DOCKETED	
Docket Number:	19-ERDD-01
Project Title:	Research Idea Exchange
TN #:	237370
Document Title:	Southern California Gas Company Comments - Comments on Hydrogen Blending into Existing California Natural Gas System
Description:	N/A
Filer:	System
Organization:	Southern California Gas Company
Submitter Role:	Public
Submission Date:	4/2/2021 2:56:40 PM
Docketed Date:	4/2/2021

Comment Received From: Southern California Gas Company
Submitted On: 4/2/2021
Docket Number: 19-ERDD-01

Comments on Hydrogen Blending into Existing California Natural Gas System

Additional submitted attachment is included below.

Tim Carmichael
Agency Relations Manager
State Government Affairs
925 L Street, Suite 650
Sacramento, CA 95814
Tel: 916-492-4248
TCarmichael@semprautilities.com

April 2, 2021

California Energy Commission
Docket Unit, MS-4
Docket No. 19-ERDD-01
1516 Nineth Street
Sacramento, California 95814

Subject: Comments on Upcoming Solicitation Regarding Pilot Test and Demonstration of Hydrogen Blending into Existing California Natural Gas System

Dear Dr. Yahui Yang,

Southern California Gas Company (SoCalGas) and San Diego Gas and Electric (SDG&E) appreciate the opportunity to comment on the March 18, 2021 scoping workshop on the upcoming California Energy Commission (CEC) funding solicitation regarding pilot tests and demonstration of hydrogen blending into the existing California natural gas system (scoping workshop). The use of hydrogen to decarbonize the gas grid is indispensable to a decarbonizing and decarbonized energy system; thus, SoCalGas and SDG&E[1] support and commend the CEC's research initiative on hydrogen blending in the 2020-2021 Natural Gas Research and Development Program Budget Plan.

CEC's leading efforts to assess and develop the key role and benefits that hydrogen will provide align with SoCalGas's recently announced ASPIRE 2045,[2] a sustainability strategy that includes a bold commitment to achieve net zero greenhouse gas emissions in our operations and delivery of energy by 2045. SoCalGas continues to lead in hydrogen innovations with plans to complete five hydrogen pilot projects and aid in establishing statewide hydrogen blending standards by 2025. SoCalGas' Research, Develop and Demonstration division is also a registered partner on

[1] SDG&E Commitment to Sustainability: Building a Better Future, 2020. Available at https://www.sdge.com/more-information/environment/sustainability-approach.
[2] SoCalGas ASPIRE 2045: Sustainability and Climate Commitment to Net Zero, 2021. Available at https://www.socalgas.com/sites/default/files/2021-03/SoCalGas_Climate_Commitment.pdf.

EmpowerInnovation.net,[3] supporting new technologies that benefit California energy users through improved reliability and safety, environmental benefits, and operational efficiencies. It is with this vision that hydrogen will play a key role in achieving carbon net-neutrality, that we submit these comments on the CEC's scoping workshop.

CEC staff posed a set of five questions in the Notice of Scoping Workshop. SoCalGas and SDG&E offer the following answers to the questions, based on the Joint Utilities (SoCalGas, SDG&E, Pacific Gas and Electric, and Southwest Gas Corporation) Application 20-11-004 filed with the California Public Utilities Commission (CPUC), which includes a specific chapter by SoCalGas and SDG&E on hydrogen blending demonstration projects.[4,5] The hydrogen blending demonstration program chapter[6] consists of small-scale field demonstration projects on 1) an isolated distribution pressure district comprised primarily of polyethylene pipelines; 2) an isolated distribution pressure district comprised of a mix of pipeline materials (plastic and steel); and 3) an isolated segment of steel transmission pipeline within SoCalGas or SDG&E territory.

Question 1: Due to limited funding, should certain applications or scale of demonstration projects be prioritized over others for demonstrating hydrogen blending?

> SoCalGas and SDG&E engage in hydrogen blending research and are partners in several consortiums with other utilities pioneering hydrogen blending pilot projects. Therefore, we understand the scale of costs for pilot tests and demonstration projects that would blend hydrogen into existing natural gas systems. Given limited funding of approximately $5-7 million, we suggest that the CEC fund one project on an isolated steel transmission pipeline to a heavy end user like manufacturing. California leads the nation in economic output from manufacturing and is home to over 35,000 firms employing 1.3 million people.[7] Despite advancements made in some market segments, industrial sectors, such as thermal load-dependent processes in manufacturing, have yet to see energy options that can help them transition to a decarbonized future. Such a project would provide the CEC an opportunity to gain valuable data on both pipeline and end-use equipment responses in a sector crucial to California's economic competitiveness.

