Station Power

Appendix A: Station Power

Retail Energy, as defined by the Local Regulatory Authority, for operating electric equipment, for the sole purpose of participating in the CAISO Markets. ~~or portions thereof, located on the Generating Unit site owned by the same entity that owns the Generating Unit, which electrical equipment is used exclusively for the production of Energy and any useful thermal energy associated with the production of Energy by the Generating Unit; and for the incidental heating, lighting, air conditioning and office equipment needs of buildings, or portions thereof, that are owned by the same entity that owns the Generating Unit; located on the Generating Unit site; and used exclusively in connection with the production of Energy and any useful thermal energy associated with the production of Energy by the Generating Unit. Station Power includes the Energy associated with motoring a hydroelectric Generating Unit to keep the unit synchronized at zero real power output to provide Regulation or Spinning Reserve. Station Power does not include any Energy used to power synchronous condensers; used for pumping at a pumped storage facility; or provided during a Black Start procedure. Station Power does not include Energy to serve loads outside the CAISO Balancing Authority Area.~~

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10.1.3 Netting

CAISO Metered Entities and Scheduling Coordinator Metered Entities may net Station Power only to the extent allowed by their Local Regulatory Authority and as provided below.

10.3.1.1 Permitted Netting

CAISO Metered Entities and Scheduling Coordinators may, when providing Meter Data to the CAISO, net kWh or MWh values for ~~Generating Unit~~ output and ~~auxiliary Load equipment~~ Station Power electrically connected ~~to that Generating Unit~~ at the same point, provided that the ~~Generating Unit~~ resource is on-line and ~~is~~ producing sufficient output to serve all of ~~that auxiliary Load equipment~~ its Station Power. Where permitted by the Local Regulatory Authority, CAISO Metered Entities and Scheduling Coordinators may,

when providing Meter Data to the CAISO, include Station Power within the resource's wholesale Demand or output below zero (for dispatches to charge a storage resource, for example). ~~For example, where a Generating Unit's auxiliary Load equipment is served via a distribution line that is separate from the switchyard to which the Generating Unit is connected, that Generating Unit and auxiliary Load equipment will not be considered to be electrically connected at the same point.~~

10.1.3.1.2 Prohibited Netting

CAISO Metered Entities or Scheduling Coordinators may not net values for Generating Unit output and Load that is not Station Power. CAISO Metered Entities or Scheduling Coordinators that serve third party Load connected to a ~~Generating Unit's~~ resource's auxiliary system must add that third party Load to the resource or Generating Unit's output. Where a resource's auxiliary Load or Station Power is served via a distribution line that is separate from the switchyard where the resource is connected, that resource and its auxiliary Load and/or Station Power will not be considered to be electrically connected at the same point. The CAISO Metered Entity may add that third party Load to the ~~Generating Unit's~~ resource's output either by means of a hard wire local meter connection between the metering systems of the third party Load and the ~~Generating Unit~~ resource or by requesting the CAISO to use RMDAPS to perform the addition. Scheduling Coordinators representing Scheduling Coordinator Metered Entities that serve third party Load connected to the auxiliary system of a ~~Generating Unit~~ resource must ensure that those Scheduling Coordinator Metered Entities add the Energy consumed by such third parties to ~~that Generating Unit's~~ output so as to ensure proper settlement of the ~~at Generating Unit's~~ gross output. The CAISO Metered Entity or the Scheduling Coordinator must ensure that the third party Load has Metering Facilities that meet the standards referred to in this Section 10 and the Business Practice Manuals.

10.1.3.3 Permitted Netting for a Net Scheduled Generating Unit or a QF

Generating Unit that is a QF subject to an Existing QF Contract is subject to the revenue metering requirements set forth in the Existing QF Contract for the QF and is not subject to the revenue metering requirements of Section 10. A QF Generating Unit that is not operating under the terms of an Existing QF Contract is subject to the metering requirements of Section 10 prohibiting the net metering of Generation and Load, except if it is subject to a Net Scheduled PGA. A Generating Unit that is a QF or a CHP

Resource and that operates under the terms of a Net Scheduled PGA is eligible for net metering treatment. Notwithstanding Section 10.1.3.2, a Participating Generator with a Net Scheduled PGA may net the value for the Generation produced by each Net Scheduled Generating Unit listed in its Net Scheduled PGA and the value for the Demand of the Self-provided Load that is (i) served by the Net Scheduled Generating Unit and (ii) electrically located on the same side of the Point of Demarcation. The Participating Generator with a Net Scheduled PGA may satisfy the provisions of Section 10 for the installation of revenue metering by installing Metering Facilities at the Point of Demarcation; provided that the installed Metering Facilities satisfy the technical, functional, and performance requirements for Metering Facilities set forth in Section 10 and the applicable Business Practice Manual.

