California ISO

Metering Rules Enhancements Stakeholder Initiative

Draft Final Proposal

June 7, 2016

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Metering Rules Enhancements

Stakeholder Initiative

Draft Final Proposal

1 Changes from revised straw proposal and response to stakeholder comments

Stakeholders broadly support the ISO's proposal made in the February 23, 2016, issue paper and straw proposal, and as refined in the April 19, 2016, revised straw proposal.[1] No stakeholders take an opposed position. However, stakeholders request clarification and seek more information on some elements of the ISO's proposal. Thus, the ISO uses this draft final proposal to elaborate on its proposal and provide the additional information and clarification sought by stakeholders.

The following is a summary of the additional information and clarification provided in this paper.

Section 5.2 – Allow SCs to submit SQMD for SCME resources represented

PacifiCorp requests clarification regarding requirements for annual testing of metering facilities. PacifiCorp explained that it already has a functioning meter testing program in which meters are tested on a periodic interval based on the application it is measuring. The ISO proposed that existing scheduling coordinator metered entity (SCME) requirements will continue to apply, which includes a requirement that each scheduling coordinator (SC) at least annually conduct audits and tests of the metering facilities of the

[1] Stakeholder comments on the April 19 paper were submitted by NV Energy, Pacific Gas & Electric (PG&E), and PacifiCorp. Comments on the February 23 paper were submitted by NRG, PacifiCorp, PG&E, Southern California Edison, and the Six Cities.

SCME that it represents and the meter data provided to the SC in order to ensure compliance with all applicable requirements of any relevant local regulatory authority (see ISO tariff section 10.3.10 and BPM section 6.3.1).[2] To address PacifiCorp's point, the ISO proposes to bring SCME requirements in line with ISO metered entity (ISOME) requirements, which recommends tests and audits at least once every two years.

In the April 19 revised straw proposal the ISO also addressed a stakeholder concern about the possibility of discrepancies and disputes related to Settlement Quality Meter Data (SQMD) submission at UDC-to-UDC intratie points. The ISO suggested three possible options to address this concern: (1) put the responsibility on the adjacent UDCs to come to agreement on metering used for SQMD submission at UDC-to-UDC intratie points; (2) make it an explicit tariff requirement that adjacent UDCs must come to agreement on metering used for SQMD submission at UDC-to-UDC intratie points; or (3) require that UDCs that wish to obtain their own Unaccounted For Energy (UFE) calculations become ISOMEs (under this third option the ISO would not allow SCs representing such UDCs to submit SQMD). PacifiCorp was the only stakeholder that commented on the three options and expressed a preference for option 2. In this paper, the ISO is proposing the third option and discusses this in section 5.2. In effect, the ISO is proposing not to extend the second element of its proposal – allow SCs to submit SQMD for all resources represented – to those UDCs wishing to obtain their own UFE calculation.

Section 5.3 – SQMD Plan

NV Energy seeks more information about how frequently the ISO believes SQMD Plans should be audited or otherwise re-evaluated. Besides adhering to the annual SC self-audit report, all other related submittal materials (e.g., SQMD Resource Templates) that provide specific market resource information will need to be re-evaluated when there is a modification to the existing approved SQMD Resource Template, or when data submission practices warrant additional review by the ISO based on inconsistent and/or abnormal meter data submitted by the market participant use in settlement processing.

PacifiCorp requests clarification on whether all submitted electrical schematics are required to have a professional engineer's stamp. The ISO clarifies that a professional

[2] Capitalized terms not herein defined have the meanings set forth in Appendix A to the ISO tariff.

engineer's stamp is required on single line diagrams provided as supporting documentation.

