




# **Business Requirements Specification**

---

## **Black Start and System Restoration Phase 2**

Document Version: 2.0

Current Version Date: 1/17/2020


 <b>California ISO</b>	<b>Technology</b>	<b>Template Version:</b>	<b>5</b>
		<b>Document Version:</b>	<b>2.0</b>
<b>Black Start and System Restoration Phase 2 Business Requirements Specification - Planning</b>		<b>Date Created:</b>	<b>1/17/2020</b>

## Revision History

Date	Version	Description
11/30/2017	1.0	Initial document release.
1/14/2020	2.0	2 <sup>nd</sup> revision of business requirements. BRS requirements were re-structured to clarify the Black Start Agreement contract process, system operations, and settlement/invoicing impacts.


## ***Disclaimer***

All information contained in this draft Business Requirements Specification (BRS) as provided by the California Independent System Operator Corporation (ISO) is prepared for discussion and information purposes only. The draft BRS is provided “as is” without representation or warranty of any kind, including, without limitation, a representation or warranty as to accuracy, completeness, or appropriateness for any particular purpose. The draft BRS shall be revised as the development and review of the business requirements progresses. The ISO assumes no responsibility for the consequences of any errors or omissions. The ISO may revise or withdraw all or part of this information at any time at its discretion without notice.

 <b>California ISO</b>	<b>Technology</b>	<b>Template Version:</b>	<b>5</b>
		<b>Document Version:</b>	<b>2.0</b>
<b>Black Start and System Restoration Phase 2 Business Requirements Specification - Planning</b>		<b>Date Created:</b>	<b>1/17/2020</b>

## Table of Contents

<b>1</b>	<b>Introduction</b> .....	<b>4</b>
1.1	Purpose.....	4
<b>2</b>	<b>Intellectual Property Ownership</b> .....	<b>5</b>
2.1	Checklist .....	5
<b>3</b>	<b>Acronym Definitions</b> .....	<b>6</b>
<b>4</b>	<b>Details of Business Need/Problem</b> .....	<b>7</b>
4.1	Description .....	7
<b>5</b>	<b>Business Impacts</b> .....	<b>8</b>
5.1	Business Practice Manual (BPM).....	8
5.2	Other.....	10
<b>6</b>	<b>Business Requirements</b> .....	<b>11</b>
6.1	Business Process: Manage Infrastructure Contracts .....	11
6.1.1	<i>Business Requirements</i> .....	11
6.2	Business Process: Manage Day-Ahead and Real-Time Markets .....	13
6.2.1	<i>Business Requirements</i> .....	13
6.3	Business Process: Manage Market Billing & Settlements .....	15
6.3.1	<i>Business Requirements</i> .....	15
6.4	Business Process: Manage Market Clearing .....	18
6.4.1	<i>Business Requirements</i> .....	18
6.5	Business Process: Market Simulation .....	19
6.5.1	<i>Business Requirements</i> .....	20
	<b>Appendix A: Left Blank Intentionally</b> .....	<b>21</b>
	<b>Appendix B: Rules for Settlement of Black Start Event during Market Suspension or Disruption</b> .....	<b>21</b>

 <b>California ISO</b>	<b>Technology</b>	<b>Template Version:</b>	<b>5</b>
		<b>Document Version:</b>	<b>2.0</b>
<b>Black Start and System Restoration Phase 2 Business Requirements Specification - Planning</b>		<b>Date Created:</b>	<b>1/17/2020</b>

# 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.

With regards to this initiative, the California ISO is proposing to change its current practice regarding procurement and compensation for Black Start services. This proposal includes a process to procure this capability and allocate costs of that procurement.

Pursuant to NERC reliability standard EOP-005-2, transmission operators must have approved plans for system restoration following widespread outages. Based on the ISO's review of the timelines associated with the ISO and utilities' system restoration plans, the ISO requires additional Black Start resources to ensure service restoration in the greater San Francisco Bay area in a manner that is reasonably consistent with other major population centers in the state. To secure this additional capability, the ISO proposes to adopt a selection and procurement process.

Additionally, the ISO proposes the following revised RFP (Request for Proposal) process steps:

1. The ISO, in consultation with the applicable participating transmission owner, will develop a Black Start technical specification document that defines requirements and key selection criteria.
2. The ISO will conduct an onsite meeting to review the technical requirements and selection criteria and answer interested parties questions.
3. The ISO will issue a request for proposals for incremental Black Start resources.
4. The ISO will apply the technical criteria and evaluate the proposals. The ISO will consult with the applicable participating transmission owner with respect to how each offer meets the technical requirements.
5. The ISO will apply its selection criteria and select the most technically and commercially viable offer based on the technical and cost data submitted.
6. The ISO will initiate a contracting process with the Black Start resource that will be a three party agreement between the ISO, the participating transmission owner and the Black Start resource owner, and resource scheduling coordinator (or a subset thereof).

