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California Public Utilities Commission  
Abhilasha Wadhwa, Senior Analyst

Subject: Comments on CPUC Building Decarbonization Data Workshop Held on June 17, 2020

Dear Commissioners:

I write on behalf of Southern California Gas Company (SoCalGas) in response to the California Public Utilities Commission's (CPUC's) Workshop on the Building Decarbonization Data Workshop held on June 17, 2020. SoCalGas appreciates the opportunity to present its' building decarbonization vision and data concerns for building decarbonization program purposes. SoCalGas continues to urge the Commission to have a technology and fuel neutral approach to building decarbonization. During the discussion, there were many questions about the viability and technical aspects of using renewable natural gas and hydrogen as fuel sources. SoCalGas is available as an educational resource to the State as well as the public and appreciates future opportunities to discuss the potential of these fuel sources.

### **CPUC Slides to Justify Inter-Related Data Needs Uses Unsubstantiated Information and Predetermines the Outcome of Proceedings**

The CPUC's slide presentation painted a false narrative around the "deterioration" of the gas system and inaccurately presented a "Shared Goal: Planned curtailment of natural gas distribution networks where cost-effective."

The approach to try to eliminate segments of the gas distribution system is inconsistent with the CPUC's Safety and Enforcement Division (SED)'s purpose, which is to ensure that regulated services are delivered in a safe, reliable manner and promotes utility safety by performing gas and electric safety audits and conducting incident investigations. SED experts provide leadership and technical expertise related to major threats to utility safety, such as wildfires, natural gas pipeline risks, and gas storage leaks. To characterize the natural gas system overall as "deteriorating" is not accurate description. SoCalGas' goal is to identify and resolve potential problems before a major problem occurs. This is done through routinely performing pipeline safety tasks, including patrolling, testing, repairing and replacing pipelines. Also, SoCalGas has implemented a rigorous integrity management program of its transmission lines in highly populated areas and SoCalGas has taken steps to ensure that its storage fields meet and exceed the rigorous standards set by state regulators. SoCalGas meets or exceeds all federal and state

requirements for safe pipeline operations and maintenance, including ongoing technical training and testing of employees.

Additionally, the stated shared goal with the Long-Term Gas Planning OIR and Natural Gas Safety Data and the Building Decarbonization OIR to “Curtail the Natural Gas Distribution Networks...” is inaccurate, predetermines the outcome of other proceedings, and misses vital opportunities to decarbonize.

Objective scientific studies find leveraging the gas system and its workers can “accelerate” decarbonization goals for all sectors of the economy. As described in the slide presentation by SoCalGas, Dr. Moniz, the former Secretary of Energy under the Obama Administration, found leveraging the existing gas system to convey hydrogen, renewable natural gas and carbon dioxide to sequestration sites is critical to meeting decarbonization goals.<sup>1</sup> The study<sup>2</sup> also emphasized the importance of biofuels (hydrogen, renewable natural gas, etc.) to create long term storage potential for intermittent renewable electricity and decarbonization pathways for all sectors of the economy. Another study by Lawrence Livermore National Labs, “Getting to Neutral”<sup>3</sup>, also came to the same conclusion of the importance of the existing gas system to support negative carbon pathways. The CPUC should start to gather data on the role of renewable gas in building decarbonization, such as greenhouse gas emissions reduction potential, scale of impact in terms of time frame and number of buildings, and utility bill impact.

Further the notion that the gas system is deteriorating and retiring parts of the system is needed is simply not based in sound science. Indeed, the gas system is far more climate adaptive, reliable and resilient than the electric system and continues to tighten from modernization as indicated in CPUC’s SB1371 “Natural Gas Leakage Abatement” annual reports.

The excerpt discussion and Figure 1 below from a recent National Renewable Energy Lab (NREL) study, “A Comparison of Fuel Choice for Backup Generators”<sup>4</sup>, clearly indicates the growing disruptions of the electric system and its vulnerabilities to multiple hazards.

