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BEFORE THE PUBLIC UTILITIES COMMISSION OF THE STATE OF CALIFORNIA

Order Instituting Rulemaking to
Continue Electric Integrated Resource
Planning and Related Procurement
Processes.

Rulemaking 20-05-003

**ADMINISTRATIVE LAW JUDGE'S RULING SEEKING
FEEDBACK ON MID-TERM RELIABILITY ANALYSIS AND
PROPOSED PROCUREMENT REQUIREMENTS**

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Summary

This ruling provides a summary of analysis conducted by Commission staff to assess mid-term electric system reliability need. This analysis focuses on the years 2024-2026. The potential for reliability challenges is driven by several factors, including the planned retirement of the Diablo Canyon Nuclear Plant, planned retirement of older natural gas plants including those using once-through cooling, suggested modifications to the planning reserve margin (PRM), changes in resource availability throughout the west, updated effective capacity accounting, and an updated demand forecast.

This ruling includes not only an analysis of the potential shortfall in electric capacity to maintain reliability, but also suggested procurement requirements, along with their associated distribution and cost allocation to load-serving entities (LSEs) and their customers.

Commission staff will hold a workshop in the afternoon of March 10 to further explain and discuss this analysis. The workshop will be noticed to the service list of this proceeding and posted on the Commission's Daily Calendar. Thereafter, interested parties are invited to file and serve written comments in response to this ruling and the questions embedded in it by no later than March 19, 2021. Reply comments are invited to be filed and served by no later than April 2, 2021.

1. Introduction

This Integrated Resources Planning (IRP) proceeding, like the previous one, has a procurement track,¹ designed to address any procurement needs that may arise in parallel to the long-term planning activities that are ongoing. The

¹ The procurement track was originally initiated by Decision (D.) 19-04-040 in Rulemaking (R.) 16-02-007.

Scoping Memo identified as an early priority in the procurement track a mid-term (2024-2026) reliability analysis centered around the upcoming retirement of the Diablo Canyon Nuclear Plant, as well as several other natural gas units including those using once-through cooling (OTC). Near-term (2021-2023) reliability needs are being addressed by the procurement required in D.19-11-016. Given the reliability challenges that resulted in rotating outages in August 2020, however, the near-term reliability needs are also worthy of a second look. This ruling presents the results of analysis by Commission staff of the need for electric system reliability resources out to 2026.

In addition, this ruling proposes how the identified system reliability needs should be allocated, along with their costs. Types of resources and their attributes are also addressed. Finally, the proposed approval process, for those LSEs that require Commission approval for their procurement, is also included.

Parties should also note that numerous items in this ruling are referred to in relatively short-hand terms. For a more thorough description of the elements of the proposal discussed herein, including their pros and cons, parties may want to refer to the November 18, 2020 Administrative Law Judge (ALJ) ruling (and its attachment)² providing and incorporating into the record a Staff Proposal for Resource Procurement Framework in Integrated Resource Planning (hereinafter referred to as the Procurement Framework Staff Proposal).

2. Planning Standards

To date, all electric system reliability analysis in the IRP process has utilized the same basic long-term planning assumptions as are normally used in

² The November 18, 2020 ALJ ruling and its attachment are available at: <https://docs.cpuc.ca.gov/SearchRes.aspx?DocFormat=ALL&DocID=351577446>. Workshop slides and recording are available at <https://www.cpuc.ca.gov/General.aspx?id=6442463413>

the California Energy Commission's (CEC's) Integrated Energy Policy Report (IEPR) and the Commission's resource adequacy program. The two biggest driving assumptions are the annual planning reserve margin (PRM) of a minimum of 15 percent and the average weather year assumptions (1-in-2) for the demand forecast. In addition, as part of the PRM, the IRP process has, in the past, planned for a minimum level of operating reserves of 4.5 percent.

The rotating outages in August 2020, the California Independent System Operator's (CAISO's) day-ahead forecast in the week following the outages (which far exceeded the forecast on the days in which the outages actually occurred), as well as the high demands experienced in September and October 2020, all suggest that these planning standards may be inadequate to avoid such an adverse outcome in the future. Thus, for purposes of the analysis in this ruling, Commission staff have revised the PRM (including operating reserves) assumptions as they relate to IRP procurement planning for the years 2024 through 2026. This ruling proposes to utilize these more conservative assumptions in future IRP analyses.

On the IRP annual PRM requirement, it is worth noting that although 15 percent is the minimum for purposes of resource adequacy compliance, when the Commission originally adopted the PRM³ it was identified as a range of 15-17 percent, in recognition that capacity additions are lumpy and it may not be prudent to plan only for the minimum. In addition, there have been many changes to California's physical power system since the 15-17 percent PRM was adopted, most notably the increasing prominence of variable and dispatch-limited resources on the grid and the growth of behind-the-meter resources that

³ See D.04-01-050, discussion in Section IV.A.5.

has reduced the managed peak basis upon which the PRM is now applied. Finally, it should be noted that the resource adequacy program applies the PRM on a monthly basis as an adder above the 1-in-2 monthly peak load. An annual PRM applied to a 1-in-2 annual peak (as is the case in IRP), has a different mathematical result than a monthly PRM requirement as applied in the resource adequacy program, and is designed to be somewhat more conservative.

Operating reserves are one component of the PRM, and this ruling suggests that the assumption for operating reserves be revised to 6 percent from the previous IRP assumption of 4.5 percent, in keeping with the CAISO's interpretation of Western Electricity Coordinating Council reliability rules; reaching this level of reserves is used as the trigger for initiating rotating outages. Revising this component of the PRM upwards from previous IRP assumptions is intended to build in an additional buffer of security.

In addition, parties in R.16-02-007 (the previous IRP rulemaking to this proceeding) will recall that, prior to adoption of the reference system portfolio (RSP) in D.20-03-028, Commission staff included an additional 2,000 megawatts (MW) of net qualifying capacity (NQC), to account for calibration differences between the RESOLVE model used to develop the portfolio and the results of the SERVIM model used to conduct production cost modeling analyzing reliability impacts.

Adding the additional 2,000 MW, plus the additional 1.5 percent operating reserves, results in a total PRM of approximately 20.7 percent. Thus, the analysis included in this ruling utilizes a 20.7 percent PRM for planning purposes from 2024 through 2026. Parties responding to this ruling are asked to comment on whether that assumption is appropriate, both for this analysis and for the longer-term planning conducted in the IRP process. Parties should note that this

planning assumption is separate and distinct from the compliance obligation of LSEs in the resource adequacy context; this ruling does not propose a change to the year-ahead monthly system resource adequacy obligations, as changes to the resource adequacy requirements should be addressed in, and are currently scoped into, the resource adequacy rulemaking.

