Integrated Resource Planning (IRP, R.20-05-003)

Energy Division Staff's Responses to Frequently Asked Questions on Mid-Term Reliability Procurement Decision (D.) 21-06-035

The responses below represent Energy Division staff's understanding of CPUC Decisions. CPUC Decisions are the official directions of the Commission, and Energy Division staff may not modify Decisions.

Energy Division staff prepared this list of responses to Frequently Asked Questions to provide interested parties a consistent understanding of staff's interpretation of CPUC Decisions relevant to Load Serving Entities' (LSEs) IRP procurement requirements. Staff has endeavored to ensure that the content of this FAQ guide is consistent with the CPUC Decision language and other relevant statutes, case law and rules. In the event of any inconsistency, the CPUC is bound to operate pursuant to its Decisions and relevant statutes, case law and rules. Parties should contact Energy Division staff at IRPDataRequest@cpuc.ca.gov if they have additional questions or concerns about the interpretations offered by staff in this document. Staff is still working on responses to other questions received, which will be added to a future version of this document.

Further information on the procurement track of IRP is available at: https://www.cpuc.ca.gov/industries-and-topics/electrical-energy/electric-power-procurement/long-term-procurement-planning/more-information-on-authorizing-procurement/irp-procurement-track

1. Need determination

1.1. Timing of procurement

1.1.1. *Does the procurement obligation for a load serving entity in a given year mean that they have to put out an RFP by then? Have PPAs executed by then? Have PPAs delivering power to them by then? Have CPUC approval of the proposed projects by then?* A procurement obligation for a given year indicates that the LSE must have the resource online by the date indicated. For 2023, this is August 1. For 2024 and beyond, the requirement is June 1.

1.2. 1,000 MW of firm zero-emitting resources procurement category

1.2.1. *Is the 80% capacity factor annual?* Yes.

1.2.2. *How will the Commission evaluate if a resource meets or does not meet the 80% capacity factor threshold? For example, will the Commission use a forecasted capacity factor from the resource's contract to calculate this?* This will be based on forecasted capacity factor based on the as-built design. LSEs should be able to provide an engineering assessment to demonstrate that their resource meets the capacity factor requirement.

1.3. 1,000 MW of long-duration storage resources procurement category

1.3.1. *Does only standalone long-duration storage count toward this requirement, or can storage paired with a generation resource that primarily charges from the generation resource, count as well?* This sounds like a hybrid long-duration storage resource, using CAISO terminology. While staff does not see a significant difference between the reliability contribution of a 4-hr storage resource in hybrid configuration as compared to co-located,

the longer the duration, the more likely there would be an issue with the reliance on the hybrid generator to sufficiently charge the storage. LSEs would need to demonstrate via an engineering assessment, and contracts if applicable, that upon commercial operation the generator has the capability to charge the battery to be sufficient to discharge for 8 hours.

1.4. 2,500 MW of zero-emissions generation, generation paired with storage, or demand response procurement category

1.4.1. *In regard to Ordering Paragraph (OP) 6, does an LSE have to demonstrate that the zero-emitting capacity be available from 5p.m. to 10p.m. to deliver 5 MWh for every MW of procurement every day of the year or just, say, for the month of September (since OP 1 and OP 3 both refer to September NQC)? For example, a paired solar and storage resource that charges entirely from the solar project may have sufficient energy to provide 20 MW of output from 5 p.m. to 10 p.m. in September, but only 15 MW of output from 5 p.m. to 10 p.m. in January.* The resource, whether generation, generation paired with storage, or demand response, should be available to deliver for the 5p.m. to 10p.m. window all year round.

1.4.2. *How does the "5 MWh... for every MW of incremental capacity claimed" (OP 6c) for compliance interact with the marginal ELCCs for counting resources in this procurement category?* The incremental capacity claimed will be in nameplate terms, and needs to be converted into NQC terms by using the ELCC for the applicable resource type.

1.4.3. *Could standalone wind count towards this procurement category?* Staff does not see variable output renewables alone as meeting the intent of this part of the procurement. Decision dicta section 5.2.5 states that standalone wind is eligible to meet "any of the 7,000 MW of capacity requirements that are not specified in particular categories, and wind resources may also be paired with storage to qualify under the 2,500 MW capacity category to replace Diablo Canyon."

1.4.4. *Does the availability requirement of OP 6 mean that the resource cannot have restrictions due to permitting or environmental constraints?* Staff does not see OP 6 requiring additional requirements beyond how resource adequacy (RA) program and CAISO market rules already address resource use limitations.

