PUBLIC UTILITIES COMMISSION OF THE STATE OF CALIFORNIA

Agenda ID #24616
ENERGY DIVISION **RESOLUTION G-3624**
December 3, 2026

R E S O L U T I O N

Resolution G-3624. Southern California Gas Company's Gas Research, Development, & Demonstration Plans for 2024 (AL 6495-G-A), 2025 (AL 6496-G-A), 2026 (AL 6645-G), and 2027 (AL 6646-G).

PROPOSED OUTCOME:

- Approves in part and modifies in part the Southern California Gas (SoCalGas) Company's Gas Research, Development, and Demonstration (RD&D) Investment Plans with a budget of $17,853,000 for 2024 (as requested in Advice Letter 6495-G-A); $18,389,000 for 2025 (as requested in Advice Letter 6496-G-A); $18,940,000 for 2026 (as requested in Advice Letter 6645-G); and $19,508,100 for 2027 (as requested in Advice Letter 6646-G), pursuant to California Public Utilities Commission Decision (D.)24-12-074. Directs SoCalGas to submit revised Gas RD&D Investment Plans via Tier 2 Advice Letters with modifications described herein.
- Establishes additional requirements for Commission oversight.

SAFETY CONSIDERATIONS:

- This Resolution approves safety-related RD&D funding.

ESTIMATED COST:

- Approves $74,690,100 in ratepayer costs for as previously authorized in Decision (D.) 24-12-074.

By Advice Letters 6495-G-A for 2024 and 6496-G-A for 2025 filed on April 3, 2026, and 6645-G for 2026 and 6646-G for 2027, Filed on June 1, 2026.

SUMMARY

This Resolution approves in part and modifies in part Southern California Gas (SoCalGas) Company's Advice Letters (AL) 6495-G-A, 6496-G-A, 6645-G, and 6646-G with proposed Gas Research, Development, and Demonstration (RD&D) Investment Plans (Gas RD&D Plans or Plans) for 2024, 2025, 2026, and 2027, respectively. SoCalGas' Gas RD&D Program was established pursuant to the general rate case (GRC) Decision (D.) 19-09-051 as upheld in D.24-12-074, requiring SoCalGas to submit, and the Commission to approve, an annual Tier 3 AL describing SoCalGas' proposed Gas RD&D Investment Plan prior to utilizing authorized funds.[1] Based on Commission review of requirements, the California Public Utilities Commission (CPUC or Commission) approves in part and modifies in part SoCalGas' Gas RD&D Plans with proposed budgets of $17,853,000 for 2024; $18,389,000 for 2025; $18,940,000 for 2026; and $19,508,100 for 2027, totaling $74,690,100.[2] These budgets include proposed administrative budgets of 10% for total administrative costs, amounting to $1,785,300 for 2024; $1,838,900 for 2025; $1,894,000 for 2026; and $1,950,800 for 2027. The Commission directs SoCalGas to submit revised Gas RD&D Investment Plans via Tier 2 Advice Letters within 60 days with modifications described in this Resolution.

This Resolution provides a consolidated list of program requirements based on prior decisions and resolutions as well as establishes new requirements for improved Commission oversight. The list of consolidated program requirements is intended to aid the efficient development and streamlined review of future proposed Gas RD&D Plans. This Resolution establishes an Annual Report deadline of March 1 of each year.[3]

BACKGROUND

Commission requirements for developing, reviewing, and approving SoCalGas' Annual Gas RD&D Investment Plans are detailed in Public Utilities Code Section 740.1; D.19-09-051 establishing SoCalGas' Gas RD&D Program and adopting SoCalGas' Test Year (TY) 2019 GRC; D.24-12-074 adopting SoCalGas' TY 2024 GRC; Resolution G-3573

[1] D.19-09-051: Decision on Test Year 2019 GRC for San Diego Gas & Electric (SDG&E) and SoCalGas at p. 378-379 & D.24-12-074: Decision Addressing the 2024 Test Year GRC of SoCalGas & SDG&E at p. 327.
[2] See Resolution G-3624 at Appendix A for SoCalGas' 2024-2027 Plans Proposed Budgets.
[3] Consistent with D.19-09-051 at p. 378.

approving SoCalGas' 2021 Gas RD&D Plan; Resolution G-3586 approving SoCalGas' 2022 Gas RD&D Plan; and Resolution G-3601 approving SoCalGas' 2023 Gas RD&D Plan.

Public Utilities Code Section 740.1

Public Utilities Code Section 740.1[4] directs the Commission to consider the following guidelines in evaluating proposed Gas RD&D investments:

(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.[5]
(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.[6]

D.19-09-051 Adopted SoCalGas' 2019 Revenue Requirement in SoCalGas' General Rate Case and Gas RD&D Investment Plan Funds Upon Approval of a Tier 3 Advice Letter

The Commission approved a TY 2019 Gas RD&D budget forecast of $14.329 million in SoCalGas' 2019 GRC decision, D.19-09-051, using a zero-based methodology.[7] D.19-09-051 required SoCalGas to submit, and the Commission to approve, an annual Tier 3 AL describing SoCalGas' proposed Gas RD&D Investment Plan. Upon Commission approval of the Plan, SoCalGas may record Gas RD&D program expenses

[4] California Public Utilities Code Section 740.1.
[5] The Commission's compliance assessment of this requirement is captured in Resolution G-3624 Appendix G at CPUC Requirement [25] for AL 6495-G-A and Appendices H-J at CPUC Requirement [23] for ALs 6496-G-A, 6645-G, and 6646-G.
[6] Consistent with Executive Order (EO) N-5-24 (Newsom, 2024) On reducing rates.
[7] D.19-09-051 at p. 374 & 377.

in a one-way balancing account. SoCalGas shall not record any Gas RD&D program expenses in a one-way balancing account until an annual Tier 3 Advice Letter outlining its Gas RD&D Budget Plan is approved, and unspent funds must be returned to ratepayers at the end of each GRC cycle.[8] D.19-09-051 also required SoCalGas to host an annual public workshop, submit an Annual Report to Energy Division, and, in its Gas RD&D Plans, (1) detail budgets broken down by research sub-program area, (2) explain how the projects help improve reliability, safety, environmental benefits, or operational efficiencies[9] and (3) discuss how SoCalGas incorporated feedback from workshop stakeholders and Commission staff.[10]

D.24-12-074 Adopting SoCalGas' 2024 Revenue Requirement in SoCalGas' General Rate Case and Upholding D.19-09-051 Gas RD&D Program Practices

D.24-12-074 upholds the SoCalGas Gas RD&D Program requirements set in D.19-09-051, including those to file a Tier 3 AL, funding the program subject to a one-way balancing account, and returning unspent funds to ratepayers at the end of each GRC cycle.[11] In SoCalGas' 2024 GRC D.24-12-074, the Commission approved a TY 2024 Gas RD&D budget forecast of $15.915 million in constant dollars based on the average trend of incurred costs authorized in recent years, to include the 10 percent administrative cost budget.[12] This translates to an annual budget of $17.853M in nominal dollars[13] for SoCalGas' 2024 Plan, escalated to annual budgets of $18.389M for SoCalGas' 2025 Plan; $18.94M for SoCalGas' 2026 Plan; and $19.508M for SoCalGas' 2027 Plan using the 3% escalation factor.[14]

[8] D.19-09-051 at p. 377-379.
[9] The Commission's compliance assessment of the requirement for SoCalGas to meet these objectives is captured in Resolution G-3624 Appendix G at CPUC Requirement [8] & [21] for AL 6495-G-A and Appendices H-J at CPUC Requirement [8] & [19] for ALs 6496-G-A, 6645-G, and 6646-G.
[10] D.19-09-051 at p. 378-379. The Commission's compliance assessment of the requirement for SoCalGas to incorporate feedback from Commission staff and workshop stakeholders is captured in Resolution G-3624 Appendix G at CPUC Requirement [17] & [20] for AL 6495-G-A and Appendices H-J at CPUC Requirement [15] & [18] for ALs 6496-G-A, 6645-G, and 6646-G.
[11] D.24-12-074 at p. 327-330.
[12] D.24-12-074 at p. 327-330 & Finding of Fact (FOF) 110.
[13] D.24-12-074 at p. 21-24. Section 4.2. Rate Formula & 4.3. Use of Recorded and Forecasted Costs.
[14] D.24-12-074 at p. 895 & 901; Conclusion of Law (COL) 305.

CPUC Gas RD&D Program Requirements from Prior SoCalGas Resolutions

The Commission has also set requirements for SoCalGas' Gas RD&D Program via resolutions approving SoCalGas' Gas RD&D Plans. All applicable Commission requirements set via resolution were rigorously reviewed to identify key orders for the Commission's evaluation of SoCalGas' proposed Plans, detailed in Appendix B: Key CPUC Gas RD&D Resolution Requirements.

Summary of SoCalGas' Advice Letter 6495-G-A: 2024 Gas RD&D Plan

SoCalGas submitted its proposed 2024 Plan via Tier 3 AL 6182-G on August 30, 2023. SoCalGas later withdrew AL 6182-G on May 24, 2024, after consultation with CPUC staff. SoCalGas resubmitted its 2024 Plan (AL 6495-G) on June 27, 2025, and subsequently submitted its modified 2024 Plan via supplemental AL 6495-G-A on April 3, 2026.

Summary of Modifications to SoCalGas' 2024 Gas RD&D Plan via Supplement (AL 6495-G-A)

SoCalGas states that "[i]n alignment with Energy Division staff guidance and the recommendations above, SoCalGas has updated the Research Plan as follows:

- Budget tables for each theme and initiative were updated, reallocating funds from hydrogen-related areas into other initiatives.
- New charts have been added to each initiative showing progression from completed and active projects to potential research areas that address identified gaps.
- Additional information was provided to describe how program administration funds cover consortia dues.
- Selected metrics from the EPIC Uniform Impacts Analysis Framework have been incorporated where applicable to the 2024 initiatives, that will be further developed to demonstrate anticipated benefits for ratepayers.
- The project details spreadsheet has been updated and now includes citations for all required fields."[15]

[15] AL 6495-G-A at p. 14.

SoCalGas' Request for 2024 Gas RD&D Plan

SoCalGas seeks approval of its proposed Gas RD&D Investment Plan for 2024 in AL 6495-G-A, authorized by D.24-12-074 at $17,853,000 with the following proposed budget allocations to various Initiatives:[16]

Table 2: 2024 Gas RD&D Plan Proposed Budget			
Investment Theme	**Initiative Title**	**2024 Plan Budget**	
Gas System Integrity	Environmental & Safety	$	1,305,784
	Operations Technology	$	769,852
	System Design & Materials	$	2,001,614
	System Inspection & Monitoring	$	2,259,555
	RNG[17] Infrastructure Optimization	$	2,090,927
	Gas & Energy Storage	$	400,000
Decarbonization	Low-Carbon Fuels Technologies	$	2,237,934
	Low-Carbon Fuels Integration	$	150,000
	Energy Reliability & Resilience	$	2,289,414
	Building & Facility Systems	$	1,757,682
Gas RD&D Database Development		$	129,938
Program Evaluation		$	675,000
Program Administration		$	1,785,300
	ANNUAL TOTAL:	**$**	**17,853,000**

Gas System Integrity Theme Proposed Initiatives

SoCalGas states that it seeks to develop Initiatives within the Gas System Integrity Theme that support "the safe and affordable transportation, distribution, and storage of natural gas and RNG through the SoCalGas pipeline network by developing, testing, and introducing innovations that: Improve infrastructure, public, contractor and employee safety; Maintain and improve system reliability and integrity; Improve

[16] AL 6495-G-A at p. 6 & Attachment A at p. 9-10, 14, & 41.
[17] Renewable natural gas.

affordability by increasing operational efficiency and effectiveness; Improve air quality and reduce GHG impacts by minimizing system emissions."[18]

- Environmental & Safety[19]

SoCalGas states that it seeks to develop projects within the Environmental & Safety Initiative to maintain system infrastructure with safe and environmentally conscious methods. Research Topics include: (i) optimizing operations with new technologies, (ii) detecting conditions that damage infrastructure, and (iii) protecting infrastructure in novel ways. SoCalGas lists potential metrics for tracking and evaluating impacts from the Initiative, including reductions in both greenhouse gas (GHG) emissions attributed to loss of containment and criteria air pollutant emissions associated with equipment optimization. SoCalGas proposes to allocate $1,305,784 in its 2024 Plan.

- Operations Technology[20]

SoCalGas states that it seeks to develop projects within the Operations Technology Initiative to empower their workforce with state-of-the-art tools and techniques that enhance safety, strengthen reliability, and increase affordability. Research Topics include: (i) advance mapping & locating technologies, (ii) pipeline repair technologies that optimize operational efficiency, and (iii) reducing cybersecurity vulnerabilities of remotely operated infrastructure. SoCalGas lists potential metrics for tracking and evaluating impacts from the Initiative, including reductions in both paving and construction costs associated with advances in construction techniques and maintenance costs associated with locating inaccuracies and third-party damage. SoCalGas proposes to allocate $769,852 in its 2024 Plan.

[18] AL 6495-G-A Attachment A at p. 14.
[19] AL 6495-G-A Attachment A at p. 17-21.
[20] AL 6495-G-A Attachment A at p. 21-24.

- System Design & Materials[21]

SoCalGas states that it seeks to develop projects within the System Design & Materials Initiative to modernize infrastructure to accommodate new fuel sources, incorporate modern technology, and align with regulatory policies. Research Topics include: (i) increased life of assets, (ii) optimize system materials, (iii) infrastructure compatibility with RNG feedstocks and non-pipeline alternatives, and (iv) new/updated SoCalGas-specific models and risk analyses. SoCalGas lists potential metrics for tracking and evaluating impacts from the Initiative, including reductions in both operating costs associated with physical emergency response through equipment automation and installation costs associated with optimizing corrosion control practices. SoCalGas proposes to allocate $2,001,614 in its 2024 Plan.

- System Inspection & Monitoring[22]

SoCalGas states that it seeks to develop projects within the System Inspection & Monitoring Initiative to advance real-time pipeline and storage infrastructure inspection and monitoring technologies to deliver higher-fidelity data faster—enhancing safety, reliability, and operational efficiency. Research Topics include: advancing (i) pipeline inspection tools, (ii) pipeline infrastructure monitoring technologies, (iii) storage infrastructure inspection and monitoring, and (iv) geohazard monitoring technologies. SoCalGas lists potential metrics for tracking and evaluating impacts from the Initiative, including reductions in both monitoring costs associated with remote monitoring vs. traditional in person monitoring and inspection costs associated with new technology efficiencies. SoCalGas proposes to allocate $2,259,555 in its 2024 Plan.

[21] AL 6495-G-A Attachment A at p. 25-28.
[22] AL 6495-G-A Attachment A at p. 29-33.

- Renewable Natural Gas (RNG) Infrastructure Optimization[23]

SoCalGas states that it seeks to develop projects within the RNG Infrastructure Optimization Initiative to increase the supply of affordable, safe, and reliable RNG with technologies that lower RNG interconnection and integration costs. Research Topics include: (i) advanced interconnection design, (ii) pipeline utilization strategies, and (iii) improve system efficiency. SoCalGas lists potential metrics for tracking and evaluating impacts from the Initiative, including reductions in GHG emissions and operations and maintenance and capital costs. SoCalGas proposes to allocate $2,090,927 in its 2024 Plan.

- Gas & Energy Storage[24]

SoCalGas states that it seeks to develop projects within the Gas & Energy Storage Initiative to optimize gas supply through large-scale storage. Research Topics include evaluating geological hydrogen storage. SoCalGas lists potential metrics for tracking and evaluating impacts from the Initiative, including reductions in both renewable energy costs and curtailed energy. SoCalGas proposes to allocate $400,000 in its 2024 Plan.

Decarbonization Theme Proposed Initiatives

SoCalGas states that it seeks to develop Initiatives within the Gas System Integrity Theme to "advance technologies that improve the affordability, availability, reliability, and integration of low-carbon fuels and energy systems for SoCalGas customers… [and] accelerate the development and deployment of solutions that support California's climate and energy goals, particularly through the integration of renewable fuels, advanced storage technologies, and emissions-reducing systems."[25]

[23] AL 6495-G-A Attachment A at p. 33-36.
[24] AL 6495-G-A Attachment A at p. 36-39.
[25] AL 6495-G-A Attachment A at p. 41.

- Low-Carbon Fuels Technologies[26]

SoCalGas states that it seeks to develop projects within the Low-Carbon Fuels Technologies Initiative to develop and demonstrate technologies that can produce low-carbon fuels at lower cost. Research Topics include: (i) advancing RNG production systems, (ii) developing dynamic, low-carbon technologies, (iii) scaling transformative technologies, (iv) improving durability and performance, and (v) lowering cost through manufacturing innovation. SoCalGas lists potential metrics for tracking and evaluating impacts from the Initiative, including reductions in GHG and criteria pollutant emissions and operations and maintenance and capital costs. SoCalGas proposes to allocate $2,237,934 in its 2024 Plan.

- Low-Carbon Fuels Integration[27]

SoCalGas states that it seeks to develop projects within the Low-Carbon Fuels Integration Initiative to advance end-use equipment capabilities so that low-carbon fuels can be incorporated reliably and cost-effectively. Research Topics include: (i) evaluating product quality impacts, (ii) assessing retrofit needs, (iii) optimizing fuel blending systems, (iv) demonstrating electrolysis applications, and (v) testing hydrogen-compatible heating equipment. SoCalGas lists potential metrics for tracking and evaluating impacts from the Initiative, including reductions in GHG and criteria pollutant emissions and operations and maintenance and capital costs. SoCalGas proposes to allocate $150,000 in its 2024 Plan.

- Energy Reliability & Resilience[28]

SoCalGas states that it seeks to develop projects within the Energy Reliability & Resilience Initiative to reduce power generation emissions while maintaining reliability, resilience, affordability, or long-term value of existing assets. Research Topics include: (i) improving microgrid controls, (ii) improving or replacing

[26] AL 6495-G-A Attachment A at p. 43-48.
[27] AL 6495-G-A Attachment A at p. 48-53.
[28] AL 6495-G-A Attachment A at p. 53-58.

combustion-based power generation by developing low- and zero-emission systems for backup power, (iii) advancing alternative power generation technologies, (iv) optimizing use of low-carbon fuels, (v) integrating carbon management solutions, and (vi) exploring on-site fuel conversion. SoCalGas lists potential metrics for tracking and evaluating impacts from the Initiative, including reductions in outage frequency and duration and GHG and criteria pollutant emissions in addition to customer bill savings. SoCalGas proposes to allocate $2,289,414 in its 2024 Plan.

- Building & Facility Systems[29]

SoCalGas states that it seeks to develop projects within the Building & Facility Systems Initiative to advance new technologies that cost-effectively reduce emissions from California's buildings and facilities (residential, commercial, and industrial). Research areas include: (i) cutting direct emissions, (ii) enhancing load flexibility, (iii) improving building efficiency, and (iv) advancing priority technologies. SoCalGas lists potential metrics for tracking and evaluating impacts from the Initiative, including avoided customer energy use and bills savings, GHG and criteria pollutant emissions, and reductions in operations and maintenance and capital costs. SoCalGas proposes to allocate $1,757,682 in its 2024 Plan.

Gas RD&D Database Development

SoCalGas proposes to allocate $56,987 in its 2024 Plan for its proportional share of developing a comprehensive Gas RD&D Database.[30]

Program Evaluation

SoCalGas proposes to allocate $675,000 in its 2024 Plan for its proportional share of a comprehensive Gas RD&D Program Evaluation to be conducted by Energy Division.[31]

[29] AL 6495-G-A Attachment A at p. 59-62.
[30] AL 6495-G-A at p. 6 & Attachment A at p. 9 & 11-12.
[31] AL 6495-G-A at p. 6 & Attachment A at p. 9 & 11-12.

Program Administration

SoCalGas proposes to allocate ten percent of its annual total budget to administrative costs, translating to $1,785,300 in its 2024 Plan.[32]

Summary of SoCalGas' Advice Letter 6496-G-A: 2025 Gas RD&D Plan

SoCalGas submitted its 2025 Plan (AL 6496-G) on June 27, 2025, and subsequently submitted its modified 2025 Plan via supplemental AL 6496-G-A on April 3, 2026.

Summary of Modifications to SoCalGas' 2025 Gas RD&D Plan via Supplement (AL 6496-G-A)

SoCalGas states that "[i]n alignment with Energy Division staff guidance and the recommendations above, SoCalGas has updated the Research Plan as follows:

- Budget tables for each theme and initiative were updated, reallocating funds from hydrogen-related areas into other initiatives.
- New charts have been added to each initiative showing progression from completed and active projects to potential research areas that address identified gaps.
- Additional information was provided to describe how program administration funds cover consortia dues.
- Selected metrics from the EPIC Uniform Impacts Analysis Framework have been incorporated where applicable to the 2025 initiatives, that will be further developed to demonstrate anticipated benefits for ratepayers.
- The project details spreadsheet has been updated and now includes citations for all required fields."[33]

SoCalGas' Request for 2025 Gas RD&D Plan

SoCalGas seeks approval of its proposed Gas RD&D Investment Plan for 2025 in AL 6496-G-A, authorized by D.24-12-074 at $18,389,000 with the following proposed budget allocations to various Initiatives:[34]

[32] AL 6495-G-A at p. 6 & Attachment A at p. 9-10.
[33] AL 6496-G-A at p. 13.
[34] AL 6496-G-A at p. 6 & Attachment A at p. 9-10, 13, & 38.

Table 3: 2025 Gas RD&D Plan Proposed Budget			
Investment Theme	**Initiative Title**	**2025 Plan Budget**	
Gas System Integrity	Environmental & Safety	$	1,655,010
	Operations Technology	$	827,505
	System Design & Materials	$	2,151,513
	System Inspection & Monitoring	$	2,482,515
	RNG Infrastructure Optimization	$	2,534,522
Decarbonization	Low-Carbon Fuels Technologies	$	2,482,515
	Energy Reliability & Resilience	$	2,482,515
	Building & Facility Systems	$	1,934,005
Program Administration		$	1,838,900
	ANNUAL TOTAL:	$	**18,389,000**

Gas System Integrity Theme Proposed Initiatives

SoCalGas states that it seeks to develop Initiatives within the Gas System Integrity Theme that support "the safe and affordable transportation, distribution, and storage of natural gas and RNG through the SoCalGas pipeline network by developing, testing, and introducing innovations that: Improve infrastructure, public, contractor and employee safety; Maintain and improve system reliability and integrity; Improve affordability by increasing operational efficiency and effectiveness; Improve air quality and reduce GHG impacts by minimizing system emissions."[35]

- Environmental & Safety[36]

  SoCalGas states that it seeks to develop projects within the Environmental & Safety Initiative to maintain system infrastructure with safe and environmentally conscious methods. Research Topics include: (i) optimizing operations with new technologies, (ii) detecting conditions that damage infrastructure, and (iii) protecting infrastructure in novel ways. SoCalGas lists potential metrics for tracking and evaluating impacts from the Initiative, including reductions in both greenhouse gas (GHG) emissions attributed to loss of containment and criteria

[35] AL 6496-G-A Attachment A at p. 13.
[36] AL 6496-G-A Attachment A at p. 16-20.

air pollutant emissions associated with equipment optimization. SoCalGas proposes to allocate $1,655,010 in its 2025 Plan.

- Operations Technology[37]

SoCalGas states that it seeks to develop projects within the Operations Technology Initiative to empower their workforce with state-of-the-art tools and techniques that enhance safety, strengthen reliability, and increase affordability. Research Topics include: (i) advance mapping & locating technologies, (ii) pipeline repair technologies that optimize operational efficiency, and (iii) reducing cybersecurity vulnerabilities of remotely operated infrastructure. SoCalGas lists potential metrics for tracking and evaluating impacts from the Initiative, including reductions in both paving and construction costs associated with advances in construction techniques and maintenance costs associated with locating inaccuracies and third-party damage. SoCalGas proposes to allocate $827,505 in its 2025 Plan.

- System Design & Materials[38]

SoCalGas states that it seeks to develop projects within the System Design & Materials Initiative to modernize infrastructure to accommodate new fuel sources, incorporate modern technology, and align with regulatory policies. Research Topics include: (i) increased life of assets, (ii) optimize system materials, (iii) infrastructure compatibility with RNG feedstocks and non-pipeline alternatives, and (iv) new/updated SoCalGas-specific models and risk analyses. SoCalGas lists potential metrics for tracking and evaluating impacts from the Initiative, including reductions in both operating costs associated with physical emergency response through equipment automation and installation costs associated with optimizing corrosion control practices. SoCalGas proposes to allocate $2,151,513 in its 2025 Plan.

[37] AL 6496-G-A Attachment A at p. 20-24.
[38] AL 6496-G-A Attachment A at p. 24-28.

- System Inspection & Monitoring[39]

SoCalGas states that it seeks to develop projects within the System Inspection & Monitoring Initiative to advance real-time pipeline and storage infrastructure inspection and monitoring technologies to deliver higher-fidelity data faster—enhancing safety, reliability, and operational efficiency. Research Topics include: advancing (i) pipeline inspection tools, (ii) pipeline infrastructure monitoring technologies, (iii) storage infrastructure inspection and monitoring, and (iv) geohazard monitoring technologies. SoCalGas lists potential metrics for tracking and evaluating impacts from the Initiative, including reductions in both monitoring costs associated with remote monitoring vs. traditional in person monitoring and inspection costs associated with new technology efficiencies. SoCalGas proposes to allocate $2,482,515 in its 2025 Plan.

- RNG Infrastructure Optimization[40]

SoCalGas states that it seeks to develop projects within the RNG Infrastructure Optimization Initiative to increase the supply of affordable, safe, and reliable RNG with technologies that lower RNG interconnection and integration costs. Research Topics include: (i) advanced interconnection design, (ii) pipeline utilization strategies, and (iii) improve system efficiency. SoCalGas lists potential metrics for tracking and evaluating impacts from the Initiative, including reductions in GHG emissions and operations and maintenance and capital costs. SoCalGas proposes to allocate $2,534,522 in its 2025 Plan.

Decarbonization Theme Proposed Initiatives

SoCalGas states that it seeks to develop Initiatives within the Gas System Integrity Theme to "advance technologies that improve the affordability, availability, reliability, and integration of low-carbon fuels and energy systems for SoCalGas customers… [and] accelerate the development and deployment of solutions that support California's

[39] AL 6496-G-A Attachment A at p. 29-33.
[40] AL 6496-G-A Attachment A at p. 33-37.

climate and energy goals, particularly through the integration of renewable fuels, advanced storage technologies, and emissions-reducing systems."[41]

- Low-Carbon Fuels Technologies[42]

SoCalGas states that it seeks to develop projects within the Low-Carbon Fuels Technologies Initiative to develop and demonstrate technologies that can produce low-carbon fuels at lower cost. Research Topics include: (i) advancing RNG production systems, (ii) scaling transformative technologies, (iii) improving durability and performance, and (iv) lowering cost through manufacturing innovation. SoCalGas lists potential metrics for tracking and evaluating impacts from the Initiative, including reductions in GHG and criteria pollutant emissions and operations and maintenance and capital costs. SoCalGas proposes to allocate $2,482,515 in its 2025 Plan.

- Energy Reliability & Resilience[43]

SoCalGas states that it seeks to develop projects within the Energy Reliability & Resilience Initiative to reduce power generation emissions while maintaining reliability, resilience, affordability, or long-term value of existing assets. Research Topics include: (i) improving microgrid controls, (ii) improving or replacing combustion-based power generation by demonstrating low- and zero-emission systems for backup power, (iii) advancing alternative power generation technologies, (iv) optimizing use of low-carbon fuels, (v) integrating carbon management solutions, and (vi) exploring on-site fuel conversion. SoCalGas lists potential metrics for tracking and evaluating impacts from the Initiative, including reductions in outage frequency and duration and GHG and criteria pollutant emissions in addition to customer bill savings. SoCalGas proposes to allocate $2,482,515 in its 2025 Plan.

[41] AL 6496-G-A Attachment A at p. 38.
[42] AL 6496-G-A Attachment A at p. 39-46.
[43] AL 6496-G-A Attachment A at p. 46-52.

- Building & Facility Systems[44]

SoCalGas states that it seeks to develop projects within the Building & Facility Systems Initiative to advance new technologies that cost-effectively reduce emissions from California's buildings and facilities (residential, commercial, and industrial). Research Topics include: (i) cutting direct emissions, (ii) enhancing load flexibility, (iii) improving building efficiency, and (iv) advancing priority technologies. SoCalGas lists potential metrics for tracking and evaluating impacts from the Initiative, including avoided customer energy use and bills savings, GHG and criteria pollutant emissions, and reductions in operations and maintenance and capital costs. SoCalGas proposes to allocate $1,934,005 in its 2025 Plan.

Program Administration

SoCalGas proposes to allocate ten percent of its annual total budget to administrative costs, translating to $1,838,900 in its 2025 Plan.[45]

Summary of SoCalGas' Advice Letter 6645-G: 2026 Gas RD&D Plan

SoCalGas submitted its 2026 Plan via Tier 3 AL 6645-G on June 1, 2026.

SoCalGas Request for 2026 Gas RD&D Plan

SoCalGas seeks approval of its proposed Gas RD&D Investment Plan for 2026 in AL 6645-G, authorized by D.24-12-074 at $18,940,000 with the following proposed budget allocations to various Initiatives:[46]

[44] AL 6496-G-A Attachment A at p. 52-56.
[45] AL 6496-G-A at p. 6 & Attachment A at p. 9-10.
[46] AL 6645-G at p. 6 & Attachment A at p. 17-18.

Table 4: 2026 Gas RD&D Plan Proposed Budget		
Investment Theme	**Initiative Title**	**2026 Plan Budget**
Gas System Integrity	Environmental & Safety	$ 2,556,900
	System Inspection & Monitoring	$ 2,556,900
	Community Impact & Energy Conservation[47]	$ 1,704,600
	System Design & Materials	$ 852,300
	RNG Infrastructure Optimization	$ 2,556,900
Decarbonization	Low-Carbon Fuels Technologies	$ 2,556,900
	Energy Reliability & Resilience	$ 2,556,900
	Building & Facility Systems	$ 1,704,600
Program Administration		$ 1,894,000
	ANNUAL TOTAL:	$ **18,940,000**

Gas System Integrity Theme Proposed Initiatives

SoCalGas states that it seeks to develop Initiatives within the Gas System Integrity Theme that support "supply, transmission, distribution, storage, and customers operations through innovations that enhance pipeline safety, maintain system reliability, increase operational efficiency, improve technologies needed to meet emerging regulatory requirements, increase operational efficiency, improve affordability, and reduce GHG impacts to the environment."[48]

- Environmental & Safety[49]

  SoCalGas states that it seeks to develop projects within the Environmental & Safety Initiative that promote a shift from reactive leak repairs to predictive prevention. Research Topics include: (i) integrate and analyze existing data from siloed systems to uncover prominent failure modes, and (ii) leverage above-ground failure mode data and lessons learned from prior research to identify and validate cost-effective leak prevention solutions. SoCalGas lists potential metrics

[47] In SoCalGas' 2026 Plan, the Operations Technology, Gas & Energy Storage, and Low-Carbon Fuels Integration Initiatives were removed from previous years; the Community Impact & Energy Conservation Initiative was added.
[48] AL 6645-G at p. 5 & Attachment A at p. 23.
[49] AL 6645-G Attachment A at p. 24-29.

for tracking and evaluating impacts from the Initiative, including reductions in both GHG emissions and inspection, maintenance, and repair costs. SoCalGas proposes to allocate $2,556,900 in its 2026 Plan.

- System Inspection & Monitoring[50]

SoCalGas states that it seeks to develop projects within the System Inspection & Monitoring Initiative to adopt techniques from adjacent technologies to increase operational efficiencies, leverage artificial intelligence (AI) to connect disparate data sources, and improve access and usability of real time information for field employees. Research Topics include: developing (i) alternate in-line inspection tool calibration methods; (ii) tools to analyze and model geohazard impacts, machine learning (ML) or AI assisted; and (iii) tools to streamline system inspections by leveraging existing electronic data. SoCalGas lists potential metrics for tracking and evaluating impacts from this Initiative, including reduced out-of-service time for infrastructure and increased energy availability. SoCalGas proposes to allocate $2,556,900 in its 2026 Plan.

- Community Impact and Energy Conservation[51]

SoCalGas states that it seeks to develop projects within the Community Impact and Energy Conservation Initiative to reduce unintentional ratepayer gas usage by enhancing advanced meter algorithms that rely on historic aerial survey data and enabling the detection of previously unknown ratepayer gas and hot water leaks while reducing false positives. Research Topics include: (i) improving methods for anomaly detection across ratepayer profiles, and (ii) developing methods to reduce false alerts that drive field visits and higher operating costs. SoCalGas lists potential metrics for tracking and evaluating impacts from this Initiative, including reductions in energy usage for ratepayers, repair and maintenance costs, and GHG emissions measured in metric tons of CO2e. SoCalGas proposes to allocate $1,704,600 in its 2026 Plan.

[50] AL 6645-G Attachment A at p. 30-35.
[51] AL 6645-G Attachment A at p. 35-39.

- System Design & Materials[52]

SoCalGas states that it seeks to develop projects within the System Design & Materials Initiative to develop robust PE pipe lifetime prediction models supported by field sampling and material aging data; develop models to assess new technologies and alternatives to replacement; and enhance, test, and demonstrate alternative technologies for infrastructure protection to support broader adoption, including technologies such as breakaway fittings. Research Topics include: (i) new/updated SoCalGas-specific models and risk analyses; (ii) increased life of assets; and (iii) optimized system materials. SoCalGas lists potential metrics for tracking and evaluating impacts from this Initiative, including reductions to third-party damage and integrity-related failure risk while maintaining continuity of service. SoCalGas proposes to allocate $852,300 in its 2026 Plan.

