

State of California

Memorandum



Date: February 10, 2023

To: Integrated Resource Planning (IRP) stakeholders

From: Energy Division staff, CPUC

Subject: Incremental Effective Load Carrying Capabilities (ELCCs) to be used for Mid-Term Reliability Procurement (D.21-06-035)

Summary

With this Staff Transmittal Memo, Energy Division staff are publishing the Incremental Effective Load Carrying Capabilities (ELCCs) to be used for Mid-Term Reliability (MTR) Procurement (Decision [D.]21-06-035) compliance. Pursuant to D.21-06-035, load-serving entities (LSEs) and stakeholders should refer to the specific content within the “Incremental ELCC Study for Mid-Term Reliability Procurement (January 2023 Update)” by CPUC consultants, E3 and Astrapé (2023 MTR ELCC Study) that accompanies this 2023 Staff Transmittal Memo (2023 Memo).

For contracts entered after November 30, 2022, staff directs LSEs to use the provided ELCCs for 2025 and 2026 compliance dates for in-state wind, out-of-state wind, offshore wind, pumped storage hydro, solar, battery storage, and paired renewables and storage resources.

The 2023 MTR ELCC Study also contains results that may be applicable to procurement requirements that may arise from the January 13, 2023, Proposed Decision regarding Supplemental Mid-Term Reliability Procurement¹ (PD).

IRP (Rulemaking 20-05-003) Procedural Context, Process, and Use Case for ELCCs

This 2023 Memo is an update to, and should be read in conjunction with, the 2021 Staff Transmittal Memo² posted on October 22, 2021 (2021 Memo). The 2021 Memo remains

¹ See here: <https://docs.cpuc.ca.gov/PublishedDocs/Efile/G000/M501/K102/501102663.PDF>

² See here: https://www.cpuc.ca.gov/-/media/cpuc-website/divisions/energy-division/documents/integrated-resource-plan-and-long-term-procurement-plan-irp-ltpp/20211022_irp_mtr_elccs_staff_transmittal_memo.pdf

in effect. Additionally, IRP staff's Responses to Frequently Asked Questions (FAQ Guide) also remain in effect.³ As described in the 2021 Memo, the MTR Procurement D. 21-06-035 Ordering Paragraph (OP) 15 requires:

Commission staff shall publish on our web site marginal effective load carrying capability values to be used for the 2023 and 2024 compliance dates in this decision by no later than August 31, 2021 and for the 2025 and 2026 compliance dates by no later than December 31, 2022.

D.21-06-035 gave some discretion to staff about the scope of both the 2021 MTR ELCC and 2023 MTR ELCC studies. Excerpts from section 9.2:

This first set of marginal ELCCs will be provided for energy storage at various durations, solar, solar plus storage of various durations and configurations, and wind in various regions, and may also include demand response, in order for LSEs and developers to be able to rely on those values for the 2023 and 2024 capacity required in this order.

In addition, Commission staff will provide guidance on what resource counting LSEs should assume for geothermal, long duration storage, out-of-state wind, and offshore wind for online years through 2028.

For all other resource types, counting will be in accordance with the system resource adequacy NQC [net qualifying capacity] counting rules at the time the contract for the new resource or capacity added to an existing resource is executed.

Consistent with the approach taken in in 2021, staff engaged consultants E3 and Astrapé to conduct the 2023 MTR ELCC Study to determine the ELCCs under an existing IRP technical services contract. These consultants developed the 2023 MTR ELCC Study that accompanies this 2023 Memo.

Staff summarizes the use case for the MTR ELCCs, per the direction given by D.21-06-035 OP 15, section 9.2, and other decision direction as follows: the ELCC values are to be used to convert the nameplate capacity of a resource into NQC terms for the purpose of assessing an LSE's compliance with its procurement requirements.

In the 2021 Memo, staff provided guidance on ELCCs and their application towards an LSE's excess or early procurement. In summary, the compliance date for which the

³ Available on the IRP's Procurement Track page: <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>

resource is being used to satisfy MTR requirements will determine which ELCC should be applied to the resource for compliance purposes.

For consistency, staff is applying this same paradigm to delayed resources. This methodology was also used for the 2021 and 2023 MTR ELCC studies, in which the ELCCs for each tranche were derived from, among other things, the resource mix assumed to be online for each tranche. Staff also note that LSEs are obligated to fill each tranche of their procurement obligation, regardless of resource delays. In this way, all LSEs have equal access to each tranche's ELCCs.

For example, consider a resource that an LSE expected to be online by the 2025 compliance date that is delayed until 2026. If the LSE still treats the project as a delayed resource that applies to its 2025 (Tranche 3) obligation, the LSE should use the Tranche 3 ELCC. If the LSE instead elects to procure an alternative resource to meet its 2025 compliance obligation and is applying the delayed resource to its 2026 obligation, then the LSE should use the Tranche 4 ELCC for the delayed resource. Regardless of resource delays, LSEs are required to fill their share of each tranche of procurement, using that tranche's ELCCs, to ensure that overall amounts meet the reliability need and that all LSEs are applying each tranche's ELCCs consistently.

