

PUBLIC UTILITIES COMMISSION

505 VAN NESS AVENUE
SAN FRANCISCO, CA 94102-3298



December 28, 2022

PG&E Advice Letter 4626-G
SoCalGas Advice Letter 6003-G
SDG&E Advice Letter 3089-G
SWG Advice Letter 1222-G

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Subject: Staff Disposition of PG&E Advice Letter 4626-G, SoCalGas Advice Letter 6003-G, SDG&E Advice Letter 3089-G, SWG AL 1222-G Standard Biomethane Procurement Methodology Pursuant to Decision 22-02-025.

Dear Mr. Dietz:

Pacific Gas and Electric Company (PG&E), Southern California Gas Company (SoCalGas), San Diego Gas & Electric Company (SDG&E), and Southwest Gas Corporation (SWG) (collectively, the Joint Utilities), submitted a jointly filed Advice Letter (AL) 4626-G, AL 6003-G, AL 3089-G, and AL 1222-G, pursuant to Ordering Paragraph 2 of Decision (D.) D.22-02-025, which orders the utilities to file Tier 2 ALs within three months of hosting public workshops to establish a Standard Biomethane Procurement Methodology. The Joint Utilities have explained to our satisfaction that they have met the requirements set forth in D.22-02-025. PG&E AL 4626-G, SoCalGas AL 6003-G, SDG&E AL 3089-G, and SWG AL 1222-G are approved with an effective date of December 22, 2022.

Attachment A contains a detailed discussion of the AL, protests, reply, and staff's determination that the AL is compliant with D.22-02-025.

Please contact Christopher Arroyo of the Energy Division staff at christopher.arroyo@cpuc.ca.gov, if you have any questions.

Sincerely,



Leuwam Tesfai
Deputy Executive Director for Energy and Climate Policy/
Director Energy Division

cc: Joon Hun Seong and
Michael Colvin
Environmental Defense Fund
Email: jseong@edf.org
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Service List R.13-02-008

ATTACHMENT A
Background and Disposition for
PG&E Advice Letter 4626-G
SoCalGas Advice Letter 6003-G
SDG&E Advice Letter 3089-G
SWG AL 1222-G

Background

On February 24, 2022, the California Public Utilities Commission (CPUC) approved Decision (D.) 22-02-025, adopting a biomethane procurement program for California’s four large Investor-Owned Utilities (IOUs). Ordering Paragraph (OP) 2 of that Decision states:

Within three months of the cost-effectiveness test workshop, Southern California Gas Company, Pacific Gas and Electric Company, San Diego Gas & Electric Company, and Southwest Gas Corporation shall include results of the workshop and address feedback received at the workshop in Tier 2 Advice Letters establishing a Standard Biomethane Procurement Methodology.

The requisite workshop was held on April 5-6, 2022.

Pacific Gas and Electric Company (PG&E), Southern California Gas Company (SoCalGas), San Diego Gas and Electric Company (SDG&E), and Southwest Gas Corporation (SWG) (collectively, the Joint Utilities), submitted a jointly filed Advice Letter (AL) 4626-G, AL 6003-G, AL 3089-G, and AL 1222-G on July 5, 2022 in response to the above requirement.

The Joint Utilities were timely in submitting their jointly filed AL 4626-G, AL 6003-G, AL 3089-G, and AL 1222-G (collectively, PG&E AL 4626-G et al) to establish a cost-effectiveness test for a Standard Biomethane Procurement Methodology (SBPM).

Protest by Environmental Defense Fund

On July 25, 2022, Environmental Defense Fund (EDF) submitted a protest letter in response to PG&E AL 4626-G et al. OP 9 of D.22-02-025 states that the SBPM must include “a provision requiring livestock and dairy biomethane facilities that contract with a gas IOU to operate in a manner that does not cause adverse impacts to water and air quality.” To comply with this provision, PG&E AL 4626-G et al proposes an annual officer attestation that each contracted “facility complies with all applicable federal, state, and local air and/or water pollution control standards or requirements, describing any incident of noncompliance, the cause, and when and how it was resolved.” EDF believes this proposed verification method does not meet the requirements in D.22-02-025 since the CPUC’s decision states that any SBPM must go beyond simply meeting the threshold statutory requirements and should consider a variety of factors, including short-lived climate pollutant (SLCP) reductions, carbon intensity, and air quality impacts for disadvantaged communities. EDF recommends that the facility, if selected for evaluation, submit an analysis of water and air quality impact and demographics and distances from communities near the project.