 <b>California ISO</b>	<b>Technology</b>	<b>Template Version:</b>	<b>5</b>
		<b>Document Version:</b>	<b>2.0</b>
<b>Black Start and System Restoration Phase 2 Business Requirements Specification - Planning</b>		<b>Date Created:</b>	<b>1/17/2020</b>

Also, the ISO will allocate the costs procuring black start capability to the participating transmission owner in which the black start generator is located as reliability services costs. The CAISO would invoice the PTO (participating transmission owner) for incremental Black Start capability costs as a reliability services cost. The PTO would recover these costs through its reliability services tariff.

The ISO will evaluate potential Black Start service providers based on a cost of service model. The ISO anticipates that the Black Start service provider would submit these costs to FERC under Section 205 of the Federal Power Act.


## 2 Intellectual Property Ownership

Intellectual Property covers a broad array of information and materials, including written works, computer programs, software, business manuals, processes, symbols, logos and other work products. Determining ownership of Intellectual Property is very important in preserving the rights of the California ISO, and helps to avoid Intellectual Property infringement issues. In considering the business requirements or service requirements to be performed, the business owner of the project must determine Intellectual Property Ownership.

### 2.1 Checklist


The ISO retains intellectual property ownership of the following:

- Non-Pro forma tariff language for revised Black Start Restoration services
- Settlement charge code configuration modifications
- Related Business Practice Manuals descriptions, clarifications
- All rights reserved for works included within this BRS document

 <b>California ISO</b>	<b>Technology</b>	<b>Template Version:</b>	<b>5</b>
		<b>Document Version:</b>	<b>2.0</b>
<b>Black Start and System Restoration Phase 2 Business Requirements Specification - Planning</b>		<b>Date Created:</b>	<b>1/17/2020</b>

### 3 Acronym Definitions


<b>Term</b>	<b>Definition</b>
AIM	Access and Identity Management
AS	Ancillary Services
BCR	Bid Cost Recovery
BRS	Business Requirement Specification
BSA	Black Start Service Agreement
CAISO	California Independent System Operator
CC	Charge Code
ED	Exceptional Dispatch
FERC	Federal Energy Regulatory Commission
GO	Generator Operator
IIE	Instructed Imbalance Energy
ISO	Independent System Operator (also see CAISO)
LMP	Locational Marginal Price
MF	MasterFile
MQS	Market Quality System
MRI-S	Market Results Interface – Settlements
MSG	Multi-Stage Generator
MSS	Metered Subsystem
NERC	North American Electric Reliability Corporation.
PCA	Price Corrections Application
PTB	Pass Through Billing
PTO	Participating Transmission Owner
RDT	Resource Data Template
RMR	Reliability Must Run
RTM	Real-Time Market
SC	Scheduling Coordinator
TAC	Transmission Access Charge
TOID	Transmission Owner ID (MasterFile database identifier used for Participating Transmission Owners)
UDC	Utility Distribution Company
UIE	Uninstructed Imbalance Energy

 <b>California ISO</b>	<b>Technology</b>	<b>Template Version:</b>	<b>5</b>
		<b>Document Version:</b>	<b>2.0</b>
<b>Black Start and System Restoration Phase 2 Business Requirements Specification - Planning</b>		<b>Date Created:</b>	<b>1/17/2020</b>

## 4 Details of Business Need/Problem

### 4.1 Description

EOP-005-03 requires the ISO to have a system restoration plan and secure black start capability. To the extent the ISO needs to procure additional black start capability under its system restoration plans, the ISO requires a process to select black start generators, compensate black start generators and allocate any costs.