* * * * *

Net Benefits Test

30.6.3 Net Benefits Test for ~~Scheduling of~~ PDRs or RDRRs

In accordance with Section 11.5.2.4, ~~T~~the CAISO will apply a net benefits test to determine ~~whether Bids~~ a threshold Market Clearing Price for Proxy Demand Resources or Reliability Demand Response Resources settlement adjustments ~~qualify as a Schedule as set forth in Section 31~~.

30.6.3.1 Supply Curve Used in Applying the Net Benefits Test

The CAISO will generate one (1) on-peak supply curve and one (1) off-peak supply curve for each month that depicts the system-wide aggregated power supplies at different offer prices in the CAISO Markets within that month. The CAISO will generate these two supply curves for each month, using the following sequential methodology:

(i) The CAISO will collect supply curve data for the month that is twelve (12) months prior to the month for which the CAISO is generating the supply curves (the reference month), using all mitigated Bids in the Real-Time Market from any Generating Unit that is either committed or uncommitted and excluding Import Bids and Export Bids.

(ii) The CAISO will adjust the supply curve data to reflect differences in resource availability

and fuel prices between the target month and the reference month. Significant changes in resource availability will be determined using the averages of the hourly supply curves over the entire reference month, with the supply quantities being averaged for every price level. Significant changes in fuel prices will be determined using the simple average of the ~~Pacific Gas and Electric Company citygate price and the Southern California Edison Company citygate price, or, if those prices are unavailable, using the Henry Hub price~~ relevant fuel indices ~~as specified~~referenced in the Business Practice Manual. For every supply quantity, the corresponding price will be scaled using a scaling factor defined as the forward gas price for the Trading Month divided by the historical average gas price for the reference month. These adjustments will result in two representative supply curves for the target month, one (1) on-peak and one (1) off-peak.

(iii) The CAISO will smooth the representative supply curves to twice differentiable using an exponential form function and applying a price window that is likely to contain the threshold Market Clearing Price. The price window may need to be adjusted in the process until the smoothed supply curves fit the representative supply curves closely.

Using the smoothed supply curves, the CAISO will determine a candidate threshold Market Clearing Price for the on-peak and a threshold Market Clearing Price for the off-peak corresponding to the point on each supply curve beyond which (i) the product of the amount of supplied Power (prior to the dispatch of Proxy Demand Resources) and the reduction in Market Clearing Price that results from the dispatch of Proxy Demand Resources exceeds (ii) the product of the Market Clearing Price (prior to the dispatch of Proxy Demand Resources) and the reduction in the amount of supplied Power that results from the dispatch of Proxy Demand Resources. If the candidate threshold Market Clearing Price is outside the corresponding price window being used, the price window needs to be adjusted and this process will be repeated until the price window contains the candidate threshold Market Clearing Price and thus makes it the final threshold Market Clearing Price. If multiple candidate threshold Market Clearing Prices exist, the candidate threshold Market Clearing Price that is concave on the supply curve (a supply function of price) will be the final threshold Market Clearing Price.

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Demand Response

Appendix A

- Customer Load Baseline

A value or values based on historical or statistically relevant Load meter data ~~to derive a measured delivery of Demand Response Services~~.

- Generator Output Baseline

A value or values based on historically relevant Energy output meter data from behind-the-meter generation ~~to derive a measured delivery of Demand Response Services~~.

11.6 PDRs, RDRRs, Distributed Energy Resource Aggregations, Non-Generator Resources

11.6.1 Settlement of Energy Transactions Involving PDRs or RDRRs Using Customer Load Baseline Methodologies

Settlements for Energy provided by Demand Response Providers from Proxy Demand Resources or Reliability Demand Response Resources shall be based on the Demand Response Energy Measurement for the Proxy Demand Resources or Reliability Demand Response Resources. The Demand Response Energy Measurement for a Proxy Demand Resource or Reliability Demand Response Resource shall be the quantity of Energy equal to the difference between (i) the Customer Load Baseline for the Proxy Demand Resource or Reliability Demand Response Resource and (ii) either the actual underlying ~~Load~~ consumption or the quantity of Energy calculated pursuant to Section 10.1.7 for the Proxy Demand Resource or Reliability Demand Response Resource for a Demand Response Event. Scheduling Coordinators will be responsible for calculating and submitting Demand Response Energy Measurements in 5-minute intervals. For monitoring, compliance, and audit purposes, Scheduling Coordinators must

