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Diamond Generating LLC Comments on Draft Solicitation Concept

Additional submitted attachment is included below.

STATE OF CALIFORNIA ENERGY RESOURCES CONSERVATION AND DEVELOPMENT COMMISSION

In the Matter of:	Docket No. 22-ERDD-03
Clean Hydrogen Program	

COMMENTS OF DIAMOND GENERATING LLC ON THE DRAFT SOLICITTAION CONCEPT FOR DISTRIBUTED CLEAN HYDROGEN PRODUCTION WITH ONSITE END USE

I. INTRODUCTION

Diamond Generating LLC ("Diamond") offers these comments on the Draft Solicitation Concept for Distributed Clean Hydrogen Production with Onsite End Use ("Draft Solicitation"). In these comments, Diamond provides insight on how renewable hydrogen can realistically be deployed to help decarbonize the electric generation sector while maintaining system reliability. In particular, the California Energy Commission's ("CEC") obligation to establish and administer a Hydrogen Program pursuant to Assembly Bill ("AB") 209 (2022) should support a paced integration of hydrogen into the state's resource mix. During California's transition to a renewable and decarbonized retail electric supply, a hydrogen fuel integration approach provides a pathway for decarbonizing existing resources needed for reliability, thereby helping the state reach economies of scale for hydrogen fuel combustion.

II. COMMENTS

A. Diamond is Actively Planning for California's Clean Energy Future

Diamond owns and operates fast-starting, flexible, peaking capacity facilities, including the Sentinel Energy Center ("SEC").[1] SEC, providing flexible capacity that can start and stop on

[1] The Sentinel Energy Center is owned by Sentinel Energy Center LLC, and Diamond is an affiliate of Sentinel Energy Center LLC.

demand in response to fluctuations in supply from intermittent renewable electricity sources, is located next to the crucial Devers substation and has been providing much needed reliability insurance to the California grid in support of renewable energy integration. Diamond is actively preparing for investments in technologies that are responsive to California's decarbonization goals while still providing much needed capacity in the near- to mid-term that is available during the periods of greatest system need. These strategies can provide reliable capacity to grid operators in the near term from existing 24/7 resources, without the many uncertainties of development risk, while preparing for the transition needed to attain the SB 100 goals. Decarbonization strategies under consideration by Diamond include the integration of alternative, and zero-carbon fuels, such as renewable hydrogen.

Given the recent and ongoing challenges to grid reliability, the CEC's implementation of AB 209's Hydrogen Program should include all projects that contribute crucially to resource adequacy to decarbonize by incorporating clean hydrogen to meet California's clean energy and climate goals. As compared to inverter-based resources, conventional, rotating resources provide system inertia and higher reliability attributes, and capacity from these resources continue to be included in California's system reliability planning for at least the next 15 to 20 years.

Diamond believes that the Draft Solicitation and the Clean Hydrogen Program should consider incorporating hydrogen fuel for firm capacity resources and consider decarbonization strategies that could be cost-effectively implemented in stages over time within the footprint of existing locations (e.g., transition to a zero-carbon resource over a 10-year period). As recognized in the 2021 SB 100 Joint Agency Report, 75 percent of the flexible capacity of the grid is currently attributed to natural gas power plants, and these plants continue to be needed to

maintain grid reliability as more renewable power enters the system.[2] Modeling conducted for the 2021 SB 100 Joint Agency Report largely retained the state's natural gas capacity. Existing peakers are capable of continuing to provide flexible, firm power needed for reliability in the near- and medium-term while the state waits for long lead-time ("LLT") resources and other firm capacity technologies to reach commercial viability and operation. During this transition period, existing peakers will be part of the reliability solution and, if the state sends the appropriate procurement signals, these resources can play a role in the state's decarbonization strategy.

In order to continue to provide this needed capacity, Diamond's peakers must have a pathway to adopt renewable and zero-carbon technologies. In particular, *blending* of hydrogen fuels, as opposed to employing assumptions that a fully hydrogen-fueled resource will timely replace natural gas-fueled capacity, should be the anticipated course for demonstrating the potential for and cost of hydrogen use at existing combustion generators. Not only is blending of renewable hydrogen at existing combustion resources a necessary first step towards greater integration of this zero-carbon fuel and the technologies that will facilitate it, blending at peaking assets does not require reliance on long-dated, new pipeline infrastructure. A measured approach to the integration of carbon-free fuels is pragmatic as there is not currently, nor projected in the near- to mid-term, a reliable supply or delivery mechanism for renewable hydrogen that would allow conventional utility-scale generation to switch to 100% use of this fuel. Furthermore, incremental steps for renewable hydrogen use at existing peaker sites can be implemented in the near term and the peakers represent sufficient demand to serve as anchor tenants to new hydrogen projects, ultimately paving the way to put California on track to improving costs, advancing technologies, and expanding hydrogen transportation and storage options.

[2] 2021 SB 100 Joint Agency Report at p. 40.

The U.S. Environmental Protection Agency's ("U.S. EPA") recent analysis of the potential for hydrogen fuel in certain fossil-fueled electric generation resources reaches the same conclusion.[3] While the U.S. EPA's proposed rule would not impose an emission guideline for Diamond's California peakers, it concludes that the potential for certain planned and existing fossil-fueled resources to incorporate renewable hydrogen begins at 30 percent in the year 2032. This analysis takes into account the expected availability of renewable hydrogen and the reasonable costs for moving to this fuel. Development of this important option for electric reliability in California will be impeded if combustion resources are only admitted to participate on an all-or-nothing hydrogen fuel basis, and not acknowledged as being able to transition in stages to a decarbonized resource. Such a position will preclude development of an important and emerging strategy for reliably decarbonizing California's electric supply.