In section 5.1 of the draft SQMD Plan attached to the April 19 revised straw proposal paper, the ISO proposed that in the absence of metering standards set by a local regulatory authority, all related equipment/devices must meet or exceed the standards for ISOME listed within the Metering BPM Attachments A and B. Regarding such a scenario, in its recent comments PacifiCorp requests clarification on whether the ISO intends for the SCME to adhere to all meter programming standards set forth in Attachment B or just the parameters required for SQMD submission. In response the ISO clarifies that at this time, and with the help of market participants, it is looking to leverage some of the existing meter standards captured in Metering BPM Attachments A and B to promote a high level of meter integrity and data accuracy. Metering BPM Attachments A and B reference physical metering elements and should not be misconstrued with SQMD data submission practices**.**

To supplement the draft SQMD Plan that the ISO attached to the April 19 revised straw proposal (as Attachment A), the ISO has developed a draft SQMD Resource Template and has added that to this paper as Attachment B.

Section 5.4 – Modifications to ISOME and general requirements

As suggested in previous papers in this initiative, the ISO believes that certain exemption requests frequently requested and granted may indicate where a change in the associated ISOME or general metering requirement merits consideration. In this paper, the ISO has expanded the particular requirements that it proposes to modify.

Generally, the tariff currently requires SCs to submit SQMD in intervals of five minutes. The ISO currently has two indefinite class exemptions for this requirement that allow scheduling coordinators to submit SQMD at larger intervals subject to other restrictions, as explained in detail in Section 4.4 of this paper.[3] The ISO proposes to revise the tariff for all resources consistent with these class exemptions.

[3] *See* May 1, 2014 and November 1, 2014 exemptions at https://www.caiso.com/Documents/MeteringExemptionsListingReport.pdf.

2 Introduction

The energy landscape has seen myriad innovations in recent years: growth in renewables, demand response, energy storage, and distributed energy resources; expansion of regional markets through the energy imbalance market; and the potential integration of other balancing authority areas into the ISO balancing authority area (BAA). With this progress, there has been advancements in metering technology, and renewed developer interest in new and complex metering configurations.

Through prior stakeholder initiatives, the ISO has reviewed its metering requirements and proposed revisions to accommodate some of this change and provide additional flexibility to market participants. Many of these efforts have led to expanded use of SC metered entities (SCME).

The ISO and stakeholders through this initiative will develop and propose additional metering rules enhancements to the process and procedures used by the ISO, ISO metered entities (ISOME), and SCs for SCMEs to obtain SQMD used for the settlement of ISO markets. This initiative does not directly address meter or telemetry data used in operations. It is also important to stress that one principle will not change through this initiative: the need to maintain the accuracy and integrity of meter data for market settlements.

The ISO finds that developing enhanced metering requirements will necessitate balancing multiple objectives. These objectives include reducing cost barriers to participate in the ISO market, accommodating new and complex metering configurations, integrating other BAAs, leveraging local regulatory authority metering requirements, considering existing metering requirements and infrastructure investments, and maintaining the accuracy and integrity of meter data used in market settlements.

In this paper, the ISO provides background information on the existing process and procedures used by the ISO, ISOME, and Scheduling Coordinators for SCME, to obtain SQMD. This paper also includes the ISO's draft final proposal on a set of proposed enhancements for stakeholder consideration. This includes a draft SQMD Plan as Attachment A and a draft SQMD Resource Template as Attachment B.

The ISO is targeting completion of the policy development phase of this initiative (i.e., seeking approval of the ISO Board) by September of this year.

3 Background

The ISO tariff defines SQMD as "Meter data gathered, edited, validated, and stored in a settlement-ready format, for settlement and auditing purposes."[4] ISO market settlement requires SQMD for generation, load, and tie resources. Said another way, SQMD is used for billable quantities to represent the energy generated or consumed during a settlement interval. The tariff provides the requirements for the processing of raw meter data, obtained from meters, to produce SQMD.

SQMD is obtained from two different sources: ISOMEs (meter data directly polled by the ISO) and SCMEs (meter data submitted to ISO by Scheduling Coordinators). ISOMEs and SCMEs each have their own tariff provisions for metering and providing meter data for ISO settlements.

