

IRP Workshop on Ruling Proposing 2023 Preferred System Plan and 2024-25 Transmission Planning Process Portfolios

October 20, 2023

Written Q&A Log

1. Hillary Hebert: Didn't the last TPP portfolio rely on the 2021 IEPR Additional Transportation Electrification forecast? Can you talk about why the proposed PSP does not continue to rely on an ATE forecast?
 - a. This is because the 2022 IEPR puts an aggressive ATE forecast in their base Mid-Mid forecast. The base forecast represents an ATE forecast similar to previous High ATE forecasts from the 2021 IEPR.
 - b. Hillary: Good question. I think we're trying to stick with the IEPR Planning scenarios going forward for the cases that we propose to adopt as PSP. Recall the pivot to the ATE in 2022 was intended to inform TPP but not necessarily the planning goals for our own LSEs, which the PSP is more meant to reflect. I'd refer to the ~July 1, 2022 letter from agency principals for more of the spirit of why we did that, as well as the Feb '23 IRP decision transmitting portfolios for 23-24 TPP for more detail.
2. Paul Klapka – SCE: I'm seeing some subtle differences between the slides being presented and what is currently posted. Are there any significant changes between them? Thanks
 - a. No, there are no significant differences between what was posted and what is being presented. There is a little bit of reorganization in these slides, but the content is fundamentally the same.
3. Hillary Hebert: I see the data on the comparison with the ATE forecast. Can you please explain the rationale for using the ATE forecast for the last TPP but not for the proposed TPP portfolios?
 - a. Hillary: See my response above to your prior question. Pls let me know if there's additional nuance in your 2nd question that I'm missing.
4. Brent Buffington, SCE: NREL ATB reflects general nationwide costs. Have any local adders been applied to reflect higher California construction and permitting costs?
 - a. Yes. We apply local adjustors for labor and land lease costs in California. We do not apply a cost modifier for permitting specifically, since permitting costs can vary significantly by local jurisdiction.
5. Deborah Behles: Were the BTM solar and storage values updated to take into account the relevant IRA incentives?
 - a. Projections of BTM solar/storage resource additions are determined by the IEPR; those resources are not subject to optimization decisions in the RESOLVE capacity expansion model. The appropriate costs for BTM resources, inclusive of IRA ITC tax incentives, are included in the non-modeled costs.

6. Hillary Hebert: Thanks Nathan and Donald. One more follow up question on the differences between the last TPP portfolios and the proposed portfolios. Slide 27 shows a total of 55 GW for the ATE forecast in 2035. But the portfolio total for 2035 from the decision that adopted the last TPP portfolios shows a total of 86 GW in 2035 (Table 3). Can you help me figure out what the discrepancy is?
 - a. Hillary: Jared has some slides near the beginning of his section later that drill into this.
7. Ryan Saraie: This is Ryan Saraie from the Public Advocates Office at the CPUC. Do the ITC and PTC changes presented in the slide 12 graphs (Resource Cost Comparison) impact the differences in total resource costs from the 25 MMT Core vs the 30 MMT Core?
 - a. The differences in total resource costs between the 25MMT Core and 30MMT Core portfolios are driven by differences in selected resource additions. The resource cost inputs and modeled tax incentives are identical for the two portfolios.
8. Jim Himelic: If the BTM CHP is assumed to fully retired by 2045, how does an 8MMT target still comply with SB100? The only eligible resource producing GHG is biomass which is ~ 2.5MMT annually.
 - a. The SB100 target is modeled based on meeting 100% of retail sales with RPS or zero-carbon resources. (Note: biomass is counted as RPS eligible within SB100 accounting.) Using this definition, some emissions are still allowed in the CAISO for an SB100 compliant portfolio. The 8mmt target meets (actually exceeds) the 100% of retail sales SB100 minimum requirement.
 - b. Jim: I'll also note that the '22 CARB Scoping Plan 8mmt that we used for these cases also makes some other assumptions, particularly re: techs such as CCS that could help meet a GHG target. Pls consider that in comments re: the appropriateness of the 8mmt by 2045 target.
9. Ellen Wolfe: Regarding the updated transmission constraint representation is there any way stakeholders can get more info from the CPUC/E3 as to why you believe the generic upgrades represented in this cycle's model did not trigger in the case runs?
 - a. The generic upgrades were intended as a failsafe for the model to be able to select additional capacity in case the CAISO upgrades were too constrained or expensive. With the latest information provided in the 2023 CAISO Transmission Capability Estimates Whitepaper, a large number of transmission upgrades totaling many GW of capability have been pre-approved by CAISO, which greatly lowers the cost of selected transmission and resulted in the generic upgrades not being selected.

- b. Generally there were enough identified transmission upgrades (which are cheaper than the generic upgrades) to meet the resource need. Slide 50 in the deck that went out with the Ruling shows that the only time generic upgrades were selected was in the high Solar and battery cost, which made the more expensive generic upgrades cost effective for connecting non-solar/storage resources
- 10. Regarding resource potential updates, is it correct that solar build rate limits are only applied in near-term (through 2026) and then are limited in later years not by any build rate but rather by CEC core scenario land-use screens?
 - a. That is correct.
- 11. Pushkar Wagle:1. Slide #16: Just to clarify, by Transmission Deliverability Whitepaper, do you mean the CAISO Transmission Capability Estimates White Paper? Please confirm.
 - a. Yes.
- 12. Nancy Rader: Given that the CPUC has adopted the 24-hourly approach for the RA program, does the Commission plan to evolve its IRP model in the next IRP cycle to incorporate the 24-hourly methodology in any way?
 - a. Welcome folks' thinking on this. I note a significant consideration is the 24 hr. slice is a procurement compliance framework for near term resource adequacy, whereas in IRP modeling and IRP planning we need to look at reliability through the long-term.
- 13. Deborah Behles: Was there any analysis of the impact of portfolios on AQ when choosing the PSP?
 - a. Deborah: Beyond what you see in the RESOLVE and SERVM results presented already, no. Additional AQ analysis is being performed which we might not be able to publish w/ the other materials today. Please follow up with us if you haven't seen it in a reasonable amount of time.
- 14. Dorland, Kanya: Cal Advocates requests clarification on the IRP study or assumptions that support the proposed summer evening maximum import capability (MIC) cap at 4,000 MW described in the 10/5/23 PSP document. We are concerned that this cap does not align with the proposed out of state wind capacity during the highest system need hours. We suggest that this issue be identified for further studied by the CAISO.
 - a. Sorry, but is there a specific question for us here? If you have a policy position, obviously feel free to make it clear in comments.
 - b. Also, Kanya: OOS wind doesn't count towards the 4GW MIC in this analysis. Additionally for the OOS wind, so Wyoming, New Mexico, Idaho Wind selected by RESOLVE, when we map it and transmit it to CAISO for study in the TPP we request the CAISO to study it as MIC expanding. And modeling it as also needing in CAISO transmission

from the anticipate intertie point. Out-of-state wind is modeled as MIC-expanding and carries additional costs that represent new transmission/deliverability to the CAISO system

