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Natural Gas Research Initiative Workshop Comments

Additional submitted attachment is included below.

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Calpine Corporation

February 8, 2021

California Energy Commission
Docket Unit, MS-4
Docket No. 16-PIER-01
1516 Ninth Street
Sacramento, California 95814-5512

Submitted via email: docket@energy.ca.gov.

RE: Proposed Natural Gas Research Initiatives for FY 2021-22

Calpine Corporation (hereinafter, "Calpine") offers the following comments regarding the Workshop on Proposed Natural Gas Research Initiatives (NGRI) held January 29, 2021. Calpine is one of California's largest energy providers and the State's leader in renewable energy and combined heat and power production. Calpine is a long-time supporter of federal and State efforts to control greenhouse gas emissions (GHG) and an advocate for achieving California's climate goals. In addition, Calpine is actively engaged in developing battery storage and carbon capture utilization and storage (CCUS) projects in California.

Calpine currently has invested and is facilitating two CCUS pilot projects at one of its operating plant in the Pittsburg area. The first project has a unique technology that captures carbon dioxide and coats aggregate, which can then be sold in the concrete market as light weight aggregate for construction material. The second project is using a DOE grant to test a transformational carbon capture solvent and operating system.

We realize that the NGRI workshop focused on CCUS for the industrial sector, but Calpine believes that innovation and technology development in both the industrial and power generation sectors are necessary to make CCUS a viable technology. In particular, because both sectors could leverage some of the same infrastructure, attention to both sectors could significantly facilitate deployment in either sector. For example, development of CCUS "hubs" that could potentially collect carbon dioxide from both power generation and industrial sources for ultimate storage in geological formations would provide the benefit of scale and allow projects to proceed that would otherwise not be cost effective. In addition, specific capture technologies may be applicable to multiple sectors.

In addition, CCUS for power generation has important benefits for the power sector that the CEC already has recognized in its SB100 modeling. This modeling identified the important role of zero-carbon firm generation. CCUS for power generation could fulfill this role.

Consequently, the CEC should consider funding research in CCUS regardless of sector. Additional funding to assist companies in development of capture technologies that can benefit both the industrial and power generation sector would accelerate technology development and commercial installations. For example, pre-FEED and FEED studies that must be completed prior to construction can cost upwards of ten million dollars and take more than a year to complete. Actual construction of a project could cost several hundred million dollars, which will be a significant investment for any company.

In addition to technology development, another significant barrier to deployment of CCUS is the uncertain permitting pathway all three phases of a CCUS project, including the capture unit, the physical means of transporting captured gas to the sequestration site, and the permanent geological storage. All three of these phases require the involvement and oversight of several state and federal agencies, creating significant permitting risk for a project. Timely completion of each phase is critical to having a viable project. Permit streamlining and certainty in the permitting path are critical for companies to make an investment in CCUS. State support for an expedited and streamlined permitting process would accelerate development of CCUS projects.

Calpine appreciates the opportunity to comment on this workshop and urges the CEC to expand its Natural Gas Research Initiatives to include natural gas power generation facilities. CCUS can serve a critical role in decarbonization of both the electrical and industrial sectors and help achieve California's goals in a cost effective manner. We look forward to continuing to work with you on these important issues.

Sincerely,

/s/
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