Below are SCE's comments on the tariffs to implements the Phase 1 of the year 1 enhancements. SCE has an issue regarding the lack of supporting information for a change to Section 11.5.4.1 which would change the calculation of the value of the EIM transfer. The draft final report on year 1 EIM enhancements included the following information regarding the value of the EIM transfer:

> **Financial value of EIM transfer in RTIEO calculation** – currently the real-time imbalance energy offset accounts for the financial value of the EIM transfer. The price used is the LMP where the relevant EIM transfer is tagged. The EIM BAA exporting is charged the LMP and the EIM BAA that is importing is paid the LMP for the MW of the EIM transfer. This is ensures that each BAA is balanced when calculating the real-time imbalance energy offset. Since the intertie scheduling point is not the location where generation within an EIM BAA is dispatched, the ISO proposes to use the default generation aggregation point of the exporting EIM BAA to determine the financial value of the EIM transfer. This is appropriate because the energy transfer system resource is a single resource representing all generation resources in an EIM BAA.[1]

The report states a change from using the intertie locational marginal price (LMP) to the default generation aggregation point (DGAP) to value the EIM transfer. However, in the latest version of the Section 11.5.4.1 the CAISO has changed from the DGAP to the system marginal energy cost (SMEC) without any supporting explanation. The calculations of neutrality accounts are highly complex and currently they use the LMP, and this would change one of the inputs to use only the energy component. This may be an appropriate change, but it may also have unintended consequences.

The CAISO should hold a webinar to explain the problem with the current calculation, with examples, and showing this change solves the problem. Without this transparency, SCE and other market participants are unable to comment on this change and provide a statement of support or dissent.

[1] http://www.caiso.com/Documents/DraftFinalProposal_EnergyImbalanceMarketYear1Enhancements.pdf page 23.

Settlement of Non-participating resources, application of performance and deviation metrics, and EIM transfer value in the real-time congestion offset calculation.	**29.11. Settlements And Billing For EIM Market Participants.** (a) **Applicability.** Section 29.11, rather than Section 11, shall apply to the CAISO Settlement with EIM Entity Scheduling Coordinators and EIM Participating Resource Scheduling Coordinators, except as otherwise provided, but not to other Scheduling Coordinators. (b) **Imbalance Energy.** (1) **FMM Instructed Imbalance Energy.** (A) **Calculation.** (i) **EIM Participating Resources.** The CAISO will calculate an EIM Participating Resource's FMM Instructed Imbalance Energy in the same manner as it calculates FMM Instructed Imbalance Energy under Section 11.5.1.1, except that references to the Day-Ahead Schedule in the relevant Appendix A definitions shall be deemed references to the EIM Base Schedule and that the CAISO will include any Energy from an EIM Manual Dispatch of the EIM Participating Resource in the FMM that is identified

		by the EIM Entity Scheduling Coordinator prior to the start of the FMM. (ii) **Non-Participating Resources.** The CAISO will calculate the FMM Instructed Imbalance Energy of non-participating resources in an EIM Entity Balancing Authority Area in the same manner as it calculates FMM Instructed Imbalance Energy under Section 11.5.1.1, except that references to the Day-Ahead Schedule in the relevant Appendix A definitions shall be deemed references to the EIM Base Schedule and that the CAISO will include any Energy from an EIM Manual Dispatch of the EIM non-~~P~~participating ~~R~~resource in the FMM that is identified by the EIM Entity Scheduling Coordinator prior to the start of the FMM~~as the sum of the Energy, if any, from EIM Manual Dispatch of the non-participating resource and any deviation from the EIM Base Schedule due to physical changes in any non-participating~~

~~resource's output that the EIM Entity Scheduling Coordinator reports to the CAISO prior to the FMM~~.

. . .

