

ERO Enterprise CMEP Practice Guide

Evaluating Documented Procedures for Identifying and Starting Blackstart Resources v1.0

October 12, 2021

Background

In support of successful implementation of and compliance with the North American Electric Reliability Corporation (NERC) Reliability Standards, the Electric Reliability Organization (ERO) Enterprise¹ adopted the Compliance Guidance Policy.² The Compliance Guidance Policy outlines the purpose, development, use, and maintenance of guidance for implementing Reliability Standards. According to the Compliance Guidance Policy, Compliance Guidance includes two types of guidance – Implementation Guidance and Compliance Monitoring and Enforcement Program (CMEP) Practice Guides.³

Purpose

CMEP Practice Guides are developed solely by the ERO Enterprise to reflect the independent, objective professional judgment of ERO Enterprise CMEP staff (CMEP staff), and, at times, may be initiated following policy discussions with industry stakeholders. Following development, they are posted for transparency on the NERC website. It is to be noted, especially to registered entities using this guide as a reference, that while some aspects of this guide may assist CMEP staff in determining compliance with applicable Reliability Standards, some parts of the guide are to assist CMEP staff in understanding how an entity mitigates risk in order to inform risk-based compliance monitoring. This understanding of the controls to mitigate risk can affect monitoring activities, including requests for information and adjustments to an entity's compliance oversight plan.

The purpose of this CMEP Practice Guide is to provide guidance to CMEP staff on (1) consideration of the term "Blackstart resource"; and (2) Consideration of the term "Documented Procedure for Starting Each Blackstart Resource." CMEP staff makes compliance determinations based on the language of the Standard and Requirement and specific facts and circumstances; CMEP staff will consider and apply the practices identified below when evaluating Blackstart Resources.

¹ The ERO Enterprise consists of NERC and the Regional Entities.

² The ERO Enterprise Compliance Guidance Policy is located on the NERC website at: <https://www.nerc.com/pa/comp/guidance/Documents/Compliance%20Guidance%20Policy.pdf>.

³ Implementation Guidance provides a means for registered entities to develop examples or approaches to illustrate how registered entities could comply with a Standard that are vetted by industry and endorsed by the ERO Enterprise. CMEP Practice Guides differ from Implementation Guidance in that they address how ERO Enterprise CMEP staff executes compliance monitoring and enforcement activities, rather than examples of how to implement the Standard.

Consideration of the Term “Blackstart Resource”

CMEP staff shall review and verify that the Transmission Operator has a dated, documented System restoration plan developed in accordance with R1 that has been approved by its Reliability Coordinator as demonstrated by the documented approval from its Reliability Coordinator. The Reliability Coordinator is responsible for determining the coordination and compatibility with the Reliability Coordinator Restoration Plan, as provided in EOP-006-3 R5.

CMEP staff shall review and verify: 1) that the Blackstart Resources identified in the Transmission Operator’s restoration plan in accordance with EOP-005-3 R1.4 include the: a) name, b) location, c) megawatt and megavar capability, and d) type of unit; and 2) that the restoration plan has been approved by the Reliability Coordinator in accordance with EOP-005-3 R1.

For any generator identified as a Blackstart Resource by the Transmission Operator’s restoration plan, CMEP staff shall understand how the identified resource energizes: 1) the associated Cranking Path,⁴ 2) initial Loads⁵ required to control voltage and frequency, and 3) initial remote auxiliary generator loads, without support from the system.

CMEP staff shall review the entity’s verification that its restoration plan can accomplish its intended function and assess whether the verification was conducted through an analysis of actual events, a combination of steady state and dynamic simulations, or testing.

Consideration of the Term “Documented Procedure for Starting Each Blackstart Resource”

CMEP staff shall review the Generator Operator’s Blackstart procedure(s) to be implemented during a system restoration event as required by EOP-005-3 R12. Further, the CMEP staff shall verify that the Generator Operator performs Blackstart Resource testing as required by EOP-005-3 R14.

Entities may consider it more effective and efficient to specify testing processes and restoration processes in the same document. However, testing procedures may differ from operating procedures and have different process steps. In cases where a Generator Operator has a single procedure that covers testing and system restoration, CMEP staff should consider:

- Whether the procedure includes the steps that are to be performed during resource testing (“test procedure”) and the steps that are to be performed during a system restoration event (“blackstart procedure”) and
- Clarity for Generator Operator operating personnel in discerning which steps to perform and not perform during a system restoration event.

⁴ Cranking paths are identified per EOP-005-3 R1.5

⁵ The supply of initial loads is verified per EOP-005-3 R6.1.

In cases where CMEP staff requests a Generator Operator’s Blackstart procedure and the Generator Operator presents a test procedure, CMEP staff shall review whether the Generator Operator’s procedure to test a Blackstart Resource includes the process the Generator Operator uses during an actual system restoration event to start the Blackstart Resource and energize a bus.

A Generator Operator’s sequence of tasks to test a Blackstart Resource (to be used when performing a test per R14) is not the same as a sequence of tasks the Generator Operator implements during an actual system restoration event to start the Blackstart Resource and energize a bus. Differences may include:

- Objectives,
- Entry conditions (a need to test vs. a need for system restoration),
- Exit conditions (test complete vs. system restored),
- Communication and coordination with other entities, or
- Sequence of tasks during a test vs. sequence of tasks performed during an actual system restoration event.

CMEP staff should understand how Generator Operators periodically test their Blackstart Resources, whether operating personnel are involved with the testing, and how applicable testing procedures are reviewed. Also, because system restoration events are rare, CMEP staff should inquire about procedures and training on how to start a Blackstart Resource and energize a bus during a system restoration event, which help ensure that the operating personnel know what to do and how to do it.

Revision History

Revision #	Revision Date	Revision Details
v1.0	10/12/2021	Initial Publication