



**BEFORE THE PUBLIC UTILITIES COMMISSION
OF THE STATE OF CALIFORNIA**

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Integrated Resource Planning and Related
Procurement Processes

Rulemaking 20-05-003

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**OPENING COMMENTS OF THE UNION OF CONCERNED SCIENTISTS ON THE
PROPOSED DECISION AND THE ALTERNATIVE PROPOSED DECISION
REQUIRING PROCUREMENT TO ADDRESS MID-TERM RELIABILITY**

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Pursuant to Rule 14.3 of the California Public Utilities Commission (“Commission” or “CPUC”) Rules of Practice and Procedure, the Union of Concerned Scientists (“UCS”) respectfully submits these opening comments on the Proposed Decision (“PD”) of Administrative Law Judge Fitch and the Alternative Proposed Decision (“APD”) of Commissioner Rechtschaffen, which were both issued May 21, 2021, and titled, *Decision Requiring Procurement to Address Mid-Term Reliability (2023-2026)*.

DISCUSSION

UCS is encouraged by the overall level of procurement proposed in both the PD and APD. It is clear that, in order to achieve greenhouse gas (“GHG”) emissions reduction goals and ensure grid reliability, a significant amount of clean energy procurement is required by mid-decade. UCS is also pleased to see the Commission indicate its intention to adopt a Preferred System Portfolio (“PSP”) that would reduce GHG emissions to 38 million metric tons (“MMT”) by 2030. While more clean energy procurement will likely be required to achieve the 38 MMT emissions reduction goal, the proposed procurement of 11.5 gigawatts (“GW”) of net qualifying capacity (“NQC”) will go a long way towards achieving this goal.

However, UCS has concerns with a few aspects of the PD and APD, and we discuss the following in these comments:

- UCS appreciates the specific requirements to replace Diablo Canyon, but additional requirements are necessary to ensure sufficient GHG reductions.
- UCS supports the APD over the PD.
- UCS opposes the unjustified requirement to procure fossil-fueled resources.
- UCS believes additional guardrails should be put in place to guide the procurement of resources that utilize green hydrogen.

1. UCS Appreciates the Specific Requirements to Replace Diablo Canyon, But Additional Requirements Are Necessary to Ensure Sufficient GHG Reductions

UCS appreciates the provisions included specifically to replace Diablo Canyon’s *capacity* with “firm, zero-emissions resources.” However, UCS is still concerned because there are no specific provisions to ensure that all of Diablo Canyon’s zero-emissions *energy* is also replaced. UCS is hopeful that the resulting procurement would effectively replace Diablo Canyon’s energy and prevent an increase in GHG emissions upon its retirement, but there is no guarantee.

Furthermore, as discussed in UCS’s opening comments on the Mid-Term Reliability Ruling,¹ since the procurement proposed in both the PD and the APD is framed in terms of NQC, the GHG emissions reduction implications are difficult to concern. UCS believes that additional procurement to reduce GHG emissions will likely be necessary in order to reach the 38 MMT by 2030 goal. UCS is pleased to see that the Commission will consider requiring additional procurement for GHG reduction purposes as part of the PSP.²

2. UCS Supports the APD Over the PD

UCS strongly prefers the APD to the PD because the APD requires less fossil-fueled resource procurement and has more protections in place for disadvantaged communities. The APD requires only 500 MW of fossil-fueled resource procurement, as opposed to the 1,000–1,500 MW required in the PD. The APD also limits contracts with fossil-fueled resources to five years and forbids repowering at retired or mothballed power plants. In addition, the APD forbids any of the fossil-fueled or green hydrogen resource procurement from being done in disadvantaged communities. However, for the reasons stated below, the APD should still be modified so that it does not require any fossil-fueled resource procurement at all and so that further protections are put in place to guide procurement of resources using green hydrogen.

¹ UCS, *Opening Comments of the Union of Concerned Scientists on the Ruling Seeking Feedback on Mid-Term Reliability Analysis and Proposed Procurement Requirements* (March 26, 2021). Available at: <https://docs.cpuc.ca.gov/PublishedDocs/Efile/G000/M374/K628/374628514.PDF>

² PD, p. 20 and APD, pp. 20-1.

3. UCS Opposes the Unjustified Requirement to Procure Fossil-Fueled Resources

For three reasons, UCS opposes the requirement to procure 1,000–1,500 MW of fossil-fueled resources in the PD and 500 MW in the APD.

