

Business Requirements Specification

Replacement Requirement for Scheduled Generation Outages

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Revision History

Date	Version	Description
7/16/2012	1.0	Creation of Document
9/7/2012	1.1	Addition of BRQ050 to address new scope of initiative. Addition of BRQ051 (manual step) to validate availability of RA resource Addition of BRQ052 – ISO Tab Addition of Appendix C
9/12/2012	1.1	Minor changes to the business process steps in Appendix C



 California ISO <small>Shaping a Renewed Future</small>	Technology	Template Version:	2.8
		Document Version:	1.1
Replacement Requirement for Scheduled Generation Outages Business Requirements Specification - Planning		Date Created:	9/7/2012


Table of Contents

1. INTRODUCTION.....	4
1.1 PURPOSE	4
1.2 REFERENCES	4
2. DETAILS OF BUSINESS NEED/PROBLEM	5
2.1 DESCRIPTION.....	5
3. BUSINESS PROCESS IMPACTS.....	6
3.1 HIGH LEVEL BUSINESS PROCESS	6
3.1.1 Description	6
4. BUSINESS REQUIREMENTS.....	7
4.1 BUSINESS PROCESS: RESOURCE ADEQUACY OUTAGE MANAGEMENT	7
4.1.1 Business Requirements	7
4.2 BUSINESS PROCESS: ANNUAL/MONTHLY RESOURCE ADEQUACY.....	9
4.2.1 Business Requirements	9
4.3 BUSINESS PROCESS: APPROVAL OF OUTAGES T-45C TO T-10C.....	11
4.3.1 Business Requirements	11
4.4 BUSINESS PROCESS: SUBSTITUTE CAPACITY BULLETIN BOARD	12
4.4.1 Business Requirements	12
4.5 BUSINESS PROCESS: MANAGE MARKET BILLING & SETTLEMENTS	13
4.5.1 Business Requirements	13
APPENDIX A: TERMS AND DEFINITIONS	15
APPENDIX B: TIMELINE	16
APPENDIX C: BUSINESS PROCESS STEPS.....	17

	Technology	Template Version:	2.8
		Document Version:	1.1
Replacement Requirement for Scheduled Generation Outages Business Requirements Specification - Planning		Date Created:	9/7/2012

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	Technology	Template Version:	2.8
		Document Version:	1.1
Replacement Requirement for Scheduled Generation Outages Business Requirements Specification - Planning		Date Created:	9/7/2012

1. Introduction

1.1 Purpose


This document describes 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 are intended for submission to the Program Office and will serve as the initial set of business unit requirements for the appropriate software application/systems development effort. It is understood that PMO 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 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.

1.2 References

All references represent external requirements documents or stakeholder requests developed and submitted by the Business Units.


1. Policy-related documents, including the Draft Final Proposal and stakeholder comments are located on the “Replacement Requirement for Scheduled Generation Outages” Stakeholder Initiatives web page at: <http://www.aiso.com/Documents/Replacement%20requirement%20for%20scheduled%20generation%20outages%20-%20papers%20and%20proposals>

	Technology	Template Version:	2.8
		Document Version:	1.1
Replacement Requirement for Scheduled Generation Outages Business Requirements Specification - Planning		Date Created:	9/7/2012

2. Details of Business Need/Problem

2.1 Description

In D.11-06-0221, the California Public Utilities Commission (CPUC) decided that, starting with the 2013 Resource Adequacy (RA) year, the CPUC would no longer apply a replacement rule requiring its jurisdictional load serving entities (LSEs) to provide replacement RA capacity under certain circumstances when RA resources were on planned outages. The ISO is developing changes to its outage management process and resource adequacy policy to address the elimination of the CPUC's RA replacement rule.

	Technology	Template Version:	2.8
		Document Version:	1.1
Replacement Requirement for Scheduled Generation Outages Business Requirements Specification - Planning		Date Created:	9/7/2012

3. Business Process Impacts

3.1 High Level Business Process

3.1.1 Description

Implementing the Replacement Requirement for Scheduled Generation Outages will impact the following existing business processes:

- Manage Reliability Requirements


- Manage Generation Outages

3.2 Description

Specific impacts on these business processes that the Replacement Requirement for Scheduled Generation Outages team has identified to date are as follows:

Manage Reliability Requirements: One component of the Replacement Requirement for Scheduled Generation Outages initiative will be to create a level III business process flow to document the validation process for RA Plans, Outages, and Supply Plans. See Appendix.

