



California ISO

# **Metering Rules Enhancements Stakeholder Initiative**

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## **Revised Draft Final Proposal**

November 1, 2016

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# Metering Rules Enhancements (“MRE”) Stakeholder Initiative

## Revised Draft Final Proposal

### 1 Executive summary

The CAISO’s metering rules enhancements (“MRE”) proposal will provide additional metering flexibility to market participants and reduce costs to participate in CAISO markets. The MRE proposal accomplishes this primarily by providing expanded scheduling coordinator metered entity (SCME) optionality to certain market resources that otherwise must be CAISO metered entities (ISOME) today. These new types of SCMEs are in addition to the entities that may be SCMEs today. This expanded SCME optionality will enable additional market participants to forego certain costs associated with ISOME status, such as:

- Use of a CAISO approved meter
- Meter reprogramming to meet ISOME standards
- Meter inspection by CAISO Authorized Inspector
- Telecommunication costs

Under the MRE proposal, existing metered entities (regardless of type) will have the option to retain current metering requirements and maintain their status quo.

Scheduling coordinators that provide settlement quality meter data (SQMD) for new SCME resources they represent would be required to develop and submit a SQMD Plan.

Overall, the MRE proposal provides benefits to:

- Future resources that develop in the current CAISO BAA.
- Existing resources in other BAAs that integrate into the CAISO BAA.
- EIM participating generators.

The CAISO is planning to present this proposal to the CAISO Board of Governors at its December 14-15, 2016, meeting and seek approval to file the necessary tariff revisions with the Federal Energy Regulatory Commission (FERC) in early 2017.

## 2 Changes from the June 7 draft final proposal

Since publishing the draft final proposal on June 7, 2016, the CAISO has published two supplements to the draft final proposal, held three stakeholder web conferences, and received three rounds of written stakeholder comments.

The following is a high-level summary of the changes the CAISO has made to its proposal as compared to the June 7 draft final proposal.

- Provides additional clarification as to which market resource types are affected by the MRE proposal and which are not; specifically, which are provided expanded SCME optionality and which are subject to the SQMD Plan requirement. See table on pages 15-21.
- Refines how the proposal addresses the possibility of discrepancies or disputes related to SQMD submission at UDC-to-UDC intraday points. See section 6.1.2.1.
- Modifies the meter data interval requirements for new generators not associated with ancillary services opting to be SCME to require that they submit SQMD in intervals of 5 or 15 minutes. See sections 6.1.2.4 and 6.3.2.
- Provides clarification on the topic of unaccounted for energy (UFE). See section 6.1.2.5.
- Refines and clarifies how the CAISO is proposing to revise its tariff to reflect two class exemptions that the CAISO issued in 2014. See section 6.3.2.

- Updates the SQMD Plan. See Attachment A.

### 3 Introduction

Through prior stakeholder initiatives on specific efforts such as demand response, the energy imbalance market (EIM), and distributed energy resource aggregation (DERA), the CAISO reviewed and revised its metering requirements to support these efforts and provide flexibility to market participants. One outcome of these efforts is that they led to expanded use of scheduling coordinator metered entities (SCME).

With the potential integration of other balancing authority areas (BAAs) in the CAISO BAA, the CAISO launched the metering rules enhancements (“MRE”) initiative in 2016 to develop ways to provide additional metering flexibility and reduce costs to participate in CAISO markets while maintaining the accuracy and integrity of meter data for market settlements. The MRE initiative has achieved this goal through proposed enhancements to the process and procedures used by the CAISO, CAISO metered entities (ISOME), and scheduling coordinators for SCMEs to obtain settlement quality meter data (SQMD) used for the settlement of CAISO markets.<sup>1</sup> Building on the prior initiatives mentioned above, the MRE proposal will further expand use of SCME.

In this paper, the CAISO provides background information on the existing process and procedures used by the CAISO, ISOME, and scheduling coordinators for SCME, to obtain SQMD. This paper presents the CAISO’s revised draft final proposal developed through this initiative. This includes a draft SQMD Plan as Attachment A and a draft SQMD Resource Template as Attachment B.

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

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<sup>1</sup> This initiative does not directly address meter or telemetry data used in operations.

## 4 Background

The CAISO tariff defines SQMD as “Meter data gathered, edited, validated, and stored in a settlement-ready format, for settlement and auditing purposes.”<sup>2</sup> CAISO market settlement requires SQMD for generation, load, and tie resources. Said another way, SQMD is used for billable quantities to represent the energy generated, consumed or transferred 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 processed by the CAISO) and SCMEs (meter data submitted to CAISO by scheduling coordinators). ISOMEs and SCMEs each have their own tariff provisions for metering and providing meter data for CAISO settlements.