In the past, the loss of load expectation (LOLE) metric has been used as a starting point for setting other reliability standards such as the PRM. For example, the 15-17 percent PRM adopted in D.04-01-050 was derived from studies that assumed that the LOLE should be no higher than 0.1 (meaning that curtailment of firm load due to resource inadequacy – insufficient generating capacity to serve load and hold critical operating reserves -- should not occur more frequently than once in every ten years, on average). Within this proceeding, the Commission is beginning to evaluate whether the current approach of calculating a PRM based on achieving an LOLE standard continues to be appropriate or whether there are better methods. Parties are invited to comment on their preferences for approaches to determining a long-term, reliability-based resource adequacy standard in IRP.

Next, with the rapidly changing effects of climate change in California, the use of a 1-in-2 weather forecast to determine the load forecast also seems problematic (“1-in-2” means that it is expected that the forecast will be exceeded once every two years, on average), even considering that the PRM is also designed to account for some weather variability. For purposes of the analysis in this ruling, Commission staff did not attempt to account for the impact of more extreme weather events on the long-term reliability planning standard beyond the proposed increased in PRM, which is intended in part to protect against demand beyond average. However, in response to this ruling, we seek parties’

input on whether and how the proposed increase in the PRM addresses the increased frequency and intensity of extreme weather events caused by a changing climate, or whether this risk should be incorporated more directly into the planning standards. For example, should the Commission begin to rely on a 1-in-5 or 1-in-10 planning standard, in order to be more likely to capture the increasingly anomalous impacts of weather, particularly summer heat.

2.1. Questions for Parties

1. Please comment on the appropriateness of a 20.7 percent PRM, which includes additional operating reserves, for purposes of the mid-term reliability analysis included in this ruling. If relevant, propose alternatives and explain your rationale.
2. Comment on the appropriateness of a 20.7 percent PRM for long-term planning purposes for IRP in general. If relevant, propose alternatives and explain your rationale.
3. Comment on the appropriateness of a 1-in-2 weather forecast for the electricity demand forecasts for purposes of the mid-term reliability analysis.
4. Comment on whether the proposed increase to the PRM sufficiently addresses the likelihood of increasing frequency and intensity of extreme weather events, or whether this risk should be incorporated directly into a reliability-based planning standard (such as, for example, the use of a 1-in-5 or 1-in-10 forecast or incorporating climate models).
5. Comment in general on your preferred method for setting an IRP long-term reliability-based planning standard. Explain your rationale.

3. Analysis of Need

To conduct the analysis of potential procurement needed during the mid-term (2024-2026) timeframe for purposes of this ruling, Commission staff began with the assumptions described above to determine the absolute need in each

year, defined as the 1-in-2 annual managed peak plus the assumed PRM. This is similar to previous analyses such as the one that led to D.19-11-016; the managed peak is assumed to occur in September.

The 2019-2020 IRP RESOLVE/SERVVM baseline generator list was updated with additional projects added to the CAISO Master File, including updated project IDs. This dataset contains primarily online resources, but also contains some in-development resources that have contracts but are not yet online.

Next, staff accounted for additions to this IRP baseline using the contracted resources included in the individual IRPs of all LSEs, to address the requirement in D.20-03-028 to meet the 46 million metric ton (MMT) greenhouse gas (GHG) emissions target. Resources that are in development that were identified in the individual IRPs were added to the baseline list if they had signed contracts that were approved by the Commission and/or the LSE's highest decision-making authority, as applicable (or if the LSE owns the resources), as of June 30, 2020. This resource-by-resource analysis eliminated any potential for double-counting of existing and new resources.

Also included were resources sufficient to meet 100 percent of the 3,300 MW of NQC needed to satisfy the requirements of D.19-11-016. These comprise specific resources already online, or contracted and approved by June 30, 2020 to come online and identified by staff as incremental to the D.19-11-016 baseline dataset, plus any necessary generic resources added to make up the balance of the 3,300 MW NQC requirement.

Those resources already online or reasonably expected to come online in the relevant timeframe were included in a "stack" analysis, where the available resources were stacked up against the reliability need in each year.

The stack analysis here was not a simple one. The incrementality analysis was complex, taking into account prior Commission orders such as D.19-11-016 and the storage requirements, among others. In addition, rather than just including nameplate capacity, the resources have been adjusted for their cumulative impact in terms of effective capacity, as distinct from NQC, where applicable and as follows. For resources on the Commission’s 2021 NQC list, the September NQC was used. For resources not on the NQC list, a technology-specific NQC multiplier was used, consistent with the 2019-2020 Inputs and Assumptions.⁴ For wind and solar resources, effective load carrying capability (ELCC) assumptions were developed by transitioning from the resource adequacy program’s September ELCC to the RESOLVE ELCC surface model for years 2022 through 2026. The ELCC surface model accounts for the total reliability contribution of all wind and solar resources and the declining reliability contribution from incremental solar additions. The updated ELCC model also results in significant reduction to the effective capacity value of existing solar and wind resources.

The stack analysis also accounts for OTC plant closures, one planned fossil-fueled plant retirement (Intermountain Power Plant), and in a “high-need” scenario, other retirements due to the age of plants, at least one of which already resulted in a reliability-must-run designation for 2021 by the CAISO.