- RNG Infrastructure Optimization[53]

SoCalGas states that it seeks to develop projects within the RNG Infrastructure Optimization Initiative to develop: designs for pre-fabricated units for advanced interconnection systems; smart and adaptable pressure control systems for maximizing acceptance of RNG onto gas pipeline infrastructure; and biomass management practices to enable predictable and steady production of RNG from biomass digestion facilities with complicated feedstocks. Research Topics include: (i) advanced interconnection design; (ii) pipeline utilization strategies; and (iii) improved system efficiency. SoCalGas lists potential metrics for tracking and evaluating the Initiative, including increased takeaway capacity of the local pipeline system to eliminate/reduce flaring from some biogas production facilities. SoCalGas proposes to allocate $2,556,900 in its 2026 Plan.

Decarbonization Theme Proposed Initiatives

SCG states that it seeks to develop Initiatives within the Decarbonization theme that focus on "advancing technologies that improve the affordability, availability, reliability,

[52] AL 6645-G Attachment A at p. 39-44.
[53] AL 6645-G Attachment A at p. 45-49.

and integration of low-carbon fuels and energy systems for SoCalGas operations and customers" and "[supporting] California's Climate and energy goals, by accelerating the development and deployment of renewable fuels, advanced infrastructure technologies, and emissions-reducing systems aligned with current RD&D priorities."[54]

- Low-Carbon Fuels Technologies[55]

SoCalGas states that it seeks to develop projects within the Low-Carbon Fuels Technologies Initiative to address key barriers to broad deployment of low-carbon fuels, including: scaling-up power-to-gas technologies that can increase RNG yield and reduce upgrading cost through biomethanation of carbon dioxide (CO2) in biogas; deploying and demonstrating membrane and other next-generation gas separations technologies to reduce capital and operating costs during RNG production; and de-risking promising biogas purification technologies. Research Topics include: (i) advancing RNG production systems, (ii) scaling transformative technologies, and (iii) improving durability and performance. SoCalGas lists potential metrics for tracking and evaluating impacts from this Initiative, including reduced capital, O&M, and fuel costs, as well as reduced GHG emissions by increasing capture and productive use of methane. SoCalGas proposes to allocate $2,556,900 in its 2026 Plan.

- Energy Reliability & Resilience[56]

SoCalGas states that it seeks to develop projects within the Energy Reliability & Resilience Initiative to advance technologies that lower emissions and improve energy resilience during periods of extreme weather, natural disasters, and grid outages through energy management system controls and integration, optimization of Combined Heat and Power (CHP) systems, and scalable microgrid control systems. Research Topics include: (i) refining microgrid/generation control and operating approaches; (ii) advancing lower-emission generation and retrofit approaches to improve practical performance in customer applications; and (iii) improving point-of-use decarbonization to

[54] AL 6645-G at p. 5 & Attachment A at p. 54.
[55] AL-6645-G Attachment A at p. 54-60.
[56] AL 6645-G Attachment A at p. 61-67.

support better cost and operating performance. SoCalGas lists potential metrics for tracking and evaluating impacts from this Initiative, including improved cost-effectiveness of lower carbon technology deployment and reduced criteria air pollutants. SoCalGas proposes to allocate $2,556,900 in its 2026 Plan.

- Building & Facility Systems[57]

SoCalGas states that it seeks to develop projects within the Building & Facility Systems Initiative to conduct targeted research and validation of building and facility technologies that reduce emissions, improve energy performance, and support future deployment; evaluate advanced building envelope materials and retrofit technologies; validate advanced energy management systems and smart controls; assess waste heat recovery, thermal energy storage, and related system strategies; and advance lower-emission technologies for boilers, water heaters, commercial cooking equipment, and industrial process equipment. Research Topics include: (i) cutting direct emissions; (ii) enhancing load flexibility; (iii) improving building efficiency; and (iv) advancing CPUC priority technologies such as waste heat recovery, thermal energy storage, advanced infrared burners, and acid gas reduction. SoCalGas lists potential metrics for tracking and evaluating impacts from this Initiative, including reduced energy consumption, operational expenses, waste generation, and direct and indirect GHG and other criteria pollutant emissions from building and facility equipment. SoCalGas proposes to allocate $1,704,600 in its 2026 Plan.

Program Administration

SoCalGas proposes to allocate ten percent of its annual total budget to administrative costs, translating to $1,894,000 in its 2026 Plan.

Summary of SoCalGas's Advice Letter 6646-G: 2027 Gas RD&D Plan

SoCalGas submitted its 2027 Plan via Tier 3 AL 6646-G on June 1, 2026.

[57] AL 6645-G Attachment A at p 68-74.

SoCalGas's Request for 2027 Gas RD&D Plan

SoCalGas seeks approval of its proposed Gas RD&D Investment Plan for Calendar Year 2027 in AL 6646-G, authorized by D.24-12-074 at $19,508,100 with the following proposed budget allocations to various Initiatives:[58]

Table 5: 2027 Gas RD&D Plan Proposed Budget			
Investment Theme	**Initiative Title**	**2027 Plan Budget**	
Gas System Integrity	Environmental & Safety	$	2,633,600
	System Inspection & Monitoring	$	2,633,600
	Community Impact & Energy Conservation	$	1,755,700
	System Design & Materials	$	877,900
	RNG Infrastructure Optimization	$	2,633,600
Decarbonization	Low-Carbon Fuels Technologies	$	2,633,600
	Energy Reliability & Resilience	$	2,633,600
	Building & Facility Systems	$	1,755,700
Program Administration		$	1,950,800
	ANNUAL TOTAL:	$	**19,508,100**

Gas System Integrity Theme Proposed Initiatives

SoCalGas seeks to develop Initiatives within the Gas System Integrity Theme that support "supply, transmission, distribution, storage, and customers operations through innovations that enhance pipeline safety, maintain system reliability, increase operational efficiency, improve technologies needed to meet emerging regulatory requirements, increase operational efficiency, improve affordability, and reduce GHG impacts to the environment. It also advances technologies needed to meet emerging regulatory requirements and supports the safe, reliable, and cost-effective integration of renewable natural gas (RNG) into the SoCalGas system. The primary objective is to develop, test, and champion new gas operations technologies that benefit ratepayers, public safety, and the environment."[59]

[58] AL 6646-G at p. 6 & Attachment A at p. 17-18.
[59] AL 6646-G at p. 5 & Attachment A at p. 22.

- Environmental & Safety[60]

SoCalGas states that it seeks to develop projects within the Environmental & Safety Initiative that promotes a shift from reactive leak repairs to predictive prevention. Research Topics include: (i) evaluate advanced leak detection technologies capable of rapidly and frequently covering the vast territory at lower overall cost, and (ii) leverage belowground failure mode data and lessons learned from prior research to identify and validate cost-effective leak prevention solutions. SoCalGas lists potential metrics for tracking and evaluating impacts from this Initiative, including reductions in both GHG emissions and inspection, maintenance, and repair costs. SoCalGas proposes to allocate $2,633,600 in its 2027 Plan.

- System Inspection & Monitoring[61]

SoCalGas states that it seeks to develop projects within the System Inspection & Monitoring Initiative to adopt techniques from adjacent technologies to increase operational efficiencies, leverage AI to connect disparate data sources, improve access and usability of real time information for field employees. Research Topics include: developing (i) alternate in-line inspection tool calibration methods; (ii) tools to analyze and model geohazard impacts, machine learning (ML) or AI assisted; and (iii) tools to streamline system inspections by leveraging existing electronic data. SoCalGas lists potential metrics for tracking and evaluating impacts from this Initiative, including reduced out-of-service time for infrastructure and increased energy availability. SoCalGas proposes to allocate $2,633,600 for its 2027 Plan.

- Community Impact and Energy Conservation[62]

SoCalGas states that it seeks to develop projects within the Community Impact and Energy Conservation Initiative to generate data insights into areas of frequent or unresolved gas and water leaks could support efforts to address

[60] AL 6646-G Attachment A at p. 23-28.
[61] AL 6646-G Attachment A at p. 29-34.
[62] AL 6646-G Attachment A at p. 34-38.

systemic maintenance challenges in disadvantaged communities. Research Topics include: (i) technologies that provide energy insights directly to ratepayers, and (ii) technologies that provide insights to support additional aid for disadvantaged communities. SoCalGas lists potential metrics for tracking and evaluating impacts from this Initiative, including reduced GHG emissions from leaks and criteria pollutants from combustion emissions. SoCalGas proposes to allocate $1,755,700 in its 2027 Plan.

- System Design & Materials[63]

SoCalGas states that it seeks to develop projects within the System Design & Materials Initiative that System Design & Materials to: establish integrity values and thresholds with barrier evaluation and analysis of flow paths; evaluate non-traditional repair methods for safety and reliability; validate models assessing new technologies and alternatives to replacement; and identify barriers to repair; develop tool to expedite the repair process. Research Topics include: (i) optimizing system materials; (ii) increasing life of assets; and (iii) new/updated SoCalGas-specific models and risk analyses. SoCalGas lists potential metrics for tracking and evaluating impacts from this Initiative, including reduced ratepayer costs achieved by avoiding costly full asset replacement, reducing emergency repair expenses, and minimizing system downtime through targeted, proactive interventions. SoCalGas proposes to allocate $877,900 in its 2027 Plan.

- RNG Infrastructure Optimization[64]

SoCalGas states that it seeks to develop projects within the RNG Infrastructure Optimization Initiative to continue to develop reverse flow/bidirectional pipeline technology from earlier research plans by demonstrating operational controls and localized pressure management to open pace in constrained or lower-pressure segments; develop low-cost and small-footprint odor management systems that minimize parasitic energy loads while maximizing odor removal efficiency; and develop technologies that can predict changes in gas quality to

[63] AL 6646-G Attachment A at p. 38-43.
[64] AL 6646-G Attachment A at p. 44-48.

help inform process management strategies to avoid flaring or otherwise rejecting RNG due to pipeline specification. Research Topics include: (i) advanced interconnection design; (ii) pipeline utilization strategies; and (iii) improved system efficiency. SoCalGas lists potential metrics for tracking and evaluating impacts from this Initiative, including reduced flaring from biogas production facilities through studies that evaluate and test compatibility of new RNG technologies with the gas system. SoCalGas proposes to allocate $2,633,600 in its 2027 Plan.

Decarbonization Theme Proposed Initiatives

SoCalGas states that it seeks to develop Initiatives within the Decarbonization theme that "advance technologies that improve the affordability, availability, reliability, and integration of low-carbon fuels and energy systems for SoCalGas customers. These emphasize solutions that support California's climate and energy goals, particularly through the integration of renewable fuels, advanced storage technologies, and emissions-reducing systems—with a focus on areas align with current RD&D initiatives and CPUC priorities.[65]

- Low-Carbon Fuels Technologies[66]

SoCalGas states that it seeks to develop projects within the Low-Carbon Fuels Technologies Initiative to: improve selectivity, efficiency, and affordability of CO2 conversion through electrochemical methods; develop strategies to recover valuable coproducts from biogas facilities to improve affordability of RNG recovery; develop technologies to efficiently recover water generated and/or used in RNG production; and evaluate and develop RNG facility process improvements that can mitigate biomethane leaks. Research Topics include: (i) advancing RNG production systems; (ii) scaling transformative technologies; and (iii) improving durability and performance. SoCalGas lists potential metrics for tracking and evaluating impacts from this Initiative, including reduced capital, O&M, and fuel costs, as well as increased affordability by developing

[65] AL 6646-G at p. 5 & Attachment A at p. 53.
[66] AL 6646-G Attachment A at p. 53-59.

new technologies to efficiently convert biogas to RNG. SoCalGas proposes to allocate $$2,633,600 in its 2027 Plan.

- Energy Reliability & Resilience[67]

SoCalGas states that it seeks to develop projects within the Energy Reliability & Resilience Initiative to advance technologies that lower emissions and improve energy resilience during periods of extreme weather, natural disasters, and grid outages through energy management system controls and integration, optimization of Combined Heat and Power (CHP) systems, and scalable microgrid control systems. Research Topics include: (i) refining microgrid/generation control and operating approaches; (ii) advancing lower-emission generation and retrofit approaches to improve practical performance in customer applications; and (iii) improving point-of-use decarbonization to support better cost and operating performance. SoCalGas lists potential metrics for tracking and evaluating impacts from this Initiative, including improved cost-effectiveness of lower carbon technology deployment and reduced criteria air pollutants. SoCalGas proposes to allocate $2,633,600 in its 2027 Plan.

- Building & Facility Systems[68]

SoCalGas states that it seeks to develop projects within the Building & Facility Systems Initiative to: demonstrate advanced building envelope materials and retrofit technologies in representative building applications; integrate and optimize advanced energy management systems and smart controls to reduce gas and electricity use and improve equipment operation; demonstrate waste heat recovery, thermal energy storage, and related system; and pilot lower-emission technologies for boilers, water heaters, commercial cooking equipment, and industrial process equipment in selected applications. Research Topics include: (i) cutting direct emissions; (ii) enhancing load flexibility; (iii) improving building efficiency; and (iv) advancing CPUC priority technologies such as waste heat recovery, thermal energy storage, advanced infrared burners, and acid gas

[67] AL 6646-G Attachment A at p. 60-66.
[68] AL 6646-G Attachment A at p. 66-73.

reduction. SoCalGas lists potential metrics for tracking and evaluating impacts from this Initiative, including: improved affordability via lower lifecycle cost, reduced energy consumption, operational expenses, and waste generation; reduced direct and indirect GHG emissions from buildings and facilities; and reduced NOx and other criteria pollutant emissions from building and facility equipment. SoCalGas proposes to allocate $1,755,700 in its 2027 Plan.

NOTICE

Notice of Advice Letters 6495-G-A and 6496-G-A were made by publication on the Commission's Daily Calendar on April 8, 2026. Notice of Advice Letters 6645-G and 6646-G were made by publication on the Commission's Daily Calendar on June 8, 2026. SoCalGas states that copies of the Advice Letters were mailed and distributed in accordance with Section 4 of General Order 96-B.[69]

PROTESTS

Advice Letters 6495-G-A, 6496-G-A, 6645-G, and 6646-G were not protested.

DISCUSSION

Compliance Assessment of AL 6495-G-A - 2024 Gas RD&D Plan

Energy Division staff conducted an assessment of SoCalGas' AL 6495-G-A proposing its 2024 Gas RD&D Investment Plan. Staff assessed SoCalGas' 2024 Plan based on consistency with requirements and previous Commission guidance. The Commission finds that in some areas SoCalGas' AL 6495-G-A is not fully compliant with the Commission's previously adopted requirements as described below. See also Appendix G for additional details:

[69] AL 6495-G-A at p. 14 & AL 6496-G-A at p. 14.

1. SoCalGas must discuss the submittal of its 2023 Gas RD&D Annual Report in its 2024 Gas RD&D Annual Plan, given its 2024 Gas RD&D Annual Report submittal is correlated with its 2025 Gas RD&D Annual Plan.[70]
2. SoCalGas does not demonstrate alignment with CPUC proceedings and ratepayer benefit[71] where:
    a. Requesting both new and further funding for hydrogen-related RD&D projects. Under the following Initiatives, SoCalGas must reallocate funds proposed for hydrogen projects for eligible purposes:
        i. *Environmental & Safety,*
        ii. *Operations Technology,*
        iii. *Gas & Energy Storage,*
        iv. *Low Carbon Fuel Technologies,*
        v. *Low Carbon Fuel Integration,* and
        vi. *Energy Reliability & Resilience.*[72]
    b. Requesting funding for carbon capture activities under the "Integrating carbon management solutions" Research Topic for its *Energy Reliability & Resilience* Initiative.[73] SoCalGas must provide further detail on this Research Topic as described below.
3. For transparency, SoCalGas must embed in the descriptions of each proposed Initiative incorporation strategies associated with all stakeholder feedback or otherwise explain why it did not incorporate the input,[74] particularly from California Greenworks and the Public Workshop ESJ Advisory Panel.
4. SoCalGas must demonstrate that its *System Design & Materials* Initiative will involve activities that are complementary to rather than duplicative of the CEC's *Fuel-Flexible Distributed Power Generation* Initiative in its FY 2024-2025 Gas RD&D Plan.[75]

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[70] Per D.19-09-051 at p. 378 & OP 30. See Resolution G-3624 at Appendix G: Compliance Assessment of AL 6495-G-A at CPUC Requirement [2].
[71] Per Public Utilities Code 740.1 at (a). See Resolution G-3624 at Appendix G: Compliance Assessment of AL 6495-G-A at CPUC Requirement [6].
[72] AL 6495-G-A Attachment A at p. 8.
[73] AL 6495-G-A Attachment A at p. 55.
[74] Per Resolution G-3601 (2023): Addressing SoCalGas' 2023 Gas RD&D Plan at OP 6. See Resolution G-3624 at Appendix G: Compliance Assessment of AL 6495-G-A at CPUC Requirement [20].
[75] Per Resolution G-3601 (2023) at OP 6. See Resolution G-3624 at Appendix G: Compliance Assessment of AL 6495-G-A at CPUC Requirement [25]. See: CEC's Proposed FY 2024-2025 Gas RD&D Plan at p. 39-49.

SoCalGas' proposed "Integrating carbon management solutions" Research Topic under its *Energy Reliability & Resilience* Initiative involves "[d]eveloping reliable carbon capture solutions and integration pathways" and includes a project titled "Carbon capture integration development on distributed gas assets CHP-enabled thermal integration for capture systems."[76] Previously, the Commission denied carbon capture RD&D in Resolution G-3601 for the following reasons:

> *"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 [Carbon Capture, Utilization, and Storage], 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."* [77]

Pursuant to Commission requirements for Gas RD&D investments, SoCalGas must provide further detail on the "Integrating carbon management solutions" Research Topic describing how resulting projects will support current State climate goals and policies such as by reducing and/or decarbonizing the gas system without enabling continued polluting. Further, in recognition of the affordability concerns articulated in Resolution G-3601, SoCalGas must demonstrate how projects will deliver clear ratepayer benefit, including promoting affordability and consideration of equity issues particularly in vulnerable communities. Upon consideration of this further detail in SoCalGas' revised Plan to be provided via Tier 2 AL, the Commission will determine if these criteria have been sufficiently demonstrated for this Research Topic.

Relatedly, Resolutions G-3618[78] and G-3623[79] reflect that the Commission has not provided current guidance upon which to determine whether ratepayer funds should be invested in hydrogen, particularly as these projects would have further implications

[76] AL 6495-G-A Attachment A at p. 55.
[77] Resolution G-3601 (2023) at p. 21.
[78] Resolution G-3618 (2026): Addressing PG&E's 2024 & 2025 Gas RD&D Plans at p. 16 & 18.
[79] Resolution G-3623 (2026): Addressing PG&E's 2024, 2025, & 2026 Gas RD&D Plans at p. 28 & FOF 3b.

for ratepayer funding in future RD&D Plans. For example, the most recent CPUC Integrated Resource Planning (IRP) inputs and assumptions reflect that hydrogen is not an eligible candidate resource in the Preferred System Plan (PSP).[80] Alternatively, the Commission has identified limited procurement of RNG as appropriate, with an aim to strike a balance between providing the resource an opportunity to scale and containing costs to address ratepayer affordability. Further, current State and Commission policies clearly reflect the prioritization of ratepayer affordability. Therefore, due to the scarcity of ratepayer funds dedicated to the Gas RD&D Program, SoCalGas shall remove requests for hydrogen funding to reflect these priorities and be responsive to ratepayer affordability concerns.

In addition to addressing compliance issues, SoCalGas shall make the following revisions to its 2024 Plan to provide greater clarity to align with requirements:

1. Review its 2024 Plan for elements of Initiatives that primarily support compliance with existing requirements/regulations or ongoing operations and maintenance activities and rescope as necessary to demonstrate ratepayer funds are used for innovative RD&D and produce impacts that would not otherwise be expected to occur.[81]
2. Indicate the program area across the product development cycle, detailed in Appendix D of this Resolution,[82] associated with each listed Research Topics for further clarity on anticipated outputs from Initiatives.
3. Identify which of the proposed future project areas are anticipated to be funded through consortia.
4. Prioritize zero-emission over low-emission technologies wherever possible, particularly under its *Low-Carbon Fuel Technologies*[83] and *Energy Reliability & Resilience*[84] Initiatives. Otherwise, explain why zero-emission research is not possible.

[80] Hydrogen is not included in the Final 2025 Inputs and Assumptions (I&A) for the 2024-2026 IRP Cycle.
[81] Per Resolution G-3601 (2023) at OP 6. See Resolution G-3624 at Appendix G: Compliance Assessment of AL 6495-G-A at CPUC Requirement [21].
[82] Consistent with EPIC per D.12-05-037 at OP 3 & D.21-11-028 at p. 32.
[83] AL 6495-G-A Attachment A at p. 43.
[84] AL 6495-G-A Attachment A at p. 54.

Additionally, the Commission denies SoCalGas' proposed budget allocations of $675,000 for its proportional share of a Gas RD&D Program Evaluation and $129,938 for its proportional share of developing a comprehensive Gas RD&D Database.[85] The Commission will, instead, determine a process to establish holistic oversight across all Gas RD&D administrators for efficiency and effectiveness in the allocation of funds, conducting the evaluation, and developing the database.

Resubmittal of SoCalGas' 2024 Plan

The Commission authorizes a budget of $17.853M for SoCalGas' 2024 Plan as detailed in Appendix G, including a Program Administration budget of $1,785,300. The Commission's authorization of SoCalGas' 2024 Gas RD&D Plan budget level requires SoCalGas to submit a revised 2024 Plan via Tier 2 AL within 60 days reflecting the denied funding and addressing the identified compliance issues requiring modifications.

Compliance Assessment of AL 6496-G-A - 2025 Gas RD&D Plan

Energy Division staff conducted an assessment of SoCalGas' AL 6496-G-A proposing its 2025 Gas RD&D Investment Plan. Staff assessed SoCalGas' 2025 Plan based on consistency with requirements and previous Commission guidance. The Commission finds that in some areas SoCalGas' AL 6496-G-A is not fully compliant with the Commission's previously adopted requirements as described below. See also Appendix H for additional details:

1. SoCalGas does not demonstrate alignment with CPUC proceedings and ratepayer benefit[86] where:
    a. Requesting both new and further funding for hydrogen-related RD&D projects. Under the following Initiatives, SoCalGas must reallocate funds proposed for hydrogen projects for eligible purposes:
        i. Environmental & Safety,
        ii. Operations Technology,

[85] AL 6495-G-A at p. 6 & Attachment A at p. 9.
[86] Per Public Utilities Code 740.1 at (a). See Resolution G-3624 at Appendix H: Compliance Assessment of AL 6496-G-A at CPUC Requirement [6].

iii. *Gas & Energy Storage,*
iv. *Low Carbon Fuel Technologies,*
v. *Low Carbon Fuel Integration,* and
vi. *Energy Reliability & Resilience*.[87]

b. Requesting funding for carbon capture activities under the "Integrating carbon management solutions" Research Topic for its *Energy Reliability & Resilience* Initiative.[88] SoCalGas must provide further detail on this Research Topic as described below.

2. For transparency, SoCalGas must embed in the descriptions of each proposed Initiative incorporation strategies associated with all stakeholder feedback or otherwise explain why it did not incorporate the input,[89] particularly from California Greenworks and the Public Workshop ESJ Advisory Panel.
3. SoCalGas must demonstrate that its *System Design & Materials* Initiative will involve activities that are complementary to rather than duplicative of the CEC's *Fuel-Flexible Distributed Power Generation* Initiative in its FY 2024-2025 Gas RD&D Plan.[90]

SoCalGas' proposed "Integrating carbon management solutions" Research Topic under its *Energy Reliability & Resilience* Initiative involves "[d]eveloping reliable carbon capture solutions and optimizing integration for affordability"[91] and includes a project titled "Pilot/field demonstration/validation of installations."[92] Previously, the Commission denied carbon capture RD&D in Resolution G-3601 for the following reasons:

> *"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*

[87] AL 6496-G-A Attachment A at p. 8.
[88] AL 6496-G-A Attachment A at p. 47.
[89] Per Resolution G-3601 (2023) at OP 6. See Resolution G-3624 at Appendix H: Compliance Assessment of AL 6496-G-A at CPUC Requirement [18].
[90] Per Resolution G-3601 (2023) at OP 6. See Resolution G-3624 at Appendix H: Compliance Assessment of AL 6496-G-A at CPUC Requirement [23]. See CEC's Proposed FY 2024-2025 Gas RD&D Plan at p. 39-49.
[91] AL 6496-G-A Attachment A at p. 47.
[92] AL 6496-G-A Attachment A at p. 49.

> *in [Carbon Capture, Utilization, and Storage], 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."* [93]

Pursuant to Commission requirements for Gas RD&D investments, SoCalGas must provide further detail on the "Integrating carbon management solutions" Research Topic describing how resulting projects will support current State climate goals and policies such as by reducing and/or decarbonizing the gas system without enabling continued polluting. Further, in recognition of the affordability concerns articulated in Resolution G-3601, SoCalGas must demonstrate how projects will deliver clear ratepayer benefit, including promoting affordability and consideration of equity issues particularly in vulnerable communities. Upon consideration of this further detail in SoCalGas' revised Plan to be provided via Tier 2 AL, the Commission will determine if these criteria have been sufficiently demonstrated for this Research Topic.

Relatedly, Resolutions G-3618[94] and G-3623[95] reflect that the Commission has not provided current guidance upon which to determine whether ratepayer funds should be invested in hydrogen, particularly as these projects would have further implications for ratepayer funding in future RD&D Plans. For example, the most recent CPUC Integrated Resource Planning (IRP) inputs and assumptions reflect that hydrogen is not an eligible candidate resource in the Preferred System Plan (PSP).[96] Alternatively, the Commission has identified limited procurement of RNG as appropriate, with an aim to strike a balance between providing the resource an opportunity to scale and containing costs to address ratepayer affordability. Further, current State and Commission policies clearly reflect the prioritization of ratepayer affordability. Therefore, due to the scarcity of ratepayer funds dedicated to the Gas RD&D Program, SoCalGas shall remove requests for hydrogen funding to reflect these priorities and be responsive to ratepayer affordability concerns.

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[93] Resolution G-3601 (2023) at p. 21.
[94] Resolution G-3618 (2026): Addressing PG&E's 2024 & 2025 Gas RD&D Plans at p. 16 & 18.
[95] Resolution G-3623 (2026): Addressing PG&E's 2024, 2025, & 2026 Gas RD&D Plans at p. 28 & FOF 3b.
[96] Hydrogen is not included in the Final 2025 Inputs and Assumptions (I&A) for the 2024-2026 IRP Cycle.

In addition to addressing compliance issues, SoCalGas shall make the following revisions to its 2025 Plan to provide greater clarity to align with requirements:

1. Review its 2025 Plan for elements of Initiatives that primarily support compliance with existing requirements/regulations or ongoing operations and maintenance activities and rescope as necessary to demonstrate ratepayer funds are used for innovative RD&D and produce impacts that would not otherwise be expected to occur.[97]
2. Indicate the program area across the product development cycle, detailed in Appendix D of this Resolution,[98] associated with each listed Research Topics for further clarity on anticipated outputs from Initiatives.
3. Identify which of the proposed future project areas are anticipated to be funded through consortia.
4. Prioritize zero-emission over low-emission technologies wherever possible, particularly under its *Low-Carbon Fuel Technologies*[99] and *Energy Reliability & Resilience*[100] Initiatives. Otherwise, explain why zero-emission research is not possible.

Resubmittal of SoCalGas' 2025 Plan

The Commission authorizes a budget of $18.389M for SoCalGas' 2025 Plan as detailed in Appendix H, including a Program Administration budget of $1,838,900. The Commission's authorization of SoCalGas' 2025 Gas RD&D Plan budget level requires SoCalGas to submit a revised 2025 Plan via Tier 2 AL within 60 days addressing the identified compliance issues requiring modifications.

Compliance Assessment of AL 6645-G - 2026 Gas RD&D Plan

Energy Division staff conducted an assessment of SoCalGas' AL 6645-G proposing its 2026 Gas RD&D Investment Plan. Staff assessed SoCalGas' 2026 Plan based on

[97] Per Resolution G-3601 (2023) at OP 6. See Resolution G-3624 at Appendix H: Compliance Assessment of AL 6496-G-A at CPUC Requirement [21].
[98] Consistent with EPIC per D.12-05-037 at OP 3 & D.21-11-028 at p. 32.
[99] AL 6496-G-A Attachment A at p. 40.
[100] AL 6496-G-A Attachment A at p. 47.

consistency with requirements and previous Commission guidance. The Commission finds that in some areas SoCalGas' AL 6645-G is not fully compliant with the Commission's previously adopted requirements as described below. See also Appendix I for additional details:

1. SoCalGas does not demonstrate alignment with CPUC proceedings and ratepayer benefit[101] where requesting funding for carbon capture activities under the "Carbon Management Integration" Research Topic for its *Energy Reliability & Resilience* Initiative.[102] SoCalGas must provide further detail on this Research Topic as described below.
2. SoCalGas must embed in the descriptions of each proposed Initiative for transparency:
    a. Incorporation strategies associated with all:
        i. Stakeholder feedback,[103] and
        ii. Energy Division staff consultation feedback reflecting alignment with CPUC proceedings and ratepayer benefit,[104] including:
            1. *Environment & Safety*: SoCalGas must demonstrate that it will account for the full costs associated with AI/ML applications when assessing impacts, including increased energy consumption, cloud services, data storage, and processing requirements, and that human decision-making authority will be retained.
            2. *Building & Facility Systems*: SoCalGas must discuss how this Initiative supports reducing the size of the gas system or otherwise explain why it does not.
    b. Detail differentiating similar RD&D led by other Gas RD&D administrators[105] and conducted in other programs, particularly:

[101] Per Public Utilities Code 740.1 at (a). See Resolution G-3624 at Appendix I: Compliance Assessment of AL 6645-G at CPUC Requirement [6].
[102] AL 6645-G Attachment A at p. 64.
[103] Per Resolution G-3601 (2023) at OP 6. See Resolution G-3624 at Appendix I: Compliance Assessment of AL 6645-G at CPUC Requirement [18].
[104] Per Resolution G-3601 (2023) at OP 6. See Resolution G-3624 at Appendix I: Compliance Assessment of AL 6645-G at CPUC Requirement [15].
[105] Per Resolution G-3601 (2023) at OP 6. See Resolution G-3624 at Appendix I: Compliance Assessment of AL 6645-G at CPUC Requirement [23].

i. *Environmental & Safety* from PG&E RD&D involving AI/ML and LiDAR, including specific examples of how system conditions differ to justify parallel validation.
ii. *Community Impact & Energy Conservation* from PG&E RD&D involving AI/ML and LiDAR in addition to PG&E and CEC RD&D involving methane monitoring.
iii. *Low-Carbon Fuel Technologies* from PG&E's *Clean Fuels Integration* Initiative in its 2026 Plan.[106]
iv. *Energy Reliability & Resilience* from the CEC's EPIC and Gas RD&D Initiatives and projects related to cost-effective industrial decarbonization in addition to the CEC's *Fuel-Flexible Distributed Power Generation* Initiative in its proposed FY 2024-2025 Plan.[107]
v. *Building & Facility Systems* from building decarbonization and energy efficiency efforts and RD&D activities involving thermal energy storage across Gas RD&D, EPIC, and other programs.

3. SoCalGas must provide further detail on how SoCalGas explored compensation strategies for its ESJ advisory panel.[108]

SoCalGas' proposed "Carbon Management Integration" Research Topic under its *Energy Reliability & Resilience* Initiative involves "[refining] carbon capture solutions and its integration with distributed power generation systems to improve operating performance and deployment readiness."[109] Previously, the Commission denied carbon capture RD&D in Resolution G-3601 for the following reasons:

> *"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 [Carbon Capture, Utilization, and Storage], 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,*

[106] PG&E's 2026 Gas RD&D Plan at p. 36-46.
[107] CEC's Proposed FY 2024-2025 Gas RD&D Plan at p. 40-49.
[108] Per Resolution G-3601 (2023) at OP 6. See Resolution G-3624 at Appendix I: Compliance Assessment of AL 6645-G at CPUC Requirement [21].
[109] AL 6645-G Attachment A at p. 64.

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." [110]

Pursuant to Commission requirements for Gas RD&D investments, SoCalGas must provide further detail on the "Carbon Management Integration" Research Topic describing how resulting projects will support current State climate goals and policies such as by reducing and/or decarbonizing the gas system without enabling continued polluting. Further, in recognition of the affordability concerns articulated in Resolution G-3601, SoCalGas must demonstrate how projects will deliver clear ratepayer benefit, including promoting affordability and consideration of equity issues particularly in vulnerable communities. Upon consideration of this further detail in SoCalGas' revised Plan to be provided via Tier 2 AL, the Commission will determine if these criteria have been sufficiently demonstrated for this Research Topic.

In addition to addressing compliance issues, SoCalGas shall make the following revisions to its 2026 Plan to provide greater clarity to align with requirements:

1. Indicate the program area across the product development cycle, detailed in Appendix D of this Resolution,[111] associated with each listed Research Topics for further clarity on anticipated outputs from Initiatives.
2. Identify which of the proposed future project areas are anticipated to be funded through consortia.
3. Prioritize zero-emission systems as opposed to low-emission systems under its *Low-Carbon Fuel Technologies*[112] Initiative and eliminating as opposed to reducing flaring from some biogas production facilities under its *RNG Infrastructure Optimization* Initiative[113] wherever possible. Otherwise, explain why zero-emission research is not possible.