 <b>California ISO</b>	<b>Technology</b>	<b>Template Version:</b>	<b>5</b>
		<b>Document Version:</b>	<b>2.0</b>
<b>Black Start and System Restoration Phase 2 Business Requirements Specification - Planning</b>		<b>Date Created:</b>	<b>1/17/2020</b>

## 5 Business Impacts


### 5.1 Business Practice Manual (BPM)

<b>BPM</b>	<b>Description of Impact(s)</b>
<b>Definitions &amp; Acronyms</b>	Revision of following definitions to match Tariff language: <ul style="list-style-type: none"> <li>• Ancillary Services (AS)</li> <li>• Black Start Generator</li> <li>• Black Start Generating Unit</li> <li>• Interim Black Start Agreement</li> <li>• Reliability Services Costs</li> </ul>
<b>Settlements &amp; Billing</b>	Update to Configurations Guide for Black Start Charge Code payments to apply to Gen Owner: <ul style="list-style-type: none"> <li>• CC 1001 (Black Start Energy Payment Settlement)</li> <li>• CC 1101 (Black Start Capability Cost Allocation)</li> <li>• CC 1353 (Black Start Energy Cost Allocation)</li> <li>• CC 3101 (Black Start Capability Payment Settlement)</li> </ul> ISO Black Start Settlements Calendar
<b>BPM Change Management</b>	Non-Applicable
<b>Candidate CRR Holder</b>	Non-Applicable
<b>Compliance Monitoring</b>	Non-Applicable
<b>Congestion Revenue Rights</b>	Non-Applicable
<b>Credit Management</b>	Non-Applicable
<b>Direct Telemetry</b>	Non-Applicable
<b>Distributed Generation for Deliverability</b>	Non-Applicable
<b>Energy Imbalance Market (EIM)</b>	Non-Applicable
<b>Generator Interconnection and Deliverability Allocation Procedures</b>	Non-Applicable
<b>Generator Interconnection Procedure (GIP)</b>	Non-Applicable
<b>Generator Management</b>	Non-Applicable
<b>Managing Full Network Model</b>	Non-Applicable
<b>Market Instruments</b>	Non-Applicable




 <b>California ISO</b>	<b>Technology</b>	<b>Template Version:</b>	<b>5</b>
		<b>Document Version:</b>	<b>2.0</b>
<b>Black Start and System Restoration Phase 2 Business Requirements Specification - Planning</b>		<b>Date Created:</b>	<b>1/17/2020</b>

<b>BPM</b>	<b>Description of Impact(s)</b>
<b>Market Operations</b>	Non-Applicable
<b>Metering</b>	Non-Applicable
<b>Outage Management</b>	Non-Applicable
<b>Reliability Coordinator</b>	Non-Applicable
<b>Reliability Requirement</b>	Non-Applicable
<b>Rules of Conduct Administration</b>	Non-Applicable
<b>Scheduling Coordinator Certification &amp; Termination</b>	Non-Applicable
<b>Transmission Planning Process</b>	Non-Applicable

 <b>California ISO</b>	<b>Technology</b>	<b>Template Version:</b>	<b>5</b>
		<b>Document Version:</b>	<b>2.0</b>
<b>Black Start and System Restoration Phase 2 Business Requirements Specification - Planning</b>		<b>Date Created:</b>	<b>1/17/2020</b>

## 5.2 Other

Impact:	Description: (optional)
<b>Market Simulation</b>	Yes. Settlement impacts for Black Start Payment Settlement/Cost Allocation
<b>Market Participant Impact</b>	Yes (Market Participants, Generator Owners, PTOs).
<b>External Training</b>	Yes. External training on Black Start settlements (which may include settlements calendar) and invoicing process.
<b>Policy Initiative</b>	No.

 <b>California ISO</b>	<b>Technology</b>	<b>Template Version:</b>	<b>5</b>
		<b>Document Version:</b>	<b>2.0</b>
<b>Black Start and System Restoration Phase 2 Business Requirements Specification - Planning</b>		<b>Date Created:</b>	<b>1/17/2020</b>


## 6 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.


### 6.1 Business Process: Manage Infrastructure Contracts

#### 6.1.1 Business Requirements

ID#	Business Feature	Req Type	Potential Application(s) Impacted
BSSR2-BRQ-005	Based on system restoration plans performed by the PTO, and expanded upon by the ISO if additional system restoration needs were determined, the ISO shall negotiate a Black Start Service Agreement (BSA) for Black Start services with parties which may include the Black Start Generator Owner (GO) and the Participating Transmission Owner (PTO) in which service area the resource is located.	<i>Process</i>	- N/A
BSSR2-BRQ-010	ISO shall internally store the following information for each BSA in a centralized database: <ul style="list-style-type: none"> <li>- Resource ID</li> <li>- Generator Owner ID (as defined by client services; may be registered SC or Generation Owner)</li> <li>- Participating Transmission Owner TOID</li> <li>- Registered SCID</li> <li>- Black Start Payment Start Date (<i>must be first day of month; partial year allowed</i>)</li> <li>- Black Start Payment End Date (<i>must be last day of year, or end of month if early termination occurs</i>)</li> <li>- Monthly Black Start Service Capability Payment Amount (same value shall apply for each month of period within same calendar year; <i>BSA contracts may include terms of multiple years</i>)</li> </ul>	<i>Informational</i>	- MasterFile (Internal to ISO only)

