[10:00 AM] Wan, Lisa

Good morning everyone! Friendly reminders:This meeting is being recorded.Please remember to mute yourselfIf you need to find the call-in information or the schedule for these workshops, they are included in emails sent to the distribution list. If you are interested in presenting at the next workshop on 11/3, please remember to contact the co-facilitators by this Friday 10/22.

[10:05 AM] Carrie Bentley

What are Eric's and Scott's email?

[10:05 AM] Carrie Bentley

If we want to email to present in two weeks?

[10:05 AM] Scott Murtishaw

scott@iepa.com

like 1

[10:05 AM] Scott Murtishaw

and eric@cal-cca.org

[10:06 AM] Carrie Bentley

TY!

[10:21 AM] Bridget Sparks (CAISO) (Guest)

As an FYI, CAISO assumes 85% round trip efficiency for lithium-ion batteries

[10:22 AM] Jose Torre-Bueno (Guest)

When charging why is the limit the reserve margin and not the actual demand? The reserve margin is not being used and if it is needed the battery charging can be stopped.

[10:23 AM] Colbert, Cathleen

Bridget Sparks (CAISO) (Guest)As an FYI, CAISO assumes 85% round trip efficiency for lithium-ion batteriesSupporting Bridget's comment, 80% RTE does not seem realistic assumption to me and might introduce disincentive to invest in best technology. FYI, 85% seems like a less effective technology option as well. Design should incentivize investment in technology solutions that optimize the RTE.

[10:24 AM] Carrie Bentley

Bridget - what process does the CAISO assume 85%? In the market, round trip efficiency is an RDT (masterfile) parameter based on a batteries actual tested efficiency.

[10:29 AM] Bridget Sparks (CAISO) (Guest)

Carrie Bentley- You are correct when it comes to market processes, but we use 85% round trip efficiency in policy discussions as a general rule of thumb to think about loses. So if we are trying to make a universal assumption about round trip efficiency 85% may be preferable to 80% as noted in PG&E's presentation. But we may want to consider how to incorporate more resource specific round trip efficiencies to incentives investment in the best technologies per Colbert, Cathleen point.

like 2

[10:43 AM] Amaani Hamid (Guest)

The CEC effort is mostly looking at DR counting in the current framework as the slice-of-day proposal is still in the early stages. It would be great if there was more alignment between this working group and the DR counting working group to make sure there is alignment between whatever DR counting method is chosen and the new framework

[10:43 AM] Maria Belenky (Guest)

I agree with Amaani. The CEC effort, at this time, is not explicitly taking into account the slice of day framework. These two efforts should be better aligned.

[10:44 AM] Jennifer Chamberlin (CPower)

Agreed - the focus is on getting to a general qualifying capacity value - and is torn on whether that should have a seasonal/temporal value - which seems key to slice of day.

[10:44 AM] Renae Steichen (Guest)

Agree with Cathleen on multiple cycles for large scale storage

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[10:45 AM] Kikuyama, Rhett

Thank you for the clarification Amaani and Maria. PG&E agrees that the efforts need to be aligned.

like 1

[10:49 AM] Bridget Sparks (CAISO) (Guest)

I believe depth of discharge would be variable and determined by the market, so I don't believe we keep that in Masterfile. With the new end-of-hour state of charge parameter to be implemented with ESDER 4 can help resources control the depth of discharge through this bid in parameter

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[10:51 AM] Colbert, Cathleen

Bridget Sparks (CAISO) (Guest)I believe depth of discharge would be variable and determined by the market, so I don't believe we keep that in Masterfile. With the new end-of-hour state of charge parameter to be implemented with ESDER 4 can help resources control the depth of discharge through this bid in parameterI agree with your take-away that the actual DOD is variable and based on market outcomes. There are depening on the project hard limits or consequences for exceeding DOD levels that are included in warranties, for example.

[10:55 AM] Anja Gilbert (CAISO) (Guest)

For the DR and slice of day alignment discussion - I'll add that it may be premature as we're still developing SOD. In other words, there isn't a definition of SOD for DR to align to (i.e., 1 slice vs. 24, etc.). A report on the CEC WG is due to the CPUC in March of 2022.