First, there is currently no evidence supporting the need for fossil-fueled resource procurement. Out of all the modeling that has been conducted in the Integrated Resource Planning (“IRP”) proceeding in the current cycle and the previous cycle, there has never been an identified need for further investments in fossil-fuel infrastructure. Both the PD and APD acknowledge this fact, but then cast doubt on this conclusion by alluding to the “SERVM modeling to check reliability [that] gives us less confidence in this result.”³ However, the model calibration issues between RESOLVE and SERVM are certainly not grounds for further investments in fossil-fueled resources. To the contrary, when creating the 2020 Reference System Portfolio (“RSP”), the Commission made adjustments to compensate for this reliability mismatch between the two models by increasing the planning reserve margin by 2 GW in RESOLVE and allowing RESOLVE to select additional resources. The resulting portfolio, which was adopted as the RSP, did not contain any investments in fossil-fueled resources, but instead included further investments in renewables and energy storage.⁴ In short, the Commission has already accounted for the RESOLVE-SERVM reliability mismatch in its formulation of the RSP, and there is no reason to believe that further investments in fossil-fueled resources may be required.

Next, the PD and APD also frame investments in fossil-fueled resources as “insurance” during the transition to a decarbonized grid.⁵ But there is more than 25 GW of natural gas capacity already on the grid,⁶ and all this capacity will act as “insurance.” There is no reason to believe that additional capacity is required. Furthermore, the notion that additional gas capacity

³ “Though the RESOLVE modeling leading to D.20-03-028 did not suggest the need for any new fossil-fueled resources through 2030, the SERVM modeling to check reliability gives us less confidence in this result.”

PD and APD, p. 43.

⁴ Decision 20-03-028, p. 41.

⁵ “Having [fossil-fueled resources] available, but running at their minimum levels or not running at all, still acts as an insurance policy during the operational transition to more renewables and energy storage on the system, as we make steady and significant progress towards the SB 100 decarbonization goals for 2045.”

PD and APD, p. 41.

⁶ Decision 20-03-028, p. 42.

is required runs counter to the finding in the 38 MMT RSP that roughly 2 GW of gas capacity can be retired by 2030.⁷ It also runs counter to the assumption within the “high need” analysis that includes 1.3 GW thermal retirements by 2026.⁸ In light of this planning for additional gas plant retirements, further investments in fossil-fueled resources make even less sense because the dirtiest power plants will be able to shut down over the course of the next decade.

Finally, while the Commission expresses a preference to remain technology-neutral in both the PD and the APD,⁹ the requirement to procure fossil-fueled resources goes directly against that preference. The PD and APD both define long-lead-time resource procurement requirements in terms of resource *attributes*; therefore, if the Commission finds a need for resources with attributes similar to those of fossil-fueled resources, the Commission should frame procurement requirements in terms of desired resource *attributes*, not specific *technologies* (i.e. fossil-fueled resources).

In summary, UCS opposes the fossil-fueled resource procurement requirements because, 1) there is no evidence showing a need for such procurement, 2) gas plants will be retiring over the course of the coming decade, and additional “insurance” is not required, and 3) these technology-specific procurement requirements run counter to the Commission’s preference to remain technology-neutral. Ultimately, all the current evidence indicates that investments in fossil-fueled resources are unnecessary and would constitute a waste of ratepayer dollars.

4. UCS Believes Additional Guardrails Should Be Put in Place to Guide the Procurement of Resources That Utilize Green Hydrogen.

While UCS does not oppose the APD procurement authorization for 300 MW of resources that will utilize green hydrogen, UCS believes that additional guardrails should be put in place to protect California communities and ensure sufficient GHG and air pollution emissions reductions. For example, hydrogen combustion could result in an increase in emissions of nitrogen oxides (“NO_x”).¹⁰ Furthermore, the percentages of hydrogen required in the APD (30%

⁷ Decision 20-03-028, p. 46.

⁸ PD and APD, p. 14.

⁹ PD and APD, p. 34.

¹⁰ “The flame temperature of hydrogen is higher than natural gas. This could result in an increase in NO_x emissions depending on the concentration of hydrogen in the fuel and the specific combustion system in the gas turbine.”

by 2026 and 50% by 2031) could not be achieved by blending these levels of hydrogen into the existing natural gas pipeline system,¹¹ and dedicated hydrogen storage and/or transportation infrastructure would almost certainly be required. The potential increase in air pollution emissions and impacts of new hydrogen infrastructure should all be carefully evaluated in the full application process. UCS is pleased to see the APD require information about emissions impacts,¹² but load-serving entities proposing green hydrogen projects should also be required to include information about the impacts of the storage and transportation infrastructure that would accompany these projects, and the Commission should ensure that these new investments do not lock California into continued reliance on fossil-fueled resources.

In addition, UCS suggests that the APD be modified to clarify the green hydrogen blending requirements. In particular, UCS suggests that the 30% and 50% blending requirements be defined in terms of *energy content* rather than volume. UCS notes that, if the Commission were to define these requirements in terms of volume, a 50% hydrogen blending requirement would only reduce CO₂ emissions by approximately 20% (see figure below). Furthermore, UCS suggests that the Commission require 100% green hydrogen use in a future year to ensure significant GHG reductions are eventually realized from these projects, a requirement that becomes even more important if the Commission chooses to measure the blending requirements in terms of volume.