*“The electricity grid is vulnerable to a range of mechanical, operational, environmental, and human-related hazards (Preston, et al., 2016). As Figure 1 shows, both an aging grid and an increase in extreme weather events have led to an increase in power outages in recent years (Laws, Anderson, DiOrio, Li, & McLaren, 2018). Mechanical faults, line shorts, and animal interference are common causes of outages at the distribution level. Natural disasters such as fires, snow storms, and hurricanes can cause large and long outages.”*

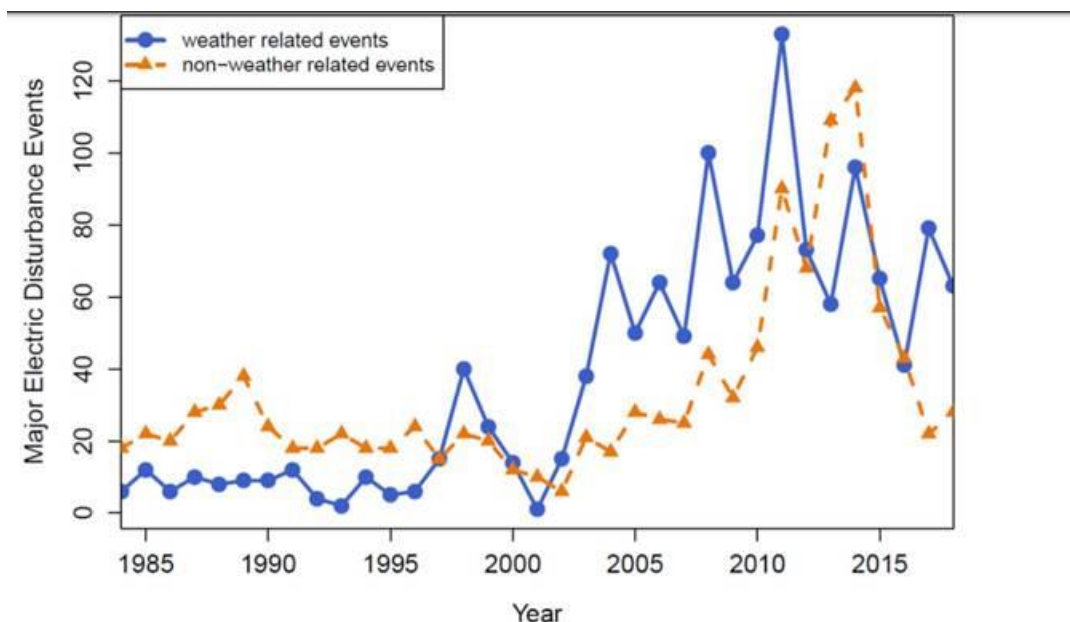
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<sup>1</sup> Energy Futures Initiative, Dr. Moniz, “Optionality, Flexibility & Innovation, Pathways for Deep Decarbonization in California,” May 2019. <https://energyfuturesinitiative.org/>

<sup>2</sup> Ibid.

<sup>3</sup> Livermore Lab Foundation, “Getting to Neutral: Options for Negative Carbon Emissions in California,” January 2020. <https://livermorelabfoundation.org/2019/12/19/getting-to-neutral/>

<sup>4</sup> Joint Institute for Strategic Energy Analysis (JISEA), “A Comparison of Fuel Choice for Backup Generators,” Sean Ericson and Dan Olis, National Renewable Energy Laboratory, March 2019. <https://www.nrel.gov/docs/fy19osti/72509.pdf>



**Figure 1. Major electric disturbance events between 1984 and 2018.**

Figure adapted from (Laws, Anderson, DiOrio, Li , & McLaren, 2018) with additional data from DOE form OE-417.

The California Energy Commission in their study “Potential Climate Impacts and Adaptation Options for Electricity and Natural Gas Systems in SDG&E”<sup>5</sup>, found gas systems to be climate adaptive because they are already underground.

*“Overall, natural gas assets and services are likely to experience limited impacts from the climate hazards investigated in this study. Impacts may occur in the form of increased repair/maintenance needs or localized disruptions. Widespread disruptions are not expected due to limited projected exposure to climate hazards and existing physical protections that limit potential impacts.”*

Two recent reports from the Natural Gas Council and Gas Technology Institute (GTI)<sup>6</sup> found that characteristics of natural gas’s transmission and distribution infrastructure, such as greater

<sup>5</sup> California’s Fourth Climate Change Assessment, “Potential Climate Change Impacts and Adaptation Actions for Gas Assets in the San Diego Gas and Electric Company Service Area,” Judsen Bruzgul et. al.

