Business Requirements Specification

FERC Order 789 - Regional Reliability Standard
BAL002-WECC-2

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Disclaimer

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1. Introduction

1.1 Purpose

The purpose of this document is to capture and record a description of what the Users and Business Stakeholders of the project wish to obtain by providing high-level business requirements. This document establishes the basis for the agreement between the initiators and implementers of the project. The information in this document serves as input to determining the scope of Information Systems projects and to all Business Process Modeling and System Requirements Specifications efforts.

These requirements will serve as the initial set of business unit requirements for the appropriate software application/systems development effort. It is understood that additional requirements and systems analysis may produce “To Be” Business Process Models, System Requirements Specifications, and Use Cases to serve as the set of requirements documents used by the development teams to buy, modify, or build the necessary software and hardware systems. The Business Unit(s) involved in the project will have an opportunity to review and approve all requirements documentation produced.

Under section 215 of the Federal Power Act, the Federal Energy Regulatory Commission (FERC) has approved regional Reliability Standard BAL-002-WECC-2 (Contingency Reserve), which was submitted by North American Electric Reliability Corporation (NERC) and Western Electricity Coordinating Council (WECC) for implementation scheduled for October 1, 2014.

The regional Reliability Standard applies to balancing authorities and reserve sharing groups in the WECC Region and specifies the quantity and types of contingency reserve required to ensure reliability under normal and abnormal conditions. FERC’s order approving regional Reliability Standard BAL-002-WECC-2 (Order 789) became effective on January 28, 2014. The requirements in regional Reliability Standard BAL-002-WECC-2 become effective on the first day of the third quarter following applicable regulatory approval or on October 1, 2014.
2. Details of Business Need/Problem

2.1 Description

Under section 215 of the Federal Power Act, the Federal Energy Regulatory Commission (FERC) has approved regional Reliability Standard BAL-002-WECC-2 (Contingency Reserve), which was submitted by North American Electric Reliability Corporation (NERC) and Western Electricity Coordinating Council (WECC) for implementation scheduled for October 1, 2014.

The regional Reliability Standard applies to balancing authorities and reserve sharing groups in the WECC Region and specifies the quantity and types of contingency reserve required to ensure reliability under normal and abnormal conditions. FERC’s order approving regional Reliability Standard BAL-002-WECC-2 (Order 789) became effective on January 28, 2014. The requirements in regional Reliability Standard BAL-002-WECC-2 become effective on the first day of the third quarter following applicable regulatory approval or on October 1, 2014.

In comparing WECC’s proposed regional Reliability Standard to NERC’s equivalent Reliability Standard BAL-002-1, FERC found that the regional Reliability Standard is more stringent because it requires responsible entities to restore contingency reserves within 60 minutes following a Disturbance Recovery Period (as opposed to 90 minutes under the NERC Reliability Standard), and that its method for calculating minimum contingency reserve also is more stringent because it requires minimum contingency reserve levels that will be at least equal to the NERC Reliability Standard minimum, i.e. equal to the most severe single contingency, and more often will be greater.

The key difference between this standard BAL-002-WECC-2 and the currently effective BAL-STD-002 is that the definition of the minimum contingency reserve calculation is based on the greater of:

**Per proposed standard (BAL-002-WECC-2):**

The definition of the minimum contingency reserve calculation is based on the greater of:

- (a) The amount of Contingency Reserve equal to the loss of the most severe single contingency;
- (b) The amount of Contingency Reserve equal to the sum of three percent of hourly integrated Load plus three percent of hourly integrated generation.

**Per current standard (BAL-STD-002):**

The definition of the minimum contingency reserve calculation is based on the greater of:

- (a) The loss of generating capacity due to forced outages of generation or transmission equipment that would result from the most severe single contingency; or
- (b) The sum of five percent of the load responsibility served by hydro generation and seven percent of the load responsibility served by thermal generation.
3. Business Requirements

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

3.1 Business Process: EMS

This section outlines the requirements associated with EMS.