To demonstrate continued compliance with and fulfillment of requirements, SoCalGas shall provide further detail upon project implementation in project final reports and its Annual Reports to demonstrate how results are measured and utilized in alignment

[110] Resolution G-3601 (2023) at p. 21.
[111] Consistent with EPIC per D.12-05-037 at OP 3 & D.21-11-028 at p. 32.
[112] AL 6645-G Attachment A at p. 56.
[113] AL 6645-G Attachment A at p. 46.

with State goals,[114] clearly articulate impact analyses resulting from the described methods, and describe lessons learned.[115]

The Commission also notes concerns voiced by stakeholders during the February 2026 Joint Administrator Workshop related to biomethane and RNG RD&D activities. The Commission requires SoCalGas to seek out and consider input from ESJ communities in its strategic planning as well as in assessing and demonstrating benefits to these communities from RD&D investments. Thus, the Commission directs SoCalGas, and any project contractor, to consult vulnerable communities, such as workers, tenants, and frontline communities near gas facilities, on project siting to prevent exacerbating existing issues and inequities, particularly from projects with unknown and potentially harmful impacts. SoCalGas should educate vulnerable communities on advanced technologies as appropriate to address community concerns. Further, SoCalGas should summarize the concerns of communities and describe how these concerns are addressed in Annual Plans and correlated Annual Reports. Through this process, the Commission seeks to strategically leverage RD&D funding to balance policy imperatives of innovation with community concerns and benefits, including in the CPUC's Biomethane Procurement Cost Allocation proceeding.[116]

Resubmittal of SoCalGas' 2026 Plan

The Commission approves SoCalGas' 2026 Plan with a budget of $18.94M as detailed in Appendix I, including a Program Administration budget of $1.894M. The Commission's authorization of SoCalGas' 2026 Gas RD&D Plan budget level requires SoCalGas to submit a revised 2026 Plan via Tier 2 AL within 60 days addressing the identified compliance issues requiring modifications.

[114] Per Resolution G-3601 (2023) at OP 6. See Resolution G-3624 at Appendix I: Compliance Assessment of AL 6645-G at CPUC Requirement [17].
[115] Per Resolution G-3601 (2023) at OP 6. See Resolution G-3624 at Appendix I: Compliance Assessment of AL 6645-G at CPUC Requirement [19].
[116] R.22-12-011: OIR to Address Biomethane Procurement Cost Allocation.

Compliance Assessment of AL 6646-G - 2027 Gas RD&D Plan

Energy Division staff conducted an assessment of SoCalGas' AL 6646-G proposing its 2027 Gas RD&D Investment Plan. Staff assessed SoCalGas' 2027 Plan based on consistency with requirements and previous Commission guidance. The Commission finds that SoCalGas' AL 6646-G is not fully compliant with the Commission's previously adopted requirements as described below. See also Appendix J for additional details:

1. SoCalGas does not demonstrate alignment with CPUC proceedings and ratepayer benefit[117] where:
    a. Requesting funding for the "Optimized H2S Removal Strategies for Low-Cost Operations and Materials Preservation" project under the *RNG Infrastructure Optimization* Initiative.[118] SoCalGas must reallocate funds for eligible purposes.
    b. Requesting funding for carbon capture activities under the "Carbon Management Integration" Research Topic for its *Energy Reliability & Resilience* Initiative.[119] SoCalGas must provide further detail on this Research Topic as described below.
2. SoCalGas must embed in the descriptions of each proposed Initiative for transparency:
    a. Incorporation strategies associated with all:
        i. Stakeholder feedback,[120] and
        ii. Energy Division staff consultation feedback reflecting alignment with CPUC proceedings and ratepayer benefit,[121] including:
            1. *Environment & Safety*: SoCalGas must demonstrate that it will account for the full costs associated with AI/ML applications when assessing impacts, including increased

[117] Per Public Utilities Code 740.1 at (a). See Resolution G-3624 at Appendix J: Compliance Assessment of AL 6646-G at CPUC Requirement [6].
[118] AL 6646-G Attachment A at p. 47.
[119] AL 6646-G Attachment A at p. 62.
[120] Per Resolution G-3601 (2023) at OP 6. See Resolution G-3624 at Appendix J: Compliance Assessment of AL 6646-G at CPUC Requirement [18].
[121] Per Resolution G-3601 (2023) at OP 6. See Resolution G-3624 at Appendix J: Compliance Assessment of AL 6646-G at CPUC Requirement [15].

energy consumption, cloud services, data storage, and processing requirements, and that human decision-making authority will be retained.

2. *Building & Facility Systems*: SoCalGas must discuss how this Initiative supports reducing the size of the gas system or otherwise explain why it does not.

b. Detail differentiating similar RD&D led by other Gas RD&D administrators[122] and conducted in other programs, particularly:
   i. *Environmental & Safety* from PG&E RD&D involving AI/ML and LiDAR, including specific examples of how system conditions differ to justify parallel validation.
   ii. *Community Impact & Energy Conservation* from PG&E RD&D involving AI/ML and LiDAR in addition to PG&E and CEC RD&D involving methane monitoring.
   iii. *Low-Carbon Fuel Technologies* from PG&E's *Clean Fuels Integration* Initiative in its 2026 Plan.[123]
   iv. The *Energy Reliability & Resilience* Initiative from the CEC's EPIC and Gas RD&D Initiatives and projects related to cost-effective industrial decarbonization in addition to the CEC's *Fuel-Flexible Distributed Power Generation* Initiative in its proposed FY 2024-2025 Plan.[124]
   v. *Building & Facility Systems* from building decarbonization and energy efficiency efforts and RD&D activities involving thermal energy storage across Gas RD&D, EPIC, and other programs.

3. SoCalGas must provide further detail on how SoCalGas explored compensation strategies for its ESJ advisory panel.[125]

SoCalGas' proposed "Carbon Management Integration" Research Topic under its *Energy Reliability & Resilience* Initiative involves "[validating] reliable carbon capture

[122] Per Resolution G-3601 (2023) at OP 6. See Resolution G-3624 at Appendix J: Compliance Assessment of AL 6646-G at CPUC Requirement [23].
[123] PG&E's 2026 Gas RD&D Plan at p. 36-46.
[124] CEC's Proposed FY 2024-2025 Gas RD&D Plan at p. 40-49.
[125] Per Resolution G-3601 (2023) at OP 6. See Resolution G-3624 at Appendix J: Compliance Assessment of AL 6646-G at CPUC Requirement [21].

solutions and [refining] integration with distributed power generation systems to advance cost effective deployment."[126] Previously, the Commission denied carbon capture RD&D in Resolution G-3601 for the following reasons:

> *"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 [Carbon Capture, Utilization, and Storage], 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."* [127]

Pursuant to Commission requirements for Gas RD&D investments, SoCalGas must provide further detail on the "Carbon Management Integration" Research Topic describing how resulting projects will support current State climate goals and policies such as by reducing and/or decarbonizing the gas system without enabling continued polluting. Further, in recognition of the affordability concerns articulated in Resolution G-3601, SoCalGas must demonstrate how projects will deliver clear ratepayer benefit, including promoting affordability and consideration of equity issues particularly in vulnerable communities. Upon consideration of this further detail in SoCalGas' revised Plan to be provided via Tier 2 AL, the Commission will determine if these criteria have been sufficiently demonstrated for this Research Topic.

Relatedly, Resolutions G-3618[128] and G-3623[129] reflect that the Commission has not provided current guidance upon which to determine whether ratepayer funds should be invested in hydrogen, particularly as these projects would have further implications for ratepayer funding in future RD&D Plans. For example, the most recent CPUC Integrated Resource Planning (IRP) inputs and assumptions reflect that hydrogen is not

[126] AL 6646-G Attachment A at p. 62.
[127] Resolution G-3601 (2023) at p. 21.
[128] Resolution G-3618 (2026) at p. 16 & 18.
[129] Resolution G-3623 (2026) at p. 28 & FOF 3b.

an eligible candidate resource in the Preferred System Plan (PSP).[130] Alternatively, the Commission has identified limited procurement of RNG as appropriate, with an aim to strike a balance between providing the resource an opportunity to scale and containing costs to address ratepayer affordability. Further, current State and Commission policies clearly reflect the prioritization of ratepayer affordability. Therefore, due to the scarcity of ratepayer funds dedicated to the Gas RD&D Program, SoCalGas shall remove requests for hydrogen funding to reflect these priorities and be responsive to ratepayer affordability concerns.

In addition to addressing compliance issues, SoCalGas shall make the following revisions to its 2026 Plan to provide greater clarity to align with requirements:

1. Indicate the program area across the product development cycle, detailed in Appendix D of this Resolution,[131] associated with each listed Research Topics for further clarity on anticipated outputs from Initiatives.
2. Identify which of the proposed future project areas are anticipated to be funded through consortia.
3. Prioritize zero-emission systems as opposed to low-emission systems under its *Low-Carbon Fuel Technologies* Initiative[132] and eliminating as opposed to reducing flaring from some biogas production facilities under its *RNG Infrastructure Optimization* Initiative[133] wherever possible. Otherwise, explain why zero-emission research is not possible.

To demonstrate continued compliance with and fulfillment of requirements, SoCalGas shall provide further detail upon project implementation in project final reports and its Annual Reports to demonstrate how results are measured and utilized in alignment with State goals,[134] clearly articulate impact analyses resulting from the described methods, and describe lessons learned.[135]

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[130] Hydrogen is not included in the Final 2025 Inputs and Assumptions (I&A) for the 2024-2026 IRP Cycle.
[131] Consistent with EPIC per D.12-05-037 at OP 3 & D.21-11-028 at p. 32.
[132] AL 6646-G Attachment A at p. 55.
[133] AL 6646-G Attachment A at p. 45.
[134] Per Resolution G-3601 (2023) at OP 6. See Resolution G-3624 at Appendix J: Compliance Assessment of AL 6646-G at CPUC Requirement [17].
[135] Per Resolution G-3601 (2023) at OP 6. See Resolution G-3624 at Appendix J: Compliance Assessment of AL 6646-G at CPUC Requirement [19].

The Commission also notes concerns voiced by stakeholders during the February 2026 Joint Administrator Workshop related to biomethane and RNG RD&D activities. The Commission requires SoCalGas to seek out and consider input from ESJ communities in its strategic planning as well as in assessing and demonstrating benefits to these communities from RD&D investments. Thus, the Commission directs SoCalGas, and any project contractor, to consult vulnerable communities, such as workers, tenants, and frontline communities near gas facilities, on project siting to prevent exacerbating existing issues and inequities, particularly from projects with unknown and potentially harmful impacts. SoCalGas should educate vulnerable communities on advanced technologies as appropriate to address community concerns. Further, SoCalGas should summarize the concerns of communities and describe how these concerns are addressed in Annual Plans and correlated Annual Reports. Through this process, the Commission seeks to strategically leverage RD&D funding to balance policy imperatives of innovation with community concerns and benefits, including in the CPUC's Biomethane Procurement Cost Allocation proceeding.[136]

Resubmittal of SoCalGas' 2027 Plan

The Commission authorizes a budget of $19,508,100 for SoCalGas' 2027 Plan as detailed in Appendix J, including a Program Administration budget of $1,950,800. The Commission's authorization of SoCalGas' 2027 Gas RD&D Plan budget level requires SoCalGas to submit a revised 2027 Plan via Tier 2 AL within 60 days addressing the identified compliance issues requiring modifications.

Consolidated Guidance for Future SoCalGas Gas RD&D Compliance Filings

The Commission details the following requirements for the efficient development, streamlined review, and effective implementation of future proposed Gas RD&D Plans. The Commission set requirements for SoCalGas' Gas RD&D Program via decisions and resolutions approving SoCalGas' Gas RD&D Plans, beginning in 2019. All of these were rigorously reviewed by Energy Division staff. This Resolution provides this consolidated list of program requirements based on the reviewed prior decisions and

[136] R.22-12-011: OIR to Address Biomethane Procurement Cost Allocation.

resolutions as well as establishes new requirements for improved Commission oversight.

Annual Investment Planning

Initiative Criteria

SoCalGas shall develop and propose Gas RD&D investments at the Initiative level and demonstrate the following for each, consistent with Commission guidance (see Appendix E):

1. **Policy Priority**: Alignment with and prioritization of critical gaps and needs identified in specific CPUC policies and proceedings, which support State goals, informed by consultation with CPUC staff on targeted policy objectives.[137]
2. **Identified Need**: Innovation and differentiation from existing RD&D activities to support complementary rather than duplicative efforts, informed by specific consultation with other Gas RD&D Administrators as well as broader industry RD&D activities. Demonstrate that the Initiative will leverage existing RD&D progress while providing distinct additional value.
3. **Proposed Solution**: Describe Research Topics, anticipated near-term project outputs commensurate with the proposed funding level, and intended pathways to scale, commercialize, and otherwise utilize results from RD&D activities to promote technology transfer and market facilitation.
4. **Anticipated Impacts**:
    a. Reasonable probability of providing California ratepayer benefit by locating projects in the State of California and detailed planned methodologies for tracking and evaluating quantitative impacts from investments through the use of the EPIC Program's Uniform Impacts Analysis Foundational Principles.
    b. Cost-effectiveness and protection of affordability to ratepayers.

[137] In Resolution G-3618 (2026) at OP 11, the Commission found that Energy Division staff may commence a stakeholder process and facilitate strategic planning to model the EPIC program by identifying Strategic Goals to promote coordination, consistency, and best practices across ratepayer-funded RD&D investments. See D.23-04-042 at OP 3 & D.24-03-007.

c. Promote equity and provide benefits to Environmental & Social Justice (ESJ) communities, informed by consultation with community-based organizations (CBOs) and the Commission's most current ESJ Action Plan.

Pre-Submittal Consultation

The refined, comprehensive pre-submittal consultation process detailed below promotes coordinated strategic planning across administrators to facilitate a holistic investment planning approach:

- Intra-Administrator Coordination

  SoCalGas shall be proactive in collaborating with the IOU Gas RD&D administrators, the California Energy Commission (CEC) and Pacific Gas & Electric (PG&E), to promote and demonstrate strategically coordinated and complementary, rather than duplicative, RD&D activities.[138] SoCalGas shall document this coordination in its Gas RD&D Plans at the Initiative level, including by differentiating proposed Initiatives from similar activities, demonstrating how research outcomes inform future proposals, and defining each participant's specific intended role for each proposed Initiative.

- Pre-Submittal Consultation with CPUC Subject Matter Experts (SMEs)

  SoCalGas shall consult with Energy Division subject matter staff to seek and integrate feedback prior to Plan submittal, and this consultation shall be documented at the Initiative level in Plans.[139] This consultation is intended to promote ratepayer benefit and create efficiencies in the Commission's Plan review and approval by proactively aligning proposed investments at the start of the process with priority Gas RD&D-related technologies, market needs, and emerging opportunities as identified in CPUC proceedings and policies.

[138] California Public Utilities Code Section 740.1 (d); Resolution G-3586 (2022) at OP 5; & Resolution G-3601 (2023) at OP 6i. See Resolution G-3624 at Appendix E: Commission Guidance on Gas RD&D Initiative Criteria at 2.
[139] Resolution G-3601 (2023) at OP 6a. See Resolution G-3624 at Appendix E: Commission Guidance on Gas RD&D Initiative Criteria at [1].

SoCalGas should also explain its consultation and coordination where relevant with the EPIC program. The EPIC Strategic Goal of "Achieving 100% Net-Zero Carbon and the Coordinated Role of Gas" highlights the intrinsic link between gas and electric investment policy and planning, particularly involving electrification and decarbonization efforts. Greater collaboration among California RD&D programs is necessary to identify and scale cost-effective strategies to provide ratepayer benefit and achieve "the last 10 percent of reaching the state's goal to be carbon neutral by 2045 economy-wide."[140] The CPUC's Long-Term Gas Proceeding also concludes that, "[t]o achieve California's decarbonization goals and effectuate an equitable gas transition, a coordinated, iterative, and long-term planning process will help the State agencies and utilities align initiatives related to gas system planning efforts and analytics."[141] Thus, pre-submittal consultation with CPUC staff should be coordinated with other Gas RD&D and EPIC administrators to promote efficiencies and strategic, holistic investment planning across programs, thereby maximizing the impacts of ratepayers' investments.

- Public Workshop & ESJ Consultation

  After receiving and integrating CPUC SME input to align with CPUC proceedings, SoCalGas shall collaborate with the IOUs to hold a Joint Annual Public Workshop to present coordinated investment proposals for the upcoming year and obtain stakeholder input prior to Plan submittal.[142] At the workshop, SoCalGas shall also present on outcomes from the previous year as reported in its Annual Report to promote transparency and accountability in demonstrating ratepayer benefit in addition to informing subsequent strategic investment planning. SoCalGas shall consult Energy Division staff on its engagement of diverse relevant stakeholders, document specific feedback, detail the clear progression of proposal development and refinement through each stage of consultation, and demonstrate how input

[140] D.24-03-007: Decision Adopting Strategic Goals for the EPIC Program at p. 19-20.
[141] D.24-09-012 at p. 6.
[142] Resolution G-3573 (2021): Approving SoCalGas' 2021 Gas RD&D Plan at OP 3 & Resolution G-3586 (2022): Approving SoCalGas' 2022 Gas RD&D Plan at OP 5.

has been incorporated at the Initiative level in Plans.[143] SoCalGas shall provide sufficient time for stakeholder questions and discussion, specifically via a robust, dedicated engagement component of the workshop with ESJ and Tribal communities. SoCalGas shall offer members of the Disadvantaged Communities Advisory Group (DACAG) the opportunity to provide input on its proposed Plan with sufficient lead-time prior to Plan submittal.[144]

Annual Plan Submittal & Approval

SoCalGas must submit proposed Gas RD&D Plans to the Commission via a Tier 3 Advice Letter (AL) annually.[145] SoCalGas shall justify its proposed total budget amount with specific citations including page numbers referring to Commission policies in which the budget or explicit escalation factor was approved. SoCalGas shall post proposed and approved Investment Plans publicly so that they are easily accessible on its website and notify the CPUC of the web address; SoCalGas shall also coordinate with other Gas RD&D administrators to develop service lists of relevant ongoing CPUC Proceedings on which to serve Plans and consult with Energy Division staff to ensure these lists are accurate and sufficient.[146] The Program Administration budget is capped at 10% of the total adopted budget and must be delineated by allowable cost categories so the CPUC may understand how these costs are allocated and reasonable, consistent with Commission requirements for EPIC administrators.[147] SoCalGas must also provide detail quantifying research funding allocations by research consortium, as well as project costs related to each consortium, and explicitly justify how all consortia project costs and dues benefit gas ratepayers.[148]

The Plan shall only become effective when the Commission adopts a Resolution approving the Plan, and SoCalGas shall not record any Gas RD&D program expenses in a one-way balancing account until an annual Tier 3 Advice Letter outlining its Gas

[143] Resolution G-3601 (2023) at OP 6d.
[144] Resolution G-3601 (2023) at OP 6f & 6g.
[145] D.19-09-051 at p. 379.
[146] Consistent with: Resolution G-3571 (2020): Approving CEC's FY 2020-2021 Gas RD&D Plan at OP 5c & 5d.
[147] Resolution G-3586 (2022) at OP 5 & D.24-12-074 at p. 329.
[148] Resolution G-3573 (2021) at OP 3; Resolution G-3586 (2022) at OP 5; & Resolution G-3601 (2023) at OP 6b.

RD&D Budget Plan is approved.[149] SoCalGas shall continue to consult CPUC staff on proposed uses of approved Gas RD&D funds during Plan implementation to ensure ongoing policy alignment and relevance. Unspent funds must be returned to ratepayers at the end of each GRC cycle.[150]

Annual Report

This Resolution establishes the Annual Report deadline of March 1st each year, pertaining to the previous CY: SoCalGas shall submit its Gas RD&D Annual Report prior to holding its Annual Public Workshop,[151] each by March 1st annually.[152] SoCalGas shall include information on all active and recently completed RD&D projects.[153] For clarity in reporting, SoCalGas shall specify the GRC cycle, approved Investment Plan, and Initiative associated with each project. To ensure public transparency and inform CPUC oversight, SoCalGas shall utilize a standardized template provided by Energy Division staff to include both: 1) synthesized major accomplishments and contributions to Gas RD&D, and 2) detailed information on all active and recently completed projects and realized ratepayer benefits, clearly identifying the associated approved Plans and specific Initiatives.

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. Any comments are due within 20 days of the date of its mailing and publication on the Commission's website and in accordance with any instructions accompanying the notice. Section 311(g)(2) provides that this 30-day review period and 20-day comment period may be reduced or waived upon the stipulation of all parties in the proceeding. Comments must be limited to 10 pages or less.

[149] D.19-09-051 at p. 377-379 & D.24-12-074 at p. 327-330.
[150] D.19-09-051 at p. 378 & D.24-12-074 at p. 330.
[151] D.19-09-051 at p. 378.
[152] A March 1 deadline is consistent with other Gas RD&D administrator schedules to support requirements for intra-administrator coordination: See Resolution G-3618 (2026) at p. 23.
[153] D.19-09-051 at p. 378.

FINDINGS AND CONCLUSIONS

1. Southern California Gas Company (SoCalGas) filed its 2024, 2025, 2026, and 2027 Gas Research, Development, and Demonstration (RD&D) Investment Plans pursuant to D.19-09-051 and D.24-12-074.
2. SoCalGas does not demonstrate compliance with all requirements set forth by Public Utilities Code 740.1, D.19-09-051, D.24-12-074, and Commission Resolutions in its proposed:
    a. 2024 Gas RD&D Plan submitted via Tier 3 AL 6495-G-A where noted in Appendix G.
    b. 2025 Gas RD&D Plan submitted via Tier 3 AL 6496-G-A where noted in Appendix H.
    c. 2026 Gas RD&D Plan submitted via Tier 3 AL 6645-G where noted in Appendix I.
    d. 2027 Gas RD&D Plan submitted via Tier 3 AL 6646-G where noted in Appendix J.
3. Pursuant to Resolution G-3601 at OP 6, SoCalGas is required to:
    a. Present all anticipated Initiatives in its proposed Plan to Energy Division and incorporate feedback prior to Plan submittal.[154]
    b. Select and prioritize metrics to measure the impacts from ratepayer investment that directly relate to the core purpose of its proposed Initiatives and directly impact customers who support the RD&D program.[155]

[154] Resolution G-3601 (2023) at OP 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' proposed Plan should reflect input from RD&D administrator coordination and broad stakeholders including the research and ESJ communities."

[155] Resolution G-3601 (2023) at OP 6. "In its 2024 Gas Research, Development, and Demonstration (RD&D) Research Plan and beyond, Southern California Gas Company (SoCalGas) shall: 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."

4. Consistent with State climate and equity goals, SoCalGas shall always prioritize non-combustion- over combustion-based RD&D activities or otherwise demonstrate that combustion-based RD&D activities provide clear ratepayer benefit.

THEREFORE, IT IS ORDERED THAT:

1. SoCalGas' Advice Letter 6495-G-A proposing for SoCalGas to record up to $17,853,000 in Gas RD&D expenses to implement its 2024 Plan is approved in part. The Commission's authorization of SoCalGas' 2024 Gas RD&D Plan budget requires SoCalGas to submit a revised 2024 Plan via Tier 2 AL within 60 days addressing the identified compliance issues requiring modifications.[156] SoCalGas shall include in this Tier 2 AL: 1) a clean version of its updated 2024 Plan; 2) a track-change version of its original 2024 Plan; and 3) a table describing these modifications. SoCalGas shall:
    a. Discuss the submittal of its 2023 Gas RD&D Annual Report in its 2024 Gas RD&D Annual Plan, given its 2024 Gas RD&D Annual Report submittal is correlated with its 2025 Gas RD&D Annual Plan.
    b. Reallocate proposed funds for both new and further funding for hydrogen-related projects for eligible purposes as it does not demonstrate alignment with CPUC proceedings and clear ratepayer benefit.
    c. Provide further detail on the "Integrating carbon management solutions" Research Topic under its *Energy Reliability & Resilience* Initiative as described herein.
    d. Embed in the descriptions of each proposed Initiative incorporation strategies associated with all stakeholder feedback or otherwise explain why it did not incorporate the input.
    e. Demonstrate that its *System Design & Materials* Initiative will involve activities that are complementary to rather than duplicative of the CEC's *Fuel-Flexible Distributed Power Generation* Initiative in its FY 2024-2025 Gas RD&D Plan.

[156] See Resolution G-3624 at Appendix G: Compliance Assessment of Advice Letter 6495-G-A – 2024 Plan.

2. SoCalGas' Advice Letter 6496-G-A proposing for SoCalGas to record up to $18,389,000 in Gas RD&D expenses to implement its 2025 Plan is approved in part. The Commission's authorization of SoCalGas' 2025 Gas RD&D Plan budget requires SoCalGas to submit a revised 2025 Plan via Tier 2 AL within 60 days addressing the identified compliance issues requiring modifications.[157] SoCalGas shall include in this Tier 2 AL: 1) a clean version of its updated 2025 Plan; 2) a track-change version of its original 2025 Plan; and 3) a table describing these modifications. SoCalGas shall:
    a. Reallocate proposed funds for both new and further funding for hydrogen-related projects for eligible purposes as it does not demonstrate alignment with CPUC proceedings and clear ratepayer benefit.
    b. Provide further detail on the "Integrating carbon management solutions" Research Topic under its *Energy Reliability & Resilience* Initiative as described herein.
    c. Embed in the descriptions of each proposed Initiative incorporation strategies associated with all stakeholder feedback or otherwise explain why it did not incorporate the input.
    d. Demonstrate that its *System Design & Materials* Initiative will involve activities that are complementary to rather than duplicative of the CEC's *Fuel-Flexible Distributed Power Generation* Initiative in its FY 2024-2025 Gas RD&D Plan.
3. In its revised 2024 and 2025 Gas RD&D Plans, SoCalGas shall make the following revisions to provide greater clarity to align with requirements:
    a. Review its Plans for elements of Initiatives that primarily support compliance with existing requirements/regulations or ongoing operations and maintenance activities and rescope as necessary to demonstrate ratepayer funds are used for innovative RD&D and produce impacts that would not otherwise be expected to occur.
    b. Indicate the program area across the product development cycle, detailed in Appendix D of this Resolution, associated with each listed Research Topics for further clarity on anticipated outputs from Initiatives.

[157] See Resolution G-3624 at Appendix H: Compliance Assessment of Advice Letter 6496-G-A – 2025 Plan.

c. Identify which of the proposed future project areas are anticipated to be funded through consortia.
d. Prioritize zero-emission over low-emission technologies wherever possible, particularly under its *Low-Carbon Fuel Technologies* and *Energy Reliability & Resilience* Initiatives. Otherwise, explain why zero-emission research is not possible.

4. SoCalGas' Advice Letter 6645-G proposing for SoCalGas to record up to $18,940,000 in Gas RD&D expenses to implement its 2026 Plan is approved in part. The Commission's authorization of SoCalGas' 2026 Gas RD&D Plan budget requires SoCalGas to submit a revised 2026 Plan via Tier 2 AL within 60 days addressing the identified compliance issues requiring modifications.[158] SoCalGas shall include in this Tier 2 AL: 1) a clean version of its updated 2026 Plan; 2) a track-change version of its original 2026 Plan; and 3) a table describing these modifications. SoCalGas shall:
    a. Provide further detail on the "Carbon Management Integration" Research Topic under its *Energy Reliability & Resilience* Initiative as described herein.
    b. Embed in the descriptions of each proposed Initiative for transparency:
        i. Incorporation strategies associated with all:
            1. Stakeholder feedback, and
            2. Energy Division staff consultation feedback reflecting alignment with CPUC proceedings and ratepayer benefit, including:
                a. *Environment & Safety*: SoCalGas must demonstrate that it will account for the full costs associated with AI/ML applications when assessing impacts, including increased energy consumption, cloud services, data storage, and processing requirements, and that human decision-making authority will be retained.
                b. *Building & Facility Systems*: SoCalGas must demonstrate that this Initiative supports reducing the size of the gas system.

[158] See Resolution G-3624 at Appendix I: Compliance Assessment of Advice Letter 6645-G – 2026 Plan.

ii. Detail differentiating similar RD&D led by other Gas RD&D administrators and conducted in other programs, particularly:
    1. *Environmental & Safety* from PG&E RD&D involving AI/ML and LiDAR, including specific examples of how system conditions differ to justify parallel validation.
    2. *Community Impact & Energy Conservation* from PG&E RD&D involving AI/ML and LiDAR in addition to PG&E and CEC RD&D involving methane monitoring.
    3. *Low-Carbon Fuel Technologies* from PG&E's *Clean Fuels Integration* Initiative in its 2026 Plan.
    4. *Energy Reliability & Resilience* from the CEC's EPIC and Gas RD&D Initiatives and projects related to cost-effective industrial decarbonization in addition to the CEC's *Fuel-Flexible Distributed Power Generation* Initiative in its proposed FY 2024-2025 Plan.
    5. *Building & Facility Systems* from building decarbonization and energy efficiency efforts and RD&D activities involving thermal energy storage across Gas RD&D, EPIC, and other programs.

c. Provide further detail on how SoCalGas explored compensation strategies for its ESJ advisory panel.

5. SoCalGas' Advice Letter 6646-G proposing for SoCalGas to record up to $19,508,100 in Gas RD&D expenses to implement its 2027 Plan is approved in part. The Commission's authorization of SoCalGas' 2027 Gas RD&D Plan budget requires SoCalGas to submit a revised 2027 Plan via Tier 2 AL within 60 days addressing the identified compliance issues requiring modifications.[159] SoCalGas shall include in this Tier 2 AL: 1) a clean version of its updated 2027 Plan; 2) a track-change version of its original 2027 Plan; and 3) a table describing these modifications. SoCalGas shall:
    a. Provide further detail on the "Carbon Management Integration" Research Topic under its *Energy Reliability & Resilience* Initiative as described herein.

[159] See Resolution G-3624 at Appendix J: Compliance Assessment of Advice Letter 6646-G – 2027 Plan.

b. Reallocate proposed funds for the "Optimized H2S Removal Strategies for Low-Cost Operations and Materials Preservation" project under the *RNG Infrastructure Optimization* Initiative for eligible purposes as it does not demonstrate alignment with CPUC proceedings and ratepayer benefit.
c. Embed in the descriptions of each proposed Initiative for transparency:
    i. Incorporation strategies associated with all:
        1. Stakeholder feedback, and
        2. Energy Division staff consultation feedback reflecting alignment with CPUC proceedings and ratepayer benefit, including:
            a. *Environment & Safety*: SoCalGas must demonstrate that it will account for the full costs associated with AI/ML applications when assessing impacts, including increased energy consumption, cloud services, data storage, and processing requirements, and that human decision-making authority will be retained.
            b. *Building & Facility Systems*: SoCalGas must demonstrate that this Initiative supports reducing the size of the gas system.
    ii. Detail differentiating similar RD&D led by other Gas RD&D administrators and conducted in other programs, particularly:
        1. *Environmental & Safety* from PG&E RD&D involving AI/ML and LiDAR, including specific examples of how system conditions differ to justify parallel validation.
        2. *Community Impact & Energy Conservation* from PG&E RD&D involving AI/ML and LiDAR in addition to PG&E and CEC RD&D involving methane monitoring.
        3. *Low-Carbon Fuel Technologies* from PG&E's *Clean Fuels Integration* Initiative in its 2026 Plan.
        4. *Energy Reliability & Resilience* from the CEC's EPIC and Gas RD&D Initiatives and projects related to cost-effective industrial decarbonization in addition to the CEC's *Fuel-*

Flexible Distributed Power Generation Initiative in its proposed FY 2024-2025 Plan.

5. *Building & Facility Systems* from building decarbonization and energy efficiency efforts and RD&D activities involving thermal energy storage across Gas RD&D, EPIC, and other programs.

d. Provide further detail on how SoCalGas explored compensation strategies for its ESJ advisory panel.

6. In its revised 2026 and 2027 Gas RD&D Plans, SoCalGas shall make the following revisions to provide greater clarity to align with requirements:
   a. Indicate the program area across the product development cycle, detailed in Appendix D of this Resolution, associated with each listed Research Topics for further clarity on anticipated outputs from Initiatives.
   b. Identify which of the proposed future project areas are anticipated to be funded through consortia.
   c. Prioritize zero-emission systems as opposed to low-emission systems under its *Low-Carbon Fuel Technologies* Initiative and eliminating as opposed to reducing flaring from some biogas production facilities under its *RNG Infrastructure Optimization* Initiative wherever possible. Otherwise, explain why zero-emission research is not possible.
7. To demonstrate continued compliance with and fulfillment of requirements, SoCalGas shall provide further detail upon project implementation in project final reports and its Annual Reports to demonstrate how results are measured and utilized in alignment with State goals, clearly articulate impact analyses resulting from the described methods, and describe lessons learned.
8. As discussed in this Resolution, SoCalGas shall seek out and consider input from ESJ communities in its strategic planning as well as in assessing and demonstrating benefits to these communities from biomethane and RNG-related RD&D activities. SoCalGas should summarize the concerns of communities and describe how these concerns are addressed in Annual Plans and correlated Annual Reports.
9. The Commission denies SoCalGas' proposed budget allocations in its 2024 Plan of $675,000 for its proportional share of a Gas RD&D Program Evaluation and $129,938 for its proportional share of developing a comprehensive Gas RD&D

Database. The Commission will, instead, determine a process to establish holistic oversight across all Gas RD&D administrators for efficiency and effectiveness in the allocation of funds, conducting the evaluation, and developing the database.

