

Attachment I

DER Meter Service Constructs for NYISO Market Participation

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Market Issues Working Group (MIWG)

September 11th, 2018

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Background

Date	Working Group	Discussion points and links to materials
02-02-17	Posted	Distributed Energy Resources Roadmap for New York's Wholesale Electricity Market
05-23-17	Market Issues Working Group (MIWG)	DER Measurement & Verification, Monitoring & Control, and Meter Data Study
09-29-17	Market Issues Working Group (MIWG)	DER Meter Data Study
10-30-17	Market Issues Working Group (MIWG)	DER Meter Data Study Initial Findings – E-Cubed Policy Associates, LLC (Dr. Paul Sotkiewicz)
12-13-17	Market Issues Working Group (MIWG)	NYISO Meter Data Study Report – E-Cubed Policy Associates, LLC (Dr. Paul Sotkiewicz)

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Background

- Proliferation of DER participation in NYISO markets presents a challenge to existing metering constructs in New York with potentially thousands of resources needing meters to be installed, certified, and maintained, along with all the data services associated with meter data submissions
- NYISO's current demand response programs allow two types of entities to provide physical meter services (MSP) and meter data services (MDSP)
 - Third-party meter data service providers (MDSP) and meters service providers (MSP) that are approved by the New York State Public Service Commission (PSC)
 - The PSC originally developed the MDSP/MSP construct for competitive retail metering services prior to the initiation of the NYISO's demand response programs
 - Transmission Owners (TOs) have been granted MSP and MDSP authority by the PSC

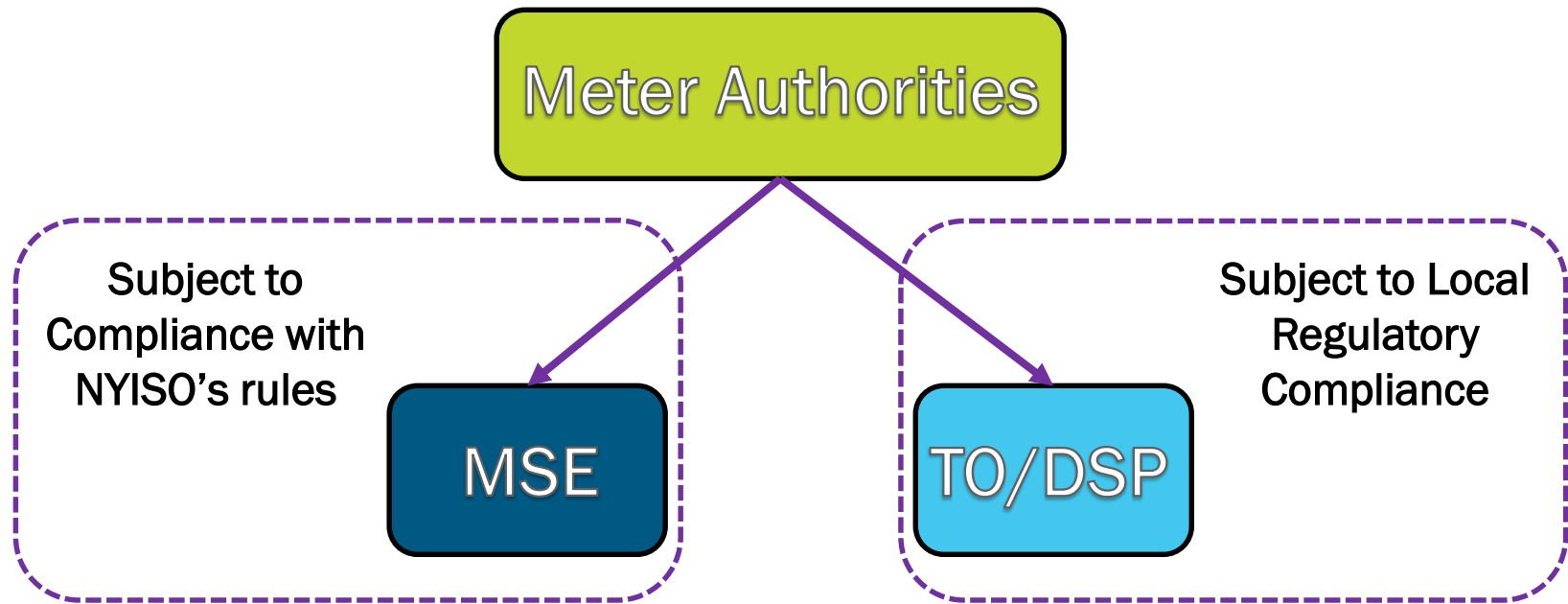
Third Party Provision for Meter Services