### 4.1 ISOME

The CAISO tariff defines an ISOME as:

- (a) any one of the following entities that is directly connected directly to the CAISO controlled grid:
  - i. a Generator<sup>3</sup> 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;

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<sup>2</sup> Appendix A to the CAISO tariff.

<sup>3</sup> Capitalized terms not herein defined have the meanings set forth in Appendix A to the CAISO tariff.

- ii. a Participating Transmission Owner (TO) in relation to its Tie Point Meters with other TOs or Balancing Authority Areas (BAAs);
- 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.<sup>4</sup>

ISOME revenue quality meters are directly polled by the CAISO's revenue meter data acquisition and processing system (RMDAPS)<sup>5</sup>. The CAISO 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 CAISO takes the raw unedited meter data and performs the validation, estimation, and editing (VEE) procedures to produce actual SQMD. The CAISO 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 CAISO 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 CAISO. 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.

## 4.2 SCME

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

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<sup>4</sup> Appendix A to the CAISO tariff.

<sup>5</sup> Appendix A to the CAISO 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."

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
3. an EIM Participating Resource that elects to be a SCME with regard to some or all of the EIM Resources it represents.<sup>6</sup>

For SCME, the SC for an SCME submits SQMD directly into the CAISO's settlement quality meter data system (SQMDS).<sup>7</sup> SCs are responsible for obtaining any necessary approval of the relevant LRA to its proposed security and VEE procedures. The CAISO performs no VEE procedures on the actual or estimated SQMD it receives from SCs for SCME. The CAISO 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.<sup>8</sup> If the LRA has prescribed no certification criteria for the metering facilities, then the certification criteria prescribed within the Metering BPM or Tariff section 29 (EIM) based on market participation will apply. While adhering to the requirements of the applicable LRA, SCME must produce SQMD submitted to the CAISO 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 confirming that 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 CAISO tariff.

### 4.3 CAISO Responsibilities

The CAISO is responsible for establishing and maintaining the RMDAPS and the SQMD. The CAISO is also responsible for (1) setting standards and procedures for the registration, certification, auditing, testing, and maintenance of revenue quality meters; and (2)

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<sup>6</sup> Appendix A to the CAISO tariff.

<sup>7</sup> Appendix A to the CAISO tariff defines SQMDS as "A collective name for the set of CAISO systems used to accept, analyze and report on Settlement Quality Meter Data."

<sup>8</sup> The CAISO may require SCs to provide it with a copy of any certificate issued by the LRA.



establishing procedures for the collection, security, validation, and estimation of meter data affiliated with ISOME.

#### 4.4 Unaccounted for energy

Besides settling the market for generation and load, the CAISO settles unaccounted for energy (UFE). UFE is the difference between net energy delivered and total measured demand.<sup>9</sup> The difference is attributable to metering or modeling errors, theft, or distribution loss deviations. The CAISO performs UFE calculations for each of the designated utility service areas within its markets.

#### 4.5 Exemptions

Understanding CAISO rules and practices relating to metering requirement exemptions is an important consideration in the development of metering rules enhancements in this initiative. The CAISO has the authority to grant exemptions from certain CAISO metering standards for ISOMEs.<sup>10</sup> The CAISO 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 CAISO may grant exemptions that apply to a class of entities. The CAISO has granted class exemptions for FERC Order No. 764 and for EIM.<sup>11</sup> These two class exemptions are

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<sup>9</sup> 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 CAISO tariff.

<sup>10</sup> Sections 10.2.12 and 10.4 of the CAISO tariff.

<sup>11</sup> FERC Order No. 764 sought to remove potential barriers to variable energy resources' participation in the national electric markets. *Integration of Variable Energy Resources*, 139 FERC ¶ 61,246 (2012).

discussed further in section 6.3.2 of this paper. The CAISO publishes a list of all exemptions granted in the Metering Exemptions Listing Report.<sup>12</sup>

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

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 (see section 6.1.3 and Appendices A and B). 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 previous papers in this initiative, the CAISO believes that certain exemption requests frequently requested and granted may indicate where a change in the associated metering requirements merits consideration. The CAISO explains its proposal to modify one such requirement in section 6.3.1 of this paper.

