



Subject: Meter Services Entity

Statement: This Technical Bulletin addresses the requirements for an entity participating as a Meter Services Entity.

Details:

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Roles and Responsibilities:

Meter Services Entity (MSE) provision of physical metering services and meter data services to NYISO Market Participants requires the MSE, NYISO, and Market Participant to undertake certain roles and responsibilities. The responsibilities for each entity include, but are not limited to, the items described below:

MSE responsibilities:

- MSE is responsible for the provision of revenue grade meter data in accordance with the Revenue Metering Requirements Manual.
- MSE is responsible for compliance with applicable codes and standards for physical metering equipment installation, testing, and maintenance in accordance with Services Tariff Section 13 and the Revenue Metering Requirements Manual.
- MSE shall provide to the connecting utility (Member System), upon request, access to revenue grade meter data or meter installation specifications.

Market Participant responsibilities:

- Market Participant shall be responsible for the costs associated with the administration of MSE(s) it uses pursuant to Services Tariff Section 15.10.
- Market Participant shall be responsible for any applicable penalties issued as a result of metering or meter data services that do not comply with the NYISO tariff and NYISO procedures.
- Market Participant assumes all responsibility for NYISO scheduling and dispatch, communicating to the resource its directed operating point, providing revenue grade meter data from the resource back to the NYISO indicating the resource's operating level, and ensuring it has access to the resource's meter data that is required for participation in the NYISO-administered markets.
- Market Participant shall be responsible for the completion and submission of the Meter Inventory, as requested by the NYISO.

NYISO responsibilities:

- Administer the MSE registration and meter inventory process.
- Conduct periodic audits of MSEs as described in Services Tariff Section 13.3.2.3 and this Technical Bulletin.
- Analyze metering and data anomalies as reported to it by the MSE or Market Participant.
- Coordination with the Market Participant or MSE to ensure proper operation and transport of meter data to the NYISO.



Eligibility for Meter Services Entity Authorization

Pursuant to Services Tariff Section 13.3.2, an entity may apply to be an authorized MSE in order to provide physical metering (*i.e.*, the installation, calibration, physical security, maintenance, meter programming and configuration of meters and other metering hardware) and meter data services (*i.e.*, the collection, retention, communication and security of revenue meter data and telemetry data, and the validation, editing and estimation of that data) to NYISO Market Participants. This section describes the requirements and criteria to become authorized to provide those services.

Registration Submittal Requirements

1. Prior to submitting the MSE Registration Packet, the Applicant must register as either (i) a NYISO Market Participant, or (ii) a NYISO Guest. Information on registering to be a Market Participant or Guest is available at customer_registration@nyiso.com.
2. MSE Registration Packet and Application Fee

Applicants are required to submit the completed Meter Services Entity Registration Packet to the NYISO accompanied by payment of the non-refundable \$1000 application fee. Instructions are provided with the Registration Packet.

The NYISO will begin its review of the registration materials upon receipt of the completed registration packet and payment of the application fee. Within thirty (30) days of receipt of a completed Registration Packet and application fee, the NYISO will either authorize the applicant to be an MSE or seek further information. The NYISO may seek further information from the applicant in order to determine the entity's eligibility to become an MSE. The NYISO must receive all requested additional information within thirty (30) days of its request unless otherwise agreed to by the NYISO and the applicant. The NYISO will reject an application if the requested information is not received within the specified timeframe.

Reoccurring MSE Obligations

Organization Information

The applicant shall submit Organization Information, as defined in the MSE Registration Packet, required for MSE eligibility. If any material changes occur to the MSE's Organization Information after authorization the MSE must notify the NYISO prior to those changes taking effect. On an ongoing basis, the MSE must submit to the NYISO:

1. A listing of the utility service territories in which the MSE intends to provide services; and
2. MSE employees must have appropriate training (*e.g.*, Electric Safety Training, Electric Meter School) such that the employees are sufficiently qualified to provide physical metering services and meter data services. Additionally, an MSE must maintain a training plan to ensure employee training, qualifications and certification to perform those services as necessary

