Comment Received From: Southern California Gas Company
Submitted On: 1/28/2022
Docket Number: 21-IEPR-01

SoCalGas Comments on the CEC 2021 Draft IEPR Volume III

Additional submitted attachment is included below.

N. Jonathan Peress
Senior Director
Business Strategy and Energy Policy
555 West 5th Street
Los Angeles, CA 90013
Tel: (916) 492-4252
NPeress@socalgas.com

January 28, 2022

Vice Chair Siva Gunda
California Energy Commission
Docket Unit, MS-4
Docket No. 21-IEPR-01
1516 Ninth Street
Sacramento, CA 95814-5512

Subject: Comments on the Draft 2021 Integrated Energy Policy Report (IEPR) Volume III Decarbonizing the State's Gas System

Dear Vice Chair Gunda:

Southern California Gas Company (SoCalGas) appreciates the opportunity to review and comment on the California Energy Commission's (CEC) Draft 2021 Integrated Energy Policy Report (IEPR) Volume III: Decarbonizing the State's Gas System.[1] Broadly speaking, we interpret the report as a clarion call for what is becoming increasingly obvious: the need for a comprehensive integrated planning process across the breadth of the energy system, including market participants, stakeholders and regulators, such as that which can and should be pursued as an outcome of the CPUC's pending Long-Term Gas System Planning OIR.

The Draft IEPR presents a thorough and comprehensive set of analyses and recommendations that are underpinned by the paradox that it clearly expresses: the urgent societal imperative to rapidly reduce emissions from traditional gas use, paired with the indispensable role that the gas grid plays (past, present, and future) through its energy delivery capabilities and attributes to facilitate and provide the clean fuels needed to decarbonize the energy system. As the Draft IEPR makes clear, this critical need for and important public welfare value provided by the gas grid is amplified the more energy demand is electrified and supplied by intermittent renewable resources. Among the myriad of challenges to be addressed through integrated energy planning is the imperative to

[1] *See* 2021 Draft IEPR Volume III, Decarbonizing the State's Gas System, CEC, available at: https://efiling.energy.ca.gov/GetDocument.aspx?tn=241153.

maintain the availability of sufficient and affordable 24/7 energy across all customer classes, accompanied by rates which equitably allocate costs and benefits throughout the lumpy progression of a non-linear and somewhat unpredictable energy system transformation. We see this challenge as requiring the commitment and best collaborative thinking of policy makers, market participants and stakeholders throughout the California energy spectrum.

Aligning with the decarbonization theme presented in the Draft IEPR, SoCalGas's comments are girded by the company's ongoing decarbonization business transformation in which its assets are increasingly dedicated to the enterprise of reducing, abating and mitigating emissions across the energy system, including through the expanded delivery of clean fuels, while maintaining safe, reliable and affordable energy services and infrastructure.[2] With this public interest-focused goal at the forefront, more than fifty of our internal experts reviewed the Volume III draft and provided input for these comments. We hope they are useful and informative as the CEC finalizes Volume III and remain steadfast in our commitment to advance through the challenges to achieve the future the CEC envisions and that Californians deserve.

To provide constructive feedback that aligns with the CEC's statutory requirements in the IEPR, we structured our comments in the following Appendices, as outlined below:

Appendix A. Investments, Policies, and Technologies to Scale Clean Fuels for Energy System Decarbonization

1. The rapid scale of all hydrogen pathways, with a focus on "clean" hydrogen, will advance the decarbonization goals of the IEPR without which air pollutant emissions from dispatchable generation may hinder California's attainment of federal clean air standards.
2. In addition to green hydrogen, other clean forms of hydrogen offer opportunities to decarbonize California's energy system.
3. Carbon capture, utilization, and sequestration (CCUS) plays a critical role in decarbonization and should be more strongly considered in the 2021 IEPR.
4. The Draft IEPR may be over-relying on the Howarth & Jacobson study to define blue hydrogen's potential to reduce carbon emissions.
5. Development of demonstration projects for steam methane reforming (SMR) and hydrogen blending technology will advance decarbonization and emission reduction opportunities.
6. An affordable hydrogen future will be facilitated by interstate cooperation between California and states with bulk underground hydrogen storage.
7. The 2021 IEPR can use European strategies as a model for scaling up renewable and low-carbon hydrogen production and demand. This will incentivize investors and industries to invest in low-carbon and renewable hydrogen technologies.

---

[2] *See* "The Role of Clean Fuels and Gas Infrastructure in Achieving California's Net-Zero Climate Goal," SoCalGas, November 9, 2021, available at: https://www.socalgas.com/sites/default/files/2021-10/Roles_Clean_Fuels_Full_Report.pdf.

8. The 2021 IEPR should identify conversion of woody biomass as a source for RNG earlier in Chapter 4.
9. The 2021 IEPR should include RNG's compatibility with existing gas and electric systems end-uses as a benefit.
10. The 2021 IEPR should include the additional $40M biomethane interconnection monetary incentive program authorized in D.20-12-031 and should recommend the evaluation of additional incentives for pipeline interconnections.
11. Modifying the utility obligation to serve as expressed in statute entails a broad set of public interest considerations.
12. The 2021 IEPR should refine general support for eliminating gas line extension allowances in light of its recognition of the importance of maintaining gas service to sectors such as industry, transportation, and electric generation as well as the uncertainty of net energy costs imposed on customers.

Appendix B. Underground Storage Assets for a Reliable, Resilient, and Affordable Energy System

1. Underground natural gas storage serves as a critical mitigation measure enabling quick response to acute supply and demand mismatches and meets gas reliability standards obligations.
2. Underground natural gas storage, and Aliso Canyon in particular, is critical for system reliability not only at the local level but throughout the western United States.
3. Local underground storage provides value by enhancing resiliency and mitigating risks associated with extreme weather events.
4. The CEC should clarify that limits on the ability to leverage underground natural gas storage are linked to price volatility and potential system vulnerability.
5. The 2021 IEPR should clarify why SoCalGas was able to withdraw additional gas during Winter Storm Uri.
6. SoCalGas suggests the consideration of applying a narrower focus to Permian Basin supply issues related to reserves in the Southwest.

Appendix C. Gas System Control, Planning, and Safety for California's Clean Energy Future

1. SoCalGas requests that the Commission update the 2021 IEPR to reflect the complete landscape of gas utilities' various customer segments and their related complexities so that the public may have a better understanding of reliability standards being discussed.
2. SoCalGas electric generation demand forecasts have not shown early morning ramps in electricity demand during peak system demand conditions.
3. The Draft IEPR needs to be refined in its discussion of the role L235-2 plays in the amount of gas delivery to Wheeler Ridge Zone.
4. The Draft IEPR content addressing Southern System core customer load risk during the current winter operating season appears to be overstated.

5. The Draft IEPR's assertion that SoCalGas would begin to curtail noncore summer load when demand is high in order to preserve gas storage supplies for winter use is somewhat speculative.

Appendix D. Corrections/Errata

1. An important citation regarding alternate fuel requirements for noncore customers is omitted and should be added.
2. SoCalGas requests various corrections and additions regarding gas utility pipeline safety, and gas system reliability and planning, gas distribution, and gas balance results.

SoCalGas provides the foregoing comments for purposes of contributing to the backdrop by which energy system planning is currently undertaken and in support of the Draft IEPR's recommendation for enhanced integrated energy planning in the future. CEC's thoughtful and detailed presentation of both opportunities and challenges to be addressed through such planning illuminate the interdependent nature of California's energy system and the complexity of planning that is mindful of the statutorily embedded core public interest tenets within the utility regulatory construct and state regulatory enabling authorities. The challenges to successfully navigating the magnitude of the decarbonization challenge will be best surmounted through processes and dialog that are open to participation and perspectives across all market participants and stakeholders. Effective decarbonization planning in the public interest must be designed around a transparent process whereby questions are framed and stakeholder input is assessed and deliberated, as to both prospective benefits and consequences, in advance of broadly actuating presumed answers. In sum, SoCalGas reiterates its commitment to advancement of such a process, for which the content provided in the Volume III of the 2021 Draft IEPR provides a salutary and appropriate launching point. Thank you again for the opportunity to comment and meaningfully participate.

Respectfully,

/s/ N. Jonathan Peress

N. Jonathan Peress
Senior Director
Business Strategy and Energy Policy

Appendix A. Investments, Policies, and Technologies to Scale Clean Fuels for Energy System Decarbonization

1. **The rapid scale of all hydrogen pathways, with a focus on "clean" hydrogen, will advance the decarbonization goals of the IEPR without which air pollutant emissions from dispatchable generation may hinder California's attainment of federal clean air standards.**

Greater renewable electric capacity deployment, coupled with the electrification of buildings and transportation, corresponds to a need for more peaking/ramping capacity. Consequently, more thermal generation capacity is needed in higher electrification cases.[3] A 2019 article by the Union of Concerned Scientists stated that "because no one has ever decarbonized their electric sector to the extent that California plans, we need to keep watch for a wide range of unanticipated impacts to ensure the transition to clean energy goes as smoothly as possible."[4] The authors note that "California's gas plants, particularly gas turbines, have been starting much more frequently over the past decade, with a very steady increase in the number of starts over time. While the massive increase in gas turbine starts has not dramatically increased the gas turbine [nitrogen oxides] NOx emissions rate, all these starts are undoubtedly keeping the overall NOx emissions rate higher than it otherwise would be."[5] More frequent fast-starts are not just occurring for gas turbines. The CEC indicates this is occurring with combined-cycle power plants as well; "with the increasing integration of renewable generation, along with the inherent must-take generations from QFs [qualifying facilities], combined-cycle plants are being tasked for flexible, load-balancing requirements that involve more frequent fast starts, and load-following ancillary services."[6]

More troubling is that in response to the need for reliable backup power, diesel-fired generation is growing at a rapid pace in California, with enough capacity to power 15 percent of the electric grid.[7] The growing reliance on these higher-emitting generators, and their amplified episodic emissions, undermines efforts made by the State regarding climate change mitigation, energy affordability, equity, air quality attainment requirements, and transitioning to clean energy resources.

