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SoCalGas Comments on the CEC Gas Decarbonization OIIP Workshop

Additional submitted attachment is included below.

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June 17, 2022

Vice Chair Siva Gunda
California Energy Commission
Docket Unit, MS-4
Docket No. 22-OII-02
1516 Ninth Street
Sacramento, CA 95814-5512

Subject: Comments on the CEC Commissioner Workshop to Launch Gas Decarbonization Proceeding

Dear Vice Chair Gunda:

Southern California Gas Company (SoCalGas) appreciates the opportunity to provide public comments on the June 3, 2022 CEC Commissioner Workshop to Launch Gas Decarbonization Order Instituting Informational Proceeding (OIIP). SoCalGas commends the CEC for prioritizing the long-term transition for the gas system and making it the focus of a multi-year OIIP which will allow for continued refinement on making sure policy is attuned to the needs of the energy system as it evolves. In addition, SoCalGas thanks the CEC for the opportunity to present our efforts thus far on advancing the clean energy transition and the various hydrogen research, development and demonstration efforts we are pursuing. Decarbonization of the gas system will require careful planning and coordination so that California's energy system remains reliable, affordable, and resilient.

To that end, our comments focus on the following topics: 1) The gas system and electric grid are increasingly interrelated and interdependent, and SoCalGas's underground natural gas storage facilities are valuable and essential tools for decarbonization, 2) The need for a flexible gas system remains a priority for California's reliability in the near-term, while supporting clean fuels like hydrogen in the long-term could be key drivers for decarbonizing industry (as one example), 3) The obligation to serve is an important component of the regulatory compact and should inform a comprehensive long-term gas planning process, 4) The need for an equitable transition will require collaboration for strategic electrification, an evaluation of cost causation, and a rate redesign, and

5) SoCalGas continues to implement improved leak detection technology to detect methane emissions in the vicinity of the distribution pipeline system.

1) **The gas system and electric grid are increasingly interrelated and interdependent, and SoCalGas's underground natural gas storage facilities are valuable and essential tools for decarbonization**

The ongoing integration of unprecedented levels of intermittent renewable energy increases volatility to energy availability.[1] As a result, a flexible and capable gas system has become crucial to the reliability of the electric grid and the continued integration of renewable energy by supporting the ability to meet peak demand during periods of ramping demand.[2, 3] The value of the gas system in enabling our energy system to meet demand ramps and net peaks is well documented and, we believe, understood.[4] What is less well detailed is the need for a gas system that can not only provide significant amounts of gas in short periods of time to meet ramping demand, but also a gas system that also has the flexibility to manage the down ramps when the peak demand begins to subside.

When gas-fired electric generation is needed during peak demand conditions (hours and/or days), ratable pipeline deliveries are expected to increase (e.g., flowing supplies are assumed to increase) to meet such requirements. During these high-demand conditions, pipeline supplies and withdrawals from storage are instrumental in supporting energy system demand. When intermittent resources like solar and wind resume generation, gas-fired electric generation is quickly displaced. When this demand is displaced, it is necessary to manage incoming supply flows to avoid over-pressuring the system. If storage injection is unavailable, the incoming gas must be used (i.e., burned), which could result in the displacement of renewables (curtailed or exported). Underground storage facilities may help address such possible displacement by enabling reductions in overall emissions and enhancing system flexibility, thereby allowing more facile integration of increasing amounts of renewable intermittent resources through a gas system that can manage both pressure and demand swings, especially during peak conditions.

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[1] *See* "Electric Vehicle Charging Load, Load Management Rulemaking (19-OIR-01)," CEC, January 14, 2022, available at: file:///C:/Users/jlu/Downloads/TN231541_20200115T133921_Presentation%20-%20Electric%20Vehicle%20Charging%20Load%20Management.pdf.

[2] *See* "2021 Integrated Energy Policy Report (IEPR) Volume III: Decarbonizing the State's Gas System," CEC, March 2022, p.24, available at: https://efiling.energy.ca.gov/GetDocument.aspx?tn=242233.

[3] As stated in the CEC 2021 IEPR Volume III, there are critical interdependencies between electricity and gas system reliability in the state. Gas-fired generation has long been an integral part of the electricity system, providing baseload power, load following, and reliability. It has also served as the backstop during drought conditions that reduce the availability of in-state hydro generation, as well as imports of hydro from the Pacific Northwest and Southwest regions. The role of gas generation in the electricity system is shifting with the addition of large amounts of renewable generation, primarily solar and wind. Gas generators not only ensure reliability but are key enablers of increasing amounts of renewable resources, which are the primary source of greenhouse gas (GHG) emission reductions in the electric sector. Further, a stable grid is essential to achieving emission reductions from electrification of residential and commercial buildings and electric vehicles to decarbonize the transportation sector.