[10:59 AM] Carrie Bentley

When thinking about exceedance methodology, the key in my mind is whether historical outages are a good predictive measure of future availability. If not, resource counting rules may having nothing to do with the resources contribution to reliability. Outages can be grouped into (1) predictable, like ambient derates due to temperature, which are a good indication of future availability, and (2) random or one-off, like plant trouble that can be random across the year/month/hour (which bucket should it discount) or like a force majeure

[11:00 AM] Kikuyama, Rhett

Thank you Tom on how to consider different exceedance levels

[11:02 AM] Colbert, Cathleen

4-hour storage generally can fit into at least 2 full slices and a portion of a third slice. Just re-emphasizing this assumption of 1 cycle/day is outdated assumption.

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[11:12 AM] Scott Murtishaw

Please lower your hands when you're done.

[11:14 AM] Scott Murtishaw

Carrie Bentley Not counting force majeur events or other forced outages in the exceedance would be analogous to distribution reliability metrics (SAIDI etc) that are adjusted for major weather events.

[11:15 AM] Doug Karpa (Peninsula Clean Energy) (Guest)

I might suggest that developing rules for resource counting may lead to different conclusions about the right size of slices. IN particular, we may find that the challenges around fitting different durations of storage and different discharge and charging schedules will tend to lead us to hourlyslices, for example.

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[11:19 AM] Doug Karpa (Peninsula Clean Energy) (Guest)

Also, on the 6 hour slice resource, if that is, for example, a gas resource with a time limit air permit constraint, it can operate a Pmax for 6 hours, but it can't operate at Pmax for 4 hours and tehn half the Pmax for the full 4 hours of the subsequent slice, which creates a temporality problem in that it is being credited with being able to deliver energy in the second half of the slice when it can't, in fact.

[11:20 AM] Colbert, Cathleen

I continue to struggle with the contiguous treatment of batteries also. In operations, a battery may be discharged for 2 hours based on grid needs, release a portion of its stored energy, and then recharge for 2 hours to return to max stored energy for future discharges. The actual operations is more dynamic than the scenario seems to be able to support. Encourage PG&E to think more about how this more dynamic use can be reflected.

like 1

[11:21 AM] Colbert, Cathleen

Colbert, CathleenI continue to struggle with the contiguous treatment of batteries also. In operations, a battery may be discharged for 2 hours based on grid needs, release a portion of its stored energy, and then recharge for 2 hours to return to max stored energy for future discharges. The actual operations is mo…For precision, I'll clarify that the recharge would be more than 2hrs based on RTE. But I believe the hypothetical still stands.

[11:23 AM] Chris Devon

We should be setting the slices based on the reliability needs - then establishing counting rules that align with the need-based slices . We shouldn't be setting counting rules to fit what we assume the resources will be used for first then using that to set the slices... Also most of these discussions on storage counting are ignoring the market will utilize the storage based on its economic bids not based on its slice of day showing.

heart 1 like 1

[11:32 AM] Nuo Tang

would the resource have difference UCAP values for different slices in the season?

[11:33 AM] Carrie Bentley

Adding to Nuo's question, and if so, how good will historical availability be at predicting future availability in each slice?

[11:36 AM] Colbert, Cathleen

How does the CAISO propose to mitigate the risk that the top % of tightest supply cushion hours historically may not be a good indicator of top % of tightest supply cushion hours in the future? Please also answer this question in light of climate change impacts driving future dynamics that have been tending to not reflect historical operations that exacerbate this concern.

[11:38 AM] Wan, Lisa

Eric - try closing out the participant list and then opening it up again. that should refresh who has their hands raised

[11:39 AM] Eric Little

Thanks Lisa. That worked.