Manage Generation Outages: The Replacement Requirement for Scheduled Generation Outages initiative will require changes to the Manage Generation Outages business process mainly around the incorporation of the RA Outage Management business process.

	Technology	Template Version:	2.8
		Document Version:	1.1
Replacement Requirement for Scheduled Generation Outages Business Requirements Specification - Planning		Date Created:	9/7/2012


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.


4.1 Business Process: Resource Adequacy Outage Management

4.1.1 Business Requirements

ID#	Business Feature	Requirement Type	Potential Application(s) Impacted
RR-BRQ001	Outage Management system must have an attribute flag for RA resources.	Core	SLIC
RR-BRQ002	System must capture all valid outages at T-45C. Valid is defined as the categories of approved, pending, and waiting to be finalized. Business Rule: First resource with an outage receives outage priority (in granting planned outage request).	Core	SLIC
RR-BRQ003	There must be a mechanism to identify short term opportunity outage.	Core	SLIC
RR-BRQ004	On a resource level system must show monthly supply plan value for RA (MW).	Core	SLIC
RR-BRQ005	System must compare RA supply plan data and monthly forecast for system and local requirements against outage request.	Core	TBD
RR-BRQ006	System must convey the RA shortfall to outage management (per RA supplier).	Core	TBD
RR-BRQ007	Outage submitter (external user) must have the capability to know the RA shortfall due to an outage (per RA supplier).	Core	SLIC
RR-BRQ008	Outage Management must have the ability to see that unit substitution occurred for a particular outage.	Core	SLIC, RAAM
RR-BRQ009	Unit status report shall be modified to be based on availability. Business Rule: Report shall identify all resources, however, explicitly call out RA resources.	Core Reporting Requirement	SLIC
RR-BRQ010	RA capacity levels shall be considered among the criteria used to approve or deny outage requests from RA resources.	Core BPM	SLIC

 California ISO Shaping a Renewed Future	Technology	Template Version:	2.8
		Document Version:	1.1
Replacement Requirement for Scheduled Generation Outages Business Requirements Specification - Planning		Date Created:	9/7/2012

ID#	Business Feature	Requirement Type	Potential Application(s) Impacted
RR-BRQ011	<p>RA capacity levels shall be considered when determining the need to dispatch (thus incurring backstop designation) RA resources procured through the RA program.</p> <p>Business Rule: This shall be treated as a new non-specified type.</p>	<p>Core</p> <p>BPM</p> <p>Tariff</p>	IRR
RR-BRQ012	Up until the final showing of RA capacity, outages must be managed to maintain each LSE's System RA level at the 115% requirement.	<p>Core</p> <p>BPM</p>	IRR, SLIC
RR-BRQ013	If the LSEs and/or generators fail to provide the needed replacement capacity, the ISO may procure that capacity to ensure that the 115% planning reserve margin for the month is met, and allocate the costs to the LSE.	<p>Core</p> <p>BPM</p>	IRR
RR-BRQ014	The ISO may consider non-RA reliability measures in local RA, as long as the system RA remains at or above 115%.	BPM	IRR
RR-BRQ015	All approvals for planned outages are subject to change due to changes in systems conditions that may occur as a result of unanticipated events (including forced outages, forecast error, significant events, unanticipated events, etc.)	<p>BPM</p> <p>Tariff</p>	SLIC
RR-BRQ016	Existing provisions regarding compensation for cancelled planned outages will remain unchanged.	BPM	SLIC
RR-BRQ017	Requests for planned transmission outages will similarly be evaluated in combination with generation outages with consideration of RA capacity levels.	BPM	SLIC


 California ISO <i>Shaping a Renewed Future</i>	Technology	Template Version:	2.8
		Document Version:	1.1
Replacement Requirement for Scheduled Generation Outages Business Requirements Specification - Planning		Date Created:	9/7/2012

4.2 Business Process: Annual/Monthly Resource Adequacy


Describes changes to the RA systems and timelines associated with the Replacement Requirement for Scheduled Generation Outages initiative.