## 5 Initiative Schedule

Milestone	Date
Issue Paper and Straw proposal	February 23
Stakeholder web conference	March 3
Stakeholder comments due	March 17
Revised Straw Proposal	April 19
Stakeholder web conference	April 26
Stakeholder comments due	May 10

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

Milestone	Date
Draft Final Proposal & First Supplement	June 7 & June 16
Stakeholder web conference	June 14
Stakeholder comments due	June 28
Draft Final Proposal Second Supplement	September 1
Stakeholder web conference	September 12
Stakeholder comments due	September 19
Revised Draft Final Proposal	November 1
Stakeholder web conference	November 10
Final stakeholder comments due	November 17
Board of Governors Meeting	December 14-15, 2016

## 6 Revised Draft final proposal

The CAISO's revised draft final proposal to enhance its metering rules comprises the elements discussed in sections 6.1 through 6.3 below.

## 6.1 Expanded SCME optionality<sup>13</sup>

The MRE proposal allows SCs to submit SQMD for certain market resource types that under today's rules would need to be ISOMEs.<sup>14</sup> These new types of SCMEs are in addition to the entities that may be SCMEs today. Specifically, the MRE proposal represents new SCME optionality for the following market resource types:

- Generation providing ancillary services
- CAISO BAA generation providing energy only (i.e., not associated with ancillary services)
- Intraties
- Distributed energy resources under a Participating Generator Agreement

The table on pages 15-21 provides a comprehensive comparison of those market resources provided expanded SCME optionality under the MRE proposal to those for which there is no change.

In addition to this expanded SCME optionality, this proposal modifies the meter data interval requirements for CAISO BAA generation providing energy only (i.e., not associated with ancillary services) and EIM participating generators. This is discussed in more detail in sections 6.1.2.4 and 6.3.2.

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

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<sup>13</sup> For purposes of this proposal, the phrase “SCME optionality” refers those instances where a market resource type that can only be ISOME today is provided the option of being SCME.

<sup>14</sup> The CAISO 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.

Under the MRE proposal SCs that provide SQMD for new<sup>15</sup> SCME resources they represent would be required to develop and submit a SQMD Plan (note: 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 would apply to all new SCMEs, whether or not the particular market resource type could opt to be SCME prior to the MRE proposal. Some exclusions apply for demand response resources; these are discussed in more detail in section 6.1.2.3. 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 and integrity standards established by the CAISO. The SQMD Plan would include identification of processes used in the establishment of submitted SQMD. Beside these new requirements, SCs submitting SQMD for SCME resources they represent would be required to meet all existing SCME metering requirements including an SC self-audit and attest to meeting applicable metering requirements.

SCMEs will not be required to submit similar metering documentation required of an ISOME. However, the metering devices will be required to meet existing LRA and CAISO requirements captured within the Metering BPM or Tariff section 29 (EIM) , as explained within its 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).

The intent of the CAISO 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 CAISO will continue to utilize existing controls such as audit and testing of the metering facilities and data handling and processing

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<sup>15</sup> As used in this paper “new” means new SCME resources as of the effective date of FERC’s acceptance of the proposed tariff revisions.

procedures of SCs and SCME to ensure that meter data accuracy and integrity is maintained.

The CAISO is proposing that existing SCME requirements will continue to apply, including the existing requirement that each SC shall conduct audits and tests of the metering facilities of the SCME(s) 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 CAISO tariff section 10.3.10 and BPM section 6.3.1). However, the CAISO also proposes to bring SCME requirements in line with CAISO Metered Entity (ISOME) requirements on testing and auditing, which recommends tests and audits at least once every two years (rather than annually).<sup>16</sup>

### ***6.1.1 ISOME/SCME – today vs. under proposal***

To recap the discussion from sections 4.1 and 4.2, entities participating in the CAISO market are either ISOME (the CAISO acquires the RQMD, performs VEE and creates SQMD used for settlement) or SCME (the SC submits the SQMD from meters that meet LRA-approved metering and processing requirements). The MRE proposal supplements these existing methods for acquiring and processing meter data used in CAISO market settlement with expanded use of SCME for certain market resource types.

To clarify which types of entities affected by the MRE proposal and which are not, the CAISO has developed the following table to compare ISOMEs/SCMEs today to those under the MRE proposal. The right column of the table highlights where the MRE proposal triggers a change – for example, where new SCME optionality occurs and where entities are subject to the SQMD Plan requirement. The table also includes some proposed changes to meter data submittal intervals for generators providing energy only. Some items in the table are discussed in more detail in subsequent pages.

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<sup>16</sup> See Section 3.2.3.8 of the CAISO BPM for Metering.

Comparison of ISOME/SCME today vs. ISOME/SCME under MRE proposal			
Entity Type	Today <sup>17</sup>	MRE Proposal <sup>18</sup>	Change?
Generators providing AS	ISOME (only option)	ISOME (remains available) SCME (available as a new option) <sup>19</sup>	Yes, represents new SCME optionality for generators providing AS.  New SCMEs would be subject to the SQMD Plan requirement.