3.1.1 Business Requirements

<table>
<thead>
<tr>
<th>ID#</th>
<th>Business Feature</th>
<th>Requirement Type</th>
<th>Potential Application(s) Impacted</th>
</tr>
</thead>
<tbody>
<tr>
<td>FERC789-BRQ001</td>
<td>System (EMS) shall incorporate a software change to the currently existing minimum contingency reserve calculation.</td>
<td>Core</td>
<td>EMS</td>
</tr>
<tr>
<td></td>
<td><strong>Per proposed standard (BAL-002-WECC-2):</strong></td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>The definition of the minimum contingency reserve calculation is based on the greater of:</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(a) The amount of Contingency Reserve equal to the loss of the most severe single contingency;</td>
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<td></td>
</tr>
<tr>
<td></td>
<td>OR</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(b) The amount of Contingency Reserve equal to the sum of three percent of hourly integrated Load plus three percent of hourly integrated generation.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Per current standard (BAL-STD-002):</strong></td>
<td></td>
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<tr>
<td></td>
<td>The definition of the minimum contingency reserve calculation is based on the greater of:</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(a) The loss of generating capacity due to forced outages of generation or transmission equipment that would result from the most severe single contingency;</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>OR</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(b) The sum of five percent of the load responsibility served by hydro generation and seven percent of the load responsibility served by thermal generation.</td>
<td></td>
<td></td>
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</tbody>
</table>
**Business Requirements Specification - Planning**

<table>
<thead>
<tr>
<th>ID#</th>
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<th>Requirement Type</th>
<th>Potential Application(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>FERC789-BRQ020</td>
<td><strong>Post 10/1/2014</strong> System (EMS) shall calculate the most severe single contingency (MSSC) and broadcast to the market software.</td>
<td>Core</td>
<td>EMS</td>
</tr>
</tbody>
</table>

**Note:**
System shall provide manual over-ride functionality for the MSSC. Manual over-ride shall also be broadcast to the market software.
3.2 Business Process: Ancillary Service Requirement Setter (ASRS)

The following are the requirements associated with Ancillary Service Requirement Setter (ASRS). ASRS is an independent module, which is part of Market Systems (IFM/RTM).

### 3.2.1 Business Requirements

<table>
<thead>
<tr>
<th>ID#</th>
<th>Business Feature</th>
<th>Requirement Type</th>
<th>Potential Application(s) Impacted</th>
</tr>
</thead>
</table>
| FERC789-BRQ004   | **FOR REAL-TIME** System (ASRS) shall incorporate a software change to the currently existing minimum contingency reserve calculation. **Per proposed standard (BAL-002-WECC-2):** The definition of the minimum contingency reserve calculation is based on the greater of:  
  (a) The amount of Contingency Reserve equal to the loss of the most severe single contingency;  
  OR  
  (b) The amount of Contingency Reserve  
  = 3% of 15-minute load forecast  
  + 3% of Generation  
  + 3% (Pseudo Import – Pseudo Export)  
  + 3% (Dynamic Import – Dynamic Export) | Core              | ASRS – (An independent module, which is part of Market Systems (IFM/RTM)) |
Per current standard (BAL-STD-002):
The definition of the minimum contingency reserve calculation is based on the greater of:

(a) The loss of generating capacity due to forced outages of generation or transmission equipment that would result from the most severe single contingency;

OR

(b) The sum of five percent of the load responsibility served by hydro generation and seven percent of the load responsibility served by thermal generation.