ELCCs In Effect for 2025 and 2026 Compliance Dates

For contracts entered after November 30, 2022, to meet the D.21-06-035 2025 and 2026 compliance requirements, staff directs stakeholders to information provided in the 2023 MTR ELCC Study as follows:

Table 1- See Tranche 3 and Tranche 4 columns -

- Battery storage, for 4, 6, and 8-hour durations
- Pumped storage hydro (PSH), for 8 and 12-hour durations
- Solar – utility and BTM PV
- Wind CA
- Wind WY
- Wind NM
- Wind Offshore

Staff reiterates the direction it provided in the 2021 Memo. For battery storage durations other than those provided in Table 1, stakeholders can use linear interpolation between the closest durations that are provided. (For example, for 5-hour battery storage the ELCC is the average of 4-hour and 6-hour battery storage ELCCs.)

For paired resources, including resources as defined in the 2021 MTR ELCC Study, staff directs stakeholders to use the heuristic described in the 2021 MTR ELCC Study (refer to the [2021 Memo](#) for more detail). The 2021 Memo also provides the minimum generator

capacities for hybrids with storage durations of longer than 4-hour, and these capacities continue to be applicable.

The 2021 MTR ELCC Study section entitled “Approach for Other Resources Not Modeled” discusses geothermal generation. Staff restates guidance it provided in the 2021 Memo: LSEs are directed to count incremental geothermal capacity contributions using the system resource adequacy program NQC counting rules at the time the contract is executed.

ELCCs for 2027 and 2028 Compliance Dates

The January 13, 2023, PD regarding Supplemental Mid-Term Reliability Procurement would require 2,000 MW NQC in 2026 and 2,000 MW NQC in 2027, in addition to the 11,500 MW NQC ordered in D.21-06-035. The PD recognizes the difficulties in procuring long lead-time (LLT) resources by 2026, as required by D.21-06-035, and automatically extends the deadline for the ordered LLT resources to 2028. Per the PD, staff would be delegated to provide the MTR ELCCs for resources to meet the procurement required by the PD.

The effect of these changes is considered in the 2023 MTR ELCC Study's Table 1 Tranche 4, Tranche 5, and Tranche 6 columns -

- Battery storage, for 4, 6, and 8-hour durations
- Pumped storage hydro, for 8 and 12-hour durations
- Solar – utility and BTM PV
- Wind CA
- Wind WY
- Wind NM
- Wind Offshore

Tranches 5 and 6 (with 2027 and 2028 compliance dates, respectively) would be applicable to newly ordered procurement in compliance with the PD, if adopted.

Although Tranches 5 and 6 are published in this 2023 MTR ELCC Study, the PD gives staff until the end of 2023 to confirm the ELCCs for compliance years 2027 and 2028. Staff currently expects that the 2023 MTR ELCC Study's ELCCs described above will be suitable for the procurement that the PD proposes. However, if the PD were revised significantly or other issues arise an updated MTR ELCC Study for 2027 and 2028 compliance dates may be necessary. Staff will notify the IRP proceeding service list whether or not an additional study is required.

Staff notes that the Tranche 3 and Tranche 4 ELCCs provided in the 2023 MTR ELCC Study account for D.21-06-035 allowing LSEs to request that their LLT resources come online in 2028 instead of 2026, as explained in the “Study Design” section of the 2023

MTR ELCC Study. Specifically, the study modeled only solar and 4-hour battery additions in all years except for 2028, and for 2028, the ELCCs are modeled with LLT resource additions. Accordingly, only the Tranche 6 ELCCs are based on LLT resource development. Thus, the ELCCs for 2025 and 2026 compliance dates already account for the LLT resource delay and are not impacted by resource additions in 2027 and 2028, as considered in the January 13, 2023, PD.

The direction provided in the previous section for storage durations would be similarly applicable to resources being counted towards 2027 and 2028 compliance dates, should the PD be adopted. For battery storage durations other than those provided in Table 1: stakeholders can use linear interpolation between the closest durations that are provided. Likewise, for paired resources, including hybrids, staff directs stakeholders to use the heuristic described in the 2021 MTR ELCC Study (refer to the 2021 Memo for more detail). The 2021 Memo also provides the minimum generator capacities for hybrids with storage durations of longer than 4-hour, and these capacities continue to be applicable.

The 2021 MTR ELCC Study section entitled “Approach for Other Resources Not Modeled” discusses geothermal generation. Staff restates guidance it provided in the 2021 Memo: LSEs are directed to count incremental geothermal capacity contributions using the system resource adequacy program NQC counting rules at the time the contract is executed.

Resource Counting for Resource Types Not Discussed

Staff notes that there may be some technologies not specifically referred to above, nor in the 2023 MTR ELCC Study, and directs stakeholders to refer to the 2021 Memo for further instruction on how to consider these resources.

Conclusion

This 2023 Memo and the accompanying “Incremental ELCC Study for Mid-Term Reliability Procurement (January 2023 Update)” by E3 and Astrapé provide the ELCCs to be used for the 2025 and 2026 compliance dates in D.21-06-035 for contracts entered after November 30, 2022, as well as ELCCs that may be applicable to the procurement being considered in the January 13, 2023, PD regarding Supplemental Mid-Term Reliability Procurement. The ELCC values result from using latest available data and state of the art modeling methods, and thereby help ensure procurement pursuant to D.21-06-035 fulfils the identified reliability need as effectively as possible.

This 2023 Memo focuses on the ELCCs to be used for compliance with D.21-06-035. For questions about other aspects of D.21-06-035 please refer to the IRP Procurement Track website⁴ where staff has provided a “Frequently Asked Questions” guide.

For additional questions, stakeholders can contact staff at IRPDataRequest@cpuc.ca.gov.

⁴ See here: <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>