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<sup>17</sup> Prior to the effective date of FERC’s acceptance of the proposed tariff revisions implementing the MRE proposal.

<sup>18</sup> As of the effective date of FERC’s acceptance of the proposed tariff revisions implementing the MRE proposal.

<sup>19</sup> The CAISO may have some generators still participating in the Station Power Protocol under Appendix I to the CAISO tariff. These generators may elect to convert to SCME status, but would no longer be able to use the Station Power Protocol.

<p>Generators providing energy only (i.e., not associated with ancillary services)</p>	<p>ISOME (only option for non-EIM entities) SCME (available to EIM entities only)</p>	<p>ISOME (remains available) SCME (available as a new option for CAISO BAA based generators providing energy only; remains available to EIM entities)</p>	<p>Yes, represents new SCME optionality for CAISO BAA generators providing energy only. SCs for these SCMEs must submit SQMD in intervals of 5 or 15 minutes (<u>Note:</u> This is a change; under today’s rules these resources may submit in intervals of 5, 15 or 60 minutes).</p> <p>For EIM participating generators, SCs for these SCMEs must submit SQMD in intervals of 5 or 15 minutes (<u>Note:</u> This is a change; under today’s rules these resources must submit in intervals of 5 minutes).</p> <p>New SCMEs would be subject to the SQMD Plan requirement.</p>
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Comparison of ISOME/SCME today vs. ISOME/SCME under MRE proposal			
Entity Type	Today <sup>17</sup>	MRE Proposal <sup>18</sup>	Change?
Generators providing energy to UDC in whose territory they reside (e.g., QFs)	SCME	SCME	No new SCME optionality. New SCMEs would be subject to the SQMD Plan requirement.
Dynamic Resources	ISOME (Interchange Transaction Scheduler <sup>20</sup> ) SCME (EIM Real Time Interchange Schedule Data <sup>21</sup> )	ISOME (remains available) SCME (remains available for EIM entities)	No new SCME optionality. New SCMEs would be subject to the SQMD Plan requirement.
Load: Individual grid connected (e.g., load under a Participating Load Agreement)	ISOME (CAISO BAA and EIM entities)	ISOME (CAISO BAA and EIM entities)	No new SCME optionality.

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<sup>20</sup> Interchange Transaction Scheduler – Tagged values of Intertie Transactions associated with CAISO BAA. In addition, it has the WECC Interchange Tool (WIT) checkout values of metered energy flows across specific CAISO BAA Interties.

<sup>21</sup> EIM Real Time Interchange Schedule Data – Tagged values of Intertie Transactions associated with EIM Entity’s BAA. These tagged values are submitted directly by the EIM Entity’s scheduling coordinator.

Comparison of ISOME/SCME today vs. ISOME/SCME under MRE proposal			
Entity Type	Today <sup>17</sup>	MRE Proposal <sup>18</sup>	Change?
Load: DLAP	ISOME (service territories requesting own UFE calculation) SCME (CAISO BAA)	ISOME (remains available to service territories requesting own UFE calculation) SCME (remains available to CAISO BAA)	No new SCME optionality. New SCMEs would be subject to the SQMD Plan requirement.
Load: ELAP (EIM)	ISOME or SCME (EIM entity's choice)	ISOME or SCME (remains EIM entity's choice)	No new SCME optionality. New SCMEs would be subject to the SQMD Plan requirement.
Intertie <sup>22</sup>	ISOME (CAISO BAA) SCME (EIM entities)	ISOME (remains available to CAISO BAA) SCME (remains available to EIM entities)	No new SCME optionality. New SCMEs would be subject to the SQMD Plan requirement.

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<sup>22</sup> An intertie is a transmission corridor that interconnects the CAISO BAA with another BAA or an EIM Entity BAA with another BAA. No change proposed for interties under MRE proposal.

Comparison of ISOME/SCME today vs. ISOME/SCME under MRE proposal			
Entity Type	Today <sup>17</sup>	MRE Proposal <sup>18</sup>	Change?
Intratie <sup>23</sup>	ISOME (only option)	ISOME (if adjacent UDCs cannot comply with the requirement to submit corresponding meter values)  SCME (available as a new option if adjacent UDCs can comply with the requirement to submit corresponding meter values)	Yes, this represents new SCME optionality for intraties but only in instances where adjacent UDCs can comply with the requirement to submit corresponding meter values.  New SCMEs would be subject to the SQMD Plan requirement.
MSS <sup>24</sup>	ISOME (only option)	ISOME (only option)	No new SCME optionality.