EDF states that the CPUC’s decision requires procurement decisions to consider the non-energy and non-greenhouse gas impacts of biomethane production, including wastewater treatment facilities and landfills. Additionally, the statute requires the CPUC to find a cost-effective means, implying that non-monetary factors such as the impacts to water and air quality should be active and important considerations in the SBPM. A passive binary verification suggested in AL may work as an initial screen for determining whether a facility could be evaluated but its insufficient.

EDF’s position is that the SBPM should be modified to include: (1) an annual attestation that livestock and biomethane facilities comply with all applicable federal, state, and local air and/or water pollution control standards or requirements, (2) an annual attestation and verification that organic waste and wood waste are diverted from landfill, (3) hydrogen sulfide verification should be revised to include “supporting testing reports” that hydrogen sulfide is “under” 10 parts per million (ppm), (4) a specific data source for the hub spot price, (5) the identification of which criteria will require certification and reporting to address counterparty noncompliance, and (6) an annual attestation instead of a one-time attestation for producers that use their own biogas for “on-site combustion generation of electricity” is capped at current generation levels.

Protest by Food and Water Watch and Leadership Council for Justice and Accountability

On July 25, 2022, Food and Water Watch and Leadership Council for Justice and Accountability (FWW/LCJA) submitted a protest letter in response to PG&E AL 4626-G et al. FWW/LCJA state that the AL does not comply with requirement set in D. 22-02-025. To comply with the livestock biomethane no adverse impact safeguard, the AL states it would establish a prerequisite framework intended to screen out procurement options before applying the SBPM’s cost-effectiveness analysis. FWW/LCJA support this approach to the extent it creates a threshold prerequisite, but believe that the proposed method of verification inappropriately uses permit compliance as compliance with the CPUC’s environmental justice safeguard. Permit oversight and compliance does not preclude a large dairy or other livestock facility from affecting local water and air quality.

FWW/LCJA’s position is that the SBPM does not adequately control for air and water quality impacts, nor does it effectuate environmental justice safeguards. FWW/LCJA believes that the IOUs must conduct additional controls, including: (1) annually solicit assurance from the Regional Water Board and Regional Air District to know that the particular facility is not adversely impacting air or water quality, (2) hold annual listening sessions near each dairy and biomethane production facility, and (3) condition continued biomethane procurement on the producers’ maintenance of no adverse impact.

Response from Dairy Cares

On July 25, 2022, Dairy Cares submitted a response to PG&E AL 4626-G et al. Dairy Cares states that D.22-02-025 requires the IOUs to avoid procuring dairy biomethane from sources that have unresolved environmental citations and ensure that digester projects are not operated in a manner that adversely impacts local air or water quality. They note that PG&E AL 4626-G et al would establish an annual attestation for eligible biomethane producers to attest that the digester project complies with local laws. They further state that the requirement for an annual attestation is commercially reasonable insofar as it provides a biomethane producer an opportunity to verify and comport with the requirements of OPs 9 and 20 throughout the duration of the contract. Dairy Cares believe that an ongoing requirement will help

ensure that dairy biomethane producers build digester projects with environmental controls and not adversely affect local communities.

Dairy Cares state that air and water quality impacts should be limited to the biomethane production facility such that the rest of a larger livestock facility is excluded and encourage the IOUs to ensure that solicitation guidelines provide potential bidders with an opportunity to document the various environmental benefits of dairy digester projects and how projects will improve existing baseline environmental conditions caused by manure and other waste streams.

Joint Utilities' Reply to Protest and Response Comments Submitted by Environmental Defense Fund, Food and Water Watch and Leadership Counsel for Justice and Accountability, and Dairy Cares

On August 1, 2022, the Joint Utilities filed a reply to the protests by EDF and FWW/LCJA and the response from Dairy Cares of PG&E AL 4626-G et al. First, they state their support of additional reporting requirements for air and water quality. However, the Joint Utilities believe the reporting requested by parties is better suited for each utility's respective Procurement Advisory Group (PAG), and every two years thereafter along with the annual attestation.

