

PJM Black Start Reliability Backstop Process

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Fuel Assured Black Start Background

- PJM Black Start (BS) Fuel Assurance (FA) business rules approved by FERC in December 2023
- Requires a minimum of one FA BS unit for each transmission zone
- PJM is working to meet FA BS requirements through the 2023 RTO Wide and 2024 Incremental BS RFP
- The Reliability Backstop process may be needed if FA needs are not fulfilled

Fuel Assured Black Start Unit

A single generator that is able to start without an outside electrical supply and running 16 hours or more at full load and either stores at least 16 hours of fuel on site, can operate independently on 2 or more interstate pipelines, is directly connected to a natural gas gathering system or is an intermittent or hybrid resource that has been evaluated by the Transmission Provider to be capable of providing 16 hours of full load operation with 90% confidence and meets all other requirements for Black Start Units.



Reliability Backstop Background

2013 System Restoration
 Strategy Task Force (SRSTF)
 revised PJM's restoration
 strategy to prepare for the coal
 to gas transition

- Reliability Backstop RFP
 - Last resort tool to fulfill BS needs
 - Transmission Owner is required to submit a proposal
 - Never been used

Key SRSTF Changes

Black Start (BS) and Critical Load (CL) Criteria

Cross-zonal BS Support

Five Year RTO Wide BS RFP

Reliability
Backstop RFP



PJM Minimum Black Start Requirements

Minimum of two BS units per transmission zone

Sufficient BS to crank 110% of Critical Load cranking requirement

- 1. Generator start-up power
- 2. Nuclear safe shutdown power
- 3. Power for electric gas compressors

Minimum of one Fuel Assured BS unit per transmission zone

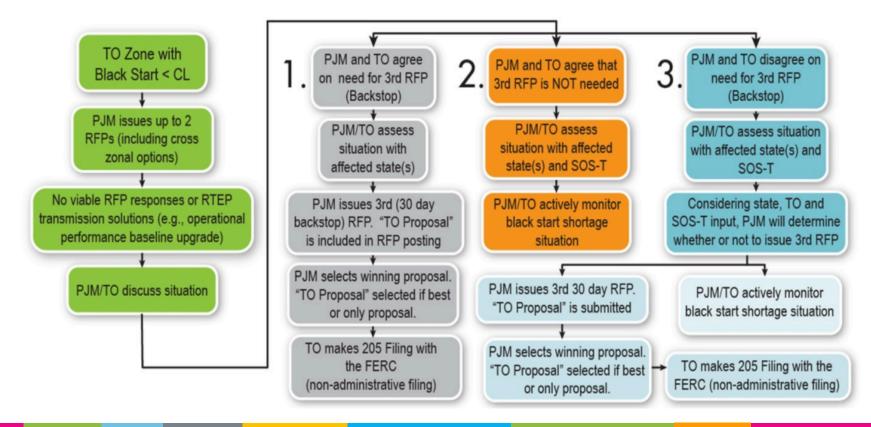
M36 Attachment A: Minimum Critical Black Start Requirement



Reliability Backstop Process Overview

PJM Manual 14D: Generator Operational Requirements
Section 10: Black Start Generation Procurement

10.3.5 Reliability Backstop Process Flow Chart





- Reliability Backstop RFP may be needed to meet minimum Fuel Assured Black Start requirement
- PJM and Transmission owners will assess the Fuel Assurance deficiency and coordinate with affected states
- Additional education sessions will be scheduled if Reliability Backstop process is needed



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- M12 Section 4.5: Black Start Service
- M14D Section 10: Black Start Generation Procurement
- M36 Attachment A: Minimum Critical Black Start Requirement
- Schedule 6A of PJM OATT Black Start Service Requirements and revenue calculations