(2) **RTD Instructed Imbalance Energy.**

(A) **Calculation.**

(i) **EIM Participating Resources.** The CAISO will calculate an EIM Participating Resource's RTD Instructed Imbalance Energy in the same manner in which it calculates ~~FMM~~ RTD Instructed Imbalance Energy under Section~~s~~ 11.5.1.2 and 11.5.5, except that the CAISO will include any Energy from an EIM Manual Dispatch of the EIM Participating Resource in the RTD that is identified by the EIM Entity Scheduling Coordinator.

(ii) **Non-Participating Resources.** The CAISO will calculate the RTD Instructed Imbalance Energy of non-participating resources in an EIM Entity Balancing Authority Area in the same manner in which it calculates RTD~~FMM~~ Instructed Imbalance Energy under Section

11.5.1.2 and 11.5.5, except that the CAISO will include any Energy from an EIM Manual Dispatch of the EIM non-pParticipating rResource in the RTD that is identified by the EIM Entity Scheduling Coordinatoras the Energy, if any, from EIM Manual Dispatch of the non-participating resource in the RTD that is identified by the EIM Entity Scheduling Coordinator.

. . .

(3) **Uninstructed Imbalance Energy.**

. . .

(B) **Non-Participating Resources.**

(i) **Calculation.** For non-participating resources in an EIM Entity Balancing Authority Area, the CAISO will calculate Uninstructed Imbalance Energy in accordance with Section 11.5.2, except that the CAISO will treat an use the EIM Base Schedule asin lieu of a Day-Ahead Schedule and the CAISO will treat an EIM Manual Dispatch as a Dispatch Instruction.as the difference between the 5-minute Meter Data and

		~~the EIM Base Schedule or, if the EIM Scheduling Coordinator reported physical changes in a non-participating resource's output to the CAISO prior to the FMM, the FMM Schedule, less any EIM Manual Dispatch Energy of non-participating resources.~~ (ii) **Settlement.** The CAISO will settle the Uninstructed Imbalance Energy for non-participating resources in an EIM Entity Balancing Authority Area at the applicable RTD Locational Marginal Price ~~or Default LAP Hourly Real-Time LAP~~ in accordance with Sections 11.5.2.1 ~~and 11.5.2.2~~ with the applicable EIM Entity Scheduling Coordinator and will treat EIM Balancing Authority Demand in the same manner as the CAISO treats CAISO Demand under those Sections. (C) **Non-Participating Load.** (i) **Calculation.** For non-participating Load in an EIM Entity Balancing Authority Area, the CAISO will calculate Uninstructed Imbalance Energy in

	accordance with Section 11.5.2.2, except that the CAISO will determine deviations based on the EIM Base Load Schedule. (ii) **Settlement.** The CAISO will settle Uninstructed Imbalance Energy for non-participating Load in an EIM Entity Balancing Authority Area at the applicable Default LAP Hourly Real-Time Price in accordance with Section 11.5.2.2 with the applicable EIM Entity Scheduling Coordinator and will treat EIM Balancing Authority Demand in the same manner as the CAISO treats CAISO Demand under those Sections. (f) **Real-Time Bid Cost Recovery.** (1) **In General.** The CAISO will provide EIM Participating Resources RTM Bid Cost Recovery. (2) **Calculation of Real-Time Bid Cost Recovery.** The CAISO will calculate Real-Time Bid Cost Recovery in accordance with Section 11.8.4, except that the CAISO will treat a non-zero EIM Base Schedule of an EIM Participating Resource as a Self-Schedule and the EIM Participating Resource will not be eligible for recovery of Start-Up Costs and Minimum Load Costs, in accord-

ance with the treatment of costs during self-commitment intervals as specified in Section 11.8.4.1.2.

(3) **Application of Real-Time Performance Metric.** The CAISO will adjust the RTM Energy Bid Cost, the RTM Market Revenues, and RTM Minimum Load Costs determined pursuant to Section 29.11(f)(2) by multiplying the Real-Time Performance Metric with those amounts for the applicable Settlement Interval pursuant to the rules specified in Section 11.8.4.4 and its subsections, except that the CAISO will treat an EIM Base Schedule as a Day-Ahead Schedule.

