



Black Start PS/IC: Summary of Proposals

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Operating Committee

December 3, 2020

- November 6 – Presented four proposals – IMM; PJM; PJM Option #1; and Dominion Energy
 - [Proposal Presentation](#)
 - Vote deferred to December Operating Committee meeting due to proposed [amended Issue Charge](#) upon its first read
- December 3 – Present updated proposals
 - Includes summary material of proposals
 - The OC will be asked to vote on the proposals

Black Start Problem Statement / Issue Charge, [December 3, 2020 OC 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

Black Start Unit Testing

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

Black Start Unit Substitution

Clarifying language to address Black Start Unit substitution	X	X
Substitute unit must be connected to the same bus		X

Black Start Unit Substitution continued

	PJM & PJM Option 1 & Dominion	IMM
Substitutions only permitted under very specific circumstances and with defined conditions		X
Substitutions must be supported by documentation (for operational or technical reasons)	X	X
Substitution guidance to be added to Schedule 6A and Manual 12	X	X

Black Start Unit Termination

	PJM & PJM Option 1 & Dominion	IMM
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	X
Termination updates to be added to Schedule 6A and Manual 12	X	X

Minimum Tank Suction Level (MTSL)

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

Black Start Capital Recovery Factor (CRF)

	PJM & PJM Option 1 & Dominion	IMM
Remove CRF from Schedule 6A and add new Manual 15 Section documenting CRF methodology; and post annual CRF Tables (plus historical CRFs) via PJM website	X	X
CRF interest rate assumption: Moody's Utility index bond rate Baa1		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 Factor (CRF)

	PJM & PJM Option 1 & Dominion	IMM
CRF Annual updates include changes in federal tax rate, average state tax rates and interest rate changes	X	X
Updated CRF rates apply to new Black Start Units*		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 to new Black Start Units*		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	X

*Updates were made to include only new Black Start Units for CRF and commitment period changes in the IMM package. This change was due to the amended issue charge being approved by stakeholders on 12/3 which resulted in retroactive application of the CRF changes being out of scope.

Black Start Capital Recovery & Commitment Periods				
	PJM	IMM	PJM Option 1	Dominion
Commitment Period	Life of Unit	Life of Unit	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)	10 & 20 years	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 **	≥ 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.



Comparison of Package Recovery & Commitment Periods

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

Conditions for exiting Black Start Service earlier from previous slide apply

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Appendix

Default of Capital Recovery Period based on Age of Black Start Unit

Age of Black Start Unit	Capital Recovery Period
1 to 5	20
6 to 10	15
11 to 15	10
16+	5