Company: Southern California Gas Company (U 904 G)
Proceeding: 2024 General Rate Case
Application: A.22-05-015/-016 (cons.)
Exhibit: SCG-212

REBUTTAL TESTIMONY OF

ARMANDO INFANZON

(CLEAN ENERGY INNOVATIONS)

BEFORE THE PUBLIC UTILITIES COMMISSION

OF THE STATE OF CALIFORNIA

May 2023

TABLE OF CONTENTS

REBUTTAL TESTIMONY OF ARMANDO INFANZON (CLEAN ENERGY INNOVATIONS)

I. SUMMARY OF DIFFERENCES

TABLE AI-1
Comparison of SoCalGas and Intervenors
TY2024 Estimated Operating and Maintenance (O&M) Expenses

TOTAL O&M - Constant 2021 ($000)			
	Base Year 2021	**Test Year 2024**	**Change**
SOCALGAS	**28,461**	**47,223**	**18,762**
CAL ADVOCATES[1]	**28,461**	**(1,620)**	**(30,081)**
TURN- SCGC	**28,461**	**25,231**	**(3,230)**
CEJA	**28,461**	**4,784**	**(23,677)**
EDF	**Unspecified**		
IS	**Unspecified**		
PCF	**Unspecified**		

II. INTRODUCTION

This rebuttal testimony regarding Southern California Gas Company's (SoCalGas's) request for Clean Energy Innovations addresses the following testimonies from other parties:

- The Public Advocates Office of the California Public Utilities Commission (Cal Advocates) as submitted by Simran Kaur (Exhibit CA-07), by Sophie Chia and Joyce Lee (Exhibit CA-19), by L. Mark Waterworth (Exhibit CA-11), and by Stephen Castello (Exhibit CA-23C-WP) all dated March 27, 2023.

[1] Cal Advocates submitted two chapters of testimony relevant to Clean Energy Innovations that propose specific reductions. (*See* Exhibit (Ex.) CA-07 (Direct Testimony of Simran Kaur on behalf of Cal Advocates), March 27, 2023; Ex. CA-23C-WP (Direct Testimony of Stephen Castello on behalf of Cal Advocates), March 27, 2023.) Cal Advocates does not specify their total recommended TY 2024 forecast for Clean Energy Innovations but requests a blanket 80% reduction to the overall Clean Energy Innovations Costs. (Ex. CA-23C-WP at 2, 37.) To reflect the totality of Cal Advocates' proposal, SoCalGas has first applied the 80% reduction recommended in Exhibit CA-23C-WP, which it seeks to have applied first, before applying Cal Advocates' other adjustments. Calculation: $47.223 million x 20% = $9.445 million; $9.445 - $11.065 million = ($1.620) million. Exhibit SCG-245 (Rebuttal Testimony of Sara Mijares on behalf SoCalGas) rebuts Cal Advocates' arguments in CA-23C-WP.

- The Utility Reform Network and Southern California Generation Coalition (TURN-SCGC), as submitted by Catherine E. Yap (Exhibit TURN-SCGC-06), dated March 27, 2023.
- California Environmental Justice Alliance (CEJA) as submitted by Matthew Vespa, Sara Gersen, Sasan Saadat, and Rebecca Barker (Exhibit CEJA-01), dated March 27, 2023.
- Environmental Defense Fund (EDF) as submitted by Michael Colvin, Richard McCann, Ph.D., and Joon Hun Seong (Exhibit EDF-01), dated March 27, 2023.
- Indicated Shippers (IS) as submitted by Michael P. Gorman (Exhibit IS-02), dated March 27, 2023.
- Protect our Communities Foundation (PCF) as submitted by Bill Powers, P.E. (Exhibit PCF-01), dated March 27, 2023.

As a preliminary matter, the absence of a response to any particular issue in this rebuttal testimony does not imply or constitute agreement by SoCalGas with the proposal or contention made by these or other parties.

As shown in my Direct Testimony, SoCalGas's costs in this area are based on sound estimates of its revenue requirements at the time of testimony preparation. The forecasts presented in my Direct Testimony support SoCalGas's priorities to continue the development and deployment of innovative clean energy solutions and technologies that support achieving California's and the U.S.'s climate policy goals. These climate policy goals include the adoption of clean fuels,[2] such as renewable natural gas, hydrogen (including open-access common carrier

[2] "Clean fuels" in this testimony are gases such as clean hydrogen (H_2), renewable natural gas (also referred to as biogas and RNG), synthetic natural gas (also referred to as syngas and SNG), and biofuels, the production and combustion of which can be carbon-neutral or even carbon negative. (*See* SoCalGas, *Role of Clean Fuels And Gas Infrastructure In Achieving California's Net Zero Climate Goal Summary Report*, October 2021, available at: https://www.socalgas.com/sites/default/files/2021-10/Role_Clean_Fuels_Summary.pdf, at 1.) "Clean hydrogen," as used in this testimony, includes green hydrogen and clean renewable hydrogen, consistent with D.22-12-055 at 66, Finding of Fact (FOF) 34 (citing to 42 U.S.C. § 16166). These definitions continue to evolve as the CPUC, state, and federal government analyze levels of carbon intensity and technology pathways to produce hydrogen.

hydrogen pipelines dedicated to public use[3]), and synthetic natural gas, as well as carbon management. SoCalGas requests $47.223 million for Test Year (TY) 2024 Operations and Maintenance (O&M) costs (non-shared services) associated with Clean Energy Innovations (CEI). This amount represents an increase of $18.762 million over Base Year (BY) 2021 levels.

In my rebuttal testimony, I will address assertions by various intervenors that appear misinformed, including, in particular, the assertion of several parties that CEI's costs and activities do not align with California's climate policy goals.[4] In their testimonies, the intervenors above agree with SoCalGas on numerous issues but disagree with SoCalGas's approach to decarbonization and recommend reductions in the proposed scope and budget. For the reasons stated herein and in my Direct Testimony, these arguments should be rejected, and the Commission should approve these innovative clean energy development and deployment programs.

A. Cal Advocates

The following is a general summary of Cal Advocates' positions:

The carbon capture, utilization, and sequestration (CCUS) Front End Engineering Design (FEED) Study Program should not be approved because, although "Cal Advocates understands the potential benefits of carbon management infrastructure,"[5] it believes ratepayers should not be

---

[3] *See* United States Department of Energy (USDOE) Office of Technology Transitions, *Pathways to Commercial Liftoff: Fireside Chat and Clean Hydrogen Deep Dive*, March 24, 2023, available at: Pathways to Commercial Liftoff: Fireside Chat and Clean Hydrogen Deep-Dive - YouTube. ("We also know that for the clean hydrogen economy to reach its full potential, we need open access infrastructure. Open access infrastructure would help to drive a competitive market by helping producers and off takers, both small and large, to access the advantages of infrastructure scale, including via pipeline delivery and salt cavern storage."); *see* also, USDOE, Pathways to Commercial Liftoff: Clean Hydrogen, March 2023, available at: https://liftoff.energy.gov/wp-content/uploads/2023/05/20230320-Liftoff-Clean-H2-vPUB-0329-update.pdf.

[4] As delineated in California Assembly Bill (AB) 32 (2006 Cal. Legis. Serv. Ch. 488), AB 3232 (2018 Cal. Legis. Serv. Ch. 373), Senate Bill (SB) 100 (2018 Cal. Legis. Serv. Ch. 312), AB 8 (2013 Cal. Legis. Serv. Ch. 401), AB 1925 (2022 Cal. Legis. Serv. Ch. 864), Office of the Governor of the State of California, Executive Order (EO) B-48-18, January 26, 2018, available at: https://www.library.ca.gov/wp-content/uploads/GovernmentPublications/executive-order-proclamation/39-B-48-18.pdf, and Office of the Governor of the State of California, EO N-79-20, September 23, 2020, available at: https://www.gov.ca.gov/wp-content/uploads/2020/09/9.23.20-EO-N-79-20-Climate.pdf, among others. There policies are also discussed in the Sustainability and Climate Policy direct and rebuttal testimonies. (Exs. SCG-02-R, SCG-202).

[5] Ex. CA-07 (Simran Kaur) at 8.

required to fund the program. Cal Advocates believes the program may not present any benefits to ratepayers.[6] Cal Advocates similarly argues that projects in the Clean Transportation subprogram of SoCalGas RD&D do not "demonstrate a clear, quantifiable net benefit to ratepayers."[7] Cal Advocates also opposes SoCalGas's request to switch from a Tier 3 Advice Letter requirement for the RD&D Program to a Tier 2 Advice Letter. Cal Advocates argues that a Tier 2 Advice Letter does not provide sufficient regulatory oversight over the RD&D Program.[8]

B. TURN-SCGC

The following is a general summary of TURN-SCGC's positions:

TURN-SCGC argues that the Commission should provide no funding for proposed activities because they are related to clean fuels projects that they claim are not part of utility services.[9] TURN-SCGC asserts that "the Commission should deny the proposed funding" for the clean fuels operational readiness program as duplicative of SoCalGas's other efforts.[10] TURN-SCGC argues that the "Commission should deny the proposed funding for the CO_2 pipeline FEED study" because SoCalGas should instead file a separate application.[11]

C. CEJA

The following is a general summary of CEJA's positions:

CEJA recommends that the Commission deny the requested amount for SoCalGas's Sustainability group because CEJA argues that it does not align with state climate policies.[12] CEJA argues that the Commission deny the revenue requested for CEI related to hydrogen (including refueling stations) and carbon capture because they develop potential new lines of business and do not benefit methane ratepayers.[13] CEJA also argues that it is inappropriate for

---

6 *Id*.

7 *Id*. at 8.

8 *Id*. at 9.

9 Ex. TURN-SCGC-06 (Catherine E. Yap) at 5, 9, 11.

10 *Id*. at 8.

11 *Id*. at 10.

12 *Id*. at 22.

13 *Id*. at 3, 20, 35, 36, 40, 93.

SoCalGas to seek funding for hydrogen blending outside of the specific processes the Commission has already established.[14] CEJA argues that the Commission should deny all funding requested for SoCalGas's RD&D program, and that if the program continues it should be administered by the CEC.[15]

D. EDF

The following is a general summary of EDF's positions:

EDF argues that SoCalGas must clearly demonstrate that using new fuels such as hydrogen or renewable gas will be competitive with, and feasible compared to, alternatives over the projected life of any new infrastructure investment.[16]

E. IS

The following is a general summary of IS's positions:

IS argues that the request for the CCUS FEED study program is premature because the impact of the Infrastructure Investment and Jobs Act (IIJA) funding is not yet known.[17] IS argues that the Clean Fuels Transportation program is not related to providing natural gas delivery service and should therefore be removed from the revenue requirement in this GRC.[18] IS argues that hydrogen fueling stations should be paid for by individuals taking service at these stations and therefore should not be funded.[19]

F. PCF

The following is a general summary of PCF's positions:

PCF argues that SoCalGas did not sufficiently justify its proposed hydrogen-related programs.[20] PCF also argues that "Hydrogen is not clean" and will add to climate change.[21]

---

[14] *Id*. at 43.

[15] *Id*. at 38.

[16] Ex. EDF-01 (Colvin, McCann, and Seong) at 50.

[17] Ex. IS-01 (Michael P. Gorman) at 8.

[18] *Id*. at 9.

[19] Ibid.

[20] Ex. PCF-01 (Bill Powers) at 23.

[21] *Id*. at 26.

III. GENERAL REBUTTAL ARGUMENTS

SoCalGas seeks funding to conduct activities that will facilitate critical development of clean energy solutions supporting California's decarbonization goals, including clean fuels such as renewable natural gas, hydrogen, and synthetic natural gas, and carbon management solutions including CCUS for hard-to-abate sectors and carbon removal from the atmosphere, to support achievement of the State's environmental and decarbonization goals. Through CEI's role in the development and implementation of innovative technologies (as discussed in my Direct Testimony) it acts as an incubator for and an accelerator of the development and scaling up of clean energy solutions and advances clean fuels infrastructure from demonstration to commercial deployment. As the State has repeatedly recognized, clean fuels and carbon management are vital tools in the quest for carbon neutrality. Clean fuels complement electrification and can significantly reduce emissions, reduce energy transition costs, help retain a highly trained and skilled workforce, and improve the resiliency of overall energy ecosystems to support the State's decarbonization goals and achieve carbon neutrality.

State and federal policymakers have articulated the critical role of clean fuels in meeting the State's and country's decarbonization goals and have taken specific actions toward their adoption.[22] These actions include, but are not limited to, the following:

- Governor's Direction to CARB to consider clean fuels in 2022 Scoping Plan: The July 2022 letter from Gov. Gavin Newsom calling for the State to ensure that CARB's 2022 Scoping Plan provides a path to achieve both the 2030 climate goal and the 2045 carbon neutrality goal. In this letter, Governor Newsom requested that the final plan incorporate new efforts to advance offshore wind, clean fuels, climate-friendly homes, and carbon removal, as well as to address methane leaks.[23] Specific carbon removal goals include a 20-MMT carbon removal target for 2030 and a 100-MMT carbon removal target for 2045, emphasizing the role of

[22] These and other authorities are also discussed in Ex. SCG-202.

[23] Office of the Governor of the State of California, Letter to CARB, July 22, 2022, available at: https://www.gov.ca.gov/wp-content/uploads/2022/07/07.22.2022-Governors-Letter-to-CARB.pdf?emrc=1054d6; *see* also EO B-48-18, January 26, 2018, available at: https://www.library.ca.gov/wp-content/uploads/GovernmentPublications/executive-order-proclamation/39-B-48-18.pdf.

natural and working lands and the need for safe and equitable engineered carbon removal.