- Other ISO/RTOs (CAISO, PJM, MISO and ISO-NE) allow third-parties to provide metering services for wholesale market participation
- Third Party Metering Constructs across other ISOs/RTOs vary in design on these high-level areas:
 - Degree of ISO administrative oversight
 - Procedures for measurement and verification (M&V)
 - Penalties for non-compliance

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NYISO Proposal - Meter Service Entities (MSE)

Meter Authorities



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3rd Party Metering Service Entities (MSE)

- A MSE may be a Market Participant or other third-party entity that provides revenue metering and data services, including the provision of telemetry data, for a DER Coordinating Entity Aggregation (DCEA) for NYISO market participation
- A MSE must qualify to provide the NYISO with wholesale market metering services
 - The MSE's authority for providing wholesale market metering services will be subject to an annual self-audit/compliance certification submitted to the NYISO or its designee

General MSE Requirements

- **Business**
 - Proof of eligibility to do business in NYS
 - Attestation of proper employee training and competence to perform declared services
 - List of services to be provided to Market Participant
 - Description of MSE facilities that will perform and support declared services
 - Insurance coverage for any claims brought against the MSE, any subcontractors and liabilities
- **Standards Compliance**
 - Adherence to applicable ANSI and NAESB standards
 - Adherence to local utility requirements in which the MSE operates
- **Services**
 - Design and operation of metering and telemetry infrastructure
 - Records and meter data management plan
- **NYISO will review documents for compliance to the NYISO MSE eligibility requirements and rules and will provide approval**

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MSE Responsibilities to Support DER Specific Requirements

- **Managing data aggregation for individual DER within a DCEA**
 - Constructing all 3 telemetry components: Injection, Load Reduction, Total Response
 - All dispatch information sent to and from the NYISO would need to be collected and aggregated for each component of an aggregations response
 - All data used to calculate baselines for load reduction portion of the DER
 - The physical load values of facilities would need to be collected and retained for the purpose of calculating baselines for each individual DER
- **Direct Metering of ESR**
 - All injecting ESR co-located with load will be required to be directly metered
 - Installing and supporting additional meters beyond the utility net-meter is required for any resource wishing to participate with this configuration

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Oversight of MSE Compliance

- **The NYISO and/or its designee would:**
 - Review and approve entities requesting to provide MSE services
 - Validate/Audit MSE physical meter and meter data to ensure compliance with NYISO's requirements for:
 - Physical meter services:
 - Meter certification and approval for specific use cases
 - Audit meters inspection and testing facilities, and meter test results
 - Meter data services:
 - Audit: Validation, Estimation, and Editing (VEE) processes, systems calculations for data aggregation and baselines
 - Support meter data corrections and updates by the MSE

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Resourcing Required to Support MSE Construct

- NYISO expects additional staff will be needed to support the Meter Services Entities construct
- NYISO is considering options for recovering costs to support a new MSE construct
 - Potentially similar in design to Rate Schedule 7

Next Steps

- The NYISO proposes to deploy the Meter Service Entity construct ahead of the Dispatchable DER Participation Model in 2021
- All existing third-party entities providing metering services for the purpose of NYISO wholesale market participation will require MSE certification upon program deployment