(4) **Allocation of EIM Entity RTM Bid Cost Uplift.**

(A) **Calculation of Charge.** The Net RTM Bid Cost Uplift will be determined for each EIM Entity Balancing Authority Area in accordance with the methodology set forth in Section 11.8.6.

(B) **Settlement.** The CAISO will assess the Net RTM Bid Cost Uplift calculated for each EIM Entity Balancing Authority Area to the applicable EIM Entity Scheduling Coordinator in accordance with Section 11.8.6.6.(ii).

...

(o) **Application of Persistent Deviation Metric.**

The CAISO will modify the Bid Cost Recovery calculations de-

	scribed in Section 29.11(f) and Residual Imbalance Energy payments in Section 11.5.5 as described in Section 11.17, except that the CAISO will treat an EIM Base Schedule as a Day-Ahead Schedule. **11.5.4 Imbalance Energy Pricing; Non-Zero Offset Amount Allocation** **11.5.4.1 Real-Time Imbalance Energy Offset** (a) **Financial Value of EIM Transfers.** The CAISO will calculate the Real-Time Market financial value of EIM Transfers as the product of the MWh, either positive or negative, and the ~~Locational Marginal Price of the pricing node at the corresponding EIM Internal Intertie~~System Marginal Energy Cost.
Greenhouse gas flag and cost-based bid adder	**29.32 Greenhouse Gas Regulation and EIM Bid Adders.** (a) **EIM Bid Adders.** (1) **In General.** EIM Participating Resources will have an opportunity to recover costs of compliance with California Air Resources Board greenhouse gas regulations, which may include the cost of allowances, uncertainty on the final resource specific emission factor, and other costs of greenhouse gas regulation compliance. (2) **EIM Bid Adder~~Submission~~.** (A) **Bid Submission.** EIM Participating Resource Scheduling Coordinators may submit an EIM Bid Adder as a separate hourly Bid component

Comment [PDN1]: There is lack of information to support this change. See SCE's comments to the top of this document.

to recover costs of compliance with California Air Resources Board greenhouse gas regulations, which must include a price and quantity and the price portion ~~component~~ of which must be equal to or less than 110% of the EIM Participating Resource's greenhouse gas maximum compliance cost as determined in accordance with section 29.32(a)(3).

(B) **Default Treatment.** If an EIM Participating Resource does not submit an EIM Bid Adder, the CAISO will assume that the EIM Participating Resource will not be selected for delivery to the CAISO Balancing Authority Area.

(3) **Determination of EIM Greenhouse Gas Maximum Cost ~~Bid Adder~~.** Each day the CAISO will determine the ~~EIM G~~greenhouse gas ~~M~~maximum compliance ~~C~~cost for each EIM Participating Resource as set forth in the EIM Business Practice Manual, based on—

(A) the EIM ~~Participating~~ Resource's highest incremental heat rate; the applicable Greenhouse Gas Allowance~~Compliance~~ Price; and the EIM Participating Resource's emission rate, as set forth in the applicable U.S. Environmental Protection Agency publication and registered in the Master File; or

Comment [PDN2]: Unclear why Participating is deleted concerning this section deals with participating resources

(B) a price determined in accordance with the negotiated rate option procedures in section 39.7.1.3.1; or,

(C) with respect to, and only with respect to, Bids at EIM External Interties, ~~a default EIM External Intertie transaction price set to~~ the carbon dioxide equivalent emission rate of the resource with the highest such rate in the WECC region and the applicable ~~EIM~~ Greenhouse Gas Allowance Price ~~Compliance Cost~~ index. ~~The sum of the EIM Bid Adder and the Energy cost portion of the Bid cannot exceed $1000/MWh.~~

(4) ~~Minimum~~ **EIM Bid Adder Price.** The price included in the EIM Bid Adder shall not be less than $0/MWh. . The sum of the EIM Bid Adder and the Energy cost portion of the Bid cannot exceed $1000/MWh