15. Ryan Tracey Sonoma Clean Power Authority: Have any of the emerging zero-carbon technologies (EGS, SMR, etc.) been modeled in RESOLVE in future years yet? I was curious if they are missing because they aren't cost-effective or whether they haven't been modeled yet.
 - a. Ryan: If you're referring to the techs discussed in the Zero Carbon Tech report (9/15/22 on our website), then no, those technology types are not included in these cases. However, we have build them into the model and are eager to work with them internally and eventually w/ stakeholders.
16. Mary Neal AreM: Based on the Ruling, there was also more gas added to the LSE aggregation portfolio for reliability purposes. How much capacity was added?
 - a. There were multiple scenarios studied between SERVIM and RESOLVE. SERVIM considered reliability with the non-contracted gas that was not included in LSE plans as one scenario and presented reliability results accordingly. In RESOLVE, we allow the model to economically consider how much gas to not retain. In those scenarios, when modeling the LSE plans, RESOLVE found it economic to retain some of the gas that was not included in LSE plans, particularly for long-term firm capacity needs beyond 2035.
17. Deborah Behles: What costs are the cost comparisons between plans based upon? Do they include any consideration of non-energy benefits like the social cost of carbon?
 - a. The cost comparisons shown in the RESOLVE results slides are based on the "total resource cost" (TRC) view. This includes the utility costs associated with the utility revenue requirement including all system operating costs, as well as customer costs associated with distributed energy resource investment. The TRC does not include non-energy benefits or the social cost of carbon. These are included in the Societal Cost Test. Previous analysis in the IDER proceeding used the SCT.
18. Daniel: How much pumped storage was accounted for or needed above current amounts? Hard to see that in the slides.
 - a. In the core case, 477 MW of pumped storage is included in the LSE plans, coming online in 2028, and no additional pumped storage is selected beyond that. However, in the least-cost case, approximately 2500 MW of pumped storage is built from 2028-32.
 - b. Details on planned and selected capacities are provided in Planned & Selected Capacity tables in 10/5 slides.

19. Nick Pappas: Regarding Kanya's question on imports and OOS wind, could you clarify how the 4GW limit interacts with CA-committed import resources (e.g. PV, OOS wind, etc.)?
- a. For California committed resources identified by RESOLVE, such as Wyoming and New Mexico wind, those don't count towards the 4GW limits, and when we transmit the portfolios to CAISO we request CAISO model those resources in the TPP as needing MIC expansion.
20. Dorland, Kanya: Hi, okay. where in the PSP document do you explain what the MIC applies to? believe there would be about 7,000 MW of out of state wind available during highest system need hours with Idaho and Wyoming wind both connected to Eldorado. So there is just a concern that MIC would need to be increased at Eldorado.
- a. So the 2023 Inputs and Assumptions discusses what out-of-CAISO resources RESOLVE can select in more detail, but generally the specific Out-of-CAISO NEW resources selected by RESOLVE are treated as needing transmission capacity above what is currently being used (which MIC is included in that assumption) so those resources are requested to modeled as MIC expanding at the busbar mapped intertie point.
21. Hillary Hebert: Can you explain why the NPV cost estimates go out through 2065 instead of 2035?
- a. RESOLVE models years through 2045. It also includes 20-years of "end effects" beyond the final modeled year within the NPV in the optimization objective function. Hence the NPV includes these end effects (that capture 2045-2065).
22. Ellen Wolfe: Can you offer a qualitative explanation for why in the High-Gas retirement case there is less OOS wind selected in the portfolio?
- a. First want to note that the gas retirements do not include forced in LSE plan resources, but still the gas retirement sensitivities select less wind than the least cost 25 MMT as well. So my quick high-level estimation is that the high gas sensitivity has much higher amounts of LDES, pumped storage, and geothermal selected, and this reduces the attractiveness of wind to the model because it no-longer needs the higher capacity factors that wind provides
23. Ryan Tracey Sonoma Clean Power Authority: Past 2035, the portfolios select significantly more wind and solar. Are the constraints still informed by the land use analysis past 2035? An example is the 25 MMT core builds 9.3 GW of Wyoming wind by 2045 which is a large step change.
- a. These portfolios use the 2023 inputs and assumptions. It does have more resource potential for wind resources that RESOLVE is able to select. Additionally, there is more transmission information and more

transmission upgrade information to enable more wind to be selected as well.

24. Zoe Harrold, GPI: Re. slides on the baseline resources and "in-development" resources - can you clarify what was meant by "sufficient progress" regarding development stage
 - a. That terminology includes resources that are in the process of coming online so they may be at in the process or about to be at the syncing or COMX stage for CAISO but not yet commercially online.
25. Pushkar Wagle: maximum import capability With respect to imports, the CAISO summer evening simultaneous imports (hours ending 18-22) were capped at 4,000 MW while all other hours of the year were capped at 11,040 MW, which is the CAISO 2023 Maximum Import Capability minus existing transmission contracts. So, the rationale for the latter assumption is clear. What is the rationale/source behind the at 4,000 MW MIC for hours ending 18-22 in the Summer? Thanks.
 - a. See question #94 and #109 below.
26. Tyson Siegele: In reliability modeling, the IRP concentrates on summer reliability because the summer is the high electricity need season. In early slides, Aliso Canyon was mentioned and modeling in the IRP applying to Aliso reliability issues. Aliso reliability questions are winter season reliability issues and local reliability issues. Does that mean the IRP team will be publishing local/winter reliability modeling findings for the Aliso Canyon-served region?
 - a. IRP reliability modeling looks at all hours of the year. Correct that out through the mid-2030's the loss-of-load hours are mainly in summer. Refer loss-of-load "heat map" slide we presented, for example. While IRP modeling focuses on reliability events in the summer high demand season, the electric generation particularly in the winter season is an input into the gas reliability analysis since the gas system (including heating demand for core customers) peaks in the winter. IRP isn't intending to present major conclusions related to the reliability of the gas system, though outputs of IRP (gas demand for EG in the winter season, impacts on EG use and gas use from electrification) are a critical input for the Aliso analysis.
27. Brent Buffington, SCE: In an energy-limited day, the loss-of-load hours are not meaningful. How is this taken into account when single-annual marginal ELCCs are calculated?
 - a. ELCCs measure the ability across all hours of the year for a resource to reduce reliability risk, including both energy and capacity needs of the system. In an energy-limited day w/ loss of load risk, the value of resources to reduce loss of load risk is explicitly captured in ELCC values. Solar/storage surface considers storage charging sufficiency

and increases the value of storage to provide energy to storage in high storage scenarios.