1.4.5. *If an LSE is pairing generation with storage, can the generation component meet any part of the 5MWh of energy required during 5pm to 10pm Pacific Time, for every 1 MW of incremental capacity claimed?* Yes. As long as LSEs can show that the combined resource will be available to deliver it does not matter which constituent part is providing the 5MWh of energy to serve load.

1.4.6. *If an LSE is pairing generation with storage, does the generation component have to always be able to charge the storage to meet the requirement to be able to provide energy during certain hours of every day?* Refer to similar questions above. Staff suggests that whether an LSE chooses to pair storage with the generation or not, the resource/s must be available to deliver within the required hours all year round.

1.4.7. *How should LSEs prove this requirement is met?* Staff expects an LSE to show an engineering assessment and, if applicable, contractual support, to demonstrate the resource will be available to deliver. Staff will provide a template prior to the first filing requirement for D.21-06-035 for demonstrating compliance with this requirement.

1.4.8. *Does the Commission have a definition for what a "contractually" paired generation and storage resource means? Would a contractual arrangement between a renewable generator and a storage project that are not co-located or hybrid where the storage project is obligated to charge during certain times and to a certain level qualify? If so, how granular must the matching of the generation and the storage be to qualify?* "Contractual" pairing is to allow for the possibility of the resource not being co-located or hybrid. The LSE's contract should ensure that the charging occurs during hours when the generation resource is expected to be providing electricity, sufficient to meet the availability and deliverability requirements of OP 6 (b) and (c).

1.4.9. *The 2,500 MW of Diablo Canyon replacement resources must be available every day from 5:00 p.m. to 10:00 p.m. (the beginning of hour ending 1800 through the end of hour ending 2200). This means that it must be at least a 5-hour resource. Since the RA hours are 4:00 to 9:00 p.m., do the Diablo Canyon replacement resources actually have to be 6-hour resources to meet both the requirements of the IRP decision for the Diablo Canyon category and to qualify for RA because they need to be available from 4:00 p.m. to 10:00 p.m. MCC bucket 1 requires availability for 4 consecutive hours between 4:00 p.m. and 9:00 p.m.* A battery available for 5 hours between 5p.m. and 10p.m. also meets the 4-hour RA requirement to be available between 4p.m. and 9p.m.

1.4.10. *Will adding storage to an existing solar facility qualify under the Diablo replacement category?* It could count towards other procurement required by the decision, but no, not towards Diablo replacement. The generation facility must also be new incremental capacity. OP 6 requires incremental capacity and that it not just incremental storage.

1.4.11. *Are there categories where an RA only contract would not satisfy the decision requirements? For e.g., for the DCPP replacement category "zero-emitting capacity", can an entity procure specified marginal ELCC value of 5-hour hybrid storage to meet the requirement?* Yes there are categories for which an RA only contract would not comply with decision requirements. The Diablo replacement category example cited in the questions is a good example of this. Since this category has an energy component, an RA only contract would not comply. Staff see a likely exception here for demand response (DR) for which it is generally not applicable to require a generation component (unless they are DR or permanent load shift resources that are significantly reliant on behind-the-meter batteries or other forms of storage that are charging from the grid, which staff does not believe would be compliant with the Diablo replacement category).

1.4.12. *If pairing generation with storage to meet this procurement category, is there a minimum required generation nameplate capacity to storage nameplate capacity ratio? For example, is pairing a 100 MW PV facility with 75 MW of storage reasonable (i.e. a 1.3:1 ratio) and, if so, can an LSE expect to get at least 75 MW to count towards its procurement requirement?* Staff does not expect that a certain ratio is required but rather that LSEs should demonstrate via engineering and contractual documentation, as applicable, that the generation component is sufficient to charge the battery and have it available for the required hours.

