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SoCalGas Comments on the CEC Gas R&D FY 2025-2026 Budget Plan

Additional submitted attachment is included below.



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Jonah Steinbuck, Director
California Energy Commission
Docket Unit, MS-4
Docket No. 23-ERDD-02
715 P Street
Sacramento, CA 95814-5512

Subject: Comments on the CEC Fiscal Year 2025-2026 Gas R&D Budget Plan

Dear Mr. Steinbuck,

Southern California Gas Company (SoCalGas) appreciates the opportunity to provide comments on the August 12, 2024 California Energy Commission (CEC) Fiscal Year (FY) 2025-2026 Gas Research & Development (R&D) Budget Plan Workshop. SoCalGas commends the CEC for its thorough and engaging presentation to the Investor-Owned Utilities (IOUs) on the focus areas of the FY 2025-2026 Gas R&D Program, and for accepting feedback and input from the IOUs. SoCalGas staff values working with the CEC on critical gas R&D programs to help advance California's decarbonization and carbon neutrality goals. SoCalGas looks forward to continuing our coordination with the CEC and the other IOUs.

SoCalGas provides the following feedback on the FY 2025-2026 Gas R&D Initiatives presented at the workshop.

Entrepreneurial Ecosystem

Advancing Innovation in Low-Carbon Manufacturing

As CEC develops this initiative, there are several foundational questions to consider at the regional and state level: What are the existing challenges (e.g., permitting, zoning, access to infrastructure, taxes, and labor laws) that impede full-scale production in California and how do they compare to those in other American and global markets? What incentives or benefits are available (e.g., workforce, geology, and infrastructure) to promote manufacturing in California and how do they compare to those in other American and global markets? What new incentives could be created to attract advanced manufacturing to California? For example, could tax breaks, streamlined permitting processes, or subsidies for green technologies be introduced or expanded upon? Given existing challenges, incentives and California's resources, which technologies are best suited for manufacturing in California? What is the potential impact (e.g., monetary, workforce, logistics, and cost) of proposed changes to incentives on future manufacturing potential? Understanding these factors may help determine optimal locations and/or technologies to focus on for scaling up.

SoCalGas recommends the CEC consider renaming this initiative "Advancing Manufacturing of Low-Carbon Energy Technologies in California." The current program name suggests that its focus is to research to decarbonize industrial processes, but the program description implies that the program is instead aimed at scaling up the manufacturing capacity of new near zero-carbon and clean energy technologies in the state.

Gas System Decommissioning

a. Gas Decommissioning in the Mid- and Long-Term

It was unclear what research will be supported by this initiative. It appeared the research generally sought to address non-technical hurdles to electrifying buildings (e.g., resolving supply constraints for electric equipment, developing the workforce required to convert buildings to electric equipment, and educating customers). SoCalGas recommends the CEC work to clearly define and determine this program's objectives. For instance, one tool the SoCalGas Research, Development, and Demonstration (RD&D) team uses is the Heilmeier Catechism¹ which is a series of questions developed at the Defense Advanced Research Projects Agency (DARPA) to help evaluate the feasibility and impact of research proposals. The first question is, "What are you trying to do? Articulate your objectives using absolutely no jargon." Using this or a similar approach could assist the CEC and stakeholders in better understanding the intent of this program.

¹ The Heilmeier Catechism, available at: <https://www.darpa.mil/work-with-us/heilmeier-catechism>.

SoCalGas recommends any work done through this initiative should be informed and guided by the previous CEC projects that assessed gas decommissioning in environmental and social justice (ESJ) communities in Northern and Southern California.² The ongoing Southern California-focused gas decommissioning study was co-funded by SoCalGas and overseen by the RAND Corporation.³ The results of the recent Southern California study, which have not yet been published by CEC, should help guide any follow-on research regarding gas decommissioning.

The CEC also previously worked with Pacific Gas and Electric Company (PG&E) on a targeted gas decommissioning study focused on Northern California.⁴ A few of the challenges identified by that study include:

- The geographic scale for targeted electrification and gas decommissioning will be limited by the gas utilities' pipeline replacement rate and by the feasibility of decommissioning sections of the gas system without negatively affecting reliability for remaining customers.
- The obligation to serve (Public Utilities Code (PUC) Section 451⁵) makes gas decommissioning projects very challenging to develop at any significant scale.
- There is a need for better data and planning tools to support identification of candidate sites for targeted electrification and gas decommissioning.
- Supporting community priorities requires that some customers may prefer to keep certain gas equipment due to comfort, familiarity, or bill impacts, and that some customers may prioritize lead, mold, or asbestos remediation before electrification.
- The project team recommends focusing first on delivering near-term benefits through energy efficiency, remediation, and electrification, based on customer needs. Gas decommissioning would not occur until a later phase after customer trust is built and upgrades are made that support electrification readiness.