3.1 ISOME

The ISO tariff defines an ISOME as:

(a) any one of the following entities that is directly connected directly to the ISO controlled grid:

  i. a Generator other than a Generator that sells all of its Energy (excluding any Station Power that is netted pursuant to Section 10.1.3) and Ancillary Services to the Utility Distribution Company (UDC) or Small UDC in whose Service Area it is located;

  ii. a metered subsystem (MSS) Operator; or

  iii. a UDC or Small UDC; and

(b) any one of the following entities:

  i. a Participating Generator;

  ii. a Participating Transmission Owner (TO) in relation to its Tie Point Meters with other TOs or Balancing Authority Areas (BAAs);

[4] Appendix A to the ISO tariff.

iii. a Participating Load;

iv. a Participating Intermittent Resource;

v. an Energy Imbalance Market (EIM) Participating Resource that has elected not to be a SCME, with regard to the EIM Resources it specifies that it represents as a ISOME; or

vi. a utility that requests that Unaccounted For Energy (UFE) for its Service Area be calculated separately, in relation to its meters at points of connection of its Service Area with the systems of other utilities.[5]

ISOME revenue quality meters are directly polled by the ISO's revenue meter data acquisition and processing system (RMDAPS)[6]. The ISO also retrieves data from the meters that provides information on the health of the meters (e.g., error logs, back up battery status, etc.). The ISO takes the raw unedited meter data and performs the validation, estimation, and editing (VEE) procedures to produce actual SQMD. The ISO does not accept meter data from an ISOME unless that meter data is produced by metering facilities certified in accordance with section 10 of the ISO tariff and section 5 of the Business Practice Manual (BPM) for Metering. An ISOME must sign a meter service agreement for ISOME (MSA CAISOME) with the ISO. The MSA only applies to those entities that the ISOME represents. Such agreements specify that ISOME make RQMD available to the RMDAPS and identify other authorized users that are allowed to access meter data relating to the ISOME.

3.2 SCME

The ISO tariff defines an SCME as an entity that is:

1. a Generator, Eligible Customer, End-User, Reliability Demand Response Resource (RDRR), or Proxy Demand Resource (PDR) that is not an ISOME;
2. an EIM Entity; and

[5] Appendix A to the ISO tariff.

[6] Appendix A to the ISO tariff defines RMDAPS as "A collective name for the set of CAISO systems used to collect, validate, edit and report on Revenue Quality Meter Data."

3. an EIM Participating Resource that elects to be a SCME with regard to some or all of the EIM Resources it represents.[7]

For SCME, the SC for an SCME submits SQMD directly into the ISO's settlement quality meter data system (SQMDS).[8] SCs are responsible for obtaining any necessary approval of the relevant LRA to its proposed security and VEE procedures. The ISO performs no VEE procedures on the actual or estimated SQMD it receives from SCs for SCME. The ISO does not accept SQMD relating to an SCME unless produced by metering facilities certified in accordance with the certification or similar criteria prescribed by the relevant LRA.[9] If the LRA has prescribed no certification criteria for the metering facilities, then the certification criteria prescribed for ISOME by section 5 of the Metering BPM apply. While adhering to the requirements of the applicable LRA, SCME must produce SQMD submitted to the ISO in accordance with the ISO's payment calendar for market settlement calculations. All SCs that submit SQMD must perform an annual SC self-audit. In this audit, the SC takes all the actions to support an attestation they have completed the audit and are processing their meter data in accordance with their requirements. An SC for an SCME must sign a meter service agreement for Scheduling Coordinators (MSA SC). Such agreements specify that SCs require their SCME to adhere to the meter requirements of the ISO tariff.

3.3 ISO Responsibilities

The ISO is responsible for establishing and maintaining the RMDAPS and the SQMDS. The ISO is also responsible for (1) setting standards and procedures for the registration, certification, auditing, testing, and maintenance of revenue quality meters; and (2) establishing procedures for the collection, security, validation, and estimation of meter data affiliated with ISOME.