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The Mission of the New York Independent System Operator, in collaboration with its stakeholders, is to serve the public interest and provide benefits to consumers by:

- Maintaining and enhancing regional reliability
- Operating open, fair and competitive wholesale electricity markets
- Planning the power system for the future
- Providing factual information to policy makers, stakeholders and investors in the power system



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Appendix

2017 Meter Data Study – Findings Regarding Metering Institutions

- Summary of E-Cubed Policy Associates’ findings regarding Metering Institutions:
 - Various compliance monitoring strategy for metering provided by Market Participants or designated third party
 - PJM relies on defining requirements, allowing a self-certification/attestation process, and reserving the right to audit
 - ISO-NE has initially relied defining requirements and a yearly independent audit, but is moving towards a self-certification/attestation process similar to PJM but with a more rigorous ISO monitoring strategy
 - CAISO relies on an in-house training program and certification/inspection process for ISO Metered Entities (ISOME) but allows self-certification for Scheduling Coordinator Metered Entities (SCME), however cannot use the same third party vendor (i.e. vendor certifying metering installation cannot be the same as the vendor who provided the metering equipment)



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Summary of Approaches at other ISO/RTOs

	PJM	ISO-NE	CAISO
Allow Third Party Meter Service Providers	Yes, including self-certify	Yes, including self-certify	Yes
M&V Monitoring Strategy	Manual periodic checks by RTO with utility support	Automated periodic checks by ISO	Not Available
Penalties for Non-Compliance	Disqualification of CSP to provide meter services	Removal of resource from market	Penalties and sanctions by approval of FERC
Administrative Mechanisms to Monitor Compliance	Subject to RTO audits	Annual M&V audit by independent auditor in addition to being subject to ISO audits Annual M&V audits to be removed as a requirement	Authorization and training program administered by ISO for third party companies Bi-annual self-audit attestation of compliance by Scheduling Coordinator ⁶²
Resourcing Level of ISO/RTO to Develop M&V Approach	Low	High	Moderate
Resourcing Level of ISO/RTO for Continuous Administration of M&V Approach	Low	Moderate	High

Chart from: NYISO Meter Data Study Report – E-Cubed Policy Associates, LLC (Dr. Paul Sotkiewicz)

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Conceptual Details of MSEs Participation in NYISO Markets

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October 23, 2018, NYISO

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Agenda

- **MSE – Detailed Proposal**
- **Next Steps**
- **Q&A and Feedback**

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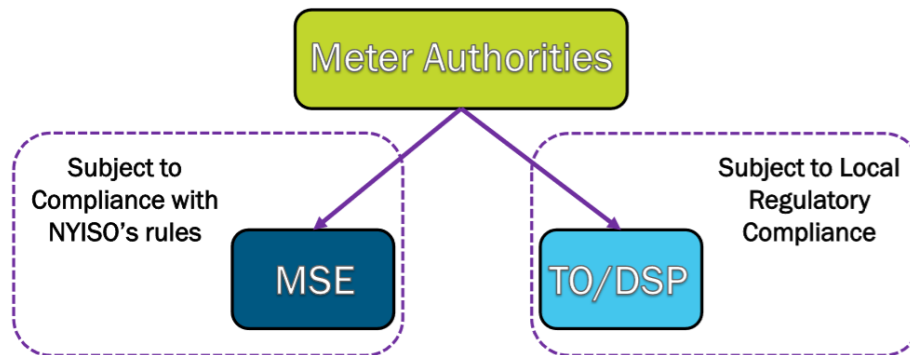
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Review



- **NYISO is developing a new Metering Service Entity construct that will authorize qualified entities to provide meter services to DER Aggregations**
 - New rules will replace the existing MSP/MDSP constructs used for the NYISO's demand response programs
- **MSE rules will be included with the tariff revisions to integrate the DER participation model**