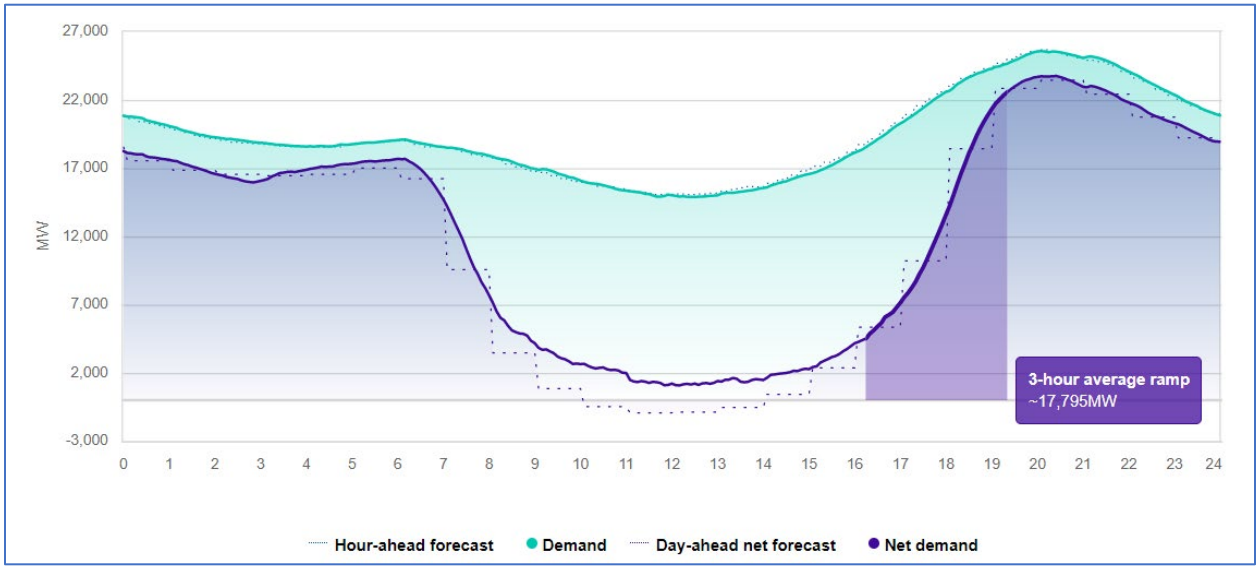
[4] *Ibid*.

Policymakers, technical experts and scientists recognize the capabilities of storage facilities in responding to hour-to-hour changing demand and large upward and downward swings in demand for gas that occur within a single day. The California Council of Science and Technology's (CCST)[5] "Technical Report on the Long-Term Viability of Underground Natural Gas Storage in California" (CCST Report) recognized the importance of this capability: "[s]torage provides intraday balancing to support hourly changes in demand that the receipt point pipelines cannot accommodate. This service is essential in allowing the flexible use of gas-fired electricity generators to back up renewable generation."[6] Similarly, in California Public Utilities Commission (CPUC) Order Instituting Investigation, I.17-02-002, the Commission developed and adopted a Scenarios Framework[7] to guide modeling in the proceeding and recognized the following benefits of underground storage: "[w]hen daily gas demand is highly variable, for example when electric generation is re-dispatched in the CAISO hour ahead or real time market, rapid increases or decreases in the hourly gas demand can cause large pipeline pressure swings. Withdrawals from or injections into Aliso [and/or other storage fields] can be used to mitigate these pressure swings and keep the pressure within operating bounds. This is a critical requirement for maintaining safety and avoiding excessively low pressures from limiting gas flows."[8]

Consistent with these observations, during the CEC workshop, Delphine Hou of CAISO highlighted the steep, intraday gas usage ramp patterns that occur in the evening ramp up period.[9] For example, on April 24, 2022, CAISO experienced an almost 18,000 MW ramp over a 3-hour period (Figure 1). The takeaway highlighted is that overall gas usage may be declining, but natural gas deliveries are still needed to manage the steep, intraday evening ramp ups which are both high and concentrated. The ability to flexibly respond to ramp up and ramp down conditions throughout the day is a valuable capability of the gas system and one that enables the integration of solar and wind resources onto the grid. Figure 1 also shows a ramp down of approximately 15,000 MW between 6:30 AM to 9:30 AM on April 24, 2022. Having storage to be able to inject gas during those steep downward ramps is just as important as meeting the evening peak ramps.

