

DOCKETED	
Docket Number:	19-MISC-03
Project Title:	The Natural Gas Infrastructure and Decarbonization Targets
TN #:	228835
Document Title:	Southern California Gas Company Comments SoCalGas Comments on E3 Draft Results Future of Nat Gas Distribution
Description:	N/A
Filer:	System
Organization:	Southern California Gas Company
Submitter Role:	Public
Submission Date:	6/21/2019 4:59:14 PM
Docketed Date:	6/24/2019

*Comment Received From: Southern California Gas Company
Submitted On: 6/21/2019
Docket Number: 19-MISC-03*

SoCalGas Comments on E3 Draft Results Future of Nat Gas Distribution

Additional submitted attachment is included below.



George I. Minter
Regional Vice President
External Affairs & Environmental Strategy
Southern California Gas Company
555 W. 5th Street
Los Angeles, CA 90013

June 21, 2019

California Energy Commission
Dockets Office, MS-4
1516 Ninth Street
Sacramento, CA 95814-5512

Subject: Comments on the “Draft Results: Future of Natural Gas Distribution in California” presentation by E3, CEC Staff Workshop—Docket # 19-MISC-03

Southern California Gas Company (SoCalGas) appreciates the opportunity to comment on the California Energy Commission’s (Commission) workshop on June 6, 2019 to receive input on the draft results generated by the Energy and Environmental Economics, Inc. (E3) and the University of California at Irvine (UCI) for a research project (Study) designed to inform the investigation of the role of the natural gas system in the decarbonization of the California energy system. During opening remarks, Commissioner McAllister expressed how the Commission is committed to managing the building decarbonization conversation going forward, backing it up with the “appropriate analysis”, and giving the right advice to sister agencies and the legislature on the topic.

The Study erroneously concludes it is advisable to eliminate an entire energy infrastructure that delivers affordable energy to customers today and which can be a vital part of the solution for delivering decarbonized energy in the future. The natural gas system is also resilient to climate change driven natural disasters, has enabled the high penetration of renewables, and can provide seasonal storage for excess renewable electricity. The Study’s high building electrification pathway is built on a false premise that California’s prime directive should be to exclude decarbonized gas solutions as a viable component. This would be a critical misstep that may not be reversible if the Commission and other agencies unquestioningly accept the Study’s conclusions to drive future decision making.

While SoCalGas agrees research is needed to assess the economy-wide costs of achieving a low-carbon future, we are concerned the draft conclusions presented by the Study’s technical team are simply not backed up by the “appropriate analysis” that the Commission intends. The Study appears to be designed to reach a predetermined conclusion to support high building electrification as the optimal pathway to decarbonize buildings while “shut[ting] down [the] gas

distribution system.”¹ This type of policy conclusion with large scale, economy-wide cost impacts to California residents and businesses would need robust and broad technical support by numerous, independent studies before the Commission should begin to entertain it as a serious future pathway. The Commission should not support analysis that has not been fully vetted by the research community, and which contradicts numerous studies in the public domain that have been brought to the attention of the Commission in this docket. The Commission should question the technical merits of the Study underlying its findings and revisit some of the skewed and technically unsound inputs and assumptions used by E3, including:

- **Underestimation of the amount of biomass feedstocks available to produce biomethane (Renewable Natural Gas (RNG))**—The Study concludes biomass feedstocks are limited and insufficient to produce enough biomethane or RNG to meet demand; however, the two assessments used to draw that conclusion underestimate the amount of biogas available in the State and are not accurate, scientific-based quantifications of biomass feedstock availability.² Further numerous other studies suggest higher volumes of available feedstock, both in-state and out-of-state.³
- **Hydrogen and synthetic natural gas (syngas) benefits are undervalued**—While the benefits of using hydrogen and syngas in existing gas distribution infrastructure are acknowledged in the Study, both are dismissed as viable building decarbonization options due to projected high costs and pipeline blending uncertainty. E3’s projections completely deviate from what credible entities such as the International Energy Association (IEA) are saying about hydrogen,⁴ which further exposes the imbalances in its analysis. IEA sees hydrogen as one of major contributors to decarbonization of multiple sectors, including industry, transportation and other sectors where it is proving difficult to meaningfully reduce greenhouse gas (GHG) emissions. Moreover, IEA sees near-

¹ E3 Draft Results: Future of Natural Gas Distribution in California (E3 Draft Results), at 27. Available at: https://www.energy.ca.gov/research/notices/2019-06-06_workshop/2019-06-06_Future_of_Gas_Distribution.pdf

² Julia Levin of the Bioenergy Association of California (BAC) raised concerns during the workshop about the in-state supply estimate of available biomethane resources. Ms. Levin elaborated on those concerns in the BAC comment letter on this workshop. SoCalGas will not elaborate on these points but agrees with BAC that further examination of the available supply must be undertaken to gain a balanced view of the supply and costs of RNG.