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MSE - Detailed Proposal

Tariff and Manual Revisions

- **NYISO is developing rules and procedures to implement the MSE market design**
 - NYISO is determining the tariff revisions that are necessary to implement the MSE market design, including the NYISO's and DER Aggregator's requirements
 - Additional procedures will be included in the NYISO Manuals
- **MSE Rate Schedule**
 - NYISO will develop a new Rate schedule to recover NYISO costs for the oversight of the MSEs
 - Structure:
 - Fixed annual amount per MSE
 - Variable amount per meter, potentially with a tiered structure for the MW size of the DER.
 - MP is responsible to the NYISO for these costs

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MSE Definition and Roles

- **A MSE is a third-party entity,¹ that is approved by NYISO, that provides metering and data services, including the provision of real-time telemetry data and revenue metering data, for an Aggregation for participation in the NYISO markets**
 - DER Aggregators will engage authorized MSEs to provide services for its Aggregations, and will be responsible for any financial compensation paid to the MSE for the services it provides
- **MSE may provide metering hardware or may utilize utility revenue metering hardware**
 - Metering configuration options will be set forth in ISO Procedures
 - All metering hardware must meet applicable NYISO and ANSI standards as specified in ISO Procedures
 - Meter hardware must meet installation requirements as specified in ISO Procedures
 - Must meet cyber security requirements for communications with NYISO in accordance with all applicable rules and procedures

1. An MSE may be a Market Participant if the MSE is a NYISO Customer

Eligibility Requirements: Business

- **Financial eligibility & Insurance Coverage**
 - Evaluating potential credit and collateral obligations for MSE authorization, as well as insurance coverage requirements
- **Eligible to do business in NY State**

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Eligibility Requirements: Application Process

An entity seeking to be a MSE must submit the following to NYISO:

- Listing of utilities in whose service territories the MSE will provide services
- Listing of metering services to be provided
- Attestation that the MSE is qualified and employees have the necessary training and certification, to perform metering hardware installation, testing and other meter data services
- Acknowledgment that the services of the MSE will be subject to audits by NYISO and/or the utilities or other designated parties
- Agreement to Comply with NYISO Rules and Procedures as well as all applicable local, state and federal laws and regulations

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MSE's Responsibilities: Plans

As part of application, the entity seeking to be an MSE shall provide:

- **Description of the metering site and meter testing facilities including attestation that meter test programs are compliant with the NYISO procedures.**
- **Settlement Meter and Real-Time Telemetry Data Plan in accordance to ISO Procedures.**
 - Meter type, programming and configuration
 - Data collection, validation, retention, data aggregation, and data submission to NYISO
- **Meter data Validation, Editing, and Estimation (VEE) plan in accordance to ISO Procedures.**
- **Physical security plan and description of how the MSE will protect meter equipment and/or meter data from unauthorized physical or electronic entry or tampering.**
 - Including standards governing security and confidentiality for its employees.
- **Description of how and where records of meter installations and/or meter data will be kept**
 - Plans for disaster recovery of those records.
 - Means of ensuring that those records will be available to the NYISO in event the MSE leaves the NYISO market or becomes unable to meet minimum eligibility requirements.

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MSE's Responsibilities: Operations

The MSE shall:

- Conduct or have conducted yearly audits and testing of Metering Facilities.
- Ensure that appropriate inspections, if any, are completed by the local utility and/or regulatory authorities prior to meter installation.
- Perform meter data Validation, Estimation, and Editing (VEE) in accordance with VEE plan and ISO Procedures.
- Maintain electrical and schematic diagrams and other documentation associated with metering systems and components in accordance with ISO Procedures.
- Maintain all data and information associated with billing and operational data, (including but not limited to real-time telemetry, periodic calibration and test data of metering devices) for 6 years in accordance with ISO Procedures.