28. Ryan Tracey Sonoma Clean Power Authority: Has SERVVM modeling been performed past 2035? If so, are we seeing a shift from summer evening reliability issues to winter? I'm curious how SERVVM reliability results change as we reach really high levels of decarbonization and electrification.
 - a. Hello Ryan, no we have not looked at conditions as you describe. Reliability events appear to be still focused in summer, largely as we do not calibrate each month individually for reliability. So far, demand is still significantly lower in the winter as more heating has not moved to electric yet.
29. Ellen Wolfe: Regarding NV geothermal resource characteristics, is my understanding correct that in this IRP cycle a cost has been added to this resource to represent the presumed cost of tie lines, and that the expected cost of the GreenLink transmission line being developed in NV has been used as a proxy tie line cost?
 - a. That is correct.
30. Ellen Wolfe: Following on to my prior question about NV geothermal... Is it correct that the application of no wheeling cost to this Greenlink line reflects the expectation that the resources will be tied into the CAISO portion of the NV grid, thereby alleviating import costs? Thanks on all!
 - a. Also correct!
31. Nancy Rader: My earlier question re future 24-hourly considerations has not been addressed, but I'll add a comment that slide 62 shows very low ELCCs for in-state wind, while the preliminary 24-hourly values are much higher.
 - a. My understanding of 24hr values for non-firm renewables are that they are exceedance-based, meaning they are tied solely to that resource's availability. Whereas marginal ELCCs, take that into account and are also sensitive to the overall resource mix and load shape, to estimate a resource type's expected contribution to reliability during risk hours.
32. Deborah Behles: Is the Commission still planning to do an analysis of the narrative portion of the LSE's IRPs like it has done past cycles to examine, for example, an LSE's compliance with the DAC requirements?
 - a. Yes, we are. This will likely be included in the PD.
33. Deborah Behles: Is there a list of what areas (or what facilities) the retirements are assumed for the retirement scenarios?
 - a. The generator list workbook has the details on resources names and contract expiration dates. Also, it is notable that RESOLVE has modeled a min gas retention capacity for the gas resources in local areas.

- b. For unspecified retirements, we simulated retirement of thermal facilities by age. That can be a guide to what we assumed, but it is possible that the future may not unfold that way.
 - c. RESOLVE does not select specific plants to retire. It's only looking at system level impacts and not potential local area requirements. Busbar mapping will be working to identify which plants the CAISO should model as offline or with reduced outputs, using a set of criteria to rank gas plants and prioritizing the selection of higher ranked plants to model as offline.
34. Jim Himelic: Is my understanding correct in that the only LOLP study used to calculate the marginal ELCCs for the 2023 PSP was the 2030 38 MMT case? I recognize the benefits that a PCAP framework has on the supply side but any concerns that this workflow ignores changes to the load profile over the planning horizon? These effects are material, especially post 2030.
- a. LSE plan inputs used marginal ELCC calculations performed on multiple future years. These reflect changes to load profiles in the years studied. This was done for two forecasted resource portfolios: 38mmt in 2030 and 30mmt in 2030. Separate ELCC studies were done for RESOLVE inputs using 2030 loads to develop curves/surfaces for portfolio selection. We are considering using a later year in the next cycle to capture changing load profile dynamic you note.
35. Mary Neal AreM: Please comment on the need for a 4,000 MW cap on imports if external regions are tuned to 0.1 LOLE. My understanding was that the cap on imports was needed because of the lack of tuning of external regions. Did Staff analyze the impact the cap on imports had on the LOLE, and if so, what did it find?
- a. Mary: In response to your verbal question re: "how is uncontracted gas from LSE plans treated in these portfolios" -- in the core cases, that gas is not assumed to retire but is available for RESOLVE to economically not retain if it sees fit for the gas retirement sensitivities, that uncontracted gas from LSE plans is assumed to retire
 - b. For the gas retirement sensitivities, that uncontracted gas from LSE plans is assumed to retire.
 - c. Mary, re your imports question: Per Reliability & Emissions Analysis slide 23 (not in workshop deck) and the I&A process, staff see it as prudent to apply those two base constraints at once. Note the 4 GW is during Jun-Sep HE 18-22. Slide 24 shows sensitivities we ran, not on the proposed PSP, but they are instructive. The 4 GW "binary" approach provides 400-2100 MW NQC beyond a flat 4 GW assumption. We don't have a case where we relaxed the import cap entirely.
 - d. Further, I'll note the import cap can be viewed as a check on SERVM using all resources theoretically available. We would probably want to

be more confident in our load-resource balance and 0.1 tuning of neighboring zones before entirely relaxing the import cap.

36. Mary Neal AreM: Page 30 of the Ruling discusses “adding the requirements of the existing Commission procurement orders.” What does this mean? Does this include D.23-02-040 requirements that were not included in LSE IRP plans?
- a. I'm not quite sure because that is mentioned in the Ruling section about Production Cost Modeling/SERVM. In RESOLVE we apply an MTR compliance constraint (incl D.23) but in SERVM we just take the RESOLVE portfolio, so indirectly SERVM assumes MTR (incl D.23).
37. Gregg Morris: Not all contracts result in operational projects. The LSEs have to over procure in order to ensure that they comply with their quotas. It's prudent business practice.
- a. Thanks Gregg. Can't tell if there's a question here for us though.
38. Brent Buffington, SCE: Regarding the SERVM modeling, how do loads and resource forecasts outside of CAISO impact gas plant dispatch in CAISO?
- a. Hurdle rates add to cost of exporting CAISO gas to neighbors, limiting the circumstances that SERVM finds it economic to export CAISO gas generation. If modeled resource adequacy in neighbor regions is significantly deficient (much greater than 0.1 LOLE) then deficient region will lean more heavily on neighbors including CAISO. Then SERVM will seek most economic dispatch to meet its own load and export to deficient neighbor when possible. When neighbors are very resource adequacy deficient, this pulls up CAISO LOLE. CPUC staff had a step in modeling to add Perfect Capacity to certain neighbor regions to boost resource adequacy enough such that the neighbor would not lean on CAISO to the point of affecting CAISO LOLE.
39. Tyson Siegele: The IRP team posted a spreadsheet ("Aggregated LSE Plans and Baseline Resources 2023 PSP_v2") that shows there is no pumped hydro in-dev. In contrast the aggregated LSE plan portfolio shows additional pumped hydro in 2026. Does that mean the additional pumped hydro in 2026 is an existing pumped hydro facility that is currently not contracted by a California LSE?
- a. I believe what you are observing has to do with a difference in the terminology we use. Both in-development and LSE plans refer to future resources. "In-development" is used for a distinct resource with an expected online date, which is typically under construction or has a contract signed. The aggregated LSE plan portfolios include generic resources, which may or may not be contracted/currently under construction. Hope this clarifies!
40. Steve Metague: I have modeling question. How does RESOLVE take into account transmission constraints into transmission constrained load centers?