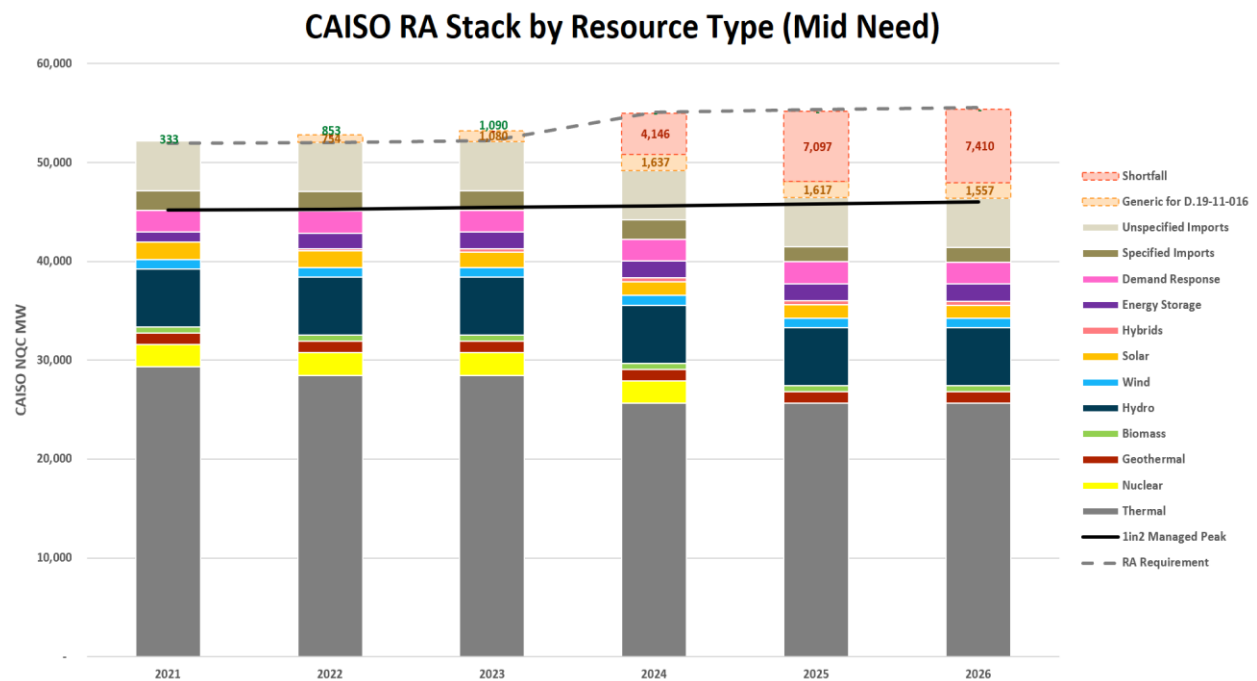
The complete stack analysis is posted on the Commission’s web site on the IRP Procurement Track page at the following link:

<https://www.cpuc.ca.gov/General.aspx?id=6442463413>

⁴ Available at: <ftp://ftp.cpuc.ca.gov/energy/modeling/Inputs%20%20Assumptions%202019-2020%20CPUC%20IRP%202020-02-27.pdf>

The resulting stack was then compared against the total CAISO annual peak from the 2019 IEPR California Energy Demand mid-demand scenario with mid-level additional achievable energy efficiency and assumed PRM. Figure 1 below shows the results of the stack analysis, including significant shortfalls beginning in 2024 and growing through 2026.

Figure 1. Available Resources by Resource Type in Mid Need Scenario (NQC MW)



Commission staff also analyzed a low-need scenario and a high-need scenario, to bound the amount of effective capacity likely to be needed in the medium term. For the low-need scenario, staff removed the PRM adjustment, leaving it at 15 percent minimum as in previous analyses (actually exactly 14.9 percent in this analysis), and also removed project viability discounts on resource additions to the IRP baseline.

For the high-need scenario, Commission staff added approximately 815 MW in additional thermal plant retirements by 2026. This is based on an estimate of the portion of the thermal generation fleet that will reach 40 years of

operating life by 2026, which is an indication of the risk of plants retiring beyond those already announced. Accounting of all specific units is included in the stack analysis posted on the Commission web site.⁵

Also for the high-need scenario, staff reduced the amount of unspecified imports from 5 GW to 4 GW. This change in assumption is partly driven by the closure of the Navajo coal plant, as well as the general tightening of import availability in the market. In addition, the PRM was effectively increased further from the mid-need case assumptions, to reflect an assumed effect of a one-degree Celsius temperature increase due to climate impacts over the next decade, with the impacts of the changed assumption applied beginning in 2024.

Figures 2 and 3 below show the resulting resource gaps in the low and high need scenarios.

⁵ <https://www.cpuc.ca.gov/General.aspx?id=6442463413>

Figure 2. Available Resources by Resource Type in Low Need Scenario (NQC MW)

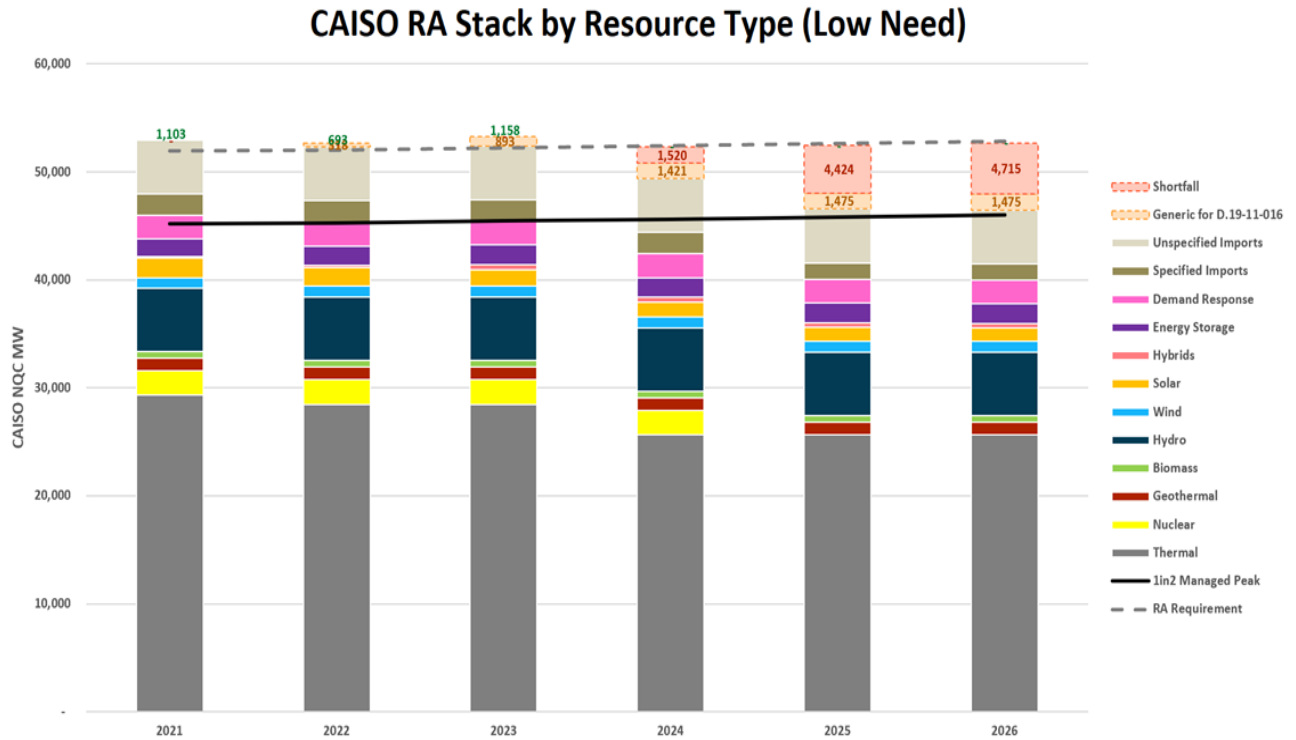


Figure 3. Available Resources by Resource Type in High Need Scenario (NQC MW)