Second, they state that FWW/LCJA's requested reporting from the Regional Water Board and Regional Air District that the facility is not adversely impacting air or water quality may become un-workable and the bi-annual reporting proposed above along with participation in the PAG are adequate in gathering information on environmental impacts. The Joint Utilities do not support this recommendation as it is unclear if they have any authority to require annual efforts by those entities.

Third, the Joint Utilities address the LCJA/FWW comment that the facility in question should not be limited to, for example, a biogas upgrading facility, but should include the factory farms where manure feedstock is generated and then used for biomethane production. The Joint Utilities state that they do not intend to expand the scope of the SBPM or Renewable Gas Procurement Plan (RGPP) beyond the dairy biomethane facilities.

Fourth, the Joint Utilities contend that EDF's proposed modifications for additionality, purpose-grown crops, hydrogen sulfide limits, and capping on-site combustion generation of electricity are better suited for the valuation phase of the procurement process in each utility's RGPP and contracts with each facility.

Fifth, the Joint Utilities are opposed to EDF's recommendation for more transparency regarding the SBPM's all-in cost of conventional gas. The Joint Utilities explain that each utility has proprietary forward price curves used for valuing prospective procurement contracts and argue that using public data sources could undermine the Joint Utilities' ability to procure the most cost-effective biomethane. Further, they point out that each utility's PAG will have an opportunity to review the proprietary forward price curves.

Finally, EDF states that the Joint Utilities have not yet addressed the cure periods and consequences of failing to meet the requirements of the program after contract execution. The Joint Utilities responded that each gas utility will address cure periods and remedies in the terms and conditions of the executed

contract between the gas utility and the biomethane project/facility developer. Confidential contract terms will be presented to each utility's PAG for review.

Disposition

Energy Division Staff (Staff) reviewed PG&E AL 4626-G, SoCalGas AL 6003-G, SDG&E AL 3089-G, and SWG AL 1222-G, protests from EDF and FWW/LCJA, the response from Dairy Cares, and the Joint Utilities' reply to protest and response comments. Staff find that PG&E AL 4626-G et al complies with the requirements ordered in D.22-02-025.

More specific to the protests regarding livestock and dairy biomethane facilities, the SBPM fulfills OP 9 by including a provision to prevent adverse impacts from livestock and dairy biomethane facilities (SBPM Prerequisites: "Livestock and dairy biomethane facilities that contract with a gas IOU shall operate in a manner that does not cause adverse impacts to water and air quality"). The SBPM further addresses the prohibition on procurement from facilities with unresolved citations or outstanding orders to remedy violations (SBPM Prerequisites: "Biomethane procurement volumes produced from a dairy facility and delivered after 2025 must not have an unresolved citation for violation of rules or requirements for protection of air or water quality from state or local regulatory agencies"). The Joint Utilities satisfactorily argue that the requests in the protests are better suited for either the PAG, the procurement contract between the utility and the biomethane producer, and/or the valuation phase of the procurement process in each utility's RGPP.

EDF raises the issue of the SBPM's analysis with respect to nearby communities. They state that the cost-effectiveness test should factor in "*demographics* of and *distances* from communities near the project" (EDF protest at 4, emphasis added). Staff finds that the SBPM already considers distances between communities and the project (SBPM Part B, "Project in a remote location"). There may be an opportunity for consideration of demographics and other disadvantaged community recognition using CalEnviroScreen. However, the substance of a CalEnviroScreen analysis is also better suited for the PAG.

EDF requests changes to multiple attestations (e.g., organic waste diversion affirmation, restrictions on hydrogen sulfide, and capping on-site generation of biogas) and clarifications regarding contract specifics (e.g., conventional natural gas prices and counterparty noncompliance). Staff agree with the Joint Utilities that these matters are better addressed in each utility's PAG, in contractual agreements between utilities and biomethane producers, or in the valuation phase of the procurement process in each utility's RGPP. Should these other venues prove unable to resolve EDF's concerns, the Commission will revisit the procurement process and order any necessary refinements as part of the new proceeding to be opened pursuant to OP 21 of D.22-02-025.

