



Black Start Problem Statement / Issue Charge

Black Start Unit Involuntary Termination and Substitution Rules

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Operating Committee

August 6, 2020

- July 9 - [First Read of Black Start Problem Statement / Issue Charge Matrix](#)
- August 6 – A second first read is being conducted at stakeholder request
 - includes material in PowerPoint to summarize the proposed changes, including updates from the July 9 meeting

Black Start Problem Statement / Issue Charge, [August 6, 2020 OC Meeting](#)

- **Black Start Testing**
 - *Clarifying language added to Open Access Transmission Tariff Schedule 6A Black Start Service Sections 12, 13 & 14; PJM Manual 12 Section 4.6.14 Non-performance*

Periodicity	Successful test within last 13 months <i>(Units under Schedule 6A will not qualify to receive revenue without successful test within the rolling 13 month test window)</i>
Black Start Units	Black Start Units providing Black Start Service under Schedule 6A or under a service agreement with Transmission Owner

- **Black Start Termination** (following unsuccessful black start testing)
- Adding language to Schedule 6A Section 15 and M-12 Section 4.6.14
 - To immediately terminate Black Start Service if Black Start Unit is unable to successfully black start test within 90 days following a failed test AND is not working on making the necessary repairs to enable the Black Start Unit to successfully black start test within a one year period.
 - PJM Performance Compliance Department to work directly with Black Start Unit owner to determine a schedule to complete repairs in order to return black start capability and successfully black start test.

Black Start (next 90 days following unsuccessful testing)

Next 90 days following Black Start Testing	
Test Result	Schedule 6A Compensation
Pass	Reinstate next month (no retroactive compensation)
No Test Conducted + Black Start Unit owner working with PJM for future successful black start testing within a period of one year	Reinstate compensation the following month of successful test (no retroactive compensation)
No Test Conducted + No Plans to return to Black Start Service	Immediate Black Start Termination (no retroactive and no future compensation)

Existing Process, no proposed changes

Proposed changes to reflect failed testing and no successful test on record for the following 90 day period

Black Start Unit Owner Test Scheduling

- Coordinates with PJM
- Submit eDART ticket with three days advance notice
- Email blackstart@pjm.com of test schedule

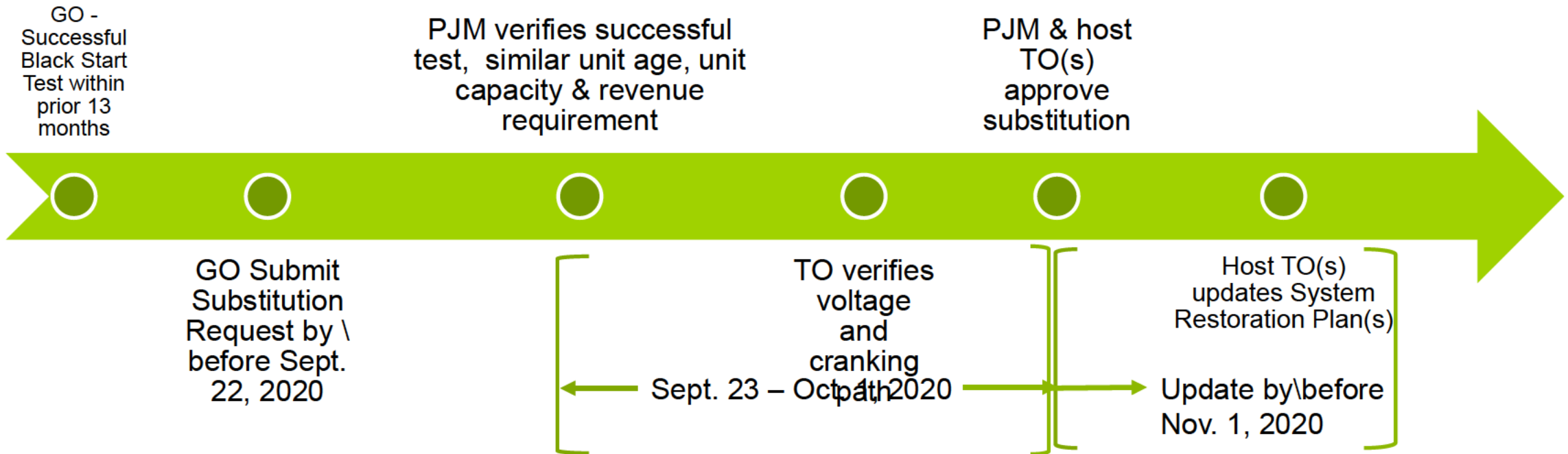
Black Start Unit Owner Test Reporting

- Submit test results via eDART within 14 days of testing
- Provide supporting documentation of test procedure and training
- Request additional testing (if needed)

- **Black Start Unit Substitution**
 - Clarifying language added to Open Access Transmission Tariff Schedule 6A Black Start Service Section 10; PJM Manual 12 Section 4.6.14 Non-performance
 - Substitution Requirements:
 - PJM and host Transmission Owner(s) approval
 - Valid Black Start Test within previous 13 months
 - Connected at same voltage level and cranking path
 - Similar unit age
 - Provides equivalent Black Start Unit capacity
 - Cannot add new or additional capital recovery
 - No change to existing capital recovery period

Timeline Example: Black Start Unit Owner (GO) scheduling overhaul on CT1 (current Black Start Unit) and is requesting substitution of CT2 during overhaul period. CT2 is black start capable and tested August 2020.