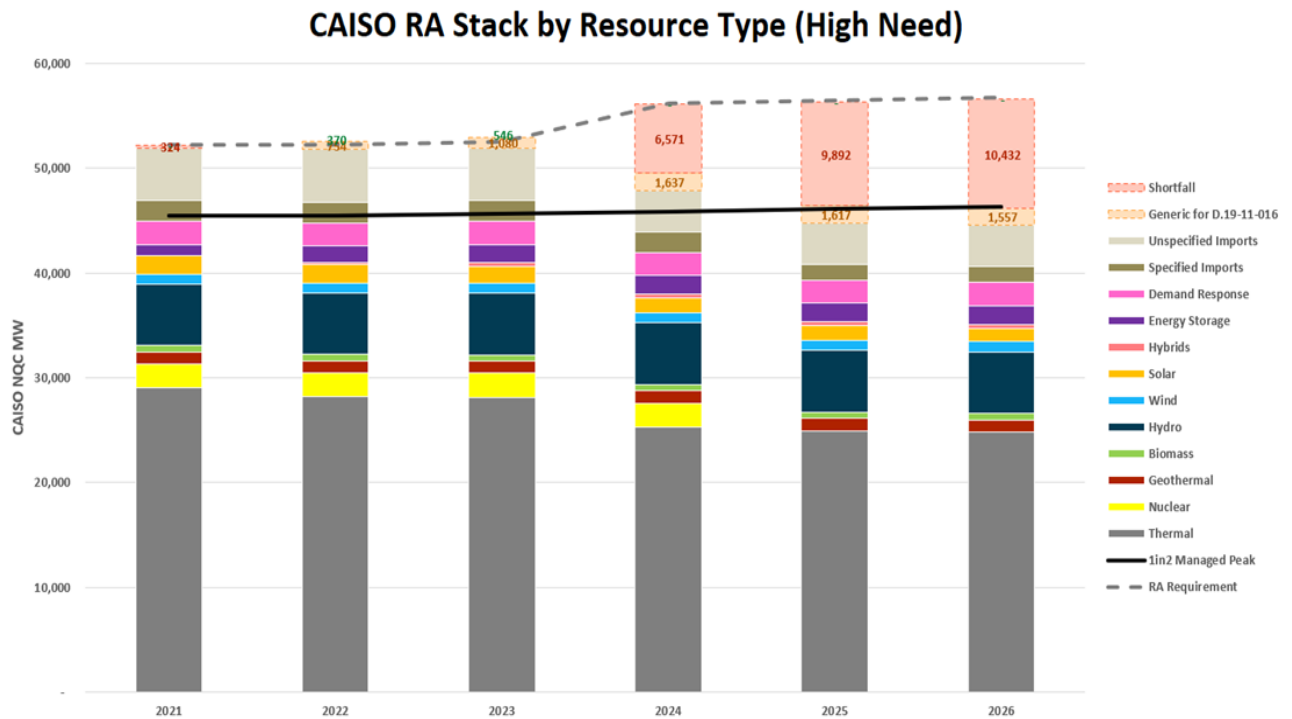


Table 1 below shows the key metrics and NQC need outputs for each scenario.

Table 1. Assumptions and Outputs of Need Scenarios Analyzed (NQC MW unless otherwise specified)

Item	Mid Need	Low Need	High Need
Assumptions (by 2026)			
PRM	20.7%	14.9%	22.5%
Operating Reserves (subset of PRM)	6%	4.5%	6%
Unspecified imports	5,000	5,000	4,000
OTC unit retirements	3,733	3,733	3,733
Diablo Canyon retirement	2,280	2,280	2,280
Additional thermal retirements	479	479	1,294
Outputs			
2024 NQC shortfall	4,146	1,520	6,571
2025 NQC shortfall (cumulative)	7,097	4,424	9,892
2026 NQC shortfall (cumulative)	7,410	4,715	10,432

This ruling recommends that procurement be required to address the Mid Need scenario, which shows the need for 7,410 MW of effective capacity additions by 2026. This amount, when added to the 3,300 MW of effective capacity required by D.19-11-016, closely approximates the 18,000 MW of new nameplate capacity by 2026 included in the RSP adopted in D.20-03-028.

3.1. Questions for Parties

6. Comment on whether you agree with the approach proposed here for determining need, which corresponds to the "Need Determination - Reliability - Option 3" in Section 6.5.2 of the Procurement Framework Staff Proposal. If you have an alternative proposal, describe it in detail and/or identify whether it is one of the other options included in the Procurement Framework Staff Proposal.
7. Comment on whether you agree with the recommended Mid-Need scenario, explaining why or why not. If you have an alternative proposal, describe it in detail. Also

note that Section 6.6 of the Procurement Framework Staff Proposal includes recommendations for need determination during the current IRP cycle (referred to as Phase 1). Comment on whether you agree with those recommendations, to the extent not already addressed by your responses to the questions above, in the context of the procurement proposed in this ruling and/or related to the remainder of this IRP cycle.

4. Timing of Procurement

Because the current reliability electricity supply situation has been tight, there is risk in requiring procurement only for the exact amount of capacity identified as needed in any given year. Therefore, this ruling proposes to accelerate procurement requirements by one year for a portion of the capacity identified as needed in each year. As a preliminary assumption, the proposal is for 40 percent of the capacity identified as needed in each year be required to be procured at least one year ahead.

In addition, because it is also prudent to round up when it comes to identified reliability need, in accelerating the procurement requirements, this ruling also proposes to simplify the annual requirements into relatively round numbers. Ultimately, this represents an assessment that obtaining additional reliability for the grid at a slightly earlier date is likely worth the potential additional cost.

Finally, D.19-11-016 required the annual capacity amounts to come online by August 1 in a given year, since there was such a short time between the issuance of that procurement order and the need. In this case, there is a bit more time between the identification of the need and the year in which the capacity is required. Therefore, it would be prudent to require the annual online date requirement as of June 1 in a given year, to ensure capacity is online to mitigate any possible stress conditions on the grid during the summer. However, to

avoid confusion with D.19-11-016 requirements in 2023, where capacity is required by August 1, this ruling suggests keeping that August 1 deadline just for 2023, but accelerates the online requirements in 2024, 2025, and 2026 to June 1.

Table 2 below shows the capacity amounts associated with these proposals. This capacity is in addition to the 3,300 MW NQC required in D.19-11-016.

