Business Requirements Specification

Participating Intermittent Resource Program (PIRP)
Logic Changes

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**Revision History**

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<th>Version</th>
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<th>Author</th>
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<td>1.0</td>
<td>Draft External BRS</td>
<td>Shu Tao</td>
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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 between the initiators and implementers of the project. The information in this document serves as input to determine the scope of Information Systems projects and to all Business Process Modeling and System Requirements Specifications efforts.

These requirements are intended for submission to the Information Technology Services (ITS) department and will serve as the initial set of business unit requirements for the appropriate software application/systems development effort. It is understood that ITS will perform additional requirements and systems analysis and may produce “To Be” Business Process Models, System Requirements Specifications, and Use Cases to serve as the set of requirements documents used by the ITS 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 ITS requirements documentation produced.

This document is provided at an early stage to facilitate systems development. These requirements are subject to change as the ISO and stakeholders develop ISO tariff provisions and such provisions are processed and accepted by the Federal Energy Regulatory Commission. Market participants should consult the ISO websites for updates as this process unfolds.

2. Details of Business Need/Problem

2.1 Description

In return for providing meteorological data to allow production forecasting, PIRP resources were allowed to net over the month uninstructed imbalance energy if they submitted the ISO production forecast to establish their 5 minute instructed imbalance energy (hourly forecast divided by 12).

The ISO is proposing the implementation of PIRP economic bidding in Fall 2013, as the ISO bid floor is being reduced from –$30.00 to -$150.00 in Fall 2013. The lower bid floors provide additional incentives for variable energy resources to provide economic bids to ensure that their forecast will be only scheduled if the LMP is greater than their bid. This implementation will allow the PIRP resources to submit energy bids (without self-schedule) and will use the PIRP forecast in RTD as the upper bound for the energy dispatch. In the intervals that the ISO dispatches a PIRP resource different from the PIRP forecast, the resource will not be eligible for the PIRP monthly netting of uninstructed imbalance energy for the applicable trading hour.
3. Business Process Impacts

3.1 High Level Business Process

3.1.1 Description

There are no business process impacts related to this initiative. All changes are being made to SIBR, RTM and PIRP software.

3.1.2 Pros

- Besides the self-schedule, the new option of the economic energy bid in real time offers the PIRP resources more flexibility in the market participation.
- The capability to economically dispatch the PIRP resource below its forecast in RTD enables ISO to manage the over-generation and congestion more efficiently and transparently.

3.1.3 Cons

N/A

3.2 Justification

The ISO believes this project will preserve and increase the incentive for PIRP resources to submit more economic bids and less self-schedules to the real time markets so that the ISO is able to manage the over-generation and congestion more efficiently and transparently.

4. 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, and reporting and/or infrastructure requirements. These business requirements directly relate to the high level scope items determined for the project.
4.1 Business Process: <Day Ahead and Real Time Process>

4.1.1 Business Requirements

<table>
<thead>
<tr>
<th>ID#</th>
<th>Business Feature</th>
<th>Business Unit(s) Affected</th>
<th>Potential Application(s) Impacted</th>
</tr>
</thead>
<tbody>
<tr>
<td>PIRP-BRQ0001</td>
<td>SIBR shall allow SC to submit a real time economic energy bid with/without self schedule for PIRP resources. This is the currently existing functionality.</td>
<td>PSTD, MDSC</td>
<td>SIBR</td>
</tr>
<tr>
<td>PIRP-BRQ0002</td>
<td>If a real time economic energy bid is submitted with or without a self-schedule for the PIRP resource, RTD shall dispatch the resource based on its economic energy bid with the most recent hourly forecast from PIRP as the resource’s Pmax. This forecast based Pmax shall be used as the upper operating limit for the relevant resource capacity constraints. If only the self-schedule is submitted, the current RTM functionalities for this self-schedule option shall remain unchanged.</td>
<td>PSTD, MDSC</td>
<td>RTM</td>
</tr>
</tbody>
</table>

4.2 Business Process: <Manage Participating Intermittent Resource Program>

4.2.1 Business Requirements

<table>
<thead>
<tr>
<th>ID#</th>
<th>Business Feature</th>
<th>Business Unit(s) Affected</th>
<th>Potential Application(s) Impacted</th>
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</thead>
</table>
### 4.3 Business Process: <Manage Settlement and Billing >