~~(5) **Limit on Use of Bid Adders.** An EIM Participating Resource Scheduling Coordinator may submit no more than one Bid Adder per day for an EIM Resource.~~

(b) **Consideration of EIM Bid Adders in Market Clearing.**

(1) **Dispatch of EIM Participating Resources with Nonzero Bid Adders.** The CAISO's ~~shall modify its~~ Security Constrained Economic Dispatch in the Real-Time Unit Commitment and Real-Time Dispatch shall

Comment [PDN3]: This is likely to be un-specified power. CARB has an emission factor that can be used for this type of import trans-action. The unspecified rate can also be used for compliance with CARB so the compliance and pricing are consistent.

Comment [PDN4]: In CAISO, the Energy bid cannot exceed $1000/MWH, so for EIM the combination cannot exceed $1000/MWH. The treats the resources the same.

	~~to~~ take into account EIM Bid Adders in selecting Energy produced by EIM ~~Participating~~ Resources outside the CAISO Balancing Authority Area for import into the CAISO Balancing Authority Area or other EIM Entity Balancing Authority Areas in California up to the associated MW quantity included in the EIM Bid Adder, but not when selecting EIM Resources to serve Load outside of the CAISO Balancing Authority Area or other EIM Entity Balancing Authority Areas in California. (2) **Dispatch of EIM Participating Resources Bid Adders of Zero.** The CAISO's Security Constrained Economic Dispatch in the Real-Time Unit Commitment and Real-Time Dispatch shall not dispatch EIM Participating Resources outside the CAISO Balancing Authority Area for delivery into the CAISO Balancing Authority Area or other EIM Entity Balancing Authority Areas in California if the MW quantity included in the EIM Bid Adder is zero.
Use of ATC for EIM Transfers and Enforcement of EIM transfer limits	**29.17 EIM Transmission System.** (f) **EIM Transfer Availability.** (1) **In General.** The ISO will model individual constraints for each EIM Transfer limit submitted by each EIM Entity that makes transmission available on an EIM Internal Intertie. ~~The EIM Transfer limit available for use in the Real-Time Market shall be determined~~

	(21) **Use of Interchange ~~Firm~~ Transmission Rights.** ~~by~~ ~~t~~The EIM Entity Scheduling Coordinator shall determine the EIM Transfer limit made available for use in the Real-time Market through interchange~~firm~~ transmission rights and communicate~~d~~ that limit to the CAISO prior to the start of the next Dispatch Interval in accordance with the procedures and timelines for submission and acceptance in the Business Practice Manual for the Energy Imbalance Market. (32) **Use of Available Transfer Capability.** The EIM Entity Scheduling Coordinator shall determine the EIM Transfer limit made available to the Real-Time Market through available transfer capability in accordance with its tariff and communicate that limit to the CAISO prior to the start of the next Dispatch Interval in accordance with the procedures and timelines for submission and acceptance in the Business Practice Manual for the Energy Imbalance Market. (43) **Multiple EIM Transfer Limits.** If there are two or more EIM Entity Balancing Authority Areas that share the same EIM Internal Intertie, the CAISO's Security Constrained Economic Dispatch in the Real-Time Unit Commitment and Real-Time Dispatch will enforce the individual EIM Transfer limit for each EIM Entity Balancing Authority Area while allowing Energy to