[11:54 AM] Doug Karpa (Peninsula Clean Energy) (Guest)

One could potentially adjust predictions of future conditions by accounting for any trends in the timing of top load hours. For example, if climate change is making peak heat days move later in the year, then an analysis of trends over time should pick up that trend and allow projections into the near term future

like 1

[11:55 AM] Doug Karpa (Peninsula Clean Energy) (Guest)

and yes, weighting recent years more heavily than older weather years should achieve nearly the same thing

[12:00 PM] Carrie Bentley

Doug Karpa (Peninsula Clean Energy) (Guest) this seems similar to Cathleen's

[12:00 PM] Carrie Bentley

proposal. Do you see them as similar?

[12:01 PM] Greg Contreras

But don't urgent outages get counted against your UCAP?

[12:04 PM] Doug Karpa (Peninsula Clean Energy) (Guest)

I think they're similar, yes.

like 1

[12:08 PM] Brent Buffington

If UCAP includes thermal derates, does it make sense to use that lower UCAP value in overnight hours?

like 1

[12:12 PM] Chris Devon

Brent, your point highlights why using avg ucap that doesnt consider slices would result in inaccurate capacity value derates.

[12:13 PM] Doug Karpa (Peninsula Clean Energy) (Guest)

How do we indicate lunch now? (I'm hungry, Eric)

[12:13 PM] Paul Nelson-CLECA (Guest)

The Slice of Day concept is to measure a unit's capability during difference slices. To the extent thermal resources contribution varies (such as temp derates on turbines), it seems to make sense to have a UCAP that would vary for each slice.

like 1

[12:14 PM] Chris Devon

Agreed Paul.

[12:43 PM] Wan, Lisa

all, friendly reminder this afternoon will also be recorded

[12:45 PM] Christian Lambert (Cal Advocates) (Guest)

Sorry, my hand shows as down on my end

[12:47 PM] Paul Nelson-CLECA (Guest)

Yes, Demand Response is also Preferred Resource!

[1:27 PM] Ric Oconnell (GridLab)

On ELCC, if it is still on the table, you have to explain where exactly it fits in Slice of Day framework. ELCC is NOT an hourly metric.

[1:40 PM] Matthew Barmack

Ric, I don't think that it fits very naturally/at all with slice-of-day. In fact, as PG&E indicated in their presentation this AM, one of the justifications for slice-of-day is to obviate the need for ELCC. As some commenters have suggested, maybe there is some ELCC-like methodology that could be applied to slice-of-day that might better capture correlation between resource performance and system stress than straight exceedance.

[1:40 PM] Greg Lamberg

Solar+Wind+Sorage does NOT equal RA. The more that natural gas is demonized and removed from the equation, the more diesel gensets we are going to see. Since SB100 was passed, the number of non-residential diesel generators inthe Bay Area jumped by 34%. In the SCAQMD, the deployment of non-residential back-up diesel generators rose by 22% in just one year. Wait until Diablo shuts down...The continued absence of Real RA, will only continue the trend of people taking matters into their own hands... And when they do, they will be purchasing diesel gensets. "Facts are stubborn things; and whatever may be our wishes, our inclinations, or the dictates of our passion, they cannot alter the state of facts and evidence" - John Adams - 2nd President of the US

like 1

[1:42 PM] Brent Buffington

Would "hourly ELCC" just be some hourly exceedance value?

[1:43 PM] Matthew Barmack

It might consider correlation with load, for example, e.g., average solar output in the top 5% of load hours?

[1:48 PM] Scott Murtishaw

Carrie Bentley SCE had proposed that the RA value from a resource include its value in all hours.

like 1

[1:48 PM] Bridget Sparks (CAISO) (Guest)

Would allocation impact whether this would lead to over procurement- top-down vs bottom up?

[1:50 PM] Scott Murtishaw

If each LSE procures to its hourly load shape, there shouldn't be a large overprocurement due to load diversity.

[1:50 PM] Colbert, Cathleen

Brent BuffingtonWould "hourly ELCC" just be some hourly exceedance value?Just to clarify, I was not suggesting an hourly ELCC value. ELCC represents resource class's ability to "carry load" through set of hours identified in the LOLE where those LOLP hours have risk of Loss of Load, which could occur at any hour within the period (annual,seasonal,month etc). So a single ELCC value is still a reasonable approach to estimate a resource types ability to support reliability in any hour especially considering it would still have a 24x7 MOO. While it is technically possible to set it based on the slices or hours because hours are an input, I am not sure if that makes academic sense and not suggesting at this time.

