

Memorandum

To: ISO Board of Governors

From: Keith Casey, Vice President, Market & Infrastructure Development

Date: May 8, 2019

Re: **Decision on the excess behind the meter production proposal**

This memorandum requires Board action.

EXECUTIVE SUMMARY

The proliferation of rooftop solar throughout California has highlighted an inconsistency in how load serving entities define and report load values to the ISO. It is important that load serving entities have clear rules for reporting load to the ISO as these values are used to allocate costs and to provide transparency about grid conditions. The current inconsistency in reported load values stems from the fact that load can be defined and reported as “net load” or “gross load” for retail customers with behind the meter generation (e.g., rooftop solar). Net load is the net energy transmitted through the retail meter, i.e. it is the customer’s metered load minus any metered energy exported back to the grid. Gross load is the amount of energy a customer consumes directly from the grid net of any energy consumed from behind the meter generation output. Excess behind the meter energy production is the amount of energy that is exported to the grid when a customer’s behind the meter energy production exceeds that customer’s onsite load. Excess behind the meter production is not included in gross load. Currently, some load serving entities are providing gross load data to the ISO while others are providing net load data.

Reported load values are key inputs to many of the ISO’s settlement calculations. Under the current tariff provisions there is a lack of clarity around how a load serving entity is required to report load values to the ISO. Specifically, it is unclear if load serving entities are allowed to net excess behind the meter energy production when reporting gross load values to the ISO. Currently, the magnitude of this problem is relatively small, but as the grid continues to increase adoption of behind the meter solar resources, the impact of these inconsistencies and reporting problems will grow. To address these inconsistencies and gain visibility to the quantity of exported behind the meter production, Management proposes the following:

1. Clarify tariff language to ensure consistent reporting of gross load;
2. Create a tariff definition for excess behind the meter production;

3. Add a reporting requirement for excess behind the meter production and specify how it should be reported to the ISO; and
4. Identify required changes to ISO settlement system charge codes.

The proposed updated tariff definition of gross load specifically states that scheduling coordinators may not net excess behind the meter production from the gross load values they report to the ISO. The proposed new tariff definition for excess behind the meter production requires these values to be reported to the ISO in addition to gross load values. Moreover, the proposed tariff changes provide which reliability based settlement charge codes will continue to be allocated based on gross load, and which energy based settlement charge codes will be allocated on net gross load and excess behind the meter production. Finally, the proposal also outlines updates to the process for calculating unaccounted for energy (UFE), and for the treatment of losses with regard to reporting load.

Management proposes the following motion:

Moved, that the ISO Board of Governors approves the excess behind the meter production proposal described in the memorandum dated May 8, 2019; and

Moved, that the ISO Board of Governors authorizes Management to make all necessary and appropriate filings with the Federal Energy Regulatory Commission to implement the proposal described in the memorandum, including any filings that implement the overarching initiative policy but contain discrete revisions to incorporate Commission guidance in any initial ruling on the proposed tariff amendment.

BACKGROUND

The proliferation of distributed energy resources, particularly behind the meter rooftop solar, increased rapidly throughout the ISO balancing area during the last decade. The ISO expects behind the meter resources will continue to grow. There are currently about 7,500 MW of non-utility behind the meter rooftop solar installed in the ISO balancing area, with over 2,500 MW installed since 2016. This proliferation has led to inconsistencies in how gross load data is reported and submitted for settlement. Some load serving entities submitted gross load data with excess behind the meter production netted from the total while others did not. In response to this inconsistent reporting, Management began this initiative to determine which tariff provisions need clarification and how excess behind the meter production should be treated and reported to the ISO.

Excess behind the meter production refers to energy generated by behind the meter resources that exceeds the host customers' load. This occurs during periods when a household or customer site with a behind the meter resource produces more energy

than the same household or customer site is consuming. Any excess behind the meter production is injected as an export back onto the grid and consumed by other customers.

When load is reported to the ISO with excess behind the meter production netted, the ISO does not receive any data about the amount of excess behind the meter production that occurred. For example, if a customer's household load was 5 kWh and excess behind the meter production was 1 kWh and load was reported to the ISO net of excess behind the meter production, the ISO would receive a load value of 4 kWh (and 0 kWh of generation). If instead, this load is reported to the ISO without netting excess behind the meter production, the load value received would be 5 kWh (vs. 4 kWh), with 1 kWh of excess energy production materializing inappropriately as unaccounted for energy. Both of the above accounting and reporting practices are deficient.