<table>
<thead>
<tr>
<th>ID#</th>
<th>Business Feature</th>
<th>Requirement Type</th>
<th>Potential Application(s) Impacted</th>
</tr>
</thead>
<tbody>
<tr>
<td>FERC789-BRQ021</td>
<td>Post 10/1/14 System (ASRS) shall consume the most severe single contingency (MSSC) information broadcast by EMS/RTCA.</td>
<td>Core</td>
<td>ASRS – (An independent module, which is part of Market Systems (IFM/RTM))</td>
</tr>
<tr>
<td>FERC789-BRQ012</td>
<td>FOR IFM, for 10/1/2014 Implementation</td>
<td>Core</td>
<td>ASRS – (An independent module, which is part of Market Systems (IFM/RTM))</td>
</tr>
</tbody>
</table>

Note:
System (Market) shall provide manual over-ride functionality for the MSSC.
System (ASRS) shall incorporate a software change to the currently existing minimum contingency reserve calculation.

**Per proposed standard (BAL-002-WECC-2):**

The definition of the minimum contingency reserve calculation is based on the greater of:

(a) The amount of Contingency Reserve equal to the loss of the most severe single contingency;

OR

(b) The amount of Contingency Reserve equal to:

<table>
<thead>
<tr>
<th>Equation Component</th>
<th>Source of Data</th>
</tr>
</thead>
<tbody>
<tr>
<td>3% of Load Forecast</td>
<td>DA Load Forecast</td>
</tr>
<tr>
<td>+ 3% of Generation</td>
<td>(D+2); Selectable between RUC or IFM</td>
</tr>
<tr>
<td>+ 3% (Pseudo Import</td>
<td>(D+2); Selectable between RUC or IFM</td>
</tr>
<tr>
<td>– Pseudo Export</td>
<td></td>
</tr>
<tr>
<td>+ 3% (Dynamic Import</td>
<td>(D+2); Selectable between RUC or IFM</td>
</tr>
<tr>
<td>– Dynamic Export</td>
<td></td>
</tr>
</tbody>
</table>

**Note:**

1. Load forecast = Conforming load + Non-conforming load including pumped storage [from D+2; only when in pump mode] and pump load available from ALFS.
2. Adder shall remain for DA load forecast and Generation
3. Remove UCI from all screens
4. Percentages (Example: 3% as in above calculation) used in the IFM and RTM equations shall be configurable.
## Technology

<table>
<thead>
<tr>
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<th>Business Feature</th>
<th>Requirement Type</th>
<th>Potential Application(s) Impacted</th>
</tr>
</thead>
<tbody>
<tr>
<td>FERC789-BRQ0250</td>
<td><strong>Post 10/1/14</strong> RTM shall disqualify any C-SP or C-NS spinning reserve or non-spinning reserve in the FMM (RTPD) binding interval if there is not a valid e-tag for the IFM awarded spinning reserve or non-spinning reserve. FMM or RTPD will not award any intertie resource spinning reserve or non spinning reserve (C-SP or C-NS) unless there is a valid e-tag with a transmission profile of at least the award. (Transmission profile sets the upper economic limit.) <strong>Note:</strong> A/S should mimic the current transmission rules for energy.</td>
<td>Core</td>
<td>RTM</td>
</tr>
</tbody>
</table>

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**Document Version:** 1  
**Date Created:** 8/27/2014
3.3 Business Process: Interchange Transaction Scheduling (ITS)