10. Unspent Gas RD&D funds shall be returned to ratepayers at the end of the GRC D.24-12-074 funding cycle. Funds explicitly approved via Resolution which SoCalGas has committed, contracted out, or otherwise encumbered shall not be returned at the close of the GRC cycle to allow for the completion of work in progress. If contracts are terminated after the close of the GRC cycle, uncommitted or disencumbered funds shall be returned to ratepayers. PG&E may spend its approved Plan funding in the following calendar years according to these terms.[160]

This Resolution is effective today.

[Commissioner Signature blocks to be added upon adoption of the resolution.]

The foregoing resolution was duly introduced, passed and adopted at a conference of the Public Utilities Commission of the State of California held on [DATE]; the following Commissioners voting favorably thereon:

Dated _____, at [Voting meeting location], California

[160] Consistent with Resolution G-3601 at OP 7. "Southern California Gas Company may spend its approved 2023 Research, Development, and Demonstration funding in calendar year 2024."

APPENDIX A

APPENDIX A: SoCalGas' 2024-2027 Plans Proposed Budgets

SoCalGas Gas RD&D Investment Plans Proposed Budgets					
Investment Theme	**Initiative Title**	**2024 Plan Budget[161]**	**2025 Plan Budget[162]**	**2026 Plan Budget[163]**	**2027 Plan Budget[164]**
Gas System Integrity	Environmental & Safety	$ 1,305,784	$ 1,655,010	$ 2,556,900	$ 2,633,600
	Operations Technology	$ 769,852	$ 827,505	$ 0	$ 0
	Community Impact & Energy Conservation	$ 0	$ 0	$ 1,704,600	$ 1,755,700
	System Design & Materials	$ 2,001,614	$ 2,151,513	$ 852,300	$ 877,900
	System Inspection & Monitoring	$ 2,259,555	$ 2,482,515	$ 2,556,990	$ 2,633,600
	RNG Infrastructure Optimization	$ 2,090,927	$ 2,534,522	$ 2,556,900	$ 2,633,600
	Gas & Energy Storage	$ 400,000	$ 0	$ 0	$ 0
Decarbonization	Low-Carbon Fuels Technologies	$ 2,237,934	$ 2,482,515	$ 2,556,900	$ 2,633,600
	Low-Carbon Fuels Integration	$ 150,000	$ 0	$ 0	$ 0
	Energy Reliability & Resilience	$ 2,289,414	$ 2,482,515	$ 2,556,900	$ 2,633,600
	Building & Facility Systems	$ 1,757,682	$ 1,934,005	$ 1,704,600	$ 1,755,700
Gas RD&D Database Development		$ *129,938	$ 0	$ 0	$ 0
Program Evaluation		$ *675,000	$ 0	$ 0	$ 0
Program Administration		$ 1,785,300	$ 1,838,900	$ 1,894,000	$ 1,950,800
	ANNUAL TOTAL:	**$ 17,853,000**	**$ 18,389,000**	**$ 18,940,000**	**$ 19,508,100**
	TOTAL:	**$ 74,690,100**			

**This Resolution denies these proposed budget allocations and will determine a process to establish holistic oversight across all Gas RD&D administrators.*

[161] AL 6495-G-A at p. 6 & Attachment A at p. 9-10, 14, & 41.
[162] AL 6496-G-A at p. 6 & Attachment A at p. 9-10, 13, & 38.
[163] AL 6645-G at p. 6 & Attachment A at p. 17-18.
[164] AL 6646-G at p. 6 & Attachment A at p. 17-18.

APPENDIX B

APPENDIX B: Key CPUC Gas RD&D Resolution Requirements

The Commission set requirements for SoCalGas' Gas RD&D Program via resolutions approving SoCalGas' Gas RD&D Plans, beginning in 2021. All applicable Commission requirements set via resolution were rigorously reviewed to identify the following key orders for the Commission's evaluation of SoCalGas' proposed Plans:

Resolution	Commission Order/Requirement
Resolution G-3573 (2021): Approving SoCalGas' 2021 Gas RD&D Plan	**OP 3**. In developing the subsequent Research Plans, SoCalGas shall: Continue to increase transparency in project area selection processes and criteria.
Resolution G-3586 (2022): Approving SoCalGas' 2022 Gas RD&D Plan	**OP 5**. In subsequent Research Plans, SoCalGas shall provide the following: • 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. • Provide project-level detail about Research Plans with the 16 data fields described in the Discussion sub-section titled *Detailed budgets broken down by research subprogram.* • 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.[165] • Provide detail quantifying research funding allocations by research consortium, as well as project costs related to each consortium.
Resolution G-3601 (2023): Approving SoCalGas' 2023 Gas RD&D Plan	[SoCalGas shall allocate] $129,938 of [RD&D] funds as a contribution of its proportional share toward a comprehensive Gas RD&D database (**p. 34**).
	OP 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' 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.
	OP 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.
	OP 6. In its 2024 Gas Research, Development, and Demonstration (RD&D) Research Plan and beyond, Southern California Gas Company (SoCalGas) shall:

[165] See Resolution G-3624 at Appendix C: Administrative Budget Cost Categories.

	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' 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.[166] c. Elaborate on the results of its RD&D projects. SoCalGas shall describe how results are used to address the state's climate goals,[167] how its research project results are scaled/commercialized,[168] 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.[169] 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.[170] 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,

[166] Consistent with Resolution G-3573 (2021) at OP 3.
[167] Consistent with Resolution G-3573 (2021) at OP 3 & Resolution G-3586 (2022) at OP 5.
[168] Consistent with Resolution G-3573 (2021) at OP 3 & Resolution G-3601 (2023) at p. 11.
[169] Resolution G-3586 (2022) at OP 5.
[170] See Resolution G-3624 at Appendix F: EPIC Foundational Principles for the Development of a Uniform Impact Analysis Framework. Consistent with Resolution G-3573 (2021) at OP 3. The Commission's compliance assessment of Resolution G-3586 (2022) at OP 5 is captured in the Commission's compliance assessment of this requirement per Resolution G-3601 (2023) at p. 18. "'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.' 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."

	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.[171] 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.[172]

[171] Consistent with Resolution G-3573 (2021) at OP 3 & Resolution G-3586 (2022) at OP 5.
[172] Consistent with Resolution G-3586 (2022) at OP 5 & Resolution G-3601 (2023) at p. 16.

APPENDIX C

APPENDIX C: Administrative Budget Cost Categories

Program Administrative Cost Budget Item	**Calendar Year ($)**
Investment Plan Development	
Project Planning and Initiation	
Project Oversight and Governance	
Stakeholder Communication, Engagement, and Outreach	
Regulatory Support Compliance	
Internal Management Coordination	
Program and Process Coordination and Improvement	
Administrative Activities	
Supervision and Personnel	
Training and Development	
Total	

APPENDIX D

APPENDIX D: RD&D Program Areas from EPIC

The Commission identified the following program areas across the product development cycle for EPIC:[173]

Program Area	Description
Applied Research and Development (R&D)	Applied science and technology designed to solve specific problems in the gas sector that provide public benefits but for which there is no current clear business case for deployment of private capital and gas benefits for pre-commercial activities and technologies.
Technology Demonstration and Deployment (TD&D)	The installation and operation of pre-commercial technologies at a scale sufficiently large and in conditions sufficiently reflective of anticipated actual operating environments, to enable the financial community to effectively appraise the operational and performance characteristics of a given technology and the financial risks it presents; supports assisting technology development through the "valley of death" and toward commercialization.
Market Facilitation	Activities to address non-price barriers to adoption of clean technologies, such as regulatory barriers and lack of information, as well as supporting market research and tracking of results; activities including program tracking, market research, education and outreach, regulatory assistance and streamlining, and workforce development to support clean energy technology and strategy deployment.

[173] Consistent with EPIC per D.12-05-037 at OP 3 & D.21-11-028 at p. 32.

APPENDIX E

APPENDIX E: Commission Guidance on Gas RD&D Initiative Criteria

Commission orders in bold pertain to SoCalGas.

Commission Guidance	Initiative Criteria
D.19-09-051 at p. 379. Resolution G-3571 (2020) at OP 5a. **Resolution G-3601 (2023) at OP 6a.** Resolution G-3603 (2024) at OP 4.	1. **Policy Priority:** Alignment with and prioritization of critical gaps and needs identified in State goals and specific CPUC Policies and Proceedings to demonstrate ratepayer benefit, informed by consultation with CPUC Staff.
California Public Utilities Code Section 740.1 (d) **Resolution G-3586 (2022) at OP 5.** Resolution G-3592 (2023) at OP 5. **Resolution G-3601 (2023) at OP 6a & 6i.** D.23-11-069 at p. 220. Resolution G-3603 (2024) at OP 4. **D.24-12-074 at p. 327.** Consistent with D.23-04-042 at Appendix A.	2. **Identified Need:** Innovation and differentiation from existing RD&D activities to support complementary rather than duplicative efforts, informed by specific consultation with other Gas RD&D Administrators. Demonstrate that the Initiative will leverage existing progress while providing distinct additional value.
Resolution G-3573 (2021) at OP 3. **Resolution G-3601 (2023) at OP 6c.** Consistent with D.23-04-042 at Appendix A.	3. **Proposed Solution**: Describe Research Topics, anticipated near-term project outputs commensurate with the proposed funding level, and intended pathways to scale, commercialize, and otherwise utilize results from RD&D activities to promote technology transfer and market facilitation.
a. **Public Utilities Code 740.1 at (a).** D.04-08-010 at p. 28; FOF 32; & OP 17. **Resolution G-3573 (2021) at OP 3.** **Resolution G-3586 (2022) at OP 4 & 5.** Resolution G-3592 (2023) at OP 6. **Resolution G-3601 (2023) at OP 5 & 6b.** Resolution G-3603 (2024) at OP 6. D.23-11-069 at p. 218 & 220.	4. **Anticipated Impacts**: a. Reasonable probability of providing California ratepayer benefit by locating projects in the State of California[174] and detailed planned methodologies for tracking and evaluating quantitative impacts from investments through the use of the EPIC Program's Uniform

[174] Resolution G-3601 (2023) at:
OP 5. "All of [SoCalGas'] new and future [RD&D] 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."
OP 6. "[SoCalGas shall] b. Explicitly justify how all consortia dues benefit gas ratepayers."

Consistent with D.23-04-042 at Appendix A. See Appendix F: EPIC Foundational Principles for the Development of a Uniform Impact Analysis Framework. b. **California Public Utilities Code Section 740.1 (e)(5)** **D.19-09-051 at p. 379.** D.23-11-069 at p. 218. Executive Order (EO) N-5-24 (Newsom, 2024) c. Resolution G-3555 (2019) at OP 6. Resolution G-3571 (2020) at OP 8b. **Resolution G-3573 (2021) at OP 3.** **Resolution G-3586 (2022) at OP 4 & 5.** Environmental & Social Justice (ESJ) Action Plan Version 2.0 (2022). Resolution G-3592 (2023) at OP 5a. **Resolution G-3601 (2023) at OP 3d & 6.** D.23-11-069 at p. 218 & 220-221.	Impacts Analysis Foundational Principles. b. Cost-effectiveness and protection of affordability to ratepayers. c. Promote equity and provide benefits to Environmental & Social Justice (ESJ) communities, informed by consultation with community-based organizations (CBOs) and the Commission's most current ESJ Action Plan.

APPENDIX F

APPENDIX F: EPIC Foundational Principles for the Development of a Uniform Impact Analysis Framework[175]

This document outlines the Commission's expectations of Electric Program Investment Charge (EPIC) administrators in developing a uniform impact analysis framework and metrics, enabling the evaluation and tracking of the impacts of all EPIC projects, that complies with D.21-11-028, Ordering Paragraph 12. These foundational principles include:

Purpose

- The mandatory guiding principle of EPIC is to provide ratepayer benefits as related to California's electric system.[176]
- The EPIC impacts analysis framework should provide EPIC administrators with a uniform methodology to demonstrate with data the realized and potential impacts to ratepayers from EPIC research, development, and demonstration (RD&D) investment.

Overarching Principles

- In general, each EPIC project should offer a reasonable probability of providing benefits to ratepayers and expenditures on projects which have a low probability for success should be minimized,[177] and the EPIC portfolio as a whole should demonstrably benefit ratepayers.
- While in some cases, a targeted group of ratepayers may benefit from an individual project's output, EPIC investments should result in scalable and

[175] D.23-04-042 at Appendix A. Resolution G-3601 (2023) at p. 18. "'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.' 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."
[176] D.12-05-037: OIR on the Commission's Own Motion to Determine the Impact on Public Benefits Associated with the Expiration of Ratepayer Charges Pursuant to Public Utilities Code Section 399.8.
[177] California Public Utilities Code Section 740.1 at (a) and (b).

replicable innovations that prioritize solutions to address California's energy and climate goals.

- Accurate and precise EPIC project and program impacts reporting is paramount to inform policy, decision making, and formulating EPIC strategic goals. Therefore, impacts resulting from the analytical framework must be defensible and not overstated.
- Clear methods are necessary to calculate past, current, and future EPIC impacts based on published data and reasonable assumptions, such that any party can take the data and assumptions and apply the methodology to recreate the results. Without such foundation, it will be difficult to calculate quantitative impacts of EPIC innovations that lack the market or deployment history to have readily available sufficient data for impacts analysis or project future impacts of pre-commercial innovations.

Net Impacts

- Realized ratepayer benefits must be demonstrated by the incremental, value-added impact of EPIC innovation.
    - For example, if a ratepayer spends $20 to save $30, the ratepayer benefit realized is the net $10 savings, not the gross $30 impact. Thus, the metric by which EPIC investments should be evaluated is *net*, not gross, impacts.
- Net impacts are required to calculate project or program benefit-cost ratios and rates of return on investment.

Attribution

- To understand the impact of EPIC accurately and precisely, and therefore, inform continuance or improvements in EPIC strategic goals and strategic objectives, administrators should demonstrate to the CPUC what impacts have or are forecasted to occur that would not have otherwise occurred without EPIC investment (i.e., only these impacts should be attributed to EPIC.)
- The portion of the observed change that is only due to EPIC investment must be documented with data, and a set of reasonable and acceptable rules for determining the share of credit attributed to EPIC developed, including attribution for the value of cost-shared, matching, or leveraged funding.

- Comparable scenarios should be used to estimate when the market would have produced an innovation had EPIC funding not been available. Where innovation would have eventually occurred without EPIC, impacts should be based on the acceleration in the time to market readiness of the innovation, rather than the lifetime of the technology itself.
    - For example, if a deployed EPIC innovation provides impacts for 20 years between 2025 and 2045, and it is determined the innovation would have occurred and been deployed without EPIC in 2030, then the period of market acceleration due to EPIC is five years and EPIC impacts are calculated only for that 5-year period.

Methods

- Administrators should use or adapt existing accepted methodologies where possible for efficiencies of resources, time, cost, and effort.[178]
- The methodology used to calculate benefits should be grounded in theory (i.e., if funding certain small businesses is seen as beneficial, data documentation and impact demonstration of this strategy should be provided).
- Impacts evaluation may involve expert elicitation. Clearly and succinctly framing questions is required to guide experts in obtaining pertinent data.

Metrics

- D.13-11-025, Attachment 4 provides a list of impacts (*Metrics and Potential Areas of Measurement)* proposed by the EPIC administrators and approved by the CPUC, which can serve as the basis for discussion of metrics. The list includes 10 impact

[178] Including for example, but not limited to, the following works and other works by their respective authors: An Investigation of Innovative Energy Technologies Entering the Market between 2009-2015, Enabled by EERE-funded R&D. PNNL-31895. Pacific Northwest National Laboratories. August 2021; Metrics for an Equitable and Just Energy System. Pacific Northwest National Laboratories. June 2021; Evaluating Realized Impacts of DOE/EERE R&D Programs Standard Impact Evaluation Method. DOE/EE-1117. August 2014; A Framework for Evaluating R&D Impacts and Supply Chain Dynamics Early in a Product Life Cycle. DOE/EE-1096. June 2014; A Proposed Methodology to Determine the Leverage Impacts of Technology Deployment Programs. James L. Wolf. Prepared for US DOE/EERE. June 2008; Impact Evaluation Framework for Technology Deployment Programs. Sandia National Laboratories. Prepared for US DOE/EERE. July 2007; and Prospective Evaluation of Applied Energy Research and Development at DOE (Phase Two). National Research Council. The National Academies Press. 2007.

metric categories and 59 potential areas of measurement. The decision allows creation of new project-specific impact metrics to consider for revisions.

- Because units of measure have not been defined for many of these metrics, additional definitions are required for uniform impact reporting. This impacts metrics list may be modified and updated based on new information and must be used consistently across all administrators.

Assumptions

- To the extent possible, administrators should use the same core data set for basic assumptions, such as the emissions profile of peak power in each service area. If administrators do not use the same data set, they should provide rationale for why not.
- While market penetration assumptions may vary by innovation, the method by which these assumptions are arrived should be consistent.

Impact Reporting

- For clarity of impacts on different economic sectors, direct, indirect, and induced impacts should be disaggregated in reporting.

Iterative Process

- Guidelines may be revised and clarified as the EPIC Impacts Analysis Framework is developed to achieve the goals and principles outlined above.

Appendix G: Compliance Assessment of Advice Letter 6495-G-A – 2024 Plan

CPUC Requirement	SoCalGas Response in AL 6495-G-A	Compliance Assessment
[1] D.19-09-051 at p. 378-379 & OP 30. *[SoCalGas shall] provide Energy Division staff with the workshop presentation materials as well as documentation of stakeholders consulted in the development of RD&D projects… [and host an annual workshop to] present the result of the previous year's RD&D program and obtain input regarding its intended spending for the following calendar year.*[179] See also: [20] on integration of public stakeholder feedback.	SoCalGas states the following: • "On April 21, 2025, SoCalGas submitted its workshop presentation materials to CPUC Energy Division staff for review. The presentation included documentation of the stakeholders consulted in the development of the workshop presentation."[180] • "On April 28, 2025, RD&D staff hosted a public workshop in a hybrid format. In consultation with Energy Division staff, SoCalGas extended invitations to approximately 340 stakeholders and encouraged both in-person and virtual participation. Notifications of the workshop were also sent to several relevant service lists.[181] Approximately 200 individuals attended the workshop, representing a broad range of research organizations."[182] • "During the two-hour workshop, RD&D team members presented results from 2024 RD&D activities and outlined proposed spending and activities for the 2024 and 2025 Research Plans."[183]	SoCalGas provided Energy Division staff with workshop materials in advance of hosting an annual public workshop to seek input on proposed Plans. **SoCalGas is compliant with this requirement.**

[179] Upheld in D.24-12-074 at p. 327-330.
[180] AL 6495-G-A at p. 7.
[181] SoCalGas lists service lists notified on AL 6495-G-A at p. 8.
[182] AL 6495-G-A at p. 8. SoCalGas RD&D 2024 Research Plan Public Workshop (April 28, 2025) Recording.
[183] AL 6495-G-A at p. 8.

	SoCalGas discusses feedback received from public workshop attendees for each Initiative.[184]	
[2] D.19-09-051 at p. 378 & OP 30. *[SoCalGas shall] submit a report to Energy Division staff describing prior years' RD&D program. This should include a summary of ongoing and completed projects; funds expended, funding recipients, and leveraged funding; and an explanation of the process used for selecting RD&D project areas as well as the structure of SoCalGas' RD&D portfolio.*[185]	In April 2025, SoCalGas submitted its 2024 Gas RD&D Annual Report (2024 Annual Report)[186] to CPUC's Energy Division.	SoCalGas does not discuss the submittal of its 2023 Gas RD&D Annual Report in 2024, correlated with this Plan. **SoCalGas is *not* compliant with this requirement.**
[3] D.19-09-051 at p. 379 & OP 30. *After considering stakeholder comments during the workshop, SoCalGas shall file a Tier 3 Advice Letter with its research plan for the following calendar year.*[187]	SoCalGas submitted its proposed 2024 Plan via Tier 3 AL 6182-G on August 30, 2023. SoCalGas later withdrew AL 6182-G on May 24, 2024, after consultation with CPUC staff. SoCalGas resubmitted its 2024 Plan (AL 6495-G) on June 27, 2025, and subsequently submitted its modified 2024 Plan via supplemental AL 6495-G-A on April 3, 2026.	SoCalGas filed a Tier 3 AL with its proposed 2024 Plan. **SoCalGas is compliant with this requirement.**

[4] D.19-09-051 at p. 379 & OP 30. *SoCalGas must also present its budget broken down by research projects, request for proposals, and funding amounts… [and] detail budgets broken down by research sub-program area.*	SoCalGas proposes budgets allocations to several Initiatives or research sub-program areas:
	• Gas System Integrity Investment Theme:
	  ○ Environmental & Safety
	  ○ Operations Technology
	  ○ System Design & Materials
	  ○ System Inspection & Monitoring
	  ○ RNG Infrastructure Optimization
	  ○ Gas & Energy Storage
	• Decarbonization:
	  ○ Low-Carbon Fuels Technologies
	  ○ Low-Carbon Fuels Integration
		SoCalGas details budgets broken down by research sub-program area. **SoCalGas is compliant with this requirement.**

[184] AL 6495-G-A Attachment A at p. 20, 23-24, 27-28, 31-32, 35, 38-39, 47, 52, 57-58, & 62.
[185] Upheld in D.24-12-074 at p. 327-330.
[186] SoCalGas' 2024 Annual Gas RD&D Report.
[187] Upheld in D.24-12-074 at p. 327-330.

	○ Energy Reliability & Resilience ○ Building & Facility Systems	
[5] D.24-12-074 authorized a $17.853M budget for SoCalGas' 2024 Gas RD&D Plan.[188]	SoCalGas requests an annual budget of $17.853M for its 2024 Gas RD&D Plan.[189]	SoCalGas' request for $17.853M for its 2024 Gas RD&D Plan is consistent with the authorized budget. **SoCalGas is compliant with this requirement.**
[6] California Public Utilities Code Section 740.1 at: (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.* See also: [21].	SoCalGas lists anticipated ratepayer benefits, including affordability, improved air quality, reduced GHG emissions, reliability, and improved safety, and provides justification for the use of ratepayer funds for each Initiative.[190] SoCalGas requests funding for carbon capture activities under the "Integrating carbon management solutions" Research Topic for its Energy Reliability & Resilience Initiative.[191] SoCalGas requests both new and further funding for hydrogen-related RD&D projects under the following Initiatives:[192] • Environmental & Safety. • Operations Technology. • Gas & Energy Storage. • Low Carbon Fuel Technologies. • Low Carbon Fuel Integration. • Energy Reliability & Resilience. SoCalGas states that:	SoCalGas demonstrates that many projects offer a reasonable probability of providing benefits to ratepayers. **SoCalGas is compliant with this requirement** for some Initiatives: System Design & Materials; System Inspection & Monitoring; RNG Infrastructure Optimization; and Building & Facility Systems. However, as described in this Resolution, SoCalGas' requests for hydrogen-related RD&D projects are not complaint with this requirement to demonstrate clear ratepayer benefit.[197] The Commission does not authorize additional funding for hydrogen-related RD&D projects. The Commission authorized SoCalGas to

[188] D.24-12-074 at p. 21-24, 327-330, 895, & 901; FOF 110; & COL 305. See Resolution G-3624 at p. 4-5.
[189] AL 6495-G-A at p. 6 & Attachment A at p. 9.
[190] AL 6495-G-A Attachment A at p. 19, 23, 26-27, 30-31, 34, 37-38, 46, 51, 57, & 61.
[191] AL 6495-G-A Attachment A at p. 55.
[192] AL 6495-G-A Attachment A at p. 8.
[197] See also: Resolution G-3618 (2026) at p. 16 & 18; Resolution G-3623 (2026) at p. 28 & FOF 3b.

	• It has "managed its project portfolio consistent with prior CPUC rulings,[193] which concluded that it is reasonable for utilities to continue incurring costs on multi-year RD&D projects that are part of programs included in previously approved Research Plans, until a new RD&D Plan resolution is issued. Therefore, in the absence of an approved Research Plan for over two and a half years, there was no prohibition on incurring hydrogen-related costs in 2024 and 2025." • It "requests approval to see through to completion all hydrogen-related projects currently in-progress that are part of the programs included in previously approved Research Plans by the CPUC (e.g., Resolutions G-3601, G-3586, and G-3573). Ratepayer funds previously authorized to be used on these projects would be for naught if the projects were to be abandoned prior to completion. Furthermore, completing these projects is a reasonable and prudent use of funds to help achieve anticipated benefits. There are currently 25 hydrogen related projects in-progress, with approximately $3 million in remaining future payments expected prior to project completion. These projects span several initiatives, including Energy Reliability and Resilience, Low Carbon Fuel Technologies, Low Carbon Fuel Integration, Operations Technology, and Environmental & Safety."[194] • For the Gas & Energy Storage Initiative, its proposed Research Topic is "[e]valuating geological hydrogen storage,"[195] but requests that if this is not approved, "to evenly reallocate the $400,000 to the RNG	continue funding multi-year projects approved and contracted under its previous Gas RD&D Program (prior to D.19-09-051) to their planned completion. However, the Commission clarifies that this only pertained to projects under SoCalGas' previous Gas RD&D program in the interim between the Decision being issued and the Commission issuing its *first* SoCalGas Gas RD&D Resolution in 2021,[198] because following the Decision, SoCalGas must now have an AL approved prior to recording expenses.[199] D.19-09-051 does not necessarily approve the budget allocations SoCalGas proposes in Annual Plans.[200] SoCalGas must reallocate funds proposed for hydrogen projects for eligible purposes. Further, SoCalGas must provide further detail on the "Integrating carbon management solutions" Research Topic under its

[193] Cite: "In addition to the requirements outlined in D.19-09-051 (SoCalGas' TY 2019 GRC decision), the CPUC provided guidance in 2022 for future RD&D Research Plans in OP 5 of Resolution G-3586. The CPUC recognized in Resolution G-3586 that SoCalGas's research project activity can span multiple years, with some project funding already contracted and spent as the subsequent year research plan is being considered. Resolution G-3586 authorized SoCalGas to record in the one-way RDDEA balancing account expenses for multi-year projects approved and contracted prior to the Resolution."
[194] AL 6495-G-A Attachment A at p. 8.
[195] AL 6495-G-A Attachment A at p. 37.
[198] Resolution G-3573 (2021): Addressing SoCalGas' 2021 Gas RD&D Plan.
[199] D.19-09-051 at p. 379 & OP 68. Cited in Resolution G-3586 (2022) at p. 7. See also: Resolution G-3601 (2023) at p. 1 & OP 7 authorized SoCalGas to continue spending from an approved Plan in subsequent years until the end of the GRC cycle, with any unspent funds returned to ratepayers.
[200] D.19-09-051 at p. 377-378.

	Infrastructure Optimization and System Design & Materials initiatives."[196]	Energy Reliability & Resilience Initiative as described herein. For these Initiatives, **SoCalGas is *not* compliant with this requirement.**
[7] California Public Utilities Code Section 740.1 at (c) *Projects should be consistent with the corporation's resource plan.*	SoCalGas states that, as a company, it seeks to "deliver increasingly clean, safe, affordable, and reliable energy."[201] Consistent with this, SoCalGas states that Initiatives in its Gas System Integrity theme "support supply, transmission, distribution, storage, and customer operations through innovations that enhance pipeline, public, and employee safety, maintain system reliability, increase operational efficiency, improve affordability, and reduce GHG impacts to the environment."[202] Initiatives in the Decarbonization theme support advancing "technologies that improve the affordability, availability, reliability, and integration of low-carbon fuels and energy systems."[203]	SoCalGas demonstrates that its proposed Initiatives and Plan are consistent with its resource plan. **SoCalGas is compliant with this requirement.**
[8] California Public Utilities Code Section 740.1 at (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.*	SoCalGas proposes the following Initiatives in its 2024 Plan: • Environmental & Safety • Operations Technology • System Design & Materials • System Inspection & Monitoring • RNG Infrastructure Optimization • Gas & Energy Storage • Low-Carbon Fuels Technologies • Low-Carbon Fuels Integration • Energy Reliability & Resilience • Building & Facility Systems	Each of SoCalGas' proposed Initiatives support one or more of the required objectives. **SoCalGas is compliant with this requirement.**

[196] AL 6495-G-A at p. 13.
[201] AL 6495-G-A Attachment A at p. 6.
[202] AL 6495-G-A Attachment A at p. 14.
[203] AL 6495-G-A Attachment A at p. 41.

[9] Resolution G-3573 (2021) at OP 3. *In developing the subsequent Research Plans, SoCalGas shall: Continue to increase transparency in project area selection processes and criteria.*	SoCalGas outlines a high-level internal RD&D project proposal review process, stating it "enables them to 1) identify potential projects most in alignment with CPUC policies and objectives, RD&D Department goals, state and federal policy 2) initiate projects that have a reasonable probability of providing benefits to ratepayers; 3) assess the likelihood of potential projects to succeed; 4) work with proven organizations and technologies over time; and 5) respond nimbly to changing market, technology, and policy drivers. Attachment A at Appendix 2: Project Selection Process."[204] SoCalGas lists specific evaluation criteria and states that "[a]fter approval of the Research Plan by the CPUC's Energy Division, RD&D staff follow a defined project selection and approval process to identify and select projects for RD&D support. The approval process includes development of project concepts, multiple stages of review and project development, and selection of those projects with the greatest potential benefit to natural gas ratepayers."[205]	SoCalGas describes the project selection process and specific evaluation criteria used in project selection. **SoCalGas is compliant with this requirement.**
[10] Resolution G-3586 (2022) at OP 5. *In subsequent Research Plans, SoCalGas shall: 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 details Authorized Funds (as approved in the GRC for SoCalGas RD&D), Committed Funds (supporting ongoing projects in accordance with an approved Gas RD&D Plan) and Funds Available for Project Development (available for projects that are under development in the identified key research areas of interest) for each Initiative.[206]	SoCalGas details the quantity of program funds already committed and those that are for projects under development in following years. **SoCalGas is compliant with this requirement.**
[11] Resolution G-3586 (2022) at OP 5. *In subsequent Research Plans, SoCalGas shall: Provide project-level detail about Research Plans with the 16 data fields described in the Discussion sub-section titled Detailed budgets broken down by research subprogram.*	SoCalGas' details active projects anticipated to continue from past research plans into the current proposed research plan year with the required data fields.[207]	SoCalGas provides project-level detail across the 16 required data fields. **SoCalGas is compliant with this requirement.**

[204] AL 6495-G-A Attachment A at Appendix 2: Project Selection Process.
[205] AL 6495-G-A Attachment A at p. 65.
[206] AL 6495-G-A Attachment A at p. 10-11, 21, 24-25, 28, 32-33, 36, 39-40, 48, 53, 58-59, & 62-63.
[207] AL 6495-G-A Attachment A at p. 79-80 & Section 6.4. Appendix 4 – Project Details.