submit in the Settlement Quality Meter Data Systems the Customer Load Baseline, as applicable, and the actual underlying consumption or Energy during all intervals. Only Demand Response Energy Measurements will be considered Settlement Quality Meter Data. Proxy Demand Resources and Reliability Demand Response Resources are not subject to Rules of Conduct penalties pursuant to Section 37. For such Proxy Demand Resources or Reliability Demand Response Resources, the ~~CAISO~~ Scheduling Coordinator will calculate the relevant Customer Load Baseline as set forth in Section 4.13.4.~~1.~~ If the Proxy Demand Resource or Reliability Demand Response uses behind-the-meter generation to offset Demand, and has elected to always provide Meter Data consisting of its total gross consumption ~~pursuant to Section 4.13.4.1(a)~~, the Demand Response Energy Measurement shall be the quantity of Energy equal to the difference between (i) the Customer Load Baseline, which derives from the gross consumption independent of offsetting Energy from behind-the-meter generation for the Proxy Demand Resource or Reliability Demand Response Resource, and (ii) the gross underlying consumption, independent of offsetting Energy from the behind-the-meter generation. Demand Response Energy Measurements for Proxy Demand Resources and Reliability Demand Response Resources will only be settled in intervals where their total expected energy is above zero. Scheduling Coordinators may not submit Demand Response Energy Measurements in Settlement Intervals where the total expected energy did not exceed zero.

Commented [BK1]: Could the CAISO please clarify when it would be applicable for SCs to submit the Customer Load Baseline? Will this requirement only be for intervals during which an event occurred?

11.6.2 Settlement of Energy Transactions Using Metering Generator Output Methodology

Settlements for Energy provided by Demand Response Providers from registered behind-the-meter generation in Proxy Demand Resources or Reliability Demand Response Resources shall be based on their Demand Response Energy Measurement. The Demand Response Energy Measurement for Proxy Demand Resources or Reliability Demand Response Resources consisting of registered behind-the-meter generation shall be the quantity of Energy equal to the difference between (i) the Energy output of the Proxy Demand Resources or Reliability Demand Response Resources, and (ii) the Generator Output Baseline for the behind-the-meter generation registered in the Proxy Demand Resource or Reliability Demand Response Resource, which derives from the Energy output of the behind-the-meter generation only, independent of offsetting facility Demand. For monitoring, compliance, and audit purposes,

Scheduling Coordinators must submit in the Settlement Quality Meter Data Systems the Generator Load Baseline, as applicable, and the actual underlying consumption or Energy during all intervals. Only Demand Response Energy Measurements will be considered Settlement Quality Meter Data. Proxy Demand Resources and Reliability Demand Response Resources are not subject to Rules of Conduct penalties pursuant to Section 37. In calculating the Energy output of such generation, the Meter Data must represent the Energy output of the behind-the-meter generation up to the total facility Demand, but excluding output that would represent an export of Energy from that location in any Settlement Interval in which the behind-the-meter generation is exporting Energy (i.e., where the behind-the-meter generation Energy output exceeds its location Demand). For such behind-the-meter generation, the Generator Output Baseline will be calculated as set forth in Section 4.13.4.2. Demand Response Energy Measurements will be calculated and submitted in 5-minute intervals. In cases where the Demand Response Energy Measurements are less than zero within a 5-minute interval, that measurement will be submitted as zero. Demand Response Energy Measurements for Proxy Demand Resources and Reliability Demand Response Resources will only be settled in intervals where their total expected energy is above zero.

11.6.3 Settlement of Energy Transactions Involving PDRs or RDRRs Using Customer Load Baseline and Metering Generator Output Methodologies

Settlements for Energy provided by Demand Response Providers using Proxy Demand Resources or Reliability Demand Response Resources that include (i) separately metered, registered behind-the-meter generation Energy output Meter Data, exclusive of facility consumption data pursuant to Sections 4.13.4.2 and 11.6.2, and Proxy Demand Resources or Reliability Demand Response Resources that (ii) reduce consumption independent and separately metered from offsetting behind-the-meter generation pursuant to Sections 4.13.4.~~1~~ and 11.6.1, shall be the sum of the Demand Response Energy Measurements for the Proxy Demand Resources or Reliability Demand Response Resources as if they were settled separately and independently pursuant to Sections 11.6.1 and 11.6.2. Demand Response Energy Measurements will be calculated and submitted in 5-minute intervals. Demand Response Energy Measurements for Proxy Demand Resources and Reliability Demand Response Resources will only be settled in intervals

where their total expected energy is above zero.

11.6.4 Settlement of Distributed Energy Resource Aggregations

Settlements for Energy provided by a Distributed Energy Resource Provider from a Distributed Energy Resource Aggregation shall be based on the applicable PNode or Aggregated PNode of the Distributed Energy Resource Aggregation. For Distributed Energy Resource Aggregations comprising a single PNode, settlement for Energy transactions would reflect the LMP at that PNode. For Distributed Energy Resource Aggregations comprising multiple PNodes settlement for Energy transactions would be the weighted average LMP of the PNode(s) based on the applicable Generation Distribution Factors submitted through the Distributed Energy Resource Aggregation's Bid or as registered in the Master File. Consistent with the provisions of Section 11.5.2, the CAISO will impose UIE on a Distributed Energy Resource Provider if the Distributed Energy Resource Provider's Distributed Energy Resource Aggregation does not follow a Dispatch Instruction.

