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WECC Reliability Coordinator Data Criteria

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The WECC Reliability Coordinator (WECC RC) requires Bulk Electric System (BES) operating information to perform its functions as defined by the NERC mandatory reliability Standards. This information includes real-time facility status, analog measurement data, facility outage information, and modeling data. The RC functions that require this data include:

- 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
- Post Analysis, Event Analysis, Trends, Forecasts, etc.

Each of the functions listed above requires data to be delivered to the WECC RC Energy Management System. The specific details of the data are described below with an additional table of data requirements in Attachment 1.

The requirements for providing these data elements to the RC function are described in NERC mandatory reliability Standard TOP-005-1 and are defined in Attachment A of that standard. Requirement R1.1 describes how RCs obtain data they identify as required for the reliable operation of the BES. Attachment A of TOP 005-1 provides the WECC RCs with the authority to have these requests fulfilled within a timeframe specified by the RCs.

Additional requirements for providing the BES information to reliability entities are included within the WECC Data Sharing Policy, the WECC Reliability Data Exchange criteria and NERC mandatory reliability Standards MOD-010-0 and MOD-011-0.

The listing of these data criteria **does not** limit the RC's ability to define further data requests required to accomplish a function or functions as the RC for the region.

The formats for the data to be delivered to WECC include ICCP for Real-Time Data, EIDE (over http or Secure FTP) for informational Non Real-Time data, web data entry in the WECC Outage system, and a WECC-defined West-wide System Modeling Process for Network Model updates.

ICCP Connections: Required of BAs and TOPs as requested by the RC.

- Periodicities— analog points are to be polled at a 10-second frequency. Status points by exception.
- Data Quality—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).

EIDE: Required of BAs and TOPs as requested by the RC.

- Non Real-Time data will be required and will need to be delivered electronically on a daily, weekly, monthly basis, as needed. The preferred method is the Electric Industry Data Exchange protocol (EIDE) over http.

- If unable to perform EIDE over http, the EIDE formatted files can be delivered to a WECC Secure File Transport Protocol (SFTP) site. The WECC EMS technical staff will work with each entities technical staff on either implementation.

WECC Outage System: Required of BAs and TOPs as requested by the RC.

This is a central outage system that 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 to reduce and ease entry. Planned BES Facility Outage information is required a minimum of 36 hours prior to the start of the outage to ensure adequate studies can be performed and evaluated. BES facility outage information should include transmission equipment, generators, and associated circuit breakers. The start and end times of the outage should also be provided.

Topology Update Process for the West-wide System Model (WSM): The WECC WSM topology updates will initially be provided through a manual process and subsequently by an automated tool from the WSM vendor. The tool is a web-based modeling system that allows each entity to view and update their portion of the WSM model. Model updates are required no less than 60 days prior to the change in the network.

The WECC EMS Staff will work with each entity to ensure the technical nature of the data requests identified above are well defined and will assist with implementation information. Each entity will be contacted directly with a specific request from the list below.

**Attachment 1:**

The table below is the specific data the WECC RCs require. This table will periodically be updated with new data and reviewed by the Reliability Coordinator and Reliability Coordination Committee (RCC) before being requested of the individual BAs and TOPs.