 <b>California ISO</b>	<b>Technology</b>	<b>Template Version:</b>	<b>5</b>
		<b>Document Version:</b>	<b>2.0</b>
<b>Black Start and System Restoration Phase 2 Business Requirements Specification - Planning</b>		<b>Date Created:</b>	<b>1/17/2020</b>


ID#	Business Feature	Req Type	Potential Application(s) Impacted
BSSR2-BRQ-015	<p>Generator owners (GOs) providing Black Start services may elect to receive monthly Black Start capability payment, as well as any cost recovery payments, (i.e. “Black Start payments”) directly from the ISO via a pass-through billing (PTB) invoicing process (similar to the legacy RMR invoicing).</p> <p>Otherwise, the capacity payments shall settle with the resource’s registered SC through the same process as above.</p>	Core – <i>Process Only</i>	- N/A
BSSR2-BRQ-020	<p>All active Black Start generating units must each have the following defined in MasterFile:</p> <ul style="list-style-type: none"> <li>- Black Start certification (<i>Each Black Start certification period spans three (3) years</i>)</li> <li>- association with a GO ID (generator owner ID) entity to receive Black Start payments (which may be a single Generator Owner ID or the resource’s Registered SCID)</li> <li>- association with a single PTO TO ID</li> <li>- association with its BSA monthly payment amount</li> </ul>	<i>Informational</i>	- MasterFile (Internal to ISO only)
BSSR2-BRQ-030	<p>ISO shall extend the Black Start certification period for a generating resource upon successful completion of its Black Start performance test.</p>	<i>Informational</i>	- MasterFile (Internal to ISO only)

 <b>California ISO</b>	<b>Technology</b>	<b>Template Version:</b>	<b>5</b>
		<b>Document Version:</b>	<b>2.0</b>
<b>Black Start and System Restoration Phase 2 Business Requirements Specification - Planning</b>		<b>Date Created:</b>	<b>1/17/2020</b>


ID#	Business Feature	Req Type	Potential Application(s) Impacted
BSSR2-BRQ-035	<p>Once a resource has already been Black Start certified, and upon failing a scheduled/unscheduled Black Start performance test, the Black Start Generating Unit shall retain its Black Start certification and have the opportunity to re-attempt its test within 90 days of its failed test date.</p> <p>If the follow-up Black Start performance test <i>successfully passes</i>, the Black Start Generating Unit shall retain its Black Start certification and its BSA will remain active with no further action required.</p> <p>If the follow-up Black Start performance test <i>fails</i>, the ISO may file a request with FERC to terminate the failed resource's Black Start contract, and will remove the resource black start certification in MasterFile.</p>	Core – <i>Process Only</i>	- MasterFile (Internal to ISO only)
BSSR2-BRQ-036	<p>If FERC accepts the BSA termination request, all parties of the BSA shall perform any close-out of terms of the contract (if applicable).</p>	Core – <i>Process Only</i>	- Settlement - Market Clearing
BSSR2-BRQ-037	<p>If FERC rejects the BSA termination request, ISO shall restore certification to the black start resource, and perform settlement recalculation of any missed monthly black start capability payments (to GO) and cost allocations (to PTO).</p>	Core – <i>Process Only</i>	- Settlement - Market Clearing
BSSR2-BRQ-040	<p>A Black Start Generating Unit may concurrently have an active RMR agreement, in which case the terms of the RMR contract may supersede the terms of the BSA, depending on terms of the BSA.</p>	Existing Function	- Settlements

## 6.2 Business Process: Manage Day-Ahead and Real-Time Markets

### 6.2.1 Business Requirements

 <b>California ISO</b>	<b>Technology</b>	<b>Template Version:</b>	<b>5</b>
		<b>Document Version:</b>	<b>2.0</b>
<b>Black Start and System Restoration Phase 2 Business Requirements Specification - Planning</b>		<b>Date Created:</b>	<b>1/17/2020</b>


