



Business Requirements Specification

EIM Year 1 enhancement phase 2 and APS/PSE Implementation

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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 projects and to all Business Process Modeling and System Requirements Specifications efforts.

Business requirements are what must be delivered to provide value for the Users and Business Stakeholders. Systems, software, and processes are the ways (how) to delivery, satisfy or meet the business requirements (what).

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2. Details of Business Need/Problem

2.1 Overview of EIM Year 1 Enhancement Phase 2

1. Dynamic competitive assessment for market power mitigation of EIM transfer limits: (Configuration in MF, IFM/RTM, LMPM, no system impact)
 - As with all internal constraints within the ISO and within the EIM BAA, EIM transfer limits continue to be tested for competitiveness when the constraint is binding.
2. Use of e-tags to establish base schedule for import and exports (no system changes, BSAP data, BPM)
 - EIM entity submits base schedule must include the import/export between EIM BAAs for the e-tags approved, pending and adjusted.
3. Outage reporting to Peak Reliability Coordinator (OMS)
 - Tariff authority Allow the EIM entity to permit the ISO to submit outage information the entity has entered into OMS to Peak RC

2.2 EIM integration and market model implementation

EIM integration implementation and market issues will be included in the EIM Year 1 enhancement phase 2 requirement document

EIM refinements:

1. Model ISL/ITC for multiple ETSR limits
2. Define and Enforce ISL for EIM BAA by intertie
3. Publishing by type of constrains, include EIM Transfer Constraints, HVDC, and other constraints
Change from published as ITC constraints, to by type of constraint; (integration, OASIS)
4. Allow API for GHG price (OASIS)
5. Publish GHG bid Cap (CMRI)
6. Publish base NSI for EIM BAA along with Base schedule test results at T-75, T-55 and T-40 (OASIS)

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7. Publish after fact EIM interchange schedules (CMRI)
8. Extract marginal loss contribution from MCC and Marginal Greenhouse gas cost and include in Marginal cost of losses.

3. Business Process Impacts

3.1 High Level Description of Business Process

Manage Markets & Grid (MMG) (80005)

- Manage Real Time Hourly Market (RTPD)
- Manage Real Time Operations - Transmission & Electric System
- Manage Outages
- Meter Data Acquisition and Processing

Manage Operations Support and Settlements (MOS) (80007)

- Meter Data Acquisition and Processing
- Manage Market Billing & Settlements
- Manage Market Quality System (MQS)

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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, reporting, and/or infrastructure requirements. These business requirements directly relate to the high level scope items determined for the project.

Requirements is organized by potential impacted systems for understanding purpose. The final system impacts will be based on architecture recommendation.

Master File:

- Define ISL/ITC for multiple ETSR scheduling limits
- Define ISL/ITC for EIM BAA to support FMM
- Remove GHG bid CAP from MF, always use ECIC/RLC

BSAP:

- EIM entity shall submit base schedule of include approved, pending and adjusted e-tags
- System shall publish hourly Base NSI along with test results for each BAA after base schedule tests at T-75, T-55 and T-40

IFM/RTM

- EIM transfer limit subject to LMPM
- Allow multiple ETSR limits in ISL/ITC constraint
- Enforce ISL for EIM BAA by intertie

CMRI:

- Publish the EIM BAA after fact interchange schedules
- Publish GHG bid Cap

OASIS

- Publishing by type of constrains, include EIM Transfer Constraints, HVDC, and other constraints
- Allow API for GHG price and other identified data (OASIS)
- Publish EIM BAA base NSI at T-75, T-55, and T-40

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4.1 Business Process: Manage Entity and Resource Maintenance Updates (Master File)

4.1.1 Business Requirements

ID#	Business Feature	Requirement Type	Potential Application(s) Impacted
EIMY1Ph2_BRQ070	Define ISL/ITC for multiple ETSR scheduling limits <ul style="list-style-type: none"> • Define ITC/ISL and associated ETSR schedules in Master file, • Pass the association to the market • The market applications must support multiple ETSR scheduling limits in ISL/ITC definition 	Core	Master File RTUC, STUC, RTD, RTCD
EIMY1Ph2_BRQ080	Remove GHG bid CAP for Master File: <ul style="list-style-type: none"> • Remove NEG_GHG_BIDADDER_CAP from MF since RLC/ECIC will calculate GHG Cap daily and publish to the market • Remove GHG CAP from GRDT 	Core	Master File GRDT

4.2 Business Process: Manage Full Network Model (FNM) and Energy Management System (EMS)

4.2.1 Business Requirements

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ID#	Business Feature	Requirement Type	Potential Application(s) Impacted
EIMY1Ph2_BRQ130	Branch limit: current practice update with FNM, by seasonal limits, dynamic de-rate by EIM entity in market	Core Existing function	FNM

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4.3 Business Process: Manage Day Ahead Market and Real Time Market

4.3.1 Business Requirements

ID#	Business Feature	Requirement Type	Potential Application(s) Impacted
EIMPh2_BRQ310	<p>EIM entity shall submit base schedule of all available e-tags:</p> <ul style="list-style-type: none"> • approved, pending and adjusted e-tags • EIM transfer (ETSR) base schedule between EIM BAAs will be submitted by the BAA that its ETSR designated as tagging entity in MF • The paired ETSR of counterpart EIM BAA shall not submit the Base schedule; • EIM BAA of ETSR that designated as tagging entity can submit the EIM transfer limits by intertie for the ETSR • Counterpart EIM BAA of the paired ETSR is allowed to submit the EIM transfer limits by intertie for the paired ETSR • System shall apply the minimum of two submitted limits of ETSR and paired ETSR as EIM transfer limits for the intertie of one direction between the corresponding EIM BAAs. 	Core Existing function	BSAP, RTM