- a. The CAISO Transmission Capability Estimates Whitepaper summarizes the approach that CAISO took to model line constraints from generation nodes to load during on-peak and off-peak deliverability windows. The CAISO identifies line constraints, and provides information on the substations for which new resource additions would contribute to the constraint. This information is directly given to RESOLVE. More information on the implementation is provided in the Inputs and Assumptions document.
41. Deborah Behles: Has there been any work to ground-truth the modeling with actual GHG emission values to see what model is closer to actual GHG emissions?
- a. We did not perform the GHG-ground truthing work this cycle that stakeholders are probably familiar with from prior IRP cycles, though we have built on those previous ground-truthing exercises to improve how we model emissions in California. We updated the GHG trajectory using the latest CARB emissions inventory for the power sector in year 2020 as the baseline using the 2022 CARB Scoping Plan. Other updates include modeling operations of biogas, biomass, CHPs and geothermal with historical operation of these resources (need to confirm).
42. Nick Pappas: From a GHG accounting perspective, how are exports treated?
- a. Exports from CAISO to other zones are accounted in the CAISO GHG footprint (if the exported energy is generated from emitting resources).
43. Ellen Wolfe: In the model there is a Victor_Lugo constraint and a Lugo_Victorville upgrade. Are these the same line and just opposite directions, or...?
- a. These are two separate constraints, with the Victor to Lugo Area Constraint being a smaller Kramer area constraint while the Lugo-Victorville constraint is a much larger one and includes all resources in the east of Pisgah study area which includes Nevada area. The Victor Lugo constraint upgrade was approved in the 22-23 TPP so its cost is zero. While the Lugo-Victorville constraint upgrade was not approved in a TPP so its cost is included.
 - b. More information is available in the 2023 Transmission Capability Estimates whitepaper on the CAISO website
44. Oh, Helena: Do we have SERVM results (e.g. LOLE and GHG emissions) for the 30 MMT Core and 30 MMT Least Cost portfolios?
- a. Unfortunately we do not have analysis to present re: the 30 MMT core and least cost portfolios. We instead focused on the 25 MMT results for this proposal.
45. Joanne Bradley - LS Power: RESOLVE and the Busbar Mapping presentation (slide 11) show 300 MW of Idaho Wind. Can you please help me understand

what is driving the change from the 1,000 MW of Idaho Wind in the 2022-23 TPP sensitivity and 2023-24 base case?

- a. In the 2023-24 TPP, RESOLVE did not have Idaho wind as a resource option, it only had Wyoming or New Mexico. In busbar mapping, we shifted resource to Idaho wind to more effectively utilize identified transmission. RESOLVE does have Idaho wind this cycle. So it can select it. One of the limitations of RESOLVE is it can't capture the step function of transmission upgrades so often selects small portions of an upgrade. Busbar mapping seeks to remapping resources to more completely utilize upgrades.

46. Nick Pappas: With regard to the heat map on Slide 79, is a similar EUE heat map available reflecting the revised import assumptions (ramped, flat) tested as sensitivities? It would be helpful to understand how sensitive reliability is to import availability assumptions

- a. Those detailed results to produce heat maps may not be available without rerunning studies. Staff consultant Astrape ran the import sensitivities. Please send an email request if this is really important to you and we will work with our consultant to get those results.

47. Nick Pappas: With regard to the heat map on Slide 79, is a similar EUE heat map available reflecting the revised import assumptions (ramped, flat) tested as sensitivities? It would be helpful to understand how sensitive reliability is to import availability assumptions (IMO, 11GW availability and unlimited energy may be masking reliability risk given on-going portfolio and regulatory changes in PNW which will likely reduce availability for CA)

- a. We do not have such a heat map to present. We recognize import assumptions are very critical to reliability particularly as the generation fleet of the entire west changes and decarbonizes, and will keep this in mind for next time.

48. Nick Pappas: To clarify question on exports and GHG accounting, is there a net credit to the emissions target for exports of clean energy?

- a. No, there is no GHG credit for exports.

49. Dorland, Kanya: Hi, to clarify are all the costs of importing out of state wind considered in the resolve model? Or are you expecting CAISO to provide the cost for the MIC expansion needs in the 2024-2025 TPP?

- a. These costs are included in RESOLVE, and estimated based on costs for transmission projects currently in development.

50. Mary Neal AREM: Please provide an explanation of how the "gas not contracted" mentioned on page 23 of the ruling was determined. How, if at all, did Staff incorporate the generic gas resources included in LSE's reliability portfolios in their IRP filings.

- a. In response to your verbal question re: "how is uncontracted gas from LSE plans treated in these portfolios" -- in the core cases, that gas is not

assumed to retire but is available for RESOLVE to economically not retain if it sees fit But, for the gas retirement sensitivities, that uncontracted gas from LSE plans is assumed to retire