Another issue relevant to the potential, and eventual, deployment, development, and use of hydrogen, is how investments in the equipment and fuel can be recovered. Currently, there are few or no market mechanisms for peaker plants to recover the costs of reconfiguring their physical operations to blend, or convert completely, to hydrogen. There are currently no special procurement policies or mechanisms supporting a revenue stream that justifies the investment in equipment, services, and other project modifications necessary to switch to hydrogen fuel use. Assistance from grant programs, such as the Hydrogen Program established by AB 209, may be necessary to allow assets to invest in renewable hydrogen technologies that allow decarbonization of combustion electric generating facilities.

[3] Proposed Rule: *New Source Performance Standards for Greenhouse Gas Emissions from New, Modified, and Reconstructed Fossil Fuel-Fired Electric Generating Units; Mission Guidelines for Greenhouse Gas Emissions from Existing Fossil Fuel-Fired Electric Generating Units; and Repeal of the Affordable Clean Energy Rule,* 88 Fed. Reg. 33240 (May 23, 2023) (amending 40 CFR Part 60).

In the interest of maintaining electric reliability and more affordably transitioning to California's clean energy future, the State will need to support programs and policies that allow existing resources providing firm, flexible capacity to pursue technologies and strategies that reduce their GHG emissions.

B. Question for Stakeholders: Are the Project Elements in Section IV, "Project Focus," realistic, reasonable, and feasible?

The Project Elements discussed in the Project Focus section of the Draft Solicitation are too narrowly written and will likely be interpreted as a bar to eligibility of certain projects or innovative strategies for clean hydrogen demonstration projects or projects that allow the scaling-up of hydrogen production, processing, delivery, storage, or end use in the electric generation sector. For one, the Draft Solicitation is more restrictive that the clear language guiding AB 209's Hydrogen Program (Pub. Res. Code Sections 256641, 25664.1). The legislation provides:

> 25664. For purposes of this article, hydrogen projects that produce, process, deliver, store, or use hydrogen derived from water using eligible renewable energy resources, as defined in Section 399.12 of the Public Utilities Code, or produced from these eligible renewable energy resources, shall be eligible for financial incentives pursuant to this article.
>
> 25664.1. (a) The commission shall establish and administer the Hydrogen Program pursuant to this article to provide financial incentives to eligible in-state hydrogen projects for the demonstration or scale-up of the production, processing, delivery, storage, or end use of hydrogen consistent with Section 25664.1.
> ....

In particular, the legislation does not limit projects eligible for funding to those that produce, store, *and* use hydrogen on the same site or property, as is provided in the Draft Solicitation. The legislation clearly allows one or more of these hydrogen- related activities to be part of an

eligible project, and it does not qualify projects as having to encompass one or more of these activities on the same site.

Diamond, and possibly the owners and operators of other gas plants, may be pursuing strategies for the integration of hydrogen that are not as all-encompassing as co-location of production, storage *and* end use, and there is room for innovation in the transport and storage of hydrogen fuel within a demonstration project. For example, the Draft Solicitation's limiting project eligibility language may not allow potential partnerships for multi-purpose use of costly hydrogen equipment and services. As such, the Draft Solicitation as written will inevitably exclude innovative, cost-effective hydrogen integration strategies at existing facilities.

Accordingly, Diamond suggests that the Project Elements be modified to be consistent with AB 209, and to allow project proponents to put forth other innovative solutions for hydrogen integration at electric generating facilities. The first Project Element, and related discussions in Section IV of the Draft Solicitation, should be revised as follows: "Demonstrate and deploy onsite clean hydrogen production, storage, **and/or end use.**"

Additionally, the Draft Solicitation's requirement that projects must help reduce sector-wide emission by "avoiding any benefit to facilities associated with high emissions, fossil fuels, or technologies that may contribute to high emissions," could be broadly interpreted as completely barring projects that blend hydrogen and natural gas to generate firm, flexible capacity. It is somewhat perverse to think that the requirements as written would not encourage carbon reducing blending at an existing gas plant, resulting in the gas plant continuing to solely utilize fossil fuels rather than starting on a pathway of blending that could eventually lead to 100% carbon-free hydrogen use. As discussed above, it is important for system reliability that projects, such as Diamond's peaker facilities, be maintained through the longer-term planning

horizon. These projects must have a pathway to decarbonize to help California meet climate goals, and must be able to financially support the significant investments needed to replace and add equipment to their projects to accommodate incorporation of clean hydrogen fuel. As such, Diamond suggests Section IV's discussions on this topic be modified to instead state: "projects must help reduce sector-wide emissions by ~~**avoiding any benefit to facilities associated with high emissions, fossil fuels, or technologies that may contribute to high emissions**~~ **ensuring funding is only used for equipment, materials, services, and project tasks necessary to implement the production, storage, or end use of clean hydrogen by a facility.**"

III. CONCLUSION

Diamond appreciates the opportunity to provide these comments on the Draft Solicitation and looks forward to continuing the dialog with the CEC and other agencies involved in supporting California's transition to a renewable and decarbonized energy future.

Dated: October 27, 2023

Respectfully submitted,

/s/

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