3.3.1 Business Requirements

<table>
<thead>
<tr>
<th>ID#</th>
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<th>Requirement Type</th>
<th>Potential Application(s) Impacted</th>
</tr>
</thead>
</table>
| FERC789-BRQ010 | System shall validate the PSE submitting the e-Tag has –  
• A valid Resource ID defined in Master File  
• AND the Resource ID is qualified to offer Ancillary Services in the market  
Note:  
• PSEs using transaction IDs are not qualified to submit capacity e-Tags.  
• Resource IDs qualified to offer Ancillary Services in the market are identified in MF. | Core             | ITS                              |
<table>
<thead>
<tr>
<th>ID#</th>
<th>Business Feature</th>
<th>Requirement Type</th>
<th>Potential Application(s) Impacted</th>
</tr>
</thead>
</table>
| FERC789-BRQ006 | System shall add a new e-Tag validation rule –  
Each Purchasing-Selling Entity (tag author) submitting a Request for Interchange (RFI) for on-demand Spinning and Non-Spinning Reserve transactions with a valid A/S Resource ID shall specify each of the following:  
1) Transaction type set to “capacity”;  
2) Energy product type set to either “C-SP” for Spinning Reserves or “C-NS” for Non-Spinning Reserves;  
Note:  
Resource ID in the Misc. Info field would be an “AS” type.  
1. If an “AS” type Resource ID is used in the Misc. Info field, the e-Tag must have the following:  
   a. Transaction type set to “Capacity”  
2. If #1 is true, then  
   a. If in the Misc. Info field, CAISO_PRODUCT = SPIN, then the Market Path product code must be set to “C-SP” for Spinning REServes  
   b. If in the Misc. Info field, CAISO_PRODUCT = NSPN, then the Market Path product code must be set to “C-NS” for Non-Spinning Reserves  
3. The denial reason shall state: For AS award, must use Capacity type tag, and Market Path product code must be “C-SP” for SPIN or “C-NS” for NSPN | Core             | ITS                |
| FERC789-BRQ007 | System shall provide option to “turn-off” or “turn-on” the new e-Tag validation rule, specified above.                                                                                                                   | Core             | ITS/CAS                         |

Reference:
<table>
<thead>
<tr>
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<th>Potential Application(s) Impacted</th>
</tr>
</thead>
</table>
| FERC789- BRQ700 | InterchangeScheduleProfile web service message broadcast from OATI to EMS/ASRS and RTM shall now include the following energy types at 15-minute granularity:  
  - FIRM  
  - NFRM  
  - DYN  
  - WHEEL  
  - CNSPN – System shall compute and send Min (market award, transmission profile) with effective start dateTime  
  - CSPN – System shall compute and send Min (market award, transmission profile) with effective start dateTime  
  - OOM  
  - ESPN  
  - ENSPN  
  - UCI  
  **Note:**  
  1. InterchangeScheduleData XSD will not change  
  2. Four breakpoints per hour at the 15-min boundaries for C-SP and C-NS for current and next hour: Startime of binding intervals: xx:00, xx:15, xx:30, xx:45. | Core             | ITS, RTM                  |
| FERC789- BRQ725 | ITS shall provide a separate screen to display capacity spin and non-spin (C-SP and C-NS) tags for the current hour and next hour.  
  The screen shall display:  
  Min (market award, transmission profile)  
  - Four breakpoints per hour at the 15-min boundaries for C-SP and C-NS - Startime of binding intervals: xx:00, xx:15, xx:30, xx:45. | Core             | ITS                         |
| FERC789- BRQ701 | System shall add a new e-Tag validation rule –  
  All Transmission segments that have Capacity Type C-SP or C-NS including dynamic schedules that are providing Spinning Reserve, Non-Spinning Reserve or regulation must have FIRM transmission service on the transmission allocation portion of the eTag. | Core             | ITS                         |
<table>
<thead>
<tr>
<th>ID#</th>
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</tr>
</thead>
<tbody>
<tr>
<td>FERC789-BRQ702</td>
<td>System shall add a new e-Tag validation rule – ITS shall fail validation of an eTag if Market Product Type = C-RE.</td>
<td>Core</td>
<td>ITS</td>
</tr>
</tbody>
</table>

Note: The ISO will not accept capacity tags for recallable energy (C-RE). This tag type is capacity associated with energy recallable for reserves.
### 3.4 Business Process: Settlements

This section outlines the requirements associated with Settlements.