Staff conclude that matters raised in protests do not require further refinement to the SBPM and can be addressed by each utility's PAG, in contractual agreements between utilities and biomethane producers, and/or in the valuation phase of the procurement process in each utility's RGPP. Therefore, the protests filed by EDF and FWW/LCJA are rejected and PG&E AL 4626-G et al. is approved.



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July 5, 2022

Advice 4626-G

(Pacific Gas and Electric Company ID U 39 G)

Advice 6003-G

(Southern California Gas Company ID U 904-G)

Advice 3098-G

(San Diego Gas and Electric Company ID 902-G)

Advice 1222-G

(Southwest Gas Corporation ID 905-G)

Public Utilities Commission of the State of California

Subject: Standard Biomethane Procurement Methodology Pursuant to Decision 22-02-025.

Purpose

Pursuant to Decision (D.) 22-02-025 (Decision) Implementing Senate Bill (SB) 1440 Biomethane Procurement Program, Ordering Paragraph (OP) 2, Pacific Gas and Electric Company (PG&E), Southern California Gas Company (SoCalGas), San Diego Gas and Electric Company (SDG&E), and Southwest Gas Corporation (SWG) (collectively, the Joint Utilities) submit their Standard Biomethane Procurement Methodology (SBPM) via a Tier 2 Advice Letter.

Background

On February 25, 2022, the California Public Utilities Commission (Commission) issued D.22-02-025. This Decision implements SB 1440 by setting biomethane (renewable natural gas (RNG) and/or bio-synthetic natural gas (bio-SNG)) procurement targets for the Joint Utilities' core customers to reduce short-lived climate pollutant emissions and adopts provisions to achieve additional co-benefits, as well as timetables for each investor-owned utility providing gas service in California to achieve specified procurement targets.

On April 5-6, 2022, the Joint Utilities hosted a two-day workshop on cost effectiveness for the SBPM in compliance with OP 1.¹ The workshop included panelists from the Joint Utilities, environmental advocates, social justice advocates, biomethane producers and consumer advocates.² Following each panel's presentations, a Question & Answer session was conducted, and participants were invited to submit questions and/or provide comments.^{3,4}

The 2-Day workshop addressed the following questions:

Question 1: What specific items should be required in the SBPM cost-effectiveness test?

Question 2: How should Carbon Intensity (CI) be measured in the SBPM cost-effectiveness test?

Question 3: What criteria shall be used in a modified GREET model⁵ and who shall be tasked with developing the model?

Question 4: What cost control mechanisms such as above market cost caps or rate increase limits should be used for each gas investor-owned utility (IOU)?

Question 5: What criteria shall be used in a preliminary cost effectiveness test while a modified GREET model is being developed?

Question 6: Discussion of environmental justice and community benefits related to biomethane procurement.

Question 6a: How do IOUs ensure that dairy biomethane facilities are not causing adverse impacts to water and air quality?

¹ OP 1 states, "Southern California Gas Company, Pacific Gas and Electric Company, San Diego Gas & Electric Company, and Southwest Gas Corporation shall host a workshop on cost-effectiveness within 45 days of the effective date of this decision. The workshop agenda shall be based on the discussion in Sections 3.3.1, 3.3.2.2, and 3.3.2.3 of this decision." The Joint Utilities provided Notice of the SBPM Workshop to the Service list for R.13-02-008 on March 25, 2022.

² D. 22-02-025 at 27.

³ On March 25, 2022, the Joint Utilities provided a courtesy Notice of Availability of SBPM April 5-6 Workshop to the Service List of Rulemaking (R.)13-02-008.

⁴ SBPM Workshop Presentations were circulated to the service list for R.13-02-008 and are available at <http://pgera.azurewebsites.net/Regulation/ValidateDocAccess?docID=698193>.

⁵ The GREET model is The Greenhouse gases, Regulated Emissions, and Energy use in Technologies Model as developed by Argonne National Laboratory with sponsorship by the U.S. Department of Energy's Office of Energy Efficiency and Renewable Energy <https://greet.es.anl.gov/>.

Question 6b: How do IOUs ensure that dairy biomethane facilities maintain a reasonable herd size which could be managed under responsible practices for the land application of manure (unless the facility sells the waste byproduct as soil amendment to other parties)?

