



eDART Black Start Calculator

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1. Enhance visibility and awareness of Black Start and Critical Loads
2. Enhance tracking and completion of required tasks when generators come online/retire or terminate Black Start Service
3. Minimize rework by using the same baseline data across PJM/GO/TO
4. Reduce reliance on email as documentation between PJM/GO/TO
5. Targeting 2017 Q4 Implementation

- PJM evaluates Black Start & Critical Load when
 1. PJM issues RTO Wide Black Start RFP every 5 years (M14D Section 10.1)
 2. As units retire, terminate Black Start service or when new units come in-service. May result in Incremental RFP (M14D Section 10.2.)

- Black Start and Critical Load Evaluation Includes
 - Ensure minimum black start requirements are met per TO zone (M36 Attachment A)
 - Ensure units meets & completes all requirements before providing Black Start Service (M12 Section 4.6)
 - Develop cranking paths with TOs for steady state & dynamic studies
 - Coordination of Restoration Plan updates

- PJM will request Generator information for Black Start and Critical Loads for **restoration planning purposes**. Information will be used to ensure accuracy of steady state and dynamic studies that are required by NERC Standard EOP-005-2 R1.8 and R6
- PJM will populate as much information as possible, but will need GOs to provide information if it is not currently available to PJM
- PJM will request GOs to review & acknowledge all information that will be used as inputs into the Black Start calculator

- PJM populated information if available
 - Markets Gateway
 - Parameter Limited Schedule (Cost Schedule) Hot Start Time (HST) to determine if a unit is critical load (HST \leq 4 hours)
 - Ramp Rate
 - Emergency Minimum
 - Cranking MW
 - Reactive Capability

- PJM will need GO to provide the following, including but not limited to
 - Duration unit can operate below emergency minimum output
 - Duration unit can operate at emergency minimum
 - Detailed start-up loads

1. Review eDART black start and critical loads to ensure TO restoration plans are aligned

2. Review impacts of unit retirements and new units coming in-service
 1. Development of new cranking paths
 2. Communicate/coordinate steady state & dynamic study request with PJM
 3. Ensure restoration plan updates are complete in accordance with EOP-005-2 R4 requirements

Send questions & suggestions to

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