2. Eligible resources
   2.1. *Is new storage added to existing natural gas plants eligible?* Yes, except for the 1,000 MW of firm zero-emissions category, and the 2,500 MW of zero-emissions generation, generation paired with storage, or demand response procurement category. This is based on staff not seeing, for the remainder of the procurement, the decision placing any restrictions on how storage is charged. However, some storage added to existing natural gas plants has not always increased the available resource adequacy from that location – instead it has been used to offer natural gas plants a cleaner way to operate. Storage at a gas plant should be providing incremental NQC to be eligible.
   2.2. *Could you confirm that the incremental storage must be contracted separately from the underlying gas generation asset, which the decision has deferred on their eligibility for IRP procurement compliance?* The storage may be contracted separately or concurrently with the gas asset. However, only capacity added as storage will be considered in compliance with D.21-06-035. Any expanded or contracted gas capacity will not count toward an LSE's D.21-06-035 procurement obligation.
   2.3. *Would existing resources utilizing renewable natural gas as a fuel source count for any of the required procurement buckets?* Neither existing resources nor natural gas (including renewable natural gas) resources are eligible capacity for this order.
   2.4. How will power pricing be determined? By competitive procurement? Avoided cost? By CPUC order or approval? Non-IOU LSEs will procure resources through whatever procurement mechanisms they prefer, and it is up to those entities to determine how to pass those costs on to their customers. For IOUs, the CPUC provides specific procurement requirements and approves IOU contracts of 5 years or greater and approves customer rates as well.
   2.5. *Can existing resources qualify as incremental if they will be uncontracted by the mid-decade?* No, per section 9.2 of the decision, resources in the baseline are not incremental, regardless of contracting status. There is an exception allowed for by section 5.2.1 whereby an LSE that procured long duration storage or firm zero-emissions resources for D.19-11-016 may count early for the 2026 requirements of this decision, provided the LSE can show they met the total capacity requirements across both decisions.
   2.6. *If the NQC of a resource that was in the baseline used to determine the procurement need increases without repowering or other physical changes at the facility, can the additional NQC be counted towards D.21-06-035 procurement requirements*? No. RA program rules may allow changes to NQCs but these may just impact LSEs' compliance with that program, not D.21-06-035. The decision requires that the capacity be incremental to the baseline, whether from a new resource or expansion of an existing resource, per D.21-06-035 OP 1.
   2.7. *What is the definition of "new" for imports and how should LSE demonstrate this?* Per OP 7, LSEs should show that the resource came online after the date of the order, which is June 24, 2021. LSEs should provide a commercial operations date (COD) notice to demonstrate compliance.
   2.8. *For DR resources, are LSEs required to submit any documentation in addition to the executed contract to demonstrate interconnection, site control, notice to proceed with construction, or commercial operation of the aggregated DR resource, pursuant to the milestones? If so, can you provide guidance on what documents the CPUC needs to see for this type of contract?* For DR contracts, the LSE must submit the executed contract and the load impact protocol if it has

been approved. If applicable, the LSE should also submit progress on Rule 21 permits for DR contracts involving BTM storage. The LSE does not need to submit the other milestone 1 and 2 documentation being requested for new construction (interconnection agreement, notice to proceed, site control).

3. Need allocation
   3.1. *For the long lead-time (LLT) resource requirements, should LSEs assume an even split between firm zero-emitting resources and long-duration storage resources?* Yes, though note that the asterisk (*) note at the bottom of Table 6 in the decision dicta states LSEs with an odd-numbered obligation may choose how to round their obligations.
   3.2. *How should LSEs comply with the 2025 requirement for zero-emitting resources if the requirement is higher than their general 2025 need allocation?* LSEs must have the required amount of zero-emitting resources under contract in 2025, but can procure those resources earlier than 2025 and apply those amounts to the 2023 and 2024 requirements, as explained in the double asterisk (**) note at the bottom of Table 6 of the Decision.

4. Cost allocation
   4.1. *When will the Modified CAM be adopted?* This is still a pending matter for the Commission and a vote has not yet been scheduled.

5. Approval, compliance, and monitoring
   5.1. Utility Owned Generation
      5.1.1. *Do LSEs have the choice to procure via a PPA or via ownership of the underlying resource itself?* Yes. IOUs seeking utility-owned generation will need to have their projects approved by application rather than Tier 3 Advice Letter.
   5.2. Marginal effective load carrying capabilities (ELCCs)
      5.2.1. *How are annual marginal ELCCs used yet meanwhile OP 1 and OP 3 require September NQC?* For resource types for which staff publish ELCCs for by the end of August 2021, per OP 15, the ELCC is annual and should be used to determine compliance with OP 1 and OP 3. For other resource types, LSEs should use the September NQC according to RA program rules at the time of contract signing. This is discussed in decision dicta in Section 9.2.
      5.2.2. *Will the marginal ELCC values that will be finalized by the end of August 2021, per OP 15, include offshore wind?* With the text on p. 71 of the Decision plus OP 15 there is flexibility on this. Staff is certainly calculating the ELCC for offshore wind and plans to publish the results, which will most likely be provided as an indicative value. This is likely to allow more recent meteorological data to be used for the final values required for the 2025 and 2026 procurement tranches (per OP 15 staff is required to publish these by December 31, 2022.)
      5.2.3. *Will the marginal ELCCs published at the end of August 2021 for solar paired with storage replace the Hybrid QC methodology adopted in D.20-06-031, or will the ELCCs for solar, storage, and/or solar plus storage be inputs to the formula adopted in that decision?* The

