



Metering Task Force (MTF) Update

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- Meter data accuracy, reliability, and availability are foundational to almost all electric utility operations – dispatch, protection, markets... .
- Manual 01, Section 5, is the main body of PJM metering requirements.
- In 2015, PJM SMEs tried to address questions, concerns and comments with a Manual revision; however significant issues remained and the revision was withdrawal.
- MTF started in November of 2015, follow PJM CBIR process to provide organization and structure to gather and assess information, and make consensus-based data-driven decisions.

- 12 topics of cooperated investigation & education were to ensure that all participants' concerns and issues were considered and addressed;
- Two surveys were conducted in the TF to collect information regarding members' current metering infrastructure and common practice;
- In June, the group reached consensus with a Tier-1 solution;
- 54 responses, all in support of the package were received.

- The recommended package consisted of eleven components:
 1. Metering boundary: from first measurement to first digitization of the measurement;
 2. Accuracy definition: Within +/- x% of true value;
 3. Accuracy Calculation: system accuracy may be decided by one of three methodologies: calculate using nameplate accuracy, as-build calculation, or testing;
 4. Measurement Category:
 - Billing Meters (Accumulator data)
 - System Control and Monitoring (Instantaneous data): Tie-lines, area regulation, generation dispatch, generation reserve, system restoration, and general telemetry.

5. Measurement Accuracy: the meter accuracy and periodicity of data transmission is specified for each class: 2% or 5%;

6. Tie-Line definitions: Circuit connecting two balancing authority areas, control areas, or fully metered electric system regions.

- External Tie Lines
- Dynamic Transfers
- Internal Tie Lines: Control Zone Tie Lines; Transmission Zone Tie Lines; Fully Metered EDC Tie Lines; and East EHV Tie Lines.
- Special Cases and transformer Ties

7. Tie-Line telemetry/measurement requirements: For each class of Tie-line data, the meter accuracy, redundancy and periodicity of data transmission are specified.

8. ANSI/IEEE reference: Broad References to specific standards;

9. Maintenance/ Calibration intervals:

- Billing Meters: Status Quo - 2 years maintenance/ calibration cycle
- System Control and Monitoring Metering:
 - Equipment owners shall develop, maintain and execute their own testing, calibration and maintenance policies and procedures; a periodic test plan or exception-based maintenance plan.
 - PJM can request an investigation at specific locations based on actual or projected market and system conditions into the existing overall or component accuracy (and telemetry periodicity)

10. Grandfather Clause: the installation date of the equipment

- a. Earlier than 1997 or the company integration date to PJM - exempted;
- b. Between a and the publication of the new revision of M01, meet all the requirements except few categories: general telemetry (section 5.2.6), kV requirements (not including external Tie line); control zone tie scan rate for any tie lines less than 100kV;
- c. All new equipment installed after publication shall be fully compliant with these metering standard;
- d. Replacing, upgrading or modifying existing grandfathered equipment may cause the equipment installation date to be reset and the equipment no longer grandfathered.

11. PJM historical database:

- Billing Meter :documenting errors of greater than 1% for auditing purposes.
- System Control and Monitoring Metering: document the conclusions of significant investigations for history and future guidance

- Task Force deliverables;
 - Manual 1 (Control Center and Data Exchange Requirements) Section 5: Complete rewrite
 - OA & OATT: adding in Tie-line definition
 - OA:
 1. Definition S-T
Tie Line: "Tie Line" shall have the same meaning provided in the Open Access Transmission Tariff.
 2. Capitalized "T" & "L" for tie-in in section 2.6A (a), 3.2.1 (d), 3.6.3, 3.6.4, 5.1.3 (e), 5.4.3 (e)
 - OATT:
 1. Definitions – T – U – V
Tie Line:
"Tie Line" shall mean a circuit connecting two balancing authority areas, Control Areas or fully metered electric system regions. Tie Lines may be classified as external or internal as set forth in the PJM Manuals.
 2. Capitalized "T" & "L" for tie-in in section 2.6A (a), 3.2.1 (d), 3.6.3, 3.6.4, 5.1.3 (e), 5.4.3 (e)

New revision will provide clear standard, requirement, and practice related to metering

- Reduce the risk of non-compliance
- Provide clear guidance for the new equipment specification and design
- Improve EMS State Estimation solution
- Ensure operation reliability and market fairness

- 1st read in OC – August 9, 2016
- 1st read in MRC – August 25, 2016
- 2nd read in OC – September 13, 2016
- 2nd read in MRC – September 29, 2016
- 1st & 2nd read in MC - September 29, 2016

FERC filing in October, 2016

* Final report and all supporting documents are posted on :[PJM Metering Task Force Website](#)