ID#	Business Feature	Req Type	Potential Application(s) Impacted
BSSR2-BRQ-045	ISO shall perform its mandated Black Start Performance Testing at least once every three (3) years, as performed today, through Ops Procedure 5360.	Existing Function	- RTM
BSSR2-BRQ-050	During a system restoration event, ISO operations shall coordinate with PTO(s) under Ops Procedure 4610 to verbally ED Black Start resources.	Existing Function	- RTM
BSSR2-BRQ-051	Within seven (7) calendar days from when the Black Start event occurred (e.g. market suspension), System Operator shall create an after-the-fact exceptional dispatch for the timeframe of the market suspension as communicated by the PTO. Exceptional dispatch start and end times shall be logged with a Black Start (BS) energy type designation.	Existing Function (Process Only)	- RTM
BSSR2-BRQ-055	<p>Resources with Black Start certification shall receive an exceptional dispatch instruction during each Black Start event (either for system restoration or performance testing purposes).</p> <ul style="list-style-type: none"> <li>Operator shall record start and end times of Black Start events for settlement to reference. In the event of a market suspension, the ISO user shall instruct an exceptional dispatch of reason type 'Black Start' for the designated Black Start resource within seven (7) calendar days from the event (after-the-fact), with both event start and end times recorded</li> <li>In the event of a Black Start performance test, the system operator shall instruct an exceptional dispatch of reason type 'Test' for the designated Black Start resource. Additionally, the resource shall submit an outage card with both performance test start and end times recorded</li> </ul>	Existing Function (Process Only)	- RTM

 <b>California ISO</b>	<b>Technology</b>	<b>Template Version:</b>	<b>5</b>
		<b>Document Version:</b>	<b>2.0</b>
<b>Black Start and System Restoration Phase 2 Business Requirements Specification - Planning</b>		<b>Date Created:</b>	<b>1/17/2020</b>

## 6.3 Business Process: Manage Market Billing & Settlements


### 6.3.1 Business Requirements

ID#	Business Feature	Req Type	Potential Application(s) Impacted
BSSR2-BRQ-070	<p>On a Monthly basis, for values effective at the start of each settlement month*, ISO settlements system shall refresh the following resource-level parameters from the MasterFile:</p> <ul style="list-style-type: none"> <li>- Resource ID</li> <li>- Black Start Certification Flag</li> <li>- Monthly Black Start Capability Payment Amount</li> <li>- BSA start, end date</li> <li>- Associated PTO TOID</li> <li>- Associated GO ID (may be the new GO ID or Registered SCID)</li> <li>- Associated Registered SCID</li> <li>- <i>RMR flag ('Y', 'N', NULL)**</i></li> <li>- <i>RMR condition type ('C1', 'C2', NULL)**</i></li> </ul> <p><i>* If a resource loses its black start certification later in a given settlement month, the monthly black start capability payment settlement and charge allocations will still process based on the certification status on the first of the month.</i></p> <p><i>** Only applicable if the resource is both Black Start Certified and has an active RMR designation.</i></p>	<i>Informational</i>	- Settlements
BSSR2-BRQ-075	<p>ISO settlements system shall continue to settle Black Start energy payments for each settlement interval, where the exceptionally dispatched Black Start resources settle at the greater of LMP, Bid, Default Energy Bid, or Negotiated Price.</p> <p>It is assumed a Black Start Event will trigger Administrative Price tariff provisions. Based upon the Administrative Price provisions, the LMP would be replaced with the relevant Administrative Price.</p>	Existing Function	- Settlements


 <b>California ISO</b>	<b>Technology</b>	<b>Template Version:</b>	<b>5</b>
		<b>Document Version:</b>	<b>2.0</b>
<b>Black Start and System Restoration Phase 2 Business Requirements Specification - Planning</b>		<b>Date Created:</b>	<b>1/17/2020</b>