[12] Resolution G-3586 (2022) at OP 5. *In subsequent Research Plans, SoCalGas shall: 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.*[208]	SoCalGas proposes to allocate ten percent of its annual total budget to administrative costs, amounting to $1,785,300 in its 2024 Plan, and delineates these costs by allowable cost categories.[209] SoCalGas states that membership dues for consortia are captured in administrative costs per guidance from Energy Division.[210] SoCalGas details how its proposed administrative costs are for developing and maintaining its Gas RD&D Program, whereas the administrative portion of a project lifecycle are charged as direct project costs.[211]	SoCalGas provides detail about its administrative budget using allowable cost categories. **SoCalGas is compliant with this requirement.**
[13] Resolution G-3586 (2022) at OP 5. *In subsequent Research Plans, SoCalGas shall: Provide detail quantifying research funding allocations by research consortium, as well as project costs related to each consortium.*	SoCalGas states it is "a member of three subscription-based organizations: Northeast Gas Association (NGA)/NYSEARCH, Operations Technology Development (OTD), and Pipeline Research Council International (PRCI). See Section 5 for more information on the consortia and their project selection processes." SoCalGas lists funds for 2024 Membership Dues ($239,316), including Membership ($100,942) and Available for Projects ($138,374). SoCalGas also lists projects by consortium with Total SoCalGas Costs and Total Project Costs.[212]	SoCalGas details research funding allocations by research consortium and project costs related to each consortium. **SoCalGas is compliant with this requirement.**
[14] Resolution G-3601 (2023) at p. 34. *[SoCalGas shall allocate] $129,938 of [RD&D] funds as a contribution of its proportional share toward a comprehensive Gas RD&D database.*	SoCalGas proposes to allocate $129,938 in its 2024 Plan for its proportional share of a comprehensive Gas RD&D Database.[213]	SoCalGas allocates its proportional share towards a comprehensive Gas RD&D Database. **SoCalGas is compliant with this requirement.**
[15] Resolution G-3601 (2023) at OP 4. *[SoCalGas] shall allocate 4% ($675,000) of its [RD&D] funds to fund a*	SoCalGas proposes to allocate $675,000 in its 2024 Plan for its proportional share of a comprehensive Gas RD&D Program Evaluation to be conducted by Energy Division.[214]	SoCalGas allocates its proportional share towards a comprehensive Program Evaluation. **SoCalGas is compliant with this requirement.**

[208] See Resolution G-3624 at Appendix C: Administrative Budget Cost Categories.
[209] AL 6495-G-A at p. 6 & Attachment A at p. 9-10.
[210] AL 6495-G-A Attachment A at p. 10.
[211] AL 6495-G-A Attachment A at Appendix 8: Program Administration Categorization.
[212] AL 6495-G-A Attachment A at p. 12.
[213] AL 6495-G-A at p. 6 & Attachment A at p. 9 & 11-12.
[214] AL 6495-G-A at p. 6 & Attachment A at p. 9 & 11-12.

comprehensive evaluation of SoCalGas' Gas RD&D program to be implemented by Energy Division.		
[16] Resolution G-3601 (2023) at OP 5. *All of Southern California Gas Company's new and future [RD&D] 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.*	SoCalGas states that it "includes a step in its project selection process to validate a project's location in California. In addition, SoCalGas hosts demonstrations of new technologies within the state of California, bringing outside investment into California and supporting local economies."[215]	SoCalGas demonstrates that all projects will take place in the State of California and describes general benefits from consortia projects. **SoCalGas is compliant with this requirement.**
[17] Resolution G-3601 (2023) at OP 6. *In its 2024 Gas [RD&D] Plan and beyond, [SoCalGas] shall: a. Meet with Energy Division at least six weeks ahead of submitting its annual RD&D Plan to present its proposed Plan and incorporate Energy Division feedback. At that time SoCalGas' proposed Plan should reflect input from RD&D administrator coordination and broad stakeholders including the research and ESJ communities.*	SoCalGas provides feedback received from Energy Division for each Initiative,[216] including Section 4.1: Summary of Research Plan Development with incorporation of stakeholder feedback.[217] SoCalGas states that on March 27, 2025, and May 8, 2025, SoCalGas presented its proposed Plan to Energy Division staff, incorporating feedback from both the CPUC and stakeholders,[218] and details its specific CPUC subject matter expert (SME) engagement schedule from November 2024 to March 2026.[219] SoCalGas divides its proposed Initiatives into two key investment themes consistent across Gas RD&D administrators[220] and correlates each Initiative with key CPUC policies and proceedings and associated gaps in each area per Commission guidance.[221] SoCalGas states that it incorporated feedback from Commission staff in developing initiatives and identifying areas of	SoCalGas met with Energy Division in advance of submitting its 2024 Plan to seek and integrate feedback. Its Plan is consistent with Energy Division guidance by targeting lowering RNG interconnection cost in its Low-Carbon Fuels Technologies Initiative.[226] However, SoCalGas' requests for hydrogen- and carbon capture-related RD&D activities do not align with Energy Division feedback and Commission policy to align with CPUC proceedings and

[215] AL 6495-G-A Attachment A at p. 79.
[216] AL 6495-G-A Attachment A at p. 20, 23-24, 27-28, 31-32, 35-36, 38-39, 47-48, 52-53, 57-58, & 62.
[217] AL 6495-G-A Attachment A at p. 64-65 & 68-71.
[218] AL 6495-G-A at p. 9.
[219] AL 6495-G-A Attachment A at p. 66.
[220] AL 6495-G-A at p. 5-6.
[221] AL 6495-G-A Attachment A at p. 14-16, 19-20, 23, 27, 31, 34-35, 38, 41-42, 46-47, 51-52, 57, & 61-62.
[226] AL 6495-G-A Attachment A at p. 43.

See also: [6] on ratepayer benefit; [20] on integration of public stakeholder feedback; and [25] for gas RD&D administrator coordination.	focus for future research activities,[222] including by removing a proposed Operational Support Equipment Initiative and developing new Initiatives and Research Topics focused on lowering RNG procurement and interconnection costs per Commission staff guidance. SoCalGas reports that Energy Division staff provided the following initiative-level feedback/recommendations: • System Inspection and Monitoring: Clarify which operating group this initiative supports, to which SoCalGas responded all three (transmission, storage, and distribution).[223] • RNG Infrastructure Optimization & Low-Carbon Fuel Technologies: "Demonstrate coordination with stakeholders and other administrators in targeting solutions to reduce costs including interconnections, and capital expenses using different technologies."[224] • Gas & Energy Storage: "Demonstrate coordination with stakeholders and other administrators in targeting solutions to reduce costs and capital expenses using different technologies."[225]	provide clear ratepayer benefit as discussed at [6]. **SoCalGas is *not* compliant with this requirement.** SoCalGas shall also make the following revisions to its 2024 Plan to provide greater clarity to align with requirements: • Indicate the program area across the product development cycle detailed in Appendix D of this Resolution associated with each listed research topic for further clarity on anticipated outputs from Initiatives. • Identify which of the proposed future project areas are anticipated to be funded through consortia. • Prioritize zero-emission over low-emission technologies under its Low-Carbon Fuel Technologies[227] and Energy Reliability & Resilience[228] Initiative.
[18] Resolution G-3601 (2023) at OP 6. *In its 2024 Gas [RD&D] Plan and beyond, [SoCalGas] shall: b. Explicitly justify how all consortia dues benefit gas ratepayers.*	SoCalGas states that "consortia serve member utilities by facilitating technical collaboration and pooling of financial and technical resources to collectively address ongoing or anticipated challenges in the gas industry" and that "[b]y working closely with these and other similar	SoCalGas justifies how all consortia dues benefit gas ratepayers. **SoCalGas is compliant with this requirement.**

[222] AL 6495-G-A at p. 9.
[223] AL 6495-G-A Attachment A at p. 31 & 67.
[224] AL 6495-G-A Attachment A at p. 35 & 47.
[225] AL 6495-G-A Attachment A at p. 38.
[227] AL 6495-G-A Attachment A at p. 43.
[228] AL 6495-G-A Attachment A at p. 54.

See also: [13] on consortia dues.	organizations, RD&D staff can share knowledge, avoid needless duplication of work, and develop and execute impactful projects."[229] SoCalGas details a project development process feedback loop for consortia-led projects "where ideas and project proposals are reviewed to see if they fulfill an identified gap, meet the needs of SoCalGas, and satisfy the criteria of Resolution G-3601."[230] SoCalGas also includes a figure illustrating the distribution of projects by consortium delivering key ratepayer benefits: improved safety, reliability and affordability, increased operational efficiency, reduced GHG emissions, and improved local air quality.[231] In discussion with Energy Division staff, SoCalGas clarified that it is selective in which consortia projects it participates in and funds.	
[19] Resolution G-3601 (2023) at OP 6. *In its 2024 Gas [RD&D] Plan and beyond, [SoCalGas] shall: 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.* See also: [21].	In Appendix 6, SoCalGas describes its process for the scaling and commercialization of technologies via projects which range from research and development to deployment across technology readiness levels (TRLs). SoCalGas describes efforts on knowledge transfer and sharing through research webinars, quarterly newsletters, annual workshops, LinkedIn posts, conferences, and events, and lists project criteria in alignment with the state's climate goals. In Appendix 7, SoCalGas lists Regulatory and Policy Drivers spanning key state and federal policies and regulations.	SoCalGas describes how results are used to address the state's climate goals and how project results are scaled/commercialized. **SoCalGas is compliant with this requirement.** However, SoCalGas shall provide further detail upon project implementation in project final reports and its Annual Reports to demonstrate how results are measured and utilized in alignment with State goals.
[20] Resolution G-3601 (2023) at OP 6. *In its 2024 Gas [RD&D] Plan and beyond, [SoCalGas] shall: d. Itemize and include more detail about how it incorporated proposals and feedback on research ideas proposed by stakeholders at its Annual*	SoCalGas provides: • A description of its annual internal and external outreach efforts in addition to key takeaways and incorporation strategies for feedback received from public workshop attendees, including an ESJ Advisory Panel, for each Initiative.[232]	SoCalGas describes feedback from stakeholders and a number of incorporation strategies. Per public workshop comments, SoCalGas includes metrics for many of the proposed Initiatives related to

[229] AL 6495-G-A Attachment A at p. 82. See also AL 6495-G-A Attachment A at p. 82-88.
[230] AL 6495-G-A Attachment A at p. 83.
[231] AL 6495-G-A Attachment A at p. 84.
[232] AL 6495-G-A Attachment A at p. 20, 23-24, 27-28, 31-32, 35-36, 38-39, 47-48, 52-53, 57-58, 62, & 68-71.

Stakeholder workshop, including disadvantaged communities. SoCalGas should otherwise explain why it did not incorporate stakeholder input.
 	
See also: [17] on integration of Energy Division feedback and [25] for gas RD&D administrator coordination.
	• Section 4.1: Summary of Research Plan Development with incorporation of stakeholder feedback.[233]
	• Appendix 3: Summary of Stakeholder Input from 2025 Annual Workshop with the list of the questions received during and following the workshop, along with answers from appropriate SoCalGas personnel.
	  o Feedback from California Greenworks that "when public facing, the Key Ratepayer Benefits need an extra step to explicitly state community benefits. For example, operational efficiency does not naturally equate to community benefit, but linking it causally to community resilience, community beautification, etc., makes a more robust EJ claim."
	• Appendix 5: Summary of Stakeholder Input from Annual Outreach Campaign.
	• Appendix 6: Company and SoCalGas RD&D Overview, with a Description of Academic Engagement.
	
	SoCalGas details the following general feedback from the ESJ Advisory Panel Members and correlated incorporation strategies:[234]
	• "RD&D encouraged to explore "human outcomes" for communities in which research projects are conducted.
	  o "SoCalGas RD&D is considering how to develop metrics tied to this input."
	• "Make the process more equitable for all projects, ensure that community voice/ stakeholder voice is valued equally to the measurable outcomes (whether technological, environmental, scientific). This can be accomplished by having an aggressive stakeholder collaboration, and/or having a stakeholder/CBO participate in the research review process."
	  o "Before completing additional program development, RD&D staff will conduct additional outreach relevant to this input."
	• "Research designs need to:
		financial impacts and responds to some comments directly. However, SoCalGas does not discuss how or if each comment was considered for each Initiative. SoCalGas must comprehensively provide detail about how it incorporated feedback or otherwise explain why it did not incorporate the input. Specifically, SoCalGas should also go further in explicitly demonstrating and equating impacts to community benefits and human outcomes for all Initiatives per feedback from California Greenworks and the Public Workshop ESJ Advisory Panel. For transparency, SoCalGas should embed both stakeholder feedback and associated incorporation strategies in the description of each proposed Initiative. **SoCalGas is *not* compliant with this requirement.**

[233] AL 6495-G-A Attachment A at p. 64-65 & 68-71.
[234] AL 6495-G-A Attachment A at p. 71-72.

	1. Identify explicit and transparent social benefits and social harms. 2. Require all subrecipients conducting the studies to include CBOs as part of the study team. 3. Inform and share how SoCalGas RD&D identifies, vets, and selects research partners. 4. Budget educational outreach for each study, or outreach for the whole department. Finding out what to communicate can be done through CBO outreach." o "When developing future Research Plans, SoCalGas RD&D will seek input from the ESJ Advisory Panel about ESJ priorities and metrics that it can incorporate into future research projects." SoCalGas details the following Initiative-level feedback: • <u>System Inspection & Monitoring</u>: "SoCalGas should investigate the use of fiber optics in storage fields for well monitoring."[235] o SoCalGas stated that "[t]he use of fiber optic monitoring is limited to underground Gas Infrastructure at this time. Fiber Optics currently provides leak detection, 3rd party construction activity and strain due to ground movement. This technology is part of [this Initiative]."[236] • <u>RNG Infrastructure Optimization</u>: "One federal agency suggested developing affordable small-scale technologies for smaller point sources of RNG."[237] • <u>Gas & Energy Storage</u>: "A national laboratory recommended further exploration of cost reductions in cryogenic technologies and cryogenic hybrid systems, as well as community engagement at the regional level and for understanding impacts and benefits. A research consortium recommended monitoring developments on pilot projects in networked geothermal. A federal agency recommended outreach with local high schools and community colleges." "Capgemini suggested	

[235] AL 6495-G-A Attachment A at p. 32.
[236] AL 6495-G-A Attachment A at Appendix 5: Summary of Stakeholder Input from Annual Outreach Campaign.
[237] AL 6495-G-A Attachment A at p. 35.

	considering more networked geothermal because it offers consistent power supply."[238] • Low-Carbon Fuels Technologies: "A national laboratory recommended further exploration of methane pyrolysis technologies... A federal agency suggested developing affordable small-scale technologies for smaller point sources of RNG." "There were suggestions to look at other technologies such as waste-to-energy, to target improved performance in dynamic operation of any fuel production pathway. There was feedback after the workshop about understanding cost targets for hydrogen and how SoCalGas is tracking those costs – this has been added as a quantitative impact to be tracked."[239] • Low-Carbon Fuels Integration and Energy Reliability & Resilience: "Oak Ridge National Laboratory (ORNL) identified the need for research into cost-effective retrofitting solutions that utilize clean fuels for heating and cooling, that could offer a more practical and affordable pathway to decarbonization compared to potentially extensive and disruptive electrification upgrades."[240] • Building & Facility Systems: "One industrial stakeholder is interested in new ways of capturing and reusing heat produced onsite and advised to bring in the end users early in and throughout the R&D process. One national laboratory suggested new equity KPIs: new jobs, health cost savings (NOx, CO, PM), reduction in premature deaths, fewer workdays lost. One research institution emphasized the importance of RD&D for commercial and industrial end uses."[241]	
[21] Resolution G-3601 (2023) at OP 6. *In its 2024 Gas [RD&D] Plan and beyond, [SoCalGas] shall: e. Modify the term "benefits analysis framework" to "uniform impact analysis framework" to better*	SoCalGas states that staff "attended the EPIC UIAF Kickoff workshop, April 2, 2024, and has already enacted some of the staff recommendations found in EPIC. For example, all projects selected for support by SoCalGas RD&D (1) must align with the CPUC's strategic objectives, and (2) identify measurable goals."[243] In Appendix 9, SoCalGas includes an EPIC Uniform	SoCalGas describes anticipated ratepayer benefits and defines appropriate metrics for conducting impact analyses attributable to each

[238] AL 6495-G-A Attachment A at p. 38-39.
[239] AL 6495-G-A Attachment A at p. 47.
[240] AL 6495-G-A Attachment A at p. 52 & 58.
[241] AL 6495-G-A Attachment A at p. 62.
[243] AL 6495-G-A Attachment A at p. 80-81.

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.[242]	Impacts Analysis Framework (UIAF) Conversion Matrix, including EPIC metrics and analogous natural gas system metrics. SoCalGas lists anticipated ratepayer benefits for each Initiative, including affordability, improved air quality, reduced GHG emissions, reliability, and improved safety.[244] SoCalGas lists potential metrics for tracking and evaluating quantitative impacts for each Initiative,[245] including: • Environmental & Safety: Reduced GHG emissions attributed to loss of containment. • Operations Technology: Reduced maintenance costs associated with locating inaccuracies and third-party damage. • System Design & Materials: Reduced operating costs associated with physical emergency response. • System Inspection & Monitoring: Reduced monitoring costs associated with remote monitoring vs. traditional in person monitoring. • Maintained / reduced operations and maintenance and capital costs for RNG Infrastructure Optimization, Low-Carbon Fuels Technologies, and Low-Carbon Fuels Integration. • Gas & Energy Storage: Reduced renewable energy costs. • Customer bill savings (dollars saved) for Energy Reliability & Resilience and Building & Facility Systems.	Initiative. **SoCalGas is compliant with this requirement.** However, SoCalGas shall review its 2024 Plan for elements of Initiatives that primarily support compliance with existing requirements/regulations or ongoing operations and maintenance activities and refine as necessary to demonstrate that RD&D is innovative and produces impacts that would not otherwise be expected to occur. SoCalGas shall also clearly articulate impact analyses resulting from the described methods in addition to lessons learned in project reports and Annual Reports.[246]
[22] Resolution G-3601 (2023) at OP 6. *In its 2024 Gas [RD&D] Plan and beyond, [SoCalGas] shall: 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)*	In Appendix 6, SoCalGas states that it "will draw from the DACAG's Equity Framework to help guide efforts toward outcomes that could benefit ESJ communities over time" and "consider a variety of approaches" such as non-energy benefits (NEBs), affordability, access, outreach, education, community engagement, health, safety, financial benefits, economic development, and workforce development.[247] SoCalGas describes	SoCalGas discusses its use of the DACAG Equity Framework and engagement of ESJ communities, particularly the DACAG, in the development of its 2024 Plan. **SoCalGas is compliant with this requirement.**

[242] See Resolution G-3624 at Appendix F: EPIC Foundational Principles for the Development of a Uniform Impact Analysis Framework.
[244] AL 6495-G-A at p. 8-9 & Attachment A at p. 19, 23, 26-27, 30-31, 34, 37-38, 46, 51, 57, & 61.
[245] AL 6495-G-A Attachment A at p. 21, 24, 28, 32, 36, 39, 48, 53, 58, & 62.
[246] Resolution G-3601 (2023) at p. 18.
[247] AL 6495-G-A Attachment A at Appendix 6.

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 [RD&D] proposals. Further, SoCalGas shall describe the benefits and impacts of its RD&D work in ESJ communities in its annual Plan. See also: [20] on integration of public stakeholder feedback, including an ESJ Advisory Panel.	outreach to the DACAG, including briefing them on April 18, 2025, to share its proposed Plan and solicit input. SoCalGas reports that the DACAG: • "is interested in data around RNG constituents (including any potential emissions data) and compressor operations data; they requested data be shared publicly to the extent possible;"[248] • "asked how SoCalGas will offset the impact of these projects. For projects developing technologies to advance the production of renewable gas, any resulting emissions will be addressed through mitigation or capture;"[249] and • "recommended that this initiative exclude gas-fired air conditioning" for the Building & Facility Systems Initiative. [250] In response, SoCalGas states: • "Several projects include monitoring and testing for trace constituents that will result in data available through reports and presentations. As applicable, data that is published for public consumption will be shared publicly." • "For projects developing technologies to advance the storage of renewable gas, any resulting emissions will be addressed through mitigation or capture."251	
[23] Resolution G-3601 (2023) at OP 6. *In its 2024 Gas [RD&D] Plan and beyond, [SoCalGas] shall: 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*	SoCalGas assembled an Advisory Panel of seven ESJ stakeholders who participated in the Annual Workshop.[252] SoCalGas "describes the establishment of the ESJ Advisory Panel and its role in supporting inclusive engagement. Prior to the Annual Workshop, SoCalGas convened the panel to preview workshop content and facilitate meaningful participation. During the workshop, seven panel members provided public input during the Q&A segments. Following the workshop, panelists completed a feedback survey developed by the SoCalGas RD&D team. In consultation with the Commission, SoCalGas compensated panel representatives at a	SoCalGas curated an ESJ community advisory panel to seek input prior to submitting its proposed Plan and provided compensation. **SoCalGas is compliant with this requirement.**

[248] AL 6495-G-A Attachment A at p. 20, 24, 27, 31, & 72.
[249] AL 6495-G-A Attachment A at p. 35, 38-39, & 47.
[250] AL 6495-G-A Attachment A at p. 62.
[251] AL 6495-G-A Attachment A at p. 72-73.
[252] AL 6495-G-A at p. 8. SoCalGas RD&D 2024 Research Plan Public Workshop (April 28, 2025) Recording.

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. See also: [20] on integration of public stakeholder feedback, including an ESJ Advisory Panel.	rate of $150 per hour for their time and contributions."[253] SoCalGas discusses feedback received from public workshop attendees, including an ESJ Advisory Panel, for each Initiative.[254]	
[24] Resolution G-3601 (2023) at OP 6. *In its 2024 Gas [RD&D] Plan and beyond, [SoCalGas] shall: 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.*	SoCalGas states that it "requires proposed hydrogen projects meet specific criteria consistent with the clean renewable hydrogen definition adopted in D.22-12-057"[255] and a "vendor must: • Commit to procuring clean renewable hydrogen; • Identify the source, amount, and cost of clean renewable hydrogen to be procured on the project; and • Evaluate the risk of not finding adequate sources of clean renewable hydrogen."[256]	SoCalGas demonstrates that previously approved hydrogen projects utilize clean renewable hydrogen. **SoCalGas is compliant with this requirement.** However, this Resolution does not approve new or further funding for hydrogen-related projects.
[25] Resolution G-3601 (2023) at OP 6. *In its 2024 Gas [RD&D] Plan and beyond, [SoCalGas] shall: 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.*	SoCalGas discusses coordination with other Gas RD&D Administrators for each Initiative.[257] SoCalGas states that "projects funded via (2) multiple administrators or funders or (3) consortia include activities such as project scoping, project tracking, milestone acceptance, and payment. Additional utility participation may include, but is not limited to, serving on Technical Advisory Committees, providing technical expertise, providing operating data, and hosting technology demonstrations."[258] SoCalGas describes collaboration opportunities with the other Gas RD&D administrators (CEC	SoCalGas demonstrates how SoCalGas coordinates in advance with other Gas RD&D program administrators for each Initiative. Further, SoCalGas demonstrates that its 2024 Plan is differentiated from its 2025 Plan to avoid duplication via varying research areas. **SoCalGas is**

[253] AL 6495-G-A at p. 11.
[254] AL 6495-G-A Attachment A at p. 20, 23-24, 27-28, 31-32, 35-36, 38-39, 47-48, 52-53, 57-58, & 62.
[255] AL 6495-G-A at p. 11.
[256] AL 6495-G-A Attachment A at p. 78.
[257] AL 6495-G-A Attachment A at p. 20, 24, 28, 32, 35-36, 39, 47-48, 53, 58, & 62.
[258] AL 6495-G-A Attachment A at p. 11.

	and PG&E) in addition to Southwest Gas (SWG) under each Initiative, also reporting recommended areas of focus and delineating where there is no apparent overlap:
	• The CEC recommended:
	  ○ Getting robust public data on emissions profiles of linear generators with different fuel sources and changing emissions profiles over time and other emerging technologies to drive down emissions.[259]
	  ○ Identifying existing technologies that are inherently fuel-flexible and "can transition to cleaner fuels with little or no complex modifications or new infrastructure."[260]
	  ○ "[G]etting a better understanding of methods for detecting leakage, quantifying leakage, understanding strategies for minimizing leakage, or prioritizing where leakage is happening the most, and then using that to inform design or other decisions."[261]
	• PG&E requested information sharing, discussions of results and their implications,[262] and collaboration on material blends,[263] scouring monitoring, and remote sensing and aerial and satellite-related technology.[264]
	• SWG:
	  ○ Generally noted a need for technoeconomic studies of new technologies and cleaner fuels.[265]
		compliant with this requirement, with the exception of the System Design & Materials Initiative.
		
		SoCalGas must provide greater detail to differentiate proposed RD&D under the System Design & Materials Initiative—which includes the research area of "[i]nfrastructure compatibility with RNG diverse feedstocks and non-pipeline alternatives"[271]—from the CEC's Fuel-Flexible Distributed Power Generation Initiative in its proposed FY2024-25 Gas RD&D Plan, which "seeks to support modifications on existing gas-fired generation systems" to support biomethane.[272] For the System Design & Materials Initiative, **SoCalGas is *not* compliant with this requirement.**

[259] AL 6495-G-A Attachment A at p. 20 & 24.
[260] AL 6495-G-A Attachment A at p. 28.
[261] AL 6495-G-A Attachment A at p. 32.
[262] AL 6495-G-A Attachment A at p. 24.
[263] AL 6495-G-A Attachment A at p. 28.
[264] AL 6495-G-A Attachment A at p. 32.
[265] AL 6495-G-A Attachment A at p. 28, 35, 39, 48, & 53.
[271] AL 6495-G-A Attachment A at p. 25.
[272] CEC's Proposed FY 2024-2025 Gas RD&D Plan at p. 48.

	○ Expressed a "[n]eed to prioritize economic and fiscal ROI evaluations of potential technologies/fuels" and articulate operational benefits of proposed RD&D.[266] ○ Recommended the use of camera inspection tools for plastic systems for the System Inspection & Monitoring Initiative.[267] Further, SoCalGas includes charts for each Initiative with Research Topics, Completed Projects, Active Projects, and Future Project Areas in the 2024 Research Plan to "[demonstrate] how initiatives are designed to progress over time to achieve ratepayer benefits."[268] SoCalGas differentiates its 2024 Plan from its 2025 Plan for each Initiative; for example, for the RNG Infrastructure Optimization Initiative, SoCalGas states the following for the "Advanced interconnection design" research area: • "For the 2024 Research Plan, the intent is to support optimization and standardization of RNG interconnection designs, identify open-access interconnection alternatives, and related research activities."[269] • "For the 2025 Research Plan, the intent is to explore reverse flow strategies to optimize RNG collection and injection through seasonal fluctuations, as well as other related research activities."[270]	

[266] AL 6495-G-A Attachment A at p. 28.
[267] AL 6495-G-A Attachment A at p. 32.
[268] AL 6495-G-A Attachment A at p. 17-18, 22, 26, 29-30, 33-34, 37, 44-45, 50-51, 55-56, & 60. See also: AL 6496-G-A Attachment A at "Future Project Areas in 25 Research Plan" for each Initiative.
[269] AL 6495-G-A Attachment A at p. 33.
[270] AL 6496-G-A Attachment A at p. 34.

Appendix H: Compliance Assessment of Advice Letter 6496-G-A – 2025 Plan

CPUC Requirement	SoCalGas Response in AL 6496-G-A	Compliance Assessment
[1] D.19-09-051 at p. 378-379 & OP 30. *[SoCalGas shall] provide Energy Division staff with the workshop presentation materials as well as documentation of stakeholders consulted in the development of RD&D projects… [and host an annual workshop to] present the result of the previous year's RD&D program and obtain input regarding its intended spending for the following calendar year.*[273] See also: [18] on integration of public stakeholder feedback.	SoCalGas states the following: • "On April 21, 2025, SoCalGas submitted its workshop presentation materials to CPUC Energy Division staff for review. The presentation included documentation of the stakeholders consulted in the development of the workshop presentation."[274] • "On April 28, 2025, RD&D staff hosted a public workshop in a hybrid format. In consultation with Energy Division staff, SoCalGas extended invitations to approximately 340 stakeholders and encouraged both in-person and virtual participation. Notifications of the workshop were also sent to several relevant service lists.[275] Approximately 200 individuals attended the workshop, representing a broad range of research organizations."[276] • "During the two-hour workshop, RD&D team members presented results from 2024 RD&D activities and outlined proposed spending and activities for the 2024 and 2025 Research Plans."[277] SoCalGas discussed feedback received from public workshop attendees for each Initiative.[278]	SoCalGas provided Energy Division staff with workshop materials in advance of hosting an annual public workshop to seek input on proposed Plans. **SoCalGas is compliant with this requirement.**

[273] Upheld in D.24-12-074 at p. 327-330.
[274] AL 6496-G-A at p. 7.
[275] SoCalGas lists service lists notified on AL 6496-G-A at p. 8.
[276] AL 6496-G-A at p. 8. SoCalGas RD&D 2024 Research Plan Public Workshop (April 28, 2025) Recording.
[277] AL 6496-G-A at p. 8.
[278] AL 6496-G-A Attachment A at p. 19-20, 23, 27-28, 32, 36, 44-45, 50-51, & 55.

[2] D.19-09-051 at p. 378 & OP 30. *[SoCalGas shall] submit a report to Energy Division staff describing prior years' RD&D program. This should include a summary of ongoing and completed projects; funds expended, funding recipients, and leveraged funding; and an explanation of the process used for selecting RD&D project areas as well as the structure of SoCalGas' RD&D portfolio.*[279]	In April 2025, SoCalGas submitted its 2024 Gas RD&D Annual Report[280] to CPUC's Energy Division. The report includes summaries of ongoing and completed projects;[281] funds expended,[282] funding recipients,[283] and leveraged funding,[284] the project selection process,[285] and portfolio structure.[286]	SoCalGas submitted an Annual Gas RD&D Report with the required contents. **SoCalGas is compliant with this requirement.**
[3] D.19-09-051 at p. 379 & OP 30. *After considering stakeholder comments during the workshop, SoCalGas shall file a Tier 3 Advice Letter with its research plan for the following calendar year.*[287]	SoCalGas submitted its 2025 Plan (AL 6496-G) on June 27, 2025, and subsequently submitted its modified 2025 Plan via supplemental AL 6496-G-A on April 3, 2026.	SoCalGas filed a Tier 3 AL with its proposed 2025 Plan. **SoCalGas is compliant with this requirement.**

[279] Upheld in D.24-12-074 at p. 327-330.
[280] SoCalGas' 2024 Annual Gas RD&D Report.
[281] SoCalGas' 2024 Annual Gas RD&D Report at p. 14.
[282] SoCalGas' 2024 Annual Gas RD&D Report at p. 15.
[283] SoCalGas' 2024 Annual Gas RD&D Report at p. 54.
[284] SoCalGas' 2024 Annual Gas RD&D Report at p. 15.
[285] SoCalGas' 2024 Annual Gas RD&D Report at p. 60.
[286] SoCalGas' 2024 Annual Gas RD&D Report at p. 41.
[287] Upheld in D.24-12-074 at p. 327-330.

[4] D.19-09-051 at p. 379 & OP 30. *SoCalGas must also present its budget broken down by research projects, request for proposals, and funding amounts… [and] detail budgets broken down by research sub-program area.*	SoCalGas proposes budgets allocations to several Initiatives or research sub-program areas:
	• Gas System Integrity Investment Theme:
	  ○ Environmental & Safety
	  ○ Operations Technology
	  ○ System Design & Materials
	  ○ System Inspection & Monitoring
	  ○ RNG Infrastructure Optimization
	• Decarbonization:
	  ○ Low-Carbon Fuels Technologies
	  ○ Energy Reliability & Resilience
	  ○ Building & Facility Systems
		SoCalGas details budgets broken down by research sub-program area. **SoCalGas is compliant with this requirement.**

[5] D.24-12-074 authorized an $18.389M budget for SoCalGas' 2025 Gas RD&D Plan.[288]	SoCalGas requests an annual budget of $18.389M for its 2025 Gas RD&D Plan.[289]	SoCalGas' request for $18.389M for its 2025 Gas RD&D Plan is consistent with the authorized budget. **SoCalGas is compliant with this requirement.**

[288] D.24-12-074 at p. 21-24, 327-330, 895, & 901; FOF 110; & COL 305. See Resolution G-3624 at p. 4-5.
[289] AL 6496-G-A at p. 6 & Attachment A at p. 9.

[6] California Public Utilities Code Section 740.1 at: (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.* See also: [19].	SoCalGas lists anticipated ratepayer benefits, including affordability, improved air quality, reduced GHG emissions, reliability, and improved safety, and provides justification for the use of ratepayer funds for each Initiative.[290] SoCalGas requests funding for carbon capture activities under the "Integrating carbon management solutions" Research Topic for its Energy Reliability & Resilience Initiative.[291] SoCalGas requests both new and further funding for hydrogen-related RD&D projects under the following Initiatives:[292] • Environmental & Safety. • Operations Technology. • Gas & Energy Storage. • Low Carbon Fuel Technologies. • Low Carbon Fuel Integration. • Energy Reliability & Resilience. SoCalGas states that: • It has "managed its project portfolio consistent with prior CPUC rulings,[293] which concluded that it is reasonable for utilities to continue incurring costs on multi-year RD&D projects that are part of programs included in previously approved Research Plans, until a new RD&D Plan resolution is issued. Therefore, in the absence of an approved Research Plan for over two and a half years, there was no prohibition on incurring hydrogen-related costs in 2024 and 2025."	SoCalGas demonstrates that many projects offer a reasonable probability of providing benefits to ratepayers. **SoCalGas is compliant with this requirement** for some Initiatives: System Design & Materials; System Inspection & Monitoring; RNG Infrastructure Optimization; and Building & Facility Systems. However, as described in this Resolution, SoCalGas' requests for hydrogen-related RD&D projects are not complaint with this requirement to demonstrate clear ratepayer benefit.[295] The Commission does not authorize additional funding for hydrogen-related RD&D projects. The Commission authorized SoCalGas to continue funding multi-year projects approved and contracted under its previous Gas RD&D Program (prior to D.19-09-051) to their planned completion. However, the Commission clarifies that this only

[290] AL 6496-G-A Attachment A at p. 18-19, 22-23, 26-27, 31-32, 35, 43-44, 49-50, & 54-55.
[291] AL 6496-G-A Attachment A at p. 47.
[292] AL 6496-G-A Attachment A at p. 8.
[293] Cite: "In addition to the requirements outlined in D.19-09-051 (SoCalGas' TY 2019 GRC decision), the CPUC provided guidance in 2022 for future RD&D Research Plans in OP 5 of Resolution G-3586. The CPUC recognized in Resolution G-3586 that SoCalGas's research project activity can span multiple years, with some project funding already contracted and spent as the subsequent year research plan is being considered. Resolution G-3586 authorized SoCalGas to record in the one-way RDDEA balancing account expenses for multi-year projects approved and contracted prior to the Resolution."
[295] See also: Resolution G-3618 (2026) at p. 16 & 18; Resolution G-3623 (2026) at p. 28 & FOF 3b.