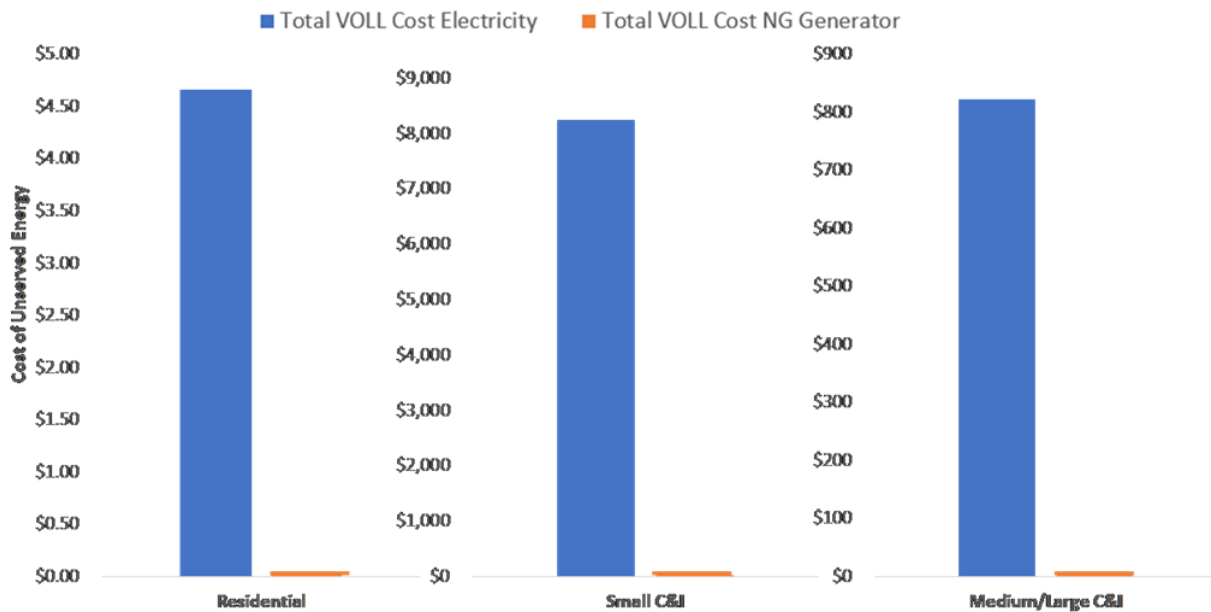
[https://www.energy.ca.gov/sites/default/files/2019-11/Energy\\_CCCA4-CEC-2018-009\\_ADA.pdf](https://www.energy.ca.gov/sites/default/files/2019-11/Energy_CCCA4-CEC-2018-009_ADA.pdf)

<sup>6</sup> GTI, “Low-Carbon Renewable Natural Gas (RNG) From Food Wastes,” February 2019.

<https://www.gti.energy/wp-content/uploads/2019/02/Low-Carbon-Renewable-Natural-Gas-RNG-from-Wood-Wastes-Final-Report-Feb2019.pdf> and

storage capacity and underground assets, make natural gas a more reliable energy source than electricity. Natural gas service disruptions are rare with only one in almost 800 gas customers experiencing an unplanned service disruption annually, whereas every electric customer will experience an annual outage. Because the natural gas system is inherently resilient to a range of climate impacts, the likelihood of interruption of gas service is low, resulting in a low probability of electricity derived from a local natural gas microgrid driven generator. Translating these reliability statistics to economic costs to customers can be seen in the Value of Lost Load (VOLL) graph below. The VOLL is a method used in the California Fourth Climate Change Assessment (CA4A) to determine the economic impact to residential, commercial, and industrial customers (Bruzgul et al. 2018) from electricity outages. For example, the economic costs to customers from electricity from a localized natural gas generator is significantly lower than for grid electricity, as electric infrastructure is more vulnerable to impacts and has a higher likelihood of service disruption. As shown in the figure below, for all customer categories, the expected natural gas disruption impacts are insignificant compared to the electricity disruption costs.

Figure 2: The cost per unit energy lost by customers (\$/kWh) to three categories of customers: residential, small commercial and industrial (C&I), and medium/large C&I.