51. Lambert, Christian: Are resources added for in-CAISO POU's to meet their own goals and requirements, where needed beyond new CAISO POU resources already in the WECC ADS? Are staff gathering planned resource data from these non-CPUC-jurisdictional LSEs for inclusion in the modeling?
- a. Yes, in RESOLVE, we added planned resource additions in external zones using their most recent published IRPs and plans.
52. Tom Beach: Do IRP staff have an opinion about whether the added reliability compared to 0.1 LOLE in the Core Portfolio is worth the added cost of the Core Portfolio?
- a. We don't have more detail to share on that right now, no. But if you have suggestions, we look forward to seeing them in comments.
53. Mary Neal AreM: Page 30 of the Ruling discusses ELCCs for RESOLVE. Are these the same as the ELCCs used to model the reliability of LSE IRP portfolios in their plans or where they updated? If so, how?
- a. No. ELCC curves and surface for RESOLVE are very expansive in terms of the range of resource amounts covered, whereas LSEs were given a set of ELCCs tied to a specific reference portfolio. SERVM was updated since the LSE plan ELCCs were calculated, to develop RESOLVE ELCCs: some of the modeling updates were presented by Patrick earlier. Others include updated wind shapes.
54. Lambert, Christian: In an August 2022 RA workshop, Astrape presented some initial results for the RA proceeding indicating that the 14% needed to tune the PCAP PRM to 0.1 LOLE in IRP could become 16% in RA, given the annual/monthly difference, weather year shapes, etc. Have staff studied this gap any further? Do any of the modeling changes reduce or eliminate the gap?
- a. The slice-of-day accounting used in RA is not directly comparable to the PCAP PRM, so the difference in reported PRMs do not necessarily conflict.
55. Steve Metague: My understanding is that the CAISO white paper addresses transmission constraints from resource development areas onto the EHV grid (230 & 500 KV), but does not address transmission constraints into transmission constrained pockets. Do you agree?
- a. Generally, yes, it focuses on system level info as does the TPP and general the LCR studies are for the needs in the load pockets. The white paper addresses system level constraints so 230, 500 for SCE, but for PGE it also includes many 115 kv Systems. The 2023 White Paper, the CAISO released this year has significantly more constraints in the PG&E that includes several constraints into the Greater Bay area. But the lack

of overlap is something CPUC and CAISO staff are discussing and working on how to better capture the transmission needs in and out of LCR areas.

56. Joanne Bradley - LS Power: Given that the currently proposed transmission from Idaho to CA allows for 1,000 MW which is also consistent with past portfolios, can additional adjustments be expected in the busbar mapping effort to align the amount of Idaho wind with both past portfolios as well as the reality of proposed transmission?
- a. The preliminary busbar mapping does include 1,000 MW of OOS wind as Idaho wind to reflect the transmission realities.
57. Are the estimated air emissions from the various scenarios available?
- a. We have data on criteria pollutants for the two main RESOLVE portfolios (Core and Least Cost) which will be published soon.
58. Sarah Majok: With EUE heat map showing unserved load during early evening hours when OSW is productive, how is this incorporated or addressed either in SERVM or RESOLVE?
- a. ELCC values for OSW will reflect value in meeting EUE hours, including the hours you mention. When those ELCCs are then used in a capacity expansion model (like RESOLVE) or elsewhere, one should expect the reliability contribution implied by those ELCCs to then be inclusive of the resource's ability to meet needs in those hours and for those resources to be valued accordingly.
59. Mary Neal AreM: What is the "Annual Policy Contribution" that RESOLVE uses to determine compliance with SB100 targets. Is this just the same as the annual MWh generated by the resource?
- a. That's correct, annual generation from eligible resources are accounted towards the target SB 100 targets. The target is calculated as a percentage of retail sales.
60. Lambert, Christian: Angineh, regarding adding planned resources - I'm not asking about external areas' needs, but rather about the minority portion of the CAISO itself that is comprised of a few dozen small publicly owned utilities. These POU's are in-CAISO LSEs but not subject to CPUC jurisdiction. Their procurements occupy CAISO transmission and MIC. Are their additional planned/selected resources included in the portfolio?
- a. In both RESOLVE and SERVM, these in-CAISO POU's are aggregated with the rest of CAISO (PG&E, SCE, SDG&E, and CCA's). The POU's' existing resources and their near-term plans are incorporated in the resources we model. There are ongoing efforts by staff to investigate whether data for their long-term plans are available.
61. Mary Neal AreM: RE the MTR gap analysis. The slides mention that Diablo retirement was a part of the jump in PCAP shortfall in 2025. Was that the only retirement that contributed? Can you provide a list of any others. And to

confirm the baseline in the MTR sufficiency analysis is as of the 11/1 LSE filings? If not, what was the cut-off date?

- a. Yes, development resources in the baseline (meaning contracted but not online) are per 11/1/22 LSE plan filings, which had a cut off date of 8/1/22. Modeling staff also updated the baseline with CAISO data as of 1/2023, so several other units were added to the baseline based on that.

62. Tom Beach: Slides 50-51 in the deck circulated on 10/5 show that the RESOLVE runs for this PSP assumed the addition of significant new transmission upgrades approved in the 2022-2023 TPP, but included this new transmission at zero cost (see red box on these slides). Doesn't that artificially reduce the GHG and PRM shadow prices determined by RESOLVE, as these upgrades are not really zero cost?

- a. RESOLVE is optimizing for the investment of incremental assets additions. GHG shadow prices exclude baseline/forced-in resource costs. For PRM shadow prices, some of the costs are baked in, and that has been the treatment for baseline resources and approved transmission capacity.

63. Nick Pappas: Could you please help parse the import limit mechanics between RESOLVE and SERVVM? Is it correct that SERVVM utilizes the 4gw/11gw framework to represent import availability for both gen and tx limits rather than explicit representation of hourly availability from other regions? How does the regional LOLE calibration feed into RESOLVE / SERVVM's import limit frameworks? Thank you!

- a. SERVVM uses both the 4GW/11GW limit as well as seeking to calibrate external regions. So, both methods are applied. In the future more work is intended to improve/review this modeling assumption.

64. Jenifer Hedrick: Questions related to the Ruling: Page 48 of the Ruling states the Commission should order additional procurement of 2,000 MW of NQC of renewable or zero-emissions resources if the CESA/WPTF PFM is granted. (On p. 50 these resources are also described as clean capacity). Question: Please clarify the type of resources which would count under this definition.

- a. My current understanding is that this would be the type of resources that count toward the "generic" clean capacity required in D.21-06-035 and D.23-02-040.

65. Mary Neal AreM: What is the RESOLVE reliability "Adjustment for Additional Interactive Effects?"

- a. These adjustments were derived from iterative calibration between RESOLVE and SERVVM to ensure alignment of the ELCC based accreditation framework in RESOLVE and the LOLE results in SERVVM. This is common practice in resource planning when iterating between capacity expansion and reliability modeling.