Data Type	Data Item	Data Transfer Method	Data Update Frequency	How used by RC	Applicable Standard/Policy
Transmission	Real-time status points (all > 100kV and other lower kV network that have an impact on the bulk electric system (BES)).	ICCP	By exception	Situational Awareness, Network Apps, Post Event Analysis	TOP-005-1, R1-R4 EMSWG-ST-001-1
Transmission	Real-time MW measurements or amperes if MW not available (all branches > 100kV and other lower kV network that have an impact on the BES).	ICCP	10 sec	Situational Awareness, Network Apps, Post Event Analysis	TOP-005-1, R1-R4 EMSWG-ST-001-1
Transmission	Real-time MVAR measurements (all branches > 100kV and other lower kV network that have an impact on the BES).	ICCP	10 sec	Situational Awareness, Network Apps, Post Event Analysis	TOP-005-1, R1-R4 EMSWG-ST-001-1
Transmission	Voltage measurements (all buses > 100kV, generator bus voltages, and other lower kV network that have an impact on the BES).	ICCP	10 sec	Situational Awareness, Network Apps, Post Event Analysis	TOP-005-1, R1-R4 EMSWG-ST-001-1
Transmission	Phasor measurements as available.	ICCP	10 sec	Situational Awareness, Network Apps, R&D	TOP-005-1, R1-R4 EMSWG-ST-001-1
BA	Instantaneous load.	ICCP	10 sec	Situational Awareness, Network Apps, Post Event Analysis	TOP-005-1, R1-R4 EMSWG-ST-001-1
BA	Actual interchange.	ICCP	10 sec	Situational Awareness, Post Event Analysis	TOP-005-1, R1
BA	Scheduled interchange.	ICCP	10 sec	Situational Awareness, Post Event Analysis	TOP-005-1, R1
BA	Instantaneous ACE.	ICCP	10 sec	Situational Awareness, Post Event Analysis	TOP-005-1, R1
BA	Hourly interchange schedules for the next 24 hours.	EIDE/Secure FTP	Daily	Situational Awareness, Engineering Studies, Post Event Analysis	TOP-005-1, R1
BA	System frequency at multiple locations within the BAs area.	ICCP	10 sec	Situational Awareness, Post Event Analysis	TOP-005-1, R1
BA	Current day and next day forecasted peak MW load.	EIDE/Secure FTP	Daily	Situational Awareness, Engineering Studies, Post Event Analysis	TOP-005-1, R1

Data Type	Data Item	Data Transfer Method	Data Update Frequency	How used by RC	Applicable Standard/Policy
BA	MW reserve available within 10 minutes.	ICCP	10 sec	Situational Awareness, Post Event Analysis	TOP-005-1, R1
BA	Current day and next day forecast of operating reserves at peak MW load.	EIDE/Secure FTP	Daily	Situational Awareness, Engineering Studies	TOP-005-1, R3-R4
BA	Current day and next day hourly BA load forecast.	EIDE/Secure FTP	Daily	Situational Awareness, Engineering Studies	TOP-005-1, R3-R4
BA	Current day and next day hourly unit commitment.	EIDE/Secure FTP	Daily	Situational Awareness, Engineering Studies	TOP-005-1, R3-R4
Generator	All generators - real-time status points (unit breaker if available, on/off status if unit breaker not available).	ICCP	By exception	Situational Awareness, Network Apps, Post Event Analysis	TOP-005-1, R1-R4 EMSWG-ST-001-1
Generator	All generators - real-time gross and net MW output.	ICCP	10 sec	Situational Awareness, Network Apps, Post Event Analysis	TOP-005-1, R1-R4 EMSWG-ST-001-1
Generator	All generators - real-time gross and net MVAR output.	ICCP	10 sec	Situational Awareness, Network Apps, Post Event Analysis	TOP-005-1, R1-R4 EMSWG-ST-001-1
Generator	Status of automatic voltage control facilities.	ICCP	By exception	Situational Awareness, Network Apps, Post Event Analysis	TOP-005-1, R3-R4
Operations Data	Dynamic line ratings.	ICCP	By exception	Situational Awareness, Network Apps, Post Event Analysis	TOP-005-1, R3-R4
Outage Data	Outages for transmission system above 100kV. Required data will include lines, transformers, generators, and circuit breakers. Detailed requirements to follow in separate document.	Outages/ COS	Forced and planned outages	Situational Awareness, Network Apps, Post Event Analysis, Engineering Studies	TOP-003-0, R1 TOP-005-1, R1 EMSWG-ST-001-1, R5
Outage Data	Generator outages and derates.	Outages/ COS	Forced and planned outages	Situational Awareness, Network Apps, Post Event Analysis, Engineering Studies	TOP-003-0, R1 TOP-005-1, R1 EMSWG-ST-001-1, R5
Modeling	Circuit breakers, disconnects, and switches: connectivity and normal status (100 kV and above, lower kV if impacts the BES).	Password protected ZIP file	60 days prior to actual network change	Network Applications, Engineering Studies, and R&D projects approved by the RCC	TOP-005-1, R1-R4 MOD-010-0, R1-R2 MOD-011-0, R1
Modeling	Transformers: connectivity, high/low side tap ranges, and per-unit impedance (100 kV and above, lower kV if impacts the BES).	Password protected ZIP file	60 days prior to actual network change	Network Applications, Engineering Studies, and R&D projects approved by the RCC	TOP-005-1, R1-R4 MOD-010-0, R1-R2 MOD-011-0, R1