GE, *Hydrogen as a fuel for gas turbines: A pathway to lower CO₂* (2021), p. 5. (“GE Hydrogen White Paper”). Available at: https://www.ge.com/content/dam/gepower-new/global/en_US/downloads/gas-new-site/future-of-energy/hydrogen-fuel-for-gas-turbines-gea34979.pdf

¹¹ National Renewable Energy Laboratory, *Blending Hydrogen into Natural Gas Pipeline Networks: A Review of Key Issues* (March 2013). Available at: <https://www.nrel.gov/docs/fy13osti/51995.pdf>

¹² “For fossil-fueled or green hydrogen/fossil fueled resources, the procuring IOU will be required to submit a full application that shall include, as recommended by CEJA and Sierra Club, a full set of information about the GHG, local air emissions, and disadvantaged community impacts of the procurement.”

APD at p. 65.

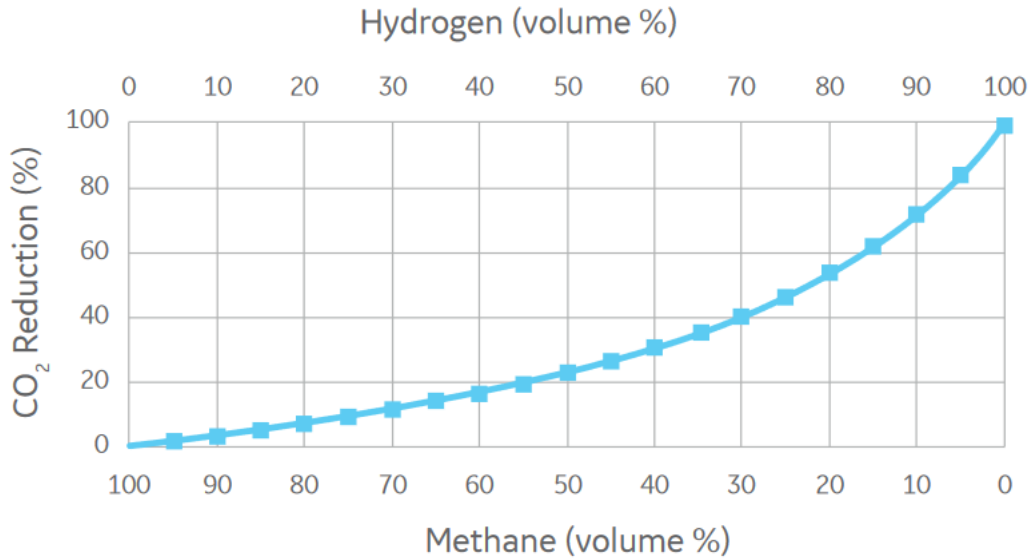


Figure 1: A 50% blend of hydrogen *by volume* would only reduce CO₂ emissions by approximately 20%. (Source: GE Hydrogen White Paper, p. 5.)

Furthermore, the PD and APD both state that, “Green hydrogen refers to green electrolytic hydrogen, as defined in Public Resources Code Section 400.2, or any subsequent California law that defines ‘green hydrogen.’”¹³ However, the current definition of green electrolytic hydrogen allows for *any* hydrogen produced through electrolysis to count, regardless of the energy source powering the electrolysis.¹⁴ With this definition, which allows for “green hydrogen” to be produced from electricity generated by fossil-fueled resources, resources that utilize significant amounts of “green hydrogen” may fail to deliver significant GHG emissions reductions.

Green hydrogen may play a role in California’s transition to a decarbonized grid, but given the potential for green hydrogen investments to justify continued use of fossil-fueled resources and the risk that these investments will fail to deliver significant reductions in GHG and air pollution emissions, the CPUC must provide careful oversight.¹⁵

¹³ PD, p. 42 and APD, p. 43.

¹⁴ “For the purposes of this article, ‘green electrolytic hydrogen’ means hydrogen gas produced through electrolysis and does not include hydrogen gas manufactured using steam reforming or any other conversion technology that produces hydrogen from a fossil fuel feedstock.”

California Public Utilities Code Section 400.2

¹⁵ See Julie McNamara, *What’s the Role of Hydrogen in the Clean Energy Transition?* (December 9, 2020). Available at <https://blog.ucsusa.org/julie-mcnamara/whats-the-role-of-hydrogen-in-the-clean-energy-transition/>.

CONCLUSION

UCS thanks the Commission for their consideration of these comments.

Respectfully submitted,

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