* * * * *

4.13 DRPs, RDRRs, and PDRs

4.13.1 Relationship Between CAISO and DRPs

The CAISO shall only accept Bids for Energy from Reliability Demand Response Resources, and shall only accept Bids for Energy or Ancillary Services from Proxy Demand Resources, Submissions to Self-Provide Ancillary Services from Proxy Demand Resources, or submissions of Energy Self-Schedules from Proxy Demand Resources that have provided Submissions to Self-Provide Ancillary Services, if such Reliability Demand Response Resources or Proxy Demand Resources are represented by a Demand Response Provider that has entered into a Demand Response Provider Agreement with the CAISO, has accurately provided the information required in the Demand Response System, has satisfied all Reliability Demand Response Resource or Proxy Demand Resource registration requirements, and has met standards adopted by the CAISO and published on the CAISO Website. Reliability Demand Response Resources and Proxy Demand Resources may not participate in a Distributed Energy

Resource Aggregation. The CAISO shall not accept submitted Bids for Energy or Ancillary Services from a Demand Response Provider other than through a Scheduling Coordinator, which Scheduling Coordinator may be the Demand Response Provider itself or another entity. Proxy Demand Response Resources providing Ancillary Services must submit Meter Data for the interval~~s~~ preceding, during, and following the Trading Interval(s) in which they were awarded Ancillary Services for the purposes of determining settlement pursuant to Section 8.10.8.

4.13.2 Applicable Requirements for RDRRs, PDRs and DRPs

A single Demand Response Provider must represent each Reliability Demand Response Resource or Proxy Demand Resource and may represent more than one (1) Reliability Demand Response Resource or Proxy Demand Resource. Each Reliability Demand Response Resource or Proxy Demand Resource that is not within a MSS must be associated with a single Load Serving Entity and a single Utility Distribution Company, and each Reliability Demand Response Resource or Proxy Demand Resource that is within a MSS must be associated with a single Load Serving Entity. A Demand Response Provider may be, but is not required to be, a Load Serving Entity or a Utility Distribution Company. Each Reliability Demand Response Resource or Proxy Demand Resource is required to be located in a single Sub-LAP. All underlying Locations of a Reliability Demand Response Resource or Proxy Demand Resource must be located in a single Sub-LAP. Each Demand Response Provider is required to satisfy registration requirements and to provide information to allow the CAISO to establish performance evaluation methodologies in accordance with Section 4.13.4 and the applicable Business Practice Manuals. Registration of a Location for participation in Reliability Demand Response Resources or Proxy Demand Resources requires the approval of the CAISO resulting from its registration process. As part of the submitted registration process, both the appropriately Demand Response Provider designated Load Serving Entity and Utility Distribution Company will have an opportunity to review the registration Location detail and provide comments with regard to its accuracy. Disputes regarding the acceptances or rejections of a registration of a Location shall be undertaken with the applicable Local Regulatory Authority and shall not be arbitrated or in any way resolved through a CAISO dispute resolution mechanism or process. A Location cannot be registered to both a Reliability Demand Response

Resource and a Proxy Demand Resource for the same Trading Day.

4.13.3 Identification of RDRRs and PDRs

Each Demand Response Provider shall provide data, as described in the Business Practice Manual, identifying each of its Reliability Demand Response Resources or Proxy Demand Resources and such information regarding the capacity and the operating characteristics of the Reliability Demand Response Resource or Proxy Demand Resource as may be reasonably requested from time to time by the CAISO. All information provided to the CAISO regarding the operational and technical constraints in the Master File shall be accurate and actually based on physical characteristics of the resources.

4.13.4 Performance Evaluation Methodologies for PDRs and RDRRs

The following methodologies may be utilized to calculate Customer Load Baselines and Demand Response Energy Measurements for Proxy Demand Resources and Reliability Demand Response Resources. Proxy Demand Resources and Reliability Demand Response Resources consisting of residential End Users may elect to use the ten-in-ten methodology, metering generator output methodology, control group methodology, five-in-ten methodology, and weather matching methodology. Proxy Demand Resources and Reliability Demand Response Resources consisting of non-residential End Users may elect to use the ten-in-ten methodology, metering generator output methodology, control group methodology, and weather matching methodology. Proxy Demand Resources providing Ancillary Services must submit Meter Data for the intervals immediately preceding, during, and following the Trading Interval(s) in which the Proxy Demand Response Resources were awarded Ancillary Services. As specified in the Business Practice Manual, the CAISO will retain authority to calculate or correct Customer Load Baselines and Demand Response Energy Measurements for those resources that used the CAISO's Demand Response System, until all relevant metering, settlement, and correction windows have lapsed since the CAISO retired its ability to calculate on behalf of Scheduling Coordinators in the Demand Response System.