Infrastructure Plan

The NYISO will review the information provided by the MSE in the Infrastructure Plan to assess the plan for completeness. If any material changes occur to the Infrastructure information the MSE is responsible to notify the NYISO prior to those changes taking effect. The Infrastructure Plan must include:

1. Meter Testing Facility
 - 1.1. Access to a meter test facility equipped to determine the performance of electric meters and associated equipment used for revenue metering
 - 1.2. Maintenance plan for testing equipment used for electric meters and associated equipment as defined in the Revenue Metering Requirements Manual Section 3.3
 - 1.2.1. Commercial standardizing facilities shall be allowed when such facilities can be shown to have appropriate test equipment as defined in the Revenue Metering Requirements Manual Section 3.3
 - 1.3. Meter test standards, ancillary equipment, and instruments used for the testing of electricity meters must be calibrated and traceable, in accordance with the requirements set forth in the Revenue Metering Requirements Manual Section 3.3
 - 1.4. Calibration intervals for all instrumentation used in establishing meter performance shall be determined according to the Revenue Metering Requirements Section Manual 3.3
 - 1.5. Records of calibrations of all instruments used for establishing meter performance must be maintained in accordance with the Revenue Metering Requirements Manual Section 3.3
2. Meter data management practices
 - 1.1. Maintain records of the calibration of all instruments used in the testing of revenue meters in accordance with the Revenue Metering Requirements Manual Section 3.3.2
 - 1.2. Records of retired instruments must be maintained in accordance with the Revenue Metering Requirements Manual Section 3.3.2
 - 1.3. Describe the data Validation, Estimation, and Editing process and rules to be used for meter data in accordance with the Validation, Editing, and Estimation provisions set forth in this Technical Bulletin. If using any industry standards, provide a reference to the respective industry standard and how the MSE is implementing the standard
 - 1.4. For data retention describe the data retention practices, including the data to be retained and the schedule for retention in accordance with the Metering Device and Meter Data Retention Requirements set forth in this Technical Bulletin.
3. Meter data record recovery process should be maintained to cover various contingencies, including an off-site storage location for updated copies of all software and data files.
4. A listing of meter services intended to be provided. For each meter service provided, identify industry standards, internal processes, and/or business practice standards used.

5. Provide the following MSE Office/Control Center configurations:
 - 5.1. Physical/Cyber Security should include, but is not limited to:
 - 5.1.1. 24/7/365 physical security management
 - 5.1.2. Identity and Access Management
 - 5.2. Environmental Controls should include, but are not limited to:
 - 5.2.1. Cooling and humidity management
 - 5.2.2. Fire detection and suppression systems
 - 5.3. Redundancy of Infrastructure should include, but are not limited to:
 - 5.3.1. All servers having redundant power supplies (*e.g.*, UPS, Direct Current power source)
 - 5.3.2. All servers and storage arrays utilizing RAID 0,1
 - 5.3.3. Server clustering
 - 5.3.4. Hot backup database server availability in the event of database server failure
 - 5.4. Scalability should include, but is not limited to:
 - 5.4.1. Ability of the platform database to be expanded in size
 - 5.4.2. Currently XX Terabytes with room to grow to XXX Terabytes
 - 5.5. Backup Process
 - 5.5.1. Daily backup of servers and databases
 - 5.5.2. Periodic transaction backups performed between complete backups
 - 5.5.3. Backups routinely shipped to a separate storage facility
 - 5.6. Disaster recovery process should include, but is not limited to:
 - 5.6.1. Hard-Drive failure process
 - 5.6.2. Non-mission critical server process (*e.g.*, backup domain controller)
 - 5.6.3. Database server or disk array failure
 - 5.6.4. Primary data center failure

Agreement to Comply with NYISO Tariff and Procedures

The MSE must agree to abide by all associated NYISO requirements located in the Services Tariff, ISO Procedures, and this Technical Bulletin for the supply of physical metering services and/or meter data services. Such requirements may be amended from time to time and the MSE is required to update their registration information as necessary to comply with new requirements, as requested by the NYISO. The MSE must acknowledge that the entity will be subject to audit by the NYISO.