- CARB's 2022 Scoping Plan: CARB highlights in its 2022 Scoping Plan that clean fuels such as hydrogen and carbon management are "essential" pathways to achieving carbon neutrality goals. CARB's 2022 Scoping Plan affirms that, "Carbon removal and sequestration will be an essential tool to achieve carbon neutrality, and the modeling clearly shows there is no path to carbon neutrality without [nature-based and mechanical] carbon removal and sequestration."[24]
- The "Pathways to Commercial Liftoff: Carbon Management" report by the Department of Energy: The report states that "Modeling studies suggest reaching U.S. energy transition goals will require capturing and storing 400 to 1,800 million tonnes (MT) of carbon dioxide (CO2) annually by 2050, through both point-source carbon capture, utilization, and storage (CCUS) and carbon dioxide removal (CDR). Today, the U.S. has over 20 million tonnes per annum (MTPA) of carbon capture capacity, 1–5% of what could be needed by 2050."[25] The report further concludes that open-access hydrogen pipelines will play a critical role in the zero emissions future, where pipelines will move large volumes of clean hydrogen over long distances to fully achieve economies of scale.[26]
- The California Energy Commission's (CEC) Integrated Energy Policy Report (IEPR): The IEPR highlights the role of hydrogen in California's clean energy future and states that the "current state of play in terms of CEC activities support the use of hydrogen in decarbonization."[27]
- Executive Order (EO) B-48-18 on Hydrogen Fueling Stations: The EO directs "all State entities [to] work with the private sector… to spur the construction and

[24] CARB, *2022 Scoping Plan for Achieving Carbon Neutrality*, November 16, 2022, at 84, available at: https://ww2.arb.ca.gov/sites/default/files/2022-12/2022-sp_1.pdf.

[25] USDOE, *Pathways to Commercial Liftoff: Carbon Management*, April 2023, at 1, available at: https://liftoff.energy.gov/wp-content/uploads/2023/04/20230424-Liftoff-Carbon-Management-vPUB_update.pdf.

[26] USDOE, *Pathways to Commercial Liftoff: Clean Hydrogen*, March 2023, at 9, 40-41.

[27] CEC, *Final 2022 Integrated Energy Report Update*, February 2022, CEC-100-2022-001-CMF, at 98, available at: https://efiling.energy.ca.gov/GetDocument.aspx?tn=250084.

installation of 200 hydrogen fueling stations," and put at least five million zero-emission vehicles on California's roads by 2030.[28]

- The California Natural Resources Agency's Report on CO2 Intrastate Pipelines: CNRA's Report on CO2 Intrastate Pipelines emphasizes that "to address the impacts of climate change, California must not only reduce greenhouse gas emissions, but also remove CO_2 from the atmosphere. CCUS and carbon removal technologies are essential to achieving California's carbon removal goals of 20 million metric tons CO_2 equivalent by 2030 and 100 million metric tons CO_2 equivalent by 2045 and offer an opportunity to expand the green economy in California."[29]
- IIJA includes over $20 billion for Clean H2 and Carbon Management infrastructure: The recently passed IIJA in the United States include substantial hydrogen and carbon management provisions and funding over the next five years including $8 billion to develop regional clean hydrogen hubs and $12.1 billion to build out large-scale pilot carbon management projects, development of commercial CO2 transport and storage infrastructure, authorizations to support commercial-scale demonstrations, and FEED (front-end engineering and design) studies as part of the carbon capture technology and utilization activities.[30] The Inflation Reduction Act (IRA)[31] includes 10 year hydrogen production tax credits to support and advance hydrogen production in the United States as well as tax credits for carbon removal. A combination of the IIJA and IRA has transformed

[28] Office of the Governor of the State of California, EO B-48-18, January 26, 2018.

[29] California Natural Resources Agency, Proposal to the Legislature for Establishing a State Framework and Standards for Intrastate Pipelines Transporting Carbon Dioxide, March 2023, at 14, available at: https://resources.ca.gov/-/media/CNRA-Website/Files/Initiatives/Transitioning-to-Clean-Energy/SB-905--CO2-Pipeline-Regulatory-Framework--Stds-March-2023.pdf.

[30] Great Plains Institute (GPI), *An Atlas of Carbon and Hydrogen Hubs for United States Decarbonization*, February 2022, at 77, available at: https://scripts.betterenergy.org/CarbonCaptureReady/GPI_Carbon_and_Hydrogen_Hubs_Atlas.pdf.

[31] House Resolution 5376 – Inflation Reduction Act of 2022 (Public Law No. 117-169, August 16, 2022) (hereinafter, Inflation Reduction Act of 2022), available at: https://www.congress.gov/bill/117th-congress/house-bill/5376.

the economics of US hydrogen production and catalyzed hydrogen infrastructure development.

Not only is there extensive support and direction from federal and state agencies for private sector development and implementation of clean fuels, but there is a need to begin moving forward with these activities promptly. Indeed, the CPUC has taken numerous actions to facilitate the use of clean gaseous fuels, including hydrogen and biomethane.[32] To lead the country and the world in the fight against climate change, the State has set challenging targets to reduce greenhouse gas (GHG) emissions to 40% below 1990 levels by 2030,[33] and to achieve carbon neutrality by 2045.[34] By conducting the innovative clean energy development and deployment activities proposed in my Direct Testimony in this GRC cycle, SoCalGas can help the State achieve these time-sensitive goals by continuing to develop innovative and scalable energy technology solutions.

Approving the proposed activities in the TY2024 GRC will also better position SoCalGas to be awarded a variety of federal funding opportunities, which could provide up to 50% to 80% of the cost share for some of the proposed CEI activities. Delaying their inclusion could result in missed opportunities to obtain this federal cost share and bring these funds into California and to our ratepayers.

The recently adopted Resolution E-5254 by the CPUC underscores the importance of timely approval by instituting procedural mechanisms for the review and approval of cost recovery requests by utilities for costs associated with pursuing federal funding under the IIJA[35]

---

[32] *See* CPUC, *CPUC Acts to Advance Understanding of Hydrogen's Role As Decarbonization Strategy*, Dec. 15, 2022, available at: https://www.cpuc.ca.gov/news-and-updates/all-news/cpuc-acts-to-advance-understanding-of-hydrogen-role-as-decarbonization-strategy.

[33] Office of the Governor of the State of California, *Governor Brown Establishes Most Ambitious Greenhouse Gas Reduction Target in North America*, April 29, 2019, available at: https://www.ca.gov/archive/gov39/2015/04/29/news18938/index.html.

[34] Office of the Governor of the State of California, At California Economic Summit, Governor Newsom Highlights Investments in Small Businesses, Climate Resilience and Equitable Economic Growth, November 9, 2021, available at: https://www.gov.ca.gov/2022/11/16/california-releases-worlds-first-plan-to-achieve-net-zero-carbon-pollution.

[35] House Resolution 3684 - Infrastructure Investment and Jobs Act (IIJA) (Public Law No 117-58, November 15, 2021), available at: https://www.congress.gov/117/plaws/publ58/PLAW-117publ58.pdf.

and IRA,[36] and explicitly allows GRC applications as a cost recovery approval pathway. Resolution E-5254 specifically acknowledges the "significant opportunity" to finance IOU infrastructure that supports zero carbon emissions, demonstrating the CPUC's support for the proposed CEI activities.[37] Denying approval of clean energy projects could have a lasting negative impact on California utilities' ability to compete for these funding opportunities.

The costs proposed in the CEI Direct Testimony are in line with state and federal policy, and will help the State and SoCalGas meet their decarbonization goals. SoCalGas requests the costs be approved as presented.

IV. REBUTTAL TO PARTIES' O&M PROPOSALS

A. Non-Shared Services O&M

TABLE AI-2
Comparison of SoCalGas and Intervenors
TY2024 Estimated Non-Shared O&M Expenses

TOTAL NON-SHARED O&M - Constant 2021 ($000)			
	Base Year 2021	**Test Year 2024**	**Change**
SOCALGAS	**28,461**	**47,223**	**18,762**
CAL ADVOCATES [38]	**28,461**	**36,158**	**7,697**
TURN- SCGC	**28,461**	**25,231**	**(3,230)**
CEJA	**28,461**	**4,784**	**(23,677)**
EDF	**Unspecified**		
IS	**Unspecified**		
PCF	**Unspecified**		

[36] Inflation Reduction Act of 2022 (Public Law No. 117-169).

[37] CPUC, Resolution E-5254, April 6, 2023, at 3-4, available at: https://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M506/K016/506016078.PDF.

[38] The total shared O&M costs as shown in Table AI-2 does not include the proposed reductions by Cal Advocates as discussed in their testimony (Exhibit CA-23C-WP, at 2, 37). Additional details are provided in Exhibit SCG-245 (Rebuttal Testimony of Sara Mijares on behalf SoCalGas).

1. Sustainability

TABLE AI-3
Comparison of SoCalGas and Intervenors
TY2024 Estimated Non-Shared Sustainability O&M Expenses

SUSTAINABILITY O&M - Constant 2021 ($000)			
	Base Year	Test Year	Change
	2021	2024	
SOCALGAS	1,930	1,982	52
Cal Advocates	1,930	1,982	52
TURN- SCGC	1,930	1,982	52
CEJA	1,930	0	(1,930)

As described in my Direct Testimony, SoCalGas's Sustainability group focuses on implementing sustainable business practices to optimize operational activities, while serving customers safely, reliably, and affordably. The Sustainability group works across business units within the Company to facilitate ongoing discussions, workshops, and cross-functional collaboration, in its efforts to implement various sustainability-related initiatives and goals.[39] Coordinating and executing on climate goals is just one of the Sustainability group's functions. CEJA makes the broad assertion that the entire funding request for the Sustainably group ($1.982 million).[40] CEJA bases this reduction on its belief that (1) SoCalGas's sustainability strategy[41] does not align "with the state's climate and public health policies," and (2) SoCalGas's ASPIRE 2045 materials "may mislead the public and policymakers."[42] CEJA is the only party that recommends a reduction specific to the Sustainability group.

First, my Direct Testimony explains how the Sustainability group is premised on aligning SoCalGas's operations with the State's climate and public health goals. For example, sustainability at SoCalGas focuses on innovation, advancing existing and new technologies in

[39] A sustainability group is not novel at SoCalGas. Major companies are increasingly relying on sustainability groups to address evolving ESG-related disclosure regulations and other company goals.

[40] Ex. CEJA-01 (Vespa, Gersen, Saadat, and Barker) at 3.

[41] *See* Ex. SCG-02-R, Ch. 2 (Sustainability Policy Testimony of Michelle Sim on behalf of SoCalGas).

[42] Ex. CEJA-01 (Vespa, Gersen, Saadat, and Barker) at 22.

distributed energy, hydrogen technologies, carbon capture utilization and sequestration, and clean fuels like renewable natural gas and hydrogen to advance California's climate objectives, and the group's work integrates key focus areas to "promote the public interest and the wellbeing of utility customers, employees and other stakeholders."[43] This is further demonstrated in SoCalGas's ASPIRE 2045 strategy,[44] which "*aims to advance California's climate goals*, align with the United Nations Sustainable Development Goals, and serve the public interest with increasing clean energy options safely, reliably, and affordably."[45] The Sustainability group's responsibilities include developing and tracking near- and long-term business goals and strategies (*e.g.*, key performance indicators) to transparently monitor and share progress in advancing SoCalGas's goal to achieve net-zero GHG emissions in operations and delivery of energy by 2045 while serving customers safely, reliably, and affordably – all in furtherance of the State's goals.

The only specific example CEJA identifies for why it believes SoCalGas is not aligned with state policy is the [H2] Innovation Experience (H2IE), formerly known as [H2] Hydrogen Home in my Direct Testimony.[46] As discussed further below (*see* section V), H2IE demonstrates how clean hydrogen made from renewable electricity can be used to fuel clean energy systems and communities of the future. This project, which provides a broad range of benefits by demonstrating how microgrids can enhance community energy resilience and reliability by leveraging distributed renewable energy production, storage, and use, is clearly aligned with state policy. As stated by Lieutenant Governor Eleni Kounalakis, "Innovative projects like the [H2]IE demonstrate how California is leading the clean energy transition…. This first-of-its-kind project shows how hydrogen and microgrids can help power homes, enhance grid reliability, and preserve and grow good-paying union jobs in our state."[47] H2IE is a project that is in line with state policy.

---

[43] Ex. SCG-12-R (Testimony of Armando Infanzon on behalf of SoCalGas) at 11-14.

[44] SoCalGas, *ASPIRE 2045 SoCalGas Sustainability Strategy*, available at: https://www.socalgas.com/sites/default/files/2022-01/SoCalGas_Sustainability_Strategy-final.pdf.

[45] Ex. SCG-12-R (Armando Infanzon) at 15 (emphasis added).

[46] Ex. CEJA-01 (Vespa, Gersen, Saadat, and Barker) at 22.

[47] Los Angeles Sentinel, *SoCalGas Models Clean Energy with First-of-its-Kind [H2] Innovation Experience*, April 13, 2023, available at: https://lasentinel.net/socalgas-models-clean-energy-with-first-of-its-kind-h2-innovation-experience.html.

Second, CEJA's assertion that SoCalGas's Sustainability group should not be funded because ASPIRE 2045 may "mislead" the public and policymakers is incorrect. SoCalGas's sustainability strategy establishes a framework and vision to support California's environmental and social policies described above. These overarching goals, referred to as "focus areas" in the sustainability strategy publication, are accompanied by a list of strategies and actions for advancing sustainability and supporting communities. Contrary to CEJA's unfounded mischaracterization of ASPIRE 2045, these clean energy strategies and actions very clearly articulate ways in which SoCalGas can advance its sustainability priorities, including supporting the transition to clean energy and decarbonization. The five focus areas, as described in my Direct Testimony, are further discussed in Exhibit SCG-02-R, Chapter 2 (Sustainability Policy) and Exhibit SCG-202 (Climate and Sustainability Policy).