<sup>23</sup> An intratie is a metering point between two adjacent utility service areas or utility distribution companies (UDCs) within the CAISO BAA.

<sup>24</sup> The CAISO is not proposing to extend this option to metered subsystems (MSS). MSS will be required to maintain existing metering requirements.

Comparison of ISOME/SCME today vs. ISOME/SCME under MRE proposal			
Entity Type	Today <sup>17</sup>	MRE Proposal <sup>18</sup>	Change?
Distributed Energy Resources (DER) / Distributed Energy Resource Aggregations (DERA)	<p>ISOME (DER under a Participating Generator Agreement)</p> <p>SCME (DER aggregations under a DER Provider Agreement)</p>	<p>ISOME (remains available to DER under a Participating Generator Agreement)</p> <p>SCME (available as a new option for DER under a Participating Generator Agreement)</p> <p>SCME (DER aggregations under a DER Provider Agreement)</p>	<p>Yes, this represents new SCME optionality for DER under a Participating Generator Agreement.</p> <p>New SCMEs would be subject to the SQMD Plan requirement.</p>
Demand response (PDR/RDRR)	SCME (only option)	SCME (only option)	<p>No new SCME optionality.</p> <p>New SCMEs would be subject to the SQMD Plan requirement in instances where the LRA is silent on a certification criteria for meter data used in calculating the Demand Response Energy</p>

Comparison of ISOME/SCME today vs. ISOME/SCME under MRE proposal			
Entity Type	Today <sup>17</sup>	MRE Proposal <sup>18</sup>	Change?
			Measurements derived from an CAISO approved performance evaluation methodology. See section 6.1.2.3 of this paper for more discussion.

## 6.1.2 Additional clarification of proposal

### 6.1.2.1 Intraties

Earlier in this initiative, PacifiCorp expressed concern about the possibility of discrepancies or disputes related to SQMD submission at UDC-to-UDC intratie points: If the two adjacent UDCs cannot agree on the metering used and instead opt to use their own independent meters, then the SQMD submitted by these two adjacent UDCs may not align. To address this concern the CAISO issued a supplement to the draft final proposal on June 16. This revised draft final proposal incorporates the proposal contained in the June 16 supplement.

Under the CAISO's proposal, if adjacent utility service areas or UDCs elect to submit SQMD at the intratie (rather than making the "intratie" an ISOME market resource), they will be required to agree on the metering used for SQMD submission and agree on who will be responsible for submitting the corresponding meter values. In other words, the metering data between the two metering sources must align. If they cannot comply with this requirement through bilateral coordination, then the metering used at the intratie must be a CAISO certified meter, and the data will be collected and processed by the CAISO on behalf of the adjacent utility service areas or UDCs. This will allow both utility service areas or UDCs to have access to the meter data overseen by the ISO.

The following summarizes the two intratie options available to adjoining UDCs under the CAISO proposal:

1. If two adjoining UDCs within the CAISO BAA agree upon the value and data submission responsibility representing energy flows between them, then the metering used at the intratie may be SCME and the meter data submitted by one of the SCs may be SQMD.
2. If two adjoining UDCs within the CAISO BAA cannot agree upon the value and data submission responsibility representing energy flows between them, then the resource will remain and/or become an ISOME where the metering and communications are the shared responsibility of one or both of the adjoining UDCs; but, data is collected, validated, and submitted by the CAISO.

### 6.1.2.2 DER/DERA

Since the start of the CAISO market, there have been examples of distribution-connected generation participating in the CAISO market. Up until 2016 these were only interconnected through a participating transmission owner's wholesale distribution access tariff (WDAT), possess an executed Participating Generator Agreement (PGA) with the CAISO, and are ISOME.

In fall 2016, the CAISO implemented the new, additional framework enabling distributed energy resource aggregations (DERA) to participate in CAISO markets.<sup>25</sup> The aggregator representing a DERA (the defined term is DER Provider or DERP) has an executed DERP Agreement (DERPA) with the CAISO and the market resource is SCME.

Under the MRE proposal, new SCME optionality is provided to distribution-connected generation under a PGA as well.

### 6.1.2.3 Demand response (PDR/RDRR)

SCME policy developed for proxy demand resources (PDR) and reliability demand response resources (RDRR) leveraged tariff provisions for Metering Facilities<sup>26</sup> that were already in place and under the jurisdiction of a Local Regulatory Authority. CAISO tariff section 10.3.9 sets out the requirement for the SC to ensure that revenue meters and related Metering Facilities of SCMEs they represent are certified in accordance with any certification criteria prescribed by the relevant LRA. Section 10.3.9 also provides that the SC must promptly provide copies of all certificates issued by the relevant LRA upon request of the CAISO.