---

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

[4] *See* "Do Renewables Lead to Increased Air Pollution from California Power Plants", Union of Concerned Scientists, available at: https://blog.ucsusa.org/mark-specht/do-renewables-lead-to-increased-air-pollution-fromcalifornia-power-plants/.

[5] *Ibid.*

[6] *See* "Thermal Efficiency of Natural Gas-Fired Generation in California: 2019 Update," CEC-200-2020-03, June 2020, p. 7, available at https://www.energy.ca.gov/data-reports/energy-almanac/californias-natural-gas-market/thermal-efficiency-natural-gas-fired.

[7] *See* "The Diesel-Fired California Dream," California Energy Markets, October 8, 2021, No. 1662, available at: https://www.newsdata.com/california_energy_markets/bottom_lines/the-diesel-fired-californiadream/article_f65b1070-2876-11ec-b3f1-f3ef2c8a4076.html.

In order to mitigate California's growing reliance on diesel-fired generation and decarbonize emissions associated with thermal generation, the State should explore and rapidly scale all available hydrogen pathways as a form of reliable and low carbon intensity energy, as discussed in greater detail below. SoCalGas's expressed commitment to the development and deployment of clean fuels, such as green hydrogen, renewable natural gas (RNG), synthetic natural gas, and biofuels, as part of a "clean fuels network" will contribute to the energy system transition to carbon neutrality by 2045.[8] As expressed in the 2021 Draft IEPR, electric utilities are making investments in hybrid power plants that can utilize natural gas and hydrogen to generate power.[9] Opportunities likewise exist for fuel cells, that can operate using traditional gas, biomethane and/or hydrogen, to be used in areas at higher risk of public safety power shutoffs and circuits to meet customers' needs for reliable and resilient electricity sources - an approach that serves public health and welfare far better than the ongoing and rapidly increasing reliance on diesel generators.

2. **In addition to green hydrogen, other clean forms of hydrogen offer opportunities to decarbonize California's energy system.**

Examples of clean forms of hydrogen include hydrogen generated by Bioenergy with Carbon Capture and Storage (BECCS) whereby biomass is converted into hydrogen and carbon emissions are captured and stored, which can result in net negative carbon. Similarly, hydrogen produced from renewable fuels, such as renewable natural gas sourced from dairies in combination with Carbon Capture, Utilization, and Storage (CCUS), is another viable carbon negative pathway. These examples demonstrate multiple means to decarbonize California's energy system that significantly reduce emissions and align with the State's objectives.

Further, consistent with the federal Infrastructure Investment and Jobs Act (IIJA), which seeks to establish a clean hydrogen strategy and roadmap for the United States, California should support the direction and scope of opportunities that include clean hydrogen. The IIJA establishes the federal statutory definition of clean hydrogen as "hydrogen produced with a carbon intensity equal to or less than 2 kilograms of carbon dioxide-equivalent produced at the site of production per kilogram of hydrogen produced," which is subject to the development of an initial standard for the carbon intensity of clean hydrogen production to be developed by the Secretary of Energy in consultation with the U.S. Environmental Protection Agency (EPA) and stakeholders within 180 days of enactment.[10] Considering this federal definition of clean hydrogen, the CEC should support inclusive clean hydrogen efforts and seek to promote ways California can facilitate federal efforts to accelerate research, development, demonstration, and deployment of hydrogen from clean energy sources. For instance, California has the opportunity to continue its leadership in climate

---

[8] More details can be found in the SoCalGas report: "The Role of Clean Fuels and Gas Infrastructure in Achieving California's Net-Zero Climate Goal," which can be found here: https://www.socalgas.com/sites/default/files/2021-10/Roles_Clean_Fuels_Full_Report.pdf.

[9] *See* 2021 Draft IEPR, Volume III, p. 73.

[10] 42 USC 16166 Sections (a) and (b).

change pursuits by becoming a more attractive location for federal funding opportunities.[11, 12] This would strengthen California's "toolbox" to decarbonize the energy ecosystem by looking to uses for clean hydrogen in the transportation, utility, industrial, commercial, and residential sectors. In addition to clean hydrogen funding over $9 billion,[13] an incremental and separate provision of the IIJA specifically allocates over $12 billion[14] to CCUS opportunities, as discussed further below. This funding may result in accelerated advancement of other promising technologies that, once scaled, could favorably impact hydrogen development and decarbonization efforts. For example, two promising solutions[15] include:

- Pyrolysis: a high-temperature process wherein methane can be converted into hydrogen and solid carbon (biochar) which can act as a soil amendment and store the carbon in the ground, preventing it from being released into the environment.
- Autothermal reforming (ATR): converts traditional natural gas to syngas, a combination of hydrogen and carbon monoxide. Syngas can then be separated to produce pure hydrogen. The resulting carbon can be captured and stored.

It's important to recognize that a myriad of clean solutions and technologies may play an important role in a carbon-neutral hydrogen production beyond just electrolytic hydrogen. By aligning with the national strategy that focuses on various hydrogen pathways, California better positions itself to achieve its ambitious climate goals and to be a leader in solutions that may be replicated across the nation. In other words, an integrated energy solution, which includes various forms of clean energy and technologies, will provide more options, configurations, and potential synergies for all stakeholders (regulated utilities, private and public companies, local, state, and federal organizations and policymakers) to learn from, refine assumptions, and make more informed decisions.

In summary, the system-wide net neutrality goal by 2045 must include multiple solutions to decarbonize the energy system. A multi-faceted approach that includes other comparable clean hydrogen production methods with a net low carbon or negative carbon impact cannot be

---

[11] During the CEC Business Meeting held on January 13, 2022, Commissioner Monahan stated she would lead an effort to try to direct federal funding from the U.S. Department of Energy (DoE) infrastructure bill towards California's Clean Transportation Program. Considering a more inclusive definition of "clean hydrogen", based on carbon intensity instead of color, could make it easier for California to align with federal requirements.

[12] *See* "Meeting of the California Energy Commission," CEC, January 13, 2022, available at: https://www.energy.ca.gov/event/meeting/2022-01/meeting-california-energy-commission.

[13] *See* "Infrastructure Investment and Jobs Act: Accelerating the Deployment of Hydrogen," National Law Review, November 18, 2021, available at: https://www.natlawreview.com/article/infrastructure-investment-and-jobs-act-accelerating-deployment-hydrogen.

[14] *See* "Carbon Utilization Research Council (CURC) Welcomes House Passage of Infrastructure Investment and Jobs Act," CURC, available at: http:/www.curc.net/curc-welcomes-house-passage-of-infrastructure-investment-and-jobs-act.

[15] *See* "The Role of Clean Fuels and Gas Infrastructure in Achieving California's Net Zero Climate Goal," last modified November 9, 2021, p. 50, available at: https://www.socalgas.com/sites/default/files/2021-10/Roles_Clean_Fuels_Full_Report.pdf.

discounted, as doing so would diminish the public interest. The potential of these solutions should be supported by the CEC, especially since these methods provide more opportunities to leverage the existing gas infrastructure and decarbonize various economies (such as the steel and cement industries, and heavy-duty vehicles), while also decreasing the risks and impacts associated with a one-solution fits all approach.

3. **Carbon capture, utilization, and sequestration (CCUS) plays a critical role in decarbonization and should be more strongly considered in the 2021 IEPR.**

Page 105 of Volume III the 2021 Draft IEPR points to other states using CCUS to allow continued use of existing infrastructure with hydrogen blending and syngas. In addition to coupling with hydrogen production, CCUS can also stand alone as a critical component to supporting California's decarbonization goals. The IIJA's $12.1B for CCUS emphasizes this opportunity, with a focus on research, design, and development (RD&D), transport and storage infrastructure and permitting, carbon utilization, and carbon removal. Multiple studies document California's substantial potential for CCUS. For instance, WESTCARB Regional Carbon Capture and Storage (CCS) partnership, led by the CEC and the U.S. Department of Energy (DOE), estimated the CO_2 storage capacity of saline formations in the State's ten largest basins ranged from 150 to 500 gigatons (Gt).[16] Two 2020 papers "Getting to Neutral" by Lawrence Livermore National Lab[17] and "An Action Plan for Carbon Capture and Storage in California: Opportunities, Challenges, and Solutions" by Energy Futures Initiative and Stanford University,[18] show that carbon capture combined with smart utilization and permanent geologic storage offers a viable way to reduce emissions from the industrial and electricity sectors that are key contributors to California's economy and the reliability of its grid. The California Air Resources Board (CARB) has also noted the importance of three approaches to removing CO_2 from the atmosphere[19] - working lands (a carbon source and sink), carbon capture and sequestration, and direct air capture. Carbon capture (including from specific hard-to-abate sources and direct air capture) and sequestration should be more strongly considered in the 2021 IEPR, because of the infrastructure potential, geologic potential, and skilled workforce repurposing potential in California.

[16] *See* "An Action Plan for Carbon Capture and Storage in California: Opportunities, Challenges, and Solutions," joint study by Energy Futures Initiative and Stanford University, available at: https://static1.squarespace.com/static/58ec123cb3db2bd94e057628/t/5fda383062e28f00961c98db/1608136765723/EFI-Stanford-CA-CCS-FULL-rev2-12.11.20.pdf.

[17] *See* "Getting to Neutral: Options for Negative Carbon Emissions in California," Lawrence Livermore National Laboratory, available at: https://www-gs.llnl.gov/content/assets/docs/energy/Getting_to_Neutral_Executive_Summary.pdf.

[18] Stanford, *supra* note 16 above.

[19] *See* "California's GHG Goals and Deep Decarbonization," CARB, November 19, 2020, available at: https://ww3.arb.ca.gov/board/books/2020/111920/20-12-5pres.pdf.

