

**PUBLIC UTILITIES COMMISSION OF THE STATE OF CALIFORNIA**

**ENERGY DIVISION**

**RESOLUTION G-3601**

**November 30, 2023**

**R E S O L U T I O N**

Resolution G-3601. This Resolution partially approves and partially modifies Southern California Gas Company's Advice Letter 5991-G requesting to record Research, Development, and Demonstration (RD&D) expenses to its RD&D Account.

**PROPOSED OUTCOME:**

- Approves, in part, the SoCalGas AL 5991-G proposing for SoCalGas to record up to \$16.874 million in RD&D expenses as outlined in its 2023 RD&D Program Research Plan<sup>1</sup> to its RD&D Expense Account, pursuant to Decision (D.) 19-09-051. This Resolution modifies \$7,301,717 of SoCalGas's 2023 Gas RD&D funding proposal for the following subprograms: Carbon Capture, Utilization, and Sequestration; Off-Road; Onboard Storage; On-Road; Refueling Stations; Distributed Generation; Industrial Process Heat; Residential Appliances; and the hydrogen blending activities in the System Design & Materials subprogram. SoCalGas may restore the relevant portion of the \$7,301,717 subprogram funds as allowed by modifications described in this Resolution. This Resolution directs SoCalGas to submit a revised proposal for reallocating denied funds via a Tier 2 Advice Letter. In its Tier 2 AL, SoCalGas shall provide granular budget information for each subprogram delineating the restored funding from the funds which must be reallocated as directed.
- Any adjustments to the Program budget necessitated for the prior year (over or under) shall be carried over to the following year, with any unspent RD&D funds remaining at the end of the General Rate Case (GRC) cycle returned in rates to customers as part of the next SoCalGas GRC (Test Year 2024).

**SAFETY CONSIDERATIONS:**

- This Resolution approves and prioritizes \$728,957 for Environmental & Safety research, \$728,957 for Operations Technology research, and \$1,457,914 for System Inspection & Monitoring research as Gas Operations subprograms, representing

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<sup>1</sup> SoCalGas' 2023 RD&D Program Research Plan may hereinafter be referenced as the "Plan" or "Research Plan" and SoCalGas' RD&D Program may be referenced as the "Program."

75 percent of total spending on Gas Operations Research and Development (\$3,644,784) in the 2023 Plan.

ESTIMATED COST:

- Up to \$16.874 million as authorized in D.19-09-051.

By Advice Letter 5991-G filed on June 15, 2022.

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**SUMMARY**

This Resolution approves in part and modifies in part the Southern California Gas Company (SoCalGas) Advice Letter 5991-G (AL 5991-G) proposing for SoCalGas to record Research, Development, and Demonstration (RD&D) expenses as detailed in its 2023 RD&D Program Research Plan to its RD&D one-way balancing account. The California Public Utilities Commission (CPUC or Commission) approves the SoCalGas annual RD&D budget of \$16.874 million for 2023 and its 10 percent administration budget of \$1.6874 million. This Resolution modifies Resolution G-3586.

**BACKGROUND**

California Public Utilities Code<sup>2</sup> Section 740.1 provides for the CPUC to authorize utility RD&D activities that benefit ratepayers through improved reliability, safety, environmental benefits, or operational efficiencies. Such authorization is granted to increase the likelihood that SoCalGas may achieve those benefits, and to ensure the RD&D focus is not unnecessarily duplicative of efforts by other research organizations. Specifically, Pub. Util. Code § 740.1 requires the following:

- (a) Projects should offer a reasonable probability of providing benefits to ratepayers.
- (b) Expenditures on projects which have a low probability for success should be minimized.
- (c) Projects should be consistent with the corporation's resource plan.
- (d) Projects should not unnecessarily duplicate research currently, previously, or imminently undertaken by other electrical or gas corporations or research organizations.

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<sup>2</sup> Unless otherwise stated, all statutory references herein shall be to the California Public Utilities Code (Pub. Util. Code).

- (e) Each project should also support one or more of the following objectives:
- (1) Environmental improvement.
  - (2) Public and employee safety.
  - (3) Conservation by efficient resource use or by reducing or shifting system load.
  - (4) Development of new resources and processes, particularly renewable resources and processes which further supply technologies.
  - (5) Improve operating efficiency and reliability or otherwise reduce operating costs.

In 2016, D.16-06-054 approved SoCalGas's RD&D Program for an average annual funding level of \$12.282 million for 2016 to 2018.

In 2017, SoCalGas submitted its GRC Application (A.)17-10-008 and requested to continue its RD&D program for the 2019 GRC cycle for 2019 to 2023. SoCalGas forecasted an average annual funding level of \$14.329 million and proposed to continue to record RD&D expenses in a one-way balancing account. D.19-09-051 authorized a three-year GRC cycle of funding for SoCalGas, including the 2021 RD&D Program budget. In addition, the decision ordered SoCalGas to take additional steps beginning in 2020 to improve program administration and transparency, including hosting a public workshop under the supervision of the Energy Division. The decision also directed SoCalGas to file a Tier 3 Advice Letter with their Research Plan for the upcoming year, including: (1) Detailed budgets broken down by research subprogram areas; (2) Explanation of how the projects improve reliability, safety, environmental benefits, or operational efficiencies; and (3) Discussion of how SoCalGas incorporated feedback from workshop stakeholders and CPUC Staff.

The GRC cycle was extended from 3 years to 5 years after this decision was issued and SoCalGas committed to fulfilling these requirements through the end of the GRC cycle.

On June 15, 2022, SoCalGas submitted its 2023 RD&D Program Research Plan AL 5991-G requesting to recover costs for 17 research subprograms in the five general fields of low carbon resources, gas operations, clean transportation, clean generation, and customer end-use appliances. In AL 5991-G, SoCalGas escalated the total value of the RD&D budget approved in its GRC decision to 2023 dollars, from \$16.181 million to \$16.874 million, using a cost escalation method approved in D.19-09-051 to reflect external inflation to labor and non-labor and capital costs.

**SoCalGas Request for 2023 RD&D Budget:**

AL 5991-G also seeks approval of SoCalGas's proposed 2023 Gas RD&D Plan. The Plan allocates \$16,874,000 to six programs: (1) Low Carbon Resources, (2) Gas Operations, (3) Clean Transportation, (4) Clean Generation, (5) Customer End-Use Applications, and (6) Program Administration.

*1. Low Carbon Resources – Program Funding: \$5,619,042*

SoCalGas states that the goal of the Low Carbon Resources Program is to decarbonize the gas supply while maintaining its affordability and reliability.<sup>3</sup> SoCalGas describes that the Low Carbon Resources program aims to develop, promote, and advance new technologies aimed at increasing the production and use of hydrogen and renewable natural gas and capturing and removing greenhouse gases (GHGs).<sup>4</sup> The Low Carbon Resources program allocates funds to two subprograms: Renewable Gas Production (\$2,809,521) and Carbon Capture, Utilization, & Sequestration (\$2,809,521).

*2. Gas Operations – Program Funding: \$3,644,784*

SoCalGas states that the Gas Operations Program supports pipeline transportation and storage operations through the enhancement of pipeline and employee safety, system reliability, operation efficiency, and minimizing GHG and operational impacts to the environment.<sup>5</sup> The Gas Operations Program allocates funds to four subprograms: Environmental & Safety (\$728,957), Operations Technology (\$546,718), System Design & Materials (\$1,457,913), and System Inspection & Monitoring (\$911,196).

*3. Clean Transportation – Program Funding: \$2,126,124*

SoCalGas states that the Clean Transportation Program supports activities that minimize environmental impacts related to the transportation sector through the development of low-carbon fuels, zero-emissions drivetrains, fueling infrastructure, and on-board storage technologies.<sup>6</sup> The Clean Transportation Program allocates funds to four subprograms: Off-Road (\$637,837), Onboard Storage (\$425,225), On-Road (\$637, 837), Refueling Stations (\$425,225).

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<sup>3</sup> AL 5991-G at 9.

<sup>4</sup> *Ibid.*

<sup>5</sup> *Ibid.*

<sup>6</sup> AL 5991-G at 10.

*4. Clean Generation – Program Funding: \$1,670,526*

SoCalGas states that the Clean Generation Program targets the development and demonstration of products and technologies associated with the generation of power for the residential, commercial, and industrial market.<sup>7</sup> SoCalGas describes that this program aims to reduce emissions, lower customer costs, integrate renewable fuels, and improve energy reliability and resiliency.<sup>8</sup> The Clean Generation Program allocates funds to two subprograms: Distributed Generation (\$835,263) and Integration and Controls (\$835,263).

*5. Customer End-Use Applications – Program Funding: \$2,126,124*

SoCalGas states that the Customer End-Use Applications Program focuses on developing, demonstrating, and commercializing technologies that improve efficiency and reduce the environmental impacts of gas equipment used in residential, commercial, and industrial settings.<sup>9</sup> The Customer End-Use Applications Program allocates funding to five subprograms: Advanced Innovation (\$127,568), Commercial Applications (\$318,919), Commercial Food Service (\$148,829), Industrial Process Heat (\$850,450), and Residential Appliances (\$680,359).

*6. Program Administration – Program Funding: \$1,687,400*

SoCalGas allocates ten percent of its budget to program administration.

**NOTICE**

Notice of AL 5991-G was made by publication on the Commission's Daily Calendar. SoCalGas states that a copy of the Advice Letter was mailed and distributed in accordance with Section 4 of General Order 96-B.

**PROTESTS**

Advice Letter 5991-G was not protested.

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<sup>7</sup> *Ibid.*

<sup>8</sup> *Ibid.*

<sup>9</sup> *Ibid.*

## **DISCUSSION**

The CPUC has reviewed compliance with Pub. Util. Code § 740.1 and evaluated SoCalGas's 2023 RD&D Program Research Plan based on the following:

- Consistency with D.19-09-051
  - Annual Workshop and Annual Report Requirements
  - Advice Letter Requirements
- Consistency with Resolution G-3573 Requirements
- Consistency with Resolution G-3586 Requirements

### **Consistency with D.19-09-051**

#### *Annual Workshop and Annual Report Requirements*

Ordering Paragraph 30 of D.19-09-051 ordered SoCalGas to host an annual workshop during the second quarters of 2020 and 2021 under the supervision of the Commission's Energy Division. The GRC cycle was extended from 3 years to 5 years after this decision was issued and SoCalGas committed to fulfilling these requirements through the end of the GRC cycle. D.19-09-051 requires SoCalGas to present at its workshop the results of the previous year's Gas RD&D Program and obtain input from stakeholders to inform SoCalGas's 2023 RD&D investment. The decision also requires SoCalGas to submit an Annual Report to Energy Division describing: the previous year's RD&D program, including a summary of ongoing and completed projects; program funds expended; funding recipients; leveraged funding; an explanation of processes used for selecting RD&D project areas; and the structure of the RD&D portfolio. Finally, the decision directs SoCalGas to engage stakeholders and provide Energy Division with workshop materials and documentation of stakeholders consulted one week prior to the workshop.