CEJA's only other point in arguing that the sustainability strategy is "likely to mislead customers," is SoCalGas's voluntary goal to deliver 20% RNG to core customers by 2030.[48] RNG, and the 20% target is just one of many sustainability strategies included in ASPIRE 2045 that supports decarbonization. The CPUC's existing mandated renewable gas standard of 12.2% provides a regulatory pathway for a significant portion of SoCalGas's overall RNG goal.[49] CEJA makes the unsupported assumption that "[i]t is doubtful that the Commission will find that the gas utilities can further increase biomethane procurements for core customers...."[50] This critique is merely speculative. Moreover, when developing a strategy and setting a goal that is 10 and 20 years away, all policy and legislation may not initially be in place, but that does mean that setting a goal is "misleading."

CEJA has elected to ignore how the goals and initiatives of ASPIRE 2045 drive sustainability, provide clear alignment with state climate goals, and promote the interest of utility customers. It is core to SoCalGas's responsibility and mission to create and implement sustainability strategies to help the State achieve its carbon neutrality goals and enable a clean, affordable, and resilient energy future. To dismiss SoCalGas's request would be

[48] Ex. CEJA-01 (Vespa, Gersen, Saadat, and Barker) at 23.

[49] Decision (D).22-02-025 at 32.

[50] Ex. CEJA-01 (Vespa, Gersen, Saadat, and Barker) at 23.

counterproductive and lack alignment with important State and Company efforts to advance those climate goals.

For these reasons, the CPUC should disregard CEJA's recommendation and approve SoCalGas's request as proposed in this application.

2. Clean Fuels Infrastructure Development

Clean Fuels Infrastructure Development activities support and advance the development and implementation of innovative technologies that can help achieve California's climate policy goals. Supporting Clean Fuels Infrastructure Development activities that drive clean energy solutions helps bring long term benefits to ratepayers by making clean fuels more accessible and reducing GHG emissions and improving air quality in our communities. The request represents the next critical step in the clean energy transition, as SoCalGas conducts feasibility studies and advances the development and implementation of clean technologies.

TABLE AI-4
Comparison of SoCalGas and Intervenors
TY2024 Estimated Non-Shared Clean Fuels Infrastructure Development O&M Expenses

Clean Fuels Infrastructure Development O&M - Constant 2021 ($000)			
	Base Year	**Test Year**	**Change**
	2021	**2024**	
SOCALGAS	**8,195**	**20,400**	**12,205**
Cal Advocates	**8,195**	**13,745**	**5,550**
TURN- SCGC	**8,195**	**0**	**(8,195)**
CEJA	**8,195**	**4,487**	**(3,708)**

This section addresses testimony from intervenors related to the various functions and programs[51] that make up the Clean Fuels Infrastructure Development.

[51] The Clean Fuels Infrastructure Development group includes two functions: Business Development and Clean Fuels Power Generation as well as the three following programs: CCUS FEED Study Program, Clean Fuels Operational Readiness Program, and Clean Fuels Transportation Program. Details for each of these functions and programs are described in my direct testimony (Exhibit SCG-12-R).

a. Business Development

The Business Development function described in my Direct Testimony is essential in meeting CEI's objectives to advance the development and deployment of environmentally sustainable clean energy solutions for SoCalGas's customers. The foundational activities underpinning business development, such as the identification, analysis, selection, and prioritization of clean energy initiatives, will benefit ratepayers in the clean energy transition.

TURN-SCGC argues the CPUC should not allow any funding for the proposed Business Development activities because "these clean fuels projects are not part of utility services."[52] TURN-SCGC asserts that the CEI group's "tracking of clean energy trends" is "used to prepare business ventures for the benefit of SoCalGas shareholders, not SoCalGas ratepayers."[53] SoCalGas disagrees with these unfounded assertions. CEJA similarly states that the Business Development group's contracts with third parties for advancing the development and deployment of clean energy solutions should be excluded from the request because they "are not analyzing topics of general interest to expand public knowledge."[54] The Business Development function assists in developing and scaling up clean energy solutions that benefit current and potential future ratepayers by advancing toward a net zero-emissions future in a cost-effective and resilient manner. As discussed in my Direct Testimony, the Business Development function advances development and deployment of cost-effective and environmentally sustainable clean energy solutions to serve SoCalGas's customers. Business Development plays a vital role in supporting a strategic long-term capital planning framework for a clean fuels infrastructure network that can provide customers with new options or increasing amounts of clean energy, as well as carbon management solutions, to facilitate decarbonizing California's energy systems.

For example, the Business Development function supported the development and deployment of four biogas projects related to SB 1383 Dairy Biomethane Pilot Project.[55] The Business Development function also initiated the concepts for two innovative hydrogen projects

---

[52] Ex. TURN-SCGC-06 (Catherine E. Yap) at 5.

[53] Ibid.

[54] Ex. CEJA-01 (Vespa, Gersen, Saadat, and Barker) at 26.

[55] *See* CPUC, *SB 1383 Dairy Biomethane Pilot Project Selection Committee Score Card*, available at: https://www.cpuc.ca.gov/-/media/cpuc-website/files/uploadedfiles/cpuc_website/content/utilities_and_industries/energy/energy_programs/gas/natural_gas_market/finalselectioncomscorecardsum.pdf.

to advance the clean energy transition and improve energy resiliency, the Angeles Link and the H2IE. The Business Development function also includes market research and financial and business analytics to track clean energy market trends, techno-economic outlooks, and decarbonization trends in the energy and utility sectors. These efforts focus on (1) collecting and analyzing information on external trends, (2) assisting with financial and technical analysis related to clean fuels infrastructure development projects, (3) supporting the long-term capital planning process, and (4) developing and maintaining analytical and data collaboration tools. These activities provide analysis to advance SoCalGas's clean energy transition efforts, and thus benefit ratepayers –through decreased carbon emissions, improved air quality, energy reliability and resiliency, and by bringing forward new technology choices customers can adopt to benefit their specific end-use requirements and needs. For example, hydrogen has the potential to decarbonize important transportation sectors such as heavy-duty trucks displacing millions of gallons of diesel, reducing CO2 emissions to combat climate change and improving air quality in the communities of our ratepayers.[56] CEJA argues that revenue should not be allowed for a CCUS Manager or Commercial Development Hydrogen Manager because residential methane customers do not benefit from these "new, separate lines of business."[57] SoCalGas should be allowed to recover costs for these positions because they benefit many classes of ratepayers, by providing benefits from hydrogen and carbon capture discussed throughout this testimony.

b. Carbon Capture, Utilization and Sequestration Front End Engineering Design (CCUS FEED) Study Program

Despite the recognized need and policy support for carbon management, California currently lacks CO2 transport infrastructure to support CCUS development at scale, as I stated in my Direct Testimony (at AI-24). The CCUS FEED Study Program, as proposed in my Direct Testimony, supports moving CCUS infrastructure development in stages from feasibility, to engineering design, and ultimately to permitting and construction. As stated in testimony (AI-22), among other things the study will help identify optimal pipeline routes, using where possible

[56] For example, hydrogen-fueled vehicles help reduce NOx. The South Coast AQMD has recently valued the public health benefit of reducing NOx at $325,000 per ton. (*See* South Coast AQMD, *2022 AQMP, Socioeconomic Report and CARB State Strategy for the SIP*, Board Meeting Agena No. 22-A, October 7, 2022, at slide 21, available at: http://www.aqmd.gov/docs/default-source/Agendas/Governing-Board/2022/2022-Oct7-022.pdf?sfvrsn=13.

[57] Ex. CEJA-01 (Vespa, Gersen, Saadat, and Barker) at 25.

existing ROWs, and will address scope, design, technical specifications, and environmental attributes in furtherance of the future build out of CCUS infrastructure. All of this is designed to remove carbon from the atmosphere and provide carbon management solutions to our ratepayers. Carbon removal together with its associated transportation and sequestration will benefit all ratepayers. The CCUS FEED Study Program is an appropriate mechanism to fund early stage CCUS development in the best interests of customers and California's climate policy. As discussed in my Direct Testimony, carbon capture is strongly supported by the state and federal government, and SoCalGas can and should play a significant role in enabling carbon management infrastructure to get to scale to reduce emissions and fight climate change. Nonetheless, Cal Advocates, CEJA, IS, and TURN-SCGC oppose the request for funding for a CCUS FEED Study Program. Cal Advocates and CEJA largely argue that ratepayers should not fund the CCUS FEED Study Program because they will not see any benefit from it. TURN-SCGC and IS argue that the issue should be handled in a separate proceeding. Their opposition is misplaced.

i. Carbon management technologies are an integral part of California's energy transition to meet its carbon neutrality goals, and, as such, the proposed activities are benefiting all ratepayers.

Cal Advocates, while acknowledging the potential benefits of carbon management infrastructure, states that ratepayers should not be required to fund the CCUS FEED Study Program because it may not present any benefits to them. CEJA similarly argues that "SoCalGas' residential customers do not require carbon dioxide pipelines and should not bear the costs of the company attempting to serve the few industrial customers who may seek this service." As explained in my Direct Testimony and below, carbon capture could benefit all ratepayers by reducing GHG emissions,[58] mitigating climate change for all, and improving air quality, is supported by the state and federal government, and currently has funding incentives available which need to be acted on.

[58] Reducing GHG emissions from SoCalGas sources, once such emissions are properly reported and audited pursuant to the Regulation for the Mandatory Reporting of Greenhouse Gas Emissions (*see* 17 CCR §§ 95100-95163), can then be used to reduce SoCalGas's compliance obligations under the Regulation for the California Cap on Greenhouse Gas Emissions and Market-Based Compliance Mechanisms, or Cap-and-Trade rule (*see* 17 CCR §§ 95801-96022).

The CCUS FEED Study Program includes advancing the development of pipeline infrastructure to bring to scale the removal of carbon from the atmosphere and its sequestration. It is the right next step in advancing CCUS in California to support climate policy and fight climate change now. Removing carbon from the atmosphere, and the GRC request for this program enabling it, would benefit all ratepayers. The open access common carrier carbon dioxide pipeline proposal is not limited to serving only a few industrial customers but also providing a pathway for deploying clean powered Direct Air Capture technology. Among a number of other authorities discussed above and in Exhibit 202, CARB highlights in its 2022 Scoping Plan that "carbon capture and sequestration (CCS) will be a necessary tool to reduce GHG emissions and mitigate climate change while minimizing leakage and minimizing emissions where no technological alternatives may exist."[59] These carbon management solutions, deployed at scale, would have the potential to help mitigate or prevent impacts of climate change, while providing additional benefits to the communities across SoCalGas's service territory. For example, Direct Air Capture (DAC) technologies may provide local benefits where DAC projects are sited. According to the DOE's assessment, in addition to CO_2 removal, DAC has the potential to remove some quantity of other air pollutants like particulate matter (PM), nitrogen oxides (NOx), and Sulphur oxides (SOx).[60] DAC also has the potential to remove society-wide legacy emissions currently in the atmosphere. As discussed in Section III, according to the California Natural Resource Agency Report, "to address the impacts of climate change, California must not only reduce greenhouse gas emissions, but also remove CO2 from the atmosphere. CCUS and carbon removal technologies are essential to achieving California's carbon removal goals of 20 million metric tons CO2 equivalent by 2030 and 100 million metric tons CO2 equivalent by 2045 and offer an opportunity to expand the green economy in

[59] CARB, 2022 Scoping Plan for Achieving Carbon Neutrality, November 16, 2022, at 84.

[60] DOE, *Fossil Energy and Carbon Management, Carbon Dioxide Removal Frequently Asked Questions*, at 10, available at: https://www.energy.gov/sites/default/files/2021-11/Carbon-Dioxide-Removal-FAQs.pdf.

California."[61] The CCUS FEED Study Program can also help support the development of a California Direct Air Capture Hub (Cal DAC Hub).[62]

Similarly, DOE, through the recently released report "Pathways to Commercial Liftoff: Carbon Management" states, that near term developments, "will lay the foundation for more widespread deployment … through building out common carrier transport and storage infrastructure that future projects can use."[63] The proposed CCUS FEED Study Program will advance carbon management as a solution to help meet California's climate policy goals. Given SoCalGas's decades of utility experience, the company is well suited to transport CO2, connecting multiple CO2 sources and sinks via open-access common carrier pipelines. DOE has further expressed its support for open-access common carrier CO2 transport, committing to "support development of shared ... transport infrastructure through Bipartisan Infrastructure Law (BIL) funding." DOE further stated that "[a] lack of common-use transport ... infrastructure could hinder development and may encourage uncoordinated or duplicative source and storage matching."[64] Additionally, Resolution 22-21 for the "2022 Climate Change Scoping Plan for Achieving Carbon Neutrality" highlights in its Finding and Explanation for Utilities and Service Systems that "The Final [Environmental Analysis] found that the reasonably foreseeable actions associated with implementation of the 2022 Scoping Plan could result in potentially significant long term operational impacts on utilities and service system," and qualifies that this "could include construction of new facilities," and "direct air capture and other CCS projects and associated pipelines and infrastructure."[65]

---

[61] CNRA, Proposal to the Legislature for Establishing a State Framework and Standards for Intrastate Pipelines Transporting Carbon Dioxide, March 2023, at 14, available at: https://resources.ca.gov/-/media/CNRA-Website/Files/Initiatives/Transitioning-to-Clean-Energy/SB-905--CO2-Pipeline-Regulatory-Framework--Stds-March-2023.pdf.