Additionally, if load is reported inconsistently by multiple entities, charge codes affected by those values will be inconsistently allocated. For example, if there are two identical entities with 5 kWh of load and 1 kWh of excess behind the meter production and one reports to the ISO a load of 5 kWh and the other reports a load of 4 kWh, then 5/9 of all load-based charges will be allocated to the first entity and 4/9 to the second entity. This creates a clear settlement inconsistency.

MANAGEMENT'S PROPOSAL

Gross load clarification

Management proposes to clarify the definition of gross load. Gross load must not include the netting of any excess behind the meter production because such treatment ignores that customer's benefit from having access to, and use of, the transmission system.

Excess behind the meter production definition

Management proposes to establish a clear and concise standard for reporting excess behind the meter production quantities to ensure a uniform reporting practice. Management proposes to include a new term in the tariff called "excess behind the meter production." This term represents the amount of generation that exceeds host consumption and will be reported to the ISO separately from gross load values.

Excess behind the meter production settlement

Management proposes that excess behind the meter production values be treated by the ISO settlement system similar to negative load. Scheduling coordinators that report load to the ISO will be required to report both gross load and excess behind the meter

production values going forward. Both values will be charged (or paid) the locational marginal price for load at the locations where they are reported to the ISO. Like load, Management proposes that scheduling coordinators submit excess behind the meter production values at their load's respective default or custom load aggregation point.

Identify required changes to ISO settlement system charge codes

Reliability service charges will be allocated to load serving entities based on the updated definition of gross load. Other charges, such as those for uplift and neutrality, will continue to be allocated based on demand. Demand will be calculated as the combined values of gross load and excess behind the meter production.

Management proposes that these modifications not apply to certain entities that have preexisting metering arrangements with the ISO, such as some local publicly owned electric utilities and certain metered subsystem entities. These entities generally have load figures that are determined at a citygate metering point from various inputs. Further, these entities generally report gross load figures that account for visible distributed resource production and do not have requirements to install automated metering infrastructure, i.e. smart meters or other enhanced metering infrastructure to capture excess behind the meter production.

APPLICATION OF LOSSES

Currently, a distribution loss factor may be applied to 'gross up' load values that are reported to the ISO. Loss factors are meant to capture the amount of energy lost between the transmission-distribution interface and end-users' household meters. Similarly, loss factors may also be applied to generating resources to reflect the amount of energy that is lost between the generator and the point of injection onto the transmission or distribution system. These factors are usually specific to a particular resource based upon its location and point of injection.

Excess behind the meter production exported onto the distribution system will likely be consumed by other loads and neighboring households on the distribution system; it is unlikely this energy will ever reach the transmission system or be stepped up to a higher voltage, which would generate losses. Because of this unlikelihood, Management proposes the complexity of figuring and applying losses associated with excess behind the meter production not be considered when reporting excess behind the meter production to the ISO.

Energy from excess behind the meter production does however reduce the overall losses associated with serving load. When distribution loss factors are applied to load, they capture the losses between the transmission-distribution interface on the bulk electricity grid and the metered end-user. When there is excess behind the meter production, there are smaller losses due to less energy moving from the transmission system to the distribution grid to serve load. As a result, Management proposes that losses be applied on the difference between gross load and excess behind the meter

production to account for the reduction in losses that the excess behind the meter production provides.

POSITIONS OF THE PARTIES

Stakeholders are generally supportive of the excess behind the meter production proposal, with certain exceptions.

The Department of Market Monitoring and the Public Advocates Office raised concerns about the exclusion of some local publicly owned electric utilities and metered subsystem entities that had metering arrangements negotiated and implemented before the ISO's inception. In response, Management notes that these entities generally have load figures that are calculated at a citygate metering point from various inputs. Further, these entities generally report gross load figures that account for visible distributed resource production. They also do not have requirements to install automated metering infrastructure, i.e. smart meters or other enhanced metering infrastructure to capture values for excess behind the meter production, which would be necessary for the proposed provisions to apply.

PG&E noted that the makeup of the grid is changing in ways that will likely impact the actual accrual of losses on the grid and advocate for a methodology to include losses in excess behind the meter production values. Management does not foreclose future consideration of this treatment, but for now believes it is important to accurately model losses in a manner that reflects realistic energy flow assumptions today. As conditions continue to evolve, the ISO will continue to evaluate the most accurate way to account for losses. Management believes that the treatment of losses outlined in this proposal is a reasonable approach for current conditions.

CONCLUSION

Management requests the Board approve its proposal for excess behind the meter production. The proposed enhancements will result in more accurate accounting for gross load and excess behind the meter production, visibility for the ISO into these values, and equitable allocation of related charges.