4.13.4.1 ~~Customer Load Baseline~~ Ten-in-Ten Methodology

~~For each~~ Scheduling Coordinators will be responsible for calculating the Customer Load Baseline for Proxy Demand Resources or Reliability Demand Response Resources using the ten-in-ten methodology~~,~~

~~the CAISO will calculate the Customer Load Baseline~~ as follows:

(a) ~~The CAISO will collect~~ Meter Data will be collected for the Proxy Demand Resource or Reliability Demand Response Resource for calendar days preceding the Trading Day on which the Demand Response Event occurred ~~for which the CAISO is calculating the Customer Load Baseline~~. Where the Proxy Demand Resource or Reliability Demand Response Resource uses behind-the-meter generation to offset Demand, the Proxy Demand Resource or Reliability Demand Response Resource may elect to provide, at all times, Meter Data reflecting the total gross consumption, independent of any offsetting Energy produced by behind-the-meter generation. ~~To determine t~~The calendar days for which the Meter Data will be collected will be determined by ~~, the CAISO will~~ working sequentially backwards from the Trading Day under examination up to a maximum of forty-five (45) calendar days prior to the Trading Day, including only ~~B~~business ~~D~~days if the Trading Day is a ~~B~~business ~~D~~day, including only non-~~B~~business ~~D~~days if the Trading Day is a non-~~B~~business ~~D~~day, and excluding calendar days on which the Proxy Demand Resource was subject to an Outage or previously provided Demand Response Services (other than capacity awarded for AS or RUC) or the Reliability Demand Response Resource was subject to an Outage as described in the Business Practice Manual or previously provided Demand Response Services, except as discussed below. The ~~CAISO will stop~~ collection~~ng~~ of Meter Data for this purpose stops ~~if and when it is able to collect Meter Data for its~~ upon reaching the target number of calendar days, which ~~target number~~ is ten (10) calendar days if the Trading Day is a ~~B~~business ~~D~~day or four (4) calendar days if the Trading Day is a non-~~B~~business ~~D~~day. If these minimums cannot be met ~~the CAISO is unable to collect Meter Data for its the target number of calendar days is unobtainable, it will attempt to collect Meter Data for~~ a minimum of five (5) calendar days if the Trading Day is a ~~B~~business ~~D~~day or a minimum of four (4) calendar days if the Trading Day is a non-~~B~~business ~~D~~day must be collected. If ~~the CAISO is unable to collect Meter Data for the minimum number of calendar days described above~~ these

minimums cannot be met, ~~the CAISO will instead collect~~ Meter Data will be collected for the calendar days on which the Proxy Demand Resource was subject to an Outage or previously provided Demand Response Services (other than capacity awarded for AS or RUC) or the Reliability Demand Response Resource was subject to an Outage as described in the Business Practice Manual or previously provided Demand Response Services, and for which the amount of totalized load was highest during the hours when the Demand Response Services were provided in the forty-five (45) calendar days prior to the Trading Day.

(b) The ~~CAISO~~ Scheduling Coordinator will be responsible for calculatinge~~e~~ the simple hourly average of the collected Meter Data to determine a baseline amount of Energy provided by the Proxy Demand Resource or Reliability Demand Response Resource.

(c) Unless otherwise requested by the Demand Response Provider and approved by the CAISO, the ~~CAISO~~ Scheduling Coordinator will be responsible for multiplying the amount calculated pursuant to Section 4.13.4.1(b) by a percentage equal to the ratio of (i) the average load of the Proxy Demand Resource or Reliability Demand Response Resource during the second, third, and fourth hours preceding the hour of the Trading Day on which the Proxy Demand Resource or Reliability Demand Response Resource provided the Demand Response Services during the Demand Response Event to (ii) the average load of the Proxy Demand Resource or Reliability Demand Response Resource during the same second, third, and fourth hours of the calendar days for which the ~~CAISO has collected~~ Meter Data has been collected pursuant to Section 4.13.4.1(a). To provide a maximum adjustment factor of twenty (20) percent, ~~T~~the adjusted percentage can have a maximum value of one hundred-twenty (120) percent and a minimum value of eighty (80) percent.

(d) If the Proxy Demand Resource or Reliability Demand Response Resource elects to provide Meter Data reflecting the total gross Demand at all times, independent of any offsetting Energy, the offsetting Energy must be metered separate from Load to enable

the accurate calculation of total gross consumption.

