Business Rules for Residential Synchronized Reserve Sample M&V
Wendell Miyaji, PhD.
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M&V Plans

An M&V Plan will be provided to PJM by the CSP to describe the M&V structure for the program and obtain PJM approval prior to start of the program. An updated M&V plan will be submitted after the performance season or annually.

Approval schedule should allow 2 months for M&V implementation by the CSP and 2 weeks for approval by PJM staff.

M&V Plan should specify:

- Sampling approach
- Metering, including qualification forms and quality assurance protocol to meet Manual 11 requirements
- Device operability study approach
M&V Plans: Sampling

The M&V plan will specify a sampling methodology that meets the Manual 19 “90/20 two-tailed” accuracy standard

– Statistical Criteria
  • Normal distribution is reasonable because we are averaging a large number of independent random variables, so the central limit theorem applies
  • Two tailed insures the value is within a defined range
  • Use engineering estimates and similar programs to estimate initial sample variance and sample size for first year
  • M&V plan would propose stratification and provide rationale, or describe why classic stratification approaches are unnecessary

– For programs with multiple curtailment methods or curtailed end uses, must specify how samples are segmented.
  • Default approach is to use a separate M&V population for each different permutation of curtailment methods or end use types
  • M&V plan may specify a single sample for multiple methods or end uses if justified by method and population characteristics
M&V Plans: Device Operability

The M&V plan will specify a method of annually measuring device operability that meets the following requirements:

- Device operability survey must meet “90/10 two tailed” criteria
- Perform survey in season to match time period of resource performance
- M&V plan will specify how device operability rates are included in performance measurement
M&V Plans: Updates

Prior to subsequent years/seasons, the CSP will submit an updated M&V plan

- Report on prior year’s/season’s performance
- Sample Calibration
  - Use specific program history to determine sample variance and size of sample in subsequent years
  - Over time the sample may no longer represent the population. If the DR population changes significantly from year to year the M&V plan should review the changes and document implementation to match within reason the new population
  - Replacement M&V sites should be drawn in a manner to maintain the integrity of sample, e.g. to maintain the stratification approach
  - Sample adjustments once per year will be considered sufficient
- Device Operability Report
- Metering Reports as required by quality assurance plan.
Metering

Metering of sample sites must meet the following requirements:

• Meters to be installed at utility metering points and have one-to-one correspondence with EDC account numbers.
• Meters meet all manual and tariff requirements for a stand-alone SR site, including:
  – +/-2% accuracy
  – 1 minute interval data
  – Time synchronization
  – Comply with NAESB VEE where applicable
• AMI meters could be used
• Reasonable efforts will be made to replace defective meter equipment or M&V participant dropouts
Once M&V plan is approved by PJM, programs can be registered as Synchronized Reserve Resources:

- Generally, one registration per EDC for each program unless otherwise agreed to in M&V plan
  - Multiple technologies or populations within a program can be aggregated into a single resource while maintaining separate sampling.
- Registration will specify maximum amount of SR resource can provide
- SR quantity may be updated periodically as program enrollments change
- Resources offer into SR market normally
- Resources may be inflexible or flexible SR
Verification

After each synchronized reserve call, CSP follows verification procedures:

• Data provided to PJM by two business days after event day, as for other demand resources
• Document transmission of control signal as specified in the M&V Plan
• One-minute interval consumption of participating population determined from sample as specified in the M&V Plan
• Population treated as a single SR resource, with compliance and settlement as normal for SR
• Active population at the end of business day will be considered for events on that business day
• Participation records for each program day will be maintained and available for audit
• PJM would have rights to review and audit analyses submitted as well as the supporting data
Thank You

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