[7] Appendix A to the ISO tariff.

[8] Appendix A to the ISO tariff defines SQMDS as "A collective name for the set of CAISO systems used to accept, analyze and report on Settlement Quality Meter Data."

[9] The ISO may require SCs to provide it with a copy of any certificate issued by the LRA.

3.4 Unaccounted for energy

Besides settling the market for generation and load, the ISO settles unaccounted for energy (UFE). UFE is the difference between net energy delivered and total measured demand.[10] The difference is attributable to metering or modeling errors, theft, or distribution loss deviations. The ISO performs UFE calculations for each of the utility service areas within its BAA.

3.5 Exemptions

Understanding ISO rules and practices relating to metering requirement exemptions are also critical to the development of metering rules enhancements in this initiative. The ISO has the authority to grant exemptions from certain ISO metering standards for ISOMEs.[11] The ISO generally does not grant exemptions from metering standards for SCMEs in today's market except for those participating within the Energy Imbalance Market (EIM). Besides exemptions granted to an individual ISOME, the ISO may grant exemptions that apply to a class of entities. The ISO has granted class exemptions for FERC Order No. 764 and for EIM. The ISO publishes a list of all exemptions granted in the Metering Exemptions Listing Report.[12]

An example of a common exemption is regarding use of a modem. This may occur when the site has no feasible option for an Energy Communications Network (ECN) connection due to monetary constraints or high-speed access is not available.

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[10] The tariff defines UFE as "The difference in Energy, for each utility Service Area and Settlement Period, between the net Energy delivered into the utility Service Area, adjusted for utility Service Area Transmission Losses, and the total Measured Demand within the utility Service Area adjusted for distribution losses using Distribution System loss factors approved by the Local Regulatory Authority. This difference is attributable to meter measurement errors, power flow modeling errors, energy theft, statistical Load profile errors, and distribution loss deviations. For EIM Market Participants, the CAISO will calculate Unaccounted For Energy based on the EIM Entity Balancing Authority Area instead of the utility Service Area." Appendix A of the ISO tariff.

[11] Sections 10.2.12 and 10.4 of the ISO tariff.

[12] The Metering Exemptions Listing Report was last updated on April 4, 2016, and is available at: http://www.caiso.com/Documents/MeteringExemptionsListingReport.pdf

To avoid having to make an exemption request as an ISOME, a new market entity could instead opt to be SCME and submit an SQMD Plan as described in this paper. However, this may not be the best outcome because although some market participants may find ISOME more suitable to their situation, they may opt for SCME to avoid an exemption request. As suggested in the previous paper, the ISO believes that certain exemption requests frequently requested and granted may indicate where a change in the associated metering requirements merits consideration. The ISO explains its proposal to modify certain requirements in section 5.4 of this paper.

4 Initiative Schedule

Milestone	Date
Issue Paper and Straw proposal posted	February 23
Stakeholder web conference	March 3
Stakeholder comments due	March 17
Revised Straw Proposal posted	April 19
Stakeholder web conference	April 26
Stakeholder comments due	May 10
Draft Final Proposal posted	June 7
Stakeholder web conference	June 14
Stakeholder comments due	June 28
Board of Governors Meeting	August 31–September 1

5 Draft final proposal

The ISO's draft final proposal to enhance its metering rules comprises the three elements summarized below. Besides these three elements, this paper includes a fourth area (discussed in section 5.4) in which the ISO proposes changes to certain ISOME requirements to address exemption requests. Subsequent sections discuss each in more detail.