These challenges represent both mid- and long-term research needs to advance targeted gas decommissioning with an objective of delivering net benefits to ratepayers. Decommissioning gas system infrastructure investments should not be pursued for its own sake or in a piecemeal way without an understanding of its broader context and impacts. The California Public Utilities Commission (CPUC) Gas Order Instituting Rulemaking

² "An Analytical Framework for Targeted Electrification and Strategic Gas Decommissioning: Identifying Potential Pilot Sites in Northern California's East Bay Region," CEC, June 2024, available at: <https://www.energy.ca.gov/sites/default/files/2024-06/CEC-500-2024-073.pdf>.

³ "Strategic Pathways and Analytics for Tactical Decommissioning of Portions of Natural Gas Infrastructure in Southern California," RAND, November 17, 2021, available at: <https://efiling.energy.ca.gov/getdocument.aspx?tn=240654>.

⁴ *Ibid.*, CEC, Analytical Framework for Targeted Electrification and Strategic Decommissioning.

⁵ CA Pub Util Code § 451, available at: <https://law.justia.com/codes/california/code-puc/division-1/part-1/chapter-3/article-1/section-451/#:~:text=Every%20public%20utility%20shall%20furnish,and%20convenience%20of%20its%20patrons%2C>.

(OIR) Phase 3 Ruling Joint Agency Whitepaper astutely notes, “The transition off fossil gas poses risks to affordability, safety, reliability, and the gas workforce. The transition away from fossil fuels must balance these risks and protect vulnerable residents.”⁶ Work supported by the CEC in this area should be done in coordination with the CPUC’s Gas Planning OIR (R.20-01-007) and its forthcoming successor proceeding.

SoCalGas recommends that the CEC should consider evaluating the cost and effectiveness of the community outreach efforts more broadly and assess what lessons can be learned. While not an exhaustive list, the CEC could consider the following questions:

- What is the inventory of benefits the communities requested? How would the CEC rank the benefits and determine which benefits should be implemented for a given project? Are the benefits requested repeatable across the breadth of the pipeline system? When should benefits be delivered to the communities? What is the cost to implement the benefits? What percentage of a project’s budget should be allocated toward community benefits? How should the benefits be tracked?

The 2022 CARB Scoping Plan calls for both hydrogen and renewable natural gas (RNG) to be blended into existing gas pipelines as part of a set of actions in the Scoping Plan Scenario to drastically reduce greenhouse gas (GHG) emissions from Assembly Bill (AB) 32 sectors.⁷ Thus, SoCalGas recommends that the CEC consider how this opportunity can be maximized in alignment with State climate goals. A recent report from the Boston Consulting Group (BCG) also calls for California to maximize existing natural gas infrastructure to promote affordable decarbonization. Specifically, leveraging existing infrastructure to deliver clean molecules allows California to realize the benefits of previous ratepayer investments and maximize the value of the existing energy system.⁸ In addition, available technologies such as fuel cells and linear generators should be evaluated for their ability to leverage the existing gas system to enable electrification of buildings with beneficial impacts on reliability and resiliency. These technologies could be deployed in areas where there may be challenges to meeting increasing electric demand through the grid, and these potential solutions should be appropriately considered when evaluating targeted gas decommissioning opportunities.

⁶ “2024 Joint Agency Staff Paper: Progress Towards a Gas Transition,” CPUC, February 22, 2024, p. 7, available at: <https://docs.cpuc.ca.gov/PublishedDocs/Efile/G000/M525/K660/525660391.PDF>.

⁷ 2022 CARB Scoping Plan, CARB, p. 78, available at: <https://ww2.arb.ca.gov/sites/default/files/2023-04/2022-sp.pdf>.

⁸ “Unlocking California’s Climate Ambition,” BCG, July 2024, p. 28, available at: [ca-decarbonization-report-2024-07-12.pdf \(bcg.com\)](https://www.bcg.com/publications/2024/07/unlocking-california-s-climate-ambition).

b. *Pilot Projects to Advance Gas Decommissioning*

Similar to the Gas Decommissioning research above, any work done through this initiative should be informed and guided by the previous CEC projects that assessed gas decommissioning in ESJ communities. While the Southern California results have not yet been published by the CEC, the Northern California study results (listed above) should be considered in the development of pilot projects.