On April 20, 2022, SoCalGas submitted its 2021 RD&D Annual Report (Report) to CPUC Energy Division documenting program results from the previous year.<sup>10</sup> The Report was also later made available on SoCalGas's RD&D website.<sup>11</sup> As directed in D.19-09-051, SoCalGas's 2021 Report includes summaries of ongoing and completed

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<sup>10</sup> SoCalGas (2022). Research, Development, and Demonstration Program – 2021 Annual Report. Available at:

[www.socalgas.com/sites/default/files/2021%20SoCalGas%20RD%26D%20Annual%20Report.pdf](http://www.socalgas.com/sites/default/files/2021%20SoCalGas%20RD%26D%20Annual%20Report.pdf).

<sup>11</sup> Available at: <https://www.socalgas.com/sustainability/research-development-demonstration-rdd>.

projects, funds expended, and leveraged funding. The Report also includes an explanation of the process used for selecting RD&D project areas, as well as the structure of SoCalGas's RD&D portfolio.

On April 27, 2022, SoCalGas hosted virtual a public workshop in which it indicated 248 people registered representing more than 90 organizations.<sup>12</sup> During the day-long workshop, SoCalGas presented the results of the previous year's Program and obtained input on its research initiatives and funding allocations for 2023. SoCalGas provided materials to the Energy Division and stakeholders prior to the workshop, including the workshop agenda, draft presentation, and a draft of its 2021 Natural Gas RD&D Annual Report. SoCalGas noticed the meeting on the SoCalGas website, on the SoCalGas LinkedIn page, and via email on April 6, 2022, to the service lists for A.17-10-008, Rulemaking (R.)19-10-005, R.20-01-007, R.19-01-011, and R.13-11-005, and other stakeholders.

Consistent with D.19-09-051, SoCalGas included documentation of stakeholder engagement in its 2023 Research Plan. SoCalGas's Plan lists the organizations represented at the workshop, the workshop agenda, and the consulting group that hosted the workshop.<sup>13</sup> The Research Plan states that the stakeholder outreach enabled SoCalGas to identify and close any knowledge and research gaps, avoid duplication of previous and ongoing research, and reduce technology and commercialization risk to achieve the RD&D Program goals.<sup>14</sup>

SoCalGas consulted with and followed input from Energy Division staff in conducting its workshop and developing its 2021 Annual Report. We determine that SoCalGas meets the Annual Report and Workshop requirements of D.19-09-051.

#### *Annual Advice Letter Requirements*

D.19-09-051 requires that after considering stakeholder comments during the workshop, SoCalGas shall file a Tier 3 Advice Letter with its Research Plan for the following calendar year. The Commission directed that SoCalGas's RD&D Research Plan should (1) provide detailed budgets broken down by research subprogram area; (2) explain how the projects help improve reliability, safety, environmental benefits, or operational

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<sup>12</sup> Recorded in AL 5991-G Attachment A Section 3: Stakeholder Outreach.

<sup>13</sup> Recorded in the Appendices of the 2023 Research Plan. Appendix A: Stakeholder Input, Appendix B: Stakeholder Workshop Questions & Comments, and Appendix C: Post-Workshop Stakeholder Input.

<sup>14</sup> 2023 SoCalGas RD&D Plan at 16.

efficiencies; and (3) discuss how SoCalGas incorporated feedback from workshop stakeholders and Commission staff.<sup>15</sup> The decision directs that SoCalGas shall not record any RD&D Project expenses in the one-way balancing account until the Advice Letter is approved. The Decision also directs that “costs related to multi-year and single-year projects under the current RD&D program will continue to be funded consistent with the [Test Year] 2016 protocols until the planned completion of those projects.”<sup>16</sup>

1) Provide detailed budgets broken down by research subprogram area:

The SoCalGas 2023 Research Plan Section 6 includes detailed budgets and a breakdown of research by 17 subprograms for six programs: Low Carbon Resources, Gas Operations, Clean Transportation, Clean Generation, Customer End-Use Applications, and Program Administration. The program and subprogram budget categories, along with funding amounts, are included in Table A of AL 5991-G.<sup>17</sup>

SoCalGas’s 2023 Research Plan contains budget details, including a breakdown of the 2023 Program Administration budget into 10 categories.<sup>18</sup> Each sub-program section of the 2023 Research Plan includes a funding table that lists the committed funds for 2023, the funds for projects under development for 2023, the total sub-program funding for 2023, and the sub-program funding as a percentage of the Program funding.

SoCalGas’s request to utilize 10 percent of its total proposed RD&D budget for administrative expenses (or \$1.6874 million) is a reasonable use of ratepayer funds based on the 10 percent administrative expense cost cap historically used by the Electric Program Investment Charge (EPIC) program in alignment with similar administrative expense caps in the Self Generation Incentive Program, the California Solar Initiative, and IOU energy efficiency programs.<sup>19</sup> We, therefore, approve the use of \$1.6874 million, or 10 percent of the total funding amount of \$16.874 million for program administration of the programs approved in SoCalGas's 2023 Research Plan. SoCalGas provides an administrative budget breakdown aligning with EPIC administration cost categories in the process launched by D.21-11-028 using 10 categories.<sup>20</sup> This aligns with the Commission’s requirement.

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<sup>15</sup> D.19-09-051 at 379.

<sup>16</sup> *Ibid.*

<sup>17</sup> AL 5991-G at 11.

<sup>18</sup> 2023 SoCalGas RD&D Plan at 28.

<sup>19</sup> D.12-50-037 at 67.

<sup>20</sup> 2023 SoCalGas RD&D Plan at 28.



- 2) Explain how the projects improve reliability, safety, environmental benefits, or operational efficiencies:

Each subprogram throughout SoCalGas's 2023 Research Plan includes a breakdown of subprogram benefits for six standard ratepayer benefits: (1) Environmental: Reduced GHG Emissions, (2) Environmental: Improved Air Quality, (3) Safety, (4) Improved Affordability, (5) Operational Efficiency, and (6) Reliability.<sup>21</sup> The descriptions do not include quantitative estimates of potential benefits, numeric targets, or a specified numeric range of potential benefits. Resolution G-3573 approving SoCalGas's 2021 Research Plan directed that SoCalGas should, in future Research Plans, include such quantitative measures of program benefits.<sup>22</sup> Without such specifics, it is difficult to assess impacts in the subprogram or determine how much of an improvement in reliability or safety or any other benefit is anticipated by the subprogram's objective.

- 3) Discuss how SoCalGas incorporated feedback from workshop stakeholders and Commission staff:

On April 27, 2022 SoCalGas hosted its Annual Stakeholder Workshop to present the results of the previous year's program and obtain input regarding proposed spending allocations for 2023.<sup>23</sup> Over 248 individuals representing more than 90 organizations registered for the workshop.<sup>24</sup> At the workshop, SoCalGas presented the 2021 Gas RD&D Program in review, Program status and updates for 2022, and the draft Research Plan for 2023. The workshop allowed for questions and comments. Further, SoCalGas noted that it encouraged workshop attendees to submit written comments after the workshop regarding the budget plan for 2023, which can be found in Appendix B of the SoCalGas RD&D 2023 Proposal. SoCalGas incorporated this feedback into its 2023 Gas RD&D Proposal as described in Section 5.1 and Appendices A, B, and C.<sup>25</sup>

Based on workshop participation and comments received before and after the workshop, SoCalGas has adequately sought stakeholder input and incorporated feedback in its 2023 Research Plan. Moving forward, SoCalGas should explain how it considered whether to adopt or not adopt all research ideas proposed by stakeholders.

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<sup>21</sup> AL 5991-G at 6.

<sup>22</sup> Resolution G-3573 at 6-7.

<sup>23</sup> 2023 SoCalGas RD&D Plan at 17.

<sup>24</sup> AL 5991-G at 5.

<sup>25</sup> 2023 SoCalGas RD&D Plan at 23.

### Consistency with Resolution G-3573 Requirements

Ordering Paragraph 3 of Resolution G-3573 orders that in subsequent Research Plans, SoCalGas shall:

1. Continue to increase transparency in project area selection process and criteria, program benefit assessment processes and criteria, stakeholder outreach efforts, and justification of consortia dues.
2. To increase transparency and facilitate Commission and stakeholder assessment of the benefits of SoCalGas's R&D<sup>26</sup> portfolio, future annual reports and proposed R&D plans should include an explanation of how SoCalGas has used (or intends to use) the results of RD&D projects.
3. Continue to increase its focus on equity by including detail on how it will measure impacts to communities and providing additional detail on engagement with community-based organizations.
4. Detail how future RD&D proposals align with the State's transportation and decarbonization goals.<sup>27</sup>

1. *SoCalGas shall continue to increase transparency in project area selection processes and criteria, program benefit assessment processes and criteria, stakeholder outreach, and justification of consortia dues.*

SoCalGas describes its project selection process and criteria in detail in Appendix D of its 2023 Gas RD&D Plan. SoCalGas explains that it follows a high-level approach to project identification and selection: 1) identify potential areas for research, development, and demonstration and collaborate with researchers to develop project proposals; 2) prepare or receive project proposals; 3) review project proposals with the RD&D Program team and SMEs, considering a wide range of evaluation criteria and the overall portfolio strategy; 4) refine scopes of work for approved projects, if necessary; 5) allocate funding following SoCalGas accounting policies; and 6) execute the project contract and initiate project research.<sup>28</sup> SoCalGas's 2023 project selection criteria are as follows: Customer Benefit, Alignment with California Policy, Lead Investigator/Team, Technical Feasibility, Co-funding Collaborators, Commercialization Potential, Equity Considerations.<sup>29</sup> This is compliant with the requirement from G-3573.

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<sup>26</sup> This quotes G-3573, referencing research and development (R&D) and RD&D interchangeably.

<sup>27</sup> G-3573 at Ordering Paragraph 3.

<sup>28</sup> 2023 SoCalGas RD&D Plan at Appendix D.

<sup>29</sup> *Ibid.*

SoCalGas's program benefit assessment process and criteria are part of its benefits analysis framework, which was submitted as a separate Advice Letter (Advice Letter 6014-G). This issue is addressed in more detail in this Resolution in the discussion section of compliance with Resolution G-3586 requirement 8.

As discussed above, SoCalGas describes its stakeholder outreach process in Section 3.1 of its 2023 Gas RD&D Plan.<sup>30</sup>

Section 6.2 of SoCalGas's 2023 Gas RD&D Plan breaks down funding allocations by research consortium. SoCalGas does not provide a justification for its consortia dues. In its Tier 2 Advice Letter, SoCalGas shall explicitly justify consortia dues. SoCalGas shall continue to justify consortia dues in its 2024 Gas RD&D Plan and beyond.