[62] Cal DAC Hub refers to the effort in which SoCalGas and other entities, including industry, academia, community outreach groups, and technology developers, have partnered to submit to the DOE's "Regional Direct Air Capture Hub" funding opportunity in March 2023 (*See* DOE, Regional Direct Air Capture Hubs, available at: https://www.energy.gov/oced/regional-direct-air-capture-hubs.)

[63] DOE, *Pathways to Commercial Liftoff: Carbon Management*, April 2023, at 1, available at: https://liftoff.energy.gov/wp-content/uploads/2023/04/20230424-Liftoff-Carbon-Management-vPUB_update.pdf.

[64] *Id*. at 3.

[65] CARB, Resolution 22-21, 2022 Climate Change Scoping Plan for Achieving Carbon Neutrality, December 15, 2021, Attachment A: Findings and Statement of Overriding Considerations, at 24, available at: https://ww2.arb.ca.gov/sites/default/files/barcu/board/res/2022/res22-21.pdf.

Approval of the proposed CCUS FEED Study Program is critical. CARB, as part of the 2022 Scoping Plan has emphasized that, "If CCS is not deployed, the [CO_2] emissions would be directly emitted into the atmosphere, and CO_2 removal by natural working lands or direct air capture would need to increase."[66] By conducting the proposed CCUS FEED Study Program, SoCalGas can help the State achieve carbon reduction goals in a timely manner.

Inclusion of the proposed CCUS FEED Study Program in the TY2024 GRC will also enable SoCalGas to compete for relevant federal funding opportunities under the IIJA[67] and IRA,[68] many of which could provide from 50% to 80% cost share for some of the proposed CEI activities, and as well as state level funding opportunities.[69] Delaying inclusion of the CCUS FEED Study Program could result in missed opportunities to obtain federal funding and bring federal funds into California to benefit ratepayers.

Similarly, as discussed further below, CPUC's Resolution E-5254[70] also expressly permits IOUs to utilize the general rate case application to request cost recovery for proposals seeking funding by the IIJA, IRA, and CHIPS programs to.[71]

ii. The CCUS FEED Study Program should remain in the GRC because it aligns with Resolution E-5254 and should be approved to optimally position SoCalGas and the State to receive federal funding support.

IS argues that the request for funding a CCUS FEED Study Program is premature because "the costs are merely estimates" and "the impacts of the Infrastructure Investment and Jobs Act ("IIJA") funding are not yet known."[72] TURN-SCGC similarly argues that the proposal

---

66 CARB, 2022 Scoping Plan for Achieving Carbon Neutrality, at 87.

67 IIJA (Public Law No 117-58, November 15, 2021).

68 Inflation Reduction Act of 2022 (Public Law No. 117-169).

69 CEC, *GFO-22-901 – Cost Share for Federal Clean Energy Funding Opportunities, Carbon Removal Innovation Support Program*, available at: https://www.energy.ca.gov/solicitations/2023-02/gfo-22-901-cost-share-federal-clean-energy-funding-opportunities-carbon.

70 CPUC, Resolution E-5254, April 6, 2023, at 1.

71 *Id*. at 19.

72 Ex. IS-02 (Michael P. Gorman) at 8.

is a non-gas-utility service and SoCalGas should file a separate application to pursue the program.[73]

SoCalGas disagrees with these arguments. In addition to the above sections supporting the program, Resolution E-5254 underscores the importance of timely approval by instituting procedural mechanisms for the review and approval of cost recovery requests by utilities seeking grant funding from the IIJA,[74] IRA,[75] and CHIPS.[76] Seeking approval of the request for cost recovery through a GRC application is one of the approved pathways for all Investor-Owned Utilities (IOUs). The adopted resolution also identifies the DOE carbon management and hydrogen programs, demonstrating the CPUC's support for the proposed CEI activities.[77] The final process outlined in Resolution E-5254 explicitly states that "[SoCalGas] may request cost recovery through one of two procedural vehicles: (1) General Rate Case applications or (2) standalone project applications. These options are consistent with existing CPUC practice for cost recovery of ratepayer funds."[78] Furthermore, seeking approval is not premature. SoCalGas must move forward with the CCUS FEED Study Program in order to capture federal matching funds for the benefit of ratepayers and California.

For these reasons, the CPUC should disregard TURN-SCGC's and IS's recommendations and approve SoCalGas's request as proposed for the CCUS FEED Study Program in this application. The CCUS FEED Study Program, and carbon capture technologies, can provide substantial benefits to ratepayers and help move California forward as a leader in decarbonization.

---

[73] Ex. TURN-SCGC-06 (Catherine E. Yap) at 10.

[74] IIJA (Public Law No 117-58, November 15, 2021).

[75] Inflation Reduction Act of 2022 (Public Law No. 117-169).

[76] House Resolution 4346, Creating Helpful Incentives to Produce Semiconductors and Science Act (CHIPS), (Public Law No. 117-167, August 9, 2022), available at: https://www.congress.gov/bill/117th-congress/house-bill/4346.

[77] CPUC, Resolution E-5254, April 6, 2023, at 3-4.

[78] *Id*. at 20.

c. The Clean Fuels Operational Readiness Program will be pivotal to demonstrate and deploy a portfolio of clean fuels technologies.

As explained in my Direct Testimony, the Clean Fuels Operational Readiness program includes assessment of current infrastructure, development of processes and standards for operational readiness, and identification of gaps in technological, material, operational, safety, workforce, and training standards, with the purpose of achieving safe, effective, and efficient adoption of clean fuels infrastructure into SoCalGas's operations to deliver clean fuels and help California achieve its carbon neutrality goals.

TURN-SCGC in its testimony argues that "SoCalGas speaks only in generalities about clean fuels in this proposal although SoCalGas discusses both renewable natural gas ('RNG') and hydrogen elsewhere in its clean fuels proposals."[79] TURN-SCGC goes on to conclude that "the Commission should deny the proposed funding for the clean fuels operational readiness program as duplicative of SoCalGas's other efforts."[80]

My Direct Testimony clearly defines clean fuels as gases such as hydrogen (H_2), renewable natural gas (also referred to as biogas and RNG), synthetic natural gas (also referred to as syngas and SNG), and biofuels, the production and use of which can be carbon-neutral or even carbon negative.[81] The operational readiness program described in my Direct Testimony would consider all of these types of clean fuels.

TURN-SCGC argues that in the Joint Application of Southern California Gas Company, San Diego Gas & Electric Company, and Southwest Gas Corporation to Establish Hydrogen Blending Demonstration Projects, the hydrogen blending project will have to address the feasibility of introducing hydrogen into gas utility networks and states that the Commission should deny the proposed funding in the GRC for the clean fuels operational readiness program because it is duplicative of this other proceeding.[82] However, the need for the clean fuels operational readiness proposal is clear and the program is not duplicative of other efforts included in this GRC application and other applications filed by SoCalGas. As described in

---

[79] Ex. TURN-SCGC-06 (Catherine E. Yap) at 6.

[80] *Id*. at 7.

[81] Ex. SCG-12-R (Armando Infanzon) at AI-1, fn. 3.

[82] Ex. TURN-SCG-06 (Catherine E. Yap) at 7.

CARB's 2022 Scoping Plan, there are several developing clean energy trends that will affect the composition of the gas in the pipeline and the availability of the components.[83] The CPUC's Renewable Gas Rulemaking (R.13-02-008) also establishes pertinent policy with respect to the production, procurement, and interconnection of renewable gas, including hydrogen and biomethane.[84] The potential implications on the operational readiness of the existing natural gas infrastructure system for these clean fuels require careful operational planning and assessment. None of the previous or current SoCalGas activities or programs have addressed the operational readiness of the existing natural gas infrastructure system to support a diverse portfolio of clean fuels across all aspects of the value chain.

As acknowledged in my Direct Testimony and the Direct Testimony of Maria Martinez (Gas Engineering), SoCalGas is separately seeking to demonstrate blending hydrogen into the existing natural gas system in the Joint IOU hydrogen blending demonstration application,[85] which would collect live blending data to demonstrate the feasibility of developing a hydrogen injection standard. As discussed in witness Ms. Martinez's direct testimony,[86] SoCalGas's hydrogen blending operational readiness program would evaluate the development of material specifications, update of operations standards, management of change, and the development of safety training for operations and first responders specific to hydrogen blending efforts.[87]

The Clean Fuels Readiness Program is focused in evaluating current processes, standards, systems, and infrastructure for operational readiness and identifying gaps in technological, material, operational, safety, workforce, Information Technology (IT), Operational Technology

---

[83] CARB, *2022 Scoping Plan for Achieving Carbon Neutrality*, November 16, 2022, at 78. *See* CARB, 2022 Scoping Plan, Appendix H, AB 32 GHG Inventory Sector Modeling, at 16, Table H-13, available at: Appendix H: AB 32 GHG Inventory Sector Modeling (ca.gov).

[84] CEC, *Final 2022 Integrated Energy Policy Report Update*, February 2023, at 126, available at: https://www.energy.ca.gov/sites/default/files/2023-02/Adopted_2022_IEPR_Update_with_errata_ada.pdf.

[85] Application (A.) 22-09-006, The Joint IOU hydrogen blending demonstration application, Testimony Chapter 1 (Prepared Testimony of Hugo Mejia, Victor Cervantes, and Laura Nelson), September 8, 2022, available at: https://www.socalgas.com/sites/default/files/Chapter1-Policy-Joint_IOUs.pdf.

[86] Ex. SCG-07-R (Maria Martinez) at MTM-35.

[87] The proposed operational readiness program activities as described in my direct testimony is outside the scope of hydrogen blending impacts as discussed in the Joint IOU hydrogen blending demonstration application. (*See Id.*; Rulemaking (R.) 13-02-008, Order Instituting Rulemaking to Adopt Biomethane Standards and Requirements, Pipeline Open Access Rules, and Related Enforcement Provisions.)

(OT) systems, training standards, regulatory and compliance protocols, and fleets and facilities spanning all aspects of the existing infrastructure is essential to safely, effectively and efficiently deploying clean fuels infrastructure to support a diverse portfolio of clean fuels. An effective operational readiness program will also help further the overall gas network's safety, reliability, and resiliency through the clean energy transition. All these important activities for advancing clean energy solutions are not included in any other request of this GRC application and other applications filed by SoCalGas.

SoCalGas urges the CPUC to reject TURN-SCGC's recommendation of funding denial and approve SoCalGas's request as proposed in this application.

d. SoCalGas's Clean Fuels Transportation Program is consistent with prior Commission decisions and precedent and should be approved.

As explained in my Direct Testimony, the Clean Fuels Transportation Program provides information, education and training related to Clean Transportation to a variety of stakeholders, including owners of hydrogen fuel cell vehicles (FCVs) and renewable natural gas vehicles (RNGVs), operators of hydrogen and RNGV refueling stations, vehicle and equipment manufacturers, government agencies, policymakers, and others.

TURN-SCGC argues that the Clean Fuels Transportation Program consists of "marketing, business development, and lobbying efforts" and should therefore not be funded.[88] TURN-SCGC's characterization of the Clean Fuels Transportation Program is inaccurate because the program would, in fact, provide customer information, education, and training for Low-Emission Vehicles (LEVs), as previously reviewed and approved by the CPUC.[89] Hydrogen fuel cell electric vehicles are Zero-Emission Vehicles (ZEV) and, thus, LEVs. Consequently, LEV customer information, education, and training programs related to natural gas, RNG, and hydrogen are consistent with prior CPUC decisions and precedent. In addition, these activities would support identified customer demands, as detailed in my Direct Testimony.[90]

---

[88] Ex. TURN-SCGC-06 (Catherine E. Yap) at 9-10.

[89] *See* D.05-05-010, at 3, 5, 13, 15-16, COL 3.

[90] Ex. SCG-12-R (Armando Infanzon) at AI-30 – AI-31.

IS argues that the Clean Transportation Program customer information, education, and training programs are not directly providing gas delivery service and should not be funded. However, this request is for a program that provides information, education, and training to all customers, which is a necessary and complementary component to SoCalGas's product and service development and capital investment.[91] Furthermore, as mentioned above, the CPUC has previously reviewed and approved of these programs in D.05-05-010 and in all subsequent GRCs.

PCF argues that the program should not be funded due to concerns about hydrogen leakage and climate impacts. PCF's position, which would disallow funding for any hydrogen-related programs, is not consistent with state and government policy that approves of and directs the use of hydrogen by state entities (including the CPUC) to combat regional air pollution and climate change. For example, D.05-05-010, Finding of Fact #4 states "LEV programs provide health benefits through improved air quality, thus satisfying utilities' obligations under P.U. Code Section 451". Further, the 2022 CARB Scoping Plan states that "strategies for success" include "Continue and accelerate funding support for zero emission vehicles and refueling infrastructure through 2030 to ensure the rapid transformation of the transportation sector" and "Electricity and hydrogen are currently the primary fuels for ZEVs."[92] PCF's arguments run directly counter to state and CPUC policy and should be rejected.

Finally, CEJA argues that the Clean Fuels Transportation Program is "designed to support new business opportunities for SoCalGas or its parent company, Sempra, but has no meaningful relationship to providing safe, affordable, and reliable service" and, therefore, should not be funded.[93] Further, CEJA argues that "promoting the use of methane as a vehicle fuel is inconsistent with California's policies" and "even if the CPUC believed it were proper for ratepayers to bear the costs of education related to hydrogen vehicle fueling, SoCalGas would be an inappropriate entity to perform that education…."[94] CEJA's characterization of the Clean Fuels Transportation Program as a business opportunity inconsistent with State policy is inaccurate; the program would, in fact, provide customer information, education, and training for

---

[91] *Id*. at AI-28.

[92] CARB, 2022 Scoping Plan for Achieving Carbon Neutrality, at 188-189.