4. **The Draft IEPR may be over-relying on the Howarth & Jacobson study to define blue hydrogen's potential to reduce carbon emissions.**

As noted above, encouraging the development of a broad set of low-carbon fuels will serve climate policy goals as expressed in the Draft IEPR. On page 67, Volume III of the 2021 Draft IEPR discusses blue hydrogen production, questioning its viability as a low carbon source, based on a 2021 paper by Robert W. Howarth & Mark Jacobson.[20] SoCalGas respectfully suggests that over-reliance on the study and conclusions risks needlessly forestalling decarbonization opportunities, as there are conflicting expert analyses of the carbon intensity of blue hydrogen. For example, Bauer et al.[21] in a responding article pointed out that the impacts of blue hydrogen on climate change can be comparable with green hydrogen if a few conditions are met. This can be achieved if the natural gas reforming process with high carbon dioxide (CO_2) capture rates are associated with low methane emissions from the natural gas system. The article by Bauer et al. further states that for blue hydrogen to compete with green hydrogen, a carbon capture rate of above 90 percent should be employed. The report also suggests that to avoid the additional CO_2 emissions and energy demand needed for the carbon removal process, low carbon electricity should be utilized.

Data from EPA and CARB's Greenhouse Gas Emissions Inventory[22] indicate that U.S. methane emissions from natural gas infrastructure versus throughput have indeed decreased in the past 30 years. This decrease is due to major technological improvements in various natural gas sectors, such as production and processing. Furthermore, the U.S. EPA's Science to Achieve Results (STAR) program[23] has been providing guidance for industry partners to implement methane emissions reduction practices. This evidence suggests the conditions highlighted in the Bauer et al. study should reasonably be anticipated to be met, such that blue hydrogen would have emissions impacts comparable to green hydrogen.

5. **Development of demonstration projects for steam methane reforming (SMR) and hydrogen blending technology will advance decarbonization and emission reduction opportunities.**

The 2021 Draft IEPR's inclusion of efforts to promote clean hydrogen will inure to public benefit. Noting the content in Chapter 4 "Opportunities for Renewable Gas and Renewable Hydrogen," pages 73-74, under the heading "Efforts to Promote Renewable Hydrogen and Reduce Costs," it may be helpful to likewise include and insert descriptions of relevant efforts being led by SoCalGas to more fully and accurately present ongoing work.

---

[20] *See* "How green is blue hydrogen?" Howarth RW, Jacobson MZ, Energy Sci Eng.2021; 9:1676–1687, available at: https://doi.org/10.1002/ese3.956.

[21] *See* "Sustainable Energy Fuels," Bauer et al., 2022, 6, 66-75, available at: https://doi.org/10.1039/D1SE01508G.

[22] *See* "Natural Gas and Petroleum Systems in the GHG Inventory: Additional Information on the 1990-2015 GHG Inventory," U.S. EPA, April 2017, available at: https://www.epa.gov/ghgemissions/natural-gas-and-petroleum-systems-ghg-inventory-additional-information-1990-2015-ghg.

[23] *See* "Recommended Technologies to Reduce Methane Emissions," U.S. EPA, available at: https://www.epa.gov/natural-gas-star-program/recommended-technologies-reduce-methane-emissions.

SoCalGas is supporting multiple demonstration projects in efforts to decarbonize California's transportation sector by accelerating the adoption and commercialization of steam methane reforming (SMR) technology. SoCalGas, along with partners, will be deploying a Linde HydroPrime skid mounted SMR reactor for the first time in the Americas. This partnership will demonstrate the use of commercial SMR technology with RNG feedstock to produce renewable hydrogen for hydrogen refueling operations at a northern California facility. SoCalGas also supports the development of a highly efficient, rapidly deployable, and modularizable skid mounted SMR reactor produced by Solar Thermochemical Advanced Reactor Systems (STARS), where the reactor uses electricity to produce heat and achieve thermochemical SMR through induction. These units can use renewable electricity and RNG to produce clean hydrogen. These reactors will be deployed in an on-site demonstration in the Coachella Valley in Southern California, where they will support storage and fueling operations for a small fleet of hydrogen-powered buses. The estimated timeframe for operation for these two projects is mid to late 2022.

In addition, SoCalGas is engaging in a partnership with Bloom Energy, a leading fuel cell and microgrid solutions provider based in San Jose, in a new project to showcase the future of the hydrogen economy and technologies needed to help California reach carbon neutrality.[24] Set to launch in 2022, the project will generate and then blend hydrogen into the existing natural gas network at California Institute of Technology (Caltech) in Pasadena. It will demonstrate how natural gas infrastructure can be decarbonized, while balancing future energy supply and demand. Bloom Energy's solid oxide, high temperature electrolyzer will generate hydrogen, which will then be injected into Caltech's natural gas infrastructure. The resulting 10 percent hydrogen blend will be converted into electricity without combustion through existing Bloom Energy fuel cells downstream of the SoCalGas meter, producing electricity for a portion of the university. For purposes of this project, the electrolyzer is designed to generate hydrogen from grid electricity. However, it can produce green hydrogen from 100 percent renewable power. Once widely adopted, the electrolyzer and fuel cell combination could enable long duration clean energy storage and low carbon distributed power generation through the gas network for businesses, residential neighborhoods, and dense urban areas. When configured as a microgrid, it could also provide resilient power when and where energy is needed most, protecting businesses, campuses, or neighborhoods from widespread power outages.

6. **An affordable hydrogen future will be facilitated by interstate cooperation between California and states with bulk underground hydrogen storage.**

The discussion expressing the role of hydrogen in grid reliability, as highlighted in the 2021 Draft IEPR, calls appropriate attention to this critical energy system need. It is worth mentioning that the volumes of hydrogen required for reliability of the power sector at Gigawatt scale will require

[24] *See* "SoCalGas and Bloom Energy Showcase Technology to Power Hydrogen Economy with Gas Blending Project," SoCalGas, December 14, 2021, available at: https://newsroom.socalgas.com/press-release/socalgas-and-bloom-energy-showcase-technology-to-power-hydrogen-economy-with-gas.

reliable and safe bulk hydrogen storage and dedicated hydrogen pipeline infrastructure, both of which may eventually utilize interstate hydrogen imports. As the 2021 Draft IEPR acknowledges on pages 70-71 of Volume III, the supply chain for hydrogen is complex and may involve links to regional and/or national hydrogen infrastructure systems. Hence as a practical matter, an affordable clean hydrogen future should incorporate interstate cooperation. Bulk underground hydrogen storage – which is known to be found, for example, in salt caverns in Arizona, Utah, and Louisiana – could be leveraged to store hydrogen that will produce reliable clean firm power to serve California customers. Because of these foreseeable interconnectivities, the State should prioritize alignment on acceptable carbon intensity levels of hydrogen with federal and neighboring state requirements. Similar to the low carbon fuel standard, the state should set desired carbon intensity limits for hydrogen rather than a potentially confusing color-coded class system for hydrogen identification, in which the number of colors seems to be growing. This would allow for hydrogen production technologies to compete against each other and drive carbon intensities down.

7. **The 2021 IEPR can use European strategies as a model for scaling up renewable and low-carbon hydrogen production and demand. This will incentivize investors and industries to invest in clean hydrogen technologies.**

The European Union (E.U.) and United Kingdom (U.K.) are planning to develop several strategies to scale up clean hydrogen production and demand, which California can use as a model. Examples of these strategies and policies in the E.U. and U.K. are as follows:

- U.K. Emissions Trading Scheme (U.K. ETS), Carbon Price Support (CPS), and the Net Hydrogen Zero Fund [25]
- E.U. Emission Trading System (E.U. ETS) and Carbon Contracts for Difference (CCfD)[26]

The U.K. ETS and CPS help to increase clean hydrogen demand by making the cost of carbon high for all fossil-fuel based hydrogen production industries. The Net Zero Hydrogen Fund also supports the production of clean hydrogen by co-investment in this sector to minimize the risk to private investors. Similarly, the E.U. ETS and CCfD incentivize investments in clean hydrogen technologies through carbon pricing by covering the cost difference between CO_2 strike and actual price. These strategies can be applied to refineries, steel production plants, and all the sectors with a high risk of carbon emissions.

[25] *See* "UK Hydrogen Strategy," HM Government, August 2021, CP 475, available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1011283/UK-Hydrogen-Strategy_web.pdf.

[26] *See* "A hydrogen strategy for a climate-neutral Europe," European Commission, COM (2020) 310, July 8, 2020, available at: https://ec.europa.eu/energy/sites/ener/files/hydrogen_strategy.pdf . See also https://ec.europa.eu/commission/presscorner/api/files/attachment/865942/EU_Hydrogen_Strategy.pdf.