referenced decision / hybrid methodology applies to the RA program. For the purposes of this IRP procurement, the ELCCs that will be published by end of August 2021 will not use the hybrid methodology developed for RA compliance purposes in the RA proceeding. Rather, as the ELCC document will explain, for the purposes of this IRP procurement the marginal ELCC of each standalone resource should be added together and capped at the interconnection size to determine the paired resources' marginal ELCC, all in NQC MW terms. This is applicable to all configurations of paired resources, except hybrid resources (i.e., the storage is restricted to charging from the generator and not the grid) for which the size of the generator is too small relative to the storage. Astrape's modeling finds that this limitation is not reached for solar and 4-hour storage hybrid configurations as long as the solar nameplate capacity is equal to or greater than the storage nameplate category, and for wind and 4-hour storage hybrid configurations as long as the wind nameplate capacity is at least double the 4-hour storage nameplate capacity. Example: A paired facility with nameplate capacities of 100 MW solar and 50 MW 4-hour battery and a 100 MW interconnection would take the standalone solar ELCC (assume 4% or 4 MW) and add to the standalone battery ELCC (assume 90% or 45 MW), resulting in a combined ELCC of 49 MW NQC.

5.2.4. *Regarding adding new storage to existing solar, should an LSE expect the solar and the storage to receive a marginal ELCC value even though the solar component is an existing resource?* No. With reference to the paired resources counting rule described above, only the new resource's contribution to the combined ELCC would be counted.

5.2.5. *Should an LSE account for the fact that the existing solar is already on the baseline resource list when determining the compliance value of the resource and, if so, how? For example, if an LSE pairs a new 50 MW battery with an existing 100 MW solar facility, what compliance value should an LSE expect to receive? 50 MW? 50 MW minus the September NQC value of the existing solar to reflect the fact that the solar component is on the baseline resource list? If so, is this a marginal September NQC or an average September NQC? 50MW plus some value from the existing solar?* Yes, the existing solar should be accounted for by not counting it at all towards D.21-06-035 procurement. In this example, and assuming the interconnection size and marginal ELCC percentages as per the similar example above, the LSE would count 45 MW NQC towards D.21-06-035. This is the standalone battery's ELCC (90% of 50 MW).

5.2.6. *If an LSE executed a contract for an eligible hybrid resource after June 30, 2020, but before the adoption of D.21-06-035, will that resource receive a marginal ELCC value, or will it receive an average ELCC similar to the treatment given to resources in the RA program pursuant to D.21-06-029.* While the D.19-11-016 procurement did rely on the RA hybrid resource methodology for NQC/ resource compliance accounting, the D.21-06-035 procurement compliance will rely on the marginal ELCC. Consequently, resources being shown for compliance with D.21-06-035 should receive a marginal ELCC value regardless of when contracts were signed.

5.2.7. *Will staff provide marginal ELCCs as well for long-duration storage?* Yes.

5.2.8. *For hybrid units, will staff provide different marginal ELCCs for different ratios of PV nameplate to storage nameplate (e.g. 2:1, 3:1)?* No. Reliability modeling to calculate the marginal ELCCs indicates that, within reason, the ratio does not affect the annual reliability

contribution of hybrids, as long as the ratio is equal to or greater than 1:1 in the case of solar, and 2:1 in the case of wind. Accordingly, the marginal ELCCs to be published by staff by end August 2021 will not differentiate ELCCs for different ratios of PV and storage nameplate capacity.

5.2.9. *Assuming that an LSE wishes to count a hybrid resource towards its total requirement, rather than the specific line items listed in Table 5 on page 48 of the Decision (zero-emissions, firm zero-emitting, or LLT), what counting convention should the LSE use?* Per section 9.2 of the Decision, regardless of the procurement category a resource is meeting, the resource will be counted based upon the marginal ELCCs provided by staff by end August 2021. For resource types for which marginal ELCCs are not provided, counting will use system RA NQC counting rules at the time the incremental resource is contracted.

5.3. Compliance

5.3.1. *For the compliance filings listed in Table 7 of the decision and required by OP 3, if the LSE has contracted with another LSE for a portion of the unit, do both LSEs (Buyer and Seller) need to submit the same contract for the resale and the resource supporting documentation? Or, can the Seller (in the LSE-LSE transaction) submit the original resource contract with their supplier and the supporting documentation, while the Buyer (in the LSE-LSE transaction) submits the resale contract between the two LSEs?* Both LSEs should submit all required documentation that they have access to (including the original documentation and re-sale contract) that demonstrates their specific claim to the resource for compliance purposes.