66. Mary Neal AreM: The RESOLVE output reports reliability contribution from solar + storage combined. Is this due to the use of a solar + storage ELCC surface? If not, please explain.
- a. Yes, that's right. The surface provides the portfolio ELCC from solar+storage. Allocation of that ELCC between solar and storage could in theory be done, but it is not necessary for reliability accounting against the total need modeled in RESOLVE.
67. Matthew Kawatani: Page 48 of the Ruling states the Commission should order additional procurement of 2,000 MW of NQC of renewable or zero-emissions resources if the CESA/WPTF PFM is granted. (On p. 50 these resources are also described as clean capacity). Question: Please clarify the type of resources which would count under this definition.
- a. My current understanding is that this would be the type of resources that count toward the "generic" clean capacity required in D.21-06-035 and D.23-02-040.
68. Paul Klapka – SCE: The MTR Sufficiency Analysis slide shows a 750 MW shortfall if LLT PFM granted. How does this increase to 2000 MW in the Ruling?
- a. The 2,000 MW NQC represents the quantity of LLT procurement ordered in MTR and that could be potentially delayed if the PFM is granted.
 - b. Also noting the 750 MW PCAP is surplus to the reliability standard, not a shortfall. This is per the sign convention used in the analysis.
69. Mary Neal AreM: Page 55 of the Ruling discusses using annual ELCC values. To be clear, all seasonal resources would be assigned annual ELCC values? Staff sees no issues with that in terms of compatibility with SoD?
- a. Yes, all resource types would be assigned an annual ELCC value. Through mid 2030's staff see the value largely being driven by reliability contribution in summer early evening, as the highest LOL risk hours. At this stage annual marginal ELCCs are for mid to long term planning in IRP, whereas SoD is for compliance in the system RA timeframe.
70. Mary Neal AreM: Is the reliability portfolio included in LSE IRP plans supposed to represent a forecast of the LSE's RA portfolio? If not, what is it?
- a. Not in a strict RA program compliance sense. But broadly, reliability planning in IRP is similar to RA program, but with attention on mid to long term and new resource needs. Hope that helps and I am interested to hear how LSEs see their IRP plans in this sense.
71. Mary Neal AreM: For the "calculate ELCC" step on page 58 of the Ruling, can Staff confirm the ELCC curves and surfaces would be the same as those used for the PSP RESOLVE analysis? Otherwise, what are the ELCC curves and surfaces?
- a. Yes, updated on a regular cadence.

72. Mary Neal AreM: Will there be separate ELCC values for solar and storage for use in the IRP planning templates under the proposed reliability framework in the Ruling even though RESOLVE uses a solar+storage ELCC surface?
- Yes, separate values, like we had in 2022 LSE plan filing requirements.
73. Matthew Kawatani: Page 50 of the Ruling states "the eligible "incremental" capacity of the LDES could be counted as the difference between the maximum interconnection value and the average capacity that the natural gas turbines have actually provided during historic reliability events." Which value was used in the baseline, the NQC or net-dependable capacity? Would a 4-hr battery be eligible in this proposal and count as half?
- In SERV modeling CTs would be modeled with NDC and relevant operating constraints while Cogen is generally capped at monthly NQC and relevant operating constraints.
 - Regarding 4hr eligibility, a 4hr battery would not count toward the MTR LDES procurement category because D.21-06-035 requires that a resource be able to discharge at maximum capacity for at least eight hours to be eligible. That being said, we are open to comments regarding how to modify or expand this proposal (i.e. should 4hr energy storage be included in order to count toward the generic procurement requirements of MTR.)
74. Brent Buffington, SCE: The RA program recently adopted hourly marginal ELCCs. How are the marginal ELCCs used here in IRP different from the marginal ELCCs in the RA program?
- I'm not familiar with that in RA - are you referring to exceedance values for wind and solar? If so, pls see similar Q&A w/ Nancy Rader earlier.
75. Nick Pappas: To clarify the scope of the MRN proposal, is the ruling seeking feedback on whether the marginal ELCC approach is appropriate for the RCPPP (e.g. a multi-year RA framework based on mELCC)?
- Ruling p.57: "The reliability framework will also interact with the RCPPP once designed and adopted, and this ruling does not seek to limit the potential design options for RCPPP in any way."
76. Greg Rybka PGE: Is the intent to have the reliability framework adopted in the 2022-2023 PSP decision be used in the RCPPP or is the intent to adopt an interim framework that will be revisited and potentially modified in the RCPPP development process?
- See similar Q&A with Nick Pappas.
77. Mary Neal AreM: Regarding the proposal for LDES at existing NG plant sites: Would this apply to any natural gas plants or just certain plants that meet local reliability needs?
- The ruling doesn't specify any limit to plants in local areas. Please include in your comments if you have an opinion on this topic.

78. Mary Neal AreM: Regarding the proposal for LDES at existing NG plant sites: Would LSEs be issued a new procurement order for these LDES facilities, or would the proposal just change resource eligibility requirements to allow LSEs to meet previous procurement requirements with this resource type?
- a. This would just create a valuation method such that LSEs could count these resources toward the LDES procurement category of MTR. There would be no order requiring these resources.
79. Mary Neal AreM: Regarding the proposal for LDES at existing NG plant sites: Could Staff clarify what the Ruling discusses as “new NQC”? My understanding is that the referenced lack of “new NQC” means there is no new delivered capacity because the resources would be gas-storage hybrids under the same interconnection limit? Is that right?
- a. Yes, this seems right. No new delivered capacity would mean no incremental NQC value (and thus no value to count toward MTR). The goal here is to recognize these resources do have reliability value despite that fact and think about how we would want to quantify and credit it.
80. Deborah Behles: Does the base case also include assumptions for electrification consistent with the high electrification scenario?
- a. The 2022 IEPR Planning load scenario assumes electrification load for buildings and transportation and is modeled in the core and least cost cases. Please see slide 37 for the trajectory. Higher electric loads are modeled as sensitivities consistent with the 2022 IEPR Local Reliability 2021 ATE forecasts.
81. Dorland, Kanya: To clarify what was the rationale/source behind the MIC cap at 4,000 MW for hours ending 18-22 in the summer month?
- a. This value was 5,000 based on benchmarking to RA imports in earlier years, but has since been updated to 4,000 MW to align with the latest MTR Need Determination modeling
82. Roschen, Jane: Why does Central Valley's wind resource potential have such a low percentage selected by RESOLVE?
- a. The short answer is that transmission constraints limit what wind can be built without transmission upgrades, and RESOLVE is chosen not to pay for those upgrades to build that wind particularly when it views it can build wind in other areas without needing upgrades.
83. Nick Pappas: Does SERVVM explicitly or implicitly reflect regional energy limits related to PNW hydro over the course of a water year?
- a. Hydro availability is based on historical patterns, meaning PNW hydro is expected to perform similar to historical water patterns. Hydro resources are constrained to weather years, where minimum flow, maximum flow and available energy (water) to schedule is based on history