	• It "requests approval to see through to completion all hydrogen-related projects currently in-progress that are part of the programs included in previously approved Research Plans by the CPUC (e.g., Resolutions G-3601, G-3586, and G-3573). Ratepayer funds previously authorized to be used on these projects would be for naught if the projects were to be abandoned prior to completion. Furthermore, completing these projects is a reasonable and prudent use of funds to help achieve anticipated benefits. There are currently 25 hydrogen related projects in-progress, with approximately $3 million in remaining future payments expected prior to project completion. These projects span several initiatives, including Energy Reliability and Resilience, Low Carbon Fuel Technologies, Low Carbon Fuel Integration, Operations Technology, and Environmental & Safety."[294]	pertained to projects under SoCalGas' previous Gas RD&D program in the interim between the Decision being issued and the Commission issuing its *first* SoCalGas Gas RD&D Resolution in 2021,[296] because following the Decision, SoCalGas must now have an AL approved prior to recording expenses.[297] D.19-09-051 does not necessarily approve the budget allocations SoCalGas proposes in Annual Plans.[298] SoCalGas must reallocate funds proposed for hydrogen projects for eligible purposes. Further, SoCalGas must provide further detail on the "Integrating carbon management solutions" Research Topic under its Energy Reliability & Resilience Initiative as described herein. For these Initiatives, **SoCalGas is *not* compliant with this requirement.**

[294] AL 6496-G-A Attachment A at p. 8.
[296] Resolution G-3573 (2021): Addressing SoCalGas' 2021 Gas RD&D Plan.
[297] D.19-09-051 at p. 379 & OP 68. Cited in Resolution G-3586 (2022) at p. 7. See also: Resolution G-3601 (2023) at p. 1 & OP 7 authorized SoCalGas to continue spending from an approved Plan in subsequent years until the end of the GRC cycle, with any unspent funds returned to ratepayers.
[298] D.19-09-051 at p. 377-378.

[7] California Public Utilities Code Section 740.1 at (c) *Projects should be consistent with the corporation's resource plan.*	SoCalGas states that, as a company, it seeks to "deliver increasingly clean, safe, affordable, and reliable energy."[299] Consistent with this, SoCalGas states that Initiatives in its Gas System Integrity theme "support supply, transmission, distribution, storage, and customer operations through innovations that enhance pipeline, public, and employee safety, maintain system reliability, increase operational efficiency, improve affordability, and reduce GHG impacts to the environment."[300] Initiatives in the Decarbonization theme support advancing "technologies that improve the affordability, availability, reliability, and integration of low-carbon fuels and energy systems."301	SoCalGas demonstrates that its proposed Initiatives and Plan are consistent with its resource plan. **SoCalGas is compliant with this requirement.**
[8] California Public Utilities Code Section 740.1 at (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.*	SoCalGas proposes the following Initiatives in its 2025 Plan: • Environmental & Safety • Operations Technology • System Design & Materials • System Inspection & Monitoring • RNG Infrastructure Optimization • Low-Carbon Fuels Technologies • Energy Reliability & Resilience • Building & Facility Systems	Each of SoCalGas' proposed Initiatives support one or more of the required objectives. **SoCalGas is compliant with this requirement.**

[299] AL 6496-G-A Attachment A at p. 6.
[300] AL 6496-G-A Attachment A at p. 13.
[301] AL 6496-G-A Attachment A at p. 38.

[9] Resolution G-3573 (2021) at OP 3. *In developing the subsequent Research Plans, SoCalGas shall: Continue to increase transparency in project area selection processes and criteria.*	SoCalGas outlines a high-level internal RD&D project proposal review process, stating it "enables them to 1) identify potential projects most in alignment with CPUC policies and objectives, RD&D Department goals, state and federal policy 2) initiate projects that have a reasonable probability of providing benefits to ratepayers; 3) assess the likelihood of potential projects to succeed; 4) work with proven organizations and technologies over time; and 5) respond nimbly to changing market, technology, and policy drivers."[302] SoCalGas lists specific evaluation criteria and states that "[a]fter approval of the Research Plan by the CPUC's Energy Division, RD&D staff follow a defined project selection and approval process to identify and select projects for RD&D support. The approval process includes development of project concepts, multiple stages of review and project development, and selection of those projects with the greatest potential benefit to natural gas ratepayers."[303]	SoCalGas describes the project selection process and specific evaluation criteria used in project selection. **SoCalGas is compliant with this requirement.**
[10] Resolution G-3586 (2022) at OP 5. *In subsequent Research Plans, SoCalGas shall: 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 details Authorized Funds (approved in the GRC for SoCalGas RD&D), Committed Funds (supporting ongoing projects in accordance with an approved Gas RD&D Plan) and Funds Available for Project Development (available for projects that are under development in the identified key research areas of interest) for each Initiative.[304]	SoCalGas details the quantity of program funds already committed and those that are for projects under development in following years. **SoCalGas is compliant with this requirement.**
[11] Resolution G-3586 (2022) at OP 5. *In subsequent Research Plans, SoCalGas shall: Provide project-level detail about Research Plans with the 16 data fields described in the Discussion sub-section titled Detailed budgets broken down by research subprogram.*	SoCalGas details active projects anticipated to continue from past research plans into the current proposed research plan year with the required data fields.[305]	SoCalGas provides project-level detail across the 16 required data fields. **SoCalGas is compliant with this requirement.**

[302] AL 6496-G-A Attachment A at Appendix 2: Project Selection Process.
[303] AL 6496-G-A Attachment A at p. 58.
[304] AL 6496-G-A Attachment A at p. 10-11, 20, 24, 28, 33, 37, 45-46, 51-52, & 56.
[305] AL 6496-G-A Attachment A at p. 72-73 & Section 6.4. Appendix 4 – Project Details.

[12] Resolution G-3586 (2022) at OP 5. *In subsequent Research Plans, SoCalGas shall: 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.*[306]	SoCalGas proposes to allocate ten percent of its annual total budget to administrative costs, amounting to $1,838,900 in its 2025 Plan, and delineates these costs by allowable cost categories.[307] SoCalGas states that membership dues for consortia are captured in administrative costs per guidance from Energy Division.[308] SoCalGas details how its proposed administrative costs are for developing and maintaining its Gas RD&D Program, whereas the administrative portion of a project lifecycle are charged as direct project costs.[309]	SoCalGas provides detail about its administrative budget using allowable cost categories. **SoCalGas is compliant with this requirement.**
[13] Resolution G-3586 (2022) at OP 5. *In subsequent Research Plans, SoCalGas shall: Provide detail quantifying research funding allocations by research consortium, as well as project costs related to each consortium.*	SoCalGas states it is "a member of three subscription-based organizations: Northeast Gas Association (NGA)/NYSEARCH, Operations Technology Development (OTD), and Pipeline Research Council International (PRCI). See Section 5 for more information on the consortia and their project selection processes." SoCalGas lists funds for 2025 Membership Dues ($997,816), including Membership ($165,692) and Available for Projects ($832,124). SoCalGas also lists projects by consortium with Total SoCalGas Costs and Total Project Costs.[310]	SoCalGas details research funding allocations by research consortium and project costs related to each consortium. **SoCalGas is compliant with this requirement.**
[14] Resolution G-3601 (2023) at OP 5. *All of Southern California Gas Company's new and future [RD&D] 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.*	SoCalGas states that it "includes a step in its project selection process to validate a project's location in California. In addition, SoCalGas hosts demonstrations of new technologies within the state of California, bringing outside investment into California and supporting local economies."[311]	SoCalGas demonstrates that all projects will take place in the State of California and describes general benefits from consortia projects. **SoCalGas is compliant with this requirement.**

[306] See Resolution G-3624 at Appendix C: Administrative Budget Cost Categories.
[307] AL 6496-G-A at p. 6 & Attachment A at p. 9-10.
[308] AL 6496-G-A Attachment A at p. 9.
[309] AL 6496-G-A Attachment A at Appendix 8: Program Administration Categorization.
[310] AL 6496-G-A Attachment A at p. 11-12.
[311] AL 6496-G-A Attachment A at p. 72.

[15] Resolution G-3601 (2023) at OP 6. *In its 2024 Gas [RD&D] Plan and beyond, [SoCalGas] shall: Meet with Energy Division at least six weeks ahead of submitting its annual RD&D Plan to present its proposed Plan and incorporate Energy Division feedback. At that time SoCalGas' proposed Plan should reflect input from RD&D administrator coordination and broad stakeholders including the research and ESJ communities.* See also: [6] on ratepayer benefit; [18] on integration of public stakeholder feedback; and [23] for gas RD&D administrator coordination.	SoCalGas discusses feedback received from Energy Division for each Initiative,[312] including Section 4.1: Summary of Research Plan Development with incorporation of stakeholder feedback.[313] SoCalGas states that on March 27, 2025, and May 8, 2025, SoCalGas presented its proposed Plan to Energy Division staff, incorporating feedback from both the CPUC and stakeholders,[314] and details its specific CPUC SME engagement schedule from November 2024 to March 2026.[315] SoCalGas divides its proposed Initiatives into two key investment themes consistent across Gas RD&D administrators[316] and correlates each Initiative with key CPUC policies and proceedings and associated gaps in each area per Commission guidance.[317] SoCalGas states that it incorporated feedback from Commission staff in developing initiatives and identifying areas of focus for future research activities.[318] SoCalGas reports that Energy Division staff provided the following initiative-level feedback/recommendations: • System Inspection and Monitoring: Clarify which operating group this initiative supports, to which SoCalGas responded all three (transmission, storage, and distribution).[319] • RNG Infrastructure Optimization & Low-Carbon Fuel Technologies: "Demonstrate coordination with stakeholders and other administrators in targeting solutions to reduce costs including interconnections, and capital expenses using different	SoCalGas met with Energy Division in advance of submitting its 2025 Plan to seek and integrate feedback. Its Plan is consistent with Energy Division guidance, including by targeting lowering RNG interconnection cost in its Low-Carbon Fuels Technologies Initiative.[321] However, SoCalGas' requests for hydrogen- and carbon capture-related RD&D activities do not align with Energy Division feedback and Commission policy to align with CPUC proceedings and provide clear ratepayer benefit as discussed at [6]. **SoCalGas is *not* compliant with this requirement.** SoCalGas shall also make the following revisions to its 2025 Plan to provide greater clarity to align with requirements: • Indicate the program area across the product development cycle

[312] AL 6496-G-A Attachment A at p. 19-20, 23, 27-28, 32, 36, 44-45, 50-51, & 55.
[313] AL 6496-G-A Attachment A at p. 57-58.
[314] AL 6496-G-A at p. 9.
[315] AL 6496-G-A Attachment A at p. 58-60.
[316] AL 6496-G-A at p. 5-6.
[317] AL 6496-G-A Attachment A at p. 13-15, 19, 23, 27, 32, 34-35, 38-39, 44, 50, & 55.
[318] AL 6496-G-A at p. 9.
[319] AL 6496-G-A Attachment A at p. 32 & 60.
[321] AL 6496-G-A Attachment A at p. 40.

	technologies." SoCalGas states that "[t]his is addressed in the initiative description and potential metrics."[320]	detailed in Appendix D of this Resolution associated with each listed research topic for further clarity on anticipated outputs from Initiatives. • Identify which of the proposed future project areas are anticipated to be funded through consortia. • Prioritize zero-emission over low-emission technologies under its Low-Carbon Fuel Technologies[322] and Energy Reliability & Resilience[323] Initiatives wherever possible.

[320] AL 6496-G-A Attachment A at p. 36 & 44.
[322] AL 6496-G-A Attachment A at p. 40.
[323] AL 6496-G-A Attachment A at p. 47.

[16] Resolution G-3601 (2023) at OP 6. *In its 2024 Gas [RD&D] Plan and beyond, [SoCalGas] shall: Explicitly justify how all consortia dues benefit gas ratepayers.* See also: [13] on consortia dues.	SoCalGas states that "consortia serve member utilities by facilitating technical collaboration and pooling of financial and technical resources to collectively address ongoing or anticipated challenges in the gas industry" and that "[b]y working closely with these and other similar organizations, RD&D staff can share knowledge, avoid needless duplication of work, and develop and execute impactful projects."[324] SoCalGas details a project development process feedback loop for consortia-led projects "where ideas and project proposals are reviewed to see if they fulfill an identified gap, meet the needs of SoCalGas, and satisfy the criteria of Resolution G-3601."[325] SoCalGas also includes a figure illustrating the distribution of projects by consortium delivering key ratepayer benefits: improved safety, reliability and affordability, increased operational efficiency, reduced GHG emissions, and improved local air quality.[326] In discussion with Energy Division staff, SoCalGas clarified that it is selective in which consortia projects it participates in and funds.[327]	SoCalGas justifies how all consortia dues benefit gas ratepayers. **SoCalGas is compliant with this requirement.**
[17] Resolution G-3601 (2023) at OP 6. *In its 2024 Gas [RD&D] Plan and beyond, [SoCalGas] shall: 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.* See also: [19].	In Appendix 6, SoCalGas describes its process for the scaling and commercialization of technologies via projects which range from research and development to deployment across technology readiness levels (TRLs). SoCalGas describes efforts on knowledge transfer and sharing through research webinars, quarterly newsletters, annual workshops, LinkedIn posts, conferences, and events, and lists project criteria in alignment with the state's climate goals. In Appendix 7, SoCalGas lists Regulatory and Policy Drivers spanning key state and federal policies and regulations.	SoCalGas describes how results are used to address the state's climate goals and how project results are scaled/commercialized. **SoCalGas is compliant with this requirement.** However, shall provide further detail upon project implementation in project final reports and its Annual Reports to demonstrate how results are measured and utilized in alignment with State goals.

[324] AL 6496-G-A Attachment A at p. 75. See also AL 6496-G-A Attachment A at p. 75-82.
[325] AL 6496-G-A Attachment A at p. 76.
[326] AL 6496-G-A Attachment A at p. 78.
[327] AL 6496-G-A Attachment A at p. 19.

[18] Resolution G-3601 (2023) at OP 6. *In its 2024 Gas [RD&D] Plan and beyond, [SoCalGas] shall: 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.*
 	
See also: [15] on integration of Energy Division feedback and [23] for gas RD&D administrator coordination.
	SoCalGas provides:
	• A description of its annual internal and external outreach efforts in addition to key takeaways and incorporation strategies for feedback received from public workshop attendees, including an ESJ Advisory Panel, for each Initiative.[328]
	• Section 4.1: Summary of Research Plan Development with incorporation of stakeholder feedback.[329]
	• Appendix 3: Summary of Stakeholder Input from 2025 Annual Workshop with the list of the questions received during and following the workshop, along with answers from appropriate SoCalGas personnel.
	  ○ Feedback from California Greenworks that "when public facing, the Key Ratepayer Benefits need an extra step to explicitly state community benefits. For example, operational efficiency does not naturally equate to community benefit, but linking it causally to community resilience, community beautification, etc., makes a more robust EJ claim."
	• Appendix 5: Summary of Stakeholder Input from Annual Outreach Campaign.
	• Appendix 6: Company and SoCalGas RD&D Overview, with a Description of Academic Engagement.
	
	SoCalGas details the following general feedback from the ESJ Advisory Panel Members and correlated incorporation strategies:[330]
	• "RD&D encouraged to explore "human outcomes" for communities in which research projects are conducted.
	  ○ "SoCalGas RD&D is considering how to develop metrics tied to this input."
	• "Make the process more equitable for all projects, ensure that community voice/ stakeholder voice is valued equally to the measurable outcomes (whether technological, environmental,
		SoCalGas describes feedback from stakeholders and a number of incorporation strategies. Per public workshop comments, SoCalGas includes metrics for many of the proposed Initiatives related to financial impacts and responds to some comments directly. However, SoCalGas does not discuss how or if each comment was considered for each Initiative. SoCalGas must comprehensively provide detail about how it incorporated feedback or otherwise explain why it did not incorporate the input. Specifically, SoCalGas should also go further in explicitly demonstrating and equating impacts to community benefits and human outcomes for all Initiatives per feedback from California Greenworks and the Public Workshop ESJ Advisory Panel. For transparency, SoCalGas should embed both stakeholder feedback and associated incorporation strategies in the description of each proposed Initiative. **SoCalGas is *not* compliant with this requirement.**

[328] AL 6496-G-A Attachment A at p. 19-20, 23, 27-28, 32, 36, 44-45, 50-51, 55, & 61-64.
[329] AL 6496-G-A Attachment A at p. 57-58 & 61-64.
[330] AL 6496-G-A Attachment A at p. 65.

	scientific). This can be accomplished by having an aggressive stakeholder collaboration, and/or having a stakeholder/CBO participate in the research review process." o "Before completing additional program development, RD&D staff will conduct additional outreach relevant to this input." • "Research designs need to: 5. Identify explicit and transparent social benefits and social harms. 6. Require all subrecipients conducting the studies to include CBOs as part of the study team. 7. Inform and share how SoCalGas RD&D identifies, vets, and selects research partners. 8. Budget educational outreach for each study, or outreach for the whole department. Finding out what to communicate can be done through CBO outreach." o "When developing future Research Plans, SoCalGas RD&D will seek input from the ESJ Advisory Panel about ESJ priorities and metrics that it can incorporate into future research projects." SoCalGas details the following Initiative-level feedback: • <u>System Inspection & Monitoring</u>: "SoCalGas should investigate the use of fiber optics in storage fields for well monitoring."[331] o SoCalGas stated that "[t]he use of fiber optic monitoring is limited to underground Gas Infrastructure at this time. Fiber Optics currently provides leak detection, 3rd party construction activity and strain due to ground movement. This technology is part of [this Initiative]."[332] • <u>RNG Infrastructure Optimization</u>: "One federal agency suggested developing affordable small-scale technologies for smaller point sources of RNG."[333]	

[331] AL 6496-G-A Attachment A at p. 32.
[332] AL 6496-G-A Attachment A at Appendix 5: Summary of Stakeholder Input from Annual Outreach Campaign.
[333] AL 6496-G-A Attachment A at p. 36.

	• Low-Carbon Fuels Technologies: "A national laboratory recommended further exploration of methane pyrolysis technologies... A federal agency suggested developing affordable small-scale technologies for smaller point sources of RNG." "There were suggestions to look at other technologies such as waste-to-energy, to target improved performance in dynamic operation of any fuel production pathway. There was feedback after the workshop about understanding cost targets for hydrogen and how SoCalGas is tracking those costs – this has been added as a quantitative impact to be tracked."[334] • Energy Reliability & Resilience: "ORNL identified the need for research into cost-effective retrofitting solutions that utilize clean fuels for heating and cooling, that could offer a more practical and affordable pathway to decarbonization compared to potentially extensive and disruptive electrification upgrades."[335] • Building & Facility Systems: "One industrial stakeholder is interested in new ways of capturing and reusing heat produced onsite and advised to bring in the end users early in and throughout the R&D process. One national laboratory suggested new equity KPIs: new jobs, health cost savings (NOx, CO, PM), reduction in premature deaths, fewer workdays lost. One research institution emphasized the importance of RD&D for commercial and industrial end uses."[336]	

[334] AL 6496-G-A Attachment A at p. 44-45.
[335] AL 6496-G-A Attachment A at p. 51.
[336] AL 6496-G-A Attachment A at p. 55.

[19] Resolution G-3601 (2023) at OP 6. *In its 2024 Gas [RD&D] Plan and beyond, [SoCalGas] shall: 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.*[337]	SoCalGas states that staff "attended the EPIC UIAF Kickoff workshop, April 2, 2024, and has already enacted some of the staff recommendations found in EPIC. For example, all projects selected for support by SoCalGas RD&D (1) must align with the CPUC's strategic objectives, and (2) identify measurable goals."[338] SoCalGas lists anticipated ratepayer benefits for each Initiative, including affordability, improved air quality, reduced GHG emissions, reliability, and improved safety.[339] SoCalGas lists potential metrics for tracking and evaluating quantitative impacts for each Initiative,[340] including: • Environmental & Safety: Reduction of GHG emissions attributed to loss of containment. • Operations Technology: Reduced maintenance costs associated with locating inaccuracies and third-party damage. • System Design & Materials: Reduced operating costs associated with physical emergency response. • System Inspection & Monitoring: Reduced monitoring costs associated with remote monitoring vs. traditional in person monitoring. • Maintained / reduced operations and maintenance and capital costs for RNG Infrastructure Optimization and Low-Carbon Fuels Technologies. • Customer bill savings (dollars saved) for Energy Reliability & Resilience and Building & Facility Systems. In Appendix 9, SoCalGas also includes an EPIC Uniform Impacts Analysis Framework (UIAF) Conversion Matrix, including EPIC metrics and analogous natural gas system metrics.	SoCalGas describes anticipated ratepayer benefits and defines appropriate metrics for conducting impact analyses attributable to each Initiative. **SoCalGas is compliant with this requirement.** However, SoCalGas shall review its 2025 Plan for elements of Initiatives that primarily support compliance with existing requirements/regulations or ongoing operations and maintenance activities and refine as necessary to demonstrate that RD&D is innovative and produces impacts that would not otherwise be expected to occur. SoCalGas shall also clearly articulate impact analyses resulting from the described methods in addition to lessons learned in project reports and Annual Reports.[341]

[337] See Resolution G-3624 at Appendix F: EPIC Foundational Principles for the Development of a Uniform Impact Analysis Framework.
[338] AL 6496-G-A Attachment A at p. 73-74.
[339] AL 6496-G-A at p. 8-9 & Attachment A at p. 18-19, 22-23, 26-27, 31-32, 35, 43-44, 49-50, & 54-55.
[340] AL 6496-G-A Attachment A at p. 20, 24, 28, 33, 37, 45, 51, & 56.
[341] Resolution G-3601 (2023) at p. 18.

[20] Resolution G-3601 (2023) at OP 6. *In its 2024 Gas [RD&D] Plan and beyond, [SoCalGas] shall: 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 [RD&D] proposals. Further, SoCalGas shall describe the benefits and impacts of its RD&D work in ESJ communities in its annual Plan.* See also: [18] on integration of public stakeholder feedback, including an ESJ Advisory Panel.	In Appendix 6, SoCalGas states that it "will draw from the DACAG's Equity Framework to help guide efforts toward outcomes that could benefit ESJ communities over time" and "consider a variety of approaches" such as non-energy benefits (NEBs), affordability, access, outreach, education, community engagement, health, safety, financial benefits, economic development, and workforce development.[74] SoCalGas describes outreach to the DACAG, including briefing them on April 18, 2025, to share its proposed Plan and solicit input. SoCalGas reports that the DACAG: • "is interested in data around RNG constituents (including any potential emissions data) and compressor operations data; they requested data be shared publicly to the extent possible;"[342] • "asked how SoCalGas will offset the impact of these projects. For projects developing technologies to advance the production of renewable gas, any resulting emissions will be addressed through mitigation or capture;"[343] and • "recommended that [the Building & Facility Systems] initiative exclude gas-fired air conditioning."[344] In response, SoCalGas states: • "Several projects include monitoring and testing for trace constituents that will result in data available through reports and presentations. As applicable, data that is published for public consumption will be shared publicly." • "For projects developing technologies to advance the storage of renewable gas, any resulting emissions will be addressed through mitigation or capture."[345]	SoCalGas discusses its use of the DACAG Equity Framework and engagement of ESJ communities, particularly the DACAG, in the development of its 2024 Plan. **SoCalGas is compliant with this requirement.**

[342] AL 6496-G-A Attachment A at p. 19, 23, 27, & 32.
[343] AL 6496-G-A Attachment A at p. 36 & 44-45.
[344] AL 6496-G-A Attachment A at p. 55.
[345] AL 6496-G-A Attachment A at p. 66.

[21] Resolution G-3601 (2023) at OP 6. *In its 2024 Gas [RD&D] Plan and beyond, [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. 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.* See also: [18] on integration of public stakeholder feedback, including an ESJ Advisory Panel.	SoCalGas assembled an Advisory Panel of seven ESJ stakeholders who participated in the Annual Workshop.[346] SoCalGas "describes the establishment of the ESJ Advisory Panel and its role in supporting inclusive engagement. Prior to the Annual Workshop, SoCalGas convened the panel to preview workshop content and facilitate meaningful participation. During the workshop, seven panel members provided public input during the Q&A segments. Following the workshop, panelists completed a feedback survey developed by the SoCalGas RD&D team. In consultation with the Commission, SoCalGas compensated panel representatives at a rate of $150 per hour for their time and contributions."[347] SoCalGas discusses feedback received from public workshop attendees, including an ESJ Advisory Panel, for each Initiative.[348]	SoCalGas curated an ESJ community advisory panel to seek input prior to submitting its proposed Plan and provided compensation. **SoCalGas is compliant with this requirement.**
[22] Resolution G-3601 (2023) at OP 6. *In its 2024 Gas [RD&D] Plan and beyond, [SoCalGas] shall: 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.*	SoCalGas states that it "requires proposed hydrogen projects meet specific criteria consistent with the clean renewable hydrogen definition adopted in D.22-12-057"[349] and a "vendor must: • Commit to procuring clean renewable hydrogen; • Identify the source, amount, and cost of clean renewable hydrogen to be procured on the project; and • Evaluate the risk of not finding adequate sources of clean renewable hydrogen."[350]	SoCalGas demonstrates that previously approved hydrogen projects utilize clean renewable hydrogen. **SoCalGas is compliant with this requirement.** However, this Resolution does not approve new or further funding for hydrogen-related projects.

[346] AL 6496-G-A at p. 8. SoCalGas RD&D 2024 Research Plan Public Workshop (April 28, 2025) Recording.
[347] AL 6496-G-A at p. 11.
[348] AL 6496-G-A Attachment A at p. 19-20, 23, 27-28, 32, 36, 44-45, 50-51, & 55.
[349] AL 6496-G-A at p. 11.
[350] AL 6496-G-A Attachment A at p. 71.

[23] Resolution G-3601 (2023) at OP 6. *In its 2024 Gas [RD&D] Plan and beyond, [SoCalGas] shall: 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.*	SoCalGas discusses coordination with other Gas RD&D administrators for each Initiative.[351] SoCalGas states that "projects funded via (2) multiple administrators or funders or (3) consortia include activities such as project scoping, project tracking, milestone acceptance, and payment. Additional utility participation may include, but is not limited to, serving on Technical Advisory Committees, providing technical expertise, providing operating data, and hosting technology demonstrations."[352] SoCalGas describes collaboration opportunities with the other Gas RD&D administrators (CEC and PG&E) in addition to SWG under each Initiative, also reporting recommended areas of focus and delineating where there is no apparent overlap: • The CEC recommended: o Getting robust public data on emissions profiles of linear generators with different fuel sources and changing emissions profiles over time and other emerging technologies to drive down emissions.[353] o Identifying existing technologies that are inherently fuel-flexible and "can transition to cleaner fuels with little or no complex modifications or new infrastructure."[354] o "[G]etting a better understanding of methods for detecting leakage, quantifying leakage, understanding strategies for minimizing leakage, or prioritizing where leakage is happening the most, and then using that to inform design or other decisions."[355]	SoCalGas demonstrates how SoCalGas coordinates in advance with other Gas RD&D administrators for each Initiative. Further, SoCalGas demonstrates that its 2025 Plan is differentiated from its 2024 Plan to avoid duplication via varying research areas. **SoCalGas is compliant with this requirement,** with the exception of the System Design & Materials Initiative. SoCalGas must provide greater detail to differentiate proposed RD&D under the System Design & Materials Initiative—which includes the research area of "[i]nfrastructure compatibility with RNG diverse feedstocks and non-pipeline alternatives"[365]—from the CEC's Fuel-Flexible Distributed Power Generation Initiative in its proposed FY2024-25 Gas RD&D Plan, which "seeks to support modifications on existing gas-fired generation systems"

[351] AL 6496-G-A Attachment A at p. 19-20, 24, 27-28, 32-33, 36-37, 45, 51, & 56.
[352] AL 6496-G-A Attachment A at p. 11.
[353] AL 6496-G-A Attachment A at p. 20 & 24.
[354] AL 6496-G-A Attachment A at p. 28.
[355] AL 6496-G-A Attachment A at p. 33.
[365] AL 6495-G-A Attachment A at p. 25.

	• PG&E requested information sharing, discussions of results and their implications,[356] and collaboration on material blends,[357] scouring monitoring, and remote sensing and aerial and satellite-related technology. [358]
	• SWG:
	  ○ Generally noted a need for technoeconomic studies of new technologies and cleaner fuels.[359]
	  ○ Expressed a "[n]eed to prioritize economic and fiscal ROI evaluations of potential technologies/fuels" and articulate operational benefits of proposed RD&D.[360]
	  ○ Recommended the use of camera inspection tools for plastic systems for the System Inspection & Monitoring Initiative.[361]
	
	Further, SoCalGas includes charts for each Initiative with Research Topics, Completed Projects, Active Projects, and Future Project Areas in the 2024 Research Plan compared to those in the 2025 Plan to "[demonstrate] how initiatives are designed to progress over time to achieve ratepayer benefits."[362] SoCalGas differentiates its 2025 Plan from its 2024 Plan for each Initiative; for example, for the RNG Infrastructure Optimization Initiative, SoCalGas states the following for the "Advanced interconnection design" research area:
	• "For the 2024 Research Plan, the intent is to support optimization and standardization of RNG interconnection designs, identify open-access interconnection alternatives, and related research activities."[363]
		to support biomethane.[366] For the System Design & Materials Initiative, **SoCalGas is *not* compliant with this requirement.**

[356] AL 6496-G-A Attachment A at p. 24.
[357] AL 6496-G-A Attachment A at p. 28.
[358] AL 6496-G-A Attachment A at p. 32.
[359] AL 6496-G-A Attachment A at p. 28, 36, & 45.
[360] AL 6496-G-A Attachment A at p. 28
[361] AL 6496-G-A Attachment A at p. 33.
[362] AL 6496-G-A Attachment A at p. 16-17, 21-22, 25-26, 29-31, 34-35, 41-43, 47-49, & 53-54.
[363] AL 6495-G-A Attachment A at p. 33.
[366] CEC's Proposed FY 2024-2025 Gas RD&D Plan at p. 48.

	• "For the 2025 Research Plan, the intent is to explore reverse flow strategies to optimize RNG collection and injection through seasonal fluctuations, as well as other related research activities."[364]	

[364] AL 6496-G-A Attachment A at p. 34.

Appendix I: Compliance Assessment of Advice Letter 6645-G – 2026 Plan

CPUC Requirement	SoCalGas Response in AL 6645-G	Compliance Assessment
[1] D.19-09-051 at p. 378-379 & OP 30. *[SoCalGas shall] provide Energy Division staff with the workshop presentation materials as well as documentation of stakeholders consulted in the development of RD&D projects… [and host an annual workshop to] present the result of the previous year's RD&D program and obtain input regarding its intended spending for the following calendar year.*[367] See also: [18] on integration of public stakeholder feedback.	SoCalGas states the following: • "On February 19, 2026, SoCalGas submitted its workshop presentation materials to the CPUC's Energy Division for final review. The ESJ Advisory Panel for the Joint Gas R&D Workshop was established through a coordinated effort among the CEC, PG&E, and SoCalGas. The Energy Division staff was consulted for the panel selection process and identification of relevant stakeholders that were invited to attend."[368] • "On February 27, 2026, SoCalGas presented its 2026 and 2027 Research Plans at the joint Gas RD&D Public Workshop. In consultation with Energy Division staff, CEC, and PG&E, SoCalGas extended invitations to and encouraged virtual participation from approximately 340 stakeholders. SoCalGas also sent notifications of the workshop to several relevant service lists. Approximately 240 individuals attended the workshop, including representatives from multiple research organizations…"[369] • "During the two-hour workshop, the RD&D team presented 2025 program results along with proposed spending and activities for the 2026 and 2027 Research Plans."[370] In its 2026 Plan, SoCalGas discusses the feedback it received from public workshop attendees.[371]	SoCalGas provided Energy Division staff with workshop materials in advance of hosting an annual public workshop to seek input on proposed Plans. **SoCalGas is compliant with this requirement.**

[367] Upheld in D.24-12-074 at p. 327-330.
[368] AL 6645-G at p. 7.
[369] AL 6645-G at p. 8.
[370] AL 6645-G at p. 8.
[371] AL 6645-G Attachment A at p. 94-113.

[2] D.19-09-051 at p. 378 & OP 30. *[SoCalGas shall] submit a report to Energy Division staff describing prior years' RD&D program. This should include a summary of ongoing and completed projects; funds expended, funding recipients, and leveraged funding; and an explanation of the process used for selecting RD&D project areas as well as the structure of SoCalGas' RD&D portfolio.*[372]	On April 1, 2026, SoCalGas submitted its 2025 Gas RD&D Annual Report to the CPUC's Energy Division.[373] The report includes summaries of ongoing and completed projects,[374] funds expended,[375] funding recipients,[376] leveraged funding,[377] the project selection process,[378] and portfolio structure.[379]	SoCalGas submitted an Annual Gas RD&D Report with the required contents. **SoCalGas is compliant with this requirement.**
[3] D.19-09-051 at p. 379 & OP 30. *After considering stakeholder comments during the workshop, SoCalGas shall file a Tier 3 Advice Letter with its research plan for the following calendar year.*[380]	SoCalGas submitted its proposed 2026 Plan via Tier 3 AL 6645-G on June 1, 2026.	SoCalGas filed a Tier 3 AL with its proposed 2026 Plan. **SoCalGas is compliant with this requirement.**

[372] Upheld in D.24-12-074 at p. 327-330.
[373] SoCalGas 2025 Annual Gas RD&D Report.
[374] SoCalGas 2025 Annual Gas RD&D Report at p. 7.
[375] SoCalGas 2025 Annual Gas RD&D Report at p. 9.
[376] SoCalGas 2025 Annual Gas RD&D Report at p. 13-14.
[377] SoCalGas 2025 Annual Gas RD&D Report at p. 13.
[378] SoCalGas 2025 Annual Gas RD&D Report at p. 13.
[379] SoCalGas 2025 Annual Gas RD&D Report at p. 6-9.
[380] Upheld in D.24-12-074 at p. 327-330.