---

[3] *See* SoCalGas Research, Development & Demonstration: Funding Providers. Available at https://www.empowerinnovation.net/en/custom/organization/view/6477.
[4] *See* SoCalGas Presentation on Hydrogen Blending, 2021 March 18. Available at https://efiling.energy.ca.gov/GetDocument.aspx?tn=237351.
[5] CPUC A. 20-11-004. Available at https://docs.cpuc.ca.gov/PublishedDocs/Efile/G000/M351/K622/351622423.PDF.
[6] CPUC A. 20-11-004, Chapter 3 testimony available at https://www.sdge.com/sites/default/files/regulatory/H2%20Application%20-%20Chapter%203%20-%20H2%20Demonstration%20Program_0.pdf and https://www.socalgas.com/sites/default/files/2020-11/H2_Application-Chapter_3_H2_Demonstration_Program.pdf.
[7] *See* The Governor's Office of Business and Economic Development: Manufacturing, 2021. Available at https://business.ca.gov/industries/manufacturing/.

Question 2: **What are the key challenges that must be addressed for demonstrating hydrogen blending? How should the technical tasks regarding planning, siting, safety, and measurement verification be approached?**

Regarding key challenges, Chapter 4[8] of the Joint Utilities CPUC Application discusses in detail critical safety, system integrity, and system reliability issues and how they should be addressed. In Hilary Petrizzo's presentation at the scoping workshop, she discussed the use of American Petroleum Institute Recommended Practice 1173: Pipeline Safety Management System's Plan-Do-Check-Act. We recommend its use for the demonstrations.

Question 3: What are the expected outcomes of these demonstration projects? What are the specific performance metrics that should be measured or compared against to evaluate the viability of blending for the demonstration projects?

In terms of expected outcomes, SoCalGas and SDG&E recommend the use of specific performance metrics focused on safety, system integrity, and system reliability. Specific items include odorant compatibility with blended hydrogen, leak survey tool effectiveness with blended hydrogen, metering and gas usage, criteria air pollutants, material impacts, maintenance, operational risk, and cost. Additionally, in our proposed demonstration program we plan to partner with customers to evaluate changes to their product quality and/or processes, depending on the industrial end-use customer chosen for the transmission demonstration project.

Question 4: What existing research or pilots should this research build on?

The CEC should leverage the pilots proposed by SoCalGas and SDG&E in their demonstration program, which will blend hydrogen into a newer, isolated distribution network, comprised of polyethylene plastic pipeline and newer end-use residential appliances. The pilot should fill in research gaps that cannot be tested in the laboratory such as modifications to operational practices, safety training on live hydrogen injection sites, and customer experience with using blended hydrogen as a fuel. For example, the CEC pilot can be used to validate the University of California Riverside's important laboratory work.

As stated previously, we believe one CEC funded project is not sufficient to meet the different energy needs throughout California and recommend the CEC build upon the first demonstration project being planned by SoCalGas to leverage best practices and lessons learned from blending hydrogen into the distribution system. This pilot should focus on the

[8] CPUC A. 20-11-004, Chapter 4 testimony. Available at https://www.socalgas.com/sites/default/files/2020-11/H2_Application-Chapter_4-Technical.pdf and https://www.sdge.com/sites/default/files/regulatory/H2%20Application%20-%20Chapter%204%20-%20Technical.pdf.

transmission segment of California's natural gas system with a preference for steel transmission that supplies gas to the industrial sector.

Question 5: What other considerations or requirements should be incorporated into the future GFO?

The scoping workshop notice mentioned that stakeholders should take this opportunity to provide input on the consideration of value propositions to facilitate successful demonstration projects. We believe the value proposition for successful demonstration projects is to provide scalability and assure the use of existing infrastructure in the future to avoid stranded assets.

Conclusion

SoCalGas and SDG&E appreciate CEC staff discussing your strengthening commitment to diversity in funding CEC programs. We share the CEC's commitment to diversity as our guiding principles are centered on a diverse workforce, diverse teams, conscious inclusion and engagement, and economic opportunities for all.

SoCalGas and SDG&E appreciate the opportunity to provide input on the scoping workshop and look forward to continuing to work with the CEC and our partners to advance the science and real-world applications of hydrogen for energy supply, energy storage, and energy grid decarbonization.

Sincerely,

/s/ Tim Carmichael

Tim Carmichael
Agency Relations Manager
Southern California Gas Company