4.13.4.2 Metering Generator Output

For behind-the-meter generation registered in Proxy Demand Resources or Reliability Demand Response Resources and settling Energy Transactions pursuant to Section 11.6.2, the Generator Output Baseline will be calculated as follows:

(a) Meter Data will be collected for the behind-the-meter generation for the same hours as the Trading Hour on calendar days preceding the Trading Day on which the Demand Response Event occurred for which the Generator Output Baseline is calculated. Meter Data will consist of Energy output of the behind-the-meter generation up to, but not including, output that represent an export of energy from that location. To determine the hours for which the Meter Data will be collected, the calculation will work sequentially backwards from the Trading Day under examination up to a maximum of forty-five (45) calendar days prior to the Trading Day, including only ~~B~~business ~~D~~days if the Trading Day is a ~~B~~business ~~D~~day, including only non-~~B~~business ~~D~~days if the Trading Day is a non-~~B~~business ~~D~~day, and excluding hours in which the Proxy Demand Resource was subject to an Outage or previously provided Demand Response Services (other than capacity awarded for AS or RUC) pursuant to a Bid at or above the net benefits test set forth in Section 30.6.3, or the Reliability Demand Response Resource was subject to an Outage as described in the Business Practice Manual or previously provided Demand Response Services pursuant to a Bid at or above the net benefits test set forth in Section 30.6.3, except as discussed below. The calculation will have complete Meter Data for this purpose if and when it is able to collect Meter Data for its target number of hours the same as the Trading Hour, which target number is ten (10) hours if the Trading Day is a ~~B~~business ~~D~~day or four (4) hours if the Trading Day is a non-~~B~~business ~~D~~day. If it is not possible to collect Meter Data for the target number of hours, the Meter Data will include a minimum of five (5) hours if the Trading Day is a ~~B~~business ~~D~~day or a minimum of four (4) hours if the Trading Day is a non-~~B~~business ~~D~~day. If it is not possible to collect Meter

Data for the minimum number of hours described above, ~~the calculation will instead include Meter Data for the hours on which the Proxy Demand Resource was subject to an Outage or previously provided Demand Response Services (other than capacity awarded for AS or RUC) pursuant to a Bid at or above the net benefits test set forth in Section 30.6.3, or the Reliability Demand Response Resource was subject to an Outage as described in the Business Practice Manual or previously provided Demand Response Services, and for which the amount of totalized load was highest during the hours when the Demand Response Services were provided in the forty-five (45) calendar days prior to the Trading Day~~the Generator Output Baseline will be set at zero.

(b) The baseline amount of Energy provided by the behind-the-meter generation will be calculated on the simple hourly average of the collected Meter Data.

(c) In calculating the Generator Output Baseline pursuant to Section 4.13.4.2(a), the Meter Data must be set to zero in any Settlement Interval in which the behind-the-meter generation is charging.

(d) In any Settlement Interval where the behind-the-meter generation is exporting Energy (i.e., where the behind-the-meter generation Energy output exceeds its location Demand), the Meter Data will consist of the Energy output of the behind-the-meter generation up to, but not including, the output greater than its facility Demand that would represent an export of Energy from that location.

4.13.4.3 Control Group Methodology

Scheduling Coordinators will be responsible for calculating the Customer Load Baseline for Proxy Demand Resources or Reliability Demand Response Resources using the control group methodology as follows:

(a) Prior to any Demand Response Event, a randomized control group of End Users that are ~~not participating~~registered in the Demand Response System but not responding to CAISO dispatch as Proxy Demand Resources or Reliability Demand Response Resources must be submitted to the CAISO. But for any Demand Response Event, the

control group must have nearly identical Demand patterns in aggregate as the Proxy Demand Resources or Reliability Demand Response Resources. The control group must be geographically similar to the Proxy Demand Resources or Reliability Demand Response Resources such that they experience the same weather patterns and grid conditions. The control group must consist of 150 distinct End Users or more. Prior to use of the control group baseline methodology, Scheduling Coordinators will be responsible for validating the control group pursuant to Section 4.13.4.3(d).

(b) The control group's aggregate Demand during the same Trade Date and Trading Hour(s) as the Demand Response Event, divided by the relevant number of End Users, will constitute the Customer Load Baseline.

~~(c) Unless otherwise requested by the Demand Response Provider and approved by the CAISO, the amount calculated pursuant to Section 4.13.4.3(b) will be multiplied by a percentage equal to the ratio of:~~

~~(i) the average Demand of the Proxy Demand Resource or Reliability Demand Response Resource during (a) the two hours preceding the Trading Intervals, and (b) two hours following the Trading Intervals on which the Proxy Demand Resource or Reliability Demand Response Resource provided the Demand Response Services during the Demand Response Event to~~

~~(ii) the average Demand of the Proxy Demand Resource or Reliability Demand Response Resource during (a) the two hours preceding the Trading Interval, and (b) the two hours following the Trading Intervals for which the Meter Data has been collected pursuant to Section 4.13.4.3(a).~~

~~To provide a maximum adjustment factor of forty (40) percent, the adjusted percentage can have a maximum value of one hundred-forty (140) percent and a minimum value of sixty (60) percent.~~

