DOCKETED	
Docket Number:	21-RPS-02
Project Title:	Renewables Portfolio Standard 10th Edition Guidebook Update
TN #:	241614
Document Title:	Large-scale Solar Association Comments - on February 8th, 2021 Workshop
Description:	N/A
Filer:	System
Organization:	Large-scale Solar Association
Submitter Role:	Public
Submission Date:	2/22/2022 12:55:41 PM
Docketed Date:	2/22/2022

Comment Received From: Large-scale Solar Association
Submitted On: 2/22/2022
Docket Number: 21-RPS-02

LSA Comments on February 8th, 2021 Workshop

Additional submitted attachment is included below.

LSA COMMENTS ON CEC WORKSHOP PRESENTATION

The Large-scale Solar Association (LSA) very much appreciates this opportunity to comment on the presentation, and accompanying discussions, at the February 8th CEC Staff Workshop on RPS Requirements for Energy Storage Devices. LSA's comments focus mainly on Mixed-Fuel Resources (MFRs).

MFRs most commonly combine an Eligible Renewable Facility (ERF) with Battery Energy Storage Systems (BESS) into a single project, with the two parts of the project sharing a single generation tie line and position at the interconnection substation, and often sharing the same interconnection service capacity. For example, a common design might include 100 MW of solar capacity with a 100 MW BESS, sharing a gen-tie and substation position with 100 MW of interconnection capacity.

There are tens of thousands of MFR MWs in the CAISO Generator Interconnection Queue. Their development (including the storage element) will help California to achieve its ambitious renewable energy goals by providing benefits such as: (i) firm capacity, to smooth the output of intermittent resources; (ii) energy availability, to serve net peak load when renewable generation is unavailable; and (iii) ancillary services, to support grid reliability. Individual project sizes can reach several thousand MW each.

This CEC effort, while quite welcome, is already behind activities in the market, since MFR projects are already coming on-line in California. The Power Purchase Agreements (PPAs) to financially enable these projects were executed years in advance; it is very important that the CEC actions here not retroactively disrupt those arrangements or otherwise cause a loss of value to projects already operating or far advanced in the development process.

The CAISO has made significant tariff changes, described further below, to accommodate MFR development. It is critical that the CEC now do the same, i.e., remove barriers to MFR development by updating the January 2017 Commission Guidebook, Renewables Portfolio Standard Eligibility - Ninth Edition (Revised) (Guidebook) – specifically, guidance related to MFRs in Chapter 3, Section F (Energy Storage).

The update is urgently needed to address two MFR-related issues:

- **MFR configurations**, where the Guidebook illustrations and examples do not reflect modern MFR project designs; and
- **More importantly, treatment of "round-trip losses" (RTLs)** – energy lost when ERF energy in an MFR charges the BESS and then is later discharged onto the electrical grid. The current Guidebook provisions are unclear, and they have the potential to impose RTL treatment inequities between MFRs and ERFs/BESSs with separate grid interconnections.

  LSA believes that the only way to avoid these inequities is to remove the RTL subtraction provisions from the Guidebook entirely. At a minimum, the CEC should confirm the CAISO's current interpretation of the Guidebook provisions, i.e., at least confirm that the RTL provisions do not apply to certain MFR configurations, as described below.

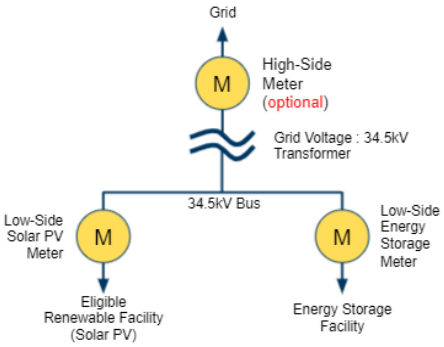
LSA provides below the reasons for these recommendations, and then responds to the specific questions posed by the CEC staff.

Guidebook updates for MFR configurations

MFRs are being developed in two main configurations, recently included in the CAISO Tariff as a result of the Hybrid Resources Stakeholder Initiative Process:

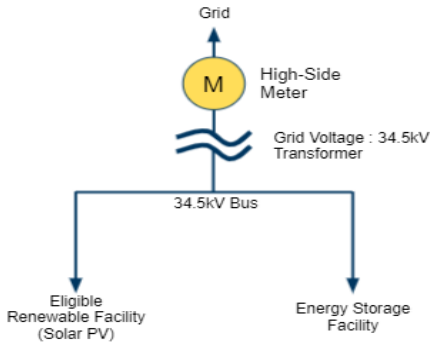
- **Co-located Resources (CLRs)**, where the ERF and BESS are separately metered, scheduled, dispatched, and settled, under separate Resource IDs for each fuel type. The configuration and metering requirements are shown below. (Note that the overall project meter is optional.)

Co-located Resource Configuration



- **Hybrid Resources (HRs)**, where the ERF and BESS are jointly metered, scheduled, dispatched, and settled, under a single Resource ID.