SoCalGas recommends pilot projects should be done in coordination with the upcoming successor to the Gas Planning OIR. The Northern California study report points to utility modeling being key to conducting a successful pilot, which suggests that utility engagement in these pilots will be crucial to their success.

Building Decarbonization

a. *Networked Geothermal + Ground Source Heat Pumps (NG + GSHPs)*

As the CEC develops this initiative, there are several foundational questions to consider: Which locations in California are best suited for deploying NG + GSHPs? What scale is required to bring cost into parity with existing natural gas service? What is the potential market size for NG + GSHPs? Is there a metric that can capture the potential for gas utility skill set transferability? What existing infrastructure has the potential to be repurposed for use in NG + GSHPs? How will the deployment of NG + GSHPs impact California net peak load and overall energy demand? What is the environmental impact of utilizing NG + GSHPs (e.g., groundwater quality, carbon emissions, material use, energy efficiency, land use, permitting, local air quality, and jobs) and how does it compare to existing gas service? What are the incremental costs and benefits of NG + GSHPs compared to air-source heat pumps and/or high efficiency gas appliances?

SoCalGas is supportive of the CEC exploring future ways to leverage the state's gas system infrastructure and the IOUs' workforce and expertise to support a future decarbonized California.

b. *Geothermal District Heating*

SoCalGas has the same questions for geothermal district heating as those posed for the NG + GSHPs research topic.

Industrial & Agricultural Innovation

Improving Local Air Quality in the Communities Adjacent to Industrial Facilities

As the CEC develops this initiative, there are several foundational questions to consider: What is the cost impact on industrial facilities and how does this affect their viability relative to American and global markets? Do the existing industrial sites have sufficient land and infrastructure to deploy carbon capture and/or utilization technologies? Are there

candidate industrial clusters that could benefit from deploying these technologies on a larger scale or to ameliorate on-site constraints? What incentives are currently available or could be developed to reduce cost impact of deployment? How will these technologies impact of the cost competitiveness of the industrial facility?

SoCalGas is supportive of the CEC exploring technologies to reduce pollutant emissions from industrial sites. Industrial customers are difficult to electrify and often located in or near ESJ communities. Developing solutions to address these emissions and retain these industrial customers and their associated economic activity in California should be a priority of the state. As such, there is broad ratepayer benefit associated with advancing technologies to mitigate emissions of nitrous oxide (NO_x) and carbon dioxide (CO₂) from such sites.

Gas System Decarbonization

Supporting Healthy and Equitable Gas System Decarbonization

SoCalGas RD&D has been a leader in developing technologies to decarbonize the gas system for over a decade, since starting up the first renewable energy project in California to purify wastewater biogas so that it meets state standards for natural gas delivered to homes and businesses in 2011⁹. We look forward to the opportunity to share our knowledge and experience with the CEC as this initiative is further developed.

Assessing the Role of Hydrogen in California's Hardest to Electrify Markets

SoCalGas RD&D has conducted a number of research projects in this space. For example, in 2023, RD&D published a report with Darcy Partners titled "Opportunities for technology development in gas decarbonization for industrial use"¹⁰ that included an analysis of technologies impacting industrial decarbonization and leveraged a variety of data sources to understand the impact of emergent industrial energy transition technologies. The report identifies areas of priority, including distributed hydrogen production. SoCalGas maintains a close relationship with industrial end users and could assist the CEC to identify potential project sites and technologies to help decarbonize energy intensive process.

⁹ "SoCalGas, City of Escondido Create Renewable Energy from Sewage," PR Newswire.com, February 8, 2011, available at: <https://www.prnewswire.com/news-releases/socialgas-city-of-escondido-create-renewable-energy-from-sewage-115559104.html#:~:text=The%20city%20of%20Escondido%20's%20Hale%20Avenue%20Resource%20Recovery%20Facility.>

¹⁰ "SoCalGas & Darcy Industrial Decarbonization - Priority Technical Spaces." SoCalGas & Darcy Partners, November 2023, available at: <https://doi.org/10.5281/zenodo.10530784>.

Conclusion

SoCalGas appreciates the opportunity to provide feedback to the CEC's FY 2025-2026 Gas R&D Budget Plan. The proposed initiatives of the FY 2025-2026 Gas R&D Program are critical areas of research which will play integral roles in helping to advance the State's decarbonization and carbon neutrality goals. We look forward to continuing to collaborate with the CEC to shape these initiatives. Thank you for your consideration of our comments.

Respectfully,

/s/ Eric Coene

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