In cases where the PDR/RDRR applies a performance evaluation methodology using LRA approved load metering, an SQMD Plan is not necessary and for some cases, as in the case of a PDR/RDRR consisting of thousands of small commercial or residential customers, a burden to develop and submit for metering facilities installed and maintained by the customers local utility and not necessarily the Demand Response Provider (DRP).

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<sup>25</sup> Section 4.17 of the CAISO tariff.

<sup>26</sup> Capitalized terms not herein defined have the meanings set forth in Appendix A to the CAISO tariff.

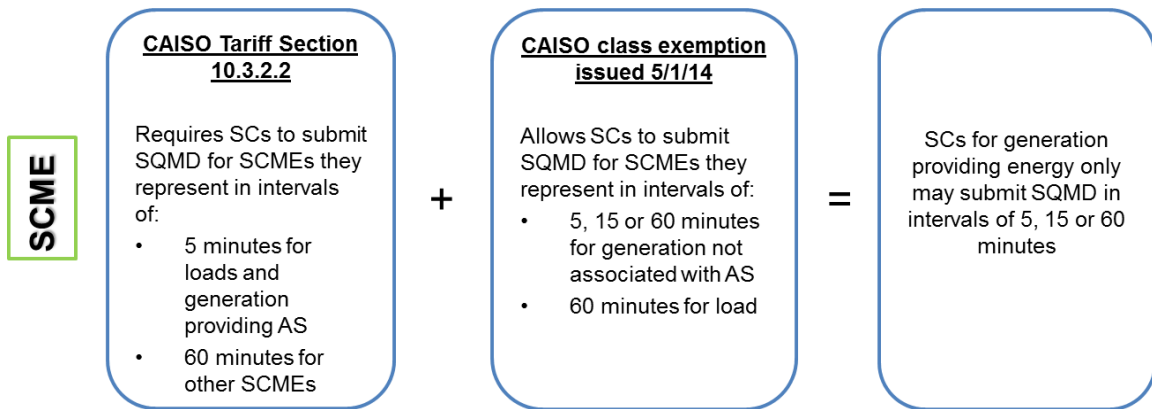
However, the SQMD Plan would be applicable for PDR/RDRR in cases where the LRA is silent on a certification criteria for meter data used in calculating the Demand Response Energy Measurements derived from a CAISO approved performance evaluation methodology. Provisions under tariff section 10.3.11 include that “If the relevant Local Regulatory Authority has not prescribed any certification criteria for the Metering Facilities of a Scheduling Coordinator Metered Entity, the Scheduling Coordinator representing that Scheduling Coordinator Metered Entity must promptly notify the CAISO in writing that no such criteria have been prescribed. That Scheduling Coordinator will then be responsible for ensuring that the Scheduling Coordinator Metered Entities it represents obtain and maintain Certificates of Compliance in respect of all of the Metering Facilities of those Scheduling Coordinator Metered Entities in accordance with Section 10.3.9.” The SQMD Plan requirement would be an extension of this provision.

#### 6.1.2.4 Meter data intervals

Today, meter data of ISOMEs must be recorded at 5-minute intervals (CAISO tariff section 10.2.9.2). The MRE proposal does not change this; the 5-minute requirement will remain in place for ISOMEs. Furthermore, ISOMEs opting for the expanded SCME optionality offered by the MRE proposal (i.e., for those specific market resource types provided the new SCME optionality) will be required to continue recording meter data at 5-minute intervals.

For SCMEs today, interval requirements vary depending on the resource type. CAISO tariff section 10.3.2.2 requires SCs to submit SQMD for SCMEs they represent in intervals of 5 minutes for loads and generation providing ancillary services, and 60 minutes for other SCMEs. Added to this is the class exemption issued by the CAISO on May 1, 2014, which allows SCs to submit SQMD for SCMEs they represent in intervals of 5, 15, or 60 minutes for generation not associated with ancillary services, and 60 minutes for load. Taken together, this means that a subset of these—SCs for generation providing energy only—may submit SQMD in intervals of 5, 15, or 60 minutes. This is illustrated by the diagram below.