Hybrid Resource Configuration



For tax reasons, MFRs (in either configuration) will likely be operated so that, for several years, the BESS would be mostly or exclusively charged with energy from the ERF, for later discharge onto the electrical grid. However, much or most of the ERF production would be injected into the grid without first charging the storage element. After the tax recovery period, the projects could utilize unlimited BESS charging from the grid.

The CLR configuration is more common for many reasons, including retention of Variable Energy Resource (VER) treatment for the ERF under the CAISO tariff. (ERFs in the CLR configuration lose their VER status.)

More fundamentally, though, the CLR configuration reflects the separate nature of the ERF and BESS resources themselves for these projects, in three important respects.

First, while MFR CLRs often share interconnection capacity and equipment, and are temporarily linked by the tax treatment described above, they are otherwise operated as completely separate facilities, i.e., one is not an "enhancement" of the other. They are shown as separate resources in the CAISO Master File, they are bid separately into CAISO markets, they receive separate schedules and real-time Dispatch Instructions, and they are settled financially through separate payments and revenues.

Second, the ERF and BESS projects can be owned separately, through different Limited Liability Companies (LLCs), and they can have different financing structures and tax investors as well.

Finally, the ERF and BESS projects can also be contracted separately. Different offtakers may purchase ERF attributes (energy, RECs) and BESS attributes (Resource Adequacy, operational attributes.

The Guidebook configurations do not reflect these now-common MFR HR and CLR project configurations, so they should be modified to update the designs shown.

Guidebook updates for treatment of Round-Trip Losses

RTL guidance in the Guidebook

The Guidebook provides (at p.41) that:

> Any losses from energy storage must be subtracted or netted from the generation of an eligible renewable facility… a facility that has an energy storage device may count only the generation that is exported to the grid. If there are losses from energy storage, the amount of generation will be subtracted from the generation produced by the facility. For example, a facility that generates 100 MWh a day but loses 1 MWh from energy storage will count only 99 MWh for the facility.

The Guidebook uses the term "facility" to mean different things, leading to lack of clarity in determining RTL treatment. For example, the ERF capacity is referred to as a "facility," but that term is also used to encompass the entire MFR project. Other unclarities include the fact that (based on the Workshop discussion) the term "additional electricity" injections could include imports from the grid, even though the Grid is separately labeled in another area.

Thus, the Guidebook should be modified, at a minimum, to clarify the word "facility" and other terms, in addition to the other changes recommended below.

Current CAISO RTL guidance

Given the lack of clarity in the Guidebook, developers and others in CAISO markets have naturally relied on guidance from the CAISO. There is little written documentation from the CAISO on RTL treatment, but this topic has been extensively discussed in CAISO stakeholder meetings and is apparent from CAISO actions in its role as a Qualified Reporting Entity (QRE) for REC reporting to the Western Renewable Energy Information System (WREGIS). Private discussions with CAISO experts have confirmed the CAISO's interpretations of the current Guidebook rules.

Current CAISO RTL treatment for CLRs (two Resource IDs)
CAISO systems (Master File and Full Network Model) treat the separate CLR Resource IDs as entirely separate facilities or "resources," with certain exceptions that allow them to share the combined MFR interconnection capacity. For CLRs, the CAISO reports the ERF output to WREGIS based on the ERF Resource ID meter read, i.e., **without** RTL subtraction.

This treatment reflects the CAISO's stated position that the separate ERF and storage Resource IDs are separate "facilities" under the Guidebook, i.e., completely separate projects for that purpose. Effectively, the CAISO treatment (as reflected in market financial settlements) assumes that, for CLRs, all ERF energy reaches the grid, and all BESS energy comes from the grid, even though the tax treatment reflects the physical charging of the BESS by the ERF.

Current CAISO RTL treatment for HRs (one Resource ID)
The CAISO has stated its belief that the Guidebook requires, for HRs, subtracting RTLs from ERF measured output before reporting to WREGIS. Consistent with that position, our understanding is that the CAISO will not even act as a QRE for HRs, because its systems are not set up to perform RTL subtraction calculations.

In other words, the CAISO position is that consolidation of the ERF and BESS into one Resource ID means that they are in the same "facility" per the Guidebook.

Equitable RTL treatment for all resources

LSA believes that the CEC should confirm compliance of the CAISO MFR CLR treatment with CEC rules, and apply that treatment to MFR HRs as well.

LSA understands the issues involved with RTLs, i.e., they represent ERF-generated energy that does not physically reach the grid. However, any discussion of equitable treatment must:

- Start with treatment of stand-alone ERFs and BESSs connecting at the same or nearby locations; and
- Recognize the substantial interconnection economic and efficiency benefits provided by MFRs.