[5] The CCST is a nonpartisan, nonprofit organization that responds to the Governor, the Legislature, and other state entities who request independent and impartial assessments of public policy issues affected the State of California.
[6] *See* "Long-Term Viability of Underground Natural Gas Storage in California," CCST, February 5, 2018, p. 494, available at: https://ccst.us/reports/long-term-viability-of-underground-natural-gas-storage-in-california-an-independent-review-of-scientific-and-technical-information/.
[7] *See I.17-02-002,* Assigned Commissioner and Administrative Law Judge's Ruling Adopting Scenarios Framework and Closing Phase 1 of Investigation 17-02-002. Available at: https://docs.cpuc.ca.gov/PublishedDocs/Efile/G000/M254/K771/254771612.PDF.
[8] *Ibid.*, Scenarios Framework at 6.
[9] *See* "Lead Commissioner Workshop to Launch Gas Decarbonization OIIP," CEC, June 3, 2022, available at: Order Instituting Informational Proceeding for Gas Decarbonization.

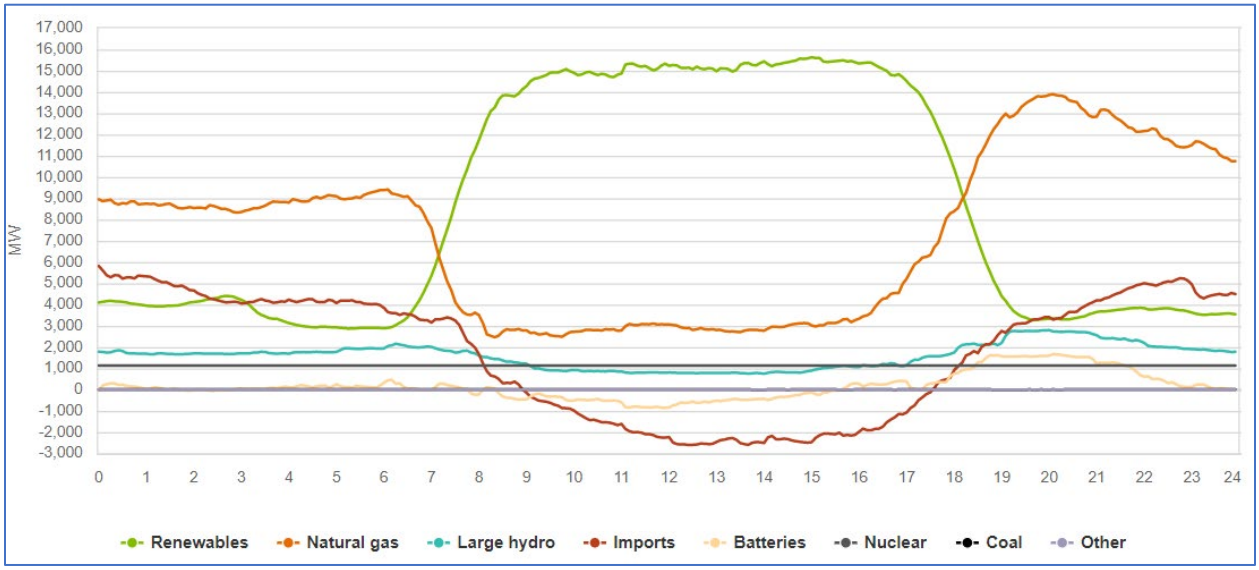
Figure 1: CAISO Net Demand Trend on April 24, 2022[10]



The CAISO supply trend for that day (Figure 2) shows that gas (depicted in orange) with imports/exports (depicted in red) as a close second are the most flexible resources due to its ability to ramp down and utilizing other balancing authorities to move from importing to exporting power, respectively, in the morning to allow for renewable resources such as solar and wind to come online. Large hydro and nuclear resources remain relatively stable throughout the day providing baseload capacity. However, they do not have sufficient flexibility to accommodate other renewable resources. Thus, gas plays an important role in both the morning ramp down and evening ramp up periods as a flexible resource which can quickly reduce or increase in capacity as needed on the grid. This is a consideration that should be part of the dialogue during the CEC Gas Decarbonization OIIP.

[10] *See* "CAISO Dashboard: Net Demand Trend," CAISO, available at: http://www.caiso.com/TodaysOutlook/Pages/index.html#section-net-demand-trend.

