



Black Start PS/IC: Summary of Proposals

Becky Davis, Sr. Analyst

Markets & Reliability Committee

January 27, 2021

- December 17, 2020 Markets & Reliability Committee Meeting
 - [Presented two solution packages](#) – PJM Option #1 and Dominion Energy
- January 27, 2021 Markets & Reliability Committee Meeting
 - The MRC will be asked to endorse a proposed solution.
(OC Voting results: PJM Option 1 package (main motion) with 83% in favor; Dominion package (alternate motion) with 82% in favor; PJM package with 43% in favor; and IMM package with 7% in favor)

Black Start Problem Statement / Issue Charge, [Operating Committee Meeting](#)

- Black Start Testing
 - Testing Requirements for Black Start resources not compensated through Schedule 6A
- Black Start Unit Termination
 - Termination rules for Black Start Unit that either fail or not perform a black start test and remain without a successful black start test on file for an extended period of time
- Black Start Unit Substitution
 - There is an increase in questions around Black Start unit substitutions
 - additional clarification to the existing substitution process rules are needed

- ❑ Update Capital Recovery Factors
 - ❑ Update Capital Recovery Factors to align with current tax law and interest rates

PJM's position is the CRF changes should only apply to units awarded in future Black Start RFPs

- ❑ Update Minimum Tank Suction Level Recovery
 - ❑ Revised Minimum Tank Suction Level calculation to reflect what portion is solely necessary for Black Start

□ Clarifying changes to M-15 and Tariff to align with Operating Committee approved package

□ Tariff – added more detail around components of CRF

“The Capital Recovery Factor (“CRF”) is equal to the Levelized CRF based on the age of the Black Start Unit, which is modified to provide Black Start Service. The CRF shall be calculated in April utilizing data in effect as of April 1 and posted on the PJM website by April 30 each year as detailed in Manual 15. The CRF values shall be calculated based on an assumed 100MW combustion turbine with a \$1 million capital investment for a recovery period based on the age of the Black Start Unit. The CRF shall consist of the following components: (i) capital structure and cost of capital; (ii) federal income tax and depreciation rates as utilized by the U.S. Internal Revenue Service; (iii) average state income tax rate, and (iv) debt interest rates, all as determined in accordance with Manual 15. The CRF shall be updated annually in accordance with the procedures in Manual 15 for (i) federal income tax rates as utilized by the U.S. Internal Revenue Service in effect at the time of the annual CRF update; (ii) average state income tax rate; and (iii) debt interest rates.”

□ M-15, Section 13.4 & 13.5 – clarification that depreciation rate used in CRF is that which was in effect at the time the unit entered Black Start Service

Black Start Unit Testing

	PJM Option 1 & Dominion
Black Start Unit testing required every 13 months for Black Start Units under Schedule 6A or service agreement with Transmission Owner	X
Testing requirement update to be added to Schedule 6A and Manual 12	X

Black Start Unit Substitution

	PJM Option 1 & Dominion
Clarifying language to address Black Start Unit substitution	X
Substitutions must be supported by documentation (for operational or technical reasons)	X
Substitution guidance to be added to Schedule 6A and Manual 12	X

Black Start Unit Termination

	PJM Option 1 & Dominion
Ability to terminate Black Start Service if Black Start Unit is unable to successfully black start test within 90 days following a failed test AND not working towards enabling black start capability / successful testing within a one year period	X
Termination updates to be added to Schedule 6A and Manual 12	X

Minimum Tank Suction Level (MTSL)

	PJM Option 1 & Dominion
Black Start Unit eligible to recover Black Start Energy Tank Ratio of the MTSL in its fuel storage calculation	X
Black Start Energy Tank Ratio = $\{(Fuel\ Burn\ Rate \times Minimum\ Run\ Hours) / (Tank\ Capacity - MTSL)\}$	X

Black Start Capital Recovery Factor (CRF)

	PJM Option 1 & Dominion
CRF Annual updates include changes in federal tax rate, average state tax rates and interest rate changes	X
Updated CRF rates, including annual updates, apply only to Black Start Units selected in RFPs after the effective date of Tariff changes	X
Updated commitment periods apply only to Black Start Units selected in RFPs after effective date of Tariff changes	X
Unit commitment periods removed from CRF Table	X
Remove CRF from Schedule 6A and add new M-15 Section documenting CRF methodology; post annual CRF Tables (and historical CRFs) via PJM website	X
CRF interest rate assumption: ATWACC from Quadrennial Net CONE review with “significant change protection” for major interest rate changes between Quadrennial Reviews	X

Black Start Capital Recovery & Commitment Periods

	PJM Option 1	Dominion
Commitment Period	20 yrs or greater (unit may offer more in RFP)	Capital Recovery Period + 3 yrs (20 year max unless unit offers more in RFP)
Capital Recovery Period	5, 10, 15, 20 yrs (based on unit age)	5, 10, 15, 20 yrs (based on unit age)
Exit Provisions	≥ 1 year advance notice *	≥ 1 year advance notice *

- Unit retirement / deactivation with at least one year's advance notice *
- Expiration of a state, federal, or other governmental agency permit(s) required for Black Start Service with at least one year's advance notice *
- Additional capital is required to maintain Black Start Service (unit is required to bid into RFP process, and, if selected, will continue to provide Black Start Service) *
- PJM terminates Black Start Service with at least one year's advance notice *

If commitment period is less than recovery period, & Black Start Unit terminates the provision of Black Start Service, generator foregoes any additional revenues.

Black Start Capital Recovery & Commitment Periods			
Age of Unit	PJM Option 1 & Dominion	PJM Option 1	Dominion
	Capital Recovery Period	Black Start Commitment Period	
0 – 5 Years	20 Years	20 Years or optionally longer	20 Years or optionally longer
6 – 10 Years	15 Years	20 Years or optionally longer	18 Years or optionally longer
11 – 15 Years	10 Years	20 Years or optionally longer	13 Years or optionally longer
16+ Years	5 Years	20 Years or optionally longer	8 Years or optionally longer

Conditions for exiting Black Start Service earlier from previous slide apply

SME/Presenter:
Elizabeth (Becky) Davis
Elizabeth.Davis@pjm.com
blackstart@pjm.com



Member Hotline

(610) 666 – 8980

(866) 400 – 8980

custsvc@pjm.com