Table 2. Need Determination by June 1 of Each Online Year (MW NQC)

Need Determination and Required NQC	2023 (Aug 1)	2024	2025	2026	Total
System Resource Adequacy Need (cumulative)	-	4,146	7,097	7,410	7,410
System Resource Adequacy Need (annual additions)	-	4,146	2,951	313	7,410
Accelerated capacity requirement (approx. 40% by prior year)	1,658	3,668	1,896	188	7,410
Accelerated capacity requirement, conversion to round numbers (recommendation)	1,800	3,700	2,000	-	7,500

4.1. Questions for Parties

8. Comment on the total annual capacity requirements recommended. If you would make any adjustments, explain your rationale.
9. Should the Commission consider requiring additional capacity, to account for contingencies such as contract delay or failure? If so, how much, and on what basis?

5. Resources Eligible to Meet Identified Need

The next consideration is whether the Commission should require procurement to meet a need for generic capacity defined only in terms of effective capacity, or whether the Commission should identify some more detailed characteristics of the types of resources that should be sought.

Due to the fact that a significant amount of capacity needed in the 2024-2026 timeframe is associated with the retirement of Diablo Canyon and OTC plants, which are firm capacity resources, this ruling proposes that at least some of the replacement capacity should be similarly firm in nature. Longstanding concerns about resource diversity also suggest the need to be more specific about the types of resources that should be procured to meet the capacity needs identified in this ruling. The reality is that a great deal of the capacity procured in recent years has been either solar, solar plus storage, or standalone battery storage. The declining ELCC values of these resources also leads to the need for greater resource diversity.

In addition, the RSP adopted in D.20-03-028 identified the need for some resources (chiefly long-duration storage) with long development lead times. These resources were selected beginning in 2026, but a least-regrets strategy further indicates that it could very well be prudent to begin development of such resources a year or two earlier, since the resources are complex to develop and the lead-time estimates may not be perfect.

For all of these reasons, this ruling proposes that at least 1,000 MW of geothermal resources and 1,000 MW of long-duration storage (defined as providing 8 hours of storage or more) be required to be part of the procurement required by no later than 2025. These amounts represent a least-regrets proposal, leaving approximately 5,500 MW of additional capacity to be solicited and developed in an all-source manner in the same timeframe.

LSEs would be encouraged to undertake joint procurement for their share of both the geothermal and the long-duration storage resources, under terms mutually agreed upon and not imposed by the Commission. If LSEs did not show significant progress toward this procurement by the August 1, 2023

milestone reporting date, the Commission could consider requiring large investor-owned utility (IOU) procurement of these resources using the cost allocation mechanism (CAM) or the forthcoming modified version of CAM.

In addition, out-of-state wind and offshore wind show significant potential by 2026 and 2030, respectively, so this ruling proposes that LSEs should also be encouraged to pursue development of those types of resources for the future, if possible; if earlier development is successful, those resources could also count towards the requirements proposed in this ruling.

Table 3. Total Recommended Mid-Term Procurement Requirements (in NQC MW)

Type of Resource	2023	2024	2025	Total
Geothermal resources	-	-	1,000	1,000
Long-duration storage resources	-	-	1,000	1,000
Any type of resource	1,800	3,700	-	5,500
Total	1,800	3,700	2,000	7,500

In addition, many parties in this proceeding have raised long-standing concerns with the question of whether natural gas or other GHG-emitting resources should be eligible to be used to satisfy the procurement requirements of the Commission. In D.19-11-016, this question was resolved by prohibiting new fossil-only resources, without storage, at sites not previously used for electricity generation. Modifications and augmentations to existing facilities were eligible for incremental capacity additions, and could be used to count toward procurement, so long as they could demonstrate emissions improvements over conventional-only generation, as clarified in D.20-03-028.

This ruling proposes to modify those standards somewhat, to ensure continuing system reliability in the near and medium term, during the ongoing transition to the cleaner grid. The main reason for proposing any changes is a heightened concern about reliability that did not exist at the time of D.19-11-016.

This concern was demonstrated by the August 2020 rotating outages. Also of note is the fact that the 46 MMT RSP, as well as the 38 MMT portfolio, retains almost all thermal generation that is not already scheduled to retire. Thus, the need for capacity to support system reliability is very tight, which always has the potential to lead to the potential for exercise of market power. In addition, resources of this nature that are developed for, in effect, emergency capacity purposes would be expected to have very low run times, minimizing adverse emissions impacts. Finally, the portfolios considered in IRP are already GHG-constrained, meaning that any increased GHG emissions from this new capacity would be offset over time with increased clean energy procurement. Thus, this ruling suggests loosening the prohibitions on types of resources, without opening up to totally new fossil fuel resource development.

This ruling proposes that fossil-fuel development at new sites would still be prohibited for purposes of meeting the requirements proposed herein, but redevelopment or repowering at existing electric generation sites could be eligible, potentially with some restrictions. This ruling seeks comments from parties on whether there should be restrictions on the ability of natural gas resources at existing sites, either with repowering or capacity augmentation, to qualify for the required capacity proposed in this ruling. Potential restrictions could include, but may not be limited to, the following:

- Prohibiting modifications to existing fossil-fueled plants within disadvantaged communities unless they can demonstrate net reductions in greenhouse gases and criteria pollutant emissions.
- Requiring contracts to include dispatch constraints, such as limited generating hours, for fossil-fueled plants within disadvantaged communities.

- Allowing repowered or augmented fossil-fuel contracts to count if they are in effect only for a period of ten years or less.
- Requiring efficiency improvements or reductions in the rate of GHG emissions for any fossil-fueled plant repowering.
- For IOUs, allowing fossil-fueled capacity to count, but penalizing its valuation in the least-cost best-fit evaluation in some way.
- Also for IOUs, requiring any contract with a fossil-fueled resources to be submitted to the Commission for approval via an application and not an advice letter.
- Requiring fossil-fueled capacity used to count toward the procurement recommended in this ruling to burn a percentage of green hydrogen (hydrogen produced with zero GHG-emitting resources) or biomethane.

A final option would be to consider the further extension of OTC compliance deadlines for some existing natural gas plants, though this ruling is not proposing that alternative.

In response to the questions below, parties may respond to these options and/or present their own alternative proposals.

5.1. Questions for Parties

10. The process of identifying resource types and amounts that are cost-effective, and can potentially fulfill a procurement need, but have market or other barriers to procurement, is explored in Section 6.5.4 of the Procurement Framework Staff Proposal. Comment on the approach described in this ruling, with reference to the Staff Proposal and/or other approaches you recommend.
11. Comment on whether the suggested amount of geothermal and/or long-duration storage resources should be required to be procured as part of the mid-term procurement requirements.