Figure 2: CAISO Supply Trend on April 24, 2022[11]



These capabilities of the gas system are likely to grow in importance as forecasts indicate that future, peak daily demand and peak hourly demand is likely to increase.[12] In other words, while California may need fewer annual molecules of gas, the gas capacity will be increasingly required in significant amounts over a short amount of time. Southern California in-basin gas supply storage capabilities are particularly valuable in responding to hour-to-hour changing demand and large swings in within-day demand for gas – whether those large swings are upward or downward.

2) The need for a flexible gas system remains a priority for California's reliability in the short-term, while supporting clean fuels like hydrogen in the long-term could be key drivers for decarbonizing industry (as one example).

When answering the question of how to prioritize infrastructure investments, the CEC could consider both near-term and long-term investments. In the near-term, California continues to consume gas and demand varies seasonally, primarily driven by space heating; according to Mike Florio of Aspen Environmental during the CEC workshop, natural gas is California's most used fuel.[13] The need for a flexible gas system remains a priority for California's reliability in the short-term as reliance on the gas grid would increase as the building and transportation sectors continue to electrify to meet the State's 2045 decarbonization goals. The need for firm dispatchable generation to support greater penetration of renewable resources is unmistakable both in the near

[11] *See* "CAISO Dashboard: Supply Trend," CAISO, available at: http://www.caiso.com/TodaysOutlook/Pages/supply.html#section-supply-trend.
[12] *See* "Aliso OII I.17-02-002: Workshop Input Data Development and Capacity Studies," CPUC, July 28, 2022, available at: https://www.cpuc.ca.gov/-/media/cpuc-website/files/uploadedfiles/cpucwebsite/content/news_room/newsupdates/2020/session-4-hydraulic-modeling-updates-2020-workshop-3-slide-deck-final.pdf.
[13] *See* Lead Commissioner Workshop to Launch Gas Decarbonization Proceeding, Aspen Environmental, available at: https://efiling.energy.ca.gov/GetDocument.aspx?tn=243419

and mid-term, due to large amounts of carbon-free energy coming offline from the scheduled retirement of the Diablo Canyon plant[14], which produces nearly 15% of the State's carbon-free electricity (approximately 18,000 GWh of electricity annually) as well as other CPUC actions and beyond.[15, 16, 17]

While large amounts of new utility-scale solar and wind resources imported to load centers via transmission will be instrumental to meeting California's long-term goals, there will still be a need for local clean resources. LADWP's 2018 Grid Reliability Report demonstrates "[t]he continued importance of maintaining generation capacity in the LA Basin to provide online generation necessary to import external generation and provide cost-effective contingency reserve, voltage support, and balanced network loading."[18] In the longer-term, clean fuels like green hydrogen can help address reliability needs for clean in-basin resources as well as drive industrial decarbonization. Infrastructure investments would be needed to complement this method of decarbonization. Introducing green hydrogen into the Basin would provide a clean alternative fuel to serve existing customer demand, displacing reliance on natural gas and other fossil fuels while maintaining energy system reliability. Converting existing natural gas power plants to green hydrogen-fueled turbines would maintain in-Basin generation and reduce emissions, supporting net zero goals.[19] As SoCalGas has proposed, the Angeles Link, a green hydrogen energy infrastructure system for the Los Angeles Basin, would support the integration of renewable electricity resources like solar and wind to deliver green hydrogen in an amount equivalent to almost 25 percent of the natural gas SoCalGas delivers today. Commencing the development of green hydrogen transport system infrastructure is in the public interest to advance the State's GHG reduction and net zero goals.

SoCalGas is also studying how the existing gas transmission and delivery system can be leveraged to transport hydrogen. SoCalGas is already transporting over four percent pipeline quality RNG in our pipelines today and has a goal to transport up to 20 percent of core throughput by 2030. Combustion of hydrogen produces no carbon dioxide emissions. Hydrogen-containing fuels thus

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[14] Various organizations, scientists, and academics are urging Governor Newsom to delay the closure of California's remaining nuclear plant. It is presumed that Governor Newsom is still contemplating the decision.

[15] *See* California's last nuclear plant is poised to shut down. What happens next? Utility Dive, Mar 2021 available at: https://www.utilitydive.com/news/californias-last-nuclear-plant-is-poised-to-shut-down-what-happens-next/596970/.

[16] *See* Gov. Newsom open to extending Diablo Canyon nuclear plant's life, but analysts differ on feasibility and need, Utility Dive, May 2022, available at: https://www.utilitydive.com/news/analysts-differ-on-feasibility-need-to-extend-diablo-canyon-california-nuclear-plant/623214/.