4.2.1 Business Requirements

ID#	Business Feature	Requirement Type	Potential Application(s) Impacted
RR-BRQ018	The due date for the monthly RA showing will be extended from the current timing of 30 days prior to the start of the operating month to 45 days prior to the start of the operating month.	Core	IRR
RR-BRQ019	System must accept non-specified RA resource data.	Core Tariff	IRR
RR-BRQ020	System must consume outages information.	Core	IRR
RR-BRQ021	System must apply outages to supply plan data and revalidate data.	Core	TBD
RR-BRQ022	System must identify the specific outages that are causing the RA shortfall.	Core	TBD
RR-BRQ023	ISO may consider replacement resources from non-specified RA list. Business Rule: Can be a manual process.	Core	TBD (potentially IRR)
RR-BRQ024	The rank order for the non-specified RA list shall be: <ul style="list-style-type: none"> Ranked order (submitted by LSE) 	Core	TBD (potentially IRR)
RR-BRQ025	Replacements using the non-specified RA list must be tracked and stored from T-45C to T-0C. Business Rule: Once the final operating month RA resource plan is sent to downstream systems, the replacements made between T-45C to T-0C can be purged.	Core	TBD
RR-BRQ026	System must send final operating month RA resource plan to downstream systems at T-7C. Business Rule: There shall be no further changes published after T-7C.	Core BPM	IRR
RR-BRQ027	System shall have the capability to send RA resource plan data to downstream system up to T-1C.	Core	IRR

	Technology	Template Version:	2.8
		Document Version:	1.1
Replacement Requirement for Scheduled Generation Outages Business Requirements Specification - Planning		Date Created:	9/7/2012

ID#	Business Feature	Requirement Type	Potential Application(s) Impacted
RR-BRQ028	Outage coordination must have the capability to approve unit substitution request for planned outages. Business Rule: Approval happens after T-45C.	Core	RAAM
RR-BRQ047	Scheduling Coordinators must have the ability to submit substitution requests from T-45C to T+31C.	Core	RAAM
RR-BRQ040	RA capacity calculations must be performed on a daily basis.	Core	IRR
RR-BRQ041	Supply plan and RA plan data must match from the first operating day/hour to the last operating day/hour of the month. Everyday must match.	Core	IRR
RR-BRQ042	When automated replacement is complete, the ISO need to replace on a daily basis.	Core	RAAM
RR-BRQ048	The ISO shall publish an external calendar of the timeline of due dates for each month of the following resource adequacy compliance year. Business Rule: We shall leverage the existing CAISO Event Planning Tool (CEPT) to create this calendar.	Core	CAISO Event Planning Tool
RR-BRQ049	The ISO shall modify the existing CPUC report in which replacement information and discrepancies (after T-45 and by T-25 at the latest) shall be communicated	Core	N/A
RR-BRQ050	The ISO shall replace a RA outage with "specified" resource before conducting the first System Cumulative test.	Core	IRR
RR-BRQ051	The ISO shall verify that all new RA resources are available from the supplier for the days and capacity that is needed.	Core	IRR


	Technology	Template Version:	2.8
		Document Version:	1.1
Replacement Requirement for Scheduled Generation Outages Business Requirements Specification - Planning		Date Created:	9/7/2012

4.3 Business Process: Approval of Outages T-45C to T-10C

Describes the process in which market participants can make arrangements for replacement of RA capacity.

4.3.1 Business Requirements

ID#	Business Feature	Requirement Type	Potential Application(s) Impacted
RR-BRQ030	Planned outages after T-45C must provide substitute capacity in order to be approved.	Core BPM Tariff	SLIC, RAAM
RR-BRQ031	System must have the means to track how much RA capacity the LSE must replace based upon outage derate information.	Core	IRR
RR-BRQ032	A outage shall be reviewed and replacement requirement shall be applied to LSE in respect to: <ul style="list-style-type: none"> Pro-rata either/or RA Supplier provides the LSE allocation Business Rule: System default is the RA Supplier provides the LSE allocation.	Core	IRR
RR-BRQ052	The LSE shall have the opportunity to submit a cured outage/replacement plan ISO tab (only new replacements or cancellation of outages) no later than T-10.	Core	IRR


 California ISO <i>Shaping a Renewed Future</i>	Technology	Template Version:	2.8
		Document Version:	1.1
Replacement Requirement for Scheduled Generation Outages Business Requirements Specification - Planning		Date Created:	9/7/2012

4.4 Business Process: Substitute Capacity Bulletin Board

Describes the process in which market participants can make arrangements for replacement of RA capacity.

