



Via Electronic Mail

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RE: SMART BESS Draft Guideline

Sec 5 C – Stand Alone DC Coupled Solar with Storage

Amp agrees with and applauds proposal to compensate STGU owners for round trip efficiency losses in BESS via an annual True-Up Payment. However, we have several comments on the proposal.

Efficiency vs. Efficiency Loss

The construction of the algebra in the formula appears incorrect as it bases the true-up on the efficiency factor, rather than the efficiency loss. We understand true-up for efficiency loss to be the policy objective behind the formula.

Take for example the case of a system with a SMART incentive rate of 20 cents/KWh, an inverter efficiency factor of 98%, a transformer efficiency factor of 97%, and losses of 1 KWh. Under the current construction of the formula the STGU would be paid a true-up of 19.02 cents/KWh ($0.20 * 98% * 97% * 1$). By contrast, the true-up payment should be 1 cent/KWh ($0.20 * (100% - 98% * 97%) * 1$).

As a result, for AC coupled BESS (see below) the formula should be amended to represent efficiency loss from the transformer and inverter.

Applicability of Proposed Formula to DC Coupled BESS

Given the presence of references to inverter and transformer, this formula appears more relevant to the calculation of efficiency losses from AC coupled BESS, rather than DC coupled BESS. After all, in the case of DC coupled BESS, energy does not pass through the inverter or transformer as part of the storage process and hence does not experience losses from those pieces of equipment. It would therefore be inconsistent with the DC coupled BESS configuration to reduce the true-up payment by efficiency losses that don't occur in practice.

As a result, Ntran and Ninv should be removed from the formula for DC Coupled BESS.

Net Metered Energy Output - Monitoring and Reporting

The formula assumes the presence of “net metered energy output” from the BESS under the variable E_i . The Guideline does not, however, specify acceptable monitoring and reporting requirements that can be used to arrive at this energy output value. The guidelines should be specific with respect to the type of energy metering and reporting that will be acceptable for the purposes of the true-up.

An Alternative: Estimating DC Coupled Efficiency Losses

An alternative to using net metered energy output would be an estimation approach using the efficiency factors contained in manufacturer specification sheets.

The DC-DC converter efficiency losses should be counted twice as losses accrue both on storage (entering the battery) and dispatch (leaving the battery). Efficiency losses also accrue when energy is simply stored in the battery (Battery pack loss).

A formula using an estimation approach to losses is proposed below:

$$\text{True up payment} = R_p * (100\% - (NDC * NB * NDC)) * \sum_{i=1}^N E_i$$

i = the number of intervals in a calendar year

E_i = the 15-minute interval Energy Storage System DC input charge.

NDC = fixed DC-DC converters efficiency factor

NB = fixed battery efficiency factor

R_p = SMART incentive rate for the STGU (Base Compensation Rate + Compensation Rate Adder – Greenfield Subtractor)

Manufacturer specification sheets for NDC and NB that denote the equipment’s efficiency rating are attached for illustrative purposes. The efficiency ratings have been highlighted by us.

Limits on dispatch cycles eligible for True Up Payment

The proposal should clarify there will not be a limit imposed on the number of annual dispatch cycles eligible for the True Up Payment. In this way, an STGU that exceeds the mandatory annual 52 cycle operational requirement will also obtain true-up payments for cycles surplus to the 52 cycle annual requirement.

Solar Program Administrator

It should be defined who is the Solar Program Administrator for this purpose (Is it CleaResult, MASSCEC or Cadmus, for example)?

Sec 6 F – Demonstrating Compliance with Operational Requirements

Seasonal Dispatch Cycle Floor

Footnote 6 to this section proposes that three-quarters of the 52 cycle requirement should be met during the summer and winter peak hours. It should be clarified that this is a fixed floor, i.e., so long as 52 - or more - cycles are discharged annually, 39 cycles must be in these seasonal peak hours. This would

avoid a situation where an over-achievement of the compliance requirement for 52 cycles also raised the number of cycles that occur during seasonal peak hours.

To achieve this clarity the phrase in the footnote “more than three-quarters of the 52 cycle requirement” should be replaced with “more than 39 cycles”.

Hortatory vs. Mandatory nature of Seasonal Dispatch Cycle Floor

This section utilizes hortatory language “may” when discussing ways to meet the operational requirements. Additionally, the proposed language in this section regarding triggers for non-compliance evaluations does not mention the seasonal dispatch windows. Therefore, for greater certainty, it should be clarified that dispatching 39 cycles during seasonal peak hours is a “best efforts” requirement instead of being a mandatory requirement.