ID#	Business Feature	Req Type	Potential Application(s) Impacted
BSSR2-BRQ-080	Resources with a Black Start Performance Test shall settle as instructed imbalance energy (IIE) with the relevant LMP price. Exceptional Dispatch Energy with the Exceptional Dispatch Code of "TEST" shall settle at the greater of LMP and the Default Energy Bid price.	Existing Function	- Settlements
BSSR2-BRQ-085	Resources responding to a Black Start event will be classified as a Black Start exceptional dispatch instruction (when a market disruption/suspension event has occurred).  The portion of a Black Start Exceptional Dispatch instruction <i>up to</i> the resource Pmin will settle as Minimum Load Energy at the relevant LMP and be subject to Bid Cost Recovery.	Existing Function	- Settlements
BSSR2-BRQ-086	Resources responding to a Black Start event will be classified as a Black Start exceptional dispatch instruction (when a market disruption/suspension event has occurred).  The portion of a Black Start Exceptional Dispatch instruction <i>above</i> Minimum Load Energy will settle as Black Start Exceptional Dispatch Energy at the greater of LMP, energy bid, default energy bid, and negotiated price.	Core	- Settlements
BSSR2-BRQ-090	If the Black Start generator owner is unable to recover their costs due to an action under the BSA, for services not settled in the CAISO market, the GO (or registered SC) may submit an invoice to the ISO requesting a cost-recovery payment. The ISO will review and may approve or dispute any such an invoice.	Core (Process Only)	- Settlements
BSSR2-BRQ-095	On a monthly basis, for each active Black Start resource, ISO settlements system shall settle the fixed monthly Black Start capability payment as identified in MasterFile plus any PTB Black Start cost recovery payments invoiced to the ISO by the GO (or resource registered SC) directly via Black Start invoice.	Core	- Settlements



 <b>California ISO</b>	<b>Technology</b>	<b>Template Version:</b>	<b>5</b>
		<b>Document Version:</b>	<b>2.0</b>
<b>Black Start and System Restoration Phase 2 Business Requirements Specification - Planning</b>		<b>Date Created:</b>	<b>1/17/2020</b>


ID#	Business Feature	Req Type	Potential Application(s) Impacted
BSSR2-BRQ-100	<p>On a monthly basis, for each PTO associated with active BSA resource(s), ISO settlements system shall allocate charges that include:</p> <ul style="list-style-type: none"> <li>- the sum of all fixed monthly Black Start capability payments to resources identified as associated <i>to the Participating Transmission Owner (PTO)</i> per all active BSA contracts in MasterFile</li> <li>- the sum of all PTB Black Start cost recovery payments to resources identified as associated <i>to the Participating Transmission Owner (PTO)</i> per all active BSA contracts in MasterFile</li> </ul>	Core	- Settlements
BSSR2-BRQ-101	<p>System shall allow Generator Owner (GO) user to access the following information as a Third Party endorsed user:</p> <ul style="list-style-type: none"> <li>- Settlement Invoice associated with GO's Black Start generator</li> <li>- Meter data associated with GO's Black Start generator</li> </ul>	Core (Invoice)  Existing (Metering)	- MRI-S

 <b>California ISO</b>	<b>Technology</b>	<b>Template Version:</b>	<b>5</b>
		<b>Document Version:</b>	<b>2.0</b>
<b>Black Start and System Restoration Phase 2 Business Requirements Specification - Planning</b>		<b>Date Created:</b>	<b>1/17/2020</b>

## 6.4 Business Process: Manage Market Clearing

### 6.4.1 Business Requirements

ID#	Business Feature	Req Type	Potential Application(s) Impacted
BSSR2-BRQ-110	<p>Upon enacting a Black Start contract with a new generator owner (GO) that elects to receive monthly Black Start capability payments directly <i>under a new invoice type</i>, the ISO Regulatory Contracts business unit shall notify Finance of this new entity, along with the effective start date, so that a new bank account may be created and registered for the GO.</p> <p>If the GO has an existing registered bank account, no additional bank account is needed to receive the Black Start capability payments.</p>	Core – Process	- Market Clearing
BSSR2-BRQ-115	<p>On a monthly basis, system shall automatically process the following payments directly to each entity defined by the MasterFile as organization type “GO” (generator owner):</p> <ul style="list-style-type: none"> <li>• Black Start Capability Payments, for all associated active Black Start certified resources</li> <li>• Additional PTB cost items incurred, but not recovered, by all associated active Black Start resources</li> </ul> <p><i>Note: The GO entity may be either a generator owner or the resource’s registered SC (if the owner does not elect to receive payments directly). In either case, payment will be processed the same way.</i></p>	Core	- Market Clearing
BSSR2-BRQ-120	<p>On a monthly basis, system shall automatically process the following charges directly to each PTO defined by the MasterFile as having an association with one or more active Black Start resources:</p> <ul style="list-style-type: none"> <li>• Black Start Capability Charges (as defined in MasterFile as the Black Start monthly capability payment), for all associated Black Start resources</li> <li>• Additional PTB cost items incurred, but not recovered, for all associated Black Start resources</li> </ul>	Core	- Market Clearing