(d) ~~For each Sub-LAP,~~ Scheduling Coordinators are responsible for validating that the control group accurately represents its Proxy Demand Resources or Reliability Demand

Response Resources. For Proxy Demand Resources or Reliability Demand Response Resources whose ~~underlying~~number of End Users have not changed by more than ten (10) percent in the prior month, the control group must be validated every other month. For Proxy Demand Resources or Reliability Demand Response Resources whose ~~underlying~~number of End Users have changed by more than ten (10) percent in the prior month, the control group must be validated monthly. As described in the Business Practice Manual, to validate the control group, Meter Data of the control group and the Proxy Demand Resources or Reliability Demand Response Resources from the previous seventy-five (75) days must be evaluated, excluding days where the Proxy Demand Resources or Reliability Demand Response Resources provided Demand Response Services or participated in a utility demand response program. Using the most recent days, at least twenty (20) eligible days of Meter Data must be used for validation. From these days, an average of the hourly load profile from 12 p.m. to 9 p.m. must be developed for the Proxy Demand Resources or Reliability Demand Response Resources and the control group by day and by hour. The average hourly Demand of the Proxy Demand Resources or Reliability Demand Response Resources is then regressed against the average hourly Demand of the control group. As described in the Business Practice Manual, the control group must statistically demonstrate (i) lack of bias, (ii) sufficient statistical precision, with (iii) sufficient confidence. Control groups that fail these screens may not be used.

(e) For Proxy Demand Resources or Reliability Demand Response Resources whose ~~underlying~~number of End Users have not changed by more than ten (10) percent in the prior month, the control group must be re-validated every other month. For Proxy Demand Resources or Reliability Demand Response Resources whose ~~underlying~~number of End Users have changed by more than ten (10) percent in the prior month, control groups must continue to be re-validated monthly.

(f) Control group randomization, equivalence, and validation, and all Demand Response

Commented [BK2]: We believe there may be a preposition missing for this sentence.

Event calculations are subject to CAISO audit for three (3) years from the date Demand Response Event. All results must be reproducible, including underlying interval data, randomization, validation, bias, confidence, precision, and analysis.

4.13.4.4 Five-in-Ten Methodology

Scheduling Coordinators will be responsible for calculating the Customer Load Baseline for Proxy Demand Resources or Reliability Demand Response Resources using the five-in-ten methodology as follows:

(a) Meter Data for the Proxy Demand Resource or Reliability Demand Response Resource will be collected for calendar days preceding the Trading Day on which the Demand Response Event occurred for the Customer Load Baseline. Where the Proxy Demand Response or Reliability Demand Response Resource uses behind-the-meter generation to offset Demand, the Proxy Demand Resource or Reliability Demand Response Resource may elect to provide, at all times, Meter Data reflecting the total gross consumption, independent of any offsetting Energy produced by behind-the-meter generation. The calendar days for which the Meter Data will be collected will be determined by working sequentially backwards from the Trading Day under examination up to a maximum of forty-five (45) calendar days prior to the Trading Day, including only business days if the Trading Day is a business day, including only non-business days if the Trading Day is a non-business day, and excluding calendar days on which the Proxy Demand Resource was subject to an Outage or previously provided Demand Response Services (other than capacity awarded for AS or RUC) or the Reliability Demand Response Resource was subject to an Outage as described in the Business Practice Manual or previously provided Demand Response Services, except as discussed below. The collection of Meter Data for this purpose stops upon reaching the target number of calendar days, which is ten (10) calendar days if the Trading Day is a business day or ~~six~~five (5~~6~~) calendar days if the Trading Day is a non-business day. From the target days, the five (5) business days and three (3) non-business days with the highest

totalized load during the hours when the Demand Response Services were provided will be used. If these minimums cannot be met, ~~the Meter Data for the minimum number of calendar days described above is unobtainable,~~ the Meter Data will instead be used for the calendar days on which the Proxy Demand Resource was subject to an Outage or previously provided Demand Response Services (other than capacity awarded for AS or RUC) or the Reliability Demand Response Resource was subject to an Outage as described in the Business Practice Manual or previously provided Demand Response Services, and for which the amount of totalized load was highest during the hours when the Demand Response Services were provided in the forty-five (45) calendar days prior to the Trading Day.

(b) For business days, the Scheduling Coordinator will be responsible for calculating the simple hourly average of the collected Meter Data to determine a baseline amount of Energy provided by the Proxy Demand Resource or Reliability Demand Response Resource. For non-business days, the Scheduling Coordinator will be responsible for calculating a weighted average of the collected Meter Data to determine a baseline as follows: the day closest to the Demand Response Event receives a weight of fifty (50) percent, the next closest receives a weight of thirty (30) percent, and the furthest receives a weight of twenty (20) percent.

