



# Fuel Requirements for Black Start Resources Background / Timeline

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## Background

- There are currently no universal minimum fuel assurance requirements in PJM business rules. PJM currently assigns a higher weight to proposals for fuel assured black start resources in the black start procurement process.

## FRBSR Purpose

- Develop fuel assurance business rules to mitigate the impact of non-fuel assured black start (BS) resources being unavailable during a restoration event due to fuel unavailability.

- July 2018 - Problem Statement/ Issue Charge Approved
- January 2019 - CBIR Process Begins
- August 2019 - Initial Polling in Group
- Oct 2019-Feb 2020 - Building Consensus on Packages / Polling, planned vote on packages March 2020
- February 2020 - Evaluation of OPSI concerns
- March 2020 – Recommendation to put FRBSR on Hiatus to perform additional analysis

- Review existing fuel requirement for black start resources.
- Provide education on the fuel supply status of existing PJM black start resources.
- Review existing black start RFP proposal evaluation criteria relevant to fuel supply.
- Develop fuel assurance requirement(s) for all new and existing black start resources, including critical non-fuel consumables.
- Develop testing / verification requirement(s) for demonstration of black start fuel assurance requirement(s).
- Develop transition plan for new and existing black start resources to meet black start fuel assurance requirement(s).
- Discuss compensation issues related to new and existing black start resources meeting fuel assurance requirement(s).
- Discuss associated changes to PJM Governing Documents and Manuals.

- **Expected Deliverables**
  - Revisions to PJM Governing Documents and Manuals to implement the recommended enhancements.
- **Out of Scope Items**
  - The intent of this initiative is to focus on fuel assurance requirement(s) for black start resources. Therefore the following items are out-of-scope but may be considered in potential future initiatives:
    - Fuel assurance requirement(s) for Critical Load units.

- Some of the issues previously discussed in the OC/MIC Special Session have been addressed under [FERC docket ER21-1635](#):
  - Minimum Tank Suction Level (MTSL) compensation calculations
  - Capital Recovery Factors (CRF) for new Black Start capital investment will be updated annually to reflect changes in tax and interest rates
  - Lifetime Black Start commitments for new capital investments recovered under OATT Schedule 6A

# Fuel Requirements for Black Start Resources (FRBSR) Stage 1 Work

- Level of Fuel Assurance
- Universal Fuel Assurance Requirements
- Fuel Assurance Requirements by Primary Fuel Type
- Testing & Verification Requirements
- Compensation Mechanism
- Implementation Plan



# Fuel Assurance Cost Projections

Cost projections presented at FRBSR Special OC/MIC Session on 3/2/2020 for each package:

Package	Level of Fuel Assurance	Capital Cost to convert Black Start fuel assured units	Increase in Annual Revenue Requirement for Capital Recovery Period (Note: Current BS Annual Revenue Requirement = ~\$65M/yr.)
<b>A, B</b>	All black start resources allocated to a TO zone	\$513M	\$67.2M/yr.
<b>D</b>	Minimum of one black start resource (on a unit count basis) fuel assurance conversion for each TO zone, any additional based on a cost benefit analysis	\$13M-\$513M	\$1.9M/yr - \$67.2M/yr
<b>E</b>	Minimum of one black start resource (on a unit count basis) fuel assurance conversion for each TO zone	\$13M	\$1.9M/yr.



## Fuel Requirements for Black Start Resources (FRBSR) Stage 2 Hiatus Key Focus Areas

- More detailed analysis of restoration time impacts
- Measure of benefit or risk reduction
- Risk assessment of gas supply limitations

## Stage 1 FRBSR Work

2019 – 2020

- Level of Fuel Assurance
- Universal Fuel Assurance Requirements
- Fuel Assurance Solutions by Primary Fuel Type
- Testing & Verification Requirements
- Compensation Mechanism
- Implementation Plan
- Solution Packages



## Stage 2 Hiatus Work

2020 – 2021

- Enhanced Restoration Time Analysis
- Cost / Benefit Analysis Methodology
- Gas Supply Risk Assessment



## Stage 3 FRBSR Considerations

2022

- Updated Design Component Details and Solution Packages
- Enhanced Definitions of Fuel Assurance
- Hydro Packages to align with ELCC
- Inputs from FERC/NERC ERCOT Report

## Q1 2022

- Resume FRBSR stakeholder process (Feb/Mar)

## Q4 2022

- Complete stakeholder endorsement of solution package

## Q3/Q4 2022

- Reach stakeholder consensus on a solution package

## Q1 2023

- Begin RTO Wide Black Start RFP process for April 2025 Black Start Implementation

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- Phase 1 FRBSR Education
  - January 2019
    - [FRBSR Educational Slides](#)
  - June 2019
    - [PJM Education](#)