8. **The 2021 IEPR should identify conversion of woody biomass as a source for RNG earlier in Chapter 4.**

Figures 25 and 26 in Chapter 4 of Volume III depict estimates of renewable natural gas (RNG) production potential and costs.[27] Both figures include biomethane produced by conversion of biomass using non-combustion conversion (e.g., gasification or pyrolysis), however, it is not until the concluding paragraph[28] of Chapter 4 that the 2021 Draft IEPR describes this biomethane-producing process. We respectfully suggest that thermal gasification to convert woody biomass into renewable gas should be discussed and included in the earlier section entitled "The Future of Renewable Gas in California"[29] to provide helpful context and improve the understanding, readability and proper analysis of Figures 25 and 26,

9. **The 2021 IEPR should include RNG's compatibility with existing gas and electric systems end-uses as a benefit.**

RNG is a drop-in fuel to replace methane, compressed natural gas (CNG), and liquefied natural gas (LNG) end uses and does not require adjustments, upgrades, or replacement of existing infrastructure or end-uses. Accordingly, RNG that meets gas quality specifications can be injected into any existing pipeline for delivery to a meter currently on the gas system. The interchangeability of RNG with fossil natural gas means that decarbonization of the natural gas system by use of RNG can occur at any facility or location, including those desiring to use 100 percent RNG or those with significant commercial or industrial thermal load that cannot be served by other energy sources. Approximately 70 percent of the 2030 statewide core natural gas load[30] could be met with the estimated 387 billion cubic feet of RNG available according to E3 estimates,[31] making conversion to RNG a viable option for natural gas customers. A lower percentage of blending of RNG can fully decarbonize the pipeline system if proper carbon accounting is utilized because of the carbon negativity of certain types of RNG (e.g., RNG produced from high solid anaerobic digestion (HSAD), gasification, and dairies).[32] The recently enacted CalRecycle legislation pursuant to SB 1383 which requires every jurisdiction in California to collect organic waste starting in January 2022 will almost certainly increase the amount of RNG that is available for procurement.[33] The exact additional amount is still being studied. Additionally, the percentage of RNG as it relates to the overall percentage of gas delivered will increase as electrification of core customer load increases overtime. Therefore, the elimination or reduction of

---

[27] *See* 2021 Draft IEPR, Volume III, pp. 59 & 61.
[28] *Id. at* 65.
[29] *Id. at* 58.
[30] 2020 California Gas Report, p.22. ln.27
[31] *See* "2020 The Challenge of Retail Gas in California's Low Carbon Future," E3 and UCI, Appendix A, p. B-5, available at: https://ww2.energy.ca.gov/2019publications/CEC-500-2019-055/CEC-500-2019-055-AP-G.pdf.
[32] *See* "California Air Resources Board Low Carbon Fuel Standard Program Q2 2020 Data", CARB, June 2020, available at: https://cngvp-7f8e.kxcdn.com/pdf/Understanding-Carbon-Intensity-Why-It-Is-Important.pdf.
[33] *See* "New California Compost Law Goes into Effect," Ervin Cohen & Jessup LLP, January 5, 2022, available at: https://www.jdsupra.com/legalnews/new-california-compost-law-goes-into-3245289/.

costs to replace existing infrastructure and end-uses should be added in the "Benefits of Renewable Gas" section.[34]

10. The 2021 IEPR should include the additional $40M biomethane interconnection monetary incentive program authorized in D.20-12-031 and should recommend the evaluation of additional incentives for pipeline interconnections.

Although CPUC Decision (D.) 20-12-031 Ordering Paragraph 3 authorized an additional $40 million to be added to the biomethane monetary incentive program, projects already on the biomethane incentive 'wait list' were provided the authorized funds.[35] To expand project locations and feedstocks, the 2021 IEPR should consider additional incentive options. Additional funds and/or granting gas utilities the authority to rate-base interconnection costs can help lower these costs thereby potentially increasing the speed and number of projects injecting RNG (and, in turn, decarbonizing the natural gas system).

11. Modifying the utility obligation to serve as expressed in statute entails a broad set of public interest considerations.

On page 139, Volume III of the 2021 Draft IEPR recommends eliminating or modifying the "obligation to serve" stating, "Currently gas utilities have an obligation to provide and maintain gas service to any customer willing to pay for it. This is cited as a significant barrier to achieving all-electric new homes in the state and to efforts to retire existing gas distribution assets in areas where electrification of existing buildings is possible. The CEC and CPUC could also work to clarify the utility obligation to serve to allow them to minimize or retire gas distribution infrastructure or both while providing customers with suitable substitutes. This will likely require statutory changes."[36]

In finalizing the IEPR, it may be helpful to better contextualize the statutory obligation to serve and its underpinnings. As noted in footnote 218 of the Draft IEPR, the obligation to serve "is part and parcel of the regulatory scheme under which the utilities received a franchise and under which the Commission regulates utilities under the Public Utilities Act. (See Pub. Util. Code §§ 451, 761, 762, 768, and 770.)."[37] Accordingly, said obligation is but one leg of a stool adopted by the legislature in defining the public interest relating to the provision of essential energy services, with equally critical legs imbedded within the foregoing sections of Public Utilities Law. An overly narrow effort to eliminate one leg, as it relates to electrification outcomes focused primarily on core residential customers, risks overlooking the totality of public interest considerations

[34] *See* 2021 Draft IEPR, Volume III, p. 60.
[35] *See* "Decision Adopting the Standard Renewable Gas Interconnection and Operating Agreement," CPUC Decision (D.) 20-12-031, available at: https://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M356/K244/356244030.PDF.
[36] *See* 2021 Draft IEPR, Volume III, p. 139.
[37] *Id.* at 107. *See also* Public Util. Code §§ 328 and 328.2

embodied in statute, including the need for a capable and viable utility-operated gas grid in order to achieve California's climate goals.

An important point that was discussed in previous IEPR workshops[38] but not included in the 2021 Draft IEPR is the fact that decommissioning of the natural gas pipeline system does not necessarily bear a causal relationship to the reduction of carbon emissions. Decommissioning may provide a means to mitigate disparate and disproportionate rate impacts (on customers who remain on the natural gas network) that are caused by electrification, which is the actual emissions reduction lever. In other words, it is electrification that drives decarbonization—not decommissioning.

12. **The 2021 IEPR should refine its general support for eliminating gas line extension allowances in light of its recognition of the importance of maintaining gas service to sectors such as industry, transportation, and electric generation as well as the uncertainty of net energy costs imposed on customers.**

On page 107 of Volume III, the 2021 Draft IEPR notes the general support of eliminating line extension allowances to increase building electrification premised on, inter alia, reducing rates for customers stating that "it would reduce the utility rate base by eliminating the cost of the allowances, thereby reducing future rate increases for the remaining gas customers." SoCalGas suggests the CEC refine its statement considering that the Draft IEPR has rightfully identified sectors such as industry, transportation, and electric generation that may not be able to electrify and/or are necessary for energy system reliability and resiliency that may also provide opportunities for decarbonization mechanisms. Additionally, SoCalGas has noted in the cited CPUC proceeding that affordability is a complex and significant issue which requires more analysis before it is fully understood how the staff proposal will impact customers. At present, there is insufficient specificity or detail to understand the impact of the CPUC's staff proposal on overall customer energy bills between mixed fuel customers and all-electric customers or to determine the effects on overall energy cost burdens for customers.

---

[38] *See* "SoCalGas comments on the Staff Workshop on Strategic Pathways and Analytics for Tactical Decommissioning of Portions of Natural Gas Infrastructure," SoCalGas, November 30, 2021, available at: https://efiling.energy.ca.gov/GetDocument.aspx?tn=240743&DocumentContentId=74147.

Appendix B. Underground Storage Assets for a Reliable, Resilient, and Affordable Energy System

1. **Underground natural gas storage serves as a critical mitigation measure enabling quick response to acute supply and demand mismatches and meets gas reliability standards obligations.**

SoCalGas appreciates the detailed discussion of natural gas infrastructure, system operations, reliability standards, and reliability generally. As the 2021 Draft IEPR notes on pages 27 and 28: "Over the last two decades, the CPUC has established reliability standards that address physical capabilities of the gas utilities' systems. Those standards include a combination of gas flowing from interstate pipelines through intrastate pipelines and withdrawal from storage fields to balance supply and demand. As such, storage is an important infrastructure asset in managing gas system operations and reducing price spikes."[39]

The SoCalGas system is designed around strategically located underground storage resources to provide system flexibility and resiliency. SoCalGas operates four storage fields—Aliso Canyon, Honor Rancho, La Goleta, and Playa del Rey—as an essential part of an integrated transmission system. Aliso Canyon is by far the largest of SoCalGas' four storage fields in terms of inventory, injection, and withdrawal capacity. Underground natural gas storage plays a key role in SoCalGas's delivery of reliable energy at just and reasonable rates to over 20 million people and thousands of businesses, as well as electric generators,[40] refineries, universities, and hospitals. Underground natural gas storage provides supply to customers in response to changes in daily, hourly, and seasonal gas demand, provides a local and strategic supply source, and increases SoCalGas' system-wide capacity and flexibility. Natural gas travels slowly—approximately 20-30 miles per hour—and SoCalGas' receipt points, located at the fringes of the service territory, are too far from the load centers to fully support customers' changing demands throughout the operating day. Our system is also at the terminus of several interstate pipelines delivering gas into California and, as a result, SoCalGas is more likely to be impacted by upstream events. Today and in the past, local underground storage serves as the system's largest contingency resource for flexibility and resiliency, and it remains the primary safeguard against curtailments and their associated significant safety and economic impacts.

[39] *See* 2021 Draft IEPR, Volume III, p. 27.

[40] In the Commission's recent Decision Setting the Interim Range of Aliso Canyon Storage Capacity at Zero to 41.16 Billion Cubic Feet, the Commission acknowledged that "Aliso Canyon has had a critical role in the electric power system's ability to meet regional demand by supplying natural gas to gas-fired electric generation customers" and that "where the gas supply [from Aliso Canyon] is reduced, Energy Division found that reliability is reduced while costs increased due to less optimal resource dispatch." (D.21-11-008 at 5, 7).

2. **Underground natural gas storage enhances system reliability not only at the local level but throughout the western United States.**

The 2021 Draft IEPR, Volume III, discusses the CPUC's ongoing proceeding opened to determine the feasibility of minimizing or eliminating the use of the Aliso Canyon storage facility while still maintaining energy reliability for the region. In this proceeding, the CPUC is currently considering next steps, including whether to pursue alternatives to Aliso Canyon. As the 2021 Draft IEPR notes, California Independent System Operator (CAISO) has asked important questions in the proceeding about "local capacity requirements and local issues that affect the need for generation and have implications for Aliso Canyon" and noted the importance of and volunteered to perform additional local reliability analysis.[41] SoCalGas respectfully agrees with CAISO regarding the need for additional analysis, and stresses the importance of local reliability and the value of in-state and local resources.

