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Submitted electronically

September 3, 2021

Lianne Randolph
Chair, California Air Resources Board
1001 I Street
Sacramento, CA 95812

Re: ***Northern California Power Agency Comments on 2022 Scoping Plan Update; Scenarios Concepts Workshop***

Dear Chair Ms. Randolph:

The Northern California Power Agency[1] (NCPA) appreciates the opportunity to provide these comments on the August 17, 2021, California Air Resources Board (CARB) workshop on scenario concepts for the 2022 Scoping Plan Update (August 17 Workshop) and the Staff Presentation. NCPA is a signatory to the Joint Publicly Owned Utility Comments, along with the Southern California Public Power Authority and the California Municipal Utilities Association.[2] NCPA submits these comments to further expand upon the discussion regarding the importance of modeling the use of renewable hydrogen for reliability and electric generation as part of the state's strategy to decarbonization by 2045.

In discussing potential scenario concepts for a carbon free electricity grid, the Staff Presentation specifically asks if there *is any role for combustion of renewable natural gas or renewable hydrogen to replace fossil gas for reliability?* NCPA, like the Joint POUs, believe that the state has already signaled that the answer is a resounding ***yes***. The use of hydrogen for electric generation, and the potential to reduce or eliminate the use of natural gas at existing generating facilities is already being explored. Utilities and the state are partnering to assess the feasibility of using hydrogen as part of a smooth transition to zero-emitting resources, while not stranding millions of dollars in investments nor compromising the reliability of the grid. A transition to the use of renewable hydrogen allows efficient natural gas fired electric

1 NCPA is a nonprofit California joint powers agency established in 1968 to construct and operate renewable and low-emitting generating facilities and assist in meeting the wholesale energy needs of its 16 members: the Cities of Alameda, Biggs, Gridley, Healdsburg, Lodi, Lompoc, Palo Alto, Redding, Roseville, Santa Clara, Shasta Lake, and Ukiah, Plumas-Sierra Rural Electric Cooperative, Port of Oakland, San Francisco Bay Area Rapid Transit (BART), and Truckee Donner Public Utility District—collectively serving nearly 700,000 electric consumers in Central and Northern California.

2 Joint POU Comments on the 2022 Scoping Plan Scenario Concepts Technical Workshop.

generation facilities to continue to operate; these facilities play an essential role in the electric grid, as they provide valuable load shaping to address the variability of renewable resources, while also contributing to system reliability.

NCPA and its member agencies have long been committed to helping the state achieve its clean energy and climate goals. These efforts include substantial investments in renewable energy resources, as well as investments in other clean technologies, including natural gas-fired electric generation from one of the cleanest combined cycle facilities in the state. Furthermore, as part of NCPA's ongoing assessment of its long-term resource strategy, NCPA and its members moved even further in their commitment to a clean energy future by looking at ways to "green" its natural gas-fired electric generation plant by investing in renewable hydrogen.

Federal and state agencies are poised to invest considerable resources in RD&D on the uses of renewable hydrogen. In parallel with this effort and with carbon reduction goals in mind, public power utilities are already beginning to make the investments in the necessary equipment to utilize hydrogen for power generation. NCPA for example, has already installed an upgraded turbine that is expected to be able to blend up to 45% hydrogen at its natural gas generation facility in Lodi beginning in 2023. In addition, in conjunction with R&D funding from the American Public Power Association, NCPA recently completed a feasibility analysis that confirmed the economic viability of constructing a large scale electrolyzer adjacent to the facility. NCPA's Lodi Energy Center is one example, but other utilities are also pursuing RD&D of hydrogen blending as a replacement for natural gas and their generation facilities.