1. No *required* changes to existing metered entities. This first element of the ISO's proposal provides existing metered entities the option to retain current requirements and maintain their status quo, or instead to opt for elements 2 and 3 (see the second and third proposal elements below). This will allow existing metered entities, whether ISOME or SCME, to maintain compliance with their metering infrastructure and requirements without being required to change to new tariff requirements unless they elect to do so. Submission of an SQMD Plan would not be required for these metering entities (see the third proposal element below).
2. Allow SCs to submit SQMD for SCME resources represented. This second element of the ISO's proposal will provide market participants with greater flexibility by allowing SCs to submit SQMD for load, generation, and intertie/intratie resources. Under this option SCs would be able to:
    a. Acquire, process, and submit SQMD for generation resources they represent.
    b. Acquire, process, and submit SQMD for their load resources by following the requirements of an applicable LRA, or by calculating their load from revenue grade tie and generator metering devices.
    c. Process and submit SQMD for tie resources when the interchange checkout data is unavailable.
3. SQMD plan. This third element of the ISO's proposal requires submission of an SQMD Plan by SCs for those SCME resources it represents (the same SC may also represent one or more ISOME as well but would not submit an SQMD Plan for the ISOME it represents). This element of the proposal ensures that the second element of the proposal will not compromise the integrity of settlement data. Here, SCs that provide SQMD for all SCME resources they represent would be

required to develop and submit a SQMD Plan. The SQMD Plan would indicate how the entity would securely and accurately install, maintain, and calibrate measurement equipment to ensure that data produced, collected, and used in developing submitted SQMD meets accuracy standards established by the ISO. The SQMD Plan would include identification of processes used in the establishment of submitted SQMD. The SC would be required to meet all existing SCME metering requirements including to perform an SC self-audit and attest to meeting any requirements of an applicable LRA.

In the following subsections, the ISO discusses these proposal enhancements in more detail. Following that is a discussion of proposed modifications to certain ISOME requirements.

5.1 No required changes to existing metered entities

The ISO proposes that existing metered entities, whether ISOME or SCME, should be able to maintain their existing compliance status without being required to change to new tariff requirements. Therefore, under this proposal, these existing metering entities are not required to submit an SQMD Plan (see section 5.3 below) even if they are SCME.

Existing ISOME have already invested in metering infrastructure, communication, and maintenance plans. The ISO proposal will allow these entities to continue with their present practices unless they opt to take advantage of the options provided in this proposal (see proposal elements 2 and 3 below in sections 5.2 and 5.3, respectively).[13]

Similarly, this proposal respects LRA requirements. If the entities the SC represents are under the jurisdiction of an LRA (e.g., CPUC-jurisdictional bundled service customer load), they may continue to process their meter data under their existing requirements.

An existing ISOME possessing an exemption from metering requirements may continue or opt to become an SCME. If this ISOME opts to become an SCME, then what was a meter exemption under ISOME must be documented in the SQMD Plan.

[13] This proposal does not address the process involved if an existing metered entity requests to become subject to the new rules. That is a business process that would be developed during implementation. It suffices here to say that existing entities will be allowed to opt into the new rules if they desire.

Following implementation of this proposal all new market participants, including those electing to participate within EIM, that choose the SCME option would not need to request an exemption from ISO metering requirements for a resource, but would instead submit an SQMD Plan.

5.2 Allow SCs to submit SQMD for SCME resources represented

To provide market participants with greater flexibility, the ISO is proposing to allow SCs the option to submit SQMD for load, generation, and intertie/intratie resources.[14] SCs that elect to take advantage of this option will be required to develop and submit an SQMD Plan (see section 5.3 below).

The ISO is not proposing to extend this option to metered subsystems (MSS)[15]. MSS will be required to maintain existing metering requirements.

Entities participating in the ISO market today use one or more of the following three methods to process meter data for use in ISO settlement.

Existing methods

1. ISOME — the ISO acquires the RQMD, performs VEE and creates SQMD used for settlement.
2. SCME — the SC submits the SQMD from meters that meet LRA-approved metering and processing requirements. The SC submits an annual SC Self-Audit Report.
3. Allow the ISO to use the meter flows from approved meters at the interties.

[14] The ISO is aware that some power purchase agreements may require a resource to be an ISOME, and as a result, there will be existing ISOME that opt to remain as ISOME and some future entities that will opt to be ISOME.

