CPUC Docket No. A.19-02-015

Application of Southern California Gas Company and San Diego Gas & Electric Company for Renewable Natural Gas Tariff

Sierra Club and Leadership Counsel for Justice and Accountability Response to Sempra Utilities' Data Request Set 1

To:	Joseph Mock Elliot Henry
From:	Matt Vespa, Earthjustice, on behalf of Sierra Club and Leadership Counsel for Justice and Accountability
Date Sent:	October 15, 2019
Response Due:	October 29, 2019

QUESTION 1

Please provide all written communications dated on or after August 1, 2019 between employees or representatives of Sierra Club and/or Earth Justice [sic] and/or Leadership Council [sic] on the one hand, and employees or representatives of the California Air Resources Board on the other, that mention biomethane, RNG, biogas, MRR, cap and trade, the proposed RNG tariff, and/or cap-and-trade regulations.

RESPONSE 1

Sierra Club and Leadership Counsel for Justice and Accountability ("Leadership Counsel") object to this request on the basis that it is overly broad and seeks information that is not relevant to this proceeding. The data request seeks written communications from any Sierra Club, Earthjustice or Leadership Counsel employee or representative, regardless of their knowledge or involvement in the instant proceeding over broad categories of topics such as "cap and trade," which have many components that are not relevant to the issues in this proceeding or those raised in the Sierra Club and Leadership Counsel testimony.

Without waiving those objections, Sierra Club and Leadership Counsel provide the written communications between employees and representatives of Sierra Club and/or Earthjustice and/or Leadership Counsel on the one hand, and employees and representatives of the California Air Resources Board ("CARB") on the other, that mention biomethane, RNG, biogas, MRR, cap and trade, the proposed RNG tariff, and/or cap-and-trade regulations, that occurred as part of Sierra Club and Leadership Counsel's investigation of potential issues in this proceeding. These communications were also largely included in Attachment 3 to the Sierra Club and Leadership Counsel testimony.

See attached correspondence.

QUESTION 2

Has witness Dr. Dustin Mulvaney ever written any articles, chapters, or other published material discussing renewable natural gas?

a) If yes, please provide copies of all such written works.

RESPONSE 2

Yes.

Dr. Mulvaney has authored life cycle assessment ("LCA") reports that involved the generation and carbon accounting of biomethane. For example, Dr. Mulvaney analyzed the greenhouse gas ("GHG") intensity of a process to convert macro-algae to biobutanol or ethanol that involved biomethane production from biomass/macro-algae mash remaining after alcohol fermentation. Dr. Mulvaney undertook this work for Bio-Architecture Lab, a California-based company and 2012 Department of Energy ARPA-e awardee. See ARPA-e, Macroalgae Butanol, https://arpa-e.energy.gov/?q=slick-sheet-project/macroalgae-butanol. The LCA report that Dr. Mulvaney developed is confidential, but a summary of the project has been published in *Biofuels Digest*. See Jim Lane, *Bio Architecture Lab, EcoShift make waves with seaweed-based biofuels*, Biofuels Digest (Nov. 20, 2013), https://www.biofuelsdigest.com/bdigest/2013/11/20/bio-architecture-lab-ecoshift-make-waves-with-seaweed-based-biofuels/. Some of the report's considerations are described in that summary. For example, the summary notes that "[t]here are opportunities to choose from various energy and processing technologies that will be used to manufacture seaweed-based ethanol" and it raises the question: "how might swapping natural gas for bio-methane in production impact the overall carbon intensity of the fuel?"

In addition, Dr. Mulvaney also conducted an LCA report for an ethanol plant owned by Sunoco in Fulton, New York. In that LCA report, Dr. Mulvaney estimated the GHG intensity of ethanol produced by a dry mill ethanol plant under different process design scenarios. In the primary scenario, the plant was optimized to generate biomethane from the left-over, non-fermented mash onsite instead of using natural gas for process heating needs. This LCA report is confidential.

QUESTION 3

Has witness Dr. Dustin Mulvaney ever written any articles, chapters, or other published material discussing CARB regulations?

a) If yes, please provide copies of all such written works.

RESPONSE 3

Yes.