2. *Future annual reports and proposed RD&D plans should include an explanation of how SoCalGas has used (or intends to use) the results of the RD&D projects.*

SoCalGas explains how it uses the results of its RD&D projects in different areas of its Research Plan. In Section 4.3, SoCalGas discusses how it uses the results from RD&D projects to achieve equity goals, including using these results to inform and educate the public.<sup>31</sup> Further, SoCalGas states that it uses the results of its projects to coordinate with the CEC and other IOUs.<sup>32</sup> SoCalGas discusses the results of its previous year's RD&D program in its annual stakeholder workshop to obtain input on future and ongoing projects.<sup>33</sup> Outside of this general information, SoCalGas does not provide detail on the results of its RD&D projects. In all future plans, SoCalGas shall elaborate on how its results are used to address the state's climate goals and how its research project results are scaled/commercialized.

3. *Continue to increase its focus on equity by including detail on how it will measure impacts to communities and providing additional detail on engagement with community-based organizations.*

SoCalGas dedicates Section 4 of its Research Plan to Equity, dividing it up into four sections: Environmental and Social Justice (ESJ) Communities and Climate Change;

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<sup>30</sup> *Id.* at 16.

<sup>31</sup> *Id.* at 20.

<sup>32</sup> *Id.* at 26.

<sup>33</sup> *Id.* at 17.

Diversity, Equity, and Inclusion at SoCalGas; Equity in SoCalGas RD&D; Equity Engagement Roadmap Update.<sup>34</sup> Specifically, in its Equity sub-section SoCalGas describes its intention to seek to “advance and champion technologies that support widespread access to clean, affordable, and reliable energy for all Californians, including those living and working in ESJ communities.”<sup>35</sup> SoCalGas further describes its engagement with communities to solicit input on key concerns, including energy affordability, safety, air quality, and emissions.<sup>36</sup> In its Tier 2 advice letter, SoCalGas shall provide greater details about how its proposed projects and strategies specifically will benefit the ESJ communities that fund this research and how SoCalGas measures the impacts of its research.

In developing future Gas RD&D plans, SoCalGas shall demonstrate that it has consulted with ESJ communities in advance of developing research projects to ensure projects are effective in realizing benefits for ESJ communities.<sup>37</sup> In its workshops to solicit stakeholder feedback on its future Gas RD&D plans, SoCalGas shall consult with Energy Division in curating an ESJ community advisory workshop panel to be consulted in a public workshop prior to submitting its Plan to the Commission. SoCalGas shall explore compensation strategies in developing and consulting its advisory panels, including utilizing its RD&D budget for this purpose. In its future RD&D Plan proposals, SoCalGas shall further incorporate more details about outcomes and impacts of its research projects on ESJ communities, as explained further in the section on the program’s Impact Analysis Framework. SoCalGas must demonstrate how it incorporated ESJ community feedback or otherwise explain why it did not take this feedback, described by each proposed ESJ recommendation in an Appendix table.<sup>38</sup>

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<sup>34</sup> *Id.* at 19-22.

<sup>35</sup> *Id.* at 20.

<sup>36</sup> *Id.* at 21.

<sup>37</sup> The CPUC ESJ Action Plan 2.0 defines ESJ Communities on page 2, found at this link:

<https://www.cpuc.ca.gov/-/media/cpuc-website/divisions/news-and-outreach/documents/news-office/key-issues/esj/esj-action-plan-v2jw.pdf>. The CPUC ESJ Action Plan 2.0 defines ESJ Communities as Disadvantaged Communities, defined as census tracts that score in the top 25% of CalEnviroScreen 3.0, along with those that score within the highest 5% of CalEnviroScreen 3.0’s Pollution Burden but do not receive an overall CalEnviroScreen score; All tribal lands; Low-income households (Household incomes below 80 percent of the area median income); and Low-income census tracts (Census tracts where aggregated household incomes are less than 80% of area or state median income).

<sup>38</sup> Information on the DACAG and the DACAG’s Equity Framework can be found at:

<https://www.energy.ca.gov/about/campaigns/equity-and-diversity/disadvantaged-communities-advisory-group>.

4. *Detail how future RD&D proposals align with the State's transportation and building decarbonization goals.*

Section 5.2 of its 2023 Research Plan, "Alignment with California's Decarbonization Goals," describes a diversified decarbonization pathway that includes improved energy efficiency, building retrofits, and fuel-switching to enable California to achieve its short- and long- term building decarbonization goals.<sup>39</sup> SoCalGas 5991-G is compliant with the building decarbonization goals requirement from Resolution G-3583.

It is unclear if Advice Letter 5991-G is compliant with the State's transportation goals given the State's movement to electrified transportation.

### **Consistency with Resolution G-3586 Requirements**

Resolution G-3586 (G-3586) requires that SoCalGas provide the following in subsequent Research Plans:

1. Describe how SoCalGas is engaging with diverse academic populations at universities and colleges to foster new researchers.
2. Explain how SoCalGas incorporates into its Research Plan feedback received in pre-workshop stakeholder interviews with community-based organizations (CBOs).
3. Describe, with Energy Division staff guidance, how to ensure energy efficiency RD&D projects for gas-powered appliances align with the State's transportation and building decarbonization goals.
4. Provide detail quantifying the amount of program funds already committed and the quantity of program funds that are for projects under development in following years.
5. Provide project-level detail about Research Plans with the 16 data fields described in G-3586's Discussion sub-section titled "Detailed budgets broken down by research subprogram."
6. Provide detail about how research projects supplement and coordinate with similar projects conducted by the CEC and the other IOUs.
7. Provide detail about administrative budgets using allowable cost categories that will be developed in a process launched by D.21-11-028 defining allowable EPIC administrative costs.

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<sup>39</sup> 2023 SoCalGas RD&D Plan at 25.

8. Develop sufficient quantitative estimates of potential safety, reliability, operational efficiency, improved affordability, and environmental-related benefits or numeric targets, or a specified numeric range of potential benefits for projects.
9. Provide detail quantifying research funding allocations by research consortium, as well as project costs related to each consortium.
10. Provide quantitative detail, in consultation with Energy Division staff, measuring the impact of RD&D projects on disadvantaged and low-income communities in terms of job creation and other economic development impacts and in terms of energy cost, greenhouse gas emissions, and energy reliability.
11. Provide specific rather than general detail in subprogram equity descriptions about how the research areas benefit underserved communities.

These requirements from Resolution G-3586 are individually discussed as follows:

1. *Describe how SoCalGas is engaging with diverse academic populations at universities and colleges to foster new researchers.*

Section 4.3 of SoCalGas' research plan describes engagement with diverse academic populations at universities and colleges. This includes the Cal State LA Engineering, Computer Science, & Technology Capstone Senior Design Program and participation in the Horizon high School Hydrogen Grand Prix program.<sup>40</sup>

Advice Letter 5991-G is compliant with the requirement from G-3586.

2. *Explain how SoCalGas incorporates into its Research Plan feedback received in pre-workshop stakeholder interviews with community-based organizations (CBOs).*

SoCalGas describes how it incorporated feedback from CBOs in Section 4.3 of the 2023 Research Plan. For example, on February 24, 2021, SoCalGas met with representatives from many different organizations to discuss new technologies and how they will benefit disadvantaged communities.<sup>41</sup> SoCalGas summarizes how it incorporated feedback received in pre-workshop stakeholder interviews with CBOs in Appendix A of its 2023 Research Plan.<sup>42</sup>

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<sup>40</sup> 2023 SoCalGas RD&D Plan at 20-21.

<sup>41</sup> 2023 SoCalGas RD&D Plan at 21.

<sup>42</sup> *Id.* at 68.

As discussed above, SoCalGas shall demonstrate how its Gas RD&D plans align with the DACAG's Equity Framework to engage with ESJ communities in its 2024 RD&D Plan and future plans. In consultation with Energy Division, SoCalGas shall curate an ESJ community advisory workshop panel to be consulted prior to submitting its Plan to the Commission.

3. *Describe, with Energy Division staff guidance, how to ensure energy efficiency RD&D projects for gas-powered appliances align with the State's transportation and building decarbonization goals.*

Section 5.2 of SoCalGas's 2023 Research Plan describes how SoCalGas aligns its RD&D Program with the State's transportation and building decarbonization goals.<sup>43</sup> SoCalGas states that its diversified decarbonization pathway that includes improved energy efficiency, building retrofits, and fuel-switching will enable California to achieve its short- and long-term building decarbonization goals effectively and expeditiously.<sup>44</sup>

Advice Letter 5991-G is compliant with the requirement from G-3586.

4. *Provide detail quantifying the amount of program funds already committed and the quantity of program funds that are for projects under development in following years.*

SoCalGas describes that each sub-program section of the 2023 Research Plan also includes a funding table that lists committed funds for 2023, funds for projects under development for 2023, the total sub-program funding for 2023, and the sub-program funding as a percentage of the Program funding.<sup>45</sup>

Advice Letter 5991-G is compliant with the requirement from G-3586.

5. *Provide project-level detail about Research Plans with the 16 data fields described in G-3586's Discussion sub-section titled "Detailed budgets broken down by research subprogram."*

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<sup>43</sup> *Id.* at 25.

<sup>44</sup> AL 5991-G at 7.

<sup>45</sup> *Ibid.*

SoCalGas provided project level detail about Research Plans with the 16 data fields described in G-3586 in Attachment B of Advice Letter 5991-G, “Contracted Projects for 2023.”<sup>46</sup>

Advice Letter 5991-G is compliant with the requirement from G-3586.

6. *Provide detail about how research projects supplement and coordinate with similar projects conducted by the CEC and the other IOUs.*

SoCalGas describes how its research projects supplement and coordinate with the CEC, other government agencies including the California Air Resources Board (CARB), the South Coast Air Quality Management District (SCAQMD), and the United States Department of Energy (DOE), and other investor-owned utilities (IOUs) in Section 5.3 of the Research Plan, “Coordination with the CEC and other IOUs.”<sup>47</sup> SoCalGas describes that it engages with others during its public workshop. Further, SoCalGas describes that it engages with other IOUs through involvement with national research consortia and works directly with other utilities to advance technologies.<sup>48</sup> Attachment B of AL 5991-G lists all co-funders for projects, including the CEC, DOE, and other entities. SoCalGas states that it regularly participates in CEC funding solicitations and is currently working with the CEC on co-funded projects.<sup>49</sup>

Energy Division Staff sent a data request to SoCalGas seeking additional information on its 2023 Gas RD&D Plan on May 5, 2023. In this data request, Staff asked for more details about SoCalGas’s coordination with the CEC. SoCalGas elaborated on its regular participation in the CEC’s solicitations for projects and how the CEC engaged with SoCalGas during the 2022 Public Workshop.<sup>50</sup>

Advice Letter 5991-G is compliant with the requirement from G-3586. Going forward, we expect that SoCalGas will demonstrate how it coordinates in advance with other gas RD&D program administrators to ensure efficiencies, avoid duplication, and optimize research that benefits California ratepayers.

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<sup>46</sup> AL 5991-G at Attachment B.