³ See *The Feasibility of Renewable Natural Gas as a Large-Scale, Low Carbon Substitute*, UC Davis Institute of Transportation Studies (June 2016) at ix, available at: <https://steps.ucdavis.edu/wp-content/uploads/2017/05/2016-UCD-ITS-RR-16-20.pdf>

⁴ IEA. *The Future of Hydrogen: Seizing Today’s Opportunities* Full report available at: <https://www.iea.org/topics/hydrogen/>

term opportunities in using existing natural gas infrastructure for hydrogen transportation and distribution, which is opposite to the Study's conclusions. Although IEA also identifies hydrogen costs as a challenge, its analysis finds that the cost of producing hydrogen from renewable electricity could fall 30% by 2030 due to declining costs of renewables and the scaling up of hydrogen production.⁵

- **Electric rate increases are underestimated, thereby making building electrification seem more economically attractive to consumers.** The Study is disturbingly misleading in estimating an “uncertain” 6%-8% increase in rates for 2018-2022. Among other things, this is unrealistic as the electric rate projections do not appear to factor in potential increases from, for example, revenue requirements for infrastructure upgrades for wildfire mitigation,⁶ changes in cost of capital,⁷ or additional distribution infrastructure required to meet increased electricity demand from battery-electric vehicles and all-electric buildings.
- **Economy-wide impacts of the electrification scenario raise serious concerns about the assumptions used by E3.** E3 shows the cost of electrification declining post-2030 with costs returning to approximately the 2030-level by 2050.⁸ This is in stark contrast to their previous work.⁹ This new outlook on post-2030 incremental cost for the electrification scenario has not been justified and seems counter to all recent studies and trends. E3 and the Commission should undertake a process to fully vet all assumptions in the Study's analysis.
- **The natural gas system will be underutilized and therefore stranded costs will need to be collected over a broader customer base.** This assumption is a

⁵ Ibid. Pg. 14

⁶ In the 2019 wildfire mitigation plans, for example, the investor-owned utilities proposed a range of important activities to address wildfire risks. The 2019 plans alone are expected to have an annual residential bill incremental impact of about \$85 for Pacific Gas & Electric customers, \$40 for SCE customers, and \$5 for SDG&E customers (SB 695 report), pages 53-64. Available at: https://www.cpuc.ca.gov/uploadedFiles/CPUCWebsite/Content/About_Us/Organization/Divisions/Office_of_Governmental_Affairs/Legislation/2019/SB%20695%20Report_May%202019_FINAL.pdf

⁷ SCE's Cost of Capital filing requests an 11% increase in system average rate, with an increase of over 13% on residential rates by 2020 compared to current 2019 rates. The 2019 rates in SCE's filing do not include the extensive infrastructure investment SCE has proposed for transportation electrification and grid modernization over the next 5 years. SCE's higher cost of capital request will also increase the rate impacts of these capital investments programs. https://www.sce.com/sites/default/files/inline-files/Notice_SCECostofCapital.pdf

⁸ E3 Draft Results, at 19

⁹ In its 2018 report on Deep Decarbonization, E3 showed the incremental cost of their 'Base Mitigation' case would be roughly \$8 billion in 2030 and \$26 billion in 2050. E3 further indicated the 2050 costs could be \$8 to \$35 billion higher in 2050, depending on the assumptions about the diversity of the renewables portfolio. E3's Deep Decarbonization study slides from the June 2018 workshop (Slides 48 and 18) can be accessed here:

<https://efiling.energy.ca.gov/GetDocument.aspx?tn=223756&DocumentContentId=53938>

fundamental flaw as driving accelerated depreciation costs into gas rates makes building electrification appear more cost competitive. The study fails to analyze a gas system that can be used and useful, which demonstrates how the Study seeks results that support its foregone conclusions. The Commission should not accept this kind of an approach that drives to a preconceived public policy outcome. Other credible approaches must be considered.