Natural Gas Council, "Natural Gas: Reliable and Resilient," April 2019. <http://naturalgascouncil.org/wp-content/uploads/2019/04/Natural-Gas-Reliable-and-Resilient.pdf>

## **Response to the CPUC on whether the SB 1477 Pilots Should Help Market Induction Stoves**

The CPUC also posited the question on whether they should be pushing for “electric induction” type stoves as part of these pilots. SoCalGas believes the objective of SB 1477 is to decarbonize buildings as quickly and cost-effectively as we can in a technically neutral manner. For example, induction cooktops are fairly new to the market and there hasn’t been much research on potential exposure impacts of electromagnetic fields (EMFs) leakage from an induction cooktop. The research of B-Field<sup>7</sup> exposure from induction cooking appliances provides some rare insights on potential exposures that can exceed health levels, especially for pregnant women.

“Safety concerns about exposure to magnetic stray fields have arisen, since the fields from the induction cooker cannot be fully shielded and are induced in the close vicinity of the user (e.g., pregnant cook).”

### **Conclusion**

SoCalGas provides these comments because we stand committed to decarbonizing the energy sector and built environment. We align with California’s carbon reduction goals and will contribute to meeting these aggressive climate goals in a thoughtful, reasoned, studied, and cost-effective way. We believe that we can decarbonize buildings by decarbonizing both electricity and natural gas supplies—not just only electrifying end uses. We look forward to participating in additional workshops that thoughtfully consider different options for building decarbonization and their effects on customers and communities.

### **Additional Suggested References:**

NREL, “Are Ancient Bugs the Key to Storing Wind and Solar?” Stephen Lacey, October 15, 2019. <https://www.greentechmedia.com/articles/read/are-ancient-bugs-the-key-to-storing-wind-and-solar>

California’s Fourth Climate Change Assessment, “Potential Climate Change Impacts and Adaptation Actions for Gas Assets in the San Diego Gas and Electric Company Service Area,” Judsen Bruzgul et. al. [https://www.energy.ca.gov/sites/default/files/2019-11/Energy\\_CCCA4-CEC-2018-009\\_ADA.pdf](https://www.energy.ca.gov/sites/default/files/2019-11/Energy_CCCA4-CEC-2018-009_ADA.pdf)

CGTN, “Israeli scientists produce hydrogen from solar energy.” <https://news.cgtn.com/news/2020-01-07/Israeli-scientists-produce-hydrogen-from-solar-energy-N3t4xYTY6Q/index.html>

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<sup>7</sup> IT’IS Foundation, “B-Field Exposure from Induction Cooking Appliances,” Clementine Viellard, Albert Romann, Urs Lott and Niels, Kuster, July 2006 (revised July 2007).

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<https://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=&ved=2ahUKEwj-hJeQharqAhUCKH0KHXQnC7EQFjAAegQIBBAB&url=https%3A%2F%2Fwww.bag.admin.ch%2Fdam%2Fbag%2Fit%2Fdokumente%2Fstr%2Fnis%2Ffaktenblaetter-emf%2Fb-field-exposure.pdf.download.pdf%2FB-Field%2520Exposure%2520From%2520Induction%2520Cooking%2520Appliances%2520-%2520ITIS%25202007.pdf&usg=AOvVaw0ne39R8VogSXYCJo5WJjdl>

Joint Institute for Strategic Energy Analysis (JISEA), “A Comparison of Fuel Choice for Backup Generators,” Sean Ericson and Dan Olis, National Renewable Energy Laboratory, March 2019.  
<https://www.nrel.gov/docs/fy19osti/72509.pdf>

Livermore Lab Foundation, “Getting to Neutral: Options for Negative Carbon Emissions in California,” January 2020. <https://livermorelabfoundation.org/2019/12/19/getting-to-neutral/>

National Fuel Cell Research Center, Jack Brouwer, “Do We Really Need Hydrogen,” presentation found at: <https://www.energy.gov/sites/prod/files/2019/12/f69/fcto-fcs-h2-scale-2019-workshop-17-brouwer.pdf>

Natural Gas Council, “Natural Gas: Reliable and Resilient,” April 2019.  
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Sincerely,

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July 1, 2020