<sup>47</sup> 2023 SoCalGas RD&D Plan at 26.

<sup>48</sup> *Ibid.*

<sup>49</sup> *Id.* at 27.

<sup>50</sup> SoCalGas’s Data Request response at 21-22.



7. *Provide details about administrative budgets using allowable cost categories that will be developed in a process launched by D.21-11-028 defining allowable EPIC administrative costs.*

SoCalGas provides details about administrative budgets using allowable cost categories from D.21-11-028 in Section 6.1 of its 2023 RD&D Plan: “Proposed 2023 Funding Allocations.” SoCalGas provides a table that breaks down its administrative budget.<sup>51</sup>

Advice Letter 5991-G is compliant with the requirement from G-3586.

8. *Develop sufficient quantitative estimates of potential safety, reliability, operational efficiency, improved affordability, and environmental-related benefits or numeric targets, or a specified numeric range of potential benefits for projects.*

SoCalGas requested an extension of time to create a Benefits Analysis Framework, which would develop sufficient quantitative estimates of project benefits. This extension was approved by the CPUC on June 6, 2022. On July 29, 2022, SoCalGas submitted AL 6014-G, which created the foundational principles for a Benefits Analysis Framework.<sup>52</sup> AL 6014-G was approved by the CPUC on August 28, 2022.

SoCalGas proposes a timeline of action items for the creation of the Benefits Analysis Framework that will take 15-20 months to implement beginning on the Advice Letter approval date (August 28, 2022).<sup>53</sup>

In the most recent EPIC Decision,<sup>54</sup> D.23-04-042, the Commission found that the term “benefits analysis framework” should be now called the “uniform impacts framework.” D.23-04-042 states, “we find that the term impact better captures the spirit of this new framework. By nature, research and development (R&D) projects have an element of risk, which means that not all EPIC projects will directly benefit ratepayers in a quantifiable manner. There still should be an easily explainable impact, benefit, or lesson learned, that should be detailed in project reports and summarized in annual reports and inform program evaluations.”<sup>55</sup> The Commission found that an Impact

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<sup>51</sup> 2023 SoCalGas RD&D Plan at 28.

<sup>52</sup> AL 6014-G at Attachment A.

<sup>53</sup> *Id.* at 4.

<sup>54</sup> The Electric Program Investment Charge (EPIC) is defined as an RD&D program by D.11-12-035.

<sup>55</sup> D.23-04-042 at 27-28.

Analysis Framework will allow for improved program evaluation and oversight, as well as greater transparency for ratepayers.<sup>56</sup>

Accordingly, SoCalGas should continue to explain how it measures Gas RD&D project impacts for its customers and make ongoing improvements to its impact framework by adapting it as informed by the process and outcomes of the EPIC proceeding's Impact Analysis Framework in EPIC proceeding R.19-10-005, as relevant to gas RD&D projects. We highly encourage SoCalGas to participate in the upcoming EPIC workshop(s) on its Uniform Impact Analysis Framework. Once the EPIC impact analysis is adopted by the Commission, SoCalGas must implement the Impact Analysis Framework in all future Gas RD&D research plans. In the interim, SoCalGas should generally follow the Impact Analysis Framework principles outlined in Appendix A of D.23-04-042 and continue to measure program outcomes as approved in AL 6014-G.

9. *Provide detail quantifying research funding allocations by research consortium, as well as project costs related to each consortium.*

SoCalGas provides detail regarding research funding allocations by research consortium and project costs related to each consortium in Section 6.2, "Funding Allocations by Research Consortium," of its 2023 RD&D Plan.<sup>57</sup>

Advice Letter 5991-G is compliant with the requirement from G-3586.

10. *Provide quantitative detail, in consultation with Energy Division staff, measuring the impact of RD&D projects on disadvantaged and low-income communities in terms of job creation and other economic development impacts and in terms of energy cost, greenhouse gas emissions, and energy reliability.*

SoCalGas states that the quantitative measurement of the impact of RD&D projects on disadvantaged and low-income communities will come with the development of the quantitative Benefits Analysis Framework, as outlined in AL 6014-G. AL 6014-G was approved by the Commission on August 28, 2022. In its Tier 2 AL, SoCalGas should provide an update on its progress to measure program impacts pursuant to AL 6014-G.

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<sup>56</sup> D.21-011-028 at Finding of Fact 11.

<sup>57</sup> 2023 SoCalGas RD&D Plan at 29-30.

- 11. Provide specific rather than general detail in subprogram equity descriptions about how the research areas benefit underserved communities.*

Section 4 of SoCalGas's 2023 RD&D Plan describes SoCalGas's consideration of equity and disadvantaged communities in its RD&D Plan.<sup>58</sup> Section 4 describes SoCalGas's commitment to equity, diversity, and inclusion, and describes that equity is one of the RD&D programs core values.<sup>59</sup> SoCalGas also describes engagement with disadvantaged communities through its Equity Engagement Roadmap.<sup>60</sup> Further, throughout the 2023 RD&D Plan, SoCalGas describes how each sub-program could benefit under-resourced communities.

SoCalGas must continue to engage with disadvantaged communities and describe the benefits of its RD&D work in disadvantaged communities in its annual plans. SoCalGas continues to generally speculate about how its RD&D efforts will benefit ESJ communities. In its Tier 2 AL, SoCalGas shall demonstrate how its proposed programs will directly benefit underserved and disadvantaged communities. SoCalGas shall use the Disadvantaged Communities Advisory Group's (DACAG's) Equity Framework as one component of demonstrating how its RD&D proposal will benefit underserved communities. SoCalGas shall also consult the ESJ advisory group described above to ensure its programs benefit ESJ communities.

### **Program Evaluation**

In Resolution G-3592, the Commission approved a proposed budget for an evaluation of the California Energy Commission (CEC) gas RD&D program for fiscal year 2022-2023 of \$960,000 (4% of its annual budget).<sup>61</sup> The Commission stated that this amount will fund a comprehensive evaluation of the CEC's Gas RD&D program to be implemented by the Energy Division, including developing a scope of work, issuing a competitive request for proposal, and hiring and managing the contractor.<sup>62</sup>

To ensure compliance with the requirements from D.19-09-051, Resolution G-3573, and Resolution G-3586, SoCalGas shall allocate 4% (\$675,000) of its 2023 Gas RD&D funds toward a comprehensive evaluation of its program. Such funds should come from reallocation of identified denied programs. The Commission considers program

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<sup>58</sup> 2023 SoCalGas RD&D Plan at 19-22.

<sup>59</sup> *Id.* at 20.

<sup>60</sup> *Id.* at 21-22.

<sup>61</sup> Resolution G-3592, Ordering Paragraph 3, at 28.

<sup>62</sup> *Ibid.*

evaluation an essential component to support research efforts and demonstrate value to gas ratepayers' investment. This evaluation will align with the evaluation approach of the CEC's Gas RD&D Program, as explained in Resolution G-3592, as well as consider efficiencies in implementing holistic Gas RD&D program evaluations.

### **Reasonableness of Budget Request**

Below we address each of the following funding areas proposed in SoCalGas' 2023 RD&D Research Plan.

- Low Carbon Resources (\$5,619,042)
- Gas Operations (\$3,644,784)
- Clean Transportation (\$2,126,124)
- Clean Generation (\$1,670,526)
- Customer End-Use Applications (\$2,126,124)
- Program Administration (\$1,687,400)

#### *Low Carbon Resources*

The Low Carbon Resources Program budget is allocated toward two subprograms: 1) Carbon Capture, Utilization, & Sequestration; 2) Renewable Gas Production.

#### 1) Carbon Capture, Utilization, & Sequestration

SoCalGas states that the goal of the Carbon Capture, Utilization, & Sequestration (CCUS) subprogram is to develop technologies that capture, utilize, or sequester the excess carbon emissions.<sup>63</sup> The subprogram also includes methane pyrolysis projects in which solid carbon is produce from a methane feedstock and captured simultaneously with hydrogen generation.<sup>64</sup> SoCalGas states that CCUS can help California reach its decarbonization and climate change mitigation goals by offsetting emissions from GHG-emitting sectors and creating a circular and carbon-negative economy.<sup>65</sup>

Staff sought additional information from SoCalGas on the subprogram regarding the ratepayer benefits of its CCUS subprogram.<sup>66</sup> SoCalGas stated that the Commission

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<sup>63</sup> 2023 SoCalGas RD&D Plan at 31.

<sup>64</sup> *Ibid.*

<sup>65</sup> *Id.* at 32.

<sup>66</sup> See Energy Division Data Request Response at 8-11.

supported and approved SoCalGas's RD&D work in CCUS through multiple proceedings including D.13-05-010 (2013) and its A.17-10-008 (2017 GRC request). As the Commission explained in D.19-09-051, this Decision does not necessarily approve the budget breakdown by sub-program SoCalGas proposed.<sup>67</sup> This is why the Commission ordered that SoCalGas file an annual Tier 3 Advice Letter to ensure that its Research Plan aligned with current policy. In recent years, State and Commission decarbonization policies have significantly shifted, including a focus on electrification that considers phasing out natural gas and pruning the gas system. To date, the Commission has not considered the appropriate role of gas ratepayers in CCUS, which could have a significant impact on ratepayers' energy bills and on market actors more broadly.

The Commission has not yet provided any guidance upon which to determine whether ratepayer funds should be invested in CCUS, particularly as these projects would have further implications for ratepayer funding in future RD&D Plans. For any future consideration of funding, the appropriate role of ratepayers in funding CCUS needs to be considered. For example, the federal Infrastructure Investment and Job Act (IIJA) directs over \$12 billion for carbon management RD&D through 2026, including carbon capture, transport, storage, and utilization.<sup>68</sup> SoCalGas has not demonstrated that its CCUS RD&D subprogram is consistent with Pub. Util. Code § 740.1(d): "Projects should not unnecessarily duplicate research currently, previously, or imminently undertaken by other electrical or gas corporations or research organizations."

Therefore, we find that SoCalGas has not explained how further ratepayer investment in CCUS will directly benefit its ratepayers given that the Commission has not yet provided overarching policy guidance on whether and how ratepayers should fund CCUS research.

For all of the above reasons, we deny the \$2,809,521 allocated to the Carbon Capture, Utilization & Sequestration subprogram.

## 2) Renewable Gas Production

SoCalGas states that the goal of the Renewable Gas Production subprogram is to provide safe, reliable, and cost-effective production of renewable gaseous fuels,

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<sup>67</sup> D.19-09-051 at 377-378.

<sup>68</sup> IIJA Carbon Management Funding Breakdown, available online at: <https://bipartisanpolicy.org/blog/the-iija-is-a-big-deal-for-carbon-management/>.

specifically renewable natural gas (RNG) and hydrogen, from various feedstocks and multiple technological pathways.<sup>69</sup> SoCalGas argues that this subprogram aligns with California’s decarbonization goals and policies, including, but not limited to, Assembly Bill (AB) 3232 (assessing potential to reduce GHG emissions at least 40% below 1990 levels by 2030),<sup>70</sup> and Executive Order (EO) B-55-18 (statewide goal to achieve carbon neutrality no later than 2045).<sup>71</sup> Further, Senate Bill 1440 (Hueso, 2018) authorizes the CPUC to adopt biomethane procurement targets or goals for the gas utilities it regulates. D.22-02-025 establishes short-term and medium-term procurement goals for biomethane.