[93] Ex. CEJA-01 (Vespa, Gerson, Saadat, Barker) at 3.

[94] *Id*. at 34-35.

LEVs. These programs provide information and support to all customers on a variety of fuels. As mentioned above, the CPUC has previously reviewed and approved of these utility LEV customer information, education and training programs in D.05-05-010 and in all subsequent GRCs.

e. The Clean Fuels Power Generation function assists customers with environmental, technology, and economic feasibility focused on the adoption of clean fuel power generation, is within the purview of a gas utility, directly aligns with state goals, and benefits ratepayers.

The Clean Fuels Power Generation function primarily manages policy, technology, compliance, and operational requirements relevant to the deployment of clean fuel power generation solutions that support the State's carbon neutrality goals. This function provides policy, technical, and economic feasibility analyses to internal and external facility operators specific to clean fuel power generation.

TURN-SCGC argues that "[t]he proposed activities are clearly not within the scope of the gas utility business."[95] Contrary to TURN-SCGC's argument, the CPUC has historically approved the proposed activities to be within the scope of SoCalGas's business.[96] SoCalGas understands the different operational requirements throughout its service territory, and has unique expertise with regard to permitting requirements, gas interconnection, gas safety, incentive opportunities, and overall policy changes that may impact the deployment of clean power generation projects. As the State continues to decarbonize its energy system, traditional gas interconnection practices have changed and will continue to change at different rates throughout the State. For instance, Decision 22-09-026 modified line extension allowance practices that may impact Distributed Energy Resources (DER) projects. SoCalGas customers may have questions regarding the impact of this decision and need a source to provide them relevant information. Moreover, SoCalGas serves hard-to-decarbonized customers who are struggling with timely decarbonization options. Clean fuels power generation options are oftentimes an appropriate decarbonization pathway for these hard-to-electrify customers. The use of clean fuels such as renewable gas or hydrogen, as well as the use of other fuels such as blends of hydrogen and natural or renewable gas, coupled with power generation technologies

[95] Ex. TURN-SCG-06 (Catherine E. Yap) at 7.

[96] D.13-05-010 (TY2013 GRC); D.19-09-051 (TY 2019 GRC).

can help achieve the necessary emission reductions or costs for these customers. The goal of the Clean Fuel Power Generation function is to help customers navigate the ever-changing operational requirements of DER projects. Providing customers with support "[i]n areas that pertain to regulatory, tariffs, contracts, air quality, legislation, market transformation, and education and training specific to clean fuel power generation,"[97] are valuable activities that have been historically approved by the CPUC. The ratepayer benefits of such services are increased reliability and resilience, emission reductions, and a tangible pathway to clean energy.

Assisting customers with environmental, technology, and economic feasibility activities focused on the adoption of clean fuel power generation solutions also directly aligns with state goals and benefits ratepayers. As a regulated utility, SoCalGas is obligated to comply with CPUC and government mandates related to a variety of topics, including, but not limited to, emissions, decarbonization, reliability, resiliency and safety. Providing guidance on these numerous environmental requirements related to the fuel use of customer power generation solutions is necessary and has been part of SoCalGas's offerings for many years.[98] Now, more than in the past, customers need guidance through the many operational requirements pertaining to resilient, reliable, and efficient distributed energy resources. As reflected in the CPUC's Self-Generation Incentive Program (SGIP) and Emergency Load Reduction Program, the CEC's Demand Side Grid Support (DSGS), Distributed Electricity Backup Assets programs, and various DOE and IIJA programs, distributed energy resources—such as fuel cells, linear generators, and energy storage—along with clean fuels such as hydrogen and renewable gas, are necessary to maintain a reliable, resilient, and cost-efficient energy system. Over the last several years the increase in extreme weather events has left customers vulnerable to power outages, increased costs, and overall energy uncertainty, forcing many to rely on fossil fuel backup generation, which is counter to the State's environmental goals.[99]

Finally, arguing that a third-party engineering firm could and should provide customers with this utility-specific support is shortsighted and ill-informed. TURN-SCGC provides no

---

[97] Ex. SCG-12-R (Armando Infanzon) at AI-39.

[98] D.13-05-010 at 629 ("Without the assistance of SoCalGas, these smaller customers may not be aware of how these new air quality regulations will affect their use of gas-fired appliances.")

[99] CAISO, *2022 Summer Readiness*, available at: http://www.caiso.com/about/Pages/News/2022-Summer-Readiness.aspx.

justification or evidence other than conclusory statements to support their opinion. SoCalGas is better positioned to assist customers in this realm. SoCalGas has successfully managed several programs across its service territory, including SGIP for DERs. SoCalGas is also involved in the community at a level that third-party engineering firms are not. Support for the deployment of DER projects has been and should continue to be an approved customer service offering. For these reasons, the CPUC should disregard TURN-SCGC's recommendation and approve SoCalGas's request as proposed in this application.

3. Clean Energy Innovations Project Management Office (PMO).

TABLE AI-5
Comparison of SoCalGas and Intervenors
TY2024 Estimated Non-Shared PMO O&M Expenses

PMO O&M - Constant 2021 ($000)			
	Base Year	Test Year	Change
	2021	2024	
SOCALGAS	297	1,592	1,295
Cal Advocates	297	1,592	1,295
TURN- SCGC	297	0	(297)
CEJA	297	297	0

The CEI PMO is aligned with industry best practices for the management of projects and aims to mitigate project risks through effective project management controls. The CPUC should disregard certain parties' opposition to the establishment of the CEI PMO, which will be dedicated to managing the CEI's activities and project portfolio and integrating the portfolio with other existing enterprise systems and organizations. The CEI PMO is needed to help SoCalGas effectively and efficiently implement clean energy solutions, which are integral to assisting the State in accomplishing its climate goals. As the clean energy space expands and evolves, there will be an increasing need to institute formal project management processes and procedures.

TURN-SCGC and CEJA argue that SoCalGas's proposal to establish a PMO responsible for project governance, project management standards, and reporting is inappropriate for projects

outside SoCalGas's core utility business.[100] TURN-SCGC argues that SoCalGas's proposed PMO structure is "wasteful" and "overhead-heavy."[101] Opponents fail to understand that the proposed CEI PMO organization provides a structured framework for project management and project risk reduction for all current and future CEI initiatives that are not contemplated in other internal SoCalGas organizations.[102] The CEI PMO is designed to implement project risk-reduction processes and methodologies and to establish a minimum set of competencies, including the development and implementation of scope management, schedule management, project reporting, risk management, and change management standards in accordance with industry and the Company's best practices. The CEI PMO also supports specific initiatives with dedicated project staff as necessary to run day-to-day project functions. Each of these activities are managed by a functional area and each defined role has specific non-duplicative responsibilities. The CEI PMO helps remove redundancies and increase efficiencies through its coordination of projects.

For these reasons, the CPUC should disregard TURN-SCGC and CEJA's recommendations and approve SoCalGas's request as proposed in the application.

4. Research Development & Demonstration (RD&D) Refundable Program.

TABLE AI-6
Comparison of SoCalGas and Intervenors
TY2024 Estimated Non-Shared RD&D O&M Expense

RD&D O&M - Constant 2021 ($000)			
	Base Year	**Test Year**	**Change**
	2021	**2024**	
SOCALGAS	**18,039**	**23,249**	**5,210**
Cal Advocates	**18,039**	**18,839**	**800**

[100] Ex. TURN-SCGC-06 (Catherine E. Yap) at 11. TURN-SCGC also argues that SoCalGas's proposal to establish a PMO responsible for project governance, project management standards, and reporting is inappropriate for projects outside SoCalGas's core utility business. As discussed throughout this testimony, SoCalGas's proposals are appropriately part of SoCalGas's business.

[101] *Id*.

[102] PMOs are a standard industry best practice in project management. PMOs oversee a variety of projects at SoCalGas, including the Pipeline Safety Enhancement Plan (PSEP), Mobile Home Park Utility Upgrade, Advanced Meter, and similar projects.

TURN- SCGC	**18,039**	**23,249**	**5,210**
CEJA	**18,039**	**0**	**(18,039)**

SoCalGas's RD&D activities are supported by multiple previous GRC decisions and, contrary to the assertions of certain parties, provide valuable ratepayer benefits. The RD&D Program supports the general efforts of CEI to enable California's clean energy transition by de-risking promising pre-commercial clean fuels technologies and supporting the transition of those technologies from a concept to widespread commercial deployment. In part, these efforts involve developing innovative technologies, optimizing them for mass production, performing long-duration testing to ensure longevity and reliability, making improvements in their energy efficiency, and/or reducing costs to make them attractive substitutes to existing energy sources. This process includes funding research teams to design, build, and test prototypes and develop pilot projects that aim to validate a given technology and demonstrate its feasibility. Once a technology has been proven to work at a small-scale pilot project, RD&D can help scale the technology to a commercial size so that it can be a cost-competitive alternative to existing energy sources and widely distributed so that ratepayers can receive the benefits of those clean fuels technologies at scale. RD&D has a long history of CPUC support through multiple GRC decisions, including D.19-09-052, D.16-06-054, and D.13-05-010.

Cal Advocates identifies two broader areas in SoCalGas's request that it contends should not be approved: (1) the proposed change from the Advice Letter requirement from Tier 3 to Tier 2, and (2) the entirety of the Clean Transportation portion of SoCalGas's RD&D request.[103] CEJA joins Cal Advocates in opposing the Advice Letter change, and also identifies a number of specific research topics for the RD&D program that CEJA argues should not be included in the scope of the RD&D program for this coming GRC cycle.[104] These contentions should not be accepted for the reasons discussed below.

First, SoCalGas requested that the RD&D program approval process should be moved from a Tier 3 to a Tier 2 Advice Letter. Cal Advocates and CEJA object to modifying this Research Plan approval, arguing this would reduce oversight. However, the Tier 2 process would still include a public workshop, submittal of a research plan for public review, a 20-day

[103] Ex. CA-07 (Simran Kaur) at 8.

[104] Ex. CEJA-01 (Vespa, Gerson, Saadat, and Barker) at 39-44.

public comment period – the only difference would be that review and approval would be done by CPUC Energy Division staff. As emphasized in my Direct Testimony, a Tier 2 Advice Letter is more appropriate because, "RD&D Program funding is authorized by the CPUC through the GRC process and approval of the RD&D Annual Research Plan simply allows the RD&D Program to adapt to an ever-changing research landscape."[105] CEJA also argues that "The Tier 3 Advice Letter process is more appropriate, given the misalignment between SoCalGas' proposals in this proceeding and California policy."[106] As explained throughout this testimony, this is inaccurate.[107]

Cal Advocates further argues that "SCG cites a delay in the approval of its 2022 Research Plan to demonstrate a need for modifying the Tier 3 Advice Letter requirement. This example is anecdotal, and such delays do not appear to be a recurring, widespread issue."[108] To the contrary, delays have occurred since the implementation of the Tier 3 Advice Letter requirement, and are recurring and common. For example, in 2020, SoCalGas submitted the 2021 Research Plan (Advice No. 5652) on June 25. Despite not receiving any protests, Resolution G-3573 was only voted on and approved about nine months later on March 19, 2021 (78 days into the program year). In 2021, SoCalGas submitted the 2022 Research Plan (Advice No. 5824) on June 21, 2021. The Advice letter received no protests, and Resolution G-3586, which approved the Research Plan in its entirety, was voted on and approved on March 17, 2022, 76 days into the program year. In 2022, SoCalGas submitted the 2023 Research Plan (Advice No. 5991) on

---

[105] Ex. SCG-12-R (Armando Infanzon) at AI-50.

[106] Ex. CEJA-01 (Vespa, Gerson, Saadat, and Barker) at 44.

[107] In fact, with respect to SoCalGas's clean energy-related RD&D efforts, recent CPUC resolutions have specifically approved RD&D's efforts in the areas of hydrogen production and CCUS. (*See* Resolution G-3573, March 18, 2021, at 11-12 (approving (1) $1.5M for Renewable Gas Production, including, biomass processing and conversion, hydrogen production from renewable sources, and methanation (2) $2,924,200 for Low Carbon Hydrogen Production including, but not limited to, methane pyrolysis and advanced steam methane reforming (SMR) technologies); *Id.* at Appendix A (approving (1) $1M for Low GHG Chemical Processes subprogram, including Carbon Capture and Utilization (CCU), and Carbon Capture and Sequestration (CCS)); Resolution G-3586, March 17, 2022, at Appendix A (approving: (1) $3,295,501 for Renewable Gas Production, specifically RNG and hydrogen, from various feedstocks and multiple technological pathways, (2) $2,197,001 for CCUS-related RD&D). The proposed work of the broader CEI program to scale up Hydrogen delivery and enable large-scale carbon management is a logical extension of the research and technology development performed by RD&D.

[108] Ex. CA-07 (Simran Kaur) at 9-10.

June 15, 2022. As of May 1, 2023—121 days into the program year—not even a Proposed Resolution has been presented at the CPUC. As noted in my Direct Testimony, delays in issuing the resolution are impactful to SoCalGas's ability to issue payments to research teams and to properly utilize the authorized budget. Ultimately, these delays prevent SoCalGas from executing contracts with research partners, including state and federal agencies, such as the CEC and the DOE, and delivering valuable research results to our ratepayers in a timely manner. SoCalGas understands that the CPUC is under resource constraints; allowing a Tier 2 Advice Letter would lessen the burden of approval while maintaining an opportunity for stakeholder involvement.

