electronic transfer (Secure FTP or email)	Initial provision and then whenever changes occur	Single - PTO	PTO also provides to ISO

Category	Request Number	Responsible Party	Data Request Effective Date	Data Item	Data Transfer Method	Data Update Frequency	Responsible for Submission to RC	Supporting Entity & Task(s)
Scheduled and Unscheduled Outage Information	5.15	Balancing Authority	October 1, 2017	Deliverability capability constraints for capacity and energy reserve requirements shall be communicated to the RC	Upload to peakrc.org > Operations > Entity Studies	When next-day studies identify constraints	Single - ISO	
Power System Modeling Information	6.1	Transmission Operator	January, 2009	Circuit breakers, disconnects and switches: connectivity and normal status. Applicable for all equipment > 100kV and other lower kV BES equipment.	Secure FTP or email	30 days prior to actual network change	Single - PTO	PTO also provides to ISO
Power System Modeling Information	6.2	Transmission Operator	January, 2009	Transformers: connectivity, high/low side tap ranges and per-unit impedance. Applicable for all equipment > 100kV and other lower kV BES equipment.	Secure FTP or email	30 days prior to actual network change	Single - PTO	PTO also provides to ISO
Power System Modeling Information	6.3	Transmission Operator	January, 2009	Shunt devices: connectivity, nominal MVAR. Applicable for all equipment > 100kV and other lower kV BES equipment.	Secure FTP or email	30 days prior to actual network change	Single - PTO	PTO also provides to ISO
Power System Modeling Information	6.4	Transmission Operator	January, 2009	Lines: connectivity, per-unit impedance and charging susceptance. Applicable for all equipment > 100kV and other lower kV BES equipment.	Secure FTP or email	30 days prior to actual network change	Single - PTO	PTO also provides to ISO
Power System Modeling Information	6.5	Transmission Operator	January, 2009	Series Capacitor/Reactor: connectivity and per-unit impedance. Applicable for all equipment > 100kV and other lower kV BES equipment.	Secure FTP or email	30 days prior to actual network change	Single - PTO	PTO also provides to ISO
Power System Modeling Information	6.6	Transmission Operator	January 15, 2016	HVDC Line: A one-line diagram that shows the entire configuration of the HVDC line including breakers/switches, converter transformers, DC poles, converters, DC lines (monopole or Bipolar, ground return or line return), as well as the following equipment parameters for both sides: Converter Transformer: • 2 winding or 3 winding • Nominal kV on each winding • Tap changer: lowest, highest, and nominal step number, step size, AVR status • R and X DC Pole: • Regulation Schedule for Voltage, Current, and MW, including setpoint and deviation • Regulation type (on Voltage, MW or MVar) Converter: • X0 (Constant term of valve group reactance) • X1 (First-order term of valve group reactance) • Amp rating • Min and max extinction angle • Min and max firing angle • Nominal kV • Bridge number DC Line: • R (positive sequence series resistance)	Secure FTP or email	30 days prior to actual network change	Single - PTO	PTO also provides to ISO
Power System Modeling Information	6.7	Transmission Operator	January, 2009	Phase shifter: connectivity, per-unit impedance, phase tap range, nominal tap, impedance tables and step size in degrees. Applicable for all equipment > 100kV and other lower kV BES equipment.	Secure FTP or email	30 days prior to actual network change	Single - PTO	PTO also provides to ISO
Power System Modeling Information	6.8.1	Transmission Operator	October 1, 2017	Generators: connectivity, gross and net MW maximum and reactive capability curves (if no curve available, MVAR minimum and maximum required); List of units normally on AVR- a list shall include voltage setpoint(s) with High and Low range representing voltage regulation criteria.	Secure FTP or email	Initial Submission, then for changes 30 days prior to actual network change	Single - ISO	GOP also provides to ISO
Power System Modeling Information	6.9	Transmission Operator	January, 2009	Loads: connectivity and conforming/non-conforming status	Secure FTP or email	30 days prior to actual network change	Single - PTO	PTO also provides to ISO
Power System Modeling Information	6.10	Transmission Operator	August 14, 2017	Facility Ratings, system voltage limits and stability limitations	Email	In accordance with the Peak Reliability SOL Methodology and per the RC Instructions on Peakrc.com	Single - PTO	PTO also provides to ISO
Power System Modeling Information	6.11	Transmission Operator	January, 2009	Spreadsheet of all transmission and generation ICCP object ID data available for the entities Area. Also include SCADA definition relating to each object ID.	Secure FTP or email	Periodic update of ICCP points available (monthly updates when the point list has changed)	Split - 1. PTO - Transmission ICCP object IDs 2. ISO - Generation ICCP object IDs	
Power System Modeling Information	6.12	Transmission Operator	April 1, 2017	Dated BES station single line drawings and Peak requested Non-BES station single line drawings	Hard copy shipping or electronic transfer (Secure FTP or email)	Initial provision and then whenever changes occur	Single - PTO	PTO also provides to ISO