Review Process

An applicant's eligibility will be reviewed by the NYISO in accordance with Market Services Tariff Section 13.3.2.1.3.

Suspension and Revocation

If the NYISO determines that a Meter Services Entity has not complied with the requirements set forth in the ISO Tariffs and ISO Procedures (including this Technical Bulletin) it may suspend or revoke that Meter Services Entity's eligibility to provide Metering and Meter Data Services pursuant to Services Tariff Section 13.3.2.3.2.

If a Meter Services Entity's eligibility is suspended or revoked, the NYISO will: (i) not accept meter data supplied, and (ii) inform the NYISO marketplace of the MSE's status. The MSE will be responsible for notifying any Market Participant to whom it provides Metering or Meter Data Services of its status.

Conditions of Suspension:

The NYISO may suspend an MSE's eligibility to provide metering and/or meter data services to NYISO Market Participants if the NYISO determines that an MSE has not complied with Services Tariff Section 13.3.2 or the ISO Procedures (including the eligibility rules set forth in section Eligibility for Meter Services Entity Authorization of this Technical Bulletin).

An MSE shall have 60 days to remedy any NYISO-identified non-compliance, and the NYISO shall terminate any suspension if the MSE corrects its non-compliance, to the satisfaction of the NYISO, within the 60-day window. The NYISO may, at its sole discretion and based on the individual facts and circumstances of a particular case, extend the 60-day period within which a MSE must come into compliance.

Conditions of Revocation:

The NYISO may revoke an MSE's authorization to provide metering and/or meter data services if (i) the MSE fails to remedy the non-compliance resulting in its Suspension within the timeframe allotted by the NYISO, or (ii) the MSE's non-compliance is not able to be remedied.

An entity whose authorization to be an MSE has been revoked may re-apply for MSE authorization. Any re-application will be reviewed by the NYISO and will not be approved until, in addition to satisfying the generally applicable eligibility requirements, the entity establishes that the non-compliance causing revocation of its prior MSE authorization has been remedied.

Meter Installation Requirements

This section specifies the meter hardware installation requirements for resources participating in the NYISO-administered markets. The MSE shall refer to section 3.3 of the Revenue Metering Requirements Manual for meter Calibration and Maintenance Standards.

Meter Installation Authority

Authorized Meter Services Entities have the authority to install metering devices for participation in the NYISO-administered markets. All Revenue Metering Equipment installed by an MSE and the meter configuration of those devices, must meet the requirements for the particular program in which the facility will participate (*e.g.*, the Special Case Resource program) according to the Revenue Metering Requirements Manual.

Meter Installation

The MSE must meet the relevant local utility notification, safety, access, and data retrieval requirements for installing metering devices. The MSE's Revenue Metering Equipment shall be installed at the retail delivery point of the interconnecting utility or at the location of the asset as required for the particular program in which the facility will participate (*e.g.*, the Special Case Resource program).

All MSE Revenue Quality Meters shall contain an identification number that is unique to the specific MSE. The MSE must also record the serial number of any metering devices located at the same facility or in series with the installed device. Metering devices installed by a MSE must be secured by a physical locking device such as a seal that meets the requirements of the currently effective ANSI C12 standard and a meter password that is noted in the MSE's meter plan for the facility and accessible by the interconnecting utility.

The NYISO is not responsible for the costs of installing or maintaining metering devices used for participation in the NYISO-administered markets.

All data recording and communications devices shall be synchronized, within an accuracy of +/- 15 seconds, with the National Institute of Standards and Technology standard time periodically and after they have undergone maintenance.

Meter Device Compliance

Metering devices installed by a MSE and equipment calibration records shall be compliant with the requirements of the Revenue Metering Requirements Manual and this Technical Bulletin.