If the Commission plans to use the Study's analysis as an underpinning of its policy recommendations, all inputs and assumptions must be shared and discussed in an open research forum to reconcile differences. The Commission should not draw policy recommendations from unsound assessments, but rather support research that is balanced and inclusive of recommendations that look at all opportunities available to reduce GHG emissions from buildings. If the goal is to make significant strides to combat climate change, a multifaceted approach that optimizes a diverse portfolio of resources and technologies to lower the carbon intensity of residential and commercial buildings is prudent, especially if there are more cost-effective and less disruptive ways to achieve the same goal.

In addition, SoCalGas is also concerned with the following elements of the Study:

- **Energy affordability**— E3's conclusions show high building electrification will burden low-income customers who remain on the natural gas system. Affordability and choice must remain paramount in any recommendation. However, E3's biased analysis creates a false narrative on energy affordability.
- **Eliminating existing natural gas infrastructure**— An analysis on how existing natural gas assets can be used to deliver RNG or hydrogen was not pursued. This omission falsely dismisses the energy reliability and resiliency benefits provided to communities by a diverse energy system.
- **Narrow analysis**—The Study did not fully address the Scope of Work adopted by the Commission
- **Limited air quality analysis**—The air quality analysis presented in the Study was limited and could be misleading.

Below we elaborate further on these points and ask the Commission to work with E3 to consider these additional comments when finalizing the Study.

I. Energy Affordability

SoCalGas is concerned about energy affordability for its customers and is alarmed to see that the Study concludes low-income customers would be the most burdened by the high building electrification scenario. To reduce future natural gas rates, E3 proposes accelerated depreciation

of gas assets to increase natural gas rates in the near term.¹⁰ E3 acknowledges there are numerous challenges to implement their proposal, which are not part of the Study and will require further research. In fact, there are more questions than answers raised by E3's proposal. The Study presents an option that will artificially increase natural gas rates to deliberately make electrification appear more economic in the near-term. This is concerning because it is a proposal that will be very challenging to implement. The natural gas system operates as an integrated system, and "decommissioning" parts of the natural gas system will be much more complex than suggested by the Study. E3 assumes communities can be forced to replace existing appliances with electric appliances without the legal authority of agencies to implement this requirement and does not consider the cost of early retirement of customer's appliances.

Furthermore, E3 dismisses the importance of customer choice for implementing a decarbonization pathway, which will be key to the success of any policy. Any energy solution must include choice and affordability, so people can continue to work and live in California, and businesses can remain here. The Commission should not support conclusions that could cause significant financial uncertainty and burden for workers, their families, and the millions of residents and businesses that depend on a reliable and affordable energy supply for their homes and businesses. Policy recommendations that stem from this Study must be approachable (in both cost and use) to encourage acceptance and adoption by consumers.

II. Eliminating existing natural gas infrastructure

Supporting an electrification pathway poses a risk to achieving the State's climate goals because it fails to address crucial questions about organic methane, the need for longer-term and large-scale energy storage to maintain reliability, and the role existing natural gas assets can play in providing storage. Natural gas, RNG, and gas infrastructure will be needed to complement renewable energy in a decarbonized future. The Study's findings undermine the importance of addressing methane emissions from California's waste stream, which includes organic sources of methane from sewage, landfills, dairies, and agriculture. Further, it contradicts the California Air Resources Board's (CARB) Climate Change Scoping Plan Update (Scoping Plan) which identifies a number of different approaches for "achieving successes in clean energy," including cost-effective access to renewable gas.¹¹ An important part of CARB's strategy in the Scoping Plan is putting waste resources to beneficial use, including organic sources of methane from waste streams. The existing natural gas infrastructure provides a solution to reduce emissions from these sectors by transporting RNG over existing, safe transmission and distribution

¹⁰ A cursory review of E3's treatment of gas rates and revenue requirement reveals a number of concerns, which have not been addressed by the Technical Advisory Committee (TAC) and are not part of SoCalGas' comment letter.

¹¹ California's 2017 Climate Change Scoping Plan Update, ES-11. Accessed from https://www.arb.ca.gov/cc/scopingplan/scoping_plan_2017.pdf.

infrastructure. Reducing these emissions and delivering RNG to buildings for energy end uses will help achieve critical climate change objectives.