4.4.1 Business Requirements

ID#	Business Feature	Requirement Type	Potential Application(s) Impacted
RR-BRQ033	The ISO shall establish an electronic “bulletin board” as a forum through which market participants can make arrangements for replacement RA capacity.	Core	TBD
RR-BRQ034	The bulletin board should enable a list of all available capacity that can be used for substitution or requests for RA capacity. Business Rule: Any agreement to procure the RA capacity for replacement would be the responsibility of the parties.	Core	TBD
RR-BRQ035	The entities which have negotiated for substitute capacity must communicate the information regarding the substitute capacity to the ISO as is the practice today.	Core	TBD
RR-BRQ036	Parties agreeing to provide such capacity must be willing to sell this capacity to accommodate requests to provide replacement RA capacity from 1 day to 31 days during the month.	Core	TBD
RR-BRQ037	The bulletin board must have modifiable expiration dates.	Core	TBD
RR-BRQ038	Market Participants must have the capability to contact prospective buyers/sellers.	Core	TBD
RR-BRQ039	System shall be stand alone and have no interfaces with any ISO market systems.	Core	TBD


 California ISO <i>Shaping a Renewed Future</i>	Technology	Template Version:	2.8
		Document Version:	1.1
Replacement Requirement for Scheduled Generation Outages Business Requirements Specification - Planning		Date Created:	9/7/2012


4.5 Business Process: Manage Market Billing & Settlements

Describes the impacts to charge codes and Settlement systems associated with the implementation for the Short Term RA Maintenance Outage Replacement Capacity Procurement.

4.5.1 Business Requirements

ID#	Business Feature	Requirement Type	Potential Application(s) Impacted
RR-BRQ043	The ISO may exercise its authority to designate Short-Term RA Maintenance Outage Replacement Capacity to ensure that sufficient Resource Adequacy Capacity is available to meet the ISO system RA planning reserve margin of 115 percent.	Core Tariff 43.10.1	N/A
RR-BRQ044	Payment shall be made to the Scheduling Coordinator for the resource that received the designation to provide Short-Term RA Maintenance Outage Replacement Capacity or to the Scheduling Coordinator for the Load Serving Entity that offered the Non-specified RA Capacity procured as Short-Term RA Maintenance Outage Replacement Capacity (IRR). Business Rule: IRR shall provide the SC for the resource whom should receive payment.	Core Tariff 43.10.6	Settlements
RR-BRQ045	The payment shall equal the product of the number of days the resources provides Short-Term RA Maintenance Outage Replacement Capacity (IRR) multiplied by the amount of Short-Term RA Maintenance Outage Replacement Capacity provided net of any Maintenance Outages or Forced outages, multiplied by the fixed CPM Capacity price.	Core Tariff 43.10.6	Settlements
RR-BRQ046	The cost of the payments made for a Short-Term RA Maintenance Outage Replacement Capacity designation shall be allocated to the Scheduling Coordinator for the Load Serving Entity whose monthly Resource Adequacy Plan fails to have sufficient available Resource Adequacy Capacity and RA Replacement Capacity to comply with applicable Demand and Reserve Margin requirements. Business Rule: IRR shall provide the SC for the resource whom should pay.	Core Tariff 43.10.7	Settlements


	Technology	Template Version:	2.8
		Document Version:	1.1
Replacement Requirement for Scheduled Generation Outages Business Requirements Specification - Planning		Date Created:	9/7/2012

 California ISO Shaping a Renewed Future	Technology	Template Version:	2.8
		Document Version:	1.1
Replacement Requirement for Scheduled Generation Outages Business Requirements Specification - Planning		Date Created:	9/7/2012

Appendix A: Terms and Definitions

The following terms are used within this document. Where applicable, the terms are sourced from the current Business Practice Manual for Definitions & Acronyms.

Term	Acronym	Definition	Potential Tariff or BPM Term?
ISO Reliability Requirements	IRR	This application validates, maintains, and reports on Resource Adequacy information.	Existing Term
Master File	MF	This application maintains reference data for Market Participants, Resources, Contracts, etc. for use by Market Participants and downstream applications.	Existing Term
Non-specifiedRA		Capacity used to substitute for a RA resource with scheduled planned outages that requires replacement of RA capacity.	Potential
Resource Adequacy Availability Management	RAAM	Software application used to request unit substitution for RA Resources.	Existing Term
Resource Adequacy Compliance Year		The calendar year in which RA activities are conducted.	Existing Term
Resource Adequacy Plan		A submission by a Scheduling Coordinator for a Load Serving Entity in order to satisfy the requirements of Section 40 of the ISO Tariff.	Existing Term
Scheduling Logging for ISO of California	SLIC	Schedule and Logging system for the CAISO.	Existing Term
Supply Plan		A submission by a Scheduling Coordinator for a Resource Adequacy Resource in order to satisfy the requirements of Section 40 of the ISO Tariff.	Existing Term

	Technology	Template Version:	2.8
		Document Version:	1.1
Replacement Requirement for Scheduled Generation Outages Business Requirements Specification - Planning		Date Created:	9/7/2012

Assumed that LSE RA plans do not contain resources with un-replaced outages.