Substitution requested by \before November 1, 2020





CRF calculated at time of Black Start in-service date

- Depreciation as applicable under the tax code as applicable to the Black Start Unit
- **Current Federal Tax Rate**
- Average State Tax Rate
- **Interest rate - Moody's Utility Bond Index for Baa1**
- Return on equity of 12 percent
- 50 Percent Equity
- 50 percent Debt
- (*PJM*) 5, 10, 15 & 20 year recovery period based on existing unit age
- (*IMM*) 10 & 20 year recovery and commitment to provide Black Start Service for the life of the unit

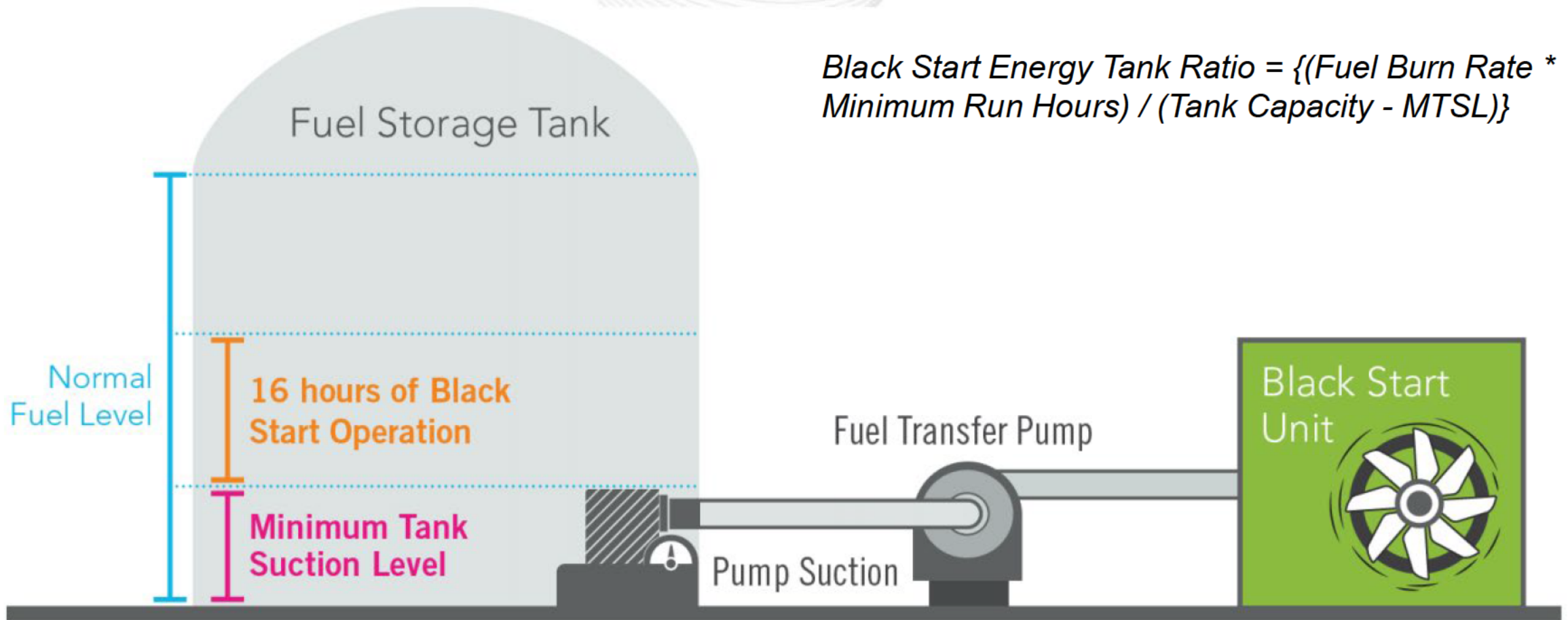
Red text indicates these values will be updated annually

- CRF re-calculated annually (based on April 1st references and effective June 1st for new annual revenue requirement)
 - Changes to Federal Tax Rates
 - Interest rate – only changes if cumulative difference is 2 percentage points greater than the 12 month bond index rate two years ago for the Moody's Utility Bond Index for Baa1
 - *Black Start Units selected in recent RFPs under a Capital Recovery Rate TBD*

- Capital Recovery Factor (CRF) Table to be removed from Open Access Transmission Tariff, Schedule 6A Black Start Service.
 - New Section in PJM Manual 15 for CRF calculation method and assumptions
 - Annual CRF Tables posted to PJM's website

$$\{(\text{Black Start Energy Tank Ratio} * \text{MTSL}) + [(\# \text{ Run Hours}) * (\text{Fuel Burn Rate})]\} * (\text{12 Month Forward Strip} + \text{Basis}) * (\text{Bond Rate})$$

$$\text{Black Start Energy Tank Ratio} = \{(\text{Fuel Burn Rate} * \text{Minimum Run Hours}) / (\text{Tank Capacity} - \text{MTSL})\}$$



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Appendix

- [Black Start Education](#) (presented at May 14, 2020 OC)
- [OATT Schedule 6A](#): Black Start Service
- [PJM Manual 12 Balancing Operations](#): Section 4.6 Black Start Service

Black Start Testing

Initial Test Result	Next Test result within 10 days of Initial Test	Schedule 6A Compensation
Pass	-	No Change
Fail	Pass	No Change
No Test	-	Forgone
Fail	Fail	Forgone
Fail	No Test Conducted	Forgone

Existing process, no proposed changes – presented for reference purpose