Any hydrogen programs and projects conducted by SoCalGas must utilize clean renewable hydrogen, consistent with the definition in D.22-12-057.<sup>72</sup> We deny any hydrogen programs and projects that are not consistent with this definition of clean renewable hydrogen. SoCalGas should update its Plan in its Tier 2 AL to demonstrate its use of compliant clean renewable hydrogen or otherwise reallocate these funds.

For the reasons above, we approve of the \$2,809,521 Renewable Gas Production subprogram budget as modified related to demonstrating use of clean renewable hydrogen.

### *Gas Operations*

The Gas Operations Program budget is allocated toward four subprograms:

- 1) Environmental & Safety; 2) Operations Technology; 3) System Design & Materials;
- 4) System Inspection & Monitoring.

#### 1) Environmental & Safety

SoCalGas states that its Environmental & Safety subprogram will advance the environmental integrity and safety of the pipeline network.<sup>73</sup> SoCalGas describes that

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<sup>69</sup> 2023 SoCalGas RD&D Plan at 34.

<sup>70</sup> AB 3232.

<sup>71</sup> EO B-55-18.

<sup>72</sup> D.22-12-057 at 48, adopting the following interim definition for clean renewable hydrogen:

“Hydrogen which is produced through a process that results in a lifecycle (i.e., well-to-gate) GHG emissions rate of not greater than 4 kilograms of CO<sub>2</sub>e per kilogram of hydrogen produced and does not use fossil fuel as either a feedstock or production energy source.” The term “fossil fuel” is consistent with the definition found in Pub. Util. Code § 2806.

<sup>73</sup> 2023 SoCalGas RD&D Plan at 39.

safety projects in this subprogram work to protect the pipeline system from damage and improve the safety of the general public, company employees, and/or contractors working on or around the pipeline.<sup>74</sup> This subprogram also explores the safety, reliability, integrity, and environmental impacts of blending hydrogen into the pipeline.<sup>75</sup>

The research areas in the subprogram Environmental & Safety align with the State's goals to advance pipeline safety and integrity. Further, the research is in line with Commission, State, and Federal policy including, but not limited to, CPUC General Order 112-F, which sets the rules governing design, construction, testing, operation, and maintenance of gas gathering, transmission, and distribution piping systems.<sup>76</sup>

Any hydrogen programs and projects conducted by SoCalGas must utilize clean renewable hydrogen, consistent with the definition given in D.22-12-057. We deny any hydrogen projects and programs that are not consistent with this definition of clean renewable hydrogen. SoCalGas should update its Plan in its Tier 2 AL demonstrating that it will use the allowed clean renewable hydrogen or otherwise reallocate funds.

We approve of the \$738,957 Environmental & Safety subprogram budget as modified above.

## 2) Operations Technology

SoCalGas states that its Operational Technology subprogram will advance and develop techniques for the construction, operation, maintenance, rehabilitation, and testing of gas pipelines and systems that facilitate continued safe and reliable service.<sup>77</sup> Further, SoCalGas states that this subprogram will train employees and explore how to prevent gas leaks that result from hydrogen blending in the pipeline.<sup>78</sup>

The research areas in the Operations Technology subprogram align with federal pipeline safety regulations<sup>79</sup> and CPUC General Order 112F, among other State and Commission policies.

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<sup>74</sup> *Ibid.*

<sup>75</sup> *Id.* at 39-40.

<sup>76</sup> CPUC General Order 112-F.

<sup>77</sup> 2023 SoCalGas RD&D Plan at 41.

<sup>78</sup> *Ibid.*

<sup>79</sup> DOT 49 CFR Part 192.

Any hydrogen programs and projects conducted by SoCalGas must utilize clean renewable hydrogen, consistent with the definition given in D.22-12-057. We deny any hydrogen projects/programs that are not consistent with this definition of clean renewable hydrogen. SoCalGas should update its Plan in its Tier 2 AL to demonstrate that it will use the allowed clean renewable hydrogen or otherwise reallocate funds.

We approve the \$546,718 Operations Technology subprogram budget as modified above.

### 3) System Design and Materials

SoCalGas states that the goal of its System Design & Materials subprogram is to advance materials and materials science, materials tracking and traceability, and technical tools for designing pipeline systems and infrastructure for safety, reliability, efficiency, and maintainability throughout the life cycle of pipeline assets.<sup>80</sup>

SoCalGas also states that research in the System Designs & Materials area will assess the effects of incorporating gas from nontraditional sources, such as biogas and hydrogen-blend, on gas quality and system integrity.<sup>81</sup> For example, SoCalGas explains that its research area “Gas Composition and Quality” will identify technologies that could enable the blending of 10-20% hydrogen into pipeline infrastructure. Subsequent to the submission of SoCalGas’s 2023 Gas RD&D Plan, the Commission issued D.22-12-057 requiring SoCalGas to amend A.22-09-006 to implement a hydrogen blending demonstration program.<sup>82</sup> Specifically, D.22-12-057 orders SoCalGas to “file a new application or amend an existing application in an appropriate proceeding proposing pilot programs to test hydrogen blending in natural gas at concentrations above the existing trigger level.”<sup>83</sup>

We find that the System Design and Materials hydrogen blending projects are duplicative of the pilot program to test hydrogen blending ordered in D.22-12-057.

We deny any funding toward the hydrogen blending projects in the System Designs and materials subprogram. We approve all other funding in the System Designs and

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<sup>80</sup> 2023 SoCalGas RD&D Plan at 42.

<sup>81</sup> *Ibid.*

<sup>82</sup> In A.22-09-006, SoCalGas requests \$14.82 million to test increasing concentrations of blending hydrogen into the distribution pipeline system. The purpose of this is to provide operational, live blending and system performance data for blending up to 20% hydrogen gas by volume in the pipeline system.

<sup>83</sup> D.22-12-057 at OP 7.



Materials subprogram, as it supports CPUC and State goals for pipeline safety. SoCalGas shall reallocate any funds allocated to hydrogen blending projects to other priority gas research projects as described below.

#### 4) System Inspection & Monitoring

SoCalGas states that its System Inspection & Monitoring subprogram will develop technologies and methods for inspection, monitoring, and testing of pipelines and pipeline components to assess the condition and performance of pipeline facilities and systems.<sup>84</sup>

We find the System Inspection & Monitoring subprogram will create direct ratepayer benefit by ensuring that pipelines are safe and continuously monitored and inspected. To the extent that testing hydrogen blending in the system is complementary to SoCalGas's hydrogen blending pilot (and not duplicative of the pilot ordered in D.22-12-057) we approve this project area as it is supportive of State and Commission policies, such as CPUC General Order 112F and the federal Department of Transportation "DOT 49 CFR Part 192" (federal pipeline safety regulations). SoCalGas should demonstrate in its Tier 2 AL as well as in its annual reports the complementary nature of this testing project with the hydrogen blending pilots conducted through D.22-12-057.

Any System Inspection & Monitoring projects conducted by SoCalGas must utilize clean renewable hydrogen, consistent with the definition given in D.22-12-057. We deny any hydrogen projects and programs that are not consistent with this definition of clean renewable hydrogen.

We approve of the \$911,196 allocated to the System Inspection & Monitoring subprogram.

#### *Clean Transportation*

The Clean Transportation program budget is allocated toward four subprograms: 1) Off-Road; 2) Onboard Storage; 3) On-Road; 4) Refueling Stations.

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<sup>84</sup> 2023 SoCalGas RD&D Plan at 44.

1) Off-Road

SoCalGas states that its Off-Road subprogram's goal is to reduce emissions from off-road vehicles such as rail, ocean-going vessels and commercial harbor craft, and construction and cargo handling equipment.<sup>85</sup> SoCalGas states that this subprogram aligns with the State's decarbonization goals, including EO N-79-20 which calls for 100% zero-emission off-road vehicles and equipment by 2035.<sup>86</sup>

SoCalGas has not demonstrated in its Plan that the Off-Road transportation subprogram offers a reasonable probability of providing benefits to SoCalGas ratepayers. Pub. Util. Code § 740.1(a) states that: "projects should offer a reasonable probability of providing benefits to ratepayers." SoCalGas's RD&D program is funded by 92% core customers. Core gas customers include residential and small commercial customers, while noncore customers include industrial customers and other large volume gas customers. We find that the Off-Road transportation program does not comply with this Section because it does not provide benefits to the vast majority of RD&D ratepayers. The Commission has not yet provided policy guidance on whether gas ratepayers should fund transportation sector Off-Road vehicles.

We deny the \$637,837 allocated to the Off-Road Transportation subprogram.

2) Onboard Storage

SoCalGas states that its Onboard Storage subprogram targets the cost-effective technologies and systems that improve onboard storage for gaseous transportation fuels.<sup>87</sup> SoCalGas states that this area focuses on low pressure systems and conformable tanks for compressed natural gas and hydrogen.<sup>88</sup>

SoCalGas has not demonstrated in its Plan that the Onboard Storage subprogram offers a reasonable probability of providing benefits to SoCalGas ratepayers within Pub. Util. Code § 740.1. SoCalGas argues that the Onboard Storage subprogram supports EO B-48-18, which calls for 5 million zero-emission vehicles (ZEVs) by 2030.<sup>89</sup> While such

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<sup>85</sup> 2023 SoCalGas RD&D Plan at 46.

<sup>86</sup> *Ibid.*

<sup>87</sup> 2023 SoCalGas RD&D Plan at 48.

<sup>88</sup> *Ibid.*

<sup>89</sup> EO B-48-18 states: "It is hereby ordered that all State entities work with the private sector and all appropriate levels of government to put at least 5 million zero-emission vehicles on California roads by

effort may advance the goals of EO B-48-18, the applicable standard is that the subprogram must benefit ratepayers. The benefit of the Onboard Storage subprogram to ratepayers is unclear. Further, the Commission has not yet provided any policy guidance on whether gas ratepayers should fund transportation sector Onboard Storage.

We deny the \$425,225 allocated to the Onboard Storage subprogram.

### 3) On-Road

SoCalGas states that its On-Road subprogram aims to reduce emissions from medium- and heavy-duty (MHD) vehicles.<sup>90</sup> This research includes advancing hydrogen fuel cell electric vehicle (FCEVs) development for MHD trucks and research in connected and autonomous vehicles (CAVs).<sup>91</sup>

SoCalGas argues that the On-Road subprogram supports the CARB Clean Fleet Rule, which calls for 100% zero-emissions trucks and buses where feasible by 2045.<sup>92</sup> While the On-Road subprogram may advance the goals of the CARB Clean Fleet Rule, it is unclear how the subprogram benefits ratepayers. SoCalGas has not demonstrated in its Plan that the On-Road transportation subprogram offers a reasonable probability of providing benefits to SoCalGas ratepayers as required by Pub. Util. Code § 740.1. Further, the Commission has not yet provided any policy guidance on whether gas ratepayers should fund transportation sector On-Road vehicles.