[4] D.19-09-051 at p. 379 & OP 30. *SoCalGas must also present its budget broken down by research projects, request for proposals, and funding amounts… [and] detail budgets broken down by research sub-program area.*	SoCalGas proposes budget allocations to several Initiatives within two themes: • Gas System Integrity Investment Theme: o Environment & Safety o System Inspection & Monitoring o Community Impact & Energy Conservation o System Design & Materials o RNG Infrastructure Optimization • Decarbonization Investment Theme o Low-Carbon Fuel Technologies o Energy Reliability & Resilience o Building & Facility Systems	SoCalGas details budgets broken down by research sub-program area. **SoCalGas is compliant with this requirement.**
[5] D.24-12-074 authorized an $18.94M budget for SoCalGas' 2026 Gas RD&D Plan.[381]	SoCalGas requests an annual budget of $18.94M for its 2026 Gas RD&D Plan.[382]	SoCalGas' request for $18.94M for its 2026 Gas RD&D Plan is consistent with the authorized budget. **SoCalGas is compliant with this requirement.**
[6] California Public Utilities Code Section 740.1 at: (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.* See also: [19].	SoCalGas details anticipated ratepayer benefits, including air quality, reduced GHG emissions, reliability, and improved safety. It provides justification for the use of ratepayer funds for each Initiative.[383] SoCalGas requests funding for carbon capture activities under the "Carbon Management Integration" Research Topic for its Energy Reliability & Resilience Initiative.[384]	SoCalGas demonstrates that projects offer a reasonable probability of providing benefits to ratepayers. **SoCalGas is compliant with this requirement** for all but one Initiative. SoCalGas must provide further detail on the "Carbon Management Integration" Research Topic under its Energy Reliability & Resilience Initiative as described herein. For this Initiative, **SoCalGas is *not* compliant with this requirement**.

[381] D.24-12-074 at p. 21-24, 327-330, 895, & 901; FOF 110; & COL 305. See Resolution G-3624 at p. 4-5.
[382] AL 6645-G at p. 6.
[383] AL 6645-G Attachment A at p. 21, 24-25, 30-31, 36-37, 40-41, 45-46, 55-57, 62-63, and 68-70.
[384] AL 6645-G Attachment A at p. 64.

[7] California Public Utilities Code Section 740.1 at (c) *Projects should be consistent with the corporation's resource plan.*	SoCalGas states that it "[champions] technologies that support affordable access to clean, safe, and reliable energy for all Californians."[385] Consistent with this, SoCalGas states that Initiatives in its Gas System Integrity theme support "supply, transmission, distribution, storage, and customer operations through innovations that enhance pipeline, public, and employee safety, maintain system reliability, increase operational efficiency, improve affordability, and reduce GHG impacts to the environment."[386] Initiatives in the Decarbonization then focus on "advancing technologies that improve the affordability, availability, reliability, and integration of low-carbon fuels and energy systems for SoCalGas operations and customers. It also supports California's climate and energy goals, by accelerating the development and deployment of renewable fuels, advanced infrastructure technologies, and emissions-reducing systems aligned with current RD&D priorities."[387]	SoCalGas demonstrates that its proposed Initiatives and Plan are consistent with its resource plan. **SoCalGas is compliant with this requirement.**

[385] AL 6645-G Attachment A at p. 152.
[386] AL 6645-G at p. 5 Attachment A at p. 23.
[387] AL 6645-G at p. 5 & Attachment A at p. 54.

[8] California Public Utilities Code Section 740.1 at (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.*	SoCalGas proposes the following Initiatives for its 2026 Plan: • Environment & Safety • System Inspection & Monitoring • Community Impact & Energy Conservation • System Design & Materials • RNG Infrastructure Optimization • Low-Carbon Fuel Technologies • Energy Reliability & Resilience • Building & Facility Systems	Each of SoCalGas proposed initiatives supports one or more of the required objectives. **SoCalGas is compliant with this requirement.**
[9] Resolution G-3573 (2021) at OP 3. *In developing the subsequent Research Plans, SoCalGas shall: Continue to increase transparency in project area selection processes and criteria.*	SoCalGas provides a detailed project proposal review process.[388] Its efforts to continue increasing transparency are evidenced by details of its schedule of meetings and public events involving: the CPUC Energy Division staff and subject matter experts, the ESJ Advisory Panel, the Disadvantaged Community Advisory Group (DACAG), and regular meetings among SoCalGas and other program administrators. The project selection process is also illustrated in a chart.[389]	SoCalGas describes the project selection process and specific evaluation criteria used in project selection. **SoCalGas is compliant with this requirement.**
[10] Resolution G-3586 (2022) at OP 5. *In subsequent Research Plans, SoCalGas shall: 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 details Authorized Funds (approved in the GRC for Gas RD&D), Committed Funds (supporting ongoing projects in accordance with an approved Gas RD&D Plan), and Funds Available for Project Development (available for projects that are under development in the identified key research areas of interest) for each Initiative.[390]	SoCalGas details the quantity of program funds already committed and those that are for projects under development in the following years. **SoCalGas is compliant with this requirement.**

[388] AL 6645-G Attachment A at Appendix 2: Project Selection Process at p. 94-113.
[389] AL 6645-G Attachment A at Appendix 2: Project Selection Process at p. 94-113.
[390] AL 6645-G Attachment A at p. 18-19, 29, 35, 44, 49, 60, 67, & 74.

[11] Resolution G-3586 (2022) at OP 5. *In subsequent Research Plans, SoCalGas shall: Provide project-level detail about Research Plans with the 16 data fields described in the Discussion sub-section titled Detailed budgets broken down by research subprogram.*	SoCalGas provides details of active projects expected to continue from past research plans into the current proposed plan year with the required data fields.[391]	SoCalGas provides project-level detail across the 16 required data fields. **SoCalGas is compliant with this requirement.**
[12] Resolution G-3586 (2022) at OP 5. *In subsequent Research Plans, SoCalGas shall: 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.*[392]	SoCalGas proposes to allocate ten percent of its Gas RD&D annual total budget to administrative costs, amounting to $1.894M for its 2026 Plan, and delineates those costs by allowable cost categories.[393] SoCalGas states that membership dues for consortia are captured in administrative costs per guidance from Energy Division.[394] SoCalGas details how its proposed administrative costs are for developing and maintaining its Gas RD&D Program, whereas the administrative portion of a project lifecycle are charged as direct project costs.[395]	SoCalGas provides detail about its administrative budget using allowable cost categories. **SoCalGas is compliant with this requirement.**
[13] Resolution G-3586 (2022) at OP 5. *In subsequent Research Plans, SoCalGas shall: Provide detail quantifying research funding allocations by research consortium, as well as project costs related to each consortium.*	SoCalGas states that it is a member of "three subscription-based organizations: Northeast Gas Association (NGA)/NYSEARCH, Operations Technology Development (OTD), and Pipeline Research Council International (PRCI)." However, SoCalGas also notes that it will be withdrawing from OTD in 2026, significantly reducing its membership expenditures for this period, although it will continue to fulfill current project commitments.[396] SoCalGas lists funds for 2026 Membership Dues ($252,537), including Membership ($115,000) and Available for Projects ($137,537). SoCalGas also lists projects by consortium with Total SoCalGas Costs and Total Project Costs.[397]	SoCalGas details research funding allocations by research consortium and project costs related to each consortium. **SoCalGas is compliant with this requirement.**

[391] AL 6645-G Attachment A, Appendix 4 at p. 125-139.
[392] See Resolution G-3624 at Appendix C: Administrative Budget Cost Categories.
[393] AL 6645-G at p. 6 & Attachment A at p. 18.
[394] AL 6645-G Attachment A at p. 18.
[395] AL 6645-G Attachment A at Appendix 8: Program Administration Categorization.
[396] AL 6645-G Attachment A at p. 178-179.
[397] AL 6645-G Attachment A at 20-21.

[14] Resolution G-3601 (2023) at OP 5. *All of Southern California Gas Company's new and future [RD&D] 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.*	SoCalGas states that it "includes a step in its project selection process to validate a project's location in California. In addition, SoCalGas hosts demonstrations of new technologies within the state of California, bringing outside investment into California and supporting local economies."[398] SoCalGas states that benefits include "pooling of financial resources and technical resources...to share knowledge, avoid needless duplication of work, and develop and execute impactful projects."[399] To comply with this requirement, SoCalGas states that it will not renew membership in the Northeast Gas Association (NGA) /NYSEARCH, Operations Technology Development (OTD) consortium. "As a result, although SoCalGas RD&D is a member of OTD in 2026, it will not initiate any new projects with OTD and will complete all projects underway and then terminate its membership."[400]	SoCalGas demonstrates that all projects will take place in the State of California and describes general benefits from consortia projects. **SoCalGas is compliant with this requirement.**

[398] AL 6645-G Attachment A at p. 79-80 & 110-111.
[399] AL 6645-G Attachment A at p. 90.
[400] AL 6645-G Attachment A at p. 179.

[15] Resolution G-3601 *(2023) at OP 6. In its 2024 Gas [RD&D] Plan and beyond, [SoCalGas] shall: Meet with Energy Division at least six weeks ahead of submitting its annual RD&D Plan to present its proposed Plan and incorporate Energy Division feedback. At that time SoCalGas' proposed Plan should reflect input from RD&D administrator coordination and broad stakeholders including the research and ESJ communities.*
 	
See also: [6] on ratepayer benefit; [18] on integration of public stakeholder feedback; and [23] for gas RD&D administrator coordination.
	SoCalGas met with Energy Division staff on December 5, 2025, to review its Plan proposals before filing. SoCalGas provides Table 2: CPUC SME Feedback.[401] Energy Division staff provided the following Initiative-level feedback/recommendations as partially captured in SoCalGas' Plan:
	• Environment & Safety: Clearly define core research questions and data integration. For all AI/ML applications, account for the full costs including increased energy consumption, cloud services, data storage, and processing requirements and demonstrate that human decision-making authority will be retained.
	• System Inspection & Monitoring: Clearly define market gaps and ratepayer benefit, explore utilizing Climate Adaptation and Vulnerability Assessments (CAVAs), and consider whether AI is necessary to implement this Initiative.
	  ○ SoCalGas states that it will leverage and integrate existing data sources to develop a comprehensive view of system risk, including from CAVAs, to inform mitigation decisions.[402]
	• Community Impact & Energy Conservation: Clearly define intended outputs and improvements to ratepayer affordability.
	• Low-Carbon Fuel Technologies: Remove hydrogen related elements.
	  ○ SoCalGas states that this Initiative focuses on emerging RNG production technologies and cost optimization opportunities and excludes hydrogen-related technologies (e.g., electrolyzers, cell manufacturing).[403]
	• Energy Reliability & Resilience: Address affordability concerns and remove hydrogen related elements.
	  ○ SoCalGas states that it intends to "[i]mprove point-of-use decarbonization approaches to support better cost and operating performance."[404]
		SoCalGas met with Energy Division in advance of submitting its 2026 Plan to seek and integrate feedback for most Initiatives, however, it did not cover the System Design & Materials or RNG Infrastructure Optimization Initiatives. Energy Division staff assessed if proposals were aligned with CPUC proceedings; had clearly defined outputs; were differentiated from existing RD&D; and were expected to provide clear ratepayer benefit as also discussed elsewhere in this appendix. In several places, SoCalGas did provide further detail on its proposals as requested and describe how it modified its Initiatives to reflect feedback, including by removing hydrogen-related activities.
		
		However, SoCalGas' requests for carbon capture-related RD&D activities do not align with Energy Division feedback and Commission policy to align with CPUC proceedings and provide clear ratepayer benefit as discussed at [6]. Overall, **SoCalGas is *not* compliant with this requirement** for the

[401] AL 6645-G Attachment A at p. 94-97.
[402] AL 6645-G Attachment A at p. 95.
[403] AL 6645-G Attachment A at p. 96-97.
[404] AL 6645-G Attachment A at p. 62.

	• Building & Facility Systems: Demonstrate protection of ratepayer affordability and target reducing the size of the gas system and prioritizing electrification. SoCalGas reports feedback on the System Design & Materials and RNG Infrastructure Optimization Initiatives though they were not discussed during pre-submittal consultation and therefore did not undergo Energy Division review prior to Plan submittal.	following Initiatives as it did not comprehensively, accurately report or respond to Energy Division feedback and align with Commission policy: • Environment & Safety: SoCalGas must demonstrate that it will account for the full costs associated with AI/ML applications when assessing impacts, including increased energy consumption, cloud services, data storage, and processing requirements, and that human decision-making authority will be retained. • Energy Reliability & Resilience: SoCalGas must provide further detail on the "Carbon Management Integration" Research Topic as described herein. • Building & Facility Systems: SoCalGas must demonstrate that this Initiative supports reducing the size of the gas system. SoCalGas shall also make the following revisions to its 2026 Plan to provide greater clarity to align with requirements: • Indicate the program area across the product development cycle detailed in Appendix D of this Resolution associated with each listed research topic for further

		clarity on anticipated outputs from Initiatives. • Identify which of the proposed future project areas are anticipated to be funded through consortia. • Prioritize zero-emission over low-emission technologies under its Low-Carbon Fuel Technologies Initiative[405] and eliminating as opposed to reducing flaring from some biogas production facilities under its RNG Infrastructure Optimization Initiative[406] wherever possible. In the future, SoCalGas shall also present all proposed Initiatives to Energy Division in advance of Plan submittal.

[405] AL 6645-G Attachment A at p. 56.
[406] AL 6645-G Attachment A at p. 46.

[16] Resolution G-3601 (2023) at OP 6. *In its 2024 Gas [RD&D] Plan and beyond, [SoCalGas] shall: Explicitly justify how all consortia dues benefit gas ratepayers.* See also: [13] on consortia dues.	SoCalGas provides a detailed explanation of benefits it perceives for California ratepayers from its consortia memberships: 1. "Providing SMEs with a forum for learning and gaining operational insights regarding differences in pipeline system materials and equipment, operating environments, operational experiences, procedures, and practices. 2. Gaining operational knowledge that may only apply to a small subset of system assets or operational conditions. 3. Knowledge-sharing of pipeline incidents, causes, or insights into interactive threats with very low probability of occurrence but high consequence. 4. Knowledge-sharing between large and small system operators can have a positive effect on the performance of the overall natural gas supply chain. 5. Gaining knowledge of emerging areas of research or technologies that could be utilized by SoCalGas to support pipeline safety, system reliability, operational efficiency, and environmental improvement." SoCalGas also promoted the "leveraging" of constrained resources with the contributions of other consortia members."[407]	SoCalGas justifies how all consortia dues benefit gas ratepayers. **SoCalGas is compliant with this requirement.**

[407] AL 6645-G Attachment A at p. 180-181.

[17] Resolution G-3601 (2023) at OP 6. *In its 2024 Gas [RD&D] Plan and beyond, [SoCalGas] shall: 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.* See also: [19].	SoCalGas states: "To support alignment of its projects and the state's climate goals, SoCalGas RD&D considers a variety of project selection criteria, including: 1. The proposed project addresses a California need identified in relevant literature (e.g., the CPUC's Gas Strategic Planning order instituting rulemaking (OIR) or the CEC's Electric Program Investment Charge (EPIC) Gap Analysis). 2. The project offers a reasonable probability of improving access to clean energy technologies for ratepayers, including those in ESJ and tribal communities in California. 3. The project supports air quality improvements in California communities, including those already experiencing pollution burdens. 4. The project supports energy affordability for all ratepayers, including those in lower income California communities. 5. The project demonstrates potential for technology scalability, replication, or commercialization in support of long-term climate and clean energy goals. 6. The project leverages collaboration with academic, public, or private sector partners to maximize statewide impact and knowledge sharing. 7. The project enables cross-sectoral innovation or integration, such as linking gas RD&D with electrification, renewable fuels, or carbon management solutions."[408] In Appendix 6, SoCalGas describes its process for the scaling and commercialization of technologies via projects which range from research and development to deployment across technology readiness levels (TRLs). Most projects it undertakes are more limited in that the RD&D program involvement would end with deployment of a demonstration project, not commercial deployment. SoCalGas states, "If technologies were ready for commercialization; R&D would not be necessary."[409]	SoCalGas describes how results are used to address the state's climate goals and how project results are scaled/commercialized. **SoCalGas is compliant with this requirement.** However, SoCalGas shall provide further detail upon project implementation in project final reports and its Annual Reports to demonstrate how results are measured and utilized in alignment with State goals.

[408] AL 6645-G Attachment A at p. 162-163.
[409] AL 6645-G Attachment A at p. 153.

[18] Resolution G-3601 (2023) at OP 6. *In its 2024 Gas [RD&D] Plan and beyond, [SoCalGas] shall: 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.* See also: [15] on integration of Energy Division feedback and [23] for gas RD&D administrator coordination.	SoCalGas provides: • A highly detailed discussion of its stakeholder outreach initiatives and includes discussion of any research ideas promoted during these sessions, including its response to suggestions and recommendations.[410] • A description of its annual internal and external outreach efforts along with key takeaways and incorporation strategies for general feedback received from public workshop attendees, including the ESJ Advisory Panel, on its proposals.[411] ○ SoCalGas indicated, for example, that "areas of affordability and decarbonization are incorporated throughout the 2026 and 2027 Research Plans."[412] • Section 5.1: Summary of Research Plan Development & Compliance.[413] • Appendix 2: Research Plan Feedback, Details and Project Selection Process.[414] • Appendix 3: Summary of February 27, 2026, Workshop Feedback,[415] and the list of questions received during and following the workshop, along with responses and/or incorporation strategies.[416] • Appendix 5: Summary of Stakeholder Input from Annual Outreach Campaign.[417] • Appendix 6: Company and SoCalGas RD&D Overview, with a Description of Academic Engagement.[418] SoCalGas details the following Initiative-level feedback and responses:	SoCalGas describes feedback from stakeholders and a number of incorporation strategies. **SoCalGas is compliant with this requirement.** However, in its revised 2026 Plan and all future Plans, for transparency, SoCalGas should embed both stakeholder feedback and associated incorporation strategies in the description of each proposed Initiative, or otherwise state that Initiative-level feedback was not received.

[410] AL 6645-G Attachment A at Appendix 2: Project Selection Process at p. 94-112.
[411] AL 6645-G Attachment A at p. 103-104 & 108-110.
[412] AL 6645-G Attachment A at p. 106.
[413] AL 6645-G Attachment A at p. 77-79.
[414] AL 6645-G Attachment A at p. 94-110.
[415] AL 6645-G Attachment A at p. 114-126.
[416] AL 6645-G Attachment A at p. 94-126.
[417] AL 6645-G Attachment A at p. 140-151.
[418] AL 6645-G Attachment A at p. 164-165.

	• "The identified priority to advance leak detection and prevention is incorporated in the Environmental & Safety Initiative. • The Low-Carbon Fuels Technology Initiative proposes research areas where alternative decarbonization pathways may be developed, addressing the feedback to not rely on just RNG. • The System Design & Materials Initiative plans to focus on identifying new repair methods."[419] SoCalGas deferred consideration of input was about incorporating "research results for the future workforce," which SoCalGas stated, "will be reviewed as research projects are executed under the plans."[420]	

[419] AL 6645-G Attachment A at p. 106.
[420] AL 6645-G Attachment A at p.106.

[19] Resolution G-3601 (2023) at OP 6. *In its 2024 Gas [RD&D] Plan and beyond, [SoCalGas] shall: 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.*[421]	SoCalGas states that it adopted and incorporated in its Plans the EPIC Uniform Impacts Analysis Framework (UIAF) and provides a Comparison of EPIC Metric Categories and Areas of Measurement ("EPIC Metrics") and Analogous Metrics/Data for the SoCalGas Natural Gas System in Appendix 9. SoCalGas states that it "tracks and reports program and project-level metrics to demonstrate benefits to ratepayers and communities, including safety, reliability, affordability, emissions reductions, and support for ESJ communities reported in the RD&D Annual Report. In alignment with CPUC direction and the UIAF, these metrics provide a transparent and consistent approach for measuring and reporting community benefits across safety, air quality, GHG reductions, and equity-focused outcomes."[422] SoCalGas lists anticipated ratepayer benefits for each Initiative, including affordability, improved air quality, reduced GHG emissions, reliability, improved safety and operational efficiency.[423] SoCalGas lists potential metrics for tracking and evaluating quantitative impacts for each Initiative, including: • Environment & Safety: Reduced GHG emissions, measured in metric tons of CO2e.[424] • System Inspection & Monitoring: Reduced inspection, maintenance and repair costs.[425] • Community Impact & Energy Conservation: Reduced energy usage and repair and maintenance costs.[426] • System Design & Materials: Reduced failures caused by material degradation and third-party damage.[427]	SoCalGas describes anticipated ratepayer benefits and defines appropriate metrics for conducting impact analyses attributable to each Initiative. **SoCalGas is compliant with this requirement.** However, SoCalGas shall clearly articulate impact analyses resulting from the described methods in addition to lessons learned in project reports and Annual Reports.[432]

[421] See Resolution G-3624 at Appendix F: EPIC Foundational Principles for the Development of a Uniform Impact Analysis Framework.
[422] AL 6645-G Attachment A, Section 6 at p. 81-89.
[423] AL 6645-G Attachment A at p. 20-21, 24-25, 30-31, 36-37, 40-41, 45-46, 55-57, 62-63, and 68-70.
[424] AL 6645-G Attachment A at p. 24.
[425] AL 6645-G Attachment A at p. 30.
[426] AL 6645-G Attachment A at p. 36.
[427] AL 6645-G Attachment A at p. 40.
[432] Resolution G-3601 (2023) at p. 18.

	• RNG Infrastructure Optimization: Reduced fabrication, interconnection and operations and maintenance costs, brought by fewer change orders, shorter schedules and standardization.[428] • Low-Carbon Fuel Technologies: Reduced capital, operations and maintenance, and fuel costs by improving upgrading efficiency and simplifying system design.[429] • Energy Reliability & Resilience: Reduced criteria pollutant emissions.[430] • Building & Facility Systems: Reduced energy consumption, operational expenses, and waste generation.[431]	

[428] AL 6645-G Attachment A at p. 45-46.
[429] AL 6645-G Attachment A at p. 55-56.
[430] AL 6645-G Attachment A at p. 62.
[431] AL 6645-G Attachment A at p. 69.

[20] Resolution G-3601 (2023) at OP 6. *In its 2024 Gas [RD&D] Plan and beyond, [SoCalGas] shall: 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 [RD&D] proposals. Further, SoCalGas shall describe the benefits and impacts of its RD&D work in ESJ communities in its annual Plan.* See also: [18] on integration of public stakeholder feedback, including an ESJ Advisory Panel.	SoCalGas states that its 2026 Plan projects "align with the Disadvantaged Communities Advisory Group (DACAG) Equity Framework and benefit ESJ communities...by embedding the framework's guiding principles into project selection, design, implementation, and evaluation."[433] SoCalGas describes outreach to the DACAG, including briefing them on March 20, 2026, to share its proposed Plan and solicit input. SoCalGas reports that the DACAG members raised several concerns, although not all were related to Initiatives. SoCalGas states that Key Takeaways were: • Strong concern about overreliance on RNG. • Electrification should be considered alongside pipeline repair. • Leak detection and transparency are critical. • Equity, health, and community impacts must be central. • Need for clarity on prioritization and stakeholder engagement.[434] SoCalGas also provides an extensive discussion of benefits to disadvantaged communities in Section 8.6.4.2.[435]	SoCalGas discusses its use of the DACAG Equity Framework and engagement of ESJ communities, particularly the DACAG, in the development of its 2026 Plan. **SoCalGas is compliant with this requirement.** The Commission notes concerns voiced by stakeholders during the February 2026 Joint Administrator Workshop related to biomethane and RNG RD&D activities. The Commission requires SoCalGas to seek out and consider input from ESJ communities in its strategic planning as well as in assessing and demonstrating benefits to these communities from RD&D investments. Thus, the Commission directs SoCalGas, and any project contractor, to consult vulnerable communities, such as workers, tenants, & frontline communities near gas facilities, on project siting to prevent exacerbating existing issues and inequities, particularly from projects with unknown impacts. SoCalGas should educate vulnerable communities on technologies as appropriate to address community

[433] AL 6645-G Attachment A at p. 163-164.
[434] AL 6645-G Attachment A at p. 104-106.
[435] AL 6645-G Attachment A at p. 163-164.

		concerns. Further, SoCalGas should summarize the concerns of communities and describe how these concerns are addressed in Annual Plans and correlated Annual Reports. Through this process, the Commission seeks to strategically leverage RD&D funding to balance policy imperatives of innovation with community concerns and benefits, including in the CPUC's Biomethane Procurement Cost Allocation proceeding.[436]

[436] R.22-12-011.

[21] Resolution G-3601 (2023) at OP 6. *In its 2024 Gas [RD&D] Plan and beyond, [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. 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.*
 	
See also: [18] on integration of public stakeholder feedback, including an ESJ Advisory Panel.
	SoCalGas states that it established an ESJ Advisory Panel for the 2026 Joint Gas R&D Workshop through a coordinated effort with the CEC and PG&E, stating that it "shall explore compensation strategies for its advisory panel."[437] Three new workshop panel members were identified, along with a panel chair, to provide feedback and questions for discussion:[438]
	• Moderator: Ryan Young, Public Advisor, CEC
	• Panelists:
	  ○ Alex Jasset, Director of Energy Justice, Physicians for Social Responsibility-Los Angeles (PSR-LA)
	  ○ Carmelita Kelly Miller, Energy Equity Strategist, The Greenlining Institute
	  ○ Sarah Sharpe, Deputy Executive Director, Central California Asthma Collaborative
	
	SoCalGas provided a detailed discussion of issues raised relating to its 2026 Plan,[439] including:
	• Environmental & Safety and System Design & Materials: Need for coordination and collaboration among program administrators.
	  ○ As it had also responded to similar comments from CPUC staff, SoCalGas reiterated its "braided approach" to testing similar technologies as other programs, but it applies them to its own system conditions.
	• RNG Infrastructure Optimization: Questions about the role of hydrogen/RNG.[440]
		SoCalGas curated an ESJ community advisory panel to seek input prior to submitting its proposed Plan. However, SoCalGas should provide further detail in its revised Plan on how it explored compensation strategies for its advisory panel. **SoCalGas is *not* compliant with this requirement.**

[437] AL 6645-G at p. 5 & 11.
[438] AL 6645-G Attachment A at p. 103.

[439] AL 6645-G Attachment A at Appendix 2: Project Selection Process at p. 94-113.
[440] AL 6645-G Attachment A at p. 104.

[22] Resolution G-3601 (2023) at OP 6. *In its 2024 Gas [RD&D] Plan and beyond, [SoCalGas] shall: 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.*	SoCalGas has previously demonstrated that its hydrogen-related projects approved to date are consistent with the definition of clean renewable hydrogen as defined by D.22-12-057.	SoCalGas demonstrates that previously approved hydrogen projects utilize clean renewable hydrogen. **SoCalGas is compliant with this requirement.** However, this Resolution does not approve new or further funding for hydrogen-related projects.

[23] Resolution G-3601 (2023) at OP 6. *In its 2024 Gas [RD&D] Plan and beyond, [SoCalGas] shall: 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.* See also: [15] on integration of Energy Division feedback.	SoCalGas discusses coordination and collaboration with other Gas RD&D administrators, including: "knowledge-sharing conferences and events, annual stakeholder outreach efforts, and participation in research consortia to avoid duplication of existing or ongoing research.[441] SoCalGas additionally states that its collaboration uses a "braided approach" in which foundational research is jointly developed and then tailored to individual utility needs."[442] SoCalGas notes that the 2026 workshop was held jointly to replace individual workshops by Gas RD&D administrators to reduce potential duplication.[443] SoCalGas also provides a detailed description of its coordination efforts: • Bi-Weekly Administrator Coordination meetings • Monthly Renewable Gas Quality Collaboration meetings • Annual Stakeholder Outreach Campaign • Gas RD&D 2026 Joint Research Plan Workshop, held on February 27, 2026.[444] During consultation prior to Plan submittal, CPUC staff flagged the following potentially duplicative research areas and programs: • Environmental & Safety: PG&E RD&D involving AI/ML and LiDAR and Natural Gas Leak Abatement (NGLA). ○ SoCalGas states that these efforts could go further than NGLA by supporting deeper system-wide reductions[445] and that it may test similar foundational technologies but apply them to its own system conditions.[446] • Community Impact & Energy Conservation: PG&E RD&D involving AI/ML and LiDAR; NGLA; and PG&E and CEC RD&D involving methane monitoring.	SoCalGas demonstrates that its 2026 Plan is differentiated from its 2027 Plan to avoid duplication via varying project areas. SoCalGas also discusses how it coordinates in advance with other Gas RD&D administrators for each Initiative. However, SoCalGas does not differentiate its proposals from potentially duplicative research areas and programs flagged by CPUC staff, particularly: • Environmental & Safety from PG&E RD&D involving AI/ML and LiDAR, including specific examples of how system conditions differ to justify parallel validation. • Community Impact & Energy Conservation from PG&E RD&D involving AI/ML and LiDAR in addition to PG&E and CEC RD&D involving methane monitoring. • Low-Carbon Fuel Technologies from PG&E's Clean Fuels Integration Initiative. • Energy Reliability & Resilience from CEC's RD&D involving

[441] AL 6645-G at p. 11 & Attachment A at p. 163.
[442] AL 6645-G Attachment A at p. 19.
[443] AL 6645-G Attachment A at p. 107.
[444] AL 6645-G Attachment A at p. 106-107.
[445] AL 6645-G Attachment A at p. 24.
[446] AL 6645-G Attachment A at p. 95.

	○ SoCalGas states that it intends to focus on leveraging and integrating existing technologies and data sources across platforms to improve affordability and produce direct ratepayer savings, including by utilizing "Aerial Methane Mapping and Advanced Meter data to identify unintentional gas use, such as appliances with incomplete combustion."[447] • Low-Carbon Fuel Technologies: PG&E's Clean Fuels Integration Initiative. • Energy Reliability & Resilience: Differentiate from CEC's RD&D involving cost-effective industrial decarbonization and its Fuel-Flexible Distributed Power Generation Initiative in its proposed FY2024-25 Gas RD&D Plan. • Building & Facility Systems: Building decarbonization and energy efficiency efforts and RD&D activities involving thermal energy storage across Gas RD&D, EPIC, and other programs. SoCalGas includes charts for each Initiative with Research Topics, Completed Projects, Active Projects, and Future Project Areas in the 2026 Research Plan to "[illustrate] how project focus areas in [each] initiative evolve over time to advance technologies from early research through deployment. While the overarching initiative remains consistent, specific projects and research areas of focus are refined each year to reflect emerging needs, stakeholder input, and progress toward delivering ratepayer benefits."[448]	cost-effective industrial decarbonization and its Fuel-Flexible Distributed Power Generation Initiative in its proposed FY2024-25 Gas RD&D Plan. • Building & Facility Systems from building decarbonization and energy efficiency efforts and RD&D activities involving thermal energy storage across Gas RD&D, EPIC, and other programs. **SoCalGas is *not* compliant with this requirement.** For transparency, SoCalGas shall embed in the descriptions of each proposed Initiative detail differentiating similar RD&D led by other Gas RD&D administrators and conducted in other programs.

[447] AL 6645-G Attachment A at p. 95-96.
[448] AL 6645-G Attachment A at p. 27-28, 33-34, 38, 42-43, 48, 58-59, 65-66, & 72-73.

Appendix J: Compliance Assessment of Advice Letter 6646-G – 2027 Plan

CPUC Requirement	SoCalGas Response in AL 6646-G	Compliance Assessment
[1] D.19-09-051 at p. 378-379 & OP 30. *[SoCalGas shall] provide Energy Division staff with the workshop presentation materials as well as documentation of stakeholders consulted in the development of RD&D projects… [and host an annual workshop to] present the result of the previous year's RD&D program and obtain input regarding its intended spending for the following calendar year.*[449] See also: [18] on integration of public stakeholder feedback.	SoCalGas states the following: • "On February 19, 2026, SoCalGas submitted its workshop presentation materials to the CPUC's Energy Division for final review. The ESJ Advisory Panel for the Joint Gas R&D Workshop was established through a coordinated effort among the CEC, PG&E, and SoCalGas. The Energy Division staff was consulted for the panel selection process and identification of relevant stakeholders that were invited to attend."[450] • "On February 27, 2026, SoCalGas presented its 2026 and 2027 Research Plans at the joint Gas RD&D Public Workshop. In consultation with Energy Division staff, CEC, and PG&E, SoCalGas extended invitations to and encouraged virtual participation from approximately 340 stakeholders. SoCalGas also sent notifications of the workshop to several relevant service lists. Approximately 240 individuals attended the workshop, including representatives from multiple research organizations…"[451] • "During the two-hour workshop, the RD&D team presented 2025 program results along with proposed spending and activities for the 2026 and 2027 Research Plans."[452] In its 2027 Plan, SoCalGas discussed the feedback it received from public workshop attendees.[453]	SoCalGas provided Energy Division staff with workshop materials in advance of hosting an annual public workshop to seek input on proposed Plans. **SoCalGas is compliant with this requirement.**

[449] Upheld in D.24-12-074 at p. 327-330.
[450] AL 6646-G at p. 7.
[451] AL 6646-G at p. 8.
[452] AL 6646-G at p. 8.
[453] AL 6646-G Attachment A at p. 94-113.