84. Dorland, Kanya: To clarify, are the results taking to account the ratepayer cost advantage with subscriber based transmission such as sunzia and transwest vs. transmission projects seeking cost recovery through the TAC such as SWIP-North?
- The way RESOLVE assumes transmission costs for OOS resources is it assumes an annualized per MW transmission cost, which we calculated based on available cost estimates for full lines. So RESOLVE is assuming a pro-rate cost rather than the total cost of the transmission line.
 - The costs of those transmission upgrades that would be collected via the TAC are being factored into out-of-state resource selections in RESOLVE, but RESOLVE does not perform the calculation of the TAC directly.
85. Deborah Behles: Will parties be able to review the busbar assumptions for which plants retire in these sensitivity cases before they are transmitted to CAISO?
- Yes, we are planning points over the next few months where we share busbar mapping data for stakeholders to review.
86. Doug Karpa: If I recall correctly, these gas retirement portfolios all hit the 8 MMT target by 2045. Is that correct?
- That's correct.
87. Deborah Behles: Is there any consideration of the possible impact of Aliso closure, DAC location, etc. on what plants are expected to retire?
- Deborah: A little more to come this afternoon re: what criteria we'll use in the gas retirement sensitivity for 24-25 TPP. Pls let us know if your ? isn't answered by then.
88. Deborah Behles: Has there been a comparison of how air emissions impacted by these retirements?
- No, air emissions impacts have not been quantified.
89. Nancy Rader: Since RESOLVE does not (yet) incorporate the 24-hourly framework, are you confident that the model fully accounts for the need to charge storage resources, particularly within locally constrained areas?
- Fully charging storage is not an explicit requirement to provide some ELCC value, however RESOLVE includes charging energy needs by modeling the solar and storage surface. Look at the I&A to see how the marginal ELCC of storage declines w/o adding solar and increases when adding solar. This is due to the charging requirements. Local areas have their own limitations that are not included in the system RA view in the version of RESOLVE used here
90. Pushkar Wagle: Nathan/Jared, could you please elaborate on the process of the timing of how the specific gas retirements will be considered as part of the busbar mapping process to ensure that they are not causing major reliability and resiliency issues? I also want to know whether the

stakeholders/parties will have the opportunity to weigh-in on the draft mapping. Thanks.

- a. We will be releasing the ranking criteria and draft mapping and selection results for review over the next few months. I'll note the key aspect for the large gas retirement being a sensitivity is so we can work with the CAISO to assess what are potential reliability implications of these retirements and that the TPP studies can help provide potential transmission solutions that we can then compare to resource mapping or other solution alternatives in subsequent portfolio development.
91. Jim Himelic: thank you for a very informative AM session. i have a question / request regarding RESOLVE installation and available IT support for outside parties. this version of RESOLVE is different from prior versions, and I've encountered multiple errors w/ the embedded macros in the workbook. in future releases can you provide more troubleshooting support in the installation guide and conduct thorough testing prior to release to minimize the risk of parties having difficulties in getting the model to run locally? TY
- a. Jim: Noted re: the issues you've experienced. We're going to say a little more, probably at the end of the afternoon session (~2pm) about general RESOLVE software issues if you're still around at that point. Additionally, Staff released a RESOLVE package that has updated instructions that should help stakeholders. This is available on the 2022-2023 IRP Cycle Events and Materials page.
92. Matt Oconnell: Is there a certain reason why the TPP portfolio graphs on slides 5-9 only show new builds and not the total portfolio? It took a few minutes to realize that was new build only.
- a. That's how TPP portfolios are modeled and presented, the existing resources in the baseline can be seen on slide 10 of the first portfolio. The TPP charts show resources in addition to that. We have done work to align with the CAISO's baseline assumed for the 2023 White Paper, so we have about 12 GW of resources in the baseline that have come online or aren't online yet after the CAISO white paper cutoff date of 1/1/22. We will be transmitting that info to the CAISO as well.
93. Greg Rybka PGE: Neil, it was generally the same question as Nick Pappas' on RCPPP and the reliability framework. Just to confirm, does the mention on Ruling p.57 of "potential design options for RCPPP" include all components laid out in the RCPPP staff options paper (i.e., need determination, need allocation, compliance, and enforcement)? Or is the need determination and allocation framework what is being adopted in the PSP decision and only the compliance and enforcement is being decided on in the RCPPP?
- a. Got it. No components of RCPPP design are being limited by anything in this ruling.

94. Brent Buffington, SCE: Sam from E3 stated: "This value was 5,000 based on benchmarking to RA imports in earlier years, but has since been updated to 4,000 MW to align with the latest MTR Need Determination modeling". What is the rationale for the 4000 MW import limit?
- This has been developed in the Inputs & Assumptions process in IRP (for example see section 6.7 of the final I&A). But also pls see similar Q&A w/ Mary Neal about import assumptions.
95. Mary Neal AreM: To follow up on gas retirements issues, I think I still have one unanswered question. On slide 65 from this morning, it shows 5.9 GW of gas retirements in the LSE aggregation portfolio in 2035. How was this calculated? Did Staff aggregate the online and planned existing gas resources reported in the LSE templates and compare that to the baseline?
- That's right. As mentioned on the same slide, ""Additional retired" refers to individual thermal units removed if not specifically quantified as contracted or planned for resources in LSE Plans". The default assumption is that no gas capacity has planned retirement.
96. Ellen Wolfe: On slide 27 for east of Pisgah geothermal, could you please clarify for the geothermal not coming through new transmission to the VEA area, how the other portion gets to the CAISO.
- So the resources not coming in through the VEA upgrades/interconnections are being considered as coming through two sources. Either being through existing NVEP lines, or on the proposed Greenlink lines, or particularly for Utah geothermal where we have some of the geothermal mapped, we're looking at if it needs to be Wheeled to CAISO through existing system or if it can come down on the IPP.
97. Emily Turkel: Will the gas retirement methodology (described on slide 24) leverage the SMOKE/CMAQ process used in last year's "Quantifying the Air Quality Impacts of Decarbonization and Distributed Energy Programs in California" study or focus solely on proximity to DACs and available EIA data? Thank you!
- Thanks for sharing that potential dataset, it is something staff will look into.
98. Pushkar Wagle: Jared, you just mentioned that you have assumed 1,000MW of Idaho wind in the 2034 portfolio while going over slide #27. But that is not consistent with slide #11, where it states that only 300MW of Idaho wind is being selected by RESOLVE. What is the reason for this apparent inconsistency? Thanks.
- So the 300 MW for Idaho wind is what was selected by RESOLVE in the portfolio. The 1,000 MW is what busbar mapping had in total. RESOLVE doesn't capture the step function of transmission so in busbar mapping we often even relocate the amount to not trigger the upgrade or try to

fully utilize the upgrade. So in preliminary mapping we shifted resources from other OOS wind areas to Idaho to fully utilize the transmission and to be consistent with what was mapped in the last TPP