In his capacity as a principal at EcoShift Consulting LLC, Dr. Mulvaney helped prepare an *Amicus Curiae* brief in support of CARB's Low-Carbon Fuel Standard ("LCFS") in a case before the United States Court of Appeals for the Ninth Circuit, *Rocky Mountain Farmers Union v. Goldstene*, (9th Cir., Case No. 12-15131). The case concerned an industry challenge to CARB's LCFS. As part of his work drafting the *amicus* brief, Dr. Mulvaney analyzed the life-cycle approach to GHG accounting for biofuel pathways that CARB adopted in the LCFS. The brief explained that only a life-cycle based approach to GHG accounting—which considers all stages of production in the life cycle of a fuel, not simply the "tailpipe" emissions—can provide an accurate picture of the GHG emissions intensities from different fuels, which can vary substantially even among the same class of fuels.

QUESTION 4

Has Dr. Dustin Mulvaney ever provided testimony discussing renewable natural gas in a regulatory proceeding?

a) If yes, please provide copies of such testimony.

RESPONSE 4

No. Dr. Mulvaney has not directly provided testimony about RNG in a regulatory proceeding. However, as noted in his testimony, Dr. Mulvaney has provided testimony on the Green Tariff Shared Renewable ("GTSR") program, which the Application describes as "similar in concept" to the proposed Biomethane tariff. (Application at 2.)

Also relevant to this proceeding, Dr. Mulvaney has extensive consulting experience and a robust publication record on life cycle assessments—the standard framework for GHG accounting methodologies—of manufactured products and energy sources.

QUESTION 5

Please identify (by author(s), date, and title) all materials Dr. Dustin Mulvaney relied on in formulating the opinions he provided in his testimony in this proceeding.

a) To the extent such materials are not readily available for free online, please provide copies of such materials.

RESPONSE 5

In addition to drawing upon his years of experience evaluating the environmental integrity of offset and voluntary renewable procurement programs, Dr. Mulvaney relied on material cited in his October 14, 2019 testimony. These materials are included as attachments to Dr. Mulvaney's testimony in this proceeding or should be readily accessible to the Sempra Utilities online. To the extent the Sempra Utilities are unable to access a particular reference cited in Dr. Mulvaney's testimony, Sierra Club and Leadership Counsel can provide the referenced material upon request.

Furthermore, Dr. Mulvaney reviewed the GHG emissions factors for various biomethane feedstock pathways that CARB presented in its March 2015 Staff Report on Calculating Life

Cycle Carbon Intensity Values of Transportation Fuels in California. The report is available at the following website: https://ww3.arb.ca.gov/fuels/lcfs/peerreview/050515staffreport_ca-greet.pdf. In the report, CARB analyzed various feedstock pathways including landfills gas, wastewater sludge at treatment facilities, food and green wastes, and animal waste. The wide range of GHG emissions factors that CARB assigned to these feedstocks in the report's "Carbon Intensity Lookup" tables confirm what the peer reviewed science has been saying for years—i.e., that there is tremendous variability in the GHG emissions factors for biomethane from different sources and processes. Other relevant CARB materials are available at the following websites:

- https://ww3.arb.ca.gov/fuels/lcfs/121409lcfs_lutables.pdf
- https://ww3.arb.ca.gov/fuels/lcfs/010611lcfs_lutables.pdf

Finally, Dr. Mulvaney used Argonne National Labs' model for Greenhouse Gases, Regulated Emissions, and Energy Use in Transportation (the "GREET model"), as modified and adopted by CARB to estimate GHG intensities of energy sources (i.e., the California-modified GREET model, or "CA-GREET model"). Information about CA-GREET is available at the following CARB website: https://ww3.arb.ca.gov/fuels/lcfs/ca-greet/ca-greet.htm. Reviewing the instruction manual for the simplified CA-GREET 3.0 carbon calculator, Dr. Mulvaney confirmed that numerous input fields describing particular characteristics of the fuel would need to be populated to make an accurate estimate of GHGs from biomethane from a particular pathway. This instruction manual is available at the following website: https://ww3.arb.ca.gov/fuels/lcfs/ca-greet/tier1-dsm-im.pdf.