5.3.2. *For Milestone #2 per D.20-12-044, developers may not be contractually required to provide a Notice to Proceed (NTP) to the LSE. What should the LSE submit instead?* If the LSE does not have the NTP documentation, they may submit what similar evidence they are able to provide that serves the purpose of demonstrating that construction has started (e.g., project management reports or photos on status of construction).

5.3.3. *How should LSEs demonstrate achievement of milestone #3 per D.20-12-044 (online status)?* LSEs should include a COD notice if available to provide evidence of online status. If that is not available, LSEs should demonstrate their resource is a participating generator on the CAISO Master Generating list, including identifying the resource ID.

5.4. D.19-11-016 Resources

5.4.1. *Can a resource be used toward both D.19-11-016 and D.21-06-035 if the capacity is in excess of the LSE's D.19-11-016 obligation?* Capacity cannot be double-counted toward both decisions, but an LSE may use a portion of one resource to comply with D.19-11-016 and another portion of that same resource to comply with D.21-06-035.

5.4.2. *If an LSE included a resource in their D.19-11-016 report that is in excess of their obligation, can they count that resource toward D.21-06-035?* Yes, prior to the first compliance filing staff will provide a method for LSEs to identify which resources they are using to count toward D.19-11-016 and which resources are excess and available to count toward D.21-06-035.

5.4.3. *Can the Commission clarify how the accounting would work for hybrid resources? How would the Commission determine "excess" to D.19-11-016? For example, suppose that an LSE exceeded its total D.19-11-016 requirement by 20 NQC MW. To fulfill this requirement, the LSE had procured a 100 MW solar paired with 50 MW storage project with a total NQC of 60 NQC MW under the counting rules in D.19-11-016. Could they apply the excess capacity of that project to the requirements for 2,500 MW of incremental zero emissions resources, or other procurement required by D.21-06-035, on a NQC MW – for - NQC MW basis? If not, please clarify the accounting.* D.19-11-016 and D.21-06-035 do not necessarily use the same resource counting rules, as such, the NQC value of a certain project might differ between the Decisions. If a part of a resource is being used to count towards meeting one decision's requirements, and the rest of the resource towards meeting the other decision's requirements, LSEs should tie their calculation of NQCs for each back to the underlying nameplate capacity such that the resource's total nameplate capacity is not exceeded.

5.5. Penalties

5.5.1. *The net cost of new entry (CONE) is an annual value that represents the levelized fixed costs of a new battery minus the estimated revenues the battery earns in the energy and ancillary markets. Thus, the net CONE corresponds to the year the battery is expected to begin dispatch. Can the Commission confirm that, when calculating the penalty an LSE must pay, the net CONE for the year in which the backstop resource is expected to come online will be used?*

*For example, if an LSE fails to procure to meet its 2025 obligation and backstop procurement is triggered, the net CONE that would be applied to calculate the penalty would be the net CONE for the year in which the backstop resource is expected to come online, **not** the net CONE for the year in which the penalty is assessed.*

Please see example calculation below and confirm that it does or does not accurately show how the penalty would be calculated.

Example calculation sent to staff by stakeholder:

a. Amount LSE Fails to Procure, Resulting in Backstop Trigger	*20 MW*
b. Year Penalty is Assessed	*2025*
c. Expected Year Backstop Resource Will Begin Operation	*2027*
d. Applicable net CONE Year	*2027*
e. Avoided Cost Calculator (2025 version of calculator) net CONE value for Year 2027 (illustrative)	*$54/kW-Yr*
*f. Applicable net CONE value in MW-Yr (e.*1000)*	*$54,000/MW-Yr*
*g. Total Penalty (f.*a.)*	*$1,080,000*

The assumption included in the question – that the CONE penalty will be equal to the CONE for the year in which the backstop resource comes online – is incorrect. The CONE value used in calculating penalties will be the year in which the penalty is assessed. Since

the year in which the backstop resource will come online will be uncertain, using the CONE for the year the penalty is assessed will be more transparent and make penalty costs clear in a timely fashion. For the example above, if the penalty is assessed in 2025 the CONE used will be also for the year 2025. Note that staff cannot conclude from this example that the 'Total Penalty' amount would be the final amount, or if there are other factors that may impact this (for example, if the LSE is still deficient in 2026.)

This concludes this FAQ guide. If staff's understanding of the associated CPUC Decisions changes staff may issue revisions to the guidance. In any case, in the event of any inconsistency, the CPUC is bound to operate pursuant to its Decisions and relevant statutes, case law and rules.