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ID#	Business Feature	Requirement Type	Potential Application(s) Impacted
EIMPh2_BRQ310 (continued)	<p>Ex:</p> <p>Paired ETSRs</p> <p>BAA1: ETSR_export_from BAA1_to BAA2, designated as tagging entity, submit base schedule 100 MW, EIM transfer limit 200 MW</p> <p>BAA2: ETSR_Import_from BAA2_to BAA1</p> <p>Submit EIM transfer limit 180 MW</p> <p>The EIM transfer limit from BAA1 to BAA2 is: $\text{Min}(200, 180) = 180 \text{ MW}$</p> <p>So:</p> <p>ETSR_export_from BAA1_to BAA2 = ETSR_Import_from BAA2_to BAA1 $\leq 180 \text{ MW}$</p>	Core Existing function	BSAP, RTM
EIMPh2_BRQ320	<p>EIM transfer limit subject to LMPM:</p> <p>EIM transfer limits continue to be tested for competitiveness when the constraint is binding, similar as all internal constraints within the ISO and within the EIM BAA.</p> <p>The LMPM is triggered by a positive BAA PBC shadow price.</p>	Core Existing function	RTM
EIMPh2_BRQ330	<p>Dynamic branch limit:</p> <p>Accept de-rate of branch limit through outages submitted by the SC</p>	Core Existing function	RTM

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ID#	Business Feature	Requirement Type	Potential Application(s) Impacted
EIMPh2_BRQ350	<p>Allow the enforce EIM transfer limit through multiple inertia as ITC constraint</p> <ul style="list-style-type: none"> • Define ISL/ITC and associated ETSR schedules in Master file, pass the association to the market • Continue model ETSR for each inertia • Support multiple ETSR scheduling limits on ISL/ITC. 	Core	RTM
EIMPh2_BRQ540	System shall publish hourly Base NSI along with test results for each BAA after base schedule tests at T-75, T-55 and T-40:	Core	BSAP integration
EIMPh2_BRQ541	Extract marginal loss impact from the marginal congestion and greenhouse gas cost component of EIM PNode and SP-TIE LMPs and include it in the marginal loss component	Core	RTUC, STUC, RTD, RTCD

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ID#	Business Feature	Requirement Type	Potential Application(s) Impacted
	$ \left. \begin{aligned} MLC_i &= (\lambda + \lambda_j - \psi) \left(\frac{1}{LPF_i} - 1 \right) \\ MCC_i &= \lambda_j - \sum_m \sum_{n \in N_m} a_{m,n} SF_{m,n,i} \mu_m \\ MGC_i &= -\psi \end{aligned} \right\} $ $ \forall i \in BAA_j \wedge j \in EIM \wedge j > 0 $ $ \left. \begin{aligned} MLC_{j,k,l} &= (\lambda + \lambda_j - \psi) \left(\frac{1}{LPF_{j,k,l}} - 1 \right) \\ MCC_{j,k,l} &= \lambda_j - \sum_m \sum_{n \in N_m} a_{m,n} SF_{m,n,j,k,l} \mu_m \\ MGC_{j,k,l} &= -\psi \end{aligned} \right\} $ $ \forall j \in EIM \wedge j > 0 \wedge k \notin EIM \wedge l \in L_{j,k} $		

4.4 Business Process: Manage Intertie schedule (e-tagging), CMRI, OASIS, ADS

4.4.1 Business Requirements

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ID#	Business Feature	Requirement Type	Potential Application(s) Impacted
EIMPh2_BRQ630	System shall receive and publish the hourly Base NSI for each EIM BAA at T-75, T-55 and T-40: <ul style="list-style-type: none"> • System shall remove publish RTD or RTPD base NSI, remove the RTPD/RTD base NSI • System shall receive the hourly base NSI from RTBS at T-75, T-55 and T-40 • System shall publish hourly base NSI for each EIM BAA at T-75, T-55 and T-40. 	Core	OASIS, integration
EIMPh2_BRQ641	Publish the after-factor EIM BAA interchange schedules for the EIM BAA entity <ul style="list-style-type: none"> • Receive EIM BAA entity submitted after-fact interchange schedules • Publish after-fact interchange schedules to the EIM entity 	Core	CMRI, integration
EIMPh2_BRQ642	Publish GHG bid Cap <ul style="list-style-type: none"> • Receive ECIC/RLC GHG bid cap • Publish GHG bid cap 	Core	CMRI, integration
EIMPh2_BRQ643	Publish constraint by type Publishing by type of constrains, include EIM Transfer Constraints, HVDC, and other constraints Change from published as ITC constraints, to by type of constraint;	Core	OASIS, integration

4.5 Business Process: Manage Outages, CIRA

4.5.1 Business Requirements

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ID#	Business Feature	Requirement Type	Potential Application(s) Impacted
EIMPh2_BRQ810	Outages: SC of parent shall be responsible for responsible for reporting outages and derates.	Core	OMS

4.6 Business Process: Manage MOTS and IOOC

4.6.1 Business Requirements

ID#	Business Feature	Requirement Type	Potential Application(s) Impacted
EIMPh2_BRQ1000	The MOTS shall accommodated the new add-on functions and related data structure changes.		MOTS
EIMPh2_BRQ1001	The IOOC shall accommodated the new add-on functions and related data structure changes		IOOC