



**Black Start Resource Test Plan Template**

**Distribution Restriction:**  
**None**

***Black Start Resource Test Plan (Part 1)***

**A physical description of the Black Start Resource, including:**

Resource ID \_\_\_\_\_

Resource Name \_\_\_\_\_

SC ID \_\_\_\_\_

Generator Operator \_\_\_\_\_

Transmission Operator Name \_\_\_\_\_

Type of Generator (combustion turbine, hydraulic turbine, internal combustion, etc.) \_\_\_\_\_

Starting Method (Diesel, air, battery, etc.) \_\_\_\_\_

**Environmental Permit Limits (select option(s) below):**

Limit applies to normal use of reserve

Limit applies to test and maintenance of resource



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Generator Net Capacity at normal rated output (in MW)  <i>Note: The Resources' estimated electrical output in MW while responding to a Black Start instruction. This value shall be less than or equal to the PMax value in MasterFile.</i>	_____
Generator Leading Mvar Capacity at normal rated power factor	_____
Generator Lagging Mvar Capacity at normal rated power factor	_____
Minimum sustainable output (in MW)	_____
Minimum time the unit can operate at this minimum load	_____
Unit capable of Isochronous Mode	Yes [ ] No [ ]
Unit capability of Isochronous Mode Transmission Bus Energized Nominal Voltage level in (kV)	_____



Procedure No.	5360C
Version No.	2.1
Effective Date	4/01/2021

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***Black Start Resource Test Plan (Part 2)***

**Minimum Black Start Test Criteria**

<b>The Black Start Resource must have the capability to energize the high-side bus which of the following methods will be used?</b>		
Energize the high-side bus for a minimum of five minutes from the time of breaker closing, to demonstrate that resource can remain energized and stable, or	Yes [ ] No [ ]	
Affirm the capability to energize the high-side bus where optional conditions do not allow energization of the high-side bus solely for testing purposes.  If <b>Yes</b> , because testing the Black Start Resource into a dead bus is not possible, include an explanation of how a dead bus test will be simulated.	Yes [ ] No [ ]	
<b>The Generator shall verify that the resource breaker can be closed. Which of the following methods will be used?</b>		
The resource breaker shall be isolated with the resource at rated voltage and frequency, closed for five minutes to demonstrate that the resource will remain stable when the breaker is closed.	Yes [ ] No [ ]	
The resource breaker close coil relay can be energized with the voltage and frequency monitor controls disconnected from the synchronizing circuits.	Yes [ ] No [ ]	

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***Black Start Resource Test Plan (Part 2)***

**Plan Submittals/Descriptions**

<p>One line diagram of the unit and its interconnections. (Submit if any changes to resource connections since last test or if requested by the CAISO)</p>	<p>Yes [ ] No [ ]</p>	
<p>Copy of the manufacturer's D-Curves. (Submit if requested by the CAISO)</p>	<p>Yes [ ] No [ ]</p>	
<p>Description of how the Black Start Resource is started when Isolated from the BES without support from the System.</p>	<p>_____</p>	
<p>Description of events between the time a unit start signal is transmitted and the Resource stabilizes on the previously de-energized transmission bus or transmission asset.</p>	<p>_____</p>	
<p>Expected time required to start the Black Start Resource, from the initial notification of the test to the stable energizing of the bus.</p>	<p>_____</p>	
<p>Description of how the test will demonstrate that the Black Start Resource can hold rated frequency and voltage while picking up load.</p>	<p>_____</p>	

 <b>California ISO</b>	<b>Operating Procedure</b>	<b>Procedure No.</b> 5360C
		<b>Version No.</b> 2.1
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<b>Black Start Resource Test Plan (Part 2)</b>	
Description of the communication system(s) used to communicate with the applicable control centers during the test.	_____
Description of any outage requirement(s) necessary to facilitate the Black Start test.	_____

CAISO Approval:

Yes


No

If no, reason for Request Form not approved: \_\_\_\_\_

CAISO Reviewed By: \_\_\_\_\_

Date: \_\_\_\_\_

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### Version History

Version	Change	Date
1.0	New form to be utilized as a tool to the Blackstart Test activities and plan resolution.	10/18/17
2.0	Periodic Review: Added document controlled footer and version history, minor grammar and format updates.	7/24/20
2.1	Replaced instances of ISO with CAISO and Blackstart with Black Start. Minor formatting.	4/01/21

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