[17] *See* CPUC "Alternate Proposed Decision and Proposed Decision Requiring Procurement to Address Mid-term Reliability 2023-2026"; R20-05-003; May 21, 2021, available at: https://docs.cpuc.ca.gov/PublishedDocs/Efile/G000/M385/K026/385026495.PDF.

[18] *See* LADWP 2018 Grid Reliability Report, p. 2, Jan 2019, available at: https://www.waterboards.ca.gov/water_issues/programs/ocean/cwa316/saccwis/docs/ladwprpt.pdf.

[19] *See*, e.g., LA100 Study, supra note 5, Chapter 6, p. 3. As CAISO has recognized, "limitations on Aliso Canyon and other storage facilities and retention or replacement of natural gas-fired resources . . . will significantly affect the future capacity and capability of the gas system, particularly in Southern California. This will also have electricity market and reliability impacts." CAISO, Comments of the California Independent System Operator Corporation (Nov. 2, 2020), p. 4, available at https://docs.cpuc.ca.gov/PublishedDocs/Efile/G000/M349/K872/349872444.PDF. By enabling hydrogen infrastructure to replace these resources in the Los Angeles Basin, the Project would help to reduce these impacts and improve system reliability in the area.

can reduce carbon emissions when fired in gas turbine generation assets, depending both on how the hydrogen is produced and on the amount of hydrogen in the fuel.[20] Achieving commercialization and cost reductions for the deployment of low and zero-carbon hydrogen at scale are emerging as a viable decarbonization pathway in regions such as the United Kingdom, to decarbonize sectors including industry (steel, cement, glass, and chemical), thermal power plants, and the transportation sector (including light, medium- and heavy-duty vehicles, goods movement, and air travel).[21] More research is needed now to understand key challenges for safety, system integrity, and system reliability and how they should be addressed.[22]

3) The obligation to serve is an important component of the regulatory compact and should inform a comprehensive long-term gas planning process

The obligation to serve is a statutory obligation arising from the general direction of Public Utilities Code Section 451 and associated caselaw. Additionally, the Legislature has expressly codified the gas utility's mandatory obligation to provide essential gas service.[23] These statutes inform the Legislature's intent and direction for the CPUC and its regulated utilities to provide bundled gas service to its core customers and direct that the CPUC "shall require each gas corporation to provide bundled basic gas service to all core customers in its service territory unless the customer chooses or contracts to have natural gas purchased and supplied by another entity."

Accordingly, the obligation to serve is a foundational component of the regulatory compact: the obligation to serve the public, and the public's right to be served at regulated rates, are what make a gas company a public utility rather than simply another private enterprise that can choose whether or not to serve a customer or what price to make service available. A well-managed transition of the gas system is one that undertakes long-term planning while respecting the needs of customers that will continue to rely on gaseous fuels to serve their thermal requirements. Such a long-term planning approach maintains continued affordability for customers who will remain gas customers for the time being, maintains gas reliability as well as electric reliability, minimizes stranded assets, preserves the utility's ability to raise capital, and leverages gas infrastructure on the path to decarbonization. These goals can be facilitated through a planning approach that reflects the important role the gas system plays in the decarbonized future while fulfilling the statutory obligation to serve.

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[20] *See* Electric Power Research Institute, *Technology Insights Brief: Hydrogen-Capable Gas Turbines for Deep Decarbonization,* 14 November 2019, at 2. Available at https://www.epri.com/research/products/000000003002017544.

[21] *See* The United Kingdom Department for Business, Energy & Industrial Strategy, Industrial Decarbonization Strategy, Mar 2021, available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/970229/Industrial_Decarbonisation_Strategy_March_2021.pdf

[22] *See* Application (A.) 20-11-004. SoCalGas and SDG&E also proposed a Hydrogen Blending Demonstration Program in this application. The first project will blend hydrogen into an isolated section of primarily polyethylene (PE) plastic distribution system in SoCalGas' service territory. The initial hydrogen blend level is planned at one percent and may increase to as much as twenty percent.

[23] Public Utilities Code sections 328.2 and 963(c)(1)

4) The need for an equitable transition will require collaboration for strategic electrification, an evaluation of cost causation, and a gas rate redesign.

The workshop introduction asked multiple important Gas Decarbonization questions to stakeholders, including: "How do we define an equitable transition?"

