M-36 Attachment A
Minimum Critical Black Start Requirement
• Developed by System Operations Subcommittee (SOS)
  – 2006

• Restoration Targets
  – Complete restoration within 24 hours
  – 80% restoration within 16 hours

• Assumptions
  – Total blackout – no outside assistance
  – Normal weather
  – Intermediate to peak load (marginal steam units hot)
  – Minimal equipment damage
  – Normal working hours (staff available)
Defined Minimum Critical Black Start Requirement in each transmission zone to be sum of:

- Critical steam cranking power load (within 2 hours)
  - Hot start capability of 8 hours or less
- Gas Infrastructure critical load (within 2 hours)
  - Facilities identified in TO Restoration plans
- Nuclear off-site station light and power load requirements

Additional Black Start may be used for “Priority 2” load

- Cranking Power to combustion turbines
- Light and Power to critical substations
- Pumping plants for underground cable
- Critical communications equipment
- Critical command and control facilities
- Underfrequency load shed circuits

- May not be explicitly quantified
• Considerations for selecting size and location of critical Black Start replacement
  – Support the simultaneous restoration of multiple islands
  – Provide sufficient redundancy
  – Ensure multiple transmission outlets
  – Ensure a minimum of 3 critical Black Start generators per Transmission Zone
    • Exception process
  – Allows for replacement Black Start outside the boundaries of the Transmission zone