[15] A MSS is a geographically contiguous system operating as an electric utility for a number of years prior to the ISO market operations as a municipal utility, water district, irrigation district, state agency or federal power marketing authority, subsumed within the ISO BAA, encompassed by ISO certified revenue quality meters at each interface point with the ISO controlled grid and ISO certified meters on all resources internal to the system, and operated in accordance with a MSS agreement.

Under its proposal, the ISO is proposing to supplement these existing methods for acquiring and processing meter data used in ISO market settlement with the following two new methods.

Proposed new methods

4. The SC submits calculated SQMD from metering devices qualified in its SQMD Plan. For aggregated load values of a default load allocation point (DLAP), the SC may calculate their SQMD from qualified tie and generator metering devices. One stakeholder questioned whether this proposed new method means that the ISO will accept a calculated value for load from LSEs. In response, the ISO clarifies that only EIM entities and those ISOME affiliated with MSS and/or electing their own UFE calculation may calculate (i.e., derive) their load used in settlements today. The ISO proposes that it will accept the method approved by the LRA or that which is in an approved method outlined within the SQMD Plan.
5. The SC submits SQMD for tie data from flow meters qualified in its SQMD Plan.

The ISO has developed the following table to compare the methods each type of entity would use to process meter data under both the three existing methods and the two proposed new methods. The numbered values in the table refer to the methods outlined in the previous list.

Comparison of Existing Methods (i.e., 1, 2, 3) to Proposed New Methods (i.e., 4, 5) for Submittal of SQMD		
Entity Type	Present Requirements	Proposed Options
Generator – Provides regulation and/or AS	1	1, 2, 4
Generator – Provides energy Only (e.g., Diablo Canyon)	1	1, 2, 4
Generator – Provides energy to UDC in whose	2	2, 4

territory they reside (e.g., QF)		
Generator – Tie Generator – Pseudo Tie	1, 3	1, 3, 4
Load – Individual grid connected	1, 2	1, 2, 4
Load – DLAP	1, 2	1, 2, 4
Load - EIM	2	4
Intertie – BA to BA	3 (a few 1s)	3
Intratie – UDC-UDC	1	1
MSS	1	1
Distributed Energy Resources (DER)	2	2, 4
Demand response (PDR/RDRR)	2	2

The intent of the ISO proposal is to provide market participants with metering flexibility while continuing to maintain the high level of meter data accuracy and integrity that exists today. Besides current UFE practices, the ISO will continue to utilize existing controls such as audit and testing of the metering facilities and data handling and processing procedures of SCs and SCME to ensure that meter data accuracy and integrity is maintained.

The ISO is proposing that existing SCME requirements will continue to apply and this includes the existing requirement that each SC shall at least annually conduct audits and tests of the metering facilities of the SCME that it represents and the meter data provided to the SC in order to ensure compliance with all applicable requirements of any relevant local regulatory authority (see ISO tariff section 10.3.10 and BPM section 6.3.1). However,

the ISO also proposes to bring SCME requirements in line with ISO Metered Entity (ISOME) requirements on testing and auditing, which recommends tests and audits at least once every two years (rather than annually).[16]

The ISO is not proposing to impose any size restrictions on SCMEs. However, existing rules to participate in the ISO market—such as minimum size—would remain unchanged by this proposal.

The SCME will not be required to submit similar metering documentation required of an ISOME. However, the metering devices will be required to meet existing LRA requirements. If there is no relevant LRA, then the SCME will be required to meet or exceed existing ISOME metering specifications outlined in Metering BPM Attachments A and B and noted within their SQMD Plan.

SCME participation will maintain existing SCME metering requirements, which include the execution of an MSA by the SC responsible for providing its SQMD. Only with ISOME must the resource owner (rather than the SC) execute an MSA.

All meter installation and maintenance requirements for SCME will be retained. However, relevant information and/or supporting documentation will be required in the SQMD Plan (which is submitted by the SC).