SoCalGas believes that an equitable transition is one that minimizes affordability impacts to low-income customers while meeting decarbonization goals. Currently, gas bills tend to be the lowest utility bill in the home.[24] However, as is widely understood, broad electrification is expected to cause a decline in both natural gas customers and statewide gas consumption. These reductions will result in potentially raising the costs for those remaining on the system. Consumers able to switch to electricity may be further incented to do so, compounding the challenge to gas ratepayers who lack the financial ability to electrify as they are burdened with an even larger portion of infrastructure costs. SoCalGas is very concerned about this modeled outcome and is committed to working with the State, state agencies, and both gas and electric utilities to help shape the transition to a decarbonized future in a way that is equitable and specifically preserves affordability for low-income Californians. SoCalGas recommends that the CEC, other agencies and NG and electric utilities focus on the following:

- **Alignment and coordination in planning strategic decommissioning, electrification, and clean fuel infrastructure design.** As highlighted by Delphine Hou of the CAISO at the workshop, the natural gas and electric systems are interrelated, thus planning for future decarbonization, future electrification, and future clean fuel infrastructure must occur comprehensively. Treating these necessary future decarbonization measures independently would lead to inefficiencies, duplication, and inevitably higher costs for California. It compels the State to identify areas ripe for decommissioning, areas that are most suited for electrification, and areas that would benefit from clean fuels infrastructure and to integrate this information in designing a holistic energy transition plan. For example, as presented by SoCalGas at the CEC workshop, a significant portion of hard-to-electrify industries primarily lie in two clusters within the SoCalGas service territory, (see Figure 3 below). These areas, and others like them, are potential regions that may benefit from clean fuels infrastructure. This analysis should be considered when planning for electrification and decommissioning.

[24] For example, in 2021, SoCalGas's average residential gas bill amount was approximately $30.00/month for CARE customers and approximately $45.00/month for non-CARE customers.

Figure 3: Hard-to-Abate Sectors[25]

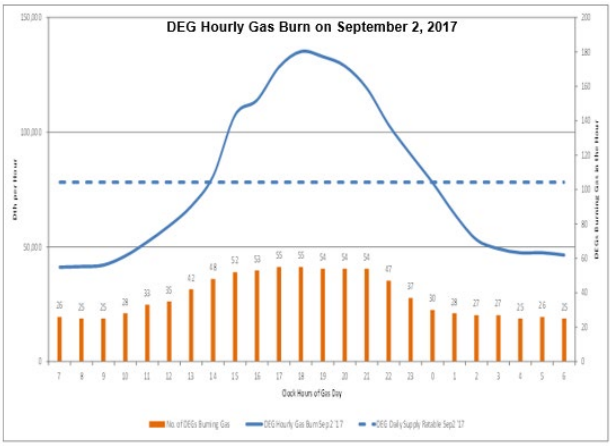
- **Analysis currently underway.** Fortunately, there is already some analysis underway, as the CEC is funding a pilot with RAND and the Gas Technology Institute that will analyze the SoCalGas system to provide clarity on where electrification is cost-effective and feasible, and where the fuels network will continue to be relied upon (with clean molecules) for critical resiliency and customer affordability. [26] This type of holistic approach needs to be the standard and required method for long-term planning of California's energy transition. SoCalGas looks forward to further collaboration with the CEC, other state agencies, gas utilities, and electric utilities to help responsibly and holistically develop a strategic energy transition path that will be resilient, equitable and affordable.

- **Cost allocation and rate design based on cost causation and operational utilization.** An equitable energy transition relies on the justness of cost allocation and rates. Today's cost allocation and rate design were based on the gas market of yesterday, whose volatility was primarily seasonal. However, due to interoperability with the electric sector and the increasing portion of intermittent resources, today's gas market experiences substantial hourly volatility, as was alluded to by Delphine Hou when discussing the April 24, 2022 18,000 megawatt ramp and as further illustrated by Figure 1 above. Today, dispatchable electric generator (DEG) gas usage is increasingly a response to ramping needs for electric reliability. Steep ramp-ups and ramp-downs of DEGs cause large non-ratable shifts of gas consumption in a relatively short period of time. This is challenging for gas system operators since the natural gas market is based on ratable supply and consumption, as

[25] *Ibid*., CEC Workshop.
[26] More information available in RAND's presentation from the Nov 17, 2021 workshop. Presentations found in docket 19-ERDD-01 on the CEC's website: https://efiling.energy.ca.gov/Lists/DocketLog.aspx?docketnumber=19-ERDD-01.

illustrated by the September 2, 2017 graph below (Figure 4).[27, 28] Core gas utility services include managing pipeline inventory to weather non-ratable consumption. The non-core gas rate, which DEGs pay, does not cover this operational service. Thus, there is a disconnect between cost causation and cost allocation that will need to be corrected to ensure a just and equitable energy transition.