While these local considerations are of vital importance, California should also consider broader impacts to the western United States. As has been recognized and is evidenced below, in-Basin gas storage is a critical component of energy reliability, not just in California, but throughout the entire western region. Weather and market events outside of California can impact the price and availability of California's natural gas supply, and the loss of storage in California can impact prices and reliability in neighboring states.

The North American Electric Reliability Corporation (NERC) recently published its 2021 Long Term Reliability Assessment (LTRA), which highlights reliability risks to the Western United States.[42] The LTRA highlights that "[r]eliable operation of thermal generating units and fuel assurance is critically important, especially during extreme weather events," adding that "energy risks are present today as electricity resources are insufficient to manage the risk of load loss when wide-area heat events occur."[43] As one relevant policy suggestion notes, "regulators and policymakers in risk areas should coordinate with electric industry planning and operating entities to develop policies that prioritize reliability, including those that would promote the development and use of flexible resources and maintain a sustainable and diverse generation mix."[44] A prior study on behalf of the Western Electricity Coordinating Council (WECC) conducted by Wood Mackenzie, Energy + Environmental Economics (E3) and Argonne National Laboratory had

---

[41] *See* 2021 Draft IEPR, Volume III, p. 41

[42] *See* "2021 Long-Term Reliability Assessment (LTRA)," NERC, December 2021, available at: https://www.nerc.com/pa/RAPA/ra/Reliability%20Assessments%20DL/NERC_LTRA_2021.pdf.

[43] *Id.* at 9.

[44] *Ibid.*

reached similar conclusions.[45, 46] These suggestions provide relevant and helpful guidance as the State considers potential alternatives to Aliso Canyon – including the need to prioritize reliability, flexible resources, and creating and maintaining a sustainable and diverse set of resources.

3. **Local underground storage provides value by enhancing resiliency and mitigating risks associated with extreme weather events.**

Volume III, Appendix D of the 2021 Draft IEPR notes that "California's underground gas storage provided two benefits during Winter Storm Uri. First, gas that had been stored during summer was lower in price than any daily spot gas utilities or generators would need to buy and allowed them to avoid higher-cost purchases. Second, underground storage provided physical supply. As much as half the load on both PG&E and SoCalGas was served with gas from storage during the storm."[47]

The underlying facts support the conclusion that local underground storage provides value by enhancing resiliency and mitigating risks associated with extreme weather events. Recent events and trends have shown that challenging conditions could prevent or limit natural gas and electric imports: changing electric generation profiles outside of California may place a higher premium on firm and dispatchable generation; electric and gas demand in neighboring states may limit imports; climate change related emergencies such as wildfires could result in Public Safety Power Shutoff (PSPS) events or generally restrict the capabilities of certain parts of the upstream system; freezing temperatures could cause well freeze-offs in production basins; or weather conditions east of California can (and have) affected the availability to downstream markets (i.e., California) of upstream supplies. When these events occur, California has limited options. Today and in the past, local underground storage serves as the energy system's largest contingency resource for flexibility and resiliency.

Consistent with these observations, SoCalGas notes that, recently, the North American Electric Reliability Corporation (NERC) highlighted in its 2021 Long-Term Reliability Assessment (LTRA) that "regulators and policymakers should review the scope of their resource adequacy requirements to ensure that they address risks of both energy and capacity shortfalls and consider both peak and non-peak demand hours. They should also consider limitations from neighboring systems during wide-area, long-duration extreme weather events and potential generator fuel

---

[45] *See* "Western Interconnection Gas: Electric Interface Study," Wood Mackenzie, June 2018, available at: https://www.wecc.org/Reliability/Western%20Interconnection%20Gas-Electric%20Interface%20Study%20Public%20Report.pdf.

[46] The Western Electricity Coordinating Council (WECC) commissioned Wood Mackenzie, Energy + Environmental Economics (E3), and Argonne National Laboratory to conduct a study of the gas-electric interface in the Western Interconnection to identify potential threats to grid reliability at present and in the future (WECC Study). The WECC Study recognized the critical importance of the Aliso Canyon facility and found limitations on Aliso Canyon had heightened region-wide reliability risks to the Western Interconnection (a wide area synchronous grid stretching from Western Canada south to Baja California in Mexico, reaching eastward over the Rockies to the Great Plains).

[47] 2021 Draft IEPR, Volume III, p. D-1.

supply limitations."[48] Local underground storage enhances energy system resiliency and mitigates risks to ratepayers.

4. **The CEC should clarify that limits on the ability to leverage underground natural gas storage are linked to price volatility and potential system vulnerability.** [49]

In October 2020, CPUC Staff in Investigation 17-02-002 found that the State's restrictions on the use of Aliso Canyon exacerbated the impacts of pipeline interruptions and led to significant price volatility.[50, 51] Without the ability to fully use SoCalGas' storage assets at intended volumes, pipeline limitations have a more noticeable impact on system operations and the market. The analysis found that "SoCal Citygate and SoCal Border prices became more volatile in 2017 and even more so in 2018."[52] When the CPUC lessened restrictions on withdrawals from Aliso Canyon, the Commission also found that the changes contributed to natural gas and electricity prices remaining relatively stable during summer 2019. Specifically, the Commission noted:

> Summer 2019 was the first season without abnormal gas price volatility since October 2017, when the region began experiencing the combined impacts of the Line 235-2 rupture and the Aliso Canyon storage field restrictions. Generally, moderate weather, high production from out-of-state gas and oil wells, ample hydroelectric energy, and revisions to the Aliso Canyon Withdrawal Protocol contributed to a stabilizing of average gas prices.[53]

5. **The 2021 IEPR should clarify why SoCalGas was able to withdraw additional gas during Winter Storm Uri.**

On page 49 of Volume III, the 2021 Draft IEPR incorrectly states "due to the emergency circumstances, SoCalGas was allowed to withdraw additional gas from storage. This withdrawal allowed SoCalGas to meet demand while limiting gas purchases on the open market, thereby

---

[48] *Id.* NERC LTRA at 9.
[49] 2021 Draft IEPR, Volume III, p. 21.
[50] Notably, earlier in the report, the IEPR appears to correctly recognize that the price spikes were the result of both storage constraints and pipeline outages: "It may be easy to attribute the discrepancy between SoCal Border and PG&E Southern Border prices in 2018 to the combination of constraints on SoCalGas' northern system (caused by the October 2017 explosion of Line 235-2 and continuing integrity problems with Line 4000 and Line 3000) and reduced storage availability at the Aliso Canyon Natural Gas Storage Facility (Aliso Canyon). *Ibid*.
[51] *See* "Aliso Canyon I.17-02-002 Phase 2: Results of Econometric Modeling," CPUC, November 2, 2020, available at: https://www.cpuc.ca.gov/-/media/cpuc-website/divisions/energy-division/documents/natural-gas/aliso-canyon/november-2-2020-results-of-econometric-modeling.pdf.
[52] *Id*. at 3.
[53] *See* "Summer 2019 SoCalGas Conditions and Operations Report," CPUC, July 20, 2020, p. 4, available at: https://www.cpuc.ca.gov/-/media/cpuc-website/files/uploadedfiles/cpucwebsite/content/news_room/newsupdates/2020/summerlookback2019report-final.pdf.

minimizing core gas customer exposure to extreme market prices" during Winter Storm Uri.[54] Condition 4 of the CPUC's Aliso Canyon Withdrawal Protocol (ACWP)[55] is the only emergency-driven condition of the ACWP that allows withdrawals from Aliso Canyon. Condition 4 was not implemented during the February 12-20, 2021, Winter Storm Uri period. Gas was successfully withdrawn using the non-emergency ACWP Condition 1, which allows for Aliso Canyon withdrawals when preliminary low Operational Flow Order (OFO) calculations for any nomination cycle result in a Stage 2 low OFO or higher for the applicable gas day. We respectfully request that the CEC correct this statement on page 49.

6. SoCalGas suggests the consideration of applying a narrower focus to Permian Basin supply issues related to reserves in the Southwest.

In Appendix D, Volume III of the 2021 Draft IEPR discusses the role of storage during Winter Storm Uri and concludes that much of the storage supply withdrawn by PG&E and SoCalGas was not a result of supply disruptions in the Permian Basin and goes on to say that California's reliance on Permian supply is relatively low.[56] Permian Basin supply is critically important for customers in Imperial, Riverside, and San Diego Counties.[57, 58] Absent significant system reconfiguration and increased capacity elsewhere, a large enough loss of supply from the Permian Basin will result in core outages for those customers.

---

[54] 2021 Draft IEPR, Volume III, p. 49.

[55] *See* "Letter from County of Los Angeles to CPUC re Draft Aliso Canyon Withdrawal Protocol," County of Los Angeles, November 2, 2017, available at https://www.cpuc.ca.gov/aliso and https://efiling.energy.ca.gov/getdocument.aspx?tn=221671.

[56] *See* 2021 Draft IEPR, Volume III, p. D-14.

[57] *See* "Summer 2021 Southern California Gas Reliability Assessment," CPUC, May 17, 2021, available at: https://www.cpuc.ca.gov/-/media/cpuc-website/divisions/energy-division/documents/natural-gas/aliso-canyon/summer-2021-southern-california-reliability-assessment.pdf.

[58] According to CPUC, "California receives approximately 90 percent of its gas from outside the state, making it vulnerable to supply disruptions beyond its control. For Southern California, a significant portion of this gas comes from the Permian Basin in Texas and New Mexico."