The subset of generators providing energy only is relevant in the context of the MRE proposal because for non-EIM generators providing energy only today these must be ISOME (and record their meter data at 5-minute intervals), but under the MRE proposal could opt to be SCME, and without a proposal modification here could submit SQMD in intervals of 5, 15, or 60 minutes. In the CAISO’s view this is concerning because it would have the unintended consequence of expanding the proportion of market participants not submitting SQMD in intervals of 5 minutes. The CAISO both dispatches resources and settles with those resources on a 5-minute basis (per FERC Order No. 764). Aligning the measurement and submittal of SQMD with this same 5-minute basis results in higher accuracy of the payments (or charges) to the resource and a corresponding lowering of any necessary offset allocations. To strike a balance, the CAISO is proposing that new non-EIM energy-only generators opting to be SCME must submit SQMD in intervals of 5 or 15 minutes (thus, this will eliminate the ability to submit in intervals of 60 minutes). By extension, the CAISO is proposing that new EIM participating generators (by definition these are energy only) opting to be SCMEs may submit SQMD in intervals of 5 or 15 minutes (thus, not required to submit only on a 5-minute intervals basis). This will treat all energy only generators opting to be SCMEs on a similar basis.

**6.1.2.5 Unaccounted for Energy (UFE)**

UDCs and other utilities with CAISO certified metering points of connection between their Service Areas<sup>27</sup> and the systems of other utilities can request and receive separately

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<sup>27</sup> Capitalized terms not herein defined have the meanings set forth in Appendix A to the CAISO tariff.

calculated UFE (see CAISO Tariff Section 10.2.1.1 and Appendix A). UDCs and other utilities with a separate UFE calculation will schedule Load to the load aggregation point (LAP); however, the metered Load will be assigned to the appropriate UDC for purposes of UFE calculation.

For those UDCs and other utilities with CAISO certified metering points of connection between their Service Area and the systems of other utilities that request and receive separately calculated UFE, such market participants can elect to submit SQMD for one or all related market resources (generation, intraties, load). This option will require the representing SC to submit SQMD for the corresponding Load market resource.

#### **6.1.2.6 Load values**

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

#### **6.1.3 SQMD Plan**

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 CAISO that the meter data submitted to the CAISO will be settlement quality. These SCs also could propose any unique metering configurations they plan to use according to their SQMD Plan.

The CAISO 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 will be subject to revision to ensure it produces SQMD.

A draft SQMD Plan is included as Attachment A to this paper. A draft SQMD Resource Template is included 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 CAISO is suggesting that 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,<sup>28</sup> all other related plans (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 CAISO based on inconsistent and/or abnormal meter data submitted by the market participant use in settlement processing.

A professional engineer's stamp or equivalent is required on single line diagrams provided as supporting material with the exception of those Non-Participating Generators within EIM where Issued for Construction, As-Built schematics are acceptable. This information ensures the overall quality of the diagram needed to make the correct assessment. This practice is currently an existing standard within the CAISO BAA market.

The CAISO 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 CAISO 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

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<sup>28</sup> Capitalized terms not herein defined have the meanings set forth in Appendix A to the CAISO tariff.

and data accuracy. Metering BPM Attachments A and B reference physical metering elements and should not be misconstrued with SQMD data submission practices.

A concern previously expressed by SCE was that the MRE proposal may cause many metering designs and specifications throughout the CAISO grid. SCE 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. SCE 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 CAISO explained its view that this result seems very unlikely. As explained in section 4.5.4.6 of the CAISO tariff, the CAISO maintains a list of available SCs for each UDC territory. The UDC is only the SC of last resort. A market participant without an SC would have myriad other SCs to select from. If this scenario were to occur, the CAISO 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.

## **6.2 No required changes to existing metered entities**

The MRE proposal provides existing metered entities the option to retain current requirements and maintain their status quo, or instead to opt for the expanded SCME optionality where applicable. 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.

The CAISO 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 even if they are SCMEs. However, SCMEs that opt to add additional capacity or repower their facilities will be required to submit an SQMD Plan upon the completion of their modifications.

Existing ISOMEs have already invested in metering infrastructure, communication, and maintenance plans. The CAISO proposal will allow these entities to continue with their

present practices unless they opt to take advantage of the options provided in this proposal.<sup>29</sup>

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.

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 CAISO metering requirements for a resource, but would instead submit an SQMD Plan.

## 6.3 Exemption issues

### *6.3.1 Modifications to certain ISOME requirements*

Tariff section 10.2.6 describes that revenue quality meter data (RQMD) shall be provided to the ISO's RMDAPS directly and that the CAISO may exempt an entity from this requirement if the installation of communication links is unnecessary, impracticable or uneconomic. The CAISO 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.

### *6.3.2 Modifications to certain class exemptions previously granted*

Tariff section 10.3.2.2 states, "Subject to any exemption granted by the ISO, Scheduling Coordinators must ensure that Settlement Quality Meter Data submitted to the CAISO is in intervals of five (5) minutes for Loads and Generators providing Ancillary Services

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<sup>29</sup> 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.

and/or Imbalance Energy, and one (1) hour for other Scheduling Coordinator Metered Entities.”