SCME will continue to be required to meet meter submission requirements from tariff section 10.3.2 and section 6 of the Metering BPM.

The ISO anticipates no metering interval changes from existing requirements/class exemptions stemming from this initiative.

Earlier in this initiative, one stakeholder expressed concern this proposal may cause many metering designs and specifications throughout the ISO grid. This stakeholder expressed that this may become a problem if the resource must switch SCs because the new SC may not be compatible with the resource's metering equipment. This stakeholder further argued this could become a problem if the LSE becomes a default provider of SC services and could create an unfair cost burden to the LSE if it had to adapt to one-off meter configurations. In its response in the April 19 revised straw proposal, the ISO explained its view that this result seems very unlikely. As explained in section 4.5.4.6 of the ISO

[16] *See* Section 3.2.3.8 of the ISO BPM for Metering.

tariff, the ISO maintains a list of available SCs for each UDC territory. The UDC is only the SC of last resort. The ISO is unaware of any instance where the UDC's becoming the SC has been necessary. A market participant without an SC would have myriad other SCs to select from. If this scenario were to occur, the ISO would work with the new SC to determine a method to accomplish the gathering and processing of the meter data to meet the tariff requirements.

Another stakeholder concern previously expressed was about the possibility of discrepancies and disputes related to SQMD submission at UDC-to-UDC intratie points. In response, the ISO suggested three possible options to address this stakeholder concern. Option 1 would be to put the responsibility on the adjacent UDCs to come to agreement on metering used for SQMD submission at UDC-to-UDC intratie points. Option 2 would be to make it an explicit tariff requirement that adjacent UDCs must come to agreement on metering used for SQMD submission at UDC-to-UDC intratie points. Option 3 would be to require that UDCs that wish to obtain their own UFE calculations are ISOME (under this third option the ISO would not allow SCs representing such UDCs to submit SQMD). In its recent comments, PacifiCorp expressed a preference for Option 2. In this paper, the ISO is recommending Option 3. In effect, the ISO is proposing not to extend the second element of its proposal – allow SCs to submit SQMD for all resources represented – to those UDCs wishing to obtain their own UFE calculation.

In today's market, intraties are currently associated with two distinct practices. The first is when the intratie is used as a separation between two adjoining UDCs physically located within the same Balancing Authority Area (BAA). Option 1 is one possible solution to achieve the objective for the first distinct practice. Alternatively, the UDC can take a different approach similar to Option 1 by making the "intratie" an ISOME market resource. This will allow both market participants to have access to the meter data overseen by a neutral party (i.e., the ISO). This alternative approach is currently used in today's market.

The second distinct practice is when the intratie is incorporated into a separate UFE calculation as noted within Option 3. This practice requires not only the intratie to be an ISOME, but all other related market types (e.g., generation, load) associated with the UFE calculation to be ISOME. In Option 3, the data is collected and processed on behalf of the market participant by the ISO.

Based on its experience, the ISO has found that non-participating UDCs are not required to follow the ISO tariff. The ISO would not be able to enforce compliance on generator

owners that are associated to the intratie meters in the non-participating UDC area. Thus, the ISO does not view Option 2 as a viable solution and is recommending Option 3 instead to address the possibility of discrepancies and disputes related to SQMD submission at UDC-to-UDC intratie points.

5.3 SQMD Plan

To provide market participants with greater flexibility, the ISO is proposing to allow SCs the option to submit SQMD for load, generation, and intertie/intratie resources. To maintain the integrity and quality of meter data used in market settlements, SCs that elect to take advantage of this option will be required to develop and submit a SQMD Plan. These plans will provide SCs with the opportunity to demonstrate to the ISO that the meter data submitted to the ISO will be settlement quality. These SCs also could propose any unique metering configurations they plan to use according to their SQMD Plan.

