

**October 30, 2015**Michael Tollstrup  
Chief, Project Assessment Branch  
California Air Resources Board  
1001 "I" Street  
Sacramento, CA 95814**Re: Pacific Gas and Electric Company's Comments on the Air Resources Board Draft Short-Lived Climate Pollutant Reduction Strategy**

Dear Mr. Tollstrup:

Pacific Gas and Electric Company (PG&E) appreciates the opportunity to provide comments on the Air Resources Board's Draft Short-Lived Climate Pollutant (SLCP) Reduction Strategy (Draft Strategy), which was discussed at workshops on October 13, 14 and 19.<sup>1</sup>

**I. INTRODUCTION**

These comments supplement input PG&E provided on the SLCP Concept Paper earlier this year.<sup>2</sup> As stated previously, PG&E strongly supports California's clean energy goals and has made significant contributions to the state's progress in reducing GHG emissions. With the development of the SLCP Strategy, as required by the passage of Senate Bill (SB) 605 (Lara), Chapter 523, Statutes of 2014, ARB is placing a much-needed emphasis on reducing these potent climate pollutants.

Overall, PG&E believes that the best path to achieving the state's long-range environmental goals—including SLCP-focused reductions—is through an integrated and flexible policy framework that optimizes sustainable and cost-effective GHG reductions across all programs and sectors. California's utilities are uniquely positioned to help the state meet its long-term GHG reduction goals.

PG&E provides the following comments in response to the Draft Strategy and looks forward to working with ARB to develop the final SLCP Strategy.

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<sup>1</sup> Air Resources Board. September, 2015. Draft Short-Lived Climate Pollutant Reduction Strategy. Website: <http://www.arb.ca.gov/cc/shortlived/2015draft.pdf>

<sup>2</sup> Matthew Plummer. June 17. Pacific Gas and Electric Company's Comments on the Air Resources Board Short-Lived Climate Pollutant Reduction Strategy (Pacific Gas and Electric Company). Website: <http://www.arb.ca.gov/lists/com-attach/57-slcprstrategy-ws-VCQFZARgAw9SNwRr.pdf>

## II. POLLUTANT SPECIFIC TARGETS

In the Concept Paper, ARB established broad targets for black carbon, methane, and fluorinated gases (F-Gases). As PG&E stated in its comments on the Concept Paper, GHG targets are essential as they provide the end goal towards which a portfolio of GHG reduction actions is oriented. This requires targets that allow for comparison across pollutants and sources, and measures that are technically feasible and cost-effective to adopt.

The Draft Strategy provides additional helpful detail, including a qualitative description of the emission reduction measures and quantitative reductions for each sector.<sup>3</sup> Additionally, for PG&E, the Draft Strategy includes the goal of reducing 2013 oil and gas methane emissions by 45 percent by 2030. PG&E appreciates that the sector based targets are expressed in Carbon Dioxide equivalents (CO<sub>2</sub>e) and use a common baseline year (2013). This allows for a clear and transparent comparison across pollutants and sources.

Understanding the potential measure cost, technical feasibility, and benefits is crucial to determining the source and level of reductions overall and for each sub-sector in the Draft Strategy. As ARB noted in the Draft Strategy, a forthcoming assessment of the costs of proposed measures will be provided to stakeholders prior to Board consideration of the SLCP Strategy.<sup>4</sup> Therefore, PG&E will wait to comment on the overall feasibility of the oil and gas sector target, until it has had the opportunity to review ARB's analysis. However, PG&E would like to provide some initial input at this time:

- **U.S. EPA Rule is not an appropriate basis for a California target:** As stated above, the Draft Strategy sets a goal of a 45 percent reduction in methane emissions by 2030 in the oil and gas sector. PG&E is concerned about relying on the federal rule as a basis for a California target and recommends ARB work with to stakeholders to understand the potential for reductions in California.

While the U.S. Environmental Protection Agency's (U.S. EPA) proposed Climate, Air Quality, Permitting Rules (Federal Rules) for the oil and natural gas industry covers fugitive methane emissions—in line with ARB's and the California Public Utility Commission's (CPUC) efforts—the Federal Rules would not cover the same sources as California's initiatives. For example, the U.S. EPA excludes emissions from the distribution system<sup>5</sup> and from customer meters and pipeline blowdowns.<sup>6</sup> These sources represent significant proportions of California downstream emissions.

Additionally, EPA's analysis of methane emissions from the oil and natural gas systems estimated that methane emissions can be reduced by 27 percent below current levels

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<sup>3</sup> Op ct., Draft SLCP Strategy, Pg. ES-9-10.

<sup>4</sup> Op ct., Draft SLCP Strategy, Pg. 72.

<sup>5</sup> EPA. "Climate, Air Quality and Permitting Proposal For the Oil and Natural Gas Industry"  
<http://www3.epa.gov/airquality/oilandgas/pdfs/20150910presentation.pdf>

<sup>6</sup> EPA, "Global Mitigation of Non-CO<sub>2</sub> Greenhouse Gases: 2010:2030,  
[http://www3.epa.gov/climatechange/Downloads/EPAactivities/MAC\\_Report\\_2013.pdf](http://www3.epa.gov/climatechange/Downloads/EPAactivities/MAC_Report_2013.pdf) (page II-34)

cost effectively.<sup>7</sup> However, except for pipelines, the same study presents very limited information on emissions reduction measures for natural gas distribution systems. Abatement measures from activities like customer meters or pipeline blowdowns are not investigated by the U.S. EPA.

For these reasons, ARB should work with stakeholders from the gas industry to develop an achievable target for gas systems. This approach will be in line with the process used to develop methane reduction targets for the other sectors covered by the SLCP strategy.

- **The ARB should work with stakeholders to update methane inventory data and Business As Usual (BAU) scenarios:** ARB's 2013 emissions inventory uses a 2007 Oil and Gas survey to estimate additional methane emissions from gas distribution pipelines, system mileage and number of customers. This approach does not necessarily capture recent infrastructure improvements and initiatives undertaken to reduce methane emissions. These initiatives include replacing all known cast iron pipe, removal of high-bleed devices at compressor stations, utilizing cross compression, strengthening public outreach and damage prevention efforts, and reducing leak repairs times by utilizing a 'SuperCrew' to repair leaks identified by the Picarro Surveyor. Additionally, PG&E has been replacing infrastructure rather than repairing leaks.

Additionally, efforts are underway to improve methane emissions estimates, including the CPUC Leak OIR pursuant SB 1371 and the Washington State University (WSU)/Environmental Defense Fund (EDF) study on fugitive methane emissions.<sup>8</sup> Specifically, that study estimates methane emissions from natural gas distribution system to be 36 to 70% less than the 2011 EPA inventory, based on a national sampling program to measure methane emissions, while ARB's BAU forecast projects a 32% increase in pipeline emissions by 2030.

For these reasons, ARB should work with stakeholders from the gas industry to incorporate the results of efforts to refine methane emissions estimates and improve its inventory and methane BAU forecast with the best data available.

### III. BIOENERGY

In the SLCP Concept Paper, ARB outlined a framework for significantly cutting methane emissions by changing the way organic waste from landfills, dairies, and waste water treatment plants are used, among other measures. In most cases, this would shift organic waste from disposal to feedstock for other end-uses, including bioenergy projects. The Draft Strategy further elaborates on this framework, providing specific targets for the agriculture (manure and enteric fermentation), landfill, and wastewater sectors and potential measure details.

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<sup>7</sup> EPA. "Mitigation of Non-CO<sub>2</sub> Greenhouse Gases in the United States: 2010 to 2030", April 2014, "[http://www3.epa.gov/climatechange/Downloads/EPAactivities/Non\\_CO2\\_US\\_Summary\\_Report\\_SinglePg.pdf](http://www3.epa.gov/climatechange/Downloads/EPAactivities/Non_CO2_US_Summary_Report_SinglePg.pdf)

<sup>8</sup> Lamb et al (2015). *Direct Measurements Show Decreasing Methane Emissions from Natural Gas Local Distribution Systems in the United States* study, <http://pubs.acs.org/doi/abs/10.1021/es505116p>

PG&E is committed to working with bioenergy developers and views renewable natural gas (RNG) as a potential pathway for California to achieve its climate goals. PG&E is interested in partnering with the state and other stakeholders on strategies to bring down the costs of renewable natural gas and ensure it can be delivered safely and cost-effectively to customers. PG&E believes that expanding RNG requires addressing a number of issues, including:

- Availability of feedstock and transport to processing sites
- Capital cost and financing
- Technology issues
- Operational issues
- Gas purity concerns
- Lower heating values
- High cost of final product.

Due to the constraints and issues detailed above, the cost of RNG is significantly higher than natural gas. For example, landfill gas for pipeline injection is estimated to have a price range of \$10-13/MMBTU,<sup>9</sup> while biogas from dairy digesters or syngas from gasification can be significantly more expensive, rising as high as \$25/MMBTU.<sup>10/11</sup> In contrast, natural gas prices at PG&E Citygate, which serves Northern California, are approximate \$3/MMBTU.<sup>12</sup> Realizing the benefits of RNG requires addressing these barriers.

As written, the Draft Strategy has the potential to address a number of the barriers for RNG. For example, ARB identified several measures that would increase the availability of feedstock for bioenergy, including developing regulations to reduce and eliminate organic disposal in landfills, and promoting methane capture and manure management at dairies and wastewater treatment facilities. Additional quantitative analysis on the effect of these measures on the supply and price of RNG would be helpful.

Additionally, the Draft Strategy advocates for public funding of research, through, for example, the Greenhouse Gas Reduction Fund (GGRF), and for sponsorship of technical working groups. These efforts should help overcome some of the barriers to low-cost RNG production. PG&E looks forward to participating in and reviewing this research to better understand these barriers.

Finally, while PG&E enthusiastically supports California's push towards a low carbon future, it firmly believes that the costs of such broad societal benefits should be borne by society as whole

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<sup>9</sup> Southern California Gas Company. Biogas and Biomethane. website: <https://www.socalgas.com/innovation/power-generation/green-technologies/biogas/>

<sup>10</sup> California Dairy Campaign. June 2013. Economic Feasibility of Dairy Digester Clusters in California: A Case Study. California Dairy Campaign, June 2013 and

<sup>11</sup> Energy and Environmental Economics. January 2015. Decarbonizing Pipeline Gas to Help Meet California's 2050 Greenhouse Gas Reduction Goal. Website: [https://ethree.com/documents/E3\\_Decarbonizing\\_Pipeline\\_01-27-2015.pdf](https://ethree.com/documents/E3_Decarbonizing_Pipeline_01-27-2015.pdf)

<sup>12</sup> Energy Information Administration. October 2015. Natural Gas Weekly Update. Website: [http://www.eia.gov/naturalgas/weekly/archive/2015/10\\_08/index.cfm](http://www.eia.gov/naturalgas/weekly/archive/2015/10_08/index.cfm)

and not just utility customers. ARB should avoid any mandates that only apply to a subset of core gas customers. In addition, PG&E offers the following comments and recommendations.

- **Leverage Existing Bioenergy Forums:** The Draft Strategy recommends establishing a California Department of Food and Agriculture (CDFA) working group to focus on barriers to dairy manure projects.<sup>13</sup> PG&E is interested in partnering with the state and other stakeholders to address barriers to dairy manure projects and believes that working group could provide value. PG&E recommends that the working group focus on identifying technical and feasibility constraints, rather than potential policy mechanisms that are already addressed in other forums. In addition, PG&E already proactively engages with many bioenergy stakeholders through the Biomass Working Group. To the extent there are common barriers and issues across industries, PG&E supports leveraging existing forums and any lessons learned.
- **Support State and Federal Incentives for Bioenergy Projects:** PG&E supports state funding for bioenergy projects through the GGRF or other public sources. This could lower the costs of these resources and make it more competitive with current market costs, potentially leading to market development and increased adoption. At the same time, PG&E believes the use of allowance revenue for this purpose should be of a limited duration in order to help overcome development hurdles and other temporary challenges, and that they not serve as an ongoing method of rendering viable energy sources that remain uneconomic without subsidies. PG&E fully supports ARB's efforts to complete a thorough accounting of costs and benefits in the proposed strategy.<sup>14</sup> This additional economic analysis of mitigation measures should be completed before any support programs or mandates are imposed, and the state should prioritize the most cost-effective measures identified.
- **Address Challenges of Biomethane Injection:** The Draft Strategy rightly focuses on the interconnection process as essential for biomethane project development. As stated in PG&E's June 17, 2015 letter to ARB, location, gas quality and ongoing pipeline activities can be key variables impacting the time and expense to ensure an interconnection project is done safely and in compliance with all local, state and federal regulations. Successful biomethane injection faces a number of fundamental engineering and planning challenges, which will require the partnership of utilities, project developers and the state to overcome, as described below.

