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 (Filed on May 7, 2020)

COMMENTS OF THE GREEN HYDROGEN COALITION ON THE ADMINISTRATIVE LAW JUDGE'S RULING SEEKING COMMENTS ON STAFF PAPER ON PROCUREMENT PROGRAM AND POTENTIAL NEAR-TERM ACTIONS TO ENCOURAGE ADDITIONAL PROCUREMENT

Nicholas Connell
Policy Director
Green Hydrogen Coalition
10265 Rockingham Dr.
Suite #100-4061
Sacramento, CA 95827
Telephone: (510) 665-7811
Email: nconnell@ghcoalition.org

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In accordance with the Rules of Practice and Procedure of the California Public Utilities Commission ("Commission" or "CPUC"), the Green Hydrogen Coalition ("GHC") hereby submits these comments on the *Administrative Law Judge's Ruling Seeking Comments on Staff Paper on Procurement Program and Potential Near-term Actions to Encourage Additional Procurement* ("Ruling"), issued by Administrative Law Judge ("ALJ") Julie Fitch on September 9, 2022. These comments are being submitted according to the schedule set by the Commission in the *Administrative Law Judge's Ruling Seeking Comments on Electricity Resource Portfolios for 2023-2024 Transmission Planning Process*, issued by ALJ Fitch on October 7, 2022.

I. INTRODUCTION.

The GHC[1] is a California educational 501(c)(3) non-profit organization. GHC was formed in 2019 to recognize the game-changing potential of "green hydrogen" to accelerate multi-sector decarbonization and combat climate change. GHC's mission is to facilitate policies and practices

[1] See https://www.ghcoalition.org/

that advance green hydrogen production and use in all sectors of the economy to accelerate a carbon-free energy future. Our sponsors include foundations, renewable energy users and developers, utilities, and other supporters of a reliable, affordable green hydrogen fuel economy for all.

GHC acknowledges the efforts of the Commission's staff in developing the Ruling and its Attachment ("Attachment A"). The establishment of a regular, dependable, and programmatic procurement approach within Integrated Resource Planning ("IRP") is warranted, considering the complexities of decarbonization, the importance of grid reliability, and the emergence of different technologies that can supplement the current toolkit available to load-serving entities ("LSEs").

Generally, GHC is supportive of the Ruling's direction. The Commission's thorough evaluation and development of the different fundamental design elements and the options presented in Attachment A are timely and critical to the creation of a rigorous approach for LSEs to procure the resources needed to achieve California's reliability standards and its greenhouse gas ("GHG") emission reduction goals. In these comments, GHC seeks to specifically underscore that any form of programmatic procurement framework adopted by the Commission should allow for and incent the development of innovative projects and solutions that can provide firm, clean power to all Californians. In addition, GHC wants to underscore the importance of considering systemwide benefits for high capital investments, as well as capturing the GHG reduction benefits of increased use of low-carbon and zero-carbon fuels. Thus, GHC comments can be summarized as follows:

- Any procurement framework would benefit from allowing some degree of resource-specific procurement that can promote resource diversity and deployment of innovative solutions that can minimize total resource costs in the long run.

- For the reliability component, GHC supports designing the program to focus on "new resources" only, centered on the development of resources that will mitigate reliability risks moving forward.

    - If the Commission is intent on incorporating existing resources to any degree, GHC recommends limiting it to variable energy resources ("VERs"), Renewable Portfolio Standard ("RPS") compliant resources, and essential thermal assets that can switch fuels to a green hydrogen blend.

- For the reliability component, GHC supports the use of a method based on net load allocation, which would entail the use of some form of marginal effective load-carrying capability ("ELCC").

- For the GHG component, GHC supports the annual emission accounting, mass-based approach, because it is a more efficient and direct effort to measure the impact of an LSE's clean energy procurement.

- GHC believes there are material ratepayer benefits to addressing local reliability needs within the IRP Procurement Track.

    - Local reliability needs should be integrated into the Planning Track so that these models and procurement directives will inform transmission and distribution planning assumptions, allowing for a more holistic view of the investments made at different points of the electric system.

II. RESPONSES TO QUESTIONS INCLUDED IN THE RULING.

Question 1: Objectives

E. Should the program be designed to drive resource attribute-focused procurement by all LSEs, or should it also be able to deliver some form of centralized, resource-specific procurement (e.g., large-scale and/or long lead-time resources)? Explain your reasoning.

The IRP proceeding's lack of a formal process for issuing regular procurement orders authorized by the Commission creates meaningful reliability and financial risks for Californians since it creates a situation in which the State could be potentially short in the near-term, resulting in the need for urgent procurement which can be significantly more costly. Moreover, the current

lack of a programmatic procurement framework may cause California to miss opportunities for timely investing in game-changing assets that could bolster reliability and minimize long-term costs. This is the case with green hydrogen.