(c) Unless otherwise requested by the Demand Response Provider and approved by the CAISO, the Scheduling Coordinator will be responsible for multiplying the amount calculated pursuant to Section 4.13.4.4(b) by a percentage equal to the ratio of:

(i) the average Demand of Proxy Demand Resource or Reliability Demand Response Resource during (a) the two hours preceding the two hours preceding the Trading Intervals, and (b) the two hours following the two hours following the Trading Intervals on which the Proxy Demand Resource or Reliability Demand Response Resource provided the Demand Response Services during the Demand Response Event to

(ii) the average Demand of the Proxy Demand Resource or Reliability Demand Response Resource during (a) the two hours preceding the two hours preceding Trading Intervals, and (b) the two hours following the two hours following the Trading Intervals for which Meter Data was collected pursuant to Section 4.13.4.4(a).

To provide maximum adjustment factor of forty (40) percent, the adjusted percentage can have a maximum value of one hundred-forty (140) percent and a minimum value of ~~sixty~~seventy-one (71~~60~~) percent if the Trading Day is a business day. The adjusted percentage can have a maximum value of two hundred (200) percent and a minimum value of fifty (50) percent if the Trading Day is a non-business day.

Commented [BK3]: It is our understanding from the Nexant proposal that both the 5-in-10 and weather matching methodology will employ a two-hour buffer (p.18 and p.20 of the proposal).

Commented [BK4]: We suggest this modification to align the tariff with the Nexant proposal (at p. 20).

(d) If the Proxy Demand Resource or Reliability Demand Response Resource elects to provide Meter Data reflecting the total gross Demand at all times, independent of any offsetting Energy, the offsetting Energy must be metered separate from Load to enable the accurate calculation of total gross consumption.

4.13.4.5 Weather Matching Methodology

Scheduling Coordinators will be responsible for calculating the Customer Load Baseline for Proxy Demand Resources or Reliability Demand Response Resources using the weather matching methodology as follows:

(a) The Scheduling Coordinator will be responsible for collecting Meter Data for the Proxy Demand Resource or Reliability Demand Response Resource for calendar days preceding the Trading Day on which the Demand Response Event occurred. Where the Proxy Demand Response or Reliability Demand Response Resource uses behind-the-meter generation to offset Demand, the Proxy Demand Resource or Reliability Demand Response Resource may elect to provide, at all times, Meter Data reflecting the total gross consumption, independent of any offsetting Energy produced by behind-the-meter generation. The calendar days for which the Meter Data will be collected will be determined by working sequentially backwards from the Trading Day under examination

up to a maximum of ninety (90) calendar days prior to the Trading Day, including only business days if the Trading Day is a business day, including only non-business days if the Trading Day is a non-business day, and excluding calendar days on which the Proxy Demand Resource was subject to an Outage or previously provided Demand Response Services (other than capacity awarded for AS or RUC) or the Reliability Demand Response Resource was subject to an Outage as described in the Business Practice Manual or previously provided Demand Response Services. As detailed in the Business Practice Manual, from the ninety (90) calendar days prior to the Trading Day, the four (4) days with the closest daily maximum temperature to the Trading Day will be used to calculate the baseline.

(b) The Scheduling Coordinator will be responsible for calculating the simple hourly average of the collected Meter Data to determine a baseline amount of Energy provided by the Proxy Demand Resource or Reliability Demand Response Resource.

(c) Unless otherwise requested by the Demand Response Provider and approved by the CAISO, the Scheduling Coordinator will be responsible for multiplying the amount calculated pursuant to Section 4.13.4.5(b) by a percentage equal to the ratio of:

(i) the average Demand of the Proxy Demand Resource or Reliability Demand Response Resource during (a) the two hours preceding two hours preceding the Trading Intervals, and (b) the two hours following the two hours following the Trading Intervals on which the Proxy Demand Resource or Reliability Demand Response Resource provided the Demand Response Services during the Demand Response Event to

(ii) the average Demand of the Proxy Demand Resource or Reliability Demand Response Resource during (a) the two hours preceding the two hours preceding the Trading Intervals, and (b) the two hours following the two hours following the Trading Intervals for which Meter Data was collected pursuant to Section 4.13.4.5(a).

To provide a maximum adjustment factor of forty (40) percent, the adjusted percentage can have a maximum value of one hundred-forty (140) percent and a minimum value of ~~sixty~~seventy-one (71~~60~~) percent.

(d) If the Proxy Demand Resource or Reliability Demand Response Resource elects to provide Meter Data reflecting the total gross Demand at all times, independent of any offsetting Energy, the offsetting Energy must be metered separate from Load to enable the accurate calculation of total gross consumption.

Commented [BK5]: We suggest this modification to align the tariff with the Nexant proposal (at p. 18).

Commented [BK6]: