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**SoCalGas Comments on the Staff Workshop on Fuel Substitution  
Scenario Analysis to Support AB 3232**

*Additional submitted attachment is included below.*



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**Subject: Comments on the Staff Workshop on Fuel Substitution Scenario Analysis to Support AB 3232, Docket: 19-DECARB-01**

The Southern California Gas Company (SoCalGas) appreciates the opportunity to comment on the Staff Webinar on Fuel Substitution Scenario Analysis to Support Assembly Bill (AB) 3232 held on February 27, 2020 by the California Energy Commission (CEC) to showcase the draft Fuel Substitution Scenario Analysis Tool (FSSAT) developed by Guidehouse. SoCalGas appreciates CEC's efforts to discuss the tool, to identify analytical issues when examining building decarbonization, and to respond to stakeholder questions. SoCalGas believes a portfolio approach, utilizing all energy sources and technologies to meet our climate goals, will best serve Californians and those that follow our lead. Natural gas and renewable gases (e.g., biomethane, hydrogen, and synthetic gas) are clean, reliable, affordable, and resilient sources of energy that should be part of the solution to California's decarbonization efforts.

If the CEC intends to use Guidehouse's FSSAT to inform policymaking in a low-carbon future, then the assumptions relied upon must be transparent, accurate, and technically sound. Achieving a low-carbon future will have large scale, economy-wide cost impacts to all residents and businesses, as well as potential impacts on the reliability and resilience of the energy supply. A two hour webinar is not enough time to understand and assess the accuracy of a new, complicated tool in which stakeholders cannot interact. *To provide complete transparency and accuracy, SoCalGas requests that Guidehouse make its source code and FSSAT publicly available.*

In response to the webinar, SoCalGas provides the following recommendations and questions we ask to be directly answered through the AB 3232 process.

- 1. FSSAT must include renewable gas inputs; recognize gas supply's carbon intensity will decrease over time*

SoCalGas believes the use of renewable gas in commercial and residential buildings should be part of California's strategy to meet our climate goals. This supports maintaining a diverse portfolio of energy options, and still offers customers choice in their preferred appliances.

Replacing less than 20% of traditional natural gas with renewable gas can achieve greenhouse gas (GHG) emissions reductions equivalent to converting 100% electrification of buildings by 2030, *at a significantly lower cost*.<sup>1</sup> Also, fuel switching with renewable gas rather than replacing infrastructure, results in less disruption to customers, continues to promote a fuel mix for a reliable and resilient energy supply, and provides GHG emissions reductions.

During the webinar, Guidehouse staff said renewable gas was not included in assumptions, but it could be in future iterations of FSSAT. Respectfully, this should be added to the Tool now. There must be an opportunity to evaluate how renewable gas could factor into the building decarbonization strategy. The California Public Utilities Commission (CPUC) and others are moving forward with opportunities for residential and commercial use of renewable gas and the CEC should not be left behind. For example, SoCalGas and San Diego Gas & Electric have an application before the CPUC requesting authority to offer a voluntary Renewable Natural Gas Tariff program to our residential, small commercial, and small industrial customers.<sup>2</sup> If approved, customers would have the option to purchase renewable gas (e.g., natural gas from emissions from the agricultural and waste sectors) as part or all of their natural gas service.

Another application before the CPUC is Southwest Gas Corporation's proposal to develop a Biomethane Gas Program to provide a framework for biomethane purchases, sales, and reporting.<sup>3</sup> The program would pass both the cost to purchase biomethane as well as any revenue generated by off-system sales of biomethane to customers. In compliance with Senate Bill 1440, the biomethane would be delivered either through a dedicated pipeline, or through a common carrier pipeline. Southwest Gas would initially procure gas from the Rialto Bioenergy Facility and transfer it to its system, beginning around mid-2020. SoCalGas urges CEC to work with CPUC staff to follow the status of these applications<sup>4</sup> and other programs, including the State of Washington's,<sup>5</sup> (Table 1, below) to determine how renewable gas should be added to FSSAT.

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<sup>1</sup> Navigant Consulting. *Analysis of the Role of Gas for a Low-Carbon California Future*. July 24, 2019. Available at: [https://www.socalgas.com/1443741887279/SoCalGas\\_Renewable\\_Gas\\_Final-Report.pdf](https://www.socalgas.com/1443741887279/SoCalGas_Renewable_Gas_Final-Report.pdf)

<sup>2</sup> California Public Utilities Commission (CPUC). Application of Southern California Gas Company (U 904 G) and San Diego Gas & Electric Company (U 902 G) for Renewable Natural Gas Tariff. February 28, 2019. Available at: <https://tinyurl.com/yx32ucgu>

<sup>3</sup> CPUC. Application of Southwest Gas Corporation (U 905 G) for Authority to Revise its California Gas Tariff to Modify the Gas Cost Incentive mechanism, Implement a Biomethane Gas Program, and Modify Transportation Customer Balancing Requirements and Operational Flow Orders. February 1, 2020. Available at: <https://tinyurl.com/thlk6yx>

<sup>4</sup> Current status of the Renewable Natural Gas Tariff program application: SoCalGas/SDG&E filed second supplemental testimony on March 4, 2020 (responses filed March 16, 2020); SoCalGas and SDG&E have been asked to file an Updated Joint Case Management Statement by March 23, 2020 that identifies disputed material factual issues and policy issues.

<sup>5</sup> Biogas Magazine. *Inslee signs bill to promote RNG in state of Washington*. March 23, 2018. Accessed 3.19.20: <http://biomassmagazine.com/articles/15172/inslee-signs-bill-to-promote-rng-in-state-of-washington>

Table 1: Other states' and provinces' efforts to provide renewable gas to customers

State / Province	Utility	Customers	Program Name	Status	Participants	Start Date
<b>BC, Canada</b> <sup>6</sup>	Fortis BC	1,200,000	Renewable Natural Gas	Approved	~14,000	2011
<b>CA</b> <sup>7</sup>	Sempra Energy (SoCalGas/SDG&E)	6,500,000	Renewable Natural Gas Tariff	Filed		TBD
<b>ME</b> <sup>8</sup>	Summit Gas	3,500	Renewable Natural Gas Program	Approved	Count not yet available	19-Nov
<b>MI</b> <sup>9</sup>	DTE Energy	1,700,000	BioGreenGas	Approved	2000+	2012
<b>NY</b> <sup>10</sup>	National Grid	1,800,000	Green Gas Tariff	Filed (in Settlement Discussions)		
<b>OR</b> <sup>11</sup>	Northwest Natural	660,000	Smart Energy	Approved	~55,000	~2013
<b>VT</b> <sup>12</sup>	Vermont Gas Systems	54,000	Renewable Natural Gas Program	Approved		2019

Additionally, FSSAT should account for the fact that gas supplies will become less carbon intensive as synthetic gas, renewable gas, and hydrogen fuels are added to the system. For example, in Table 3 of the Fuel Substitution Technical Guidance document, "Source Energy (Btu/Therm)" for natural gas is assumed to be constant over time: this ought to be rectified.

<sup>6</sup> Canadian Biogas Association Website. Renewable Natural Gas Projects in British Columbia. Accessed on 3.19.20: [https://biogasassociation.ca/index.php/about\\_biogas/projects\\_british\\_columbia](https://biogasassociation.ca/index.php/about_biogas/projects_british_columbia)

<sup>7</sup> Sempra Energy Website. SoCalGas Seeks to Offer Renewable Natural Gas to Customers. February 28, 2019. Accessed 3.19.20: <https://www.sempra.com/socalgas-seeks-offer-renewable-natural-gas-customers>

<sup>8</sup> Summit Natural Gas Main Website. Summit announces Renewable Natural Gas Initiative. May 23, 2019. Accessed 3.19.20:

<https://summitnaturalgasmaine.com/SummitAnnouncesRenewableNaturalGasInitiative>

<sup>9</sup> DTE Website. BioGreenGas. Accessed 3.19.20: <https://newlook.dteenergy.com/wps/wcm/connect/dte-web/home/service-request/residential/renewables/biogreen-gas>

<sup>10</sup> National Grid Website. Delivering the future. April 22, 2019. Accessed 3.19.20:

<https://www.nationalgridus.com/News/2019/04/Delivering-the-future-of-heat/>

<sup>11</sup> Biomass Magazine. Oregon governor signs RNG bill. August 5, 2019. Accessed 3.19.2020:

<http://biomassmagazine.com/articles/16372/oregon-governor-signs-rng-bill>

<sup>12</sup> VGS Website. VGS Targets Elimination of Greenhouse Gas Emissions by 2050. November 14, 2019.

Accessed 3.19.20: <https://www.vermontgas.com/vgs-targets-elimination-of-greenhouse-gas-emissions-by-2050/>

The CEC's assessment tools must consider how renewable gas can help the State meet building decarbonization goals in the near term. If renewable gas is not included, it could limit options to assess the best strategies to decarbonize the building sector. And moving forward we need more options, not fewer.

2. *The economic implications of energy system resiliency should be included in FSSAT*

- a. *CEC should establish a working group to develop resiliency metrics per energy source*

As California agencies have done with other issues and proceedings, SoCalGas recommends CEC establish a working group, with experts from both the electric and natural gas sectors, as well as academics and resiliency experts, to develop resiliency metrics to be included in FSSAT (and other planning efforts). SoCalGas would like to be part of this team.

- b. *Resiliency measures increase electric system costs*

It was unclear from the webinar if/how FSSAT includes the costs to maintain electric system reliability considering the need for increased resiliency measures due to service interruptions from rising sea levels, wildfires, and other natural disasters. For example, CEC's August 2018 report, *Rising Seas and Electricity Infrastructure: Potential Impacts and Adaptation Options for San Diego Gas and Electric (SDG&E)*, found:

...By modeling the potential costs to customers from unserved energy due to service disruptions driven by exposed substations, this study found economic impacts could—under an extreme sea level rise scenario in the late 21<sup>st</sup> century compounded by a 100 year storm—range from \$1.2 billion to \$25 billion, assuming no adaptation actions are taken.... For other asset types, potential direct impacts are expected in the form of increased maintenance and repair costs.<sup>13</sup>

The study goes on:

...The assessment found that service disruptions could cost customers more than \$300,000 under a 2 m (6.6 ft.) sea level rise scenario with periodic tidal inundation to approximately \$25 billion for an extreme scenario of 2 m (6.6 ft.) of sea level rise coupled with a 1-in-100 year erosion and flood event.<sup>14</sup>

- c. *The gas system is already resilient*

The ability to continue energy operations unaffected by climate events, such as wildfires, and to quickly resume service is a significant and valuable resiliency factor. Natural gas performs

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<sup>13</sup> CEC. *Rising Seas and Electricity Infrastructure: Potential Impacts and Adaptation Options for San Diego Gas and Electric (SDG&E)*. At p.iv. August 2018

<sup>14</sup> *Id.* At p.v

highly in this regard.<sup>15,16</sup> For example, a recent report from the Gas Technology Institute found that characteristics of natural gas' transmission and distribution infrastructure, such as greater storage capacity and underground assets, make natural gas a more reliable energy source than electricity. Only one in almost 800 gas customers experience service disruptions annually, whereas every electric customer will experience an outage annually.<sup>17</sup> The economic impacts of disruptions to gas customers are insignificant when compared to those of electricity customers.

Another example is CEC's August 2018 report for 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*, which found:

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.<sup>18</sup>

SoCalGas urges CEC to consider our comments submitted through the 2018 Integrated Energy Policy Report (IEPR) Update<sup>19</sup> and the 2019 IEPR<sup>20</sup> proceedings as they provide clear, factual information about how the gas system supports energy system reliability, is resilient because it is underground, and supports community resilience in the face of climate-driven natural disasters.

3. *CEC should develop a working group to review, assess, and make recommendations regarding FSSAT assumptions*

In addition to developing a working group to develop resiliency metrics, CEC should also create a balanced team of experts to review and consider FSSAT assumptions. SoCalGas would like to be part of this team.

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<sup>15</sup> Natural Gas Council. *Natural Gas Systems: Reliable and Resilient*. July 2017. Available at: <https://tinyurl.com/y7ffswse>

<sup>16</sup> Natural Gas Council. *Report: Weather Resilience in the Natural Gas Industry*. August 6, 2018. Available at: [www.naturalgascouncil.org/weather-resilience-in-the-natural-gas-industry/](http://www.naturalgascouncil.org/weather-resilience-in-the-natural-gas-industry/)

<sup>17</sup> GTI Topical Report. *Assessment of Natural Gas and Electric Distribution Service Reliability*. July 19, 2018. Available at: <https://www.gti.energy/wp-content/uploads/2018/11/Assessment-of-Natural-Gas-Electric-Distribution-Service-Reliability-TopicalReport-Jul2018.pdf>

<sup>18</sup> CEC. Report for 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*. At p.v. August 2018

<sup>19</sup> SoCalGas. Comments on the Draft 2018 IEPR Update Volume II. November 2, 2018. Available at: <https://efiling.energy.ca.gov/GetDocument.aspx?tn=225796&DocumentContentId=56469>

<sup>20</sup> SoCalGas. Comments in response to 2019 IEPR Workshop on Climate Adaptation and Resiliency in the Energy Sector. August 23, 2019. Available at: <https://efiling.energy.ca.gov/GetDocument.aspx?tn=229515&DocumentContentId=60926>

To start, SoCalGas requests more information on the following.

*a) Provide emissions profiles used as inputs in FSSAT*

On p. 8 of the presentation, Guidehouse notes the Tool “calculates emissions for end user natural gas combustion, electricity generation, gas leakage, and refrigerant leakages. It is important for Guidehouse to share the emissions profiles used in the Tool for different types of equipment. For example, an electric HPWH would have refrigerant leakage, electricity generation emissions reflective of the electric grid when the equipment is used. The CEC,<sup>21</sup> CPUC,<sup>22</sup> California Independent System Operation,<sup>23</sup> and leading researchers<sup>24</sup> agree that natural gas generation will continue to play an important role in California; providing the electric grid with operational flexibility as well as supporting the growth and integration of intermittent renewable sources of energy.

Since a lot of electricity usage for space and water heating will take place at night—when it is primarily generated through coal- and natural gas-fired generation—usage would have a higher carbon intensity and must be taken into account. To the extent the Tool assumes upstream methane leakage for gas appliances this should also be considered for natural gas electric generation.

*b) Provide information on equipment usage and costs reflected in the Tool*

*Guidehouse referenced several data sources for each input category. It would be helpful to see the specific data used as inputs to be better able to understand the analysis.*

*c) Provide the utility rate assumptions underlying the ‘Fuel Cost Outputs’ identified on p. 18 of the presentation.*

*Utility rate projections will be a critical input to the Tool. There must be transparency in the development of these rate projections. It would be inadequate for Guidehouse to rely solely on*

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<sup>21</sup> “For the near term, natural gas generation will continue to play an important role in integrating renewable resources and ensuring reliability.” CEC. Final 2019 Integrated Energy Policy Report. At p.2. February 2020. Available at: <https://efiling.energy.ca.gov/getdocument.aspx?tn=231883>

<sup>22</sup> Recently, California Independent System Operation (CAISO) submitted comments asking CPUC to extend the use of natural gas power plants to address a potential shortfall of 2500 MW in 2022 and to look at long-term need for flexible resources. Source: CPUC Rulemaking 16-02-007. Comments of CAISO, July 22, 2019. Available at: <http://docs.cpuc.ca.gov/SearchRes.aspx?DocFormat=ALL&DocID=310226799>

<sup>23</sup> At the SB 100 Modeling Inputs and Assumptions Workshop. February 24, 2020 workshop, Delphine Hou, Director of California Regulatory Affairs at CAISO said again that the Joint Agencies should “[c]onsider strategically maintain gas fleet to provide both energy and other grid services during transition. This includes maintain gas transmission infrastructure. We need to consider and implement a plan that ensures local capacity areas maintain reliability before shutting down local gas resources.” Source: Joint Agencies. SB 100 Modeling Inputs and Assumptions Workshop. February 24, 2020

<sup>24</sup> Energy Futures Initiative. *Optionality, Flexibility, & Innovation. Pathways for Deep Decarbonization in California*. Summary for Policy Makers. 2019. A p. xiii. Available at: <https://energyfuturesinitiative.org/>



*the 2019 IEPR rate forecast, which does not include the electric grid hardening and wildfire costs that are reflected in more recent filings by the electric utilities.*

*d) Has Guidehouse considered the impact of time-of-use rates on the cost of electricity for the consumer?*

*e) What are the assumptions used for refrigerant leakage?*

*In recent comments to the CPUC, several market participants indicated low Global Warming Potential refrigerants have limited availability.<sup>25</sup> It is important that the Tool reflect current technology, rather than speculate on the future availability of lower GWP refrigerants.*

## **Conclusion**

In conclusion, SoCalGas points out that 1) renewable gas, as well as 2) the fact that gas' carbon intensity will be reduced over time, and 3) resiliency metrics must be included in FSSAT. SoCalGas recommends CEC develop a working group to support the latter recommendation, as the value of and need for resilient energy systems is increasingly growing.

SoCalGas and other stakeholders need more transparency on underlying assumptions so we can understand and assess the accuracy of FSSAT. Therefore, we also recommend CEC develop a working group to review, assess, and make recommendation on FSSAT assumptions.

In addition, SoCalGas requests that Guidehouse make its source code and FSSAT publicly available so all stakeholders can review the tool, its source code, and assess its accuracy.

SoCalGas provides these comments to help move California towards meeting our 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 electrifying end uses. We need to keep fuels, technology, policies, and other options available to meet our climate goals. For these reasons, SoCalGas asks CEC and Guidehouse not to disregard natural gas, synthetic gas, renewable gas, hydrogen, and gas infrastructure as part of the solution to meet the goals of AB 3232.

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<sup>25</sup> Comments submitted by environmental representatives state: "...that imposing limitations on high-GWP [(global warming potential)] refrigerants in BUILD and TECH programs in the short-term (i.e. in the next 2-3 years) would be counterproductive because low-GWP product are not yet widely available ...” Source: CPUC. Order Instituting Rulemaking Regarding Building Decarbonization. Reply comments of California Environmental Justice Alliance, Natural Resources Defense Council and Sierra Club. March 9, 2020.

We look forward to participating in additional workshops and potential working groups to thoughtfully consider different options for building decarbonization and their effects on customers and communities.

Sincerely,

*/s/ Tim Carmichael*

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