#### 4.3.1 Business Requirements

<table>
<thead>
<tr>
<th>ID#</th>
<th>Business Feature</th>
<th>Business Unit(s) Affected</th>
<th>Potential Application(s) Impacted</th>
</tr>
</thead>
<tbody>
<tr>
<td>PIRP-BRQ0003</td>
<td>If a PIRP resource submits an economic energy bid in real time, PIRP shall determine the resource hourly eligibility for the monthly UIE setting using the RTD dispatch and the PIRP forecast: If any of 12 RTD DOTs of a given hour is lower than the hourly PIRP forecast by more than 1MW, then that hour is considered to be not eligible for the monthly uninstructed imbalance energy (UIE) netting. Otherwise that hour is eligible. For the PIRP resource and/or hour where only the self-schedule is submitted, the current PIRP logics that determine the hourly eligibility in the monthly UIE netting based on the deviation between the self-schedule and the forecast remains unchanged. Same as currently, PIRP shall send the hourly eligibility flag to the settlement system for both options.</td>
<td>Market Service</td>
<td>PIRP</td>
</tr>
</tbody>
</table>

#### 4.4 Business Process: <Integration Business Requirement >

#### 4.4.1 Business Requirements

<table>
<thead>
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<th>ID#</th>
<th>Business Feature</th>
<th>Business Unit(s) Affected</th>
<th>Potential Application(s) Impacted</th>
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<tr>
<td>PIRP-BRQ0004</td>
<td>The settlement shall perform PIRP monthly UI netting based on the hourly eligibility determined by PIRP for either the option of economic energy bid or the option of self-schedule only: if the hour is not eligible, the UIE for that hour shall be excluded from the monthly UIE netting. Note that while the PIRP logic to determine the hourly eligibility needs to be expanded to support the bidding option of the economic energy bid, no change is required in the settlement system</td>
<td>Market Settlement Design and Configuration</td>
<td>Settlement</td>
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### Participating Intermittent Resource Program (PIRP) Logic Changes Business Requirements Specification - Planning

<table>
<thead>
<tr>
<th>ID#</th>
<th>Business Feature</th>
<th>Business Unit(s) Affected</th>
<th>Manual Or Auto</th>
<th>Potential Application(s) Impacted</th>
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<tbody>
<tr>
<td>PIRP-BRQ0005</td>
<td>PIRP shall publish the hourly VER production forecast for the real time markets RTM to use.</td>
<td>PTSD and Market Service</td>
<td>Auto</td>
<td>RTM and PIRP</td>
</tr>
<tr>
<td>PIRP-BRQ0006</td>
<td>PIRP shall subscribe the RTM published payload to get the RTD DOT.</td>
<td>PTSD and Market Service</td>
<td>Auto</td>
<td>RTM and PIRP</td>
</tr>
<tr>
<td>PIRP-BRQ0007</td>
<td>PIRP shall subscribe the clean bid payload published by SIBR to identify if the PIRP resource submits a real time economic energy bid.</td>
<td>PTSD and Market Service</td>
<td>Auto</td>
<td>SIBR and PIRP</td>
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</table>
4.5 Business Process: <Manage Reporting >

4.5.1 Business Requirements

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<th>Potential Application(s) Impacted</th>
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<td>N/A</td>
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4.6 Business Process: Metrics and Performance Criteria

4.6.1 Business Requirements

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<thead>
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<th>ID#</th>
<th>Business Feature</th>
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<th>Manual Or Auto</th>
<th>Potential Application(s) Impacted</th>
</tr>
</thead>
<tbody>
<tr>
<td>PIRP-BRQ0008</td>
<td>RTM, PIRP, and Settlement shall not have any degradation in performance from the current levels, due to the PIRP logic changes.</td>
<td>PTSD, Market Service, Market Settlement Design and Configuration</td>
<td>Auto</td>
<td>RTM, PIRP, and Settlement</td>
</tr>
</tbody>
</table>

4.7 Business Process: Information Security Adherence

Not Applicable.

4.8 Business Process: Market Monitoring and Reporting

4.8.1 Business Requirements
4.9 Business Process: Proactive Monitoring (PAM) Requirements

4.9.1 Business Requirements

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<thead>
<tr>
<th>ID#</th>
<th>Business Feature</th>
<th>Business Unit(s) Affected</th>
<th>Manual Or Auto</th>
<th>Application(s) Impacted</th>
</tr>
</thead>
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<tr>
<td>PIRP-BRQ0010</td>
<td>Monitor and evaluate the effectiveness of the changes to provide the guidance any future decision and enhancement.</td>
<td>Customer Service Group</td>
<td></td>
<td></td>
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