Question 6c. What other requirements could the Joint IOUs establish to ensure the implementation of best industry practices?

For antitrust compliance purposes, each utility will propose utility-specific cost control mechanism(s) for the project and/or program within their individual Renewable Gas Procurement Plan filing. The project-specific cost control mechanisms were discussed during the April 5-6 Cost Effectiveness workshop and the Renewable Natural Gas program cost control mechanisms were discussed at the April 22 Renewable Gas Procurement Plan (RGPP) workshop.

OP 2 directed the Joint Utilities to submit a Tier 2 Advice Letter establishing their SBPM within 3 months of the cost effectiveness workshop as follows:

Within three months of the cost-effectiveness test workshop, Southern California Gas Company, Pacific Gas and Electric Company, San Diego Gas & Electric Company, and Southwest Gas Corporation shall include results of the workshop and address feedback received at the workshop in Tier 2 Advice Letters establishing a Standard Biomethane Procurement Methodology.

The Joint Utilities' SBPM is provided as Attachment A. The Joint Utilities have developed an SBPM capturing many of the attributes of the cost-effectiveness test developed by NW Natural for its 2018 Integrated Resource Plan.⁶ As in NW Natural's cost-effectiveness test, the SBPM compares the cost of procuring a quantity of RNG from a qualified⁷ project and the cost of procuring the same amount of natural gas from conventional sources. Additionally, the SBPM considers RNG project CI, costs to society at large, compliance costs under California's Cap-and-Trade regulation, and other environmental and non-monetary factors over the delivery period of the proposed RNG contract, which may be up to 15 years per the Decision.

Overall, the SBPM cost-effectiveness score consists of two main parts: (a) the first part quantifies costs using key factors such as RNG contract price, the price of conventional natural gas, Cap-and-Trade compliance costs, CI, social cost of greenhouse gas (GHG)

⁶ <https://edocs.puc.state.or.us/efdocs/HAH/um2030hah144246.pdf>

⁷ The SBPM is only applied to projects meeting a set of requirements specified in the Decision. References follow: D.22-02-025, OP 9, 10, 14, 19, 20, 22, 33, 35, 37, 38, 39, 40, 49. D.22-02-025 at 33 requires that landfill projects must "stop accepting new organic waste and implement advanced landfill gas capture automation and monitoring technology to decrease fugitive methane emissions".

emissions, and natural gas transportation costs; (b) the second part captures other environmental and non-monetary factors such as the environmental benefits of carbon capture, use and storage (CCUS), waste hauler zero emission vehicles, and other benefits raised in the Decision and the SBPM workshop. The scores from each part are then combined to arrive at a final cost-effectiveness score for the project which will help prioritize projects during the project evaluation phase of SB 1440 procurement efforts.⁸ The final step in selection of projects for procurement will be based on the criteria described in each IOU's RGPP.

The Joint Utilities' SBPM is informed by input gathered during the 2-day workshop, and to the extent practical recommendations and feedback from the workshop is incorporated into the SBPM. Attachment B contains a Report on the SBPM Workshop, recommendations from the workshop and how the Joint Utilities addressed workshop participants' recommendations.

Additionally, the Decision requires, among other items, the following elements to be included in the SBPM:

*OP 3. Southern California Gas Company, Pacific Gas and Electric Company, San Diego Gas & Electric Company, and Southwest Gas Corporation **shall include in their Standard Biomethane Procurement Methodology strategies to maximize benefits to environmental justice and disadvantaged communities.** (See pg. 5 and 9-10 of Attachment A)*

*OP 4. Southern California Gas Company, Pacific Gas and Electric Company, San Diego Gas & Electric Company, and Southwest Gas Corporation **shall include in their Standard Biomethane Procurement Methodology a provision giving higher priority to biomethane producers that demonstrate that their waste byproduct will be turned into soil amendment or other reuse, as well as added prioritization for facilities whose waste byproduct has had perfluoroalkyl or polyfluoroalkyl substances removed from it.***

*OP 5. Southern California Gas Company, Pacific Gas and Electric Company, San Diego Gas & Electric Company, and Southwest Gas Corporation **shall include in their Standard Biomethane Procurement Methodology a provision giving higher priority to biomethane producers who demonstrate that the waste haulers delivering to their biomethane production facility will adhere to the same prospective exclusive use of near zero emission or zero emission vehicles that the facilities themselves are required to adhere to.***

⁸ A confidential version of Attachment A has been provided to the Commission's Energy Division along with a supporting Confidentiality Declaration from each utility.

