Pacific Gas and Electric Company

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Mike Waugh
Chief, Transportation Fuels Branch
California Air Resources Board
1001 "I" Street
Sacramento, CA 95814

Re: Pacific Gas and Electric Company's Comments on Air Resources Board's August 22 Workshop on the CA-GREET2.0 Model Update

Dear Mr. Waugh

Pacific Gas and Electric Company (PG&E) appreciates the opportunity to provide comments on the Air Resources Board's (ARB) August 22 workshop on its proposed updates to the Greenhouse Gases, Regulated Emissions, and Energy Use in Transportation, Version 2.0 (GREET2.0) model.

I. OVERVIEW

PG&E supports the ARB's effort to re-adopt the Low Carbon Fuel Standard (LCFS), which is intended to address the State of California Court of Appeals, Fifth Appellate District's (Court) opinion in *POET, LCC vs. California Air Resources Board*. The combustion of transportation fuels is the single largest source of GHG emissions in California and the LCFS is an important, market-based program transitioning the state to lower carbon intensity transportation fuels.

In addition to addressing the Court's ruling, the ARB staff is updating critical technical information, including the CA-GREET2.0 model. Based on ARB staff's presentation at the August 22 workshop, the update will increase the carbon intensity (CI) of numerous fuel pathways, including North American Natural Gas, Landfill Gas, and Biomethane because of an increase in the leakage rate by a factor of 2 and an increase in pipeline energy by a factor of 4. Additionally, since the GREET model captures the GHG emissions from the entire supply chain of transportation fuels, any changes to natural gas will impact other transportation fuels that use natural gas as a feedstock or energy source, including gasoline, diesel, electricity, and hydrogen.

Given the magnitude of these changes, PG&E respectfully encourages the ARB staff to release a draft CA-GREET2.0 model, including all underlying data and technical documentation, and hold a technical workshop *prior* to initiating the 45-day comment period for LCFS re-adoption.

Given the complexity of the GREET model and the material changes included in Version 2.0, stakeholders will need substantial lead time to offer meaningful feedback and review. Moreover, previous GREET releases have assigned higher CI values for various fuels and then

revised these pathways later when additional or better data became available. Waiting until the issuance of the formal regulatory package will leave ARB staff little time for correction. Additionally, PG&E has some initial concerns with some of the assumptions used in the CA-GREET2.0 model update, as described below and in Section II.

In summary, PG&E's key points are the following:

- **PG&E encourages ARB to release the draft model and hold a technical workshop prior to the 45-day comment period:** As noted by ARB Staff, the draft changes to the CA-GREET2.0 will result in significant changes to a number of fuel pathways. PG&E believes that releasing the data with the 45-day re-adoption package will not provide adequate time for stakeholder review.

- **The CA-GREET2.0 update should account for regional differences in natural gas extraction and distribution, and include a California or western natural gas leak rate:** National leak rate data likely overstates California or Western state natural gas leakage. For example, cast or wrought iron pipes, which are less common in the West, tend to have dramatically higher leakage rates than plastic or stainless steel pipes. Accordingly, the CA-GREET2.0 model should account for regional differences in natural gas extraction and distribution, and state safety efforts to reduce leak rates.

  Additionally, there are several studies currently underway that will have updated system information and more accurate methane leakage rates for both California and the Western United States.

II. DETAILED COMMENTS

A. The GREET2.0 Update Should Consider Differences between Western and National Methane Emissions and Leakage Rates

California draws its fuels from a delivery system that spans the Western United States. Thus, it is reasonable for ARB staff to look beyond the state in developing CI factors for natural gas pathways. However, the CA-GREET2.0 model should account for regional differences in natural gas extraction and distribution, and state safety efforts to reduce leak rates.

For example, cast or wrought iron pipes tend to have dramatically higher leakage rates when compared to plastic or stainless steel pipes. Distribution systems in the Western United States are generally newer and utilize plastic or stainless steel pipes instead of cast or wrought iron. By the end of 2014, PG&E will have replaced all remaining cast iron pipe in the more than 42,000 miles of its gas distribution system. In contrast, in 2013, there was 30,904 distribution main miles[1] of cast or wrought iron pipelines in the United States, heavily concentrated in the East Coast (*e.g.,* New York has 4,881 miles or 14.3 percent of its system).[2]

[1] A main is a natural gas distribution line that serves as a common source of supply for more than one service line.
[2] Pipeline and Hazardous Materials Safety Administration. 2014. Iron Gas Distribution Pipeline Inventory Reports: Gas Distribution Cast/Wrought Iron Pipelines, website: https://hip.phmsa.dot.gov/analyticsSOAP/saw.dll?PortalPages

Using a California- or Western-specific natural gas leak rate will take account of these regional differences and ensure that the CA-GREET2.0 accurately reflects pipeline leakage.

B. ARB Should Incorporate Ongoing Leak Rate Studies in GREET2.0 Model Update

In addition to utilizing state and regional-specific data, there are several studies currently underway that will have updated system information and more accurate methane leakage rates for both California and the Western United States. This includes on-going work sponsored by the ARB and other state agencies, and studies by nongovernmental organizations. Of particular importance, the Environmental Defense Fund (EDF) initiated a collaborative effort with over 100 universities, research institutions, and companies to better understand where and how much methane is lost in the natural gas supply chain.[3] Organized into 16 distinct research projects, EDF plans to publish the results in peer-reviewed scientific journals by the end of 2014. The information from these studies will provide valuable new data for consideration by the ARB and should be incorporated into the CA-GREET model update.

III. CONCLUSION

Thank you for the opportunity to submit these comments on the ARB's August 22 workshop on the GREET 2.0. PG&E looks forward to continuing to work with ARB to ensure the successful implementation of the LCFS program.

Sincerely,

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[3] Environmental Defense Fund. 2014. Gathering Facts to Find Climate Solutions, website: http://www.edf.org/sites/default/files/methane_studies_fact_sheet.pdf