We deny the \$637,837 On-Road transportation subprogram.

### 4) Refueling Stations

SoCalGas states that its Refueling Stations subprogram targets research that supports refueling for alternative fuels, such as hydrogen and RNG.<sup>93</sup> SoCalGas states that this research supports AB 8<sup>94</sup> which provides the California Energy Commission with up to

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2030.” Found at: <https://www.library.ca.gov/wp-content/uploads/GovernmentPublications/executive-order-proclamation/39-B-48-18.pdf>.

<sup>90</sup> 2023 SoCalGas RD&D Plan at 50.

<sup>91</sup> *Id.* at 50-51.

<sup>92</sup> *Ibid.*

<sup>93</sup> 2023 SoCalGas RD&D Plan at 52.

<sup>94</sup> California Assembly Bill 8 (AB 8; Perea, Ch. 401, Statutes of 2013).

\$20 million annually (through the end of 2023) to co-fund the development of hydrogen fueling stations in California.<sup>95</sup>

SoCalGas has not demonstrated in its Plan that the Refueling Station transportation subprogram directly benefits SoCalGas ratepayers. Further, the California Energy Commission (CEC) is spearheading Hydrogen Refueling Infrastructure projects, with a goal of investing in an initial network of 100 public hydrogen stations across California.<sup>96</sup> Pub. Util. Code § 740.1(d) states that “Projects should not unnecessarily duplicate research currently, previously, or imminently undertaken by other electrical or gas corporations or research organizations.” We find that SoCalGas’s request to also conduct research on Refueling Stations is duplicative of the CEC’s work. These are projects that will have ratepayer and market impacts that need to be further investigated by the Commission before committing gas ratepayer funds.

We deny the \$425,225 allocated to the Refueling Station’s subprogram.

#### *Clean Generation*

The Clean Generation program budget is allocated toward two subprograms:

1) Distributed Generation; 2) Integration and Controls.

##### 1) Distributed Generation

SoCalGas states that the Distribution Generation subprogram seeks to enhance distributed generation (DG) technologies to improve energy reliability and resiliency and to incorporate RNG and hydrogen.<sup>97</sup> The DG subprogram includes research on the commercialization of small-scale solid oxide fuel cells, hydrogen blending for existing DG technologies currently operating on natural gas, and development of low-emission combined heat and power and backup generation.<sup>98</sup>

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<sup>95</sup> California Air Resources Board’s Annual Hydrogen Evaluation, available online at: <https://ww2.arb.ca.gov/resources/documents/annual-hydrogen-evaluation#:~:text=AB%20%20requires%20that%20these,further%20hydrogen%20station%20network%20development.>

<sup>96</sup> [CEC Hydrogen Vehicles and Refueling Infrastructure webpage at: https://ww2.arb.ca.gov/resources/documents/annual-hydrogen-evaluation#:~:text=AB%20%20requires%20that%20these,further%20hydrogen%20station%20network%20development.](https://ww2.arb.ca.gov/resources/documents/annual-hydrogen-evaluation#:~:text=AB%20%20requires%20that%20these,further%20hydrogen%20station%20network%20development.)

<sup>97</sup> 2023 SoCalGas RD&D Plan at 54.

<sup>98</sup> *Id.* at 55.

We find SoCalGas's proposal to be vague and unclear about direct ratepayer benefits from this proposed research. Further, R.19-09-009 facilitates the commercialization and deployment of microgrids and continues to develop policies related to microgrids and distributed generation. It is unclear how SoCalGas's proposed research coordinated with the Commission's current DG policy direction to benefit gas ratepayers.

Pub. Util. Code § 740.1(a) states that "projects should offer a reasonable probability of providing benefits to ratepayers." There is not a clear and reasonable probability of the Distributed Generation subprogram providing benefits to ratepayers.

Based on lack of details on how this DG subprogram would support current Commission policies and benefit gas ratepayers, we deny any new proposed DG research at this time. SoCalGas may complete in-progress projects for which it has invested significant ratepayer funds (i.e., the "Bloom Energy Coupled Electrolyzer and Fuel Cell Demonstration" project and "Noble Thermodynamic Systems Ultra-Efficient CHP Using a Novel Argon Power Cycle Development" project in its Distributed Generation subprogram. SoCalGas shall not begin any new RD&D projects in the Distributed Generation subprogram at this time.

## 2) Integration & Controls

SoCalGas states that the Integration & Controls subprogram develops, enhances, and demonstrates technologies and control systems that integrate diverse DG resources and thermal loads.<sup>99</sup> SoCalGas states that the goal of this program is to provide energy resiliency and affordability.<sup>100</sup> Research in this subprogram includes projects to integrate fuel cells with existing customer electric and heating systems.<sup>101</sup> SoCalGas also discusses research to integrate low-emissions backup generation with existing electrical systems, technologies to optimize the utilization of "waste heat" from combined heat and power systems, and development of technologies that improve cybersecurity of integrated energy systems.<sup>102</sup>

This subprogram provides direct ratepayer benefit by enhancing energy resiliency and affordability. This subprogram is also consistent with State and Commission goals to

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<sup>99</sup> *Id.* at 56.

<sup>100</sup> *Ibid.*

<sup>101</sup> *Id.* at 57.

<sup>102</sup> *Ibid.*

improve cybersecurity. Further, this program is consistent and complements the goals of R.19-09-009, the CPUC's microgrids and resiliency proceeding.

Any hydrogen programs and projects conducted by SoCalGas must utilize clean renewable hydrogen, consistent with the definition given in D.22-12-057. We deny any hydrogen projects and programs that are not consistent with this definition of clean renewable hydrogen.

We approve of the \$835,263 allocated to the Integrations & Controls subprogram.

*Customer End-Use Applications*

The Customer End-Use Applications program budget is allocated toward five subprograms: 1) Advanced Innovation; 2) Commercial Applications; 3) Commercial Food Service; 4) Industrial Process Equipment; 5) Residential Appliances.

1) Advanced Innovation

SoCalGas states that its Advanced Innovation subprogram seeks to develop new technologies to improve energy efficiency and decrease emissions.<sup>103</sup> Research in this subprogram includes the use of smart technology for energy efficiency and reduction of gas consumption and projects to improve building energy efficiency through advanced construction technology and advanced building materials.<sup>104</sup> This subprogram will benefit ratepayers by improving building energy efficiency.

We approve of the \$127,568 allocated to the Advanced Innovation subprogram.

2) Commercial Applications

SoCalGas states that its Commercial Applications subprogram develops technologies related to gas consumption and end uses in the commercial sector, including commercial HVAC, hot water service, and commercial laundry.<sup>105</sup> Research in this subprogram includes hydrogen blends in commercial equipment and high-efficiency equipment for building decarbonization.<sup>106</sup>

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<sup>103</sup> 2023 SoCalGas RD&D Plan at 59.

<sup>104</sup> *Id.* at 60.

<sup>105</sup> *Id.* at 61.

<sup>106</sup> 2023 SoCalGas RD&D Plan at 61-62.

The Commercial Applications subprogram will benefit ratepayers by improving energy efficiency in hard-to-electrify areas. Any hydrogen programs and projects conducted by SoCalGas must utilize clean renewable hydrogen, consistent with the definition given in D.22-12-057. We deny any hydrogen projects and programs that are not consistent with this definition of clean renewable hydrogen.

We approve of the \$318,919 allocated to the Commercial Applications subprogram.

### 3) Commercial Food Service

SoCalGas states that its Commercial Food Service (CFS) subprogram enhances technologies for commercial food services that primarily rely on fuel for cooking and water heating.<sup>107</sup> This research includes the integration of hydrogen and RNG blends in CFS equipment and the development of low-emission CFS equipment including burners, gas heat pump water heaters, and kitchen ventilation systems.<sup>108</sup>

The CFS subprogram is compliant with the requirements of the RD&D program as it is supporting gas energy efficiency in a hard-to-electrify industry. Any hydrogen programs and projects conducted by SoCalGas must utilize clean renewable hydrogen, consistent with the definition given in D.22-12-057. We deny any hydrogen projects and programs that are not consistent with this definition of clean renewable hydrogen.

We approve of the \$148,829 allocated to the Commercial Food Service subprogram.

### 4) Industrial Process Equipment

SoCalGas states that its Industrial Process Equipment subprogram develops advanced heating technologies and systems for use in the industrial sector.<sup>109</sup> SoCalGas states that the industrial sector is a large user of gas and is difficult to decarbonize, so this subprogram aims to reduce emissions in this sector.<sup>110</sup> Research in the Industrial Process Equipment subprogram includes projects that increase energy efficiency of industrial process heat applications and projects that investigate hydrogen blending in industrial equipment.<sup>111</sup>

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<sup>107</sup> *Id.* at 63.

<sup>108</sup> *Ibid.*

<sup>109</sup> *Id.* at 64.

<sup>110</sup> *Id.* at 64.

<sup>111</sup> 2023 SoCalGas RD&D Plan at 65.

SoCalGas does not demonstrate that the Industrial Process Equipment benefits its core ratepayers. The SoCalGas RD&D Program is paid for by majority core gas customers – approximately 92% of the RD&D funding comes from core customers. Core gas customers include residential and small commercial customers, while noncore customers include industrial customers and other large volume gas customers. Further, the Commission has not yet provided any guidance for gas ratepayers cross funding industrial research projects.

Due to this subprogram goal of decarbonizing a hard-to-electrify sector, SoCalGas may continue any projects that have already begun in the Industrial Process Equipment subprogram (i.e., the “UCI Solid Oxide Electrolysis Cells for Green Steel Production Demonstration” project, the “GTI Booster Ejector Enhancement of Compressor Refrigeration Demonstration” project, and the “GTI Waste Heat Effective Transfer in Brewery & Distillery Demonstration” project). SoCalGas shall not begin any new RD&D projects in the Industrial Process Equipment subprogram at this time.

#### 5) Residential Appliances

SoCalGas states that the Residential Appliances subprogram aims to enhance technologies related to gas-consuming appliances in residences.<sup>112</sup> This research includes projects to develop residential appliances that are compatible with hydrogen and RNG blends.<sup>113</sup>

Residential appliances are moving toward electrification. For example, the California Energy Commission’s 2022 Building Energy Efficiency Standards (Energy Code) encourages efficient electric heat pumps and establishes electric-ready requirements for new homes.<sup>114</sup>

We deny the \$680,359 allocated to the Residential Appliances subprogram.

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<sup>112</sup> *Id.* at 66.