 <b>California ISO</b>	<b>Technology</b>	<b>Template Version:</b>	<b>5</b>
		<b>Document Version:</b>	<b>2.0</b>
<b>Black Start and System Restoration Phase 2 Business Requirements Specification - Planning</b>		<b>Date Created:</b>	<b>1/17/2020</b>

ID#	Business Feature	Req Type	Potential Application(s) Impacted
BSSR2-BRQ-125	<p>Monthly Black Start invoices, both for the GO and PTO, shall be excluded from credit calls. Shortfall, default loss, and Estimated Aggregate Liability will not be impacted.</p> <p>Additionally, Black Start invoices will be treated as “open” where the payments are not released unless all the charges are received (similar to legacy RMR invoices).</p>	Core	- Market Clearing

## 6.5 Business Process: Market Simulation


In the Reason for Potential Scenario column, the Business Analyst must select one or more of the following reasons:

1. **Rule Impacts:** Generalized changes in market rules, bidding rules, settlements rules, market design changes, or other business rules.
2. **Interface changes:** Changes that impact templates (e.g. the Resource Adequacy {RA} supply plan), user interface (UI), and application programming interface (API) (e.g. retrievals of new shadow settlement data).
3. **New application/report:** Changes that cause addition/modification of market software or reports, especially when market data input is required by the market participant.
4. **New system process:** Modification of data flow in systems, especially if the new process requires the market participant to demonstrate proficiency prior to production.
5. **New/Modified model data:** Addition or substantial modification of model data as a market solution provided by the ISO.
6. **New user role:** The addition or modification of access permissions for a user role applied to specific business units within an EIM entity or market participant organization (e.g. Load Serving Entity (LSE) as a Local Regulatory Authority (LRA) role). Scenarios are beneficial for market participants taking on a new function or process within their organization.

 <b>California ISO</b>	<b>Technology</b>	<b>Template Version:</b>	<b>5</b>
		<b>Document Version:</b>	<b>2.0</b>
<b>Black Start and System Restoration Phase 2 Business Requirements Specification - Planning</b>		<b>Date Created:</b>	<b>1/17/2020</b>

### 6.5.1 Business Requirements

ID#	Guidance on Market Participant Impacts	Source System	Sink System	Reason for Potential Scenario
BSSR2-MKTSIM-001	<p><b>Monthly Black Start Capability Payments</b></p> <p>Black Start contract information in MasterFile will be retrieved by ISO Settlements to provide the following:</p> <p>Use Case Conditions; Outcomes:</p> <ul style="list-style-type: none"> <li>Monthly Payment amount to Generation Owner/Merchant Scheduling Coordinator by BSA Contract Year</li> <li>Monthly Black Start Charges allocated to associated PTO TOID</li> </ul>	<p>MasterFile (Internal to ISO only)</p> <p>RTM (Black Start Exceptional Dispatch)</p>	Settlements	<ol style="list-style-type: none"> <li>New Model Data</li> <li>New User Role</li> <li>New System Process</li> </ol>
BSSR2-MKTSIM-002	<p><b>Monthly Pass-Through-Billing Payments for Black Start Cost Recovery</b></p> <p>ISO Settlements shall provide the following:</p> <p>Use Case Conditions; Outcomes:</p> <ul style="list-style-type: none"> <li>PTB Payment amount to Generation Owner Scheduling Coordinator for recoverable costs based on system restoration or performance testing dispatch</li> <li>PTB Allocated Charges for Black Start Services to associated PTO TOID</li> </ul>	<p>RTM (Black Start Exceptional Dispatch)</p>	Settlements	<ol style="list-style-type: none"> <li>New Model Data</li> <li>New User Role</li> <li>New System Process</li> </ol>
BSSR2-MKTSIM-003	<p><b>Generator Owner Access to MRI-Settlements</b></p> <p>Generator Owner will have access to MRI-S to retrieve the following as a Third Party endorsed user:</p> <ul style="list-style-type: none"> <li>Meter data for associated Black Start generating unit</li> <li>Invoice for associated Black Start generating unit</li> </ul>	MRI-S	Settlements	<ol style="list-style-type: none"> <li>New User Role</li> <li>New System Process</li> </ol>

 <b>California ISO</b>	<b>Technology</b>	<b>Template Version:</b>	<b>5</b>
		<b>Document Version:</b>	<b>2.0</b>
<b>Black Start and System Restoration Phase 2 Business Requirements Specification - Planning</b>		<b>Date Created:</b>	<b>1/17/2020</b>

## Appendix A: Left Blank Intentionally

## Appendix B: Rules for Settlement of Black Start Event during Market Suspension or Disruption


The ISO will submit an after-the-fact exceptional dispatch of type “BS” (for black start) within 7 days of the event’s occurrence. The start and end times of the black start event will be assigned to the exceptional dispatch instruction. By submitting the ATF exceptional dispatch, the settlement will process through ISO settlements system as described in the table below.

