Blackstart Capability Assessment Study with EPRI

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Objectives

- Optimal blackstart capability assessment study focuses on the optimal installation strategy and provides the start-up sequence
- Critical for developing new restoration plan
- Evaluate the blackstart capability requirement to achieve the economic efficiency.

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• In this study, considering the restoration process of both generation and transmission system, the value of additional BS capability will be evaluated in terms of total restoration time and system generation capability.

• PJM system used as a test system

• Q2, 2012 to Q4, 2012
• Provide Generator Characteristics
  – List of BS and NBS generators
  – $T_{ctp}$, the cranking time for NBS generators to begin to ramp up and parallel with system;
  – $R_r$, the generator ramping rate;
  – $P_{start}$, the generator start-up power requirement;
  – $P_{max}$, the maximum generator active power output;
  – $T_{cmin}$, the critical minimum time interval, which after a blackout happened, a NBS unit cannot receive any cranking power to be restarted until this time interval ends;
  – $T_{cmax}$, the critical maximum time interval, during which if a NBS unit was not started, the unit will become unavailable for a considerable time delay.
• Provide System Network Data
  – System topology
  – $B_{mn}$, susceptance of line $mn$
  – $F_{mn}$, thermal limit of line $mn$
• Review the study method provided by EPRI
• Review the study results with EPRI team
Current Status and Next Steps

- PJM preparing data by end of June
- EPRI team performing the study by EPRI software by end of September
- Review of the study results by PJM and EPRI
- Study report