RTL treatment of stand-alone ERFs/BESSs vs. MFRs
Where stand-alone ERF and BESS projects connect independently at the same or nearby locations, it's very likely that, physically, the BESS would be charged physically by the ERF to the same or similar degree as it would be within an MFR connecting at that location. The ERF would have the same generation patterns, supplemented by the BESS in the same manner. Low prices resulting from plentiful ERF generation would occur at the same times, incenting BESS charging at about those same times.

In other words, the ERF generation is just as likely to reach consumers on the larger grid, or not. The stand-alone ERF at that location would receive RECs without any subtraction, while the ERF connecting at that same location as part of an MFR may (depending on interpretation of the Guidebook rules) may receive fewer RECs as a result of RTL subtraction where the energy is stored in the BESS first.

LSA believes that this disparate treatment would be contrary to state policy goals. As described above, there is little or no substantive reason to subject ERFs within MFRs to RTL subtraction when stand-alone facilities are not. Moreover, by sharing interconnection facilities between an ERF and BESS, MFRs, compared to stand-alone projects:

- **Lower costs to ratepayers** by sharing interconnection facilities like gen-ties (and associated costs); and
- **Make more efficient use of scarce interconnection capacity** – e.g., substation positions – thus lowering interconnection costs for <u>all</u> resources at that location through avoidance of unnecessary substation construction and expansion.

Thus, LSA recommends that the discriminatory treatment of MFRs be eliminated, and the RTL subtraction provisions be removed from the Guidebook entirely.

<u>RTL treatment of MFR CLRs vs. HRs</u>

As discussed above, the CAISO – a significant QRE – does not subtract RTLs from ERF production for purposes of WREGIS reporting for MFR CLRs, but it believes that such subtraction is required for MFR HRs. At a minimum, the CEC should affirm the CAISO's interpretation, based on the

Substantively, there is no apparent reason why HRs should be treated differently from CLRs, i.e., why RTLs should be subtracted from ERF production for WREGIS reporting purposes. The CPUC has recognized that the behavior of projects would be largely the same in either configuration by adopting the same Resource Adequacy Qualifying Capacity (QC) methodology for MFRs with ITC recovery limitations, regardless of configuration.

<u>Conclusion</u>

LSA recommends that the CEC revise the Guidebook to do the following:

- Reflect more modern MFR designs actually used in the market today; and
- Rescind the current RTL subtraction provisions for MFRs generally or, at a minimum, affirm the CAISO's interpretation that they do not apply to MFRs in a CLR configuration.

Responses to CEC staff workshop questions

1. <u>How is the energy landscape changing as a result of energy storage?</u>

The energy landscape has already changed, and continues to change, as a result of energy storage.

Stand-alone storage is being used to provide the operational flexibility and reliability needed to help retire fossil and nuclear resources.

Storage, when coupled with ERFs to make MFRs, provides those benefits. In addition, because these MFR projects are typically located in renewables-rich areas, they can play an important role in:

- Relieving congestion, especially in heavily solar or wind areas where generation is high in off-peak hours, and thus reducing renewables curtailments.
- More efficient use of Interconnection Facilities (where timing differences between ERF production and BESS discharge enable sharing of such facilities) and local transmission capacity (e.g., positions at substations).

2. What does procurement look like for renewable facilities paired with energy storage? Do contracts account for energy losses from storage?

As discussed above, the structure of PPAs for MFRs can vary widely. A single off-taker may procure all the attributes of the combined facilities, or the ERF and BESS projects can be contracted separately, with different offtakers purchasing ERF attributes (energy, RECs) and BESS attributes (Resource Adequacy, operational attributes).

PPAs do not typically account for energy losses from storage. Most PPAs assume CLR configurations, with separate ERF and BESS facilities and Resource IDs. Compensation for the ERF facility is typically volumetric and, given the lack of specific guidance from the Guidebook, the expected and minimum production targets do not reflect round-trip losses, i.e., parties have been relying on the CAISO interpretation for CLRs.

(Compensation for the BESS portion is typically per-MW of installed (tolling arrangements) or RA capacity (RA-only agreements), with availability and round-trip efficiency performance requirements for the former.)

3. What impacts do current RPS requirements have on storage development?

The state's ambitious RPS requirements have helped motivate MFR development by placing increased value on preserving RPS energy by reducing congestion and curtailment, and increasing the need to move grid injections to times when they are most needed.

4. Should the CEC develop energy storage loss accounting requirements for specific technology types, configurations, or scale?

As noted above, LSA believes that RTL subtraction from MFR ERF output for WREGIS/REC reporting purposes are unduly discriminatory and not well reasoned, and they should be eliminated completely. In the alternate, RTL subtraction for MFRs should be should be limited to those with an HR configuration.

More generally, with no set schedule for Guidebook updating – e.g., the 5-year period since the last update) – detailed specifications of different configurations carry the same risk we have seen here of outdated information. Instead, it would be more efficient for the CEC to set forth general principles and have a ready reference or source of information on the staff for questions about specific proposed project configurations.