[1:52 PM] Colbert, Cathleen

Matthew BarmackRic, I don't think that it fits very naturally/at all with slice-of-day. In fact, as PG&E indicated in their presentation this AM, one of the justifications for slice-of-day is to obviate the need for ELCC. As some commenters have suggested, maybe there is some ELCC-like methodology that could be…I'm not sure the slice-of-day paradigm requires setting capacity value for resource at different values across the day. I view the paradigm as mostly targeting a more granular requirements (PRM) setting for portions of the day that applies to LSEs. Just food for thought.

heart 1

[2:01 PM] Ric Oconnell (GridLab)

Sunny in San Diego today!

laugh 1

[2:11 PM] Chris Devon

on the bottom up - non-coincident discussion.... Actually you do over-procure based on the diversity benefits if you use non-coincident peak forecast and bottom up setting requirements. The non-coincident based requirements will likely be larger than the coincident. So unless you do some additional adjustment for coincidence diversity benefit you overprocure.

[2:12 PM] Scott Murtishaw

It sounds like the product be defined as MW of resource X where each type of resource has a defined gen profile.

[2:13 PM] Scott Murtishaw

could be...

[2:17 PM] Jeff Nelson

Correct-

[2:18 PM] Jeff Nelson

It is for planning and the CAISO does the dispatch

[2:19 PM] Colbert, Cathleen

In light of Nick's characterization of his suggestion, I do not see a need for more granular counting rule for resources than would apply every day within the showing period. The discussion again seems most appropriately discussed in context of resource sufficiency evaluations and ensuring the PRM/slice eligibility rules are clear for what the LSE can support meets their more granular slice-of-day requirements not that there is a need to change the contractual arrangements. The counting rule discussion on whether movement to ELCC/UCAP is a more precise approach to estimate what can be probabilistically expected to support reliability needs.

[2:24 PM] Eric Little

Can you clarify that you are only speaking to resources that are not dependent on weather conditions to produce energy? I thought the value of going hourly in output was for wind and solar. That is what led to the initial discussion of netting the renewable from the gross load.

like 1

[2:25 PM] Matthew Barmack

Similar to Eric, I am not following. For example, if there is an obligation to show sufficient capacity overnight, it doesn't make sense to me that solar would count towards that obligation.

[2:28 PM] Carrie Bentley

Matt, I think it depends on what you mean by "sufficient capacity" If the requirement is peak load, then solar can "count" at night and have no detriment to reliability, right? This all is to your point on PRM, versus bucket size, versus counting.

[2:34 PM] Matthew Barmack

Maybe this a semantic issue. I agree with the last thing that Cathleen said--that LSEs would contract for horizontal slices of resources. How those slices would "count" in different hours/slices would vary? What you are describing sounds more like the status quo, not slice-of-day.

[2:44 PM] Griffes, Peter

How is the IRP handling the multi-day outlier shortage issue?

[2:46 PM] Matthew Barmack

Sophisticated ELCC analyses capture these types of events. For example, in our own work on nearly completely decarbonized systems, we found that longer and longer duration storage was required to get through multi-day events and that the ELCC of shorter duration storage went to zero.

[2:49 PM] Bridget Sparks (CAISO) (Guest)

Eric Little CAISO will look into what portion of the gas fleet is use limited and will try to provide that information in the next workshop

[2:50 PM] Nick Pappas

Thank you Eric and Scott!

[2:50 PM] Colbert, Cathleen

Bridget Sparks (CAISO) (Guest)Eric Little CAISO will look into what portion of the gas fleet is use limited and will try to provide that information in the next workshopJust a note Bridget, that the use_limit_flag may not capture all "use" as in operationally limited resources. I can share more insight on this if you'd like to connect. Examples include assets that have noise restrictions on the weekends or specific hours.