12. Describe the risks you see, if any, in relying on specific resource types to fill the proposed procurement need, as well as provide suggestions for how they could be mitigated. For example, there could be some type of identified future juncture where LSEs and/or the Commission could evaluate risks prior to moving forward fully with procurement. As part of this, describe any challenges you see (for example, supply chain issues, siting challenges) that may impact the ability to come online with the timing and amounts proposed.
13. Comment on the proposal for all LSEs to engage in joint procurement of geothermal and/or long-duration storage, with the potential for IOUs to be required to backstop such procurement. This suggestion corresponds to Section 7.2.2 of the Procurement Framework Staff Proposal. If you have an alternative proposal, describe it in detail and/or identify whether it is one of the other options included in the Procurement Framework Staff Proposal. In addition, comment on whether identifying need for backstop procurement in 2023 would allow sufficient time to contract for and build these resources by 2025, and, if not, how you would propose to address this timing issue.
14. Comment on how fossil-fueled resources should be treated for purposes of compliance with the procurement requirements proposed in this ruling. Include responses to the potential limitations suggested above and/or propose additional restrictions, if you feel that fossil generation should count but be subject to limits.
15. Comment on whether firm imports should be allowed to count towards the required capacity proposed in this ruling, and if such resources should be required to be committed to California via pseudo-ties or dynamic scheduling. Include any other limitations you would propose.

6. Need Allocation to LSEs

The next question to be confronted, if the Commission is to assign responsibility for procuring the required 7,500 MW, is how the allocation of responsibility should be made to individual LSEs. When D.19-11-016 ordered the procurement of 3,300 MW, it was assigned purely on the basis of proportional share of load served as of the time of the order. This approach, however, has the downside of being inequitable to those LSEs who may have already proactively procured (or be in the process of procuring) additional capacity to serve their load.

Thus, this ruling proposes to improve upon the simplified load share allocation by taking into account the contract positions of individual LSEs relative to one another and to the overall procurement need identified. This would be done by calculating each LSE's load and resource balance for each year to determine their resource shortfall, if any, and then apportioning their responsibility for the overall procurement need based on that shortfall relative to that of the other LSEs.

In short, Commission staff would extract relevant contract data from the September 1, 2020 IRP filings, reflecting contracted resources by year, measured in September NQC amounts, for existing resources and those in development as of June 30, 2020. Then, CAM resources would be allocated to all LSEs using the 2021 resource adequacy peak load share. Any LSEs short on procurement needed to comply with D.19-11-016 requirements would be assumed to fulfill those obligation with generic resources. Then, each LSE's share of system peak plus the PRM would be compared against their contracted resources every year. Finally, each LSE would receive an assigned capacity amount determined by

taking the total system need and multiplying it by the ratio of the individual LSE's resource shortfall divided by the total shortfall for all LSEs.

Allocating based on contract position is expected to allocate more new procurement responsibility to electric service providers (ESPs) and community choice aggregators (CCAs), with less to IOUs, since IOUs have relatively smaller short positions in the mid-term timeframe. It also would shift more procurement responsibility toward newer LSEs, which has its own risks since those newer LSEs may have less procurement experience.

This approach based on contracted positions would be expected to mitigate the need for the use of cost allocation mechanisms such as CAM or the power charge indifference adjustment (PCIA), while enhancing the ability of ESPs and CCAs to control their own resource portfolios and costs, by more accurately assigning responsibility for physical capacity procurement to the entities serving the load.

An additional issue complicating the question of assignment of LSE responsibility is how to treat load migration that will inevitably occur between the adoption of any Commission order and the timing of new resources coming online in compliance with the order. Since most of that migration in the 2024-2026 timeframe is projected to be in the form of load migrating away from IOUs, one option is to make the LSE requirements based on current load at the time of the order, and account for the load shifting impacts through cost allocation. The current mechanism for this purpose would involve utilizing the PCIA process, for the vintage of contracts involved here (2023-2025). Alternatively, the vintage could reflect the date when the procurement order is issued.

Other options are possible, including adjusting allocations annually as new LSE load forecasts, as well as data about contracts and online resources, becomes available. However, this could create confusion and uncertainty from year to year. A relatively short amount of time has passed since the adoption of D.19-11-016, and thus there is somewhat limited insight into the success or failure of LSE procurement as a result of that decision. In contemplating additional procurement responsibility here, the question arises whether to base a compliance structure on the D.19-11-016 model or move to something different.

Public Utilities (Pub. Util.) Code Section 380(b)(1) requires the Commission to establish resource adequacy standards that “facilitate the development of new generating, non-generating, and hybrid resources...that are economic and needed.” Section 454.51 (a) requires the Commission to “identify a diverse and balanced portfolio of resources needed to ensure a reliable electricity supply that provides optimal integration of renewable energy in a cost-effective manner” and speaks to the responsibilities of IOUs and CCAs, in particular, in achieving this balanced portfolio for renewable integration purposes. Taken together, these statutory provisions suggest that all LSEs should be required to supply new capacity to fill the need determination discussed in Section 3 through 5 above.

A review of LSE plans submitted September 1, 2020 finds varying levels of commitment to bringing online new resources in the 2023-2026 timeframe, which, under the accounting framework proposed in this ruling, would have a direct impact on procurement responsibility allocated to each LSE. In particular, the IRP Narrative Template asked LSEs to describe how their plans assist in replacing the flexible baseload and/or low-emissions energy characteristics of Diablo Canyon when it retires in 2024 and 2025. Answers to that question varied by LSE and by LSE type.

In general, nearly all CCAs stated that they plan to bring online enough new capacity to cover their load ratio share of Diablo Canyon resource replacement needs. However, a review of the Resource Data Templates (RDTs) required to be submitted alongside the narrative IRPs indicates that roughly one-third of CCAs have not yet executed contracts for new procurement. While some ESPs did point to renewable and/or storage procurement in their plans that they plan to bring online by 2026 or the long-term RPS contracting requirement, their RDTs demonstrate varying levels of commitment to specific projects, as indicated by contracts either executed or under review. Other ESPs explicitly stated that they do not intend to invest in specific new resources to replace Diablo Canyon capacity largely due to their relatively small size and planned reliance on existing resources.

The IOUs offered different answers. Pacific Gas and Electric (PG&E) stated that it has no additional planned procurement to replace Diablo capacity beyond already planned procurement activities, because they are projected to have sufficient GHG-free resources in their bundled electric portfolio through 2030. Southern California Edison (SCE) stated that they intend to procure 1,405 MW of cumulative 4-hour energy storage additions from 2024 through 2026. San Diego Gas & Electric (SDG&E) stated that they do not plan to procure additional resources in response to retirement of Diablo Canyon.

6.1. Questions for Parties

16. Comment on the appropriate way to handle allocation of responsibility to LSEs for purposes of the reliability capacity needs identified in this ruling. The approach proposed here corresponds to “Need Allocation – Specific – Option 2” in Section 7.1 of the Procurement Framework Staff Proposal. If you have an alternative proposal,

describe it in detail and/or identify whether it is one of the other options included in the Staff Proposal.