Former Secretary of Energy under President Obama, Dr. Ernest Moniz and his research team, the Energy Futures Initiative (EFI), recently released a report “Optionality, Flexibility and Innovation: Pathways for Deep Decarbonization in California” which emphasizes that RNG and hydrogen will have to be part of California’s long-term future to achieve mid-century goals.¹² Clean fuels (e.g., RNG and hydrogen) are critical clean energy pathways due to the enormous value of fuels to allow for the flexible operations of energy systems. The EFI Report notes “Fuels that are durable, storable, and easily transportable play a fundamental role in ensuring that all sectors can operate at the scale, timing, frequency, and levels of reliability that are required to meet social, economic and stakeholder needs.”¹³

Further, the Study ignores the energy reliability and resiliency benefits provided by the existing natural gas network. Gas assets and service disruptions are far less vulnerable than electric infrastructure to widespread service disruptions caused by wildfires, extreme heat, sea-level rise, flooding, and other extreme climate-driven events.¹⁴ In addition, the increased penetration of renewable energy on the grid coupled with the increased service disruptions electric customers are experiencing when electric utilities deenergize power lines in high fire threat areas are only magnifying intermittency challenges. Solar and wind production frequently exceeds electrical demand, and there is limited ability to store this surplus energy optimally.¹⁵

In the absence of a comprehensive energy storage solution, the California Independent System Operator curtails these renewable sources, resulting in wasted energy. The production of electrolytic hydrogen prevents curtailment of high penetrations of variable renewable generation by making use of surplus renewable electricity, which otherwise would be wasted, by storing it for later use as needed in any of several applications. Battery technologies offer shorter-term grid support functionalities with 2-4 hours of discharge duration with significant life cycle degradation over time, whereas hydrogen energy can be stored with longer duration discharge cycles measured in days to months. As California is faced with an increasingly urgent need to deploy utility-scale energy storage solutions to support intermittent renewable power generation, electrolytic hydrogen must be evaluated rigorously for its potential to serve as a large-scale

¹² EFI, *Optionality, Flexibility, & Innovation. Pathways for Deep Decarbonization in California*. Full report available at:

https://energyfuturesinitiative.org/s/EFI_CA_Decarbonization_Full-b3at.pdf

¹³ *Ibid*, at xix.

¹⁴ CEC. Regional Workshop held on January 24, 2019. Potential Impacts and Adaptation Options for Electricity and Natural Gas Systems from Climate Vulnerability in San Diego Area. Slide deck available at: http://www.climateassessment.ca.gov/events/docs/20190124-Slides_ICF.pdf

¹⁵ See *Impacts of Renewable Energy on Grid Operations*, California Independent System Operator (May 2017) at 1, available at: <http://www.caiso.com/Documents/CurtailmentFastFacts.pdf>

storage option and for its potential to help decarbonize the fuel we use in end-use applications via hydrogen-blending. We ask the Commission to consider the benefit of leveraging existing natural gas assets to transport both RNG and hydrogen to decarbonize the fuel we use in residential, industrial, and transportation applications.

III. Narrow Analysis

The Scope of Work approved by the Commission indicated E3 would evaluate “several long-term decarbonized gas scenarios with key variations of technology, market and policy drivers that span the spectrum of possibilities” and compare them with one electrification scenario. E3 narrowly looked at differences in the cost of hydrogen and syngas to establish high and low-cost decarbonized gas scenarios. They did not consider how alternative policies could increase access to greater supplies of low cost RNG. As noted previously, E3 considered a limited set of RNG resources, which do not reflect the full range of resources available in California. They also chose not to consider purpose grown crops, such as switch grass and algae, in their analysis. Nor does E3 consider the enormous potential to convert the 147+ million dead trees in the Sierra Nevada’s forests to RNG which could lower the risk and costs of catastrophic fires and black carbon emissions. Further, they limit access to out-of-state RNG supply based on California’s population relative to the rest of the country—they do not place similar constraints on wind and solar resources. These assumptions artificially limit the outlook for RNG supply, raising the cost of the low carbon gas scenarios.

A study released by Navigant Consulting¹⁶ last year demonstrated that a achieving a statewide throughput of 16% renewable gas would achieve the same GHG reductions as electrifying 100% of all California buildings by 2030 – at a 50% electric renewable portfolio standard (RPS). The study shows that there is a mix of RNG supplies that will achieve GHG emission reductions at a lower cost than building electrification. SoCalGas believes that decarbonizing energy supply is more adoptable, expedient and more cost effective than relying on end use appliance changeover. The Study should model decarbonization scenarios that leverage existing natural gas assets to deliver RNG and/or hydrogen to be used in residential, industrial, and transportation applications. The Commission and E3 should consider how policies could expand access to these lower cost RNG supplies, bringing down the cost of low carbon gas for Californians.

