

Questions and Answers from Batteries in SAM

2020.2.29 Front of Meter Systems Webinar, September 16, 2020

For a link to a recording of the webinar and other supporting materials, see <https://sam.nrel.gov/battery-storage/battery-videos.html>.

Is there a way to create a PySAM object for a generating station like PV Plant without using from_existing()? The current documentation does not cover this.

Yes, you can use new() or default(config_name) to create any PySAM module. New creates it with no variables defined, default creates it with config-specific default values, and from_existing makes sure the variables are shared between modules.

Isn't the battery 4MWh

Yes, he just misspoke.

Could we also add the battery duration to the parameterics?

Yes you could by changing the size_kw. The duration is the ratio of kwh to kw.

Does SAM also take into account degradation of battery at rest.

The calendar degradation model is an option that can be enabled and models degradation regardless of cycling. You can find out more about how we model calendar degradation at the focus on battery technology webinar: <https://sam.nrel.gov/battery-storage/battery-videos.html>

Besides calendar degradation batteries degrade based on SOC at rest, The Li-Ion calendar degradation model accounts for that.

Is it possible to block capacity for capacity markets??

The capacities can be specified in terms of hourly, monthly, daily, and yearly blocks - is that the blocks you are referring to?

So, can I ensure that the battery is always available for a specific period during a year, let us 4pm - 6pm during Summer Months and specify a payment for that without actually discharging the battery?

You can enforce a minimum state of charge if the blocked capacity is constant. Otherwise you have to use the custom time series to make sure the capacity is met. The merchant plant model can be used to specify the payment, but won't automatically enforce that minimum capacity without the SOC min or custom dispatch.

Can you schedule charge/discharge periods for specific weeks of the year?

No, the schedule periods for manual dispatch are on a month by hour basis. To get a little more specific, you could specify an 8760 array (every timestep, assuming 1 hr timesteps) of charge/discharge using custom dispatch, we'll cover that later. This would be one way to model discharge periods for specific weeks

Comment: the dispatch to custom time series sounds like it would work for deterministic wholesale pricing; I'll try the forum re. market pricing. It seems like there are more than enough bells & whistles built in to the system.

Yes please try the forum. And you can use time series prices by giving time series TOD multipliers, and also provide time series costs for electricity purchased.