17. Comment on the best way to handle load migration during the period of a Commission order and the online dates proposed in this ruling. If you support the concept of using a PCIA approach, what vintage dates should apply?

7. Need for Backstop Procurement and Associated Cost Allocation

For the capacity required by D.19-11-016, the Commission allowed LSEs to opt out, up front, of self-providing capacity to meet the requirements. Any LSE could elect to have the IOUs procure the capacity on their behalf, and have the costs assigned to their customers. This ruling does not propose that option, and instead proposes that all LSEs procure the capacity assigned to them by the Commission.

However, this still leaves open the possibility that LSEs could try but fail to procure the required capacity, creating a possible reliability shortfall for the system as a whole. To address this potential, this ruling proposes that the aspects of D.19-11-016 associated with backstop procurement, recently adopted in D.20-12-044, be continued for this new procurement. In broad terms, this means continuing the biennial compliance filing requirements (currently scheduled on February 1 and August 1 of every year) through at least 2026, and triggering backstop procurement to be performed by the IOUs after each February showing, to the extent LSEs do not show enough progress toward meeting the capacity requirements for the upcoming summer season. There would also be an additional summer trigger point, to occur after the final compliance filing associated with the new procurement requirements.

The yet-to-be-resolved cost allocation methodology associated with backstop procurement related to D.19-11-016 would then also be utilized for the procurement associated with the proposed requirements in this ruling.

7.1. Questions for Parties

18. Comment on the proposal that non-IOU LSEs may not opt out of self-providing their share of new capacity found to be needed for long-term reliability. This corresponds to the “Procurement Entity – Self Provision – Option 2” in Section 7.2.2 of the Procurement Framework Staff Proposal. If you have an alternative proposal, describe it in detail and/or identify whether it is one of the other options included in the Staff Proposal.
19. Comment on the proposed mechanism for backstop procurement, which corresponds to “Procurement Entity – Type – Option 1” in Section 7.2.2 of the Procurement Framework Staff Proposal. If you have an alternative proposal, describe it in detail and/or identify whether it is one of the other options included in the Staff Proposal.
20. If the IOUs are required to act as central procurement entities, for geothermal, long-duration storage, or backstop procurement in general, what requirements should be associated with the operating arrangements for those resources? Comment on issues and options explored in Section 7.2 of the Procurement Framework Staff Proposal.
21. Section 7.2 of the Procurement Framework Staff Proposal puts forward Commission staff recommendations for procurement and operating entity direction during Phase 1. Comment on whether you agree with the recommendations, to the extent not already addressed by your responses to the questions above, in the context of the procurement proposed in this ruling.
22. Comment on whether the D.19-11-016 modified CAM proposed cost allocation is sufficient for purposes of the backstop procurement proposed in this ruling, or if you

recommend a different approach, fully describe it along with your rationale.

8. Approval Process

As with the procurement ordered in D.19-11-016, this ruling proposes that for LSEs that require Commission approval of their procurement (IOUs), that the approval be sought either through a Tier 3 advice letter or, at their discretion, a separate application. Note that in Section 5 above there was also the suggestion to require a full application for a contract with any fossil-fueled resource. Parties should comment on that concept in response to the questions in Section 5.

8.1. Questions for Parties

23. Comment on the approval process that should be used for the IOU procurement that would be required as suggested in this ruling, which corresponds to "Procurement Approval - Option 2" in Section 8.2 of the Procurement Framework Staff Proposal. If you have an alternative proposal, describe it in detail and/or identify whether it is one of the other options included in the Staff Proposal.
24. Section 8 of the Procurement Framework Staff Proposal puts forward staff recommendations for the procurement approval processes during Phase 1. Comment on whether you agree with the recommendations, to the extent not already addressed by your response to the question above, in the context of the procurement proposed in this ruling.

9. Methods of Compliance

For procurement proposed in this ruling, this ruling proposes that LSEs would demonstrate compliance initially by showing evidence of contracting with eligible resources. The resource would have to be shown to be incremental to the baseline used in the need determination, meaning that it would need to be contracted and approved by the Commission and/or the LSE's highest decision-making authority after June 30, 2020.

Commission staff would propose to make available an update to the 2019-2020 IRP RESOLVE/SERVM baseline generator list that includes all online and in-development resources used in the need determination, which would serve as the baseline for the procurement proposed in this ruling.

Given the need determination methodology described in Section 3 above, a compliant resource may not also be used to satisfy an LSE's procurement obligation under D.19-11-016 or the storage mandate, both of which predate this ruling. However, resources procured pursuant to requirements in R.20-11-003⁶ or the RPS program may be eligible to count towards the procurement proposed in this ruling, if they remain online for the required time period. It is important to note, however, that even though baseline and some other mandated resources may not count toward compliance with the procurement requirements proposed in this ruling, they would still be included in the calculation of an individual LSE's portfolio contracting position.

Each LSE would be required to demonstrate that the contracted new resource is online and contributing system resource adequacy on or before the online date required. Further, the LSE would be required to support the ongoing reliability of the system by ensuring the resource is committed to providing capacity over the long term. Accordingly, this ruling proposes that new resources must be contracted for at least ten years forward from the compliance date required.

In addition, regardless of the system resource adequacy NQC counting rules at the time the resource comes online, which are currently based on average ELCCs for wind and solar resources, LSE compliance would be based on the

⁶ Order Instituting Rulemaking to Establish Policies, Processes, and Rules to Ensure Reliable Electric Service in California in the Event of an Extreme Weather Event in 2021.

marginal ELCC projected by the Commission as part of, or shortly following, the procurement order for each resource type for each future online year. For example, staff estimate that utility-scale solar will have a very low marginal ELCC (2 percent or less) in the mid-decade timeframe.

For purposes of the 3,300 MW NQC of procurement required by D.19-11-016, the enforcement regime consisted of the threat of backstop procurement by IOUs in the event that an LSE failed to procure the required capacity, assuming the LSE had not opted out upfront of self-provision of the capacity up front.

9.1. Questions for Parties

25. Comment on whether marginal or average ELCCs should be used for counting LSEs' procurement and assessing compliance with the procurement requirements proposed.
26. Comment on the proposed minimum ten-year contract requirement for new resources.
27. Comment on how imports should be treated for counting and compliance purposes for the procurement proposed in this ruling.
28. Comment on whether you think that any fields in the baseline generator list need to be kept confidential when staff updates it with new in-development resources identified from the Resource Data Templates in LSE plans, as proposed to serve as the baseline for the procurement proposed in this ruling.