The Draft Strategy discusses AB 1900 and states that AB 1900 is also designed to streamline and standardize customer pipeline access rules. For many years, CPUC jurisdictional gas utilities have already operated under non-discriminatory open access rules such that biomethane suppliers, as well as other natural gas suppliers and customers, receive the same customer pipeline access from utilities. Moreover, CPUC Decision 15-06-029 established a program under which a biomethane developer may qualify for payment of 50% of the interconnection costs, up to total of \$1.5 million. This

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<sup>13</sup> Op ct., Draft SLCP Strategy, Pg. 46.

<sup>14</sup> Draft Report, p. 77

program can serve to promote the development of biomethane projects and provide a substantial benefit to biomethane developers seeking to interconnect with California gas utility pipelines.

- **Use Existing Programs to Reduce Methane Emissions:** The Draft Strategy notes that ARB may potentially require methane capture and manure management at dairies and wastewater treatment facilities. PG&E recommends that ARB foster the success of existing programs such as state and federal incentives for bioenergy projects, subsidies for interconnection, and its offset credit program to reduce methane emissions before considering mandates that may result in unintended consequences such as lower offset supply, which could increase cap-and-trade compliance costs.

#### **IV. MINIMIZE FUGITIVE EMISSIONS**

PG&E is dedicated to providing safe and reliable natural gas service, in a responsible and environmentally sensitive manner, and is supportive of the ARB's goal of reducing GHG from the natural gas system. The SLCP Concept Paper calls for minimizing fugitive methane emissions from all infrastructure and equipment, including PG&E's natural gas system.

The Draft Strategy elaborates on this goal and achieves the reductions in this sector through ARB's Oil and Gas Production, Processing, and Storage regulation, and the CPUC's Leak Order Instituting Rulemaking (R.15-01-008), of which the ARB is an active participant. PG&E is an active participant in both and looks forward to working with the ARB, CPUC, and other stakeholders.

As noted above, ARB sets a target of reducing oil and gas methane emissions by 45 percent by 2030 from 2013 levels. Understanding the technical feasibility and cost effectiveness of specific measures—analysis that is being developed in both the ARB's and the CPUC's rulemakings—is essential to understanding the feasibility of ARB's goal. PG&E will wait to comment on the overall feasibility of the oil and gas sector target, until it has had the opportunity to review ARB's analysis that is scheduled to be released along with the next draft.

Finally, as ARB examines potential measures to reduce emissions from infrastructure and equipment, PG&E recommends it incorporate the following key principles: 1) integrate environmental considerations in a way that preserves and enhances the focus on safety; 2) given the size and complexity of the natural gas system, ensure that the individual measures (e.g., standards for compressor stations) are optimized to achieve the largest amount of emission reductions, across all types of equipment, and at the lowest cost; 3) recognize that significant increases in work volume will require funding consideration within utility rates; and 4) ensure that policy advances in pace with the rapidly developing scientific literature on the nature and sources of leaks.

#### **V. CONCLUSION**

Thank you for the opportunity to submit these comments on the ARB's Draft SLCP Reduction Strategy. Please feel free to contact me if you have any questions or concerns.

Michael Tollstrup  
October 30, 2015  
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Sincerely,

/s/

Matthew Plummer