



# Black Start PS/IC: Summary of Proposals

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Operating Committee

November 6, 2020

- October 8 – Presented two proposals – IMM and PJM
  - [Proposal Presentation](#)
  - Vote deferred due to additional alternatives requested
- October 21 – Special Session held to discuss alternatives
  - [Black Start Options Presentation](#)
- November 6 – Present updated proposals
  - Includes summary material of proposals
  - The OC will be asked to vote on the proposals

Black Start Problem Statement / Issue Charge, [November 6, 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/existing 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/existing 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

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 *	≥ 3 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 & PJM Option 1 & 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