10. Penalties for Noncompliance

As discussed above, this ruling proposes not to include the option for an LSE to opt out of the procurement obligation up front. Thus, all LSEs will likely have some obligation to procure should the Commission adopt the suggested requirement.

In addition to keeping backstop provisions for this capacity obligation, including the requirement for non-IOWs to pay for the backstop, this ruling proposes to include a further penalty for failure to provide the required capacity, applicable to any LSE. That penalty would come in the form of a citation and penalty set at the cost of new entry (CONE) figure published annually by the CEC, for any required capacity (in MW) that the LSE fails to procure.

10.1. Questions for Parties

29. Comment on whether CONE is an appropriate penalty for capacity that LSEs fail to procure, in addition to backstop procurement. This is a combination of "Enforcement - Option 1" and "Enforcement - Option 2" in Section 9.2.2 of the Procurement Framework Staff Proposal. Suggest any alternative compliance and enforcement options.
30. Section 9 of the Procurement Framework Staff Proposal puts forward staff recommendations for compliance, monitoring, and enforcement during Phase 1. Comment on whether you agree with the recommendations, to the extent not already addressed by your responses to the questions above, in the context of the procurement proposed in this ruling.

11. Relationship of IRP Procurement and the Central Procurement Entity for Resource Adequacy

In D.20-06-002, the Commission adopted a hybrid central buyer framework and central procurement entity (CPE) for the procurement of local resource adequacy capacity in the PG&E and SCE service territories. Under the hybrid framework, if an LSE procures its own local resource, it may (1) sell the capacity to the CPE, (2) voluntarily show the resource to meet its own system and flexible resource adequacy needs, and reduce the amount of local resource adequacy the CPE will need to procure for the amount of time the LSE has agreed to show the resource, or (3) do neither of these things -- simply use the

resource for its own system and flexible resource adequacy needs without selling or showing it to the CPE.

In D.20-12-006, the Commission adopted a local capacity requirement reduction compensation mechanism (LCR RCM) that will be applied to the hybrid central buyer framework. This mechanism expands on option (2) in the previous paragraph by providing an LSE that shows an LCR RCM eligible resource to the CPE, compensation for procuring that local area resource under some circumstances, while still retaining the resource to meet its own system and flexible capacity requirement.

The Commission has yet to address how to account for local area resources procured by LSEs to meet IRP compliance that are then sold or shown to the CPE. Therefore, this ruling proposes to clarify that if an LSE procures a resource to meet its IRP procurement requirements and then chooses to show or sell the capacity of this resource to the CPE (which has no IRP procurement obligation), the LSE can still count this resource towards meeting its IRP compliance requirements for D.19-11-016 or any procurement that the Commission may order in response to this ruling.

Finally, this clarification should not be viewed as creating a compliance product or unbundling the IRP compliance attribute. Rather, this is intended to clarify the accounting mechanism that should be used for IRP compliance, consistent with the intent of the IRP procurement order (*i.e.*, to obtain more new system resources, regardless of how they are subsequently transacted for local RA purposes).

11.1. Questions for Parties

31. Comment on the suggested clarification to counting of capacity sold or shown to the CPE for local resource adequacy purposes.

12. Relationship with Potential Procurement Emanating from Preferred System Portfolio

As parties are aware, Commission staff are, in parallel with the stack analysis conducted for purposes of this ruling addressing needed procurement for reliability purposes, also analyzing the individual LSE IRPs filed on September 1, 2020. In particular, those IRPs are being aggregated and analyzed to determine if additional procurement may be warranted to be required out to 2030 to address both reliability and environmental goals.

LSEs were required to provide proposed portfolios to meet the 2030 GHG targets of both 46 MMT and 38 MMT. If the Commission were to approve the portfolio associated with the 38 MMT target, it is likely that additional procurement may be needed primarily to meet the GHG reduction goal, though of course that portfolio will also need to maintain reliability. Thus, there could be a need for additional procurement for both reliability and GHG reduction purposes. This procurement need may, and most likely will, overlap with the second half of the procurement proposed in this ruling (2025 and 2026), in a similar way that the D.19-11-016 procurement overlaps with the procurement proposed herein for 2023.

This sets up an increasingly complex situation where vintages and purposes of procurement requirements will all need to be tracked against a baseline of existing and in-development resources as of a specified date, and potentially several baselines, to ensure all LSEs are contributing to the new resources needed to achieve the reliability and GHG emissions outcomes required.

These issues, coupled with the challenges of dealing with load migration, resource eligibility (new vs. existing, and technology type), create a great deal of complexity in the procurement compliance and monitoring required.

In light of all of these challenges, this ruling also seeks comments from parties about whether it would be more straightforward to address the longer-term capacity requirements identified in this ruling through modifications to the resource adequacy program requirements. Though there is a separate proceeding addressing resource adequacy requirements (R.19-11-009), the long-term reliability concerns addressed in the IRP proceeding significantly overlap with the ongoing compliance regime of the annual resource adequacy requirement. There is also consideration of similar issues occurring in the extreme weather event reliability proceeding for 2021 (R.20-11-003). Parties who have filed comments in those contexts are free to re-submit and/or refer to them here in response to this section of this ruling.

One option that the Commission may want to consider is rather than ordering tranches of procurement of new resources to address reliability needs, with the ensuing need to monitor and enforce compliance with multiple orders, the Commission could instead institute a forward system resource adequacy requirement similar to the one already required for local capacity. In that context, some of the changes suggested in this ruling, including raising the PRM percentage and its calibration with an LOLE standard, could be instituted in that context. LSEs would demonstrate compliance with procuring new capacity, but also in making sure new capacity stays available to the system for the purposes of reliability, even if the contracting counterparty shifts over time as a result of load share or LSE portfolio evolution over time.

This may still leave the need for the Commission to require certain procurement for GHG reduction purposes that are outside of the reliability context of the resource adequacy program, but it would remove one set of complications between the long-term needs identified in the IRP context and the shorter-term system reliability needs represented by the current system resource adequacy program.

12.1. Questions for Parties

32. Parties are invited to comment on or propose alternative compliance regimes to the proposals in this ruling to address the longer-term system reliability requirements identified in the IRP context.
33. Comment on any other aspects of the Phase 1 recommendations in the Procurement Framework Staff Proposal not already addressed in your responses to prior questions.

IT IS RULED that:

1. Interested parties may file and serve comments in response to this ruling and its questions by no later than March 19, 2021. Parties shall address the topics in this ruling in the order in which they appear. If there are additional items the party wishes to address, those additional comments should be included at the end of the filing.
2. Interested parties may file and serve reply comments in response to this ruling, by no later than April 2, 2021.

Dated February 22, 2021, at San Francisco, California.

/s/ JULIE A. FITCH

Julie A. Fitch
Administrative Law Judge