Appendix C. Gas System Control, Planning, and Safety for California's Clean Energy Future

1. **SoCalGas requests that the Commission update the 2021 IEPR to reflect the complete landscape of gas utilities' various customer segments and their related complexities so that the public may have a better understanding of reliability standards being discussed.**

On page 27 of Volume III of the 2021 Draft IEPR, the CEC indicates that the gas utilities serve only two types of customers: core customers, and small commercial and non-core customers.[59] In actuality, the gas utilities serve at least five types of customers including core residential, core non-residential, non-dispatchable electric generation, dispatchable electric generation, and noncore commercial and industrial customers including large oil refineries. Gas utilities provide bundled service to most core customers; and a smaller percentage of core customers electing Core Transport Agents (CTA) service which are provided transportation service from the gas utility and commodity service from their CTA service provider. The gas utilities provide gas transportation and storage service to CTA and have no obligation to purchase gas on their behalf. SoCalGas requests that the Commission to update the 2021 IEPR to reflect the complete landscape of gas utilities' various customer segments and their related complexities so that planning is better informed with respect to of the reliability standards being discussed.

2. **SoCalGas electric generation demand forecasts have not shown early morning ramps in electricity demand during peak system demand conditions.**

On page 24, Volume III of the 2021 Draft IEPR states "gas-fired generators are used to meet the early morning ramp in electricity demand as the sun rises."[60] SoCalGas has not forecast any significant early morning ramp of gas use related to electricity demand in its forecasts of high demand summer and winter conditions. It may be that the CEC referring to a ramp *down* of electric generation in the morning as solar comes online or to a less extreme demand condition.

3. **The Draft IEPR needs to be refined in its discussion of the role L235-2 plays in the amount of gas delivery to Wheeler Ridge Zone.**

On page 34, the 2021 Draft IEPR Volume III states: "The Wheeler Ridge Zone can receive up to 810 MMcfd under certain conditions but only 765 MMcfd on a firm basis. This increase to 810 MMcfd is possible only if Line 235-2 is out of service, thus removing downstream competition on the pipelines."[61] This statement appears to mischaracterize the underlying system topography. The Line 235-2 status plays a role, but so does system send out (demand and injection), operations, and delivery pressure from Kern/Mojave. SoCalGas has historically received supply in excess of

[59] 2021 Draft IEPR, Volume III, p. 27.
[60] *Id*. at 24.
[61] *Id*. at 34.

765 MMcfd at Wheeler Ridge at times in the past with Line 235-2 in service, and requests that the Energy Commission correct this statement in the report.

4. **The Draft IEPR content addressing Southern System core customer load risk during the current winter operating season appears to be overstated.**

On page 39, the 2021 Draft IEPR Volume III states "Heightened Southern System Risk: The El Paso Natural Gas (EPNG) rupture likely places customers located in the SoCalGas' Southern Zone at higher risk this winter should a cold day occur. This is because that system is limited to supply received at Ehrenberg or Otay Mesa. Gas from storage in the Los Angeles Basin cannot reach customers in the Southern Zone… On a cold day, somewhat less than 20 percent of that load would be from noncore customers. On this basis, Southern System core customer load could be at risk of curtailment. CEC staff has constructed and run a preliminary hydraulic analysis that appears to confirm this risk assessment [emphasis added]."[62]

SoCalGas's analysis finds no risk to core service on the Southern System or elsewhere this winter unless Aliso Canyon is not available. Under a scenario with the ongoing El Paso outage, we have sufficient capacity to support 3.9 billion cubic feet per day (Bcfd) of demand with Aliso Canyon. This is significantly greater than the forecast 1-in-35-year peak day demand of 3.4 Bcfd for the core market. It may be helpful for the respective modeling and system control teams from SoCalGas and the CEC to exchange data and details on the analysis results.

5. **The Draft IEPR's assertion that SoCalGas would begin to curtail noncore summer load when demand is high in order to preserve gas storage supplies for winter use is somewhat speculative.**

On page 55 of Volume III, the 2021 Draft IEPR states, "To allow SoCalGas to meet winter inventory requirements of 60 Bcf in storage by November 1, the utility would undoubtedly begin to curtail noncore load when demand is high."[63] It goes on to lay out the strategy that we would presumably use to make these curtailments.[64] We respectfully express that SoCalGas has not determined to undertake the strategy described by the CEC with such certainty so as to support the term "undoubtedly." We note that underlying such an assertion is the question of whether it's valid to curtail a noncore customer during the summer season in order to prevent a *possible* curtailment of that noncore customer during the following winter season.

---

[62] *Id. at* 39.
[63] *Id. at* 55.
[64] *Ibid*.

Appendix D. Corrections/Errata

1. **An important citation regarding the alternate fuel requirements for noncore customers is omitted and should be added.**

On page 28 of Volume III, the 2021 Draft IEPR omits an important citation concerning alternate fuel requirements for noncore customers. Prior to 1993, noncore customers were required to maintain alternate fuel capability as a condition for receiving noncore service. Noncore customers were relieved of this requirement by the CPUC order in 1993.[65] Reliability standards ratified by the CPUC order in 2006 assumed that these customers would curtail if ordered even though alternate fuel capability was no longer required.[66]

2. **SoCalGas requests various corrections and additions to Volume III regarding gas utility pipeline safety, and gas system reliability and planning, gas distribution, and gas balance results.**

- **Page 35**: The CEC staff's assumption of Ehrenberg's flow reduction is 250 MMcfd. According to El Paso, and after the explosion, the Ehrenberg capacity reduction is 478,750. We believe the flow reduction is higher than 250 MMcfd.[67]
- **Page 36**: The report assumes that Ehrenberg's total volume is 730 MMcfd. This assumption suggests that the total volume is constant. The Ehrenberg total volume varies daily.[68]
- **Page 40**: The report erroneously characterizes a 2017 letter from the former chair of the CEC to the former president of the CPUC as being a letter from former Governor Edmund G. Brown Jr. SoCalGas requests that the report indicate that letter is from the former chair of the CEC.
- **Page 89**: The 2021 Draft IEPR statement, "SoCalGas and SDG&E Pipeline Safety and Enhancement Plan (PSEP) projects are still ongoing~~, as the last construction starts for the final projects are scheduled to occur in 2025~~" [strikethrough added] is not accurate.[69] SoCalGas and SDG&E continue to execute its PSEP through a risk-based prioritization methodology that prioritizes pipelines located in more populated areas ahead of pipelines located in less populated areas and further prioritizes pipelines operated at higher stress levels above those operated at lower stress levels (PSEP is divided into Phases 1A and 1B, and Phases 2A and 2B to implement this prioritization

[65] CPUC Decision 93-09-082: "We find it is in the public interest to remove the requirement for noncore customers to maintain an alternate fuel system or demonstrate the economic practicality of such an installation, provided that we set meaningful penalties for those who fail to promptly curtail their gas usage when required." (pg. 1)
[66] *See* D.06-09-039.
[67] *See* Notice Detail: Force Majeure - Line 2000 – Update #2, El Paso Natural Gas LLC, available at: https://pipeline2.kindermorgan.com/Notices/NoticeDetail.aspx?code=EPNG&pl_id=1279&notc_nbr=612971
[68] *See* Attachment 1: SoCalGas Gas Flow, Available Capacity versus Scheduled.
[69] *See* 2021 Draft IEPR, Volume III, p. 89.

process). The 2021 IEPR should be updated to reflect SoCalGas's strikethrough correction.

- **Page 91:** SoCalGas believes it is important to highlight that the federal Pipeline Hazardous Materials Safety Administration (PHMSA) regulations in response to the PG&E pipeline explosion in San Bruno[70] were enhanced as recently as July 1, 2020, in their Pipeline Safety: Safety of Gas Transmission Pipelines, Maximum Allowable Operating Pressure (MAOP) Reconfirmation, Expansion of Assessment Requirements, and other related amendments.[71]
- **Page 91, Table 7**: SoCalGas recommends the term "leak backlog" be changed to "leak inventory," which is the term used more conventionally in the gas utility industry. Leak inventory is the term used to describe historical leaks SoCalGas is in the process of remediating.
- **Page 94**: Line 3000 is expected to return to service on February 18, 2022.[72]
- **Page 96**: The 2021 Draft IEPR states, "CEC staff has worked with staff at CPUC and California Geologic Energy Management Division (CalGEM) to help establish schedules for the testing to make sure gas is available to preserve reliability during high demand periods."[73] SoCalGas remains in a restrictive 2-year inspection cycle. This distinction should be added for clarification.
- **Page 126**: Pembina has notified FERC of its decision to not proceed with the proposed Jordan Cove LNG project.[74, 75]
- **Page 137**: The CEC should develop natural gas forecasts at the granularity needed for gas system planning and reliability assessments: average annual monthly 1-in-10 cold winter; and abnormal or extreme winter peak day, with hourly breakdowns, and receipt point constraints.[76]
- **Page D-20, Appendix D**: There is a typo that makes a sentence regarding gas balance results confusing. The sentence should be corrected as follows: "For the summer months (May through October), staff included ~~the under~~ the Sigma 2 Demand Case" [strikethrough added].

---

[70] *See* "Pacific Gas & Electric Pipeline Rupture in San Bruno, CA," U.S. Department of Transportation (DoT), May 25, 2017, available at: https://www.phmsa.dot.gov/safety-awareness/pipeline/pacific-gas-electric-pipeline-rupture-san-bruno-ca.

[71] For additional detail, see PHMSA Gas Mega Rule Part 1, "The Safety of Gas Transmission Pipelines: MAOP Reconfirmation, Expansion of Assessment Requirements, and Other Related Amendments Final Rule", *Federal Register*, 84 FR 52180-52257 (amending 49 CFR 191-192), RIN 2137-AE72, available at: https://www.federalregister.gov/regulations/2137-AE72/pipeline-safety-safety-of-gas-transmission-pipelines-maop-reconfirmation-expansion-of-assessment-req.

[72] *See* Attachment 2: SoCalGas Pipeline/Station Maintenance Schedule.

[73] *See* 2021 Draft IEPR, Volume III, p. 96.