Second, Cal Advocates' objects to the Clean Transportation RD&D program, arguing that the Clean Transportation projects do not provide ratepayer benefits.[109] However, each of the projects listed in the 2021 Annual Report notes one or more benefits to ratepayers, including, but not limited to, reduced GHG emission, improved air quality, and safety. Furthermore, PUC 740.1 states that "Projects should offer a reasonable probability of providing benefits to ratepayers" not "a clear, quantifiable net benefit."[110] Part of the RD&D project selection process is to evaluate proposed research to determine that it offers a reasonable probability of providing benefits to ratepayers. SoCalGas's RD&D team evaluates the projects to ensure they meet the standards set forth in PUC 740.1.

CEJA registers general opposition to the RD&D program, and specifically opposes a number of individual research areas provided in the gap analysis in the RD&D proposal.[111] Regarding these specific areas objected to by CEJA, as described below, the objections generally lack evidence and are often contradicted by the very documents CEJA provides. Furthermore, considerations of individual technologies are more appropriate for the annual Public Workshop, where various perspectives, including those from stakeholders and subject matter experts, can be collected, evaluated, and incorporated appropriately into the annual Research Plan.

CEJA generally argues that "Many of the research initiatives SoCalGas proposes are wholly unrelated to its role delivering methane to ratepayers" and "would squander ratepayer

---

[109] *Id*. at 8.

[110] Pub. Util. Code § 740.1(a).

[111] Ex. CEJA-01 (Vespa, Gerson, Saadat, and Barker) at 39-44.

funds on technologies that are unlikely to help California rapidly and cost-effectively meet its climate and public health goals."[112] But CEJA ignores that the research initiatives are consistent with the scope of SoCalGas's prior RD&D programs, which the CPUC has approved. The initiatives are also consistent with the standard for Utility R&D programs set by PUC 740.1, notably "development of new resources and processes, particularly renewable resources and processed which further supply technologies," as well as promoting environmental improvement, public and employee safety, efficient resource use, operational efficiency and reliability.[113]

CEJA also asserts that "[i]f the Commission believes ratepayers should pay for research on some of these topics, it should expand the Gas R&D program so that this research is administered by the CEC under CPUC oversight."[114] The CPUC has previously found that SoCalGas RD&D *complements* the CEC's Natural Gas R&D program. Transferring the program to the CEC would be inefficient and lose the benefit of the experience the CPUC has in overseeing this program.

CEJA argues that "if the Commission decides to fund some portion of SoCalGas' proposed RD&D program in this rate case, it should adjust SoCalGas' revenue requirement" to remove funding for certain research areas.[115] These contentions can be handled through the RD&D process, where specific technology and research areas are presented and reviewed by RD&D staff, and by other members of the energy research community, including the DOE, the CEC, and subject matter experts from universities and national laboratories. Furthermore, the public workshop and research plan process is purposely designed to incorporate stakeholder feedback. Nevertheless, SoCalGas responds to the specific research areas CEJA objects to as set forth below.

First, CEJA objects to the Renewable Hydrocarbon Conversion research area on the grounds that the proposed hydrogen production processes would cause air pollution.[116] CEJA's characterization of the Renewable Hydrocarbon Conversion research area is inaccurate. Not all technologies producing hydrogen via steam methane reforming (SMR) or pyrolysis emit criteria

---

[112] *Id*. at 38.

[113] Ex. SCG-12-R (Armando Infanzon) at AI-47 – AI-48.

[114] Ex. CEJA-01 (Vespa, Gerson, Saadat, and Barker) at 38.

[115] *Id*. at 39.

[116] *Id*. at 39-40.

pollutants. In fact, many of the hydrocarbon conversion approaches that SoCalGas is researching have the potential to lower emissions compared to the current state-of-the-art conversion technologies by replacing combustion with other energy sources (*e.g.*, induction heating, microwave heating, plasma technologies, etc.). For example, by developing new reactor designs that can perform SMR using renewable electricity GHG emissions may be greatly reduced.[117] And, because there is no combustion, NOx emissions may be significantly reduced or eliminated. In addition to using SMR with renewable electricity, RD&D seeks out new, additional technologies that could reform methane at lower temperatures or under other operating conditions that could reduce or eliminate NOx emissions. Additionally, when using RNG as a feedstock, these approaches can be net carbon neutral or even net carbon negative. Furthermore, the methane/hydrocarbon pyrolysis reaction itself does not produce GHG emissions, but only solid carbon and hydrogen.[118] It is for these reasons that more projects focusing on research and development are needed to define hydrogen production pathways that produce no criteria pollutants. This approach is a critical step in an affordable and reliable transition to carbon neutrality.

Next, CEJA objects to SoCalGas's proposed Carbon Management RD&D sub-program, citing concern that installing carbon capture equipment on an industrial facility can increase air pollution. CEJA cites a report published in 2011 by the European Environment Agency, "Air pollution impacts from carbon capture and storage (CCS)."[119] However, this report itself states that the current literature "concerning emissions of air pollutants for energy conversion technologies with CO_2 capture is most often based on assumptions and not on actual measurements," that a "proper quantitative analysis of emissions and environmental performance is required," and that "much of the available information is merely qualitative in nature."[120] In

---

[117] Science Magazine, *Electrified methane reforming: A compact approach to greener industrial hydrogen production*, Sebastian Wismann et al., May 24, 2019, at 756, available at: https://www.science.org/doi/10.1126/science.aaw8775.

[118] Industrial & Engineering Chemistry Research, Methane Pyrolysis for Zero-Emission Hydrogen Production: A Potential Bridge Technology from Fossil Fuels to a Renewable and Sustainable Hydrogen Economy, Sanchez-Bastardo et. al., 2021, 60, at 11856, available at: https://pubs.acs.org/doi/pdf/10.1021/acs.iecr.1c01679.

[119] Ex. CEJA-01 (Vespa, Gerson, Saadat, and Barker) at 40, fn. 160.

[120] European Environmental Agency, *Air pollution impacts from carbon capture and storage (CCS)*, at 7, available at: https://www.eea.europa.eu/publications/carbon-capture-and-storage.

addition, the CCUS configuration in the paper was generalized without any mention of the opportunities that exist to mitigate the emissions. SoCalGas's RD&D program seeks to identify these opportunities to mitigate potential emissions and develop technologies that enable CCUS while reducing NOx/GHG emissions. Furthermore, CEJA's characterization of the Carbon Management sub-program is inaccurate. The proposed Carbon Management subprogram includes many research areas beyond point-source carbon capture at industrial facilities. Many of the projects that the RD&D program has supported historically include carbon utilization or carbon dioxide removal (CDR) approaches. For most carbon utilization pathways, any source of CO_2 can be used. For CDR approaches such as direct air capture (DAC), there are limited examples of commercial-scale deployment, but most processes do not produce any GHG or criteria emissions. Rather, the only emission from DAC systems is a CO_2- (and sometimes water-) depleted stream of air. Finally, the CPUC has approved carbon capture projects in the RD&D program.[121] By supporting research in these areas, SoCalGas RD&D can benefit ratepayers by de-risking and validating the emissions-reduction potential of new carbon capture technologies while potentially accelerating their development towards deployment at scale.

CEJA also dismisses SoCalGas's carbon capture-related RD&D as an allegedly improper "business development effort."[122] To the contrary, RD&D is separate from business development activities at SoCalGas as described in my Direct Testimony and is dedicated to supporting "the State's climate policy goals, including the continued use and adoption of clean fuels such as RNG and hydrogen, as well as carbon management in support of the State's carbon neutrality goals."[123] There is widespread consensus among experts that negative-emissions technologies will be required in order to achieve state and federal climate goals.[124] Technologies

---

[121] *See* CPUC, Res. G-3586, at 29.

[122] Ex. CEJA-01 (Vespa, Gerson, Saadat, and Barker) at 40.

[123] Ex. SCG-12-R (Armando Infanzon) at AI-45.

[124] Lawrence Livermore Laboratory Foundation, *Getting to Neutral: Options for Negative Carbon Emissions California*, August 2020, at 1, available at: https://gs.llnl.gov/sites/gs/files/2021-08/getting_to_neutral.pdf; Frontiers, *The Role of Direct Air Capture in Mitigation of Anthropogenic Greenhouse Gas Emissions*, November 21, 2019, available at: https://www.frontiersin.org/articles/10.3389/fclim.2019.00010/full; Nature Communications, *A policy roadmap for negative emissions using direct air capture*, Article number: 2051, 2021, available at: https://www.nature.com/articles/s41467-021-22347-1; CARB, *2022 Scoping Plan for Achieving Carbon Neutrality*, November 16, 2022, at 84-89, 91-97.

such as DAC and other CDR approaches, which SoCalGas has been successfully studying through the RD&D program, are potential carbon-negative solutions that can permanently remove and sequester carbon directly from the atmosphere, making a tangible contribution to State's climate goals.

CEJA objects to aspects of the RD&D program on the grounds that "SoCalGas does not have unique expertise" on the technologies.[125] CEJA's characterization of SoCalGas's expertise is inaccurate and ignores the collaborative, interdisciplinary nature of the RD&D program. First, SoCalGas RD&D has more than a decade of experience, and CPUC support for, developing new technologies to advance clean fuels, including RNG, hydrogen, and carbon capture and sequestration through its RD&D program.[126] Furthermore, as noted in my Direct Testimony, "The RD&D Program is an important element of a larger technology funding ecosystem that includes federal, state, and regional public agencies, and a variety of gas industry research entities."[127] As also noted in my Direct Testimony, "RD&D Program staff have access to the existing infrastructure, information, and expertise of the entire Company, including an intimate knowledge of customer challenges, needs, and desired benefits."[128] Finally, SoCalGas RD&D staff can leverage its network to gain access to the most knowledgeable technologists, researchers, scientists, and engineers from the national laboratory ecosystem and the top universities in the country. In fact, every year, SoCalGas RD&D staff conduct outreach to subject matter experts at 10-15 relevant organizations, including GTI Energy, the CEC, and the DOE.

CEJA also objects to the Systems Emissions research area and asks the CPUC to deny it or limit research in this area to exclude combustion technologies and 'certified' gas. Within the Gas Operations RD&D Program and Environmental & Safety Sub-Program, the requested funding is intended to research ways of reducing system emissions (including those associated with combustion equipment, like compressor stations) as a general objective that supports the State's decarbonization goals and regulatory requirements under the Low Carbon Fuel Standard,

---

[125] Ex. CEJA-01 (Vespa, Gerson, Saadat, and Barker) at 40.

[126] A.10-12-006, Ex. SCG-09 (Testimony of Gillian A. Wright), at Table GAW-12 (Approved by D.13-05-010).

[127] Ex. SCG-12-R (Armando Infanzon) at AI-51.

[128] *Id*. at 53.

EO B-55-18, and Assembly Bill 32.[129] RD&D should not be denied because incremental reductions in system emissions are necessary and can be both beneficial to the environment and cost-effective over the anticipated life of existing natural gas delivery systems.

CEJA argues the CPUC should deny the Environment research area within the Gas Operations RD&D Program in the gas operations area because the proposal is "ambiguous."[130] Within the Gas Operations RD&D Program and Environmental & Safety Sub-Program, the requested funding intended to research the impact of diversified energy is a general objective that supports the States decarbonization goals and regulatory requirements under the Clean Air Act,[131] AB32, EO B-55-18, and SB1440.[132] The referenced Gap Analysis (Attachment E to my Direct Testimony) is not a research "proposal" as suggested by CEJA, but rather an example of a gap analysis assessment used to identify potential areas for research. Such identified gaps are then discussed with the research community and may lead to development of a research proposal that would then be evaluated through the RD&D program and considered for funding based on program requirements. RD&D should not be denied because it supports the continued safety and integrity of the existing natural gas delivery systems.

CEJA asks the CPUC to reduce funding for the Gas Composition and Quality research area and the Materials & Equipment research area because these research areas cover multiple potential activities, including topics related to the compatibility of components of the gas

---

[129] CARB, *Low Carbon Fuel Standard*, available at: https://ww2.arb.ca.gov/our-work/programs/low-carbon-fuel-standard; Office of the Governor of the State of California, EO-55-18, September 9, 2018, available at: https://www.ca.gov/archive/gov39/wp-content/uploads/2018/09/9.10.18-Executive-Order.pdf; CARB, *AB 32 Global Warming Solutions Act of 2006*, September 28, 2018, available at: https://ww2.arb.ca.gov/resources/fact-sheets/ab-32-global-warming-solutions-act-2006.

[130] CEJA states the following without evidence: "gas pipelines in most states and provinces flow away from California." (Ex. CEJA-01 (Vespa, Gerson, Saadat, and Barker) at 41.) According to BioCycle, "At the end of 2019, only 2.7% of the 139.3 million diesel gallon equivalents (DGE) of RNG consumed by California motor vehicles was produced by in-state facilities, according to GNA." (BioCycle, *Checking In On California RNG Markets*, November 3, 2020, available at: https://www.biocycle.net/checking-in-on-california-rng-markets/.) According to the CPUC itself, "Most of the natural gas used in California comes from out-of-state natural gas basins." (CPUC, *Natural Gas and California*, available at: https://www.cpuc.ca.gov/industries-and-topics/natural-gas/natural-gas-and-california.)

[131] EPA, *Summary of the Clean Air Act*, available at: https://www.epa.gov/laws-regulations/summary-clean-air-act.

[132] Senate Bill 1440 (2018 Cal. Legis. Serv. Ch. 739).

distribution system with hydrogen.[133] This RD&D work is necessary to provide data on the impact of blending other gases and gas compositions on our existing gas infrastructure. This work adds to the broader knowledge base needed to assess and develop specific pilot demonstrations which are outside the RD&D program funding. SoCalGas will avoid any unnecessary duplication of work with ongoing hydrogen efforts, and any such overlap could be addressed during the Advice Letter process.