B: Timeline

All Outages (for RA Compliance Month) cured by RA Supplier

Tasks Performed (Based on outages received by T-45):

- Cross validation of RA Plans and Supply Plan.
- Check for planned outages of RA resources to assure reliable RA levels are maintained.
- Identify RA capacity that needs to be replaced.

Supplier can request Short-term opportunity outages

Replacement Requirement for Scheduled Generation Outages Timeline

T-45

- Monthly RA Plan
- Monthly Supply Plan

T-25

- Provide the Local Regulatory Authority (LRA) with inconsistencies between RA plans and supply plans.
- Inform RA suppliers and LSE of which outages require replacement.
- Track automatic replacement of Non-Specified RA.
- A RA supplier can give notice to the ISO that the generator is withdrawing the outage request.

T-10

- Optional Final RA plans due (all inconsistencies cleared).
- ISO may procure RA backstop capacity for the LSE that is short capacity.
- Last day for the LSE to provide replacement capacity.


T-7

- Load supply plans.

T-0


T+31

- ISO shall notify LSE of potential RA backstop capacity procurement.

	Technology	Template Version:	2.8
		Document Version:	1.1
Replacement Requirement for Scheduled Generation Outages Business Requirements Specification - Planning		Date Created:	9/7/2012

Appendix C: Business Process Steps

1). Business Process: LSE submits RA plan (includes specified replacement and non-designated).
2). Business Process: Upload validation – check for errors
3). Business Process: Cross validation against supply plans – against only designated RA without considering outages (monthly).
4). Business Process: LRA Notification about discrepancies between LSE plan and RA obligation or Supply plan
5). Business Process: Apply active (not canceled or returned to service) SLIC outages (submitted as of T-45) to all resources in the RA plans (for each day).
6). Business Process: Outage Management must know if a non-specified resource is on outage and is going to be used for replacement.
7). Business Process: ISO to replace (fill in outages) with “specified” units in LSE RA Plan.
8). Business Process: Verify that all new “specified” units are available from the supplier for the days and capacity that is needed.
9). Business Process: Notify LSEs/Supplier that specified resource replacements have been made.
10). Business Process: Get supplier confirmation that “specified” resources are now RA and available.
11). Business Process: Conduct cumulative system test – for each day. If test passes, no replacement is necessary.
12). Business Process: If Cumulative system test fails, determine which individual LSE plans need replacement based on individual obligation (including planned outages from SLIC for each day).
13). Business Process: ISO to replace (fill in outages) using non-specified units per priority in LSE RA plan. Rules (for outage replacement): <ul style="list-style-type: none"> • Outage replacement will be considered in the order of “last in – first replaced” • Must replace outages (by days) that will allow the cumulative system test to pass • ISO shall assume un-replaced outages will be replaced during the cure period. Business Rule: The ISO shall assume the outage that has no non-specified replacement will be resolved via cure period as opposed to over resolving prior to the cure period.
14). Business Process: Verify that all new RA resources are available from the supplier for the days and capacity that is needed.
15). Business Process: Notify LSEs/Supplier that non-specified resource replacements have been made and of any deficiencies.
16). Business Process: Get supplier confirmation that resource is now RA and available.

	Technology	Template Version:	2.8
		Document Version:	1.1
Replacement Requirement for Scheduled Generation Outages Business Requirements Specification - Planning		Date Created:	9/7/2012

17). Business Process: Specified and non-specified resources that have been confirmed now become new RA resources for the period and amount of capacity is needed. (If LSE's plan is fine with replacements, take no further action).

18). Business Process: LSE submit cured outage/replacement plan ISO tab (only new replacements or cancellation of outages) no later than T-11. Have to validate again from cross validation against supply plans (against only the designated RA without considering outages –monthly).

19). Business Process: LRA Notification about final RA(T-7).

20). Business Process: Any outages in need of replacement not cured by the LSE would be backstopped by the ISO.