In general, GHC supports a program designed to drive attribute-focused procurement because it would allow buyers and sellers to efficiently respond to changes in the grid and the tools (technologies) available to them. However, such an approach does not inherently guard against the "missed opportunity" risk. As a result, it is necessary that any procurement framework allows for some degree of resource-specific procurement that can (1) promote resource diversity, (2) direct the development of firm, clean assets, (3) encourage investment in solutions that will benefit ratepayers in the long run, and (4) incentivize LSEs to, individually or jointly, pursue innovative, large-scale, and long lead time projects. This will empower the Commission to strategically balance and structure the grid for future needs; particularly considering the passage of the Inflation Reduction Act ("IRA").

This is supported by the *2021 SB 100 Joint Agency Report*, which modeled a comparison of cumulative capacity additions for the SB 100 core scenario and a generic zero-carbon, firm resources scenario for 2045.[2] The report found that when zero-carbon, firm resources - such as green hydrogen used in conjunction with fuel cells - are adopted at significant levels, costs are reduced across the board. Specifically, the report found that average rate costs decreased from 16 cents per kilowatt hour ("kWh") in the core scenario to 15 cents per kWh in the generic zero carbon firm resources scenario due to total resources costs savings of $4 billion.

<u>Question 2</u>: The "fundamental program elements" and "additional design features" introduced in Section 4 of Attachment A build on

[2] 2021 SB 100 Joint Agency Report, Read more here: https://www.energy.ca.gov/sb100

concepts detailed in the November 2020 Staff Proposal for a Procurement Framework in IRP. Comment on their general suitability for discussing potential procurement program designs.

While the GHC supports the Commission's decision to define subcategories as part of need determination, we request more information on how this could be implemented. GHC suggests creating a category for firm resources with zero, or *de minimis,*[3] carbon emissions.

Question 4: Comment on each of the fundamental program elements and features described in Section 5 of Attachment A on Designing for Reliability. Is the range of options for each design element or feature appropriate? Explain your rationale.

A. Need Determination

The Commission should develop a policy that focuses on developing the resources needed to maintain grid reliability and achieve California's ambitious decarbonization goals. GHC believes this can be achieved by designing the program to focus on new resources only. By focusing on only new resources, the Commission can design a procurement program centered on the development of resources that will mitigate reliability risks moving forward since this method is associated with the use of a marginal ELCC methodology rather than an average ELCC approach. As noted in our comments below, a marginal ELCC approach results in a more efficient procurement of resources that can contribute to preserving reliable power for all Californians.

The GHC recognizes, however, that Resource Adequacy ("RA") contracting, backstop procurement, and the energy market itself may not be enough to incentivize the retention and retrofit of essential assets. As such, GHC understands that the inclusion of *some* existing resources could limit the risks faced by older renewable generation falling out of contract. Moreover,

[3] Does not exceed 4kgCO2e/kgH2 on a well-to-gate lifecycle basis.

including some existing resources could incentivize their transition away from carbon-emitting fuels to hydrogen blends, which would ease compliance with the GHG Reduction component of the program discussed herein.

Therefore, if the Commission is intent on incorporating existing resources to any degree, GHC recommends that it should limit it to variable energy resources ("VERs"), Renewable Portfolio Standard ("RPS") compliant resources, and essential thermal assets that can switch fuels to a green hydrogen blend. This latter point is further developed in GHC's answer to Question 10.

B. Need Allocation

As the electric grid continues to evolve at an unprecedented pace, the Commission must focus on minimizing reliability risks moving forward. Today, the greatest driver of need, as noted by the California Independent System Operator ("CAISO"), is the net load peak. In their Summer Market Performance Report, CAISO noted that gross demand peak happened at hour ending ("HE") 18, while net demand peak occurred between HE 19 and HE 20 (after sunset).[4] This means that the hours of concern have shifted to later in the evening, highlighting the need for firm resources such as green hydrogen, as opposed to intermittent assets. Thus, planning for net peak as the key constraint is necessary to mitigate rising reliability concerns and should be pursued. For these reasons, GHC supports the use of a method based on net load allocation. As noted in Attachment A, this would entail the use of some form of marginal ELCCs. As explained in subsequent sections, GHC currently favors the use of vintaged marginal ELCCs for the compliance component.

[4] CAISO Summer Market Performance Report, September 2022, Read more here: http://www.caiso.com/Documents/SummerMarketPerformanceReportforSeptember2022.pdf

C. Compliance

As mentioned previously, the use of a need allocation methodology based on net peak implies the application of a form of marginal ELCCs. This is because as the grid has evolved, the hours with non-zero loss-of-load probability ("LOLP") have changed, shifting later in the evening. As such, a need allocation method based on net peak recognizes that new and responsive market signals are needed to address the needs of the grid. This is desirable considering that the use of ELCC for resource counting provides a variety of benefits, including the following: capturing the reliability contributions across different system conditions, capturing saturation and interactive effects, and accounting for energy and capacity constraints. Moreover, ELCC recognizes the firmness of an asset and assigns greater value to those that are available 24 hours of the day. This, paired with the GHG reduction component of the framework, has the potential to recognize the extraordinary value of firm zero-carbon assets, such as green hydrogen.