Metering Device and Meter Data Retention Requirements

Each MSE shall maintain the following records, as applicable:

1. Metering Device
 - 1.1. All information below shall be maintained for a period of at least six (6) years
 - 1.1.1. The permanent serial number and identification number of the metering device,
 - 1.1.2. The metering device manufacturer, type, form, voltage and current transformer
 - 1.1.3. Installation records, including dates of installation, the entity performing the installation, and the drawings of the installation
 - 1.1.4. Maintenance records including identification of all maintenance undertaken, including the dates of maintenance, and supporting documentation
 - 1.1.5. Meter configuration specifications
2. Meter Device Calibration
 - 2.1. All information below shall be maintained in accordance with Revenue Metering Requirements Manual Section 3.3.2
 - 2.1.1. Calibration records must include dates of calibration, entity performing the calibration, instruments used in the calibration, and the calibration report
 - 2.1.2. Each metering device and instrument used in calibration shall be accompanied with a certificate of calibration

3. Additional Device Testing
 - 3.1. All information below shall be maintained for a period of at least six (6) years
 - 3.1.1. When available, test records for current or potential transformers must indicate the frequency, the ratio correction factor, and phase angle for each burden at which the transformer was tested
 - 3.1.2. Test records for each phasing transformer
 - 3.1.3. Test records for each transformer shall be retained while the transformer remains in service; test records are not valid if the transformer is moved to a different location
4. Meter Data
 - 4.1. Meter data shall be maintained for at least thirty-six (36) months from the date that the meter data is submitted

Validation, Editing, and Estimation

This section provides guidelines and requirements for validation, editing and estimation (VEE) of revenue quality meter data collected for use in the NYISO-administered markets.

All revenue quality meter data provided by MSEs shall, at a minimum, comply with the NAESB REQ.19.3.7 and Good Utility Practice to ensure the quality of the information. The following VEE information shall be submitted along with the registration packet by each entity seeking to become a MSE, and from MSEs upon NYISO request:

1. Describe the meter data validation check(s) (*e.g.*, time check, sum check, high/low check, etc.) the MSE will use to verify meter data quality and identify gaps in data. At a minimum, the description must contain the following information:
 - 1.1. Statement of meter data checks intended for validation
 - 1.2. Compliance with NAESB VEE standards
 - 1.3. List of erroneous data conditions being checked for
 - 1.4. Description of the calculation used to identify erroneous meter data
 - 1.5. Frequency at which checks will be conducted
2. Describe the estimation method(s) (*e.g.*, data from backup device, historical profile, data from Transmission Owner interval meters, etc.) the MSE will use to estimate missing or erroneous interval meter data. At a minimum, the description must contain the following information:
 - 2.1. Statement of estimation methods that will be used to replace erroneous data or missing data
 - 2.2. Compliance with NAESB standards
 - 2.3. Description of the calculations used to replace erroneous or missing data

All revenue quality meter data shall be classified per Edison Electric Institute’s Uniform Business Practices for Unbundled Electricity Metering. The data classification shall be stored along with the data values and estimation method in accordance with the data retention requirements set forth in the Metering Device and Meter Data Retention Requirements provisions of this Technical Bulletin.

Validation, editing, and estimation procedures must be performed on all meter data submitted to the NYISO.

Auditing

Pursuant to Services Tariff Section 13.3.2.3, the ISO (or its designated entity) may perform an audit, inspection and/or test of a Meter Services Entity’s metering facilities, meters, and/or meter data records to ensure compliance with the ISO Tariffs and ISO Procedures, and consistency with the information the MSE provided to the ISO at registration. The NYISO shall provide thirty (30) days written notice for on-site audits of physical meter infrastructure (including testing facilities). If the NYISO seeks documentation or other written information, the MSE shall respond to the NYISO audit requests within the deadline specified by the NYISO, which will be no less than seven (7) business days. The NYISO, may, at its sole discretion and based on the individual facts and circumstances of a particular case, extend the deadline within which a MSE must respond to the audit. As described in Services Tariff Section 13.3.2.3, the NYISO’s audit may involve, but is not limited to the following:

1. Validation, Estimation, and Editing (VEE) methodology
2. Site meter configurations
3. Meter compliance with ISO rules and procedures
4. Meter Services Entity operational protocols, procedures, and recordkeeping, and compliance with ISO rules and procedures
5. Telemetry and communication data and records

The NYISO anticipates that this Technical Bulletin will be incorporated into the initial release of the Meter Services Entity Manual.