	wheel through the EIM Entity Balancing Authority Areas based on the transmission made available for use in the Real-Time Market.~~The CAISO shall use the lowest EIM Transfer limit communicated by EIM Entity Scheduling Coordinators at EIM Internal Interties shared among EIM Entity Balancing Authority Areas.~~ (54) **EIM Transfers and CAISO Scheduling Points.** EIM Transfers shall compete for Available Transfer Capability at interties that are an EIM Internal Intertie and a CAISO Scheduling Point. (65) **EIM Transfer Limit Constraints.** The CAISO's Security Constrained Economic Dispatch in the Real-Time Unit Commitment and Real-Time Dispatch shall enforce the EIM Transfer limit and the associated physical limit at each EIM Internal Intertie. (h) **EIM Transfer Cost.** The CAISO's Security Constrained Economic Dispatch in the Real-Time Unit Commitment and Real-Time Dispatch shall include a cost associated with EIM Transfers at each EIM Internal Intertie, not to exceed $0.10. [CAISO Note: This rate will be revised prior to implementation to the lowest cost that produces a useful solution based upon market simulation experience.]
Additional elements in resource sufficiency evaluation and	**29.34 EIM Operations** . . . (m) **Flexible Ramping Constraint Requirement.**

application to ISO BAA	. . . (4) **Sufficiency Determination.** (A) **Review.** (i) **EIM Entity Balancing Authority Areas.** The CAISO will review the EIM Resource Plan pursuant to the process set forth in the Business Practice Manual for the Energy Imbalance Market and verify that it has sufficient Bids for Ramping capability to meet the EIM Entity Balancing Authority Area Flexible Ramping Constraint capacity requirement, as adjusted pursuant to Sections 29.34(m)(4)(B) ~~and~~ (C), and (E). (ii) **CAISO Balancing Authority Area.** The CAISO will review the Day-Ahead Schedules in the CAISO Balancing Authority Area and verify that it has sufficient Bids for Ramping capability to meet the CAISO Balancing Authority Area Flexible Ramping Constraint capacity requirement, as adjusted pursuant to Sections 29.34(m)(4)(B), (C), and (E).

	. . . (E) **Incremental Requirements.** (i) **In General. I**f the CAISO determines under the procedures set forth in the ~~EIM~~ Business Practice Manual for the Energy Imbalance Market that an EIM Balancing Authority Area has historically high import or export schedule changes between T-40 and T-20, the CAISO will add to the EIM Entity's flexible capacity requirement an additional incremental requirement. (ii) **Additional Incremental Requirement.** On a monthly basis, according to procedures set forth in the Business Practice Manual for the Energy Imbalance Market, the CAISO will calculate for each EIM Entity Balancing Authority Area histograms of the percentage of the difference between imports and exports scheduled at T-40 and the final imports at T-20 based on the E-Tags submitted at T-40 and T-20 and calculate additional incremental and decremental requirements for the

	capacity test component of the resource sufficiency evaluation.
Administrative Pricing Rules	**29.7 EIM Operations Under Normal And Emergency Conditions.** . . . (j) **EIM Disruption.** . . . (2) **CAISO Response to EIM Disruption.** If the CAISO declares an interruption of EIM Entity participation in the Real-Time Market, the CAISO may in its judgment, among other things— . . . (D) in addition or as an alternative, establish an Administrative Price in the Real-Time Market in accordance with Section 7.7.~~4~~9, except that the CAISO will use the price in the EIM Entity's tariff specified for corrective action in lieu of the price specified in Section 7.7.9(c); or (E), in addition or as an alternative, or take any of the actions specified in Section 7.7.~~715~~15 with respect to the Real-Time Market. [CAISO Note: The EIM changes will be filed after the amendment of the administrative pricing provisions approved by the board.]
EIM Administrative	29.11(i) **EIM Administrative Charge.**