The characterization that research is performed without oversight is inaccurate. As stated previously, CPUC staff are actively engaged with the RD&D program throughout the annual review process, and as noted in my Direct Testimony, "Each year, the SoCalGas RD&D program produces and submits to Energy Division an Annual Report that includes a summary of ongoing and completed projects; funds expended, funding recipients, and leveraged funding; and an explanation of the process used for selecting RD&D project areas as well as the structure of SoCalGas's RD&D portfolio."[134]

CEJA also objects to RD&D related to research on light-duty hydrogen vehicles due to perceived disadvantages as a decarbonization strategy for light-duty vehicles.[135] Meaningful RD&D work is still needed to determine the role hydrogen will play in fueling light-duty vehicles in any low-cost decarbonization scenario—an opinion that is shared widely in the industry and recognized by state's policymakers. For example, California today provides up to $20M annually in subsidies for both light-duty, fuel-cell electric vehicles (LD FCEVs) and for LD FCEV fueling stations. California policy does not preclude LD FCEVs and, thus, it is reasonable to continue research into this pathway for decarbonizing transportation. Additionally, multiple OEMs—including Toyota, Honda, Hyundai, and, most recently, BMW—are developing LD FCEVs or exploring their development. Furthermore, the identified research area is primarily focused on Class 2B vehicles, and not necessarily on Class 1 or 2A passenger vehicles or trucks. Hydrogen solutions will enable light duty trucks to operate throughout the day with the ability to quickly refuel at existing or future hydrogen stations. Funding research in this area

[133] Ex. CEJA-01 (Vespa, Gerson, Saadat, and Barker) at 41.

[134] Ex. SCG-12-R (Armando Infanzon) at AI-49.

[135] Ex. CEJA-01 (Vespa, Gerson, Saadat, and Barker) at 42.

will help provide more options to consumers, particularly in a segment of the light-duty class that does not currently have any zero-emissions options available.

CEJA asserts that "The [CEC] Gas R&D program is already devoting $4,500,000 to research on advanced hydrogen refueling infrastructure solutions for heavy transport" and argues that "[r]elying solely on the CEC to administer ratepayer-funded research on this topic will ensure that SoCalGas will not use customer funds to gain an unfair advantage over other companies that operate hydrogen fueling stations."[136] RD&D works to advance new technology to make hydrogen fueling faster, more reliable, and more affordable. These new technologies can complement and supplement funding from the CEC to further commercialize these technologies. Within the refueling station technology space, RD&D funds can advance early-stage technologies to the point where they are ready for scale-up by the CEC R&D program. Furthermore, the technologies developed within this RD&D subprogram—such as new nozzles, compressors, fueling protocols, or mobile refuelers—are shared publicly[137] so that the results can benefit all hydrogen station developers and users. SoCalGas does not use any confidential or proprietary information to benefit the utility's other business operations. Additionally, this work helps improve fueling efficiency and reduce the delivered cost of hydrogen, which will help drive the entire market forward. Finally, the CPUC has previously found that SoCalGas RD&D complements the CEC's Natural Gas R&D program.[138]

CEJA also objects to RD&D related to hydrogen combustion due to concerns about increased emissions from "burning hydrogen in gas-fired power plants."[139] CEJA cites a study of gas turbines from GE (2021).[140] The same study states "Operating a gas turbine on a fuel with hydrogen may require changes to combustion, fuel, and plant safety systems."[141] The study also highlights mitigation options that could maintain operation within existing emission limits,

---

[136] Ibid.

[137] Ex. SCG-12-R (Armando Infanzon) at AI-46.

[138] D.19-09-051 at 377.

[139] Ex. CEJA-01 (Vespa, Gerson, Saadat, and Barker) 42-43.

[140] *Id*. at 47, fn. 170.

[141] General Electric, *Hydrogen as a fuel for gas turbines: A pathway to lower CO2*, at 4, available at: https://www.ge.com/content/dam/gepower-new/global/en_US/downloads/gas-new-site/future-of-energy/hydrogen-fuel-for-gas-turbines-gea34979.pdf.

including "a larger or more efficient SCR system."[142] Thus, the study cited by CEJA actually supports the need for additional research in this area. Furthermore, new research from Georgia Tech suggests that "many studies could be interpreting their NOx emissions incorrectly by as much as 40% against high-hydrogen systems."[143] Also, the CEC recently issued a GFO to study exactly that: GFO-22-504, Hydrogen Blending and Lower Oxides of Nitrogen Emissions in Gas-Fired Generation.[144] Research in this area also supports California's goals of carbon neutrality by 2045 through the decarbonization of in-state gas-fired generation and complements both CEC's decarbonization investments in the industrial sector and the new electricity resources projected in the CARB 2022 Scoping Plan. Additional research is critical to understand what changes are needed to maintain or reduce emissions while maintaining power generating efficiencies.

CEJA further claims that RD&D activities for Hydrogen in Residential Homes and Hydrogen Blends in Commercial Equipment relate to delivering a hydrogen blend through SoCalGas's existing infrastructure.[145] CEJA further argues that "it is inappropriate for SoCalGas to seek funding for this research outside of the specific process the Commission has deliberately established for overseeing research on hydrogen blending."[146] CEJA's characterization of D.22-12-057 is incorrect; that decision is limited to "the development of pilot projects to further evaluate standards for the safe injection of clean renewable hydrogen into California's common carrier pipeline system by specifying permissible injection thresholds, locations, testing requirements, and independent analysis."[147] This decision does not address off-system research, under which these research areas (Hydrogen in Residential Homes and Hydrogen Blends in

---

[142] *Id*. at 5.

[143] Georgia Tech Strategic Energy Institute, *NOx Emissions from Hydrogen-Methane Fuel Blends*, Christopher Douglas et. al., at 2, available at: https://research.gatech.edu/sites/default/files/inline-files/gt_epri_nox_emission_h2_short_paper.pdf.

[144] CEC, GFO-22-504 - Hydrogen Blending and Lower Oxides of Nitrogen Emissions in Gas-Fired Generation (HyBLOX), available at: https://www.energy.ca.gov/solicitations/2023-01/gfo-22-504-hydrogen-blending-and-lower-oxides-nitrogen-emissions-gas-fired.

[145] Ex. CEJA-01 (Vespa, Gerson, Saadat, and Barker) at 43.

[146] Ex. CEJA-01 (Vespa, Gerson, Saadat, and Barker) at 43.

[147] D.22-12-057 at 1.

Commercial Equipment) would fall. Ongoing hydrogen research predated and continues after D.22-12-027.

CEJA argues that research funding relating to hydrogen should not be allowed because the "compatibility of hydrogen with residential and commercial appliances has significant implications for safety and public health, as hydrogen is more flammable than methane and its higher flame temperature can increase NOx emissions from gas-burning appliances."[148] CEJA's characterization of the NOx impact of hydrogen blending on end-use equipment is misleading. Recent research conducted by UCI and funded by the CEC shows that "adding renewable fuels tends to reduce emissions of oxides of nitrogen, carbon dioxide, and unburned hydrocarbons" and that "5 percent to 10 percent (by volume) of hydrogen could be added without affecting general operation of these devices."[149] A number of individual studies, published in peer-reviewed journals, reached similar conclusions. For example, the study "A compilation of operability and emissions performance of residential water heaters operated on blends of natural gas and hydrogen including consideration for reporting bases" states that, "Commercial devices generally exhibit a reduction in NOx as more hydrogen is added."[150] Furthermore, the study "Impact of Hydrogen/Natural Gas Blends on Partially Premixed Combustion Equipment: NOx Emission and Operational Performance" found that "NOx and CO emissions are flat or decline (air-free or energy-adjusted basis) with increasing hydrogen blending."[151]

CEJA also alleges that SoCalGas might "not adequately study these risks [related to hydrogen in residential and commercial appliances] or will fail to disclose findings that conflict with its corporate interests…."[152] CEJA's argument is wholly speculative. As noted in my Direct Testimony, "Each year, the SoCalGas RD&D program produces and submits to Energy

---

148 Ex. CEJA-01 (Vespa, Gerson, Saadat, and Barker) at 43.

149 CEC, *Implications of Increased Renewable Natural Gas on Appliance Emissions and Stability*, October 2020, CEC-500-2020-070, at iii, available at: https://www.energy.ca.gov/sites/default/files/2021-05/CEC-500-2020-070.pdf, Page iii.

150 Science Direct, A compilation of operability and emissions performance of residential water heaters operated on blends of natural gas and hydrogen including consideration for reporting bases, March 3, 2023, available at: https://www.sciencedirect.com/science/article/pii/S036031992300722X.

151 MDPI, *Impact of Hydrogen/Natural Gas Blends on Partially Premixed Combustion Equipment: NOx Emission and Operational Performance*, Paul Glanville et. al., February 24, 2022, available at: https://www.mdpi.com/1996-1073/15/5/1706.

152 Ex. CEJA-01 (Vespa, Gerson, Saadat, and Barker) at 43-44.

Division an Annual Report that includes a summary of ongoing and completed projects; funds expended, funding recipients, and leveraged funding; and an explanation of the process used for selecting RD&D project areas as well as the structure of SoCalGas's RD&D portfolio. These reports are also posted on the SoCalGas RD&D website for public access."[153] There is ample opportunity for stakeholders, the public, and the CPUC Energy division staff to review ongoing and completed projects.[154]

Finally, CEJA argues that the Commercial Development of Gas Heat Pump research area and the Catalytic Burner for Near-Zero Emission in Residential Water and Space Heating research area "are inconsistent with California's air quality goals." However, CARB's 2022 State Implementation Plan (SIP) includes a control measure for stating that "100 percent of new space and water heaters (for either new construction or replacement of burned-out equipment in existing buildings) sold in California," which would need to be zero emissions starting in 2030.[155] The referenced language is a control measure, and thus the specific implementation requirements are not defined until the rule making process begins. In December 2022, the South Coast Air Quality Management District (SCAQMD) adopted its 2022 Air Quality Management Plan (AQMP). In the 2022 AQMP, there are control measures that provide a glide path for near-zero-emissions technologies for space and water heaters that allow low-NOx technologies as a transitional alternative when installing a zero-emission unit is determined to be infeasible[156]. Currently, the requirements of future potential rules and regulations are not fully defined as CARB has noted that it proposes to "commit to bring a publicly noticed item before the Board by

---

[153] Ex. SCG-12-R (Armando Infanzon) at AI-48 – AI-49.

[154] Furthermore, SoCalGas partners with other researchers as well – research is not simply directed by SoCalGas for its benefit, but government agencies and esteemed research labs.

[155] CARB, *2022 State Strategy for the State Implementation Plan*, September 22, 2022, at 102-103, available at: https://ww2.arb.ca.gov/sites/default/files/2022-08/2022_State_SIP_Strategy.pdf.

[156] South Coast AQMD, *2022 Air Quality Management Plan*, December 2, 2022, at 4-14, available at: http://www.aqmd.gov/docs/default-source/clean-air-plans/air-quality-management-plans/2022-air-quality-management-plan/final-2022-aqmp/final-2022-aqmp.pdf. Clean fuels offer a pathway to achieve significant reductions in nitrous oxide (NOx) and particulate matter (PM) emissions from both stationary and mobile sources as California transitions towards a diversified portfolio of clean energy resources to displace traditional liquid fuels (*e.g.*, diesel and gasoline) to support various end user needs. In the LA basin, mobile sources, including heavy-duty trucks, ships, airplanes, locomotives, and construction equipment, account for more than 80 percent of NOx emissions. Stationary sources, including power plants, refineries, and factories, will be responsible for the remaining 19 percent in 2037. (*See Id*. at ES-4.)

2025 that is either a proposed rule or is a recommendation that Board direct staff to not pursue a rule based on an explanation of why such a rule is unlikely to achieve the relevant emissions reductions in the relevant timeframe ….". Regardless, SoCalGas's annual Public Workshop and Research Plan process provides the appropriate forum to address new regulatory drivers with relevant stakeholders and subject matter experts from the research community.

For these reasons, the CPUC should disregard Cal Advocates and CEJA's recommendations and approve SoCalGas's request as proposed in this application.

V. REBUTTAL TO PARTIES' CAPITAL PROPOSALS

Included in this section of the rebuttal testimony are descriptions of activities associated with capital expenditures for the [H2] Innovation Experience, formerly known as [H2] Hydrogen Home in my Direct Testimony, and Hydrogen Refueling Stations related to CEI. The capital expenditure forecasts and the actual costs for these projects are referenced in witness Brenton Guy's Real Estate and Facility Operations testimony (Exhibit SCG-219).

A. Capital Rebuttal – [H2] Innovation Experience (Formerly known as [H2] Hydrogen Home).

The [H2] Innovation Experience (H2IE), formerly known as [H2] Hydrogen Home in my Direct Testimony, project will help demonstrate and advance the development and adoption of a portfolio of sustainable energy solutions needed to benefit ratepayers, provide end users with relevant energy choice options based on their individual requirements and support local grid resilience and reliability needs. H2IE is a state-of-the-art clean energy project showcasing the role hydrogen could play in helping attain California's decarbonization goals.