SoCalGas would also like to clarify its role in this study. E3 referred to SoCalGas as a study “partner” during the presentation. This suggests SoCalGas took part in the framing of scenarios and assumptions in this Study. On the contrary, Commission and E3 alone have developed the scenarios and parameters for this analysis. SoCalGas agreed to be a “funder” for the Study. SoCalGas provided some funding for the technical analysis by UCI on the cost of

¹⁶ Navigant Consulting, Inc. Analysis of the Role of Gas for a Low-Carbon Future. Available at: https://www.socalgas.com/1443741887279/SoCalGas_Renewable_Gas_Final-Report.pdf

hydrogen production. Our only other contribution has been as part of the Technical Advisory Committee (TAC). Issues raised by SoCalGas and other members of the TAC were frequently overridden or dismissed by E3 and the CEC.

IV. Limited Air Quality Analysis

Air quality is an important co-benefit to evaluate as part of California's decarbonization strategies. SoCalGas is focused on advancing natural gas technologies to reduce emissions in southern California and the San Joaquin Valley, where air quality is a driving consideration. The most illuminating finding of UCI's analysis is on slide 37, which shows the NOx emissions reductions resulting from E3's low carbon gas (no building electrification) and high building electrification scenarios are very similar. Unfortunately, the additional analysis by UCI has been designed to emphasize building electrification by only considering episodic analysis of emissions in 2050 and does not consider potential improvements to natural gas appliances over the next twenty years.¹⁷

Episodic analysis of seasonal peaks cannot be extrapolated to annual health benefits given the seasonal dependence of emissions and impacts on air quality. Annual simulations would be a better measure to compare the co-benefits of different decarbonization strategies. More importantly, air quality is not an abstract consideration in 2050. We have an urgent need to achieve immediate air pollution reductions in California. One of the major differences in E3's book end scenarios is how California would prioritize the transformation of the on-road transportation sector. The low-carbon gas scenario prioritizes the transition to low and zero NOx trucks and would likely provide greater near-term and long-term health benefits compared to the electrification of buildings. A more thoughtful examination of decarbonization strategies would look at the air quality benefits across the next three decades that can be achieved by the different strategies.

The local air districts and CARB have been analyzing health impacts of air quality for several decades. The most recent Air Quality Management Plans for southern California and the San Joaquin Valley both prioritize NOx emissions reductions in the heavy-duty truck sector to achieve the greatest benefit to air quality. Given the limited regulatory authority of local and state agencies on the transportation sector, the agencies have focused on incentive programs to achieve the air quality reductions needed in the most impacted air basins. The trade-off between incentivizing low and zero NOx trucks versus building electrification in the near-term would be

¹⁷ The Study does not contemplate future Rules enacted by the local Air Districts to reduce NOx emissions in residential appliances. Indeed, it is unclear if the inventory in UCI's analysis reflects the latest residential furnace standards adopted for southern California and SJV, which require a 65% reduction in NOx emissions phased in as appliances are replaced. UCI should confirm the new furnace standards are reflected in the inventory.

an important question. However, the limited scope of the Study's analysis does not really illuminate this trade-off.¹⁸ If the Commission cannot fund additional research on this area, it will be critical for UCI to give the proper framing of their analysis in the Study so that readers understand the context and can interpret the results that are presented.

Conclusion

SoCalGas provides these comments to help move California towards meeting the State's aggressive climate goals in a thoughtful, reasoned, studied, and cost-effective way. Reducing the emissions associated with buildings by decarbonizing both electricity and natural gas supplies will give California more options to meet our challenging GHG emissions reduction targets in a way that can both provide leadership on climate policy and minimize the disruptions and financial impacts to California consumers. The Commission should reconsider the direction of the E3 analysis and provide guidance to E3 to expand their analysis to identify opportunities to use the natural gas system to further decarbonize the California economy. The Commission should not rely on studies that use biased analysis to achieve a predetermined outcome.

California should consider the lessons of the international community in how they analyze decarbonization pathways. The global conversation on decarbonization and hydrogen is significantly more inclusive than the narrow electrification-focused analysis performed by E3. The Commission should also direct E3 to set up workshops to further vet the numerous assumptions in their analysis. We ask the Commission to support research that fairly assesses different options for decarbonizing buildings and support conclusions that achieve the State's climate goals in a balanced manner.

Sincerely,



George Minter
Regional Vice President, External Affairs & Environmental Strategy
Southern California Gas Company

¹⁸The scenario UCI evaluated for high building electrification with truck measures has not been modeled by E3 to determine the infrastructure and societal costs of the scenario.