The ISO will reserve the right to perform audits and inspections on the implementation and use of each SQMD Plan. Any SQMD Plan that proves to be inadequate is subject to revision to ensure it produces SQMD.

To supplement the draft SQMD Plan that the ISO attached to the April 19 revised straw proposal as Attachment A, the ISO has developed a draft SQMD Resource Template and has added that to this paper as Attachment B. As part of the SQMD Plan, entities would provide information on each resource using the SQMD Resource Template.

Besides the SQMD Plan, the entity will be required to submit an annual self-assessment where its management will attest to the implementation and adherence to its SQMD Plan. The entity also will be subject to the Rules of Conduct for late or inaccurate meter data.

The ISO is suggesting it have 20 business days to review a submitted SQMD Plan. This review would begin upon receipt of a complete SQMD Plan.

Besides adhering to the annual SC Self-Audit Report, all other related plans (SQMD Resource Templates) which provide specific market resource information will need to be re-evaluated when there is a modification to the existing approved SQMD Resource Template or when data submission practices warrant additional review by the ISO based on inconsistent and/or abnormal meter data submitted by the market participant use in settlement processing.

A professional engineer's stamp is required on single line diagrams provided as supporting material. A professional engineer's stamp ensures the overall quality of the diagram needed to make the correct assessment. This practice is currently an existing standard in the ISO market.

The ISO proposes that in the absence of metering standards set by a local regulatory authority, all related equipment/devices must meet or exceed the standards for ISOME listed within the Metering BPM Attachment A and B. At this time, with the help of the market participants, the ISO is looking to leverage some of the existing meter standards captured in Metering BPM Attachments A and B to promote a high level of meter integrity and data accuracy. Metering BPM Attachments A and B reference physical metering elements and should not be misconstrued with SQMD data submission practices**.**

5.4 Modifications to ISOME requirements

The ISO proposes to modify the language in two tariff sections: 10.2.6 and 10.3.2.2.

Tariff section 10.2.6 describes that revenue quality meter data (RQMD) shall be provided to the ISO's RMDAPS directly and that the ISO may exempt an entity from this requirement if the installation of communication links is unnecessary, impracticable or uneconomic. The ISO proposes to revise the language to allow communication of meter data to the ISO's RMDAPS via a method that assures the confidentiality and integrity of the data.

Section 10.3.2.2 of the ISO tariff states, "Subject to any exemption granted by the ISO, Scheduling Coordinators must ensure that Settlement Quality Meter Data submitted to the ISO is in intervals of five (5) minutes for Loads and Generators providing Ancillary Services and/or Imbalance Energy, and one (1) hour for other Scheduling Coordinator Metered Entities."

The ISO has granted two class exemptions effective indefinitely that are relevant to this requirements. On May 1, 2014, the ISO granted a class exemption allowing SCs to use a default hourly SQMD submission, unless the SC submits a request for submitting data in 5 or 15 minutes based on an effective trade date for each resource ID to the MDAS.[17] This election would be a one-time change, and the resource will maintain that interval

[17] https://www.caiso.com/Documents/MeteringExemptionsListingReport.pdf.

granularity unless a meter or meter program change requires a future adjustment. Further, granularity levels cannot be changed to a granularity lower than what is programmable within the resources' individual meters. The ISO granted this class exemption after FERC Order No. 764, which sought to enable variable energy resources to participate more in the wholesale energy and ancillary services markets. On November 1, 2014, the ISO granted a similar class exemption for Scheduling Coordinators for EIM resources.

The ISO proposes to revise its tariff such that the rule in Section 10.3.2.2 and for all resources (including demand response resources) is consistent with these class exemptions. Doing so will provide greater clarity on actual ISO practice, help the ISO enforce meaningful SQMD submission requirements, and avoid further exemptions to Section 10.3.2.2.

Attachment A – Draft SQMD Plan

[Placeholder for Draft SQMD Plan]

Attachment B – Draft SQMD Resource Template

[Placeholder for Draft SQMD Resource Template]