[74] *See* "Jordan Cove project dies. What it means for FERC, gas," EnergyWire, available at: https://www.eenews.net/articles/jordan-cove-project-dies-what-it-means-for-ferc-gas/

[75] *See* "Pembina nixes Jordan Cove LNG plant project in Oregon," Reuters, available at: https://www.reuters.com/markets/commodities/pembina-nixes-jordan-cove-lng-plant-project-oregon-2021-12-01/

[76] *See* Attachment 3: SoCalGas Southern System Minimums Notification.

Attachment 1: SoCalGas Gas Flow, Available Capacity versus Scheduled

Available Capacity vs. Scheduled

Last Updated: 01/21/2022 08:15 AM PCT

Gas Flow Date	Cycle	Receipt Point	Available Capacity (Dth)	Total Scheduled (Dth)	Firm Nomination Primary (Dth)	Firm Scheduled Primary (Dth)	Firm Nomination Within Zone (Dth)	Firm Scheduled Within Zone (Dth)	Firm Nomination Outside Zone (Dth)	Firm Scheduled Outside Zone (Dth)	Interruptible Nomination (Dth)	Interruptible Scheduled (Dth)
01/22/2022	1	California Producers - Line 85	66,112	0	0	0	0	0	0	0	0	0
01/22/2022	1	California Producers - North Coastal	165,281	0	3,810	0	0	0	0	0	0	0
01/22/2022	1	California Producers - Other	112,191	0	2,574	0	0	0	610	0	7,769	0
01/22/2022	1	El Paso - Topock	552,940	0	0	0	0	0	0	0	0	0
01/22/2022	1	Transwestern - Topock	306,521	0	0	0	0	0	0	0	0	0
01/22/2022	1	TW Topock/EPN Topock - Sub-Zone Limit	0	0	0	0	0	0	0	0	0	0
01/22/2022	1	Questar Southern Trails - Needles	0	0	0	0	0	0	0	0	0	0
01/22/2022	1	Transwestern - Needles	822,398	0	192,220	0	0	0	0	0	4,001	0
01/22/2022	1	TW North Needles/QST North Needles - Sub-Zone	822,398	0	192,220	0	0	0	0	0	4,001	0
01/22/2022	1	Needles/Topock - Area Zone	822,398	0	192,220	0	0	0	0	0	4,001	0
01/22/2022	1	Kern River/Mojave - Kramer Junction	574,977	0	303,836	0	0	0	72	0	4,001	0
01/22/2022	1	Northern Zone	1,285,185	0	496,056	0	0	0	72	0	8,002	0
01/22/2022	1	El Paso - Ehrenberg	1,251,127	0	243,748	0	0	0	52,745	0	2,016	0
01/22/2022	1	North Baja - Blythe	622,057	0	0	0	0	0	0	0	0	0
01/22/2022	1	EPN Ehrenberg/NBP Blythe - Sub-Zone	1,017,730	0	243,748	0	0	0	52,745	0	2,016	0
01/22/2022	1	TGN - Otay Mesa	413,703	0	0	0	0	0	0	0	0	0
01/22/2022	1	Southern Zone	877,492	0	243,748	0	0	0	52,745	0	2,016	0
01/22/2022	1	Elk Hills (OEHI) Gosford - Wheeler Ridge	155,264	0	0	0	0	0	0	0	0	0
01/22/2022	1	Pacific Gas & Electric - Wheeler Ridge	562,957	0	85,955	0	0	0	0	0	0	0
01/22/2022	1	PG&E Kern River Station/OEHI sford - Sub-Zone	569,969	0	85,955	0	0	0	0	0	0	0
01/22/2022	1	Kern River/Mojave - Wheeler Ridge	836,422	0	190,849	0	0	0	37,064	0	20,000	0
01/22/2022	1	Wheeler Ridge - Zone	836,422	0	276,804	0	0	0	37,064	0	20,000	0
01/21/2022	3	California Producers - Line 85	66,112	0	50,577	0	0	0	6,423	0	0	0
01/21/2022	3	California Producers - North Coastal	165,281	0	4,210	0	0	0	9,274	0	1,121	0
01/21/2022	3	California Producers - Other	112,191	0	3,464	0	0	0	3,826	0	7,929	0
01/21/2022	3	El Paso - Topock	552,940	0	0	0	0	0	0	0	0	0
01/21/2022	3	Transwestern - Topock	306,521	0	0	0	0	0	0	0	0	0
01/21/2022	3	TW Topock/EPN Topock - Sub-Zone Limit	0	0	0	0	0	0	0	0	0	0
01/21/2022	3	Questar Southern Trails - Needles	0	0	0	0	0	0	0	0	0	0
01/21/2022	3	Transwestern - Needles	823,400	0	672,067	0	0	0	37,366	0	4,009	0
01/21/2022	3	TW North Needles/QST North Needles - Sub-Zone	823,400	0	672,067	0	0	0	37,366	0	4,009	0
01/21/2022	3	Needles/Topock - Area Zone	823,400	0	672,067	0	0	0	37,366	0	4,009	0
01/21/2022	3	Kern River/Mojave - Kramer Junction	574,977	0	488,811	0	0	0	70,123	0	4,001	0
01/21/2022	3	Northern Zone	1,286,187	0	1,160,878	0	0	0	107,489	0	8,010	0
01/21/2022	3	El Paso - Ehrenberg	1,251,127	0	771,148	0	2	0	219,084	0	27,064	0
01/21/2022	3	North Baja - Blythe	622,057	0	1,000	0	0	0	0	0	0	0
01/21/2022	3	EPN Ehrenberg/NBP Blythe - Sub-Zone	1,030,752	0	772,148	0	2	0	219,084	0	27,064	0
01/21/2022	3	TGN - Otay Mesa	414,705	0	0	0	0	0	0	0	0	0

Gas Flow Date	Cycle	Receipt Point	Available Capacity (Dth)	Total Scheduled (Dth)	Firm Nomination Primary (Dth)	Firm Scheduled Primary (Dth)	Firm Nomination Within Zone (Dth)	Firm Scheduled Within Zone (Dth)	Firm Nomination Outside Zone (Dth)	Firm Scheduled Outside Zone (Dth)	Interruptible Nomination (Dth)	Interruptible Scheduled (Dth)
01/21/2022	3	Southern Zone	881,499	0	772,148	0	2	0	219,084	0	27,064	0
01/21/2022	3	Elk Hills (OEHI) Gosford - Wheeler Ridge	155,264	0	15,000	0	0	0	0	0	0	0
01/21/2022	3	Pacific Gas & Electric - Wheeler Ridge	562,957	0	230,192	0	0	0	20,000	0	0	0
01/21/2022	3	PG&E Kern River Station/OEHI sford - Sub-Zone	569,969	0	245,192	0	0	0	20,000	0	0	0
01/21/2022	3	Kern River/Mojave - Wheeler Ridge	836,422	0	545,787	0	0	0	37,064	0	20,000	0
01/21/2022	3	Wheeler Ridge - Zone	836,422	0	790,979	0	0	0	57,064	0	20,000	0
01/21/2022	2	California Producers - Line 85	66,112	57,000	50,577	50,577	0	0	6,423	6,423	0	0
01/21/2022	2	California Producers - North Coastal	165,281	18,750	4,210	4,206	0	0	9,274	9,273	5,271	5,271
01/21/2022	2	California Producers - Other	112,191	15,215	3,464	3,464	0	0	3,826	3,825	7,929	7,926
01/21/2022	2	El Paso - Topock	552,940	0	0	0	0	0	0	0	0	0
01/21/2022	2	Transwestern - Topock	306,521	0	0	0	0	0	0	0	0	0
01/21/2022	2	TW Topock/EPN Topock - Sub-Zone Limit	0	0	0	0	0	0	0	0	0	0
01/21/2022	2	Questar Southern Trails - Needles	0	0	0	0	0	0	0	0	0	0
01/21/2022	2	Transwestern - Needles	823,400	600,790	672,067	569,248	0	0	37,365	31,494	4,009	48
01/21/2022	2	TW North Needles/QST North Needles - Sub-Zone	823,400	600,790	672,067	569,248	0	0	37,365	31,494	4,009	48
01/21/2022	2	Needles/Topock - Area Zone	823,400	600,790	672,067	569,248	0	0	37,365	31,494	4,009	48
01/21/2022	2	Kern River/Mojave - Kramer Junction	574,977	531,417	488,811	482,173	0	0	70,123	49,244	4,001	0
01/21/2022	2	Northern Zone	1,286,187	1,132,207	1,160,878	1,051,421	0	0	107,488	80,738	8,010	48
01/21/2022	2	El Paso - Ehrenberg	1,251,127	791,198	771,148	715,016	2	0	91,375	55,165	27,064	21,017
01/21/2022	2	North Baja - Blythe	622,057	1,000	1,000	1,000	0	0	0	0	0	0
01/21/2022	2	EPN Ehrenberg/NBP Blythe - Sub-Zone	1,030,752	792,198	772,148	716,016	2	0	91,375	55,165	27,064	21,017
01/21/2022	2	TGN - Otay Mesa	414,705	0	0	0	0	0	0	0	0	0
01/21/2022	2	Southern Zone	908,545	792,198	772,148	716,016	2	0	91,375	55,165	27,064	21,017
01/21/2022	2	Elk Hills (OEHI) Gosford - Wheeler Ridge	155,264	15,000	15,000	15,000	0	0	0	0	0	0
01/21/2022	2	Pacific Gas & Electric - Wheeler Ridge	562,957	246,118	230,192	230,190	0	0	20,000	15,928	0	0
01/21/2022	2	PG&E Kern River Station/OEHI sford - Sub-Zone	569,969	261,118	245,192	245,190	0	0	20,000	15,928	0	0
01/21/2022	2	Kern River/Mojave - Wheeler Ridge	836,422	564,046	545,787	545,057	0	0	37,064	18,989	20,000	0
01/21/2022	2	Wheeler Ridge - Zone	836,422	825,164	790,979	790,247	0	0	57,064	34,917	20,000	0
01/21/2022	1	California Producers - Line 85	66,112	57,000	50,577	50,577	0	0	6,423	6,423	0	0
01/21/2022	1	California Producers - North Coastal	165,281	18,750	4,210	4,206	0	0	9,274	9,273	5,271	5,271
01/21/2022	1	California Producers - Other	112,191	15,215	3,464	3,464	0	0	3,826	3,825	7,929	7,926
01/21/2022	1	El Paso - Topock	552,940	0	0	0	0	0	0	0	0	0
01/21/2022	1	Transwestern - Topock	306,521	0	0	0	0	0	0	0	0	0
01/21/2022	1	TW Topock/EPN Topock - Sub-Zone Limit	0	0	0	0	0	0	0	0	0	0
01/21/2022	1	Questar Southern Trails - Needles	0	0	0	0	0	0	0	0	0	0
01/21/2022	1	Transwestern - Needles	823,400	738,948	672,067	671,066	0	0	67,834	67,834	4,009	48
01/21/2022	1	TW North Needles/QST North Needles - Sub-Zone	823,400	738,948	672,067	671,066	0	0	67,834	67,834	4,009	48
01/21/2022	1	Needles/Topock - Area Zone	823,400	738,948	672,067	671,066	0	0	67,834	67,834	4,009	48
01/21/2022	1	Kern River/Mojave - Kramer Junction	573,976	508,353	488,811	488,331	0	0	40,123	20,022	4,001	0