Charge	(1)	**In General.** The CAISO will charge EIM Market Participants an ~~fixed~~ EIM Administrative Charge consisting of an EIM Market Services Charge and an EIM System Operations Charge.~~equal to the product of $0.19/MWh and the sum of –~~
	(2~~A~~)	**EIM Market Services Charge.** The EIM Market Services Charge shall be the product of the Market Services Charge for each Scheduling Coordinator as calculated according to the formula in Appendix F, Schedule 1, Part A, the Real-Time Market Percentage as calculated according to the formula in Appendix F, Schedule 1, Part A, and the sum of Gross FMM Instructed Imbalance Energy (excluding FMM Manual Dispatch Energy) and Gross RTD Instructed Imbalance Energy (excluding RTD Manual Dispatch Energy Standard Ramping Deviation, Ramping Energy Deviation, Residual Imbalance Energy, and Operational Adjustments).~~the total gross absolute value of FMM Instructed Imbalance Energy, gross absolute value of RTD Imbalance Energy, and gross absolute value of Uninstructed Imbalance Energy of the EIM Market Participant's Supply,~~ and
	(3~~B~~)	**EIM System Operations Charge.** The EIM System Operations Charge shall be the product of the System Operations Charge for each Scheduling Coordinator,

as calculated according to the formula in Appendix F, Schedule 1, Part A, the Real-Time Market Percentage as calculated according to the formula in Appendix F, Schedule 1, Part A, and the absolute difference between metered energy and the EIM Base Schedules.~~the gross absolute value of Uninstructed Imbalance Energy of the EIM Market Participant's Demand.~~

(4~~2~~) **Minimum EIM Administrative Charge.** The CAISO will calculate the minimum EIM Administrative Charge as the product of the sum of the EIM Market Service Charge and the EIM System Operations Charge ~~$0.19/MWh~~ and—

(A) five percent of the total gross absolute value of Supply of all EIM Market Participants; plus

(B) five percent of the total gross absolute value of Demand of all EIM Market Participants.

(5) **Withdrawing EIM Entity.** If the EIM Entity notifies the CAISO of its intent to terminate participation in the Energy Imbalance Market and requests suspension of the Energy Imbalance Market in its Balancing Authority Area under Section 29.4(b)(4), the CAISO will charge the EIM Entity the minimum EIM Administrative Charge calculated under Section 29.11(i)(4~~2~~) during the notice period.

	~~(3) Allocation of Minimum EIM Administrative Charge. To the extent that the full amount charged pursuant to Section 29.11(i)(1) is less than the amount calculated under Section 29.11(i)(2), the ISO will allocate the difference to the EIM Entity Scheduling Coordinator.~~ (6~~4~~) **Application of Revenues.** The CAISO will apply revenues received from the EIM Administrative Charge against the costs to be recovered through the Grid Management Charge as described in Appendix F, Schedule 1, Part A.
Flexible ramping constraints BAA combinations	**29.34 EIM Operations** . . . (m) **Flexible Ramping Constraint Requirement.** . . . (2) **Nature.** The Flexible Ramping Constraint capacity requirement is a minimum requirement for each Balancing Authority Area in the EIM Area and on a system wide basis~~each combination thereof~~ based upon the EIM Transfer limit between Balancing Authority Areas. (3) **Determination.** Under the provisions of Section 29.34(m) and the procedures set forth in the Business Practice Manual for the Energy Imbalance Market, the CAISO will determine the Flexible Ramping Constraint capacity requirement using the CAISO Demand

	Forecast and CAISO Variable Energy Resource forecast for each Balancing Authority Area in the EIM Area and system wide.~~each combination thereof.~~ . . . 5) ~~**Combinations** **System Wide** **of** **Constraint~~s~~.** The CAISO shall determine the Flexible Ramping Constraint capacity requirement system wide, ~~for all possible combinations of sufficient Balancing Authority Areas in the EIM Area,~~ including requirements for individual Balancing Authority Areas in the system wide constraint~~each combination~~, by reducing the total Flexible Ramping Constraint capacity requirement for each ~~group of~~ Balancing Authority Area~~s~~ by the total amount of EIM Internal Intertie import capability to that ~~that~~ Balancing Authority Area ~~group~~ from each Balancing Authority Area in the EIM Area.~~outside the group.~~ . . . **- EIM Bid Adder** A Bid component composed of a MW quantity and price that provides EIM Participating Resources an opportunity to recover costs of compliance with California Air Resources Board greenhouse gas regulations.