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MSE's Responsibilities: Operations (Cont'd)

MSE shall:

- Collect real-time telemetry and revenue meter data from DER participating in wholesale markets
- Provide the real-time telemetry and revenue meter data to the NYISO according to applicable timing and accuracy requirements
- Support meter data processing and analytics in accordance to ISO Procedures.
- Support the NYISO settlements and dispute resolution procedures.
- Verification of meter accuracy and compliance with applicable standards
- Provide written notice to the NYISO and the applicable MP of any defective meters, technical issue(s) or condition that may prevent the collection or reporting of accurate meter data, or loss of meter data
- Take actions to rectify meters failing to meet standards, either on an individual meter or a programmatic basis
- Establish the data collection devices or metering for telemetry data (RTUs, transformers, IEDs, etc.) to NYISO and TO in accordance with ISO Procedures.
- Report meter data issues to the NYISO in accordance with ISO Procedures.

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MSE's Responsibilities: Updating Information

- **Amendments to Application Filings:**
 - An MSE shall submit an amendment to its application for eligibility within 5 days of any changes to any of the information included on its application or any subsequent amendment.
 - Eligible MSEs filing amended applications will continue to be eligible unless otherwise directed by the NYISO.
- **Maintain compliance with MSE rules and eligibility requirements in response to changes in the tariff, other NYISO procedures, or other changes affecting MSE eligibility and responsibilities as may be developed by the NYISO, within the deadline specified by NYISO.**

NYISO Responsibilities

- **Review applications and authorize entities to be MSEs**
 - Including the review of all MSE plans; and
 - approve, request more information, conditionally approve or deny MSE applications
- **Perform audits and request information**
- **Settlements**
 - According to NYISO settlement procedure
- **Dispute resolution**
 - According to NYISO meter data dispute resolution procedure

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Compliance

- If the NYISO determines that an MSE is not in compliance with the conditions of eligibility and/or performance standards and rules, the NYISO reserves the right take corrective actions
- **Revocation and suspension for repeated non-compliance:**
 - DER using MSE services would be ineligible to participate in the NYISO market till the MSE is re-authorized by the NYISO
 - DCE will have the option to choose another MSE that is authorized by the NYISO
 - Any penalties associated with market rule violations or settlements issues arising from MSE failures are the responsibility of the MP contracting the MSE

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Non-Compliance Examples

- Failure to maintain eligibility and registration requirements as an approved MSE
- Failure to meet performance standards
- Non-compliance with the market rules
- Failure to provide adequate information in response to any request by NYISO.
- Failure to provide valid estimated and edited data pursuant to a VEE audit.

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Next Steps

Timeline

- **Tariff details development**
- **MIWG Meeting – Draft Tariff (11/05/18)**
- **MIWG Meeting – Final Tariff (11/19/18)**

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Feedback?

- Email additional feedback to:
DER_Feedback@nyiso.com

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Meter Service Entity Design Updates

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November 30, 2018 Krey Corporate Center

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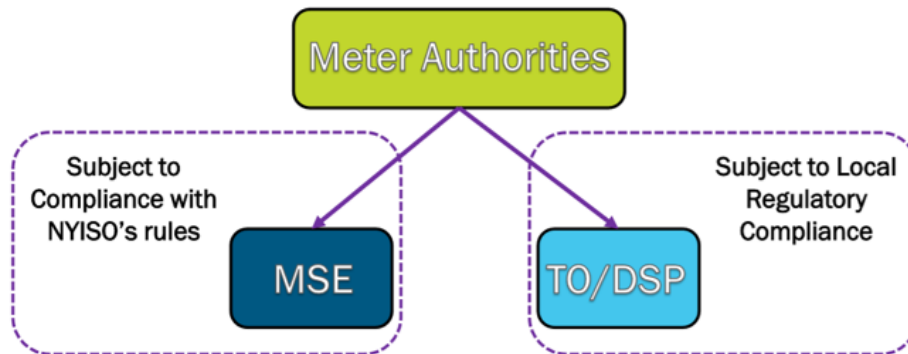