EDF and CEJA oppose SoCalGas's request for funding related to the H2IE. In its testimony, EDF argues that "SoCalGas developing the Hydrogen Home appears to be … an effort to preserve shareholders' value," and that "[g]iven the apparent cost effectiveness of electrification for new construction over gas even at current prices, Sempra must clearly demonstrate that using new fuels such as hydrogen or renewable gas will be competitive with … alternatives…."[157] CEJA similarly argues that "SoCalGas' Hydrogen Home Project does not benefit SoCalGas ratepayers and its ratepayers should not be responsible for its costs" because it

[157] Ex. EDF-01 (Colvin, McCann, and Seong) at 50.

is ”ineffective and costly” and inconsistent with the State’s focus on building electrification….”[158]

SoCalGas disagrees with EDF and CEJA’s arguments. The H2IE is a state-of-the-art clean energy demonstration project that showcases the role of hydrogen could play in helping attain California’s decarbonization goals and improve energy reliability and resilience, which would provide benefits to all ratepayers. The H2IE is one of the first-of-its-kind clean energy projects that incorporates solar panels, battery storage, hydrogen production using electrolysis, a hydrogen fuel cell, and hydrogen storage, all functioning as a hydrogen microgrid. The H2IE project also showcases hydrogen blending into the natural gas system for a less carbon-intensive energy source to be used in the home’s appliances, advancing the use of blending for decarbonizing the pipeline. The H2IE project can demonstrate the role of clean renewable microgrids could provide in terms of flexibility and scalability to serve neighborhoods, commercial buildings, and transportation end-use needs in support of California’s decarbonization goals. The H2IE also demonstrates the potential of hydrogen (produced from renewable electricity) that can currently be used as a fuel as a part of the overall microgrid solution that could support future communities and offer a multitude of benefits. For example, the H2IE project has the capacity to provide reliability and resilience by delivering clean energy supporting critical electric load to more than 100 homes in the event of a grid power outage. The H2IE project helps to demonstrate the potential role hydrogen could play in helping to attain California’s decarbonization goals and aligns with the 2022 CARB Scoping Plan assumptions on the role of hydrogen blending. The H2IE project also demonstrates the potential of scaling a modular clean energy pathway that captures the benefits of economies of scale for ratepayers.

Utilizing distributed renewable energy production, storage, and end-use, the H2IE microgrid demonstration project has the potential to enhance community energy reliability and resilience. In order to decarbonize California and reliably support electrification, growing electric demand under the conditions of severe climate events, and an increasingly intermittent energy supply projected for 2030 and beyond, clean fuels in addition to renewable electricity will be increasingly relied upon in distributed microgrid applications. In addition, the H2IE project provides a real-world environment that could demonstrate hydrogen emissions monitoring and

[158] Ex. CEJA-01 (Vespa, Gerson, Saadat, and Barker) at 93.

instrumentation technology. The H2IE microgrid will help advance the development and adoption of a portfolio of sustainable energy solutions needed to benefit ratepayers and provide end users with relevant energy choice based on their individual requirements. The H2IE is a critical clean energy solutions demonstration platform to showcase and educate many stakeholders of this type of clean energy solutions available today.

For these reasons, the CPUC should disregard EDF and CEJA's recommendations and approve SoCalGas's request as proposed in this application.

B. Capital Rebuttal – Hydrogen Refueling Stations

The utility proposal for hydrogen refueling stations supports state environmental policy, directly addresses ratepayer demand for services, and is consistent with CPUC decisions. SoCalGas proposes in my Direct Testimony to construct and operate a public access Hydrogen Refueling Stations (HRS) at utility operating bases, as sponsored in Brenton Guy's Real Estate and Facility Operations testimony (Exhibit SCG-19). These stations will be designed to serve the utility fleet located at the bases in question and would also be made available to the general public. Cal Advocates, TURN, PCF, IS, TURN-SCGC, and CEJA oppose this request.

Cal Advocates argues that "SCG has access to hydrogen refueling stations in its service territory" and questions the "value to ratepayers that supports … a utility owned, public access hydrogen vehicle refueling station." Cal Advocates also opposes SoCalGas's proposed Hydrogen Refueling Station Balancing Account (HRSBA)."[159] However, there are only approximately 30 public access hydrogen fueling stations within the SoCalGas service territory, which covers approximately 24,000 square miles.[160] Even if these stations were uniformly placed throughout the SoCalGas service territory, this number of stations would be insufficient to fuel utility vehicles operating at utility bases throughout the entire service territory. Further, there is demonstrated demand for hydrogen refueling stations in SoCalGas's territory. As described in my Direct Testimony, "In March 2022, SoCalGas commissioned a market research study to quantify customer interest in proposed utility hydrogen-related products and services, including customer information, education, and training programs as well as utility-owned public access hydrogen stations. Ninety-four percent (94%) of respondents stated SoCalGas's proposed

[159] Ex. CA-11 (L. Mark Waterworth) at 42.

[160] Ex. SCG-12-R (Armando Infanzon) at AI-29.

hydrogen products and services would be beneficial. Eighty-one percent (81%) of respondents stated SoCalGas' proposed hydrogen products and services would motivate them or their company to adopt the use of hydrogen vehicles sooner. Respondents ranked the need for more hydrogen fueling stations as well as affordable hydrogen fuel as the most appealing aspects of SoCalGas's proposed hydrogen products and services."[161] This survey demonstrates that customers/ratepayers value the proposed SoCalGas hydrogen products and services. Lastly, the CPUC approved Advice Letter 6024 on September 24, 2022, authorizing and establishing a Low Carbon Fuel Standard (LCFS) Fuel Card Program to be used at utility owned and operated public access compressed natural gas (CNG) and hydrogen fueling stations.[162] It is necessary that the utility own and operate public access hydrogen fueling stations in order to fully execute the LCFS Fuel Card Program reviewed and approved by the CPUC. Thus, Cal Advocates position is inconsistent with CPUC policy and should be rejected.

TURN-SCGC argues that "providing hydrogen is not part of the SoCalGas gas utility business" and funding for "hydrogen fuel and fueling stations" should be denied.[163] TURN-SCGC's position is inconsistent with state policy that approves of and directs the use of hydrogen to combat regional air pollution and climate change. As an example, in 2018, Governor Brown issued EO B-48-18, which acknowledged that, "further boosting California's zero-emission vehicle market will strengthen the economy, improve air quality and public health, lower fuel costs for drivers and reduce the state's dependence on fossil fuels" and ordered "that *all State entities work with the private sector and all appropriate levels of government to spur the construction and installation of 200 hydrogen fueling stations* ... by 2025."[164] In 2020, Governor Newsom issued EO N-79-20, which also acknowledged that, "zero emissions technologies, especially trucks and equipment, reduce both greenhouse gas emissions and toxic air pollutants that disproportionately burden our disadvantaged communities" and requires that the CPUC "and other relevant State agencies, [] use existing authorities to accelerate deployment

---

[161] *Id*. at AI-31.

[162] CPUC, authorizing AL 6024, September 24, 2022, available at: https://tariff.socalgas.com/regulatory/tariffs/tm2/pdf/submittals/GAS_6024.pdf.

[163] Ex. TURN-SCGC-06 (Catherine E. Yap) at 9.

[164] Office of the Governor of the State of California, EO B-48-18, January 26, 2018, available at: https://www.library.ca.gov/wp-content/uploads/GovernmentPublications/executive-order-proclamation/39-B-48-18.pdf (emphasis added).

of affordable fueling and charging options for zero-emission vehicles…"[165] TURN-SCGC also ignores that the CPUC has a long history of regulating utilities' charging/fueling infrastructure and services. As described above, the CPUC anticipated granting the utility authority to own and operate public access hydrogen fueling stations through Advice Letter 6024.

TURN-SCGC also argues that constructing new refueling stations does not comply with the CPUC's Environmental and Social Justice (ESJ) Plan, alleging that the stations "will exacerbate the pollution that causes negative health outcomes," "diminish the safety of nearby residents," and "provides no consumer protection benefits in return."[166] As described above, SoCalGas's request to construct and operate hydrogen refueling stations is supported by government policy. Hydrogen refueling stations fuel zero emission hydrogen fuel cell electric vehicles that can reduce regional air pollution, reduce GHG emissions, and provide local residents and fleets with an opportunity to fuel and operate their own hydrogen fuel cell electric vehicles. TURN-SCGC's arguments ignore state policy and the benefits of zero emission vehicles and should be dismissed.

IS argues that hydrogen fueling stations should be paid for by individuals taking service at these stations and therefore should not be funded.[167] Similarly, CEJA claims that utility-owned refueling station cost should not be borne by "methane customers."[168] IS and CEJA argue utility service cost allocation issues that are out of scope and more appropriate in the separate, on-going 2024 Cost Allocation Proceeding. IS further argues that, "These costs should either be moved to a specific business or tariff rate service…."[169] It should be noted that a Hydrogen Fueling Station Rate has been proposed in the on-going 2024 Cost Allocation Proceeding in order to address hydrogen fueling station costs.[170] Because these arguments are out of scope of this proceeding, they should be dismissed.

---

[165] Office of the Governor of the State of California, EO N-79-20, September 23, 2020, available at: https://www.gov.ca.gov/wp-content/uploads/2020/09/9.23.20-EO-N-79-20-Climate.pdf.

[166] Ex. TURN-03 (Prepared Testimony of Adria Tinnin on behalf of TURN), March 27, 2023, at 27.

[167] IS-02 (Michael P. Gorman) at 9.

[168] Ex. CEJA-01 (Vespa, Gerson, Saadat, and Barker) at 34-35.

[169] IS-02 (Michael P. Gorman) at 9.

[170] A.22-09-015, Chapter 12 (Prepared Direct Testimony of Edwin Harte, Hydrogen Fueling Station Rate).

For these reasons, the CPUC should disregard Cal Advocates, TURN, PCF, IS, TURN-SCGC, and CEJA's recommendations and approve SoCalGas's request as proposed in this application.

VI. CONCLUSION

SoCalGas is seeking funding to conduct activities that will allow the development of clean energy solutions supporting California's decarbonization goals, including clean fuels such as hydrogen, RNG, SNG, and carbon management solutions. This funding request is supported by prior CPUC precedent, and is in line with significant actions from federal, state, and local agencies supporting hydrogen, carbon capture, and other technologies.

As discussed in my Direct Testimony, CEI is committed to supporting California's climate goals. To help the State achieve this goal, CEI is working on several clean energy initiatives. The Commission has the compelling authority with oversight and control to leverage SoCalGas's expertise to rapidly advance the development of clean energy solutions in California. CEI has the deep energy-systems knowledge and expertise that is needed to develop clean fuels infrastructure, comply with regulatory processes, and bring together the necessary stakeholders by strengthening outreach and education through active and inclusive public engagement to facilitate the changes that benefit the community at large in a just and equitable way.

Approval of the proposed activities in my Direct Testimony is critical. By conducting the proposed activities, SoCalGas can help the state achieve its time-sensitive environmental and climate goals. Inclusion of the proposed activities in the TY2024 GRC will also enable SoCalGas to compete for a variety of relevant federal funding opportunities, many of which could provide from 50% to 80% cost share for some of the proposed CEI activities. Delaying their implementation could result in missed opportunities to obtain this federal cost share for California and further delay the delivery of clean energy benefits to ratepayers.

This concludes my prepared rebuttal testimony.

APPENDIX A

GLOSSARY OF TERMS

ACRONYM	DEFINITION
AB	Assembly Bill
AQMP	Air Quality Management Plan
AR	Assessment Report
BY	Base Year
CAL ADVOCATES	California Advocates
CAL DAC HUB	California Direct Air Capture Hub
CARB	California Air Resources Board
CCS	Carbon, Capture, and Sequestration
CCU	Carbon Capture and Utilization
CCUS	Carbon, Capture, Utilization and Sequestration
CDR	Carbon Dioxide Removal
CEC	California Energy Commission
CEI	Clean Energy Innovations
CEJA	California Environment Justice Association
CHIPS	Creating Helpful Incentives to Produce Semiconductors and Science Act
CNG	Compressed Natural Gas
CNRA	California Natural Resources Agency
CO2	Carbon dioxide
CPUC	California Public Utilities Commission
DAC	Direct Air Capture
DER	Distributed Energy Resources
DGE	Diesel Gallon Equivalents
DOE	Department of Energy
DSGS	Demand Side Grid Support
EDF	Environmental Defense Fund
EO	Executive Order
ESG	Environmental, Social, and Governance
ESJ	Environmental and Social Justice
FCVs	Hydrogen Fuel Cell Vehicles
FEED	Front End Engineering Design
GFO	Grant Funding Opportunity
GHG	Greenhouse Gases
GRC	General Rate Case

ACRONYM	DEFINITION
H2	Hydrogen
H2IE	Hydrogen Home Innovation Experience
HRSBA	Hydrogen Refueling Station Balancing Account
IEA	International Energy Agency
IEPR	Integrated Energy Policy Report
IIJA	Infrastructure Investment and Jobs Act
IOU	Investor-Owned Utilities
IRA	Inflation Reduction Act
IS	Indicated Shippers
IT	Information Technology
LADWP	Los Angeles Department of Water and Power
LD FCEV	Light-Duty Fuel-Cell Electric Vehicles
LCFS	Low Carbon Fuel Standard
LEV	Low Emission Vehicles
MMT	Million Metric Ton
MTPA	Million Tons Per Annum
NOx	Nitrogen Oxides
NREL	National Renewable Energy Laboratory
O&M	Operations and Maintenance
OEM	Original Equipment Manufacturer
OT	Operational Technology
PCF	Protect our Communities Foundation
PG&E	Pacific Gas and Electric Company
PHMSA	Pipeline and Hazardous Materials Safety Administration
PM	Particulate Matter
PMO	Project Management Office
RD	Renewable Diesel
RD&D	Research Development & Demonstration
RNG	Renewable Natural Gas
RNGVs	Renewable Natural Gas Vehicles
SB	Senate Bill
SCAQMD	Coast Air Quality Management District
SCG	Southern California Gas Company
SCGC	Southern California Generation Coalition
SCR	Selective Catalytic Reduction
SIP	State Implementation Plan

ACRONYM	DEFINITION
SMR	Steam Methane Reforming
SGIP	Self-Generation Incentive Program
SNG	Synthetic Natural Gas
SoCalGas	Southern California Gas Company
SOx	Sulphur Oxides
TURN	The Utility Reform Network
TY	Test Year
ZEV	Zero-Emission Vehicles