Figure 4: DEG Hourly Gas Burn on September 2, 2017[29]



- **Renewable Balancing Tariff (RBT) addresses inequity.** In CPUC's D.14-06-007, the CPUC fundamentally agrees that cost allocation among customer groups should be based on cost causation.[30] SoCalGas has proposed a Renewable Balancing Tariff in the CPUC's Gas Reliability / Planning OIR (R.20-01-007) to address the inequity of the cost causation and cost allocation disconnect with respect to operational services being utilized by electric generators. SoCalGas recommends the CEC bring the concept of an RBT into this year's Gas Decarbonization OIIP as a means to an equitable transition.

- **Rate design implementing cost-based higher fixed charge can help increase equity in gas rates.** Affordable gas service is very important to SoCalGas. The impending throughput reduction is threatening to challenge affordability for customers that lack the financial means to electrify. One key strategy to counteract this upward pressure is to increase fixed charges to reflect the fixed costs that gas utilities incur to provide gas service. Under the current structure, where most gas infrastructure costs are paid in volumetric rates, customers who would partially electrify will avoid paying for the gas infrastructure on which they depend for their minimal usage. This lost revenue would cause the

[27] *See* "Affordability and the Energy System Transition," SoCalGas, February 28, 2022, available at: https://www.cpuc.ca.gov/-/media/cpuc-website/divisions/energy-division/documents/en-banc/niehaus-slides-v2-w-alt-image-and-link-text.pdf.
[28] SoCalGas presentation at the CPUC's Feb 28, 2022, Affordability Phase 3 En Banc.
[29] *Ibid.*
[30] See CPUC D.14-06-007 Pipeline Safety Enhancement Plan at 48.

volumetric rates to increase, leading to equity issues for those forced to remain on standard gas service for the majority of their appliances. Changing the rate design structure to recover fixed costs as a fixed charge for all customers will make sure all gas customers are paying their portion of infrastructure costs and will result in lower and more equitable rates and bills for all customers. This is analogous to a minimum bill or meter-fee for electric utilities and thus is already in practice for electric customers. SoCalGas believes that updates to rate design such as increasing the fixed cost will be essential to an equitable transition.

5) **SoCalGas continues to implement improved leak detection technology to detect methane emissions in the vicinity of the distribution pipeline system.**

During the CEC workshop, Vice Chair Gunda and public commenters raised the issue of potential methane leaks from gas pipelines.[31] In addition, the House Science Committee recently released a report on Science-Based Approaches to Methane Monitoring in the Oil and Gas Sector, part of which reviews the methane leak detection technologies piloted by the oil and gas sector.[32] The report states "innovative [methane] Leak Detection and Repair (LDAR) data reviewed by the Committee staff underscore the great promise of these technologies for methane leak mitigation"[33] but laments that "most deployments remain in the pilot phase with scopes that are too narrow to support emissions reductions on a timeline that meets the urgency of the climate crisis."[34]

Not only has SoCalGas piloted innovative methane leak detection technology, but our program is also recognized as one of the first and best performing systems in the nation.[35] We have implemented a sophisticated Aerial Methane Mapping program that uses helicopter-based aerial methane detection and 3D plume modeling technology to identify methane emissions from a variety of sources in the vicinity of the distribution pipeline system. This first-of-its-kind program and approach effectively detects natural gas emissions from customer facilities and equipment (post-customer meter) and is integrated with our customer services programs to assist customers in leak detection and repair, reduction of natural gas consumption and improving energy efficiency of end-use equipment.[36] SoCalGas' Research, Development, and Demonstration (RD&D) division has conducted an evaluation of Bridger Photonics' Gas Mapping LiDAR™ (GML) system that is used as part of the Aerial Methane Mapping program and found the technology is able to rapidly map methane over large areas of the distribution system, identify locations where significant methane plumes exist, and accurately pinpoint emission source locations.

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[31] *Ibid*., CEC Gas Decarbonization Workshop.
[32] *See* "Detecting and Quantifying Methane Emissions from the Oil and Gas Sector," House Science Committee, June 2022, available at: https://urldefense.com/v3/__https:/science.house.gov/hearings/detecting-and-quantifying-methane-emissions-from-the-oil-and-gas-sector__;!!DHZoJIs!rwUw9yKhuh5ZyFygBDTtzydE7QYIG86_FR-UfuZXLkOA2ZYzwNiWVok4BJpAHvVD45RSq7fEX_huhdF-$.
[33] *Ibid*., p. 40.
[34] *Ibid*., p. 3.
[35] SoCalGas participated in a 2015 study by Washington State University researchers as part of the Environmental Defense Fund's natural gas value chain analysis on methane emissions from distribution systems across the country. The study found utilities in the western United States contributed the least amount of emissions to the nation's inventory (~17%). See key results from the study, available at: https://methane.wsu.edu/key-results/.
[36] *Ibid.*