The CAISO has granted two class exemptions effective indefinitely that are relevant to these interval requirements.<sup>30</sup>

On May 1, 2014, the CAISO granted a class exemption allowing SCs and other entities submitting meter data for either generation not associated with ancillary services, flow gates (interties), or load, to submit meter data in the following granularity levels not already stated in tariff section 10.3.2.2:

- a. Generation at 5, 15, or 60-minute intervals.
- b. Load at 60-minute intervals.

This class exemption only applies to SCs who submit SQMD. This election would be a one-time change, and the resource will maintain that interval 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 CAISO 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 CAISO granted a class exemption allowing SCs and other entities submitting meter data related to EIM resources for either generation not associated with ancillary services, flow gates (interties), or load, to submit meter data in the following granularity levels not already stated in tariff section 10.3.2.2:

- a. Generation for participating generators at 5-minute intervals; non-participating generators at 5, 15, or 60-minute intervals.
- b. Flow gates (interties) at 5-minute intervals.
- c. Load at 5, 15, or 60-minute intervals.

This class exemption only applies to SCs who submit SQMD for EIM related resources. This election would be a one-time change and the resource will maintain the granularity unless a meter or meter program change requires a future adjustment. Granularity levels

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<sup>30</sup> <https://www.caiso.com/Documents/MeteringExemptionsListingReport.pdf>.

cannot be changed to a granularity lower than what is currently programmable within the individual meters.

In general, these class exemptions allow submittal of meter data at an interval level that is *more* granular than otherwise permitted under tariff section 10.3.2.2, which only contemplates a 60-minute interval for load and resources not providing imbalance energy or ancillary services. Under these exemptions, load and generation not already required to submit meter data in 5-minute intervals could elect to do so or to provide meter data in 15-minute or 60-minute intervals as well.

In the June 7 draft final proposal, the CAISO proposed to revise its tariff such that the rule in tariff section 10.3.2.2 is consistent with these class exemptions. In the September 1 second supplement, the CAISO proposed to phase out these two class exemptions and require a transition to SQMD submittal in intervals of five minutes.

After further consideration, the CAISO believes its June 7 proposal is the better one when combined with the proposal aspect previously discussed in section 6.1.2.4 of this paper. Thus, in this revised draft final proposal the CAISO is proposing to revise its tariff such that the rule in tariff section 10.3.2.2 is consistent with these two class exemptions and the modifications previously discussed in section 6.1.2.4 of this paper. Doing so will provide greater clarity on actual CAISO practice, help the CAISO enforce meaningful SQMD submission requirements, and avoid further exemptions to Section 10.3.2.2.

To help clarify its proposal on this topic, the CAISO has included here for stakeholder consideration its draft proposed changes to tariff section 10.3.2.2.

### **10.3.2.2 Format for Data Submission**

Scheduling Coordinators shall submit Settlement Quality Meter Data to the Settlement Quality Meter Data System for the Scheduling Coordinator Metered Entities they represent using one of the CAISO's approved Meter Data Exchange Formats. Subject to any exemption granted by the CAISO, Scheduling Coordinators must ensure that Settlement Quality Meter Data submitted to the CAISO is in intervals of five (5) minutes for Loads **providing Ancillary Services and/or Imbalance Energy** and Generators providing Ancillary Services and/or Imbalance Energy, ~~and one (1) hour for other Scheduling Coordinator Metered Entities,~~ and in intervals of five (5) or fifteen (15) minutes for Generators not associated with Ancillary Services. All other Scheduling Coordinator Metered Entities may elect to provide Meter Data in 5-minute, 15-minute, or 60-minute

intervals. Elections will be recorded in the CAISO Master File, and may not be deviated from or revised except through the Master File revision process. The elected interval may not be a granularity lower than what is programmed on the Scheduling Coordinator Metered Entity's physical meter(s) or as specified in the applicable Business Practice Manual. Where the Scheduling Coordinator does not provide Meter Data in 5-minute intervals, the CAISO will calculate the submitted interval granularity to reflect the 5-minute value for settlement purposes.

Each Scheduling Coordinator shall submit Settlement Quality Meter Data in kWh or MWh values for all of the Scheduling Coordinator Metered Entities that it schedules aggregated by:

- (a) LAPs and PNodes, as applicable; and
- (b) the relevant PNode for Generating Units



## **Attachment A – Draft SQMD Plan**

**[Placeholder for Draft SQMD Plan]**

## **Attachment B – Draft SQMD Resource Template**

**[Placeholder for Draft SQMD Resource Template]**