<sup>113</sup> *Ibid.*

<sup>114</sup> [CEC’s 2022 Building Energy Efficiency Standards website at: https://www.energy.ca.gov/programs-and-topics/programs/building-energy-efficiency-standards/2022-building-energy-efficiency](https://www.energy.ca.gov/programs-and-topics/programs/building-energy-efficiency-standards/2022-building-energy-efficiency)



*Program Administration*

SoCalGas's request to utilize 10 percent of its total proposed RD&D budget for administrative expenses (or \$1.6874 million) is a reasonable use of ratepayer funds based on the 10 percent administrative expense cost cap historically used by the EPIC program in alignment with similar administrative expense caps in the Self Generation Incentive Program, the California Solar Initiative, and IOU energy efficiency programs. We, therefore, approve the use of \$1.6874 million, or 10 percent of the total funding amount of \$16.874 million for program administration of the projects approved in SoCalGas's 2023 Research Plan.

**Reallocation of Funds**

This Resolution denies SoCalGas's request to allocate \$7,301,717 to the following subprograms: Carbon Capture, Utilization, and Sequestration, Off-Road, Onboard Storage, On-Road, Refueling Stations, Distributed Generation, Industrial Process Heat, and Residential Appliances. This Resolution also denies any hydrogen blending research in the System Design & Materials subprogram. SoCalGas may restore the relevant portion of the \$7,301,717 subprogram funds as allowed by modifications described in this Resolution and update accordingly its Plan and subprogram budgets in its Tier 2 advice letter. Further, as described above, SoCalGas must demonstrate that any hydrogen related research conforms to the clean renewable hydrogen definition established in D.22-12-057.

Through a Tier 2 Advice Letter process, SoCalGas shall propose how to reallocate these funds toward research areas that provide direct gas ratepayer benefits including gas pipeline and system integrity, gas system pruning, gas system decommissioning, and cybersecurity. This is consistent with R.20-01-007, which establishes "policies, processes, and rules to ensure safe and reliable gas systems in California and perform long-term gas system planning."<sup>115</sup> This is also consistent with CARB's 2022 Scoping Plan:

Limiting the expansion of fossil gas lines can reduce stranded asset risks and strategic decommissioning of fossil gas infrastructure or zonal electrification, especially where gas lines are deteriorating, can reduce system maintenance needs, costs, and emissions. Governments and utilities must ensure this transition is equitable and affordable, and prioritize transitioning low-income

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<sup>115</sup> The docket for R.20-01-007 is available online at:  
[https://apps.cpuc.ca.gov/apex/f?p=401:56::::RP,57,RIR:P5\\_PROCEEDING\\_SELECT:R2001007](https://apps.cpuc.ca.gov/apex/f?p=401:56::::RP,57,RIR:P5_PROCEEDING_SELECT:R2001007).

and disadvantaged customers off of fossil gas as early as possible since they are most vulnerable to the rate escalation as the gas customer pool shrinks. The CPUC is actively considering these issues, and developing a framework for pruning the gas system in an ongoing rulemaking (R.20-01-007).<sup>116</sup>

SoCalGas shall use guidance and direction from R.20-01-007, the CARB 2022 Scoping Plan, and any other CPUC or State policies to conduct research on pruning the gas system.

In its Tier 2 AL, SoCalGas shall also provide granular budget information for each subprogram delineating the restored funding from the funds which must be reallocated.

SoCalGas shall also reallocate \$129,938 of its 2023 Gas RD&D funds as a contribution of its proportional share toward a comprehensive Gas RD&D database. Currently, all electric RD&D projects are publicly accessible in an online database.<sup>117</sup> As the Commission found in D.23-04-042, given the increasing overlap between electricity and gas, it makes sense to track all ratepayer-funded RD&D projects in one database.<sup>118</sup> We, therefore, direct Energy Division staff to work with its database consultant to develop a similar Gas RD&D component of the EPIC database, relevant to gas research projects, that will be updated on a regular basis, similar to the EPIC program. This will allow for transparency of SoCalGas's investments of ratepayer funds in Gas RD&D as well as for public stakeholders to access useful Gas RD&D information in an organized manner, including demonstrating linkages with relevant electric RD&D. SoCalGas shall allocate \$129,938 toward this database.

Commensurate with CPUC historical practices, SoCalGas shall also reallocate 4% (\$675,000) of its 2023 Gas RD&D budget toward a comprehensive evaluation of the program. A program evaluation will help to ensure impacts of SoCalGas's research efforts and that ratepayer funds have been prudently invested and inform regular program improvements. Evaluations are a necessary component of the program cycle to promote innovation, ratepayer benefits, and efficiencies of coordination with other Gas RD&D programs. We direct Energy Division to manage the evaluation of SoCalGas's Gas RD&D program. For efficiencies, Energy Division may streamline the evaluation of more than one gas RD&D program in one holistic evaluation.

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<sup>116</sup> CARB 2022 Scoping Plan, Appendix F (Building Decarbonization), part 4D at 45.

<sup>117</sup> The EPIC project database is available online at: <https://www.epicpartnership.org/>.

<sup>118</sup> D.23-04-042 at 33-34.

## **Summary of CPUC Guidance for SoCalGas's 2024 RD&D Plan and Beyond**

The CPUC approves in part SoCalGas's 2023 Research Development and Demonstration Research Plan. This Resolution denies \$7,301,717 allocated to the following subprograms: Carbon Capture, Utilization, and Sequestration, Off-Road, Onboard Storage, On-Road, Refueling Stations, Distributed Generation, Industrial Process Heat, and Residential Appliances. This Resolution also denies any hydrogen blending research in the System Design & Materials subprogram. SoCalGas may restore the relevant portion of the \$7,301,717 subprogram funds as allowed by modifications described in this Resolution and update accordingly its Plan and subprogram budgets in its Tier 2 advice letter. SoCalGas shall specifically consider reallocating these funds toward gas pipeline and system integrity, gas system pruning, gas system decommissioning, and cybersecurity. SoCalGas shall reallocate funds toward a comprehensive Gas RD&D database and a program evaluation.

## **COMMENTS**

Public Utilities Code Section 311(g)(1) provides that this resolution must be served on all parties and subject to at least 30 days public review and comment prior to a vote of the Commission. However, given that this resolution is issued outside of a formal proceeding, interested stakeholders do not need to have party status in order to submit comments on this resolution.

The 30-day review and 20-day comment period for the draft of this Resolution was neither waived nor reduced. Accordingly, this draft Resolution was mailed to parties for comments, and will be placed on the CPUC's agenda no earlier than 30 days from today.

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The CPUC received 31 comment letters on Draft Resolution G-3601. Energy Division analyzed each comment letter for potential factual errors made within Draft Resolution G-3601. The CPUC appreciates all comments on this Draft Resolution and has taken all comments into account when finalizing this Resolution.

Most commenters argued for the restoration of funding for numerous programs. The programs denied in Draft Resolution G-3601 that received the largest number of commenters included CCUS, Distributed Generation, and Clean Transportation. Many commenters also argued that Ordering Paragraph 5, requiring all new and future RD&D projects to take place in the State of California, should be removed.

The list of commenters includes SoCalGas RD&D potential award grantees Zero Emission Industries, Center for Transportation and the Environment, Cummins Inc., Sierra Northern Railway, Dennis Walters, Tour Engine Inc., Avnos Inc., Susteon, Captura, C-Quester, Carbon Blade, Noble Thermodynamic Systems, UCLA, Colorado School of Mines, Colorado State University, Cal State LA, GTI Energy, Electrochaea, Enchanted Rock LLC, Katherine Chou, Operations Technology Development, AI Energy Technologies, Summit Utilities, Utilization Technology Development, Upstart Power, Clean Energy, Emissions Free Generators; California Environmental Justice Alliance; and SoCalGas.

Many comments did not raise novel arguments, but instead repeated arguments presented in the advice letter. We are unpersuaded by the repetition of these arguments. The majority of commenters opine that their recipient funding should be restored but do not address errors in the advice letter.

The California Environmental Justice Alliance (CEJA) states that this Draft Resolution protects ratepayers from imprudent spending. CEJA writes that the Draft Resolution appropriately excludes SoCalGas RD&D spending on CCUS, Residential Appliances, Transportation, and non-renewable hydrogen. Further, CEJA writes that many commenters are attempting to shape public policy as a strategy for increasing profits but do not identify errors in the Draft Resolution.

Many commenters argue against the new Ordering Paragraph 5 which requires all new and future SoCalGas RD&D to occur in the state of California. Commenters write that this order prohibits partnership with federal labs and other out-of-state organizations. It is important to note that Ordering Paragraph 5 only applies to *new and future* projects. All out-of-state projects that are currently underway (and compliant with the other orders in this Resolution) may be completed. Further, due to the strong arguments made in comment letters, Ordering Paragraph 5 has been modified to include one exception: “All of Southern California Gas Company’s new and future Research, Development, and Demonstration projects shall occur in the State of California. *The only exception may be made for projects with out of state federal labs. In this case, SoCalGas shall explicitly justify benefits to its gas ratepayers of an out-of-state project in its Tier 3 Advice Letter annual plan.*” (Italics denote the newly included language.)

In its comments, SoCalGas argues that its Distributed Generation program is not duplicative of the CPUC’s Microgrids Proceeding (R.19-09-009) and, instead, is complementary to this proceeding. SoCalGas’s Distributed Generation program does not duplicate R.19-09-009 but SoCalGas has provided insufficient information to show

that it necessarily complements R.19-09-009. Due to the non-duplicative nature of this subprogram, we find that all Distributed Generation programs that have already commenced may continue to be funded. However, without further information and Commission guidance regarding gas ratepayers' role in Distributed Generation, SoCalGas shall not fund or begin any new Distributed Generation RD&D projects. This is reflected in Ordering Paragraph 8.

SoCalGas writes that its Industrial Process RD&D projects focus on decarbonizing a hard-to-electrify sector and have a reasonable probability of benefiting ratepayers due to emissions reductions. Due to these potential benefits, we find that all Industrial Process programs that have already begun may continue to be funded. However, without further information and Commission guidance regarding gas ratepayers' role in the Industrial Process subprogram, SoCalGas shall not fund or begin any new Industrial Process RD&D projects. This is reflected in Ordering Paragraph 8.

No approvals of subprogram funding in this Resolution signify precedent for approval of policy direction for funding in future RD&D program cycles. To ensure that future SoCalGas proposed Gas RD&D Plans align with Commission policies and proceedings, SoCalGas will meet with Energy Division staff, broad stakeholders including the research and ESJ communities, and coordinate with other RD&D program administrators in advance of submitting its annual Gas RD&D Plan. SoCalGas shall meet with Energy Division at least six weeks before submitting its Plan commencing with its 2024 Plan.

SoCalGas asks the Commission to provide clear direction authorizing it to spend 2023 RD&D funds during the 2024 GRC cycle years. We approve SoCalGas spending its approved 2023 RD&D funding in *calendar year* 2024. Ordering Paragraph 7 has been included to reflect this.

