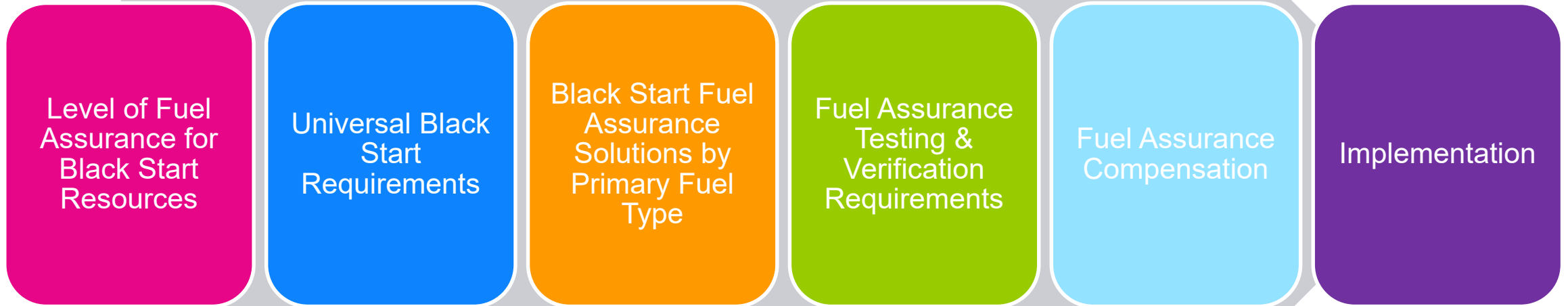




Fuel Requirements for Black Start Resources PJM Proposed Package

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- Each Transmission Owner zone is required to be fuel assured in accordance with the following:
 - A minimum of one black start site per zone (see Slide 4 for minimum fuel assurance criteria)
 - PLUS: Additional black start solutions beyond minimum fuel assurance criteria to be based on reliability criteria that identifies high impact black start sites (see Slide 5 for reliability criteria)

A minimum of one black start site per zone meeting the following fuel assurance criteria, in order of preference:

1. Onsite fuel storage (e.g. dual fuel)
2. Connected to multiple pipelines
3. Gas only black start site connected to a single source fed directly from a gas supply basin / gathering system ahead of interstate pipeline
4. Fuel assured hydro black start site in accordance with the new hydro proposal
5. Fuel assured intermittent or hybrid black start site in accordance with methodology that aligns with the new hydro proposal and also meets all other black start technical requirements
6. Minimum of 2 separate gas only black start sites in a TO zone connected to 2 separate interstate gas pipelines (excludes connections to LDCs) would also be acceptable to meet min fuel assurance requirement if 1-5 are not currently available

- PLUS: Additional black start solutions (fuel assurance conversions or additional fuel assured or non fuel assured black start generation) beyond minimum fuel assurance criteria to be based on reliability criteria that identifies high impact black start sites
 - Reliability criteria is incremental increase in restoration time greater than 10 hours upon the loss of a non-fuel assured black start site

- Hydro units (Run of River or Pumped Storage) to align with new hydro proposal
 - Fuel assurance criteria for future intermittent black start resources to follow similar methodology as in new hydro proposal
- Includes all the other key fuel assurance enhancements:
 - 16 hr run hour requirement, fuel assurance requirements by primary fuel type, testing & verification requirements, compensation
- Implementation through 2023 RTO Wide RFP or future incremental RFP

- Reliability Backstop
 - Existing Reliability Backstop Process in PJM Manual M14D Section 10.3 to be implemented in the event of insufficient response to RTO wide RFP or future incremental RFP (2 failed RFP processes), to meet minimum of one black start site per zone meeting fuel assurance criteria and reliability (PLUS) criteria beyond minimum criteria for high impact black start sites
 - For Reliability Backstop RFP, TO required to submit RFP proposal

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