MSG black start generators may use a configuration only for black start, which would not be registered in MasterFile as a normal market configuration. This configuration could operate below the registered Pmin of the resource/plant. Settlement under this condition, when an after-the-fact exceptional dispatch instructions is received for the registered Pmin is also described in the table below.

Finally, the condition where a black start performance test dispatch instruction is submitted is discussed.

Note: As all eligibility rules apply to the black start resource, any eligible cost recovery request by the resource Scheduling Coordinator or Generator Owner will be processed through Pass-Through Billing (PTB) settlements as described in BSSR2-BRQ-090 and -095.

ED Reason	ED Type	After the fact from System Operations	Settlement
Black Start Event	BS	<p>ISO will create a single exceptional dispatch (ED) for the entire time for the specific BS resource after-the-fact. Operator will create the Dispatch level <b>up to the PMIN</b>, since dispatch levels below registered Pmin are not supported by ISO systems.</p> <p><u>Example Resource A:</u> During black start event, Resource A received 80 MW dispatch instruction. <i>Its registered Pmin is 100 MW.</i></p> <p><i>Resource A receives ATF ED GOTO to 100MW.</i></p>	<p>Based on the ED dispatch, ISO will determine the dispatch amount as Minimum Load Energy (MLE).</p> <p>Price should be Admin Price.</p> <p>Startup Cost (SUC) and Minimum Load Cost (MLC), if by ISO commitment, shall be included in any Bid Cost Recovery (BCR) Settlement (CC6620).</p> <p><u>Example Resource A:</u> Meter value during black start ED period = 80 MW.</p> <p><u>Resource A will have the following energy settlement:</u> MLE Energy of 100MW will be paid at the Admin Price in RTD-IIE Settlement in CC6470.</p> <p>Deviation (UIE) from Meter to TEE will be charged at the Admin Price in UIE Settlement in CC6475.</p> <p>In summary, the net energy of 80 MW will be paid at the Admin Price.</p>
Post Black Start Event	<p>After black start procedure is complete</p> <p>Use any applicable ED Type (Non BS ED Code)</p>	Dispatch level will be at the PMIN or above the PMIN	<p>Based on the ED dispatch, ISO will calculate the MLE (up to the PMIN) and Optimal Energy (OE) or ED Energy based on the LMP.</p> <p>ISO Settlements will process the ED Energy as per current process.</p> <p><u>Resource A will have the following energy settlement:</u> MLE Energy will be paid at the respective market LMP – FMM or RTD-IIE Settlement in CC6460 or CC6470.</p> <p>The energy portion above the PMIN (if it is ED Energy) will be paid at Max (LMP, Bid Price, DEB).</p> <p>Deviation (UIE) from Meter to TEE will be charged at the RTD LMP in CC6475.</p> <p>SUC and MLC, if by ISO commitment, shall be included in any BCR Settlement (CC6620).</p>

 <b>California ISO</b>	<b>Technology</b>	<b>Template Version:</b>	<b>5</b>
		<b>Document Version:</b>	<b>2.0</b>
<b>Black Start and System Restoration Phase 2 Business Requirements Specification - Planning</b>		<b>Date Created:</b>	<b>1/17/2020</b>

ED Reason	ED Type	After the fact from System Operations	Settlement
Black Start Capability Testing	TEST	During a black start performance test, ISO will log in the OTHER REASON field whether the TEST is: a) ISO initiated testing or b) SC requested testing.	Based on the ED dispatch, ISO shall determine the TEST energy.  <u>Settlements will have the following energy settlement:</u>  <i>If ISO-initiated Test:</i> TEST Energy will be paid at Max (LMP, DEB) in CC6470 and SUC and MLC will be included in BCR in CC6620.  <i>If SC-requested Test:</i> TEST Energy will be paid at Max (LMP, DEB) in CC6470. No BCR.  If the dispatch level is at the PMIN and the Meter is less than the PMIN, the deviation energy will be calculated as follows:  Deviation energy (UIE) between Meter and TEE will be charged at the RTD LMP in CC6475.