While the marginal ELCC approach is the most efficient means to signal the reliability contribution of an incremental MW of a resource, it is not without its deficiencies. One critical deficiency is that marginal ELCCs experience significant variance between study periods, which is due to interactive effects. Thus, GHC supports the use of vintaging, under which resources would be credited based on the marginal ELCC of when they entered the market, and that value would be vintaged as more resources are added to the grid. Vintaged marginal ELCC both encourages resource diversity and rewards first-movers who paid a premium for new solutions.

D. Enforcement.

The GHC offers no comments at this time.

<u>Question 5</u>: Comment on each of the fundamental program elements and features described in Section 6 of Attachment A on Designing for GHG-

Reduction. Is the range of options for each design element appropriate? Explain your rationale.

A. Need Determination

For the GHG-Reduction component, Commission staff offers two options: (1) a Clean Energy Standard ("CES") similar to the RPS, where LSEs count generated megawatt hours ("MWh") within a compliance period toward an MWh target and (2) a Mass-Based GHG target, where LSEs will be assigned annual GHG benchmarks in million metric tons ("MMT"). GHC supports the annual emission accounting, mass-based approach, because it directly measures the impact of an LSE's clean energy procurement. Moreover, this method would more easily enable the consideration of green hydrogen blends within this proceeding.

A key limitation of the CES approach lies in the need to create categories of eligible resources. This presents a challenge for green hydrogen since a large share of existing assets could incorporate blends at this point, but this may require retrofit investments to support 100% green hydrogen. In this context, the CES approach creates an unnecessary burden by requiring the classification of resources as eligible or not, whereas the mass-based approach would recognize the benefits of moving away from natural gas and progressively incorporate higher blends of green hydrogen into their fuel mix. As such, GHC favors establishing need determination based on a mass-based GHG target.

B. Need Allocation

In accordance with the GHG mass-based target approach, GHC supports need allocation being based on the LSE-level share of CAISO-wide or statewide load and GHG emissions. Refer to comments in Question 5. A.

C. Compliance

In accordance with the GHG mass-based target approach, GHC supports integrating a CPS

calculator into the LSE IRP filings. Critically, for conventional thermal assets, this should include consideration of the fuel utilized since higher green hydrogen blends will contribute to the attainment of the mass-based GHG target.

D. Enforcement.

In accordance with the GHG mass-based target approach, GHC supports penalties assessed on a $/ton basis for GHG emissions. This approach incentivizes LSEs to optimize their portfolios and invest in furthering the development of firm zero-carbon solutions.

Question 8: Do you recommend adopting any of the options as presented in Attachment A? Explain your reasoning and justify your recommendation, by including assessment of your preferred approach against the program's objectives listed in Section 3 of Attachment A. If you do not recommend any of the option in Attachment A, indicate whether you recommend: a. A hybrid of elements described, b. A hybrid of some elements described and some not described, or c. An entirely different approach than the options described.

GHC is generally aligned with Option 1 for the Reliability component of the program and the Mass-Based approach for the GHG component. However, GHC urges the Commission to allow some degree of resource-specific procurement that can promote resource diversity and the development of resources that can minimize total resource costs regardless of the path ultimately chosen. GHC's position is informed by the urgency to send clear signals to buyers and sellers of new resources to invest in zero-carbon firm assets that can contribute to the reliability of the service for all Californians.

Question 10: Local reliability is raised briefly in Section 5.1.1 of Attachment A. Requirements are currently set for the near-term as part of the resource adequacy program. Are these sufficient, or should there be medium-to-long-term procurement requirements as well? If so,

should they be part of the new program or should they be addressed on an order-by-order basis in parallel with the program? Explain your reasoning.

GHC strongly supports a more detailed consideration of local reliability needs within the procurement program. We believe including local needs within the IRP Procurement Track would yield material ratepayer benefits since – if the Commission directs procurement of assets that can provide Local RA – any incremental MW thereby provides both System and Local benefits. The inclusion of these assets would also have significant market transformation impacts, particularly for areas dependent on carbon-emitting capacity.

Integrating local needs into the procurement approach discussed in Attachment A should be achieved by identifying no-regrets investments in firm zero-carbon resources that can catalyze the evolution towards a hydrogen-based economy. The needs analyses should focus on identifying the areas, loads, and sectors that will continue to necessitate some form of liquid fuel and/or firm dispatchable generation for reliability and resiliency. The capabilities analyses should identify infrastructure that can feasibly transition away from natural gas and towards green hydrogen. Blending green hydrogen with natural gas would allow for the use of the existing natural gas pipeline network with minimum infrastructure investment. For this to yield cost-minimization, this analysis of local reliability needs should be integrated into the Planning Track so that models and procurement directives will inform transmission and distribution planning assumptions, allowing for a more holistic view of the investments made at different points of the electric system. If the Commission finds this too administratively or computationally challenging, it should at least address local matters on an order-by-order basis.

III. CONCLUSION.

The GHC appreciates the opportunity to submit these comments to the Ruling and looks forward to working with the Commission and stakeholders in this proceeding.

Respectfully submitted,

/s/

Nicholas Connell
Policy Director
Green Hydrogen Coalition
Tel: 949-558-1305
Email: nconnell@ghcoalition.org

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