99. Mary Neal AReM: Was there a 0 MMT GHG emissions sensitivity for 2045?
- a. We have a 0mmt trajectory in RESOLVE and are currently exploring scenarios to reach that goal. No related modeling has been made public with the scenarios released thus far.
100. Hillary Hebert: Can you explain more about the change in the baseline that is resulting in the smaller portfolio? Is it that that the definition of "in progress" resources has changed or that there are just more resources in that category than there were for the February TPP portfolio?
- a. The main story is that the new baseline includes ~16GW of new and contracted resources not included in the previous baseline
101. Ryan Tracey Sonoma Clean Power Authority: How are the "in development" resources that are in the baseline accounted for in busbar mapping? Are they explicitly included in the mapping or are the CAISO whitepaper estimates of capability reduced?
- a. The resources in the modeling baseline (2023 PSP baseline) that weren't in the baseline for the CAISO Tx white paper estimates are used to subtract from the white paper estimates. For the resources identified as in-development which aren't in the baseline. We are explicitly including those in the mapping
102. For the constraints on slide 31 which are shown exceeded do these also include ones approved in the 2022 - 2023 TPP (e.g. those with no cost in RESOLVE)?
- a. So for constraints with approved upgrades, exceedance are only shown if they exceed the additional capacity provided by the upgrade.
103. Hillary Hebert How are the MW from TransWest Express impacting the need for new transmission at Palo Verde?
- a. Transwest is assumed to interconnect to Harry Allen/El Dorado system in Nevada so doesn't impact transmission needs directly for the CAISO system at Palo Verde. There are some overall transmission constraints that include both intertie areas, so those constraint and upgrade needs are impacted by resources at both interties.
104. Deborah Behles: Will SERVM be run for any of the sensitivity studies? To see if the GHG value is impacted by some of the sensitivities?
- a. We weren't planning on doing so. If you feel this is critical to the process, please let us know in comments.
105. Deborah Behles: Has there been any attempt to map community solar that may be front of the meter?

- a. So RESOLVE has an option to select in front of the meter community or large-scale parking lot solar, its called "Distributed Solar" it did not select any in these portfolios, but we did still end up mapping some solar resource to smaller projects 0.5-2 MW in size.
106. Abhishek: Does Land-Use and Environmental Impacts are also being considered for selecting transmission upgrades or are these only for selecting resources? Can you elaborate how land-use screens etc. be considered for transmission related projects in this exercise?
- a. This is a potentially interesting topic for future work.
107. Paul Klapka – SCE: Neil - So the only 'shortfall' is 1,078 MW in the year 2025? (slide 94)
- a. Yes
108. Nick Pappas: Will there be a discussion of curtailment mechanics and results in RESOLVE / SERVM and how they compare to observed curtailment levels today? For context, CAISO solar curtailments were ~7% in 2022 but don't reach those levels until ~2031 for the least-cost case (based on results viewer) Does more conservative view on curtailments in SERVM provide feedback loop to RESOLVE resource selection?
109. Brent Buffington, SCE: In regard to the 4000 MW import limit, Neil Stated "This has been developed in the Inputs & Assumptions process in IRP (for example see section 6.7 of the final I&A). But also pls see similar Q&A w/ Mary Neal about import assumptions." We'd like to know why 4000 MW was chosen.
- a. I'll take a shot but this has been a long process since 2021 when the ruling leading up to the MTR decision included a high need scenario, which among other levers, posed 4 GW rather than 5 GW imports. That scenario was adopted in the MTR decision, and since then we've attempted to model full compliance w/ the MTR decision as a base/core assumption. If SCE has recent data to inform the import cap assumption (or repeat what you might have put in I&A comments) then please put that in your ruling comments.
110. Zoe Harrold, GPI: Is there a current effort to develop a method that would inform optimal locations for new substations?
- a. This is a potentially interesting topic for future work. The current status is that this year we are including several substations which have status "proposed" and which do not physically exist yet.
 - b. As part of later rounds we are working with CEC staff to assess if there are any ideal land-use wise areas that aren't close to existing substations that we could potential mapped resources from non-aligned substations too. But the plan is to do so in limited amounts/number of locations.

111. Hillary Hebert: LSA would definitely be interested in additional stakeholder engagement in future rounds of busbar mapping. Perhaps a focused workshop? Thanks.
- a. Noted, discussed in workshop that staff will be seeking to conduct further engagement with stakeholders within what's possible through the timing of the decision-making process.
112. Lambert, Christian: Would any of the "Climate-informed Forecasting" options be available in time to inform this PD?
- a. No, not on this timeline. We will be using those approaches for sensitivities to show publicly later.
113. Pushkar Wagle: Resolve Modeling Results (Slide #51) indicates that both ADNUs, i.e., Morro Bay Looping and Diablo_Midway_4_group, are required to accommodate the offshore wind resources accessed under the 25MMT Core and 30MMT Core scenarios. Presumably, the combined cost of both projects was considered in selecting the Central Coast offshore wind of 4.5GW.
- a. Yes, those upgrades are partially triggered as needed by the Morro Bay offshore wind
114. Pushkar Wagle: RESOLVE model (CAISO Upgrades tab) shows the Total (Planned + New) Resource Potential of 4,125MW for the Diablo_Midway_4_group, which is consistent with the CAISO transmission planning estimates. However, it is not clear what was the source for the 4,875MW of potential capacity for Morro_Bay_Offshore_500_group. The CAISO transmission planning estimates show the ADNU of Morro Bay Looping with a capacity of only 1,418MW. Please reconcile the difference between the two potential capacity amounts. Thanks.
- a. So the Morro-Bay_Offshore_500 group is a CPUC staff approximated upgrade based on results for the 21-22 TPP OSW sensitivity that showed the need and cost of a new Morro Bay 500 kV upgrade to tie into the gate Diablo Line. This was increased to allow all the Morro bay potential to connect to transmission
115. Tom Beach: There are two erroneously swapped slides in the slide deck released on 10/5. Can you respond to that?
- a. Thank you for identifying this error, and you are correct, slides 64 and 73 were inadvertently switched in the 2023 Proposed PSP and 2024-2025 TPP RESOLVE Analysis Slide Deck. IRP staff posted an updated version of this deck with the change addressed on the 2022-2023 IRP Cycle Events and Materials page on the CPUC's IRP website.