[2] D.19-09-051 at p. 378 & OP 30. *[SoCalGas shall] submit a report to Energy Division staff describing prior years' RD&D program. This should include a summary of ongoing and completed projects; funds expended, funding recipients, and leveraged funding; and an explanation of the process used for selecting RD&D project areas as well as the structure of SoCalGas' RD&D portfolio.*[454]	SoCalGas' 2026 Annual Report is anticipated in Spring 2027.	Given SoCalGas' 2026 Annual Report is anticipated in Spring 2027, **SoCalGas is anticipated to be compliant with this requirement**.
[3] D.19-09-051 at p. 379 & OP 30. *After considering stakeholder comments during the workshop, SoCalGas shall file a Tier 3 Advice Letter with its research plan for the following calendar year.*[455]	SoCalGas submitted its proposed 2027 Plan via Tier 3 AL 6646-G on June 1, 2026, for advance consideration given the approaching end of D.24-12-074 GRC funding cycle in 2027.	SoCalGas filed a Tier 3 AL with its proposed 2027 Plan. **SoCalGas is compliant with this requirement.**
[4] D.19-09-051 at p. 379 & OP 30. *SoCalGas must also present its budget broken down by research projects, request for proposals, and funding amounts… [and] detail budgets broken down by research sub-program area.*	SoCalGas proposes budget allocations to several Initiatives within two themes: • Gas System Integrity Investment Theme: o Environment & Safety o System Inspection & Monitoring o Community Impact & Energy Conservation o System Design & Materials o RNG Infrastructure Optimization • Decarbonization Investment Theme o Low-Carbon Fuel Technologies o Energy Reliability & Resilience o Building & Facility Systems	SoCalGas details budgets broken down by research sub-program area. **SoCalGas is compliant with this requirement.**

[454] Upheld in D.24-12-074 at p. 327-330.
[455] Upheld in D.24-12-074 at p. 327-330.

[5] D.24-12-074 authorized a $19.508M budget for SoCalGas' 2026 Gas RD&D Plan.[456]	SoCalGas requests an annual budget of $19.508M for its 2027 Gas RD&D Plan.[457]	SoCalGas' request for $19.508M for its 2027 Gas RD&D Plan is consistent with the authorized budget. **SoCalGas is compliant with this requirement.**

[456] D.24-12-074 at p. 21-24, 327-330, 895, & 901; FOF 110; & COL 305. See Resolution G-3624 at p. 4-5.
[457] AL 6646-G at p. 6.

[6] California Public Utilities Code Section 740.1 at: (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.* See also: [19].	SoCalGas details anticipated ratepayer benefits, including air quality, reduced GHG emissions, reliability, and improved safety. It provides justification for the use of ratepayer funds for each initiative.[458] SoCalGas requests funding for carbon capture activities under the "Carbon Management Integration" Research Topic for its Energy Reliability & Resilience Initiative.[459] SoCalGas also requests funding for the "Optimized H2S Removal Strategies for Low-Cost Operations and Materials Preservation" project under the RNG Infrastructure Optimization Initiative.[460]	SoCalGas demonstrates that many projects offer a reasonable probability of providing benefits to ratepayers. **SoCalGas is compliant with this requirement**, with the exception of the Energy Reliability & Resilience and RNG Infrastructure Optimization Initiative However, as described in this Resolution, SoCalGas' requests for hydrogen-related RD&D projects are not complaint with this requirement to demonstrate clear ratepayer benefit.[461] The Commission does not authorize additional funding for hydrogen-related RD&D projects. SoCalGas must reallocate funds proposed for hydrogen projects for eligible purposes. Further, for the Energy Reliability & Resilience Initiative, SoCalGas must provide further detail on the "Carbon Management Integration" Research Topic as described herein. For these Initiatives, **SoCalGas is *not* compliant with this requirement.**

[458] AL 6646-G Attachment A at p. 21, 24-25, 30-31, 36-37, 40-41, 45-46, 55-57, 62-63, & 68-70.
[459] AL 6646-G Attachment A at p. 62.
[460] AL 6646-G Attachment A at p. 47.
[461] See also: Resolution G-3618 (2026) at p. 16 & 18; Resolution G-3623 (2026) at p. 28 & FOF 3b.

[7] California Public Utilities Code Section 740.1 at (c) *Projects should be consistent with the corporation's resource plan.*	SoCalGas states that it "[champions] technologies that support affordable access to clean, safe, and reliable energy for all Californians."[462] Consistent with this, SoCalGas states that Initiatives in its Gas System Integrity theme support "supply, transmission, distribution, storage, and customer operations through innovations that enhance pipeline, public, and employee safety, maintain system reliability, increase operational efficiency, improve affordability, and reduce GHG impacts to the environment."[463] Initiatives in the Decarbonization theme focus on "advancing technologies that improve the affordability, availability, reliability, and integration of low-carbon fuels and energy systems for SoCalGas operations and customers. It also supports California's climate and energy goals, by accelerating the development and deployment of renewable fuels, advanced infrastructure technologies, and emissions-reducing systems aligned with current RD&D priorities."[464]	SoCalGas demonstrates that its proposed Initiatives and Plan are consistent with its resource plan. **SoCalGas is compliant with this requirement.**

[462] AL 6646-G Attachment A at p. 143.
[463] AL 6646-G at p. 5 & Attachment A at p. 22.
[464] AL 6646-G at p, 5. & Attachment A at p. 54.

[8] California Public Utilities Code Section 740.1 at (e) *Each project should also support one or more of the following objectives:* *(6) Environmental improvement.* *(7) Public and employee safety.* *(8) Conservation by efficient resource use or by reducing or shifting system load.* *(9) Development of new resources and processes, particularly renewable resources and processes which further supply technologies.* *(10) Improve operating efficiency and reliability or otherwise reduce operating costs.*	SoCalGas proposes the following Initiatives for its 2027 Plan: • Environment & Safety • System Inspection & Monitoring • Community Impact & Energy Conservation • System Design & Materials • RNG Infrastructure Optimization • Low-Carbon Fuel Technologies • Energy Reliability & Resilience • Building & Facility Systems	Each of SoCalGas proposed initiatives supports one or more of the required objectives. **SoCalGas is compliant with this requirement.**
[9] Resolution G-3573 (2021) at OP 3. *In developing the subsequent Research Plans, SoCalGas shall: Continue to increase transparency in project area selection processes and criteria.*	SoCalGas provides a detailed project proposal review process.[465] Its efforts to continue increasing transparency are evidenced by details of its schedule of meetings and public events involving: the CPUC Energy Division staff and subject matter experts, the ESJ Advisory Panel, the Disadvantaged Community Advisory Group (DACAG), and regular meetings among SoCalGas and other program administrators. The project selection process is also illustrated in a chart.[466]	SoCalGas describes the project selection process and specific evaluation criteria used in project selection. **SoCalGas is compliant with this requirement.**
[10] Resolution G-3586 (2022) at OP 5. *In subsequent Research Plans, SoCalGas shall: 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 details Authorized Funds (approved in the GRC for Gas RD&D), Committed Funds (supporting ongoing projects in accordance with an approved Gas RD&D Plan), and Funds Available for Project Development (available for projects that are under development in the identified key research areas of interest) for each Initiative.[467]	SoCalGas details the quantity of program funds already committed and those that are for projects under development in the subsequent years. **SoCalGas is compliant with this requirement.**

[465] AL 6646-G Attachment A at Appendix 2: Project Selection Process at p. 93.
[466] AL 6646-G Attachment A at Appendix 2: Project Selection Process at p. 93-111.
[467] AL 6646-G Attachment A at p. 18-19, 28, 34, 38, 43, 48, 59, 66, & 73.

[11] Resolution G-3586 (2022) at OP 5. *In subsequent Research Plans, SoCalGas shall: Provide project-level detail about Research Plans with the 16 data fields described in the Discussion sub-section titled Detailed budgets broken down by research subprogram.*	SoCalGas provides details of active projects expected to continue from past research plans into the current proposed plan year with the required data fields.[468]	SoCalGas provides project-level detail across the 16 required data fields. **SoCalGas is compliant with this requirement.**
[12] Resolution G-3586 (2022) at OP 5. *In subsequent Research Plans, SoCalGas shall: 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.*[469]	SoCalGas proposes to allocate ten percent of its Gas RD&D annual total budget to administrative costs, amounting to $1.95M for its 2027 Plan and delineates those costs by allowable cost categories.[470] SoCalGas states that membership dues for consortia are captured in administrative costs per guidance from Energy Division.[471] SoCalGas details how its proposed administrative costs are for developing and maintaining its Gas RD&D Program, whereas the administrative portion of a project lifecycle are charged as direct project costs.[472]	SoCalGas provides detail about its administrative budget using allowable cost categories. **SoCalGas is compliant with this requirement.**

[468] AL 6646-G Attachment A, Appendix 4 at p. 126-130.
[469] See Resolution G-3624 at Appendix C: Administrative Budget Cost Categories.
[470] AL 6646-G at p. 6 & Attachment A at p. 17-18.
[471] AL 6646-G Attachment A at p. 20.
[472] AL 6646-G Attachment A at Appendix 8: Program Administration Categorization.

[13] Resolution G-3586 (2022) at OP 5. *In subsequent Research Plans, SoCalGas shall: Provide detail quantifying research funding allocations by research consortium, as well as project costs related to each consortium.*	SoCalGas states that it is a member of "three subscription-based organizations: Northeast Gas Association (NGA)/NYSEARCH, Operations Technology Development (OTD), and Pipeline Research Council International (PRCI)." However, SoCalGas also notes that it will be withdrawing from OTD in 2026, significantly reducing its membership expenditures for this period. However, the SoCalGas RD&D team will remain an active project partner through the closeout of all currently active OTD projects in which they are participating.[473] SoCalGas lists funds for Membership Dues for 2027 ($252,537), including Membership ($115,000) and Available for Projects ($137,537). SoCalGas also lists projects by consortium with Total SoCalGas Costs and Total Project Costs.[474]	SoCalGas details research funding allocations by research consortium and project costs related to each consortium. **SoCalGas is compliant with this requirement.**
[14] Resolution G-3601 (2023) at OP 5. *All of Southern California Gas Company's new and future [RD&D] 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.*	SoCalGas states that it "includes a step in its project selection process to validate a project's location in California. In addition, SoCalGas hosts demonstrations of new technologies within the state of California, bringing outside investment into California and supporting local economies."[475] SoCalGas states that benefits include "pooling of financial resources and technical resources...to share knowledge, avoid needless duplication of work, and develop and execute impactful projects."[476] To comply with this requirement, SoCalGas states that it will not renew membership in the Northeast Gas Association (NGA) /NYSEARCH, Operations Technology Development (OTD) consortium. "As a result, although SoCalGas RD&D is a member of OTD in 2026, it will not initiate any new projects with OTD and will complete all projects underway and then terminate its membership."[477]	SoCalGas demonstrates that all projects will take place in the State of California and describes general benefits from consortia projects. **SoCalGas is compliant with this requirement.**

[473] AL 6646-G Attachment A at p. 170-171.
[474] AL 6646-G Attachment A at 20-21.
[475] AL 6646-G Attachment A at p. 110.
[476] AL 6646-G Attachment A at p. 89.
[477] AL 6646-G Attachment A at p. 172-174.

[15] Resolution G-3601 *(2023) at OP 6. In its 2024 Gas [RD&D] Plan and beyond, [SoCalGas] shall: Meet with Energy Division at least six weeks ahead of submitting its annual RD&D Plan to present its proposed Plan and incorporate Energy Division feedback. At that time SoCalGas' proposed Plan should reflect input from RD&D administrator coordination and broad stakeholders including the research and ESJ communities.*
 	
See also: [6] on ratepayer benefit; [18] on integration of public stakeholder feedback; and [23] for gas RD&D administrator coordination.
	SoCalGas met with Energy Division staff on December 5, 2025, to review its Plan proposals before filing: December 5, 2025. SoCalGas provides Table 2: CPUC SME Feedback.[478] Energy Division staff provided the following Initiative-level feedback/recommendations as partially captured in SoCalGas' Plan:
	• Environment & Safety: Clearly define core research questions and data integration. For all AI/ML applications, account for the full costs including increased energy consumption, cloud services, data storage, and processing requirements and demonstrate that human decision-making authority will be retained.
	• System Inspection & Monitoring: Clearly define market gaps and ratepayer benefit, explore utilizing Climate Adaptation and Vulnerability Assessments (CAVAs), and consider whether AI is necessary to implement this Initiative.
	  ○ SoCalGas states that it will leverage and integrate existing data sources to develop a comprehensive view of system risk, including from CAVAs, to inform mitigation decisions.[479]
	• Community Impact & Energy Conservation: Clearly define intended outputs and improvements to ratepayer affordability.
	• Low-Carbon Fuel Technologies: Remove hydrogen related elements.
	  ○ SoCalGas states that this Initiative focuses on emerging RNG production technologies and cost optimization opportunities and excludes hydrogen-related technologies (e.g., electrolyzers, cell manufacturing).[480] However, SoCalGas includes the *Optimized H2S Removal Strategies for Low-Cost Operations and Materials Preservation* project under the RNG Infrastructure Optimization Initiative.[481]
	• Energy Reliability & Resilience: Address affordability concerns and remove hydrogen related elements.
		SoCalGas met with Energy Division in advance of submitting its 2027 Plan to seek and integrate feedback for most Initiatives, however, it did not cover the System Design & Materials or RNG Infrastructure Optimization Initiatives. Energy Division staff assessed if proposals were aligned with CPUC proceedings; had clearly defined outputs; were differentiated from existing RD&D; and were expected to provide clear ratepayer benefit as also discussed elsewhere in this appendix. In several places, SoCalGas did provide further detail on its proposals as requested and describe how it modified its Initiatives to reflect feedback.
		
		However, SoCalGas' requests for hydrogen- and carbon capture-related RD&D activities do not align with Energy Division feedback and Commission policy to align with CPUC proceedings and provide clear ratepayer benefit as discussed at [6]. Overall, **SoCalGas is *not* compliant with this requirement** for the following Initiatives as it did not

[478] AL 6646-G Attachment A at p. 93-96.
[479] AL 6646-G Attachment A at p. 94.
[480] AL 6646-G Attachment A at p. 96.
[481] AL 6646-G Attachment A at p. 47.

	○ SoCalGas states that it intends to "[a]dvance lower emission generation and retrofit solutions to improve affordability."[482] • Building & Facility Systems: Demonstrate protection of ratepayer affordability and target reducing the size of the gas system and prioritizing electrification. SoCalGas reports feedback on the System Design & Materials and RNG Infrastructure Optimization Initiatives though they were not discussed during pre-submittal consultation and therefore did not undergo Energy Division review prior to Plan submittal.	comprehensively, accurately report and respond to Energy Division feedback: • Environment & Safety: SoCalGas must demonstrate that it will account for the full costs associated with AI/ML applications when assessing impacts, including increased energy consumption, cloud services, data storage, and processing requirements, and that human decision-making authority will be retained. • RNG Infrastructure Optimization: SoCalGas shall reallocate funds proposed for the *Optimized H2S Removal Strategies for Low-Cost Operations and Materials Preservation* project for eligible purposes. • Energy Reliability & Resilience: SoCalGas must provide further detail on the "Carbon Management Integration" Research Topic as described herein. • Building & Facility Systems: SoCalGas must demonstrate that this Initiative supports reducing the size of the gas system.

[482] AL 6646-G Attachment A at p. 61.

		SoCalGas shall also make the following revisions to its 2027 Plan to provide greater clarity to align with requirements: • Indicate the program area across the product development cycle detailed in Appendix D of this Resolution associated with each listed research topic for further clarity on anticipated outputs from Initiatives. • Identify which of the proposed future project areas are anticipated to be funded through consortia. • Prioritize zero-emission systems over low-emission technologies under its Low-Carbon Fuel Technologies Initiative[483] and eliminating as opposed to reducing flaring from some biogas production facilities under its RNG Infrastructure Optimization Initiative[484] wherever possible. In the future, SoCalGas shall also present all proposed Initiatives to Energy Division in advance of Plan submittal.

[483] AL 6646-G Attachment A at p. 55.
[484] AL 6646-G Attachment A at p. 45.

[16] Resolution G-3601 (2023) at OP 6. *In its 2024 Gas [RD&D] Plan and beyond, [SoCalGas] shall: Explicitly justify how all consortia dues benefit gas ratepayers.* See also: [13] on consortia dues.	SoCalGas provides a detailed explanation of benefits it perceives for California ratepayers from its consortia memberships: 1. "Providing SMEs with a forum for learning and gaining operational insights regarding differences in pipeline system materials and equipment, operating environments, operational experiences, procedures, and practices. 2. Gaining operational knowledge that may only apply to a small subset of system assets or operational conditions. 3. Knowledge-sharing of pipeline incidents, causes, or insights into interactive threats with very low probability of occurrence but high consequence. 4. Knowledge-sharing between large and small system operators can have a positive effect on the performance of the overall natural gas supply chain. 5. Gaining knowledge of emerging areas of research or technologies that could be utilized by SoCalGas to support pipeline safety, system reliability, operational efficiency, and environmental improvement." SoCalGas also promoted the "leveraging" of constrained resources with the contributions of other consortia members.[485]	SoCalGas justifies how all consortia dues benefit gas ratepayers. **SoCalGas is compliant with this requirement.**

[485] AL 6646-G Attachment A at p. 172-174.

[17] Resolution G-3601 (2023) at OP 6. *In its 2024 Gas [RD&D] Plan and beyond, [SoCalGas] shall: 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.* See also: [19].	SoCalGas states: "To support alignment of its projects and the state's climate goals, SoCalGas RD&D considers a variety of project selection criteria, including: 1. The proposed project addresses a California need identified in relevant literature (e.g., the CPUC's Gas Strategic Planning order instituting rulemaking (OIR) or the CEC's Electric Program Investment Charge (EPIC) Gap Analysis). 2. The project offers a reasonable probability of improving access to clean energy technologies for ratepayers, including those in ESJ and tribal communities in California. 3. The project supports air quality improvements in California communities, including those already experiencing pollution burdens. 4. The project supports energy affordability for all ratepayers, including those in lower income California communities. 5. The project demonstrates potential for technology scalability, replication, or commercialization in support of long-term climate and clean energy goals. 6. The project leverages collaboration with academic, public, or private sector partners to maximize statewide impact and knowledge sharing. 7. The project enables cross-sectoral innovation or integration, such as linking gas RD&D with electrification, renewable fuels, or carbon management solutions."[486] In Appendix 6, SoCalGas describes its process for the scaling and commercialization of technologies via projects which range from research and development to deployment across technology readiness levels (TRLs). Most projects it undertakes are more limited in that the RD&D program involvement would end with deployment of a demonstration project, not commercial deployment. SoCalGas states, "If technologies were ready for commercialization; R&D would not be necessary."[487]	SoCalGas describes how results are used to address the state's climate goals and how project results are scaled/commercialized. **SoCalGas is compliant with this requirement.** However, SoCalGas shall provide further detail upon project implementation in project final reports and its Annual Reports to demonstrate how results are measured and utilized in alignment with State goals.

[486] AL 6646-G Attachment A at p. 153-154.
[487] AL 6646-G Attachment A at 144.

[18] Resolution G-3601 (2023) at OP 6. *In its 2024 Gas [RD&D] Plan and beyond, [SoCalGas] shall: 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.* See also: [15] on integration of Energy Division feedback and [23] for gas RD&D administrator coordination.	SoCalGas provides: • A highly detailed discussion of its stakeholder outreach initiatives and includes discussion of any research ideas promoted during these sessions, including its response to suggestions and recommendations.[488] • A description of its annual internal and external outreach efforts along with key takeaways and incorporation strategies for general feedback received from public workshop attendees, including the ESJ Advisory Panel, on its proposals.[489] ○ SoCalGas indicated, for example, that "areas of affordability and decarbonization are incorporated throughout the 2026 and 2027 Research Plans."[490] • Section 4.1 Summary of Research Plan Development & Compliance.[491] • Appendix 2: Research Plan Feedback, Details and Project Selection Process.[492] • Appendix 3: Summary of February 27, 2026, Workshop Feedback,[493] and the list of questions received during and following the workshop, along with responses and/or incorporation strategies.[494] • Appendix 5: Summary of Stakeholder Input from Annual Outreach Campaign.[495] • Appendix 6: Company and SoCalGas RD&D Overview, with a Description of Academic Engagement.[496] SoCalGas details the following Initiative-level feedback and responses:	SoCalGas describes feedback from stakeholders and a number of incorporation strategies. **SoCalGas is compliant with this requirement.** However, in its revised 2027 Plan and all future Plans, for transparency, SoCalGas should embed both stakeholder feedback and associated incorporation strategies in the description of each proposed Initiative, or otherwise state that Initiative-level feedback was not received.

[488] AL 6646-G Attachment A at Appendix 2: Project Selection Process at p. 93-112.
[489] AL 6646-G Attachment A at p. 102-103.
[490] AL 6646-G Attachment A at p. 105.
[491] AL 6646-G Attachment A at p. 77-78.
[492] AL 6646-G Attachment A at p. 93-109.
[493] AL 6646-G Attachment A at p. 113-125.
[494] AL 6646-G Attachment A at p. 93-125.
[495] AL 6646-G Attachment A at p. 131-142.
[496] AL 6646-G Attachment A at p. 143-156.

	• "The identified priority to advance leak detection and prevention is incorporated in the Environmental & Safety Initiative. • The Low-Carbon Fuels Technology Initiative proposes research areas where alternative decarbonization pathways may be developed, addressing the feedback to not rely on just RNG. • The System Design & Materials Initiative plans to focus on identifying new repair methods."[497] SoCalGas deferred consideration of input was about incorporating "research results for the future workforce," which SoCalGas stated "will be reviewed as research project are executed under the plans."[498]	

[497] AL 6646-G Attachment A at p. 105.
[498] AL 6646-G Attachment A at p. 105.

[19] Resolution G-3601 (2023) at OP 6. *In its 2024 Gas [RD&D] Plan and beyond, [SoCalGas] shall: 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.*[499]	SoCalGas states that it adopted and incorporated in its RD&D plans the EPIC Uniform Impacts Analysis Framework (UIAF) and provides a Comparison of EPIC Metric Categories and Areas of Measurement ("EPIC Metrics") and Analogous Metrics/Data for the SoCalGas Natural Gas System in Appendix 9. SoCalGas states that it "tracks and reports program and project-level metrics to demonstrate benefits to ratepayers and communities, including safety, reliability, affordability, emissions reductions, and support for ESJ communities reported in the RD&D Annual Report. In alignment with CPUC direction and the UIAF, these metrics provide a transparent and consistent approach for measuring and reporting community benefits across safety, air quality, GHG reductions, and equity-focused outcomes."[500] SoCalGas lists anticipated ratepayer benefits for each Initiative, including affordability, improved air quality, reduced GHG emissions, reliability, improved safety and operational efficiency. SoCalGas lists anticipated ratepayer benefits for each Initiative: • Environment & Safety: Reduced GHG emissions, measured in metric tons of CO2e.[501] • System Inspection & Monitoring: Reduced inspection, maintenance and repair costs.[502] • Community Impact & Energy Conservation: Reduced energy usage and repair and maintenance costs.[503] • System Design & Materials: Reduced failures caused by material degradation and third-party damage.[504]	SoCalGas describes anticipated ratepayer benefits and defines appropriate metrics for conducting impact analyses attributable to each Initiative. **SoCalGas is compliant with this requirement.** However, SoCalGas shall clearly articulate impact analyses resulting from the described methods in addition to lessons learned in project reports and Annual Reports.[509]

[499] See Resolution G-3624 at Appendix F: EPIC Foundational Principles for the Development of a Uniform Impact Analysis Framework.
[500] AL 6646-G Attachment A at p. 51.
[501] AL 6646-G Attachment A at p. 24.
[502] AL 6646-G Attachment A at p. 29-30.
[503] AL 6646-G Attachment A at p. 35-36.
[504] AL 6646-G Attachment A at p. 39-40.
[509] Resolution G-3601 (2023) at p. 18.

	• RNG Infrastructure Optimization: Reduced fabrication, interconnection and operations and maintenance costs, brought by fewer change orders, shorter schedules and standardization.[505] • Low-Carbon Fuel Technologies: Reduced capital, operations and maintenance, and fuel costs by improving upgrading efficiency and simplifying system design.[506] • Energy Reliability & Resilience: Reduced criteria pollutant emissions.[507] • Building & Facility Systems: Reduced energy consumption, operational expenses, and waste generation.[508]	

[505] AL 6646 Attachment A at p. 45.
[506] AL 6646-G Attachment A at p. 55-56.
[507] AL 6646-G Attachment A at p. 62.
[508] AL 6646-G Attachment A at p. 68-69.

[20] Resolution G-3601 (2023) at OP 6. *In its 2024 Gas [RD&D] Plan and beyond, [SoCalGas] shall: 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 [RD&D] proposals. Further, SoCalGas shall describe the benefits and impacts of its RD&D work in ESJ communities in its annual Plan.* See also: [18] on integration of public stakeholder feedback, including an ESJ Advisory Panel.	SoCalGas states that its 2027 RD&D Plan projects "align with the Disadvantaged Communities Advisory Group (DACAG) Equity Framework and benefit ESJ communities...by embedding the framework's guiding principles into project selection, design, implementation, and evaluation.[510] SoCalGas describes outreach to the DACAG, including briefing them on March 20, 2026, to share its proposed Plan and solicit input. SoCalGas reports that the DACAG members raised several key issues, although not all related to specific Initiatives. SoCalGas states that Key Takeaways included: • Strong concern about over reliance on RNG • Electrification should be considered alongside pipeline repair • Leak detection and transparency are critical • Equity, health, and community impacts must be central • Need for clarity on prioritization and stakeholder engagement.[511] SoCalGas also provides an extensive discussion of benefits to disadvantaged communities in Section 8.6.4.2.[512]	SoCalGas discusses its use of the DACAG Equity Framework and engagement of ESJ communities, particularly the DACAG, in the development of its 2027 Plan. **SoCalGas is compliant with this requirement.** The Commission notes concerns voiced by stakeholders during the February 2026 Joint Administrator Workshop related to biomethane and RNG RD&D activities. The Commission requires SoCalGas to seek out and consider input from ESJ communities in its strategic planning as well as in assessing and demonstrating benefits to these communities from RD&D investments. Thus, the Commission directs SoCalGas, and any project contractor, to consult vulnerable communities, such as workers, tenants, & frontline communities near gas facilities, on project siting to prevent exacerbating existing issues and inequities, particularly from projects with unknown impacts. SoCalGas should educate vulnerable communities on technologies as appropriate to address community

[510] AL 6646-G Attachment A at p. 154.
[511] Al 6646-G Attachment A at p. 104-105.
[512] AL 6646-G Attachment A at p. 154-155.

		concerns. Further, SoCalGas should summarize the concerns of communities and describe how these concerns are addressed in Annual Plans and correlated Annual Reports. Through this process, the Commission seeks to strategically leverage RD&D funding to balance policy imperatives of innovation with community concerns and benefits, including in the CPUC's Biomethane Procurement Cost Allocation proceeding.[513]

[513] R.22-12-011.

[21] Resolution G-3601 (2023) at OP 6. *In its 2024 Gas [RD&D] Plan and beyond, [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. 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.*
 	
See also: [18] on integration of public stakeholder feedback, including an ESJ Advisory Panel.
	SoCalGas states that it established an ESJ Advisory Panel for the 2026 Joint Gas R&D Workshop through a coordinated effort with the CEC and PG&E, stating that it "shall explore compensation strategies for its advisory panel."[514] Three new workshop panel members were identified, along with a panel chair, to provide feedback and questions for discussion:[515]
	• Moderator: Ryan Young, Public Advisor, CEC
	• Panelists:
	  ○ Alex Jasset, Director of Energy Justice, Physicians for Social Responsibility-Los Angeles (PSR-LA)
	  ○ Carmelita Kelly Miller, Energy Equity Strategist, The Greenlining Institute
	  ○ Sarah Sharpe, Deputy Executive Director, Central California Asthma Collaborative
	
	SoCalGas provided a detailed discussion of issues raised relating to its 2027 Plan,[516] including:
	• Environmental & Safety and System Design & Materials: Need for coordination and collaboration among program administrators.
	  • As it had also responded to similar comments from CPUC staff, SoCalGas reiterated its "braided approach" to testing similar technologies as other programs, but it applies them to its own system conditions.
	• RNG Infrastructure Optimization: Questions about the role of hydrogen/RNG.[517]
		SoCalGas curated an ESJ community advisory panel to seek input prior to submitting its proposed Plan. However, SoCalGas should provide further detail in its revised Plan on how it explored compensation strategies for its advisory panel. **SoCalGas is *not* compliant with this requirement.**

[514] AL 6646-G at p. 11.
[515] AL 6646-G Attachment A at p. 102.
[516] AL 6646-G Attachment A, Appendix 2: Project Selection Process at p. 93-111.
[517] AL 6646-G Attachment A at p. 103.

[22] Resolution G-3601 (2023) at OP 6. *In its 2024 Gas [RD&D] Plan and beyond, [SoCalGas] shall: 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.*	SoCalGas has previously demonstrated that its hydrogen-related projects approved to date are consistent with the definition of clean renewable hydrogen as defined by D.22-12-057.	SoCalGas demonstrates that previously approved hydrogen projects utilize clean renewable hydrogen. **SoCalGas is compliant with this requirement.** However, this Resolution does not approve new or further funding for hydrogen-related projects.

[23] Resolution G-3601 (2023) at OP 6. *In its 2024 Gas [RD&D] Plan and beyond, [SoCalGas] shall: 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.* See also: [15] on integration of Energy Division feedback.	SoCalGas discusses coordination and collaboration with other Gas RD&D administrators, including: "knowledge-sharing conferences and events, annual stakeholder outreach efforts, and participation in research consortia to avoid duplication of existing or ongoing research.[518] SoCalGas additionally states that its collaboration uses a "braided approach" in which foundational research is jointly developed and then tailored to individual utility needs."[519] SoCalGas notes that the 2026 workshop was held jointly to replace individual workshops by Gas RD&D administrators to reduce potential duplication.[520] SoCalGas also provides a detailed description of its coordination efforts: • Bi-Weekly Administrator Coordination meetings • Monthly Renewable Gas Quality Collaboration meetings • Annual Stakeholder Outreach Campaign • Gas RD&D 2026 Joint Research Plan Workshop, held on February 27, 2026.[521] During consultation prior to Plan submittal, CPUC staff flagged the following potentially duplicative research areas and programs: • Environmental & Safety: PG&E RD&D involving AI/ML and LiDAR and Natural Gas Leak Abatement (NGLA). ○ SoCalGas states that these efforts could go further than NGLA by supporting deeper system-wide reductions[522] and that it may test similar foundational technologies but apply them to its own system conditions.[523] • Community Impact & Energy Conservation: PG&E RD&D involving AI/ML and LiDAR; NGLA; and PG&E and CEC RD&D involving methane monitoring.	SoCalGas demonstrates that its 2026 Plan is differentiated from its 2027 Plan to avoid duplication via varying project areas. SoCalGas also discusses how it coordinates in advance with other Gas RD&D administrators for each Initiative. However, SoCalGas does not differentiate its proposals from potentially duplicative research areas and programs flagged by CPUC staff, particularly: • Environmental & Safety from PG&E RD&D involving AI/ML and LiDAR, including specific examples of how system conditions differ to justify parallel validation. • Community Impact & Energy Conservation from PG&E RD&D involving AI/ML and LiDAR in addition to PG&E and CEC RD&D involving methane monitoring. • Low-Carbon Fuel Technologies from PG&E's Clean Fuels Integration Initiative. • Energy Reliability & Resilience from CEC's RD&D involving

[518] AL 6646-G at p. 11-12 & Attachment A at p. 154 & 172.
[519] AL 6646-G Attachment A at p. 19.
[520] AL 6646-G Attachment A at p. 107.
[521] AL 6646-G Attachment A at p. 106-107.
[522] AL 6646-G Attachment A at p. 23.
[523] AL 6646-G Attachment A at p. 94.

	○ SoCalGas states that it intends to focus on leveraging and integrating existing technologies and data sources across platforms to improve affordability and produce direct ratepayer savings, including by utilizing "Aerial Methane Mapping and Advanced Meter data to identify unintentional gas use, such as appliances with incomplete combustion."[524] • Low-Carbon Fuel Technologies: PG&E's Clean Fuels Integration Initiative. • Energy Reliability & Resilience: Differentiate from CEC's RD&D involving cost-effective industrial decarbonization and its Fuel-Flexible Distributed Power Generation Initiative in its proposed FY2024-25 Gas RD&D Plan. • Building & Facility Systems: Building decarbonization and energy efficiency efforts and RD&D activities involving thermal energy storage across Gas RD&D, EPIC, and other programs. Further, SoCalGas includes charts for each Initiative with Research Topics, Completed Projects, Active Projects, and Future Project Areas in the 2027 Research Plan compared to those in the 2026 Plan to "[illustrate] how project focus areas in [each] initiative evolve over time to advance technologies from early research through deployment. While the overarching initiative remains consistent, specific projects and research areas of focus are refined each year to reflect emerging needs, stakeholder input, and progress toward delivering ratepayer benefits."[525]	cost-effective industrial decarbonization and its Fuel-Flexible Distributed Power Generation Initiative in its proposed FY2024-25 Gas RD&D Plan. • Building & Facility Systems from building decarbonization and energy efficiency efforts and RD&D activities involving thermal energy storage across Gas RD&D, EPIC, and other programs. **SoCalGas is *not* compliant with this requirement.** For transparency, SoCalGas shall embed in the descriptions of each proposed Initiative detail differentiating similar RD&D led by other Gas RD&D administrators and conducted in other programs.

[524] AL 6646-G Attachment A at p. 94-95.
[525] AL 6646-G Attachment A at p. 26-27, 32-33, 37, 41-42, 47, 57-58, 63-65, & 71-72.