Data Type	Data Item	Data Transfer Method	Data Update Frequency	How used by RC	Applicable Standard/Policy
Modeling	Shunt devices: connectivity, nominal MVAR (100 kV and above, lower kV if impacts the BES).	Password protected ZIP file	60 days prior to actual network change	Network Applications, Engineering Studies, and R&D projects approved by the RCC	TOP-005-1, R1-R4 MOD-010-0, R1-R2 MOD-011-0, R1
Modeling	Lines: connectivity, per-unit impedance and charging susceptance (100 kV and above, lower kV if impacts the BES).	Password protected ZIP file	60 days prior to actual network change	Network Applications, Engineering Studies, and R&D projects approved by the RCC	TOP-005-1, R1-R4 MOD-010-0, R1-R2 MOD-011-0, R1
Modeling	Series Capacitor/Reactor: connectivity and per-unit impedance (100 kV and above, lower kV if impacts the BES).	Password protected ZIP file	60 days prior to actual network change	Network Applications, Engineering Studies, and R&D projects approved by the RCC	TOP-005-1, R1-R4 MOD-010-0, R1-R2 MOD-011-0, R1
Modeling	DC Line: connectivity, line parameters, rectifier data, and inverter data.	Password protected ZIP file	60 days prior to actual network change	Network Applications, Engineering Studies, and R&D projects approved by the RCC	TOP-005-1, R1-R4 MOD-010-0, R1-R2 MOD-011-0, R1
Modeling	Phase shifter: connectivity, per-unit impedance, phase tap range, nominal tap, and step size in degrees (100 kV and above, lower kV if impacts the BES).	Password protected ZIP file	60 days prior to actual network change	Network Applications, Engineering Studies, and R&D projects approved by the RCC	TOP-005-1, R1-R4 MOD-010-0, R1-R2 MOD-011-0, R1
Modeling	Generators: connectivity, gross and net MW maximum and reactive capability curves (if no curve available, MVAR minimum and maximum required).	Password protected ZIP file	60 days prior to actual network change	Network Applications, Engineering Studies, and R&D projects approved by the RCC	TOP-005-1, R1-R4 MOD-010-0, R1-R2 MOD-011-0, R1
Modeling	Loads: connectivity and conforming/non-conforming status.	Password protected ZIP file	60 days prior to actual network change	Network Applications, Engineering Studies, and R&D projects approved by the RCC	TOP-005-1, R1-R4 MOD-010-0, R1-R2 MOD-011-0, R1
Modeling	Branch ratings: summer and winter ratings for transmission equipment.	Password protected ZIP file	Seasonally, 2 days prior to change	Network Applications, Engineering Studies, and R&D projects approved by the RCC	TOP-005-1, R1-R4 MOD-010-0, R1-R2 MOD-011-0, R1
Modeling	System load profile.	Password protected ZIP file	Required for initial load profile setup (one time export)	Network Applications, Engineering Studies, and R&D projects approved by the RCC	TOP-005-1, R1-R4 MOD-010-0, R1-R2 MOD-011-0, R1
Modeling	Location of analog and digital measurements including a mapping to the corresponding network equipment.	Password protected ZIP file	Upon creation of new ICCP object IDs	Network Applications	TOP-005-1, R1-R4