Gas Flow Date	Cycle	Receipt Point	Available Capacity (Dth)	Total Scheduled (Dth)	Firm Nomination Primary (Dth)	Firm Scheduled Primary (Dth)	Firm Nomination Within Zone (Dth)	Firm Scheduled Within Zone (Dth)	Firm Nomination Outside Zone (Dth)	Firm Scheduled Outside Zone (Dth)	Interruptible Nomination (Dth)	Interruptible Scheduled (Dth)
01/21/2022	1	Northern Zone	1,286,187	1,247,301	1,160,878	1,159,397	0	0	107,957	87,856	8,010	48
01/21/2022	1	El Paso - Ehrenberg	1,251,127	839,177	771,148	763,771	2	0	90,994	54,784	27,064	20,622
01/21/2022	1	North Baja - Blythe	622,057	1,000	1,000	1,000	0	0	0	0	0	0
01/21/2022	1	EPN Ehrenberg/NBP Blythe - Sub-Zone	1,024,742	840,177	772,148	764,771	2	0	90,994	54,784	27,064	20,622
01/21/2022	1	TGN - Otay Mesa	413,703	0	0	0	0	0	0	0	0	0
01/21/2022	1	Southern Zone	906,541	840,177	772,148	764,771	2	0	90,994	54,784	27,064	20,622
01/21/2022	1	Elk Hills (OEHI) Gosford - Wheeler Ridge	155,264	15,000	15,000	15,000	0	0	0	0	0	0
01/21/2022	1	Pacific Gas & Electric - Wheeler Ridge	562,957	246,118	230,192	230,190	0	0	20,000	15,928	0	0
01/21/2022	1	PG&E Kern River Station/OEHI sford - Sub-Zone	569,969	261,118	245,192	245,190	0	0	20,000	15,928	0	0
01/21/2022	1	Kern River/Mojave - Wheeler Ridge	836,422	564,055	545,787	545,066	0	0	37,064	18,989	20,000	0
01/21/2022	1	Wheeler Ridge - Zone	836,422	825,173	790,979	790,256	0	0	57,064	34,917	20,000	0

Attachment 2: SoCalGas Pipeline/Station Maintenance Schedule

SOUTHERN CALIFORNIA GAS COMPANY
PIPELINE/STATION MAINTENANCE SCHEDULE

Receipt Capacity

Location Type	Location	Start Date	End Date	Maintenance Type	Description	Capacity Reduction (MMCF)	Capacity Reduction (Dth)
Area Zone	Needles/Topock Area Zone	10/01/2021	TBD	Planned	L4000 and L235 Operational Restrictions	540	551,340
Sub-Zone	EP-Ehrenberg/NBP-Blythe	03/29/2018	TBD	Planned	L2000 Right of Way Expiration. See last critical notice titled "Southern System Right-of-Way" dated 4/16/2020 for more information.	30	30,990
Sub-Zone	EP-Ehrenberg/NBP-Blythe	01/02/2015	TBD		L2000 - Planned Outage - Voluntary decrease of maximum operating pressure on L2000 Southern Transmission Zone by approximately 20%. This change is being made to further improve and maintain the safety of So Cal Gas pipelines. Note: Original Job start date 8-5-2011.	202	208,666
Sub-Zone	TW-Topock/EP-Topock	09/11/2021	02/18/2022 11:59:59 PM PCT	Unplanned	Line 3000 Safety Related Condition.	350	358,050
Sub-Zone	TW-Topock/EP-Topock	10/01/2018	TBD	Planned	L3000 Operational Restrictions	190	194,370
Zone	Northern Zone	10/01/2021	TBD	Planned	L4000 and L235 Operational Restrictions	340	349,180
Zone	Southern Zone	10/25/2021	12/17/2021 11:59:59 PM PCT	Planned	L2000 PSEP Hydrotest	150	154,950
Zone	Southern Zone	03/10/2018	TBD	Critical	Zone reduced because of seasonal load conditions	460	475,180

Storage Injection Capacity

Location Type	Location	Start Date	End Date	Maintenance Type	Description	Capacity Reduction (MMCF)	Capacity Reduction (Dth)
Storage Field - Inj	Aliso Canyon	11/05/2021	TBD	Planned	Storage Integrity Management Program (SIMP). Please note: SIMP is a continuous well inspection program. SoCalGas will post future SIMP-related reductions as appropriate.	95	98,230
Storage Field - Inj	Goleta	11/13/2021	TBD	Planned	Field Full.	60	62,040
Storage Field - Inj	Goleta	08/16/2021	TBD	Unplanned	Mechanical limitations at Olive Street Compressor Station. Compression improvements discussed in the Test Year 2019 General Rate Case. Origionally posted Feb 23 2017.	20	20,680
Storage Field - Inj	Goleta	03/12/2013	TBD	Unplanned	Non Maintenance related due to diminished California Production. Not enough supply is available to meet North Coastal demand and injection.	50	51,700
Storage Field - Inj	Honor Rancho	10/31/2021	TBD	Planned	Well Limitations/Field Inventory	120	124,080
Storage Field - Inj	Honor Rancho	02/13/2016	TBD	Unplanned	Unplanned - Main unit horsepower and RPM reductions required due to mechanical limitations.	50	51,700
Storage Field - Inj	Playa del Rey	12/10/2021	12/20/2021 11:59:59 PM PCT	Unplanned	Compressor Maintenance	25	25,850

Location Type	Location	Start Date	End Date	Maintenance Type	Description	Capacity Reduction (MMCF)	Capacity Reduction (Dth)
Storage Field - Inj	Playa del Rey	11/11/2021	02/22/2022 11:59:59 PM PCT	Planned	Compressor Maintenance	25	25,850

Storage Withdrawal Capacity

Location Type	Location	Start Date	End Date	Maintenance Type	Description	Capacity Reduction (MMCF)	Capacity Reduction (Dth)
Storage Field - Wth	Aliso Canyon	12/19/2015	TBD		Withdrawal from Aliso canyon is discontinued unless needed for system reliability.	1,850	1,912,900
Storage Field - Wth	Goleta	09/25/2021	TBD	Unplanned	Storage Integrity Management Program (SIMP). Please note: SIMP is a continuous well inspection program. SoCalGas will post future SIMP-related reductions as appropriate.	175	180,950
Storage Field - Wth	Goleta	09/25/2021	TBD	Unplanned	Well Isolation. O & M. Reliability.	55	56,870
~~Storage Field - Wth~~	~~Honor Rancho~~	~~12/15/2021~~	~~12/17/2021 06:33:58 PM PCT~~	~~Unplanned~~	~~Well Isolation. O&M. Reliability~~	~~80~~	~~82,720~~
Storage Field - Wth	Honor Rancho	10/31/2021	TBD	Planned	Storage Integrity Management Program (SIMP). Please note: SIMP is a continuous well inspection program. SoCalGas will post future SIMP-related reductions as appropriate.	260	268,840
Storage Field - Wth	Honor Rancho	10/31/2021	TBD	Planned	Well Limitations / Field Inventory	80	82,720
Storage Field - Wth	Playa del Rey	11/10/2021	TBD	Unplanned	Storage Integrity Management Program (SIMP) Please note: SIMP is a continuous well inspection program.	95	98,230
Storage Field - Wth	Playa del Rey	11/10/2021	TBD	Planned	Well Limitations/Field Inventory	20	20,680

Last updated: 12/17/2021 06:34:08 PM PCT

Legend
New
Revised Entry
~~Deleted~~
~~Completed/Expired~~

Attachment 3: SoCalGas Southern System Minimums Notification

Attachments: MinFlowReq20220121T060255.pdf

Southern System Minimums shown are for cycle 1 posted at 6 a.m.

Same Day 01/21/2022
System Minimum: 548,933 dth
Delivery Guideline: 387,127 dth
Estimated Gas Acq. Southern System Usage: 469,905 dth

Next Day 01/22/2022
System Minimum: 513,874 dth
Delivery Guideline: 351,340 dth
Estimated Gas Acq. Southern System Usage: 432,187 dth

Details:

Same Day 01/21/2022
* Cycle 3 total system sendout: 2,620,455 dth
* Retail Core Burn: 1,468,454 dth
* Core Share: 56%
* Adjustment Factor: 1.2585
* Target Share: 71%

Next Day 01/22/2022
* Cycle 1 total system sendout: 2,486,000 dth
* Retail Core Burn: 1,350,583 dth
* Core Share: 54%
* Adjustment Factor: 1.2585
* Target Share: 68%