#### 3.4.1 Business Requirements

<table>
<thead>
<tr>
<th>ID#</th>
<th>Business Feature</th>
<th>Requirement Type</th>
<th>Business Unit(s) Affected</th>
<th>Potential Application(s) Impacted</th>
</tr>
</thead>
<tbody>
<tr>
<td>FERC789-BRQ500</td>
<td>Per new standard – Scheduling Coordinator’s hourly initial obligation = 6% Metered Load + 3% Exports – 3% Imports</td>
<td>Core</td>
<td>Settlements</td>
<td></td>
</tr>
</tbody>
</table>

**Notes:**
1. Imports, Exports are positive numbers
2. Scheduling Coordinator’s hourly initial obligation can be less than zero
3. Dynamics are excluded if ISO is procuring A/S for them:
   (a) MF is required to identify the dynamics that the ISO is procuring A/S for.
4. Per current standard – Scheduling Coordinator’s hourly initial obligation = 7% (Load + Firm Exports – Firm Imports) + 100% Non-Firm Imports + 2% (Hydro Generation + Unit Contingent Imports from Hydro – Unit Contingent Exports from Hydro)
<table>
<thead>
<tr>
<th>ID#</th>
<th>Business Feature</th>
<th>Requirement Type</th>
<th>Business Unit(s) Affected</th>
<th>Potential Application(s) Impacted</th>
</tr>
</thead>
<tbody>
<tr>
<td>FERC789-BRQ510</td>
<td>Settlements system shall treat the “CAISO-carried AS Obligations” flags from Master File as follows:</td>
<td>Core</td>
<td>Settlements</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Type</strong></td>
<td><strong>Flag</strong></td>
<td><strong>Action</strong></td>
<td></td>
</tr>
<tr>
<td>Import</td>
<td>Y</td>
<td>Don’t include in Imports (ISO carries AS obligations)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Import</td>
<td>N</td>
<td>Include in Imports (ISO does not carry AS obligations)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Export</td>
<td>Y</td>
<td>Include in Exports (ISO carries AS obligations)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Export</td>
<td>N</td>
<td>Don’t include in Exports (ISO does not carry AS obligations)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>FERC789-BRQ501</td>
<td>System shall ensure self-provisioning shall not result in a payment to SC based on operating reserve obligation (excluding Inter-SC Trades).</td>
<td>Core</td>
<td>Settlements</td>
<td></td>
</tr>
<tr>
<td>FERC789-BRQ502</td>
<td>The cost of AS Obligations allocated to the SC of an EIM shall be limited to the cost of the AS obligations specified in requirement FERC789-BRQ500 that are not excluded through application of the “CAISO-carried AS Obligations” flag.</td>
<td>Core</td>
<td>Settlements</td>
<td></td>
</tr>
</tbody>
</table>
3.5 Business Process: Master File

This section outlines the requirements associated with Master File.

3.5.1 Business Requirements

<table>
<thead>
<tr>
<th>ID#</th>
<th>Business Feature</th>
<th>Requirement Type</th>
<th>Business Unit(s) Affected</th>
<th>Potential Application(s) Impacted</th>
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</thead>
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<table>
<thead>
<tr>
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<th>Requirement Type</th>
<th>Business Unit(s) Affected</th>
<th>Potential Application(s) Impacted</th>
</tr>
</thead>
</table>
| FERC789-BRQ600 | Master File is required to identify for dynamic resources whether or not the ISO is procuring A/S for.  
  - Dynamic Import existing resources = Y  
  - Dynamic Import new resource default = Y  
  **Notes:**  
  Our pro forma dynamic transfer import agreement is that we agree to always carry the reserves.  
  It is possible that (Example: via a non-conforming) pro forma dynamic transfer import agreement may result in the flag to be set to N.  
  - Dynamic Pseudo Tie Import = Y  
  - Dynamic Pseudo Tie Export = N  
  - Dynamic Export existing resources = N/A  
  **Comment:** We don't have any.  
  - Dynamic Export new resource default = N  
  **Note:** Our pro forma dynamic transfer export agreement is that we always won't carry the reserves.  
  It is possible that (Example: via a non-conforming) pro forma dynamic transfer export agreement may result in the flag to be set to Y.  
  - A/S Only Imports = N  
  **Note:** This really isn’t applicable since 789 only applies to energy. | Core | MCI EMM | Master File |

*Flag = Y means ISO carries reserves.*