Furthermore, the California's energy agencies are also engaged. As part of the EPIC Initiative, the California Energy Commission (CEC) has been researching the role of hydrogen in the green-energy future, and has been collaborating with energy peers both nationally and internationally. Workshops on this topic were held as recently as July 28,[3] during which time the Commission heard from experts discussing a broad range of uses for renewable hydrogen, including for the generation of electricity. In fact, the use of renewable hydrogen for electric generation and storage was identified by the CEC as one of the priority uses for this resource, as it provides firm dispatchable, decarbonized electric generation.[4] It was also noted that power plants are already capable of significant hydrogen/natural gas blends (e.g., 30%), and that there is ongoing research and development for higher hydrogen blends, including locations where up to 100% hydrogen use can be evaluated.[5]

Further evidencing the significance of the use of hydrogen as part of the state's panoply of tools to reach its 2045 decarbonization goals is the CEC's recent low carbon hydrogen grant

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3 IEPR Commissioner Workshop on Hydrogen to Support California's Clean Energy Transition; Session 1: International and National Applications, and Session 2: Current and Emerging Technologies, July 28, 2021.

4 *See* Session 1, Presentation - Introduction of EPIC Initiative: The Role of Green Hydrogen in a Decarbonized California; p. 5.

5 *See* Session 2, Presentation - Zero Emissions Energy with Hydrogen, Jack Brouwer, UC Irvine, p. 22.

funding opportunity.[6] The CEC plans to grant $3.5 million to fund research, development and demonstration projects that will improve the efficiency, lower the costs, and address other technical and economic challenges of producing hydrogen from carbon-neutral production pathways. The solicitation will fund two focus areas: (Group 1) Pilot Scale Demonstration of Promising Low-Carbon Hydrogen Technologies and (Group 2) Development of Emerging Renewable Hydrogen Production Technologies.

The California Public Utilities Commission (CPUC) has likewise embraced this concept. During the September 23, 2021, CPUC Business Meeting, the Commissioners are set to vote on a draft resolution that would approve the CEC Natural Gas Research and Development Program, Proposed Budget Plan for Fiscal Year 2021-22, which includes two hydrogen research projects.[7] The research initiative *Developing and Demonstrating Hydrogen-Based Power Generation Systems* will fund the development and demonstration of power generation technologies that can run efficiently on high blends of hydrogen in the fuel stream, including modifications to current power generation technologies. "The research's goals include: Develop and demonstrate power generation technologies that can run efficiently on high blends of hydrogen including modifications to current power generation technologies. Advance system efficiency, emissions reductions, and safe operation of power generation technologies. The research could potentially increase hydrogen adoption and reduce use of fossil-based natural gas in power generation."[8]

An additional, and not insignificant benefit of using renewable hydrogen for electricity generation and reliability is the ability to utilize the existing natural gas infrastructure. Doing so avoids stranding millions of dollars in assets; the natural gas infrastructure already in place can be utilized for the renewable hydrogen. Using the existing infrastructure also avoids the need to site, permit, and build costly new infrastructure, a process that can take years and considerably slow the transition to lower emitting fuels. The usefulness of the existing infrastructure will also be necessary to address those areas of the state or economy that cannot be successfully or feasibly electrified. Optimizing the utilization of clean natural gas resources and the existing infrastructure will help to ensure that those parts of the state and economy still have the power they need, but are also able to reap the benefits of a cleaner power system.

As the state's energy agencies have already recognized, renewable hydrogen is poised to be a pivotal part of the clean-energy transformation. Therefore, recognizing the important role that hydrogen will play in achieving the state's transition to decarbonization, CARB must ensure that the Scoping Plan Update is informed by scenarios that reflect the use of renewable hydrogen for electric generation and reliability, including the use of blends that will be necessary to affect this transition.

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6 *Advancing Cost and Efficiency Improvements for Low Carbon Hydrogen Production*, anticipated release August 31, 2021, still pending.

7 CPUC Draft Resolution G-3584.

8 CPUC Draft Resolution G-3584, pp. 5, 22.

Conclusion

NCPA appreciates the opportunity to provide these comments, in addition to the Joint POU Comments, on the proposed scenarios to inform the 2022 Scoping Plan Update. Please do not hesitate to contact the undersigned or Scott Tomashefsky at 916-781-4291 or scott.tomashefsky@ncpa.com if you have any questions regarding these comments.

Sincerely,

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Attorneys for the **Northern California Power Agency**