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Review



- **NYISO is developing a new Meter Service Entity (MSE) construct that will authorize entities to provide meter services to DER Aggregations in the Dispatchable DER and reliability-based (SCR and EDRP) demand response programs**
 - New rules will replace the existing MSP/MDSP constructs used for the NYISO's demand response programs
 - DER Aggregators will engage authorized MSEs to provide services for its Aggregations, and will be responsible for any financial compensation paid to the MSE for the services it provides
- **MSE rules will be included with the tariff revisions to integrate the DER participation model**
- **The new MSE rules will not impact existing metering constructs used by Member Systems**
 - Member Systems are those eight utilities that comprised the membership of the New York Power Pool

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Rate Schedule

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MSE Rate Schedule

- NYISO has drafted new Rate Schedule 9 to recover NYISO costs for the oversight of MSEs
- NYISO estimates that the MSE program, at initial implementation, will consist of roughly 30 organizations consisting of 1500 resource meters

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MSE Rate Schedule Structure

- **Market Participants (Aggregators) that use an MSE will be responsible for the NYISO costs of administering the MSE program**
- **The ISO shall calculate the charge as:**
 - A fixed annual fee per MSE per Aggregator; and
 - An annual fee per DER facility meter
 - NYISO's proposal is that this fee is the same regardless of the size of the DER facility
- **Entities seeking authorization to be a MSE shall also pay a non-refundable Application fee to the ISO**

MSE Rate Schedule Cycle

- **The NYISO costs of MSE program administration will be determined prior to the start of a calendar year, based on the estimated degree of MSE organization participation and DER participation**
 - The costs will include the estimated level of staffing needed by the NYISO to administer the MSE program
 - The costs will be assessed under the Rate Schedule as the cost per meter, per aggregator per MSE, and per MSE application
- **At the end of each year, the revenue collected under the MSE Rate Schedule will be compared with the costs incurred, and will be considered in determining the estimate for future year costs**

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Sanctions and Penalties

Sanctions and Penalties

- The ISO may impose financial penalties or other sanctions on the MSE, Aggregator, or both for actions that fail to comply with NYISO meter data accuracy and submission requirements
- MSEs may be suspended from providing metering services to aggregators for repeated submissions of problem data
- If the ISO has reason to believe that falsified meter data is submitted to the NYISO, the Aggregator may be required to utilize a new Meter Authority for its metering service and the MSE may be permanently disqualified from providing metering services in NYISO-administered markets
 - Where evidence is found for the submission of falsified data is from an Aggregator that serves as its own MSE, the Aggregator may receive both financial sanctions and potential disqualification from providing metering services. The ISO may also refer the problem organization to the MMU and FERC

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Existing Penalties Relevant to MSEs

- Sections 5 and 23 of the NYISO Market Services Tariff describe the conduct and subsequent penalties that the NYISO can issue to Market Participants today and may potentially apply to an Aggregator for the actions of a Meter Service Entity in the future
 - For example, sections 5.12.12 and 5.14.2 describe the response to the submission of late or misleading data
 - MST 5.12.12 Sanctions for Failing to Provide Required Information
 - Failing to provide data in a timely manner or exceeding tolerances may lead to daily fines on an Aggregator until the problem is resolved
 - MST 5.14.2 Installed Capacity Supplier Shortfalls and Deficiency Charges
 - Submitting data that hides a shortfall in Installed Capacity may lead to a deficiency charge assessed to the Aggregator



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Standards of Conduct

Standards of Conduct for Meter Service Entities

- Meter Service Entities are expected to engage all affiliated and non-affiliated customers without preference or prejudice with respect to providing metering services
- Metering Service Entities are prohibited from disclosing non-public information and the use of anyone as a conduit to release non-public information

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