Category	Request Number	Responsible Party	Data Request Effective Date	Data Item	Data Transfer Method	Data Update Frequency	Responsible for Submission to RC	Supporting Entity & Task(s)
Power System Modeling Information	6.13	Transmission Operator	November 1, 2011	State, city, longitude and latitude for each substation with voltage levels > 100kV or with total plant generation >= 50MW	Secure FTP or email	One initial data set; updates to the data as new substations are built	Single - PTO	PTO also provides to ISO
Power System Modeling Information	6.14	Transmission Operator	November 1, 2011	Line routing for all lines 100kV and above	Secure FTP or email	One initial data set; updates to the data as new substations and lines are built	Single - PTO	PTO also provides to ISO
Power System Modeling Information	6.15	Transmission Operator	March 31, 2015	List of shunt devices normally on AVR. These shunts are those that can automatically connect/disconnect at a specified voltage setpoint without operator intervention. The list shall include the voltage setpoint(s) and any time delays prior to automatic switching.		One initial data set; updates as necessary to reflect new devices or changes to existing devices	Single - PTO	PTO also provides to ISO
Power System Modeling Information	6.16	Balancing Authority	June 1, 2015	List of all dynamic transfers (both pseudo ties and dynamic schedules) operated by the BA. List should include: 1) Type of transfer (dynamic schedule or pseudo tie) 2) ICCP object ID for associated actual MW value 3) Description and purpose of dynamic transfer, including source and sink and any operational limitations	Secure FTP or email	One initial list; updates as necessary to reflect any changes to the list	Single - ISO	
Power System Modeling Information	6.17	Transmission Operator	March 31, 2015	List of all normally open circuit breakers, disconnects and switches that control the connectivity of transmission branch elements and Facilities; list shall include unique status for all applicable seasons. The list is applicable to BES Facilities/elements and non-BES Facilities/elements that impact the BES (see Note 1), and non-BES Facilities/elements specifically requested by Peak. Examples of applicable switching devices include those associated with: * Transmission lines * Transformers * Series Compensation * Station bus switches including auxiliary buses and bus tie switches Examples of non-applicable devices include: Shunt devices	Secure FTP or email	One initial list; updates as necessary to reflect any changes to the list	Single - PTO	PTO also provides to ISO
Power System Modeling Information	6.18	Transmission Operator	August 14, 2017	RAS scheme information for all schemes or at the discretion of Peak. This requires logic diagrams and documentation on the function of each RAS.	Updated documents, Secure FTP or email	60 days prior to or at the discretion of the RC	Single - PTO	PTO also provides to ISO
Power System Modeling Information	6.19	Transmission Operator	August 14, 2017	Description and modeling information for all non-RAS automatic post-contingency actions based on certain parameters such as under voltage or overloaded facilities. This may include, but is not limited to, certain generator run-back schemes or under voltage facility tripping schemes.	Updated documents, Secure FTP or email	60 days prior to document effective date	Single - PTO	PTO also provides to ISO
Power System Modeling Information	6.20	Transmission Operator	March 31, 2015	Overload relay trip settings (including time-delay) on those Facilities (transformers and transmission lines) that are part of Bulk Electric System and their overload trip settings are below 125% of the highest Facility rating	Updated documents, Secure FTP or email	Upon change to relay trip settings	Single - PTO	PTO also provides to ISO
Other Operational Information	7.1	Transmission Operator	April 1, 2017	SOL exceedance(s), consistent with the definition in the Peak Reliability SOL Methodology, on any Bulk Electric System (BES) element or on elements that impact the BES and the actions taken to eliminate the SOL exceedance(s)	Phone notification to the Reliability Coordinator System Operator	As soon as practicable	Single - ISO	PTO notifies ISO
Other Operational Information	7.2	Transmission Operator	April 1, 2017	Inability to perform a Real-time Assessment (RTA) within 30 minutes of the last RTA	Phone notification to the Reliability Coordinator System Operator or RMT message	As soon as practicable	Single - ISO	PTO notifies ISO
Other Operational Information	7.3	Balancing Authority	March 31, 2015	Inability to calculate ACE for 30 minutes or more	Phone notification to the Reliability Coordinator System Operator	As soon as practicable	Single - ISO	
Other Operational Information	7.4	Transmission Operator	April 1, 2017	Actual or expected operations that result in, or could result in, an Emergency or BES Emergency (as defined in the NERC glossary)	Phone notification to the Reliability Coordinator System Operator	As soon as practicable	Single - ISO	PTO notifies ISO
Other Operational Information	7.5	Transmission Operator	December 8, 2017	Affected functionality of current Protection System status that impacts System Reliability	ICCP (preferred if available), Phone notification to the Reliability Coordinator System Operator, or RMT Message	ICCP – 10 sec / Phone notification or RMT message – As soon as practicable	Single - PTO	PTO also provides to ISO