As of May 2022, the Aerial Methane Mapping program has scanned 30,156 miles of distribution pipelines and reduced natural gas system emissions by 18,714 MSCF, not including the reduction of post-meter customer emissions.[37] This is equivalent to carbon sequestered by 1,220 acres of U.S. forests in one year. The goal of Senate Bill 1371 is to demonstrate reductions of fugitive emissions by 20 percent by 2025 and 40 percent by 2030.[38] SoCalGas surpassed the 2025 goal and is close to meeting the 2030 goal as we reduced fugitive emissions by 37 percent in 2021.[39]

During the CEC workshop, Vice Chair Gunda also raised questions about whether gas utilities on the panel have considered the possibility of hydrogen leaks from blending this fuel into natural gas pipelines. The Environmental Defense Fund (EDF) has also spotlighted the potential for these types of leaks by pointing to recently published research.[40] As SoCalGas Vice President of Strategy and Sustainability, and Chief Environmental Officer, Jawaad Malik stated during the workshop, safety and flammability are top priorities for us in this endeavor.[41] Moreover, a peer-reviewed study that was co-authored by UCI professor Jack Brouwer found experimental evidence that "100 percent hydrogen gas blends leak at the same rate as hydrogen/natural gas mixtures and 100 percent natural gas typical existing low pressure natural gas infrastructure on the customer-side of the meter."[42] The study also indicates the subject of hydrogen blending leak rates has not been well-researched and literature on the subject is not robust.[43]

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[37] *See* "Natural Gas Leakage Abatement Report," SoCalGas, June 15, 2021, available at: https://www.socalgas.com/sites/default/files/R150100-SCG-2021%20Annual-Report-Q1-Attachment.pdf.
[38] *See* "SoCalGas Surpasses California's 2025 Methane Emissions Reduction Goals, Nears 2030 Goal," PR Newswire, June 16, 2022, available at: https://www.prnewswire.com/news-releases/socalgas-surpasses-californias-2025-methane-emissions-reduction-goals-nears-2030-goal-301570004.html.
[39] *See* Chapter 14 of SoCalGas' 2020 SB 1371 Compliance Plan, available at: https://www.socalgas.com/2020_Final_ SCG_SB1371_Compliance_Plan.pdf.
[40] *See* "Environmental Injustices of Leaks from Urban Natural Gas Distribution Systems: Patterns among and within 13 U.S. metro areas," Weller et al., April 1, 2022, available at: https://pubs.acs.org/doi/pdf/10.1021/acs.est.2c00097.
[41] SoCalGas NewsRoom, *SoCalGas Among first in the Nation to Test Hydrogen Blending in Real-World Infrastructure and Appliances in Closed Loop System*. "As part of the testing, technicians are measuring the performance of common household appliances like stoves, wall heaters and forced-air furnaces when they are fueled with a blend of hydrogen and natural gas. This is the next step moving out of the lab and toward future blending into the natural gas grid, with an emphasis on safety and training… Preliminary results of testing that began earlier this summer show the household natural gas appliances are compatible with up to a 20% hydrogen blend. These initial findings are consistent with previous international research and lab testing. This effort provides key operational and safety experience, including testing for pipeline leaks, that will enable SoCalGas to implement larger scale hydrogen blending demonstrations." More available at: https://newsroom.socalgas.com/press-release/socalgas-among-first-in-the-nation-to-test-hydrogen-blending-in-real-world.
[42] *See* "Hydrogen leaks at the same rate as natural gas in typical low-pressure gas infrastructure," Mejia et al., March 18, 2020, available at: https://www.sciencedirect.com/science/article/abs/pii/S0360319919347275?via%3Dihub.
[43] *Ibid.*

Conclusion

The gas system transition is a complex topic with many areas needing consideration as evidenced by the breath of these comments which touch on the interdependence of the gas and electric systems, the importance of underground storage, the need for flexibility in the gas system for reliability, the gas utility's obligation to serve and the role of this mechanism in the regulatory compact, the question of an equitable transition which minimizes the impact of the transition on low-income customers, and leak detection technology. SoCalGas appreciates the opportunity to participate in this extremely valuable decarbonization discussion. We hope for continued and fruitful engagement with the CEC and stakeholders, so we may collectively advance the next generation of grid reliability-enhancing management approaches that promote equity, clean air, and public health. Thank you for your consideration of our comments.

Respectfully,

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