SoCalGas argues the Draft Resolution should be modified to include an assessment of the applicability of a uniform impact analysis framework. We clarify that instead of continuing to develop its own benefits analysis framework, SoCalGas shall engage in the impact analysis framework process in proceeding R.19-10-005 (EPIC proceeding) anticipated in 2024. The Commission anticipates that its workshop process to develop an RD&D impact analysis framework will be applicable to all RD&D programs and may be tailored for its relevant applicability for Gas RD&D programs. In the interim, SoCalGas should continue to report its impacts on, and benefits to, its ratepayers.

SoCalGas requests an additional 30 days to file its Tier 2 compliance Advice Letter with the revisions required in this Resolution. We find this request to be reasonable and have extended SoCalGas's time to file a Tier 2 Advice Letter with revision to its 2023 RD&D Plan to 90 days from issuance of this Resolution. These revisions are reflected in Ordering Paragraph 3.

## **FINDINGS**

1. SoCalGas filed its 2023 RD&D Program Research Plan, pursuant to D.19-09-051.
2. SoCalGas submitted its 2021 Annual Report to CPUC Energy Division on April 20, 2022. The Annual Report documents program results from the previous year's Gas RD&D program. This is consistent with the requirement from D.19-09-051.
3. SoCalGas organized an annual workshop for stakeholders, provided materials ahead of the workshop, and documented stakeholder engagement, consistent with D.19-09-051.
4. SoCalGas's 2023 Research Plan meets the Advice Letter requirements of D.19-09-051 by providing: 1) Detailed budgets broken down by research subprogram; 2) An explanation of how the projects improve reliability, safety, environmental benefits, or operation efficiencies; and 3) Discussion of how SoCalGas incorporated feedback from workshop stakeholders and CPUC Staff, consistent with D.19-09-051.
5. SoCalGas's 2023 Research Plan breaks down its administrative budget, consistent with the requirement from G-3586.
6. SoCalGas's 2023 Research Plan includes a description of project equity impacts in its criteria and research descriptions, consistent with the requirement from G-3586.
7. SoCalGas responded to a May 5, 2023 CPUC data request about its 2023 Research Plan on May 19, 2023.
8. SoCalGas's RD&D plan did not provide sufficient information on how SoCalGas has used (or intends to use) the results of the RD&D projects, inconsistent with the requirement from G-3573.

9. SoCalGas's 2023 Research Plan does not include a benefits analysis framework to quantitatively measure its projects' impacts on ratepayers and communities. SoCalGas later provided the foundational principles for its benefits analysis framework in Advice Letter 6014-G.
10. SoCalGas's Carbon Capture, Utilization & Sequestration subprogram is potentially duplicative of other State and Federal programs.
11. SoCalGas's System Design & Materials subprogram includes hydrogen blending research projects that are duplicative of the funding requested by SoCalGas in A.22-09-006.
12. SoCalGas's Clean Transportation program does not demonstrate direct ratepayer benefit as required by Pub. Util. Code § 740.1.
13. SoCalGas's Distributed Generation subprogram does not demonstrate clear benefits to ratepayers as required by Pub. Util. Code § 740.1.
14. SoCalGas's Industrial Process Equipment subprogram does not demonstrate clear benefits to ratepayers as required by Pub. Util. Code § 740.1.
15. SoCalGas's Residential Appliances subprogram includes hydrogen blending research projects that are duplicative of pilot program to test hydrogen blending in pipelines ordered in D.22-12-057.

**THEREFORE, IT IS ORDERED THAT:**

1. Southern California Gas Company's Research, Development, and Demonstration Plan program funding level for 2023 is \$16,874,000.
2. Southern California Gas Company's program administration budget is capped at 10 percent of the total budget, or \$1,687,400, for 2023, excluding the costs from new requirements such as Program Evaluation and comprehensive Gas Research, Development, and Demonstration database included in this Resolution.
3. Southern California Gas Company (SoCalGas) shall submit a Tier 2 Advice Letter within 90 days with the information described below. SoCalGas shall

commensurately modify its 2023 Gas Research, Development, and Demonstration (RD&D) Plan with this information and attach to its Advice Letter: 1) a track-change version of its original Plan; 2) a clean version of its updated Plan; 3) a table describing the changes it has made aligned with the ordering paragraph and page number.

- a. SoCalGas shall propose how it will reallocate \$7,301,717 of its 2023 Gas RD&D funding, which was originally allocated to the following subprograms: Carbon Capture, Utilization, and Sequestration, Off-Road, Onboard Storage, On-Road, Refueling Stations, Distributed Generation, Industrial Process Heat, and Residential Appliances. SoCalGas shall also reallocate any funding allocated toward hydrogen blending research in the System Design & Materials subprogram. SoCalGas may restore the relevant portion of the \$7,301,717 subprogram funds as allowed by modifications to the Resolution as described above. In its Tier 2 AL, SoCalGas shall provide granular budget information for each subprogram delineating the restored funding from the funds which must be reallocated. For the reallocation, SoCalGas shall propose projects that comply with the RD&D criteria described herein and specifically consider reallocating these funds toward gas pipeline and system integrity, gas system decommissioning, and cybersecurity. SoCalGas shall reallocate \$129,938 of these 2023 Gas RD&D funds toward its proportional share of a comprehensive Gas RD&D database. SoCalGas shall also reallocate \$675,000 of these 2023 Gas RD&D funds toward a comprehensive program evaluation.
- b. SoCalGas shall demonstrate that any hydrogen programs and projects conducted by SoCalGas utilize clean renewable hydrogen, consistent with the definition given in Decision (D.) 22-12-057. We deny any hydrogen projects/programs that are not consistent with this definition of clean renewable hydrogen. SoCalGas shall update its Plan in its Tier 2 AL demonstrating that it will use the allowed clean renewable hydrogen or otherwise propose to reallocate funds.
- c. SoCalGas shall demonstrate that the System Inspection & Monitoring clean renewable hydrogen blending projects do not duplicate the hydrogen blending pilots conducted through D.22-12-057.



- d. SoCalGas shall provide greater detail about how its proposed projects and strategies specifically will benefit the ESJ communities that fund this research related to the state's climate goals. Further, SoCalGas shall explain how it measures the impacts of its research on ESJ communities.
  - e. SoCalGas shall provide an interim update on its impact (benefit) analysis framework as ordered in Resolution G-3586, but complete development of its final framework as guided by the outcome of the Uniform Impact Analysis Framework guidance in R.19-10-005.
  - f. SoCalGas shall explicitly justify how its 2023 Gas RD&D consortia dues directly benefit its gas ratepayers or SoCalGas must otherwise reallocate these funds informed by the guidance in this resolution.
- 4. Southern California Gas Company (SoCalGas) shall allocate 4% (\$675,000) of its 2023 Gas Research, Development, and Demonstration (RD&D) funds to fund a comprehensive evaluation of SoCalGas's Gas RD&D program to be implemented by Energy Division. Energy Division staff shall develop a scope of work, issue a request for proposal, and hire and manage the contractor. Staff may create efficiencies by utilizing a fiscal manager and evaluating all Gas RD&D administrators through a comprehensive evaluation process.
- 5. All of Southern California Gas Company's new and future Research, Development, and Demonstration projects shall occur in the State of California. The only exception may be made for projects with out of state federal labs. In this case, SoCalGas shall explicitly justify benefits to its gas ratepayers of an out-of-state project in its Tier 3 Advice Letter annual plan.
- 6. In its 2024 Gas Research, Development, and Demonstration (RD&D) Research Plan and beyond, Southern California Gas Company (SoCalGas) shall:
  - a. Meet with Energy Division at least six weeks of submitting its annual RD&D Plan to present its proposed Plan and incorporate Energy Division feedback. At that time SoCalGas's proposed Plan should reflect input from RD&D administrator coordination and broad stakeholders including the research and ESJ communities.
  - b. Explicitly justify how all consortia dues benefit gas ratepayers.

- c. Elaborate on the results of its RD&D projects. SoCalGas shall describe how results are used to address the state's climate goals, how its research project results are scaled/commercialized, and how SoCalGas measures the impacts of its research.
- d. Itemize and include more detail about how it incorporated proposals and feedback on research ideas proposed by stakeholders at its Annual Stakeholder workshop, including disadvantaged communities. SoCalGas should otherwise explain why it did not incorporate stakeholder input.
- e. Modify the term "benefits analysis framework" to "uniform impact analysis framework" to better explain the Commission's intent. SoCalGas shall implement the uniform impacts analysis framework approved in Appendix A of Decision (D.) 23-04-042, as relevant for Gas RD&D, to allow for tracking and evaluating the quantitative impacts of all Gas RD&D projects.
- f. Use the Disadvantaged Communities Advisory Group's (DACAG) Equity Framework for guidance on how to develop research projects that benefit Environmental and Social Justice (ESJ) communities as well as engage with disadvantaged, low-income, and tribal communities. SoCalGas shall demonstrate in its research plan how it applied the DACAG's Equity Framework and offer to brief DACAG members on its annual gas research, development, and demonstration (RD&D) proposals. Further, SoCalGas shall describe the benefits and impacts of its RD&D work in ESJ communities in its annual Plan.
- g. Demonstrate that it has consulted with ESJ communities in advance of developing research projects to ensure projects are effective in realizing benefits for ESJ communities. In its workshop to solicit stakeholder feedback on its future Gas RD&D plans, SoCalGas shall consult with Energy Division in curating an ESJ community advisory workshop panel to be consulted in a public workshop prior to submitting its annual Gas RD&D Plan to the Commission. SoCalGas shall explore compensation strategies for its advisory panel.
- h. Demonstrate that any hydrogen programs and projects utilize clean renewable hydrogen, consistent with the definition given in D.22-12-057, or the Commission's successor definition for clean hydrogen.

- i. Demonstrate how SoCalGas coordinates in advance with other gas RD&D program administrators to ensure efficiencies, avoid duplication, and optimize research that benefits California ratepayers.
7. Southern California Gas Company may spend its approved 2023 Research, Development, and Demonstration funding in calendar year 2024.
8. Southern California Gas Company (SoCalGas) is authorized to continue projects that are currently ongoing in its Distributed Generation and Industrial Process subprograms. Any new Research, Development, and Demonstration projects in these subprograms shall not be funded by SoCalGas.
9. Southern California Gas Company (SoCalGas) Advice Letter 5991-G proposing for SoCalGas to record up to \$16.874 million in Research, Development, and Demonstration (RD&D) expenses is partially approved.

This Resolution is effective today.

I certify that the foregoing resolution was duly introduced, passed, and adopted at a conference of the Public Utilities Commission of the State of California held on November 30, 2023; the following Commissioners voting favorably thereon:

/s/ RACHEL PETERSON

Rachel Peterson  
Executive Director

ALICE REYNOLDS  
President  
GENEVIEVE SHIROMA  
DARCIE HOUCK  
JOHN REYNOLDS  
KAREN DOUGLAS  
Commissioners