OP 8. Southern California Gas Company, Pacific Gas and Electric Company, San Diego Gas & Electric Company, and Southwest Gas Corporation **shall include in their Standard Biomethane Procurement Methodology a provision giving higher priority to biomethane producers who prevent CO₂ from venting into the atmosphere using Carbon Capture and Use or Storage projects.**

OP 9. Southern California Gas Company, Pacific Gas and Electric Company, San Diego Gas & Electric Company, and Southwest Gas Corporation **shall include in their Standard Biomethane Procurement Methodology a provision requiring livestock and dairy biomethane facilities that contract with a gas IOU to operate in a manner that does not cause adverse impacts to water and air quality.**

OP 10. Southern California Gas Company, Pacific Gas and Electric Company, San Diego Gas & Electric Company, and Southwest Gas Corporation **shall require biomethane producers to track volumetric injections of biomethane into pipelines through the Midwest Renewable Energy Tracking System (M-RETS) platform and/or another platform identified in the SBPM workshop to be hosted no later than 45 days from the date of adoption of this decision (see Section 3.3.1).**

OP 32. Southern California Gas Company, Pacific Gas and Electric Company, San Diego Gas & Electric Company, and Southwest Gas Corporation **shall include in the Standard Biomethane Procurement methodology assessments of the ways in which their biomethane procurement practices affect the environment and increase or decrease the welfare of local communities, including the positive or negative ways in which modifications to a wastewater treatment plan or landfill to increase biomethane production affect those communities.**

OP 49. Southern California Gas Company, Pacific Gas and Electric Company, San Diego Gas & Electric Company, and Southwest Gas Corporation **shall require biomethane producers to include a methane leak standard in the Standard Biomethane Procurement Methodology life cycle carbon intensity accounting in the modified Greenhouse Gases, Regulated Emissions, and Energy Use in Transportation Model.** In the procurement contract, the utilities shall establish a procedure for immediate methane leak remediation at the production facility or along that gas pipeline interconnection as the preferred response, and specify required actions if there is no immediate remediation, such as timeline for repair, a graduated fee schedule to promote timely repair, or payment reductions, etc.

(Emphasis added.)

Tariff Revisions

The submittal would not increase any current rate or charge, cause the withdrawal of service, or conflict with any rate schedule or rule.

Protests

Anyone wishing to protest this submittal may do so by letter sent electronically via E-mail, no later than **July 25, 2022**, which is 20 days after the date of this submittal. Protests must be submitted to:

CPUC Energy Division
ED Tariff Unit
E-mail: EDTariffUnit@cpuc.ca.gov

The protest shall also be electronically sent to the Joint Utilities via E-mail at the address shown below on the same date it is electronically delivered to the Commission:

For PG&E: Sidney Bob Dietz II
Director, Regulatory Relations
c/o Megan Lawson

E-mail: PGETariffs@pge.com

For SoCal Gas: Attn: Gary Lenart
Regulatory Tariff Manager

E-mail: GLenart@socalgas.com
E-mail: Tariffs@socalgas.com

For SDG&E: Attn: Greg Anderson
Regulatory Tariff Manager

E-mail: GAnderson@sdge.com & SDGETariffs@sdge.com

For SWG: Valerie J. Ontiveroz
Regulatory Manager/California
Southwest Gas Corporation

E-mail: valerie.ontiveroz@swgas.com
E-mail: regserve@swgas.com

Any person (including individuals, groups, or organizations) may protest or respond to an advice letter (General Order (GO) 96-B, Section 7.4). The protest shall contain the following information: specification of the advice letter protested; grounds for the protest; supporting factual information or legal argument; name and e-mail address of the protestant; and statement that the protest was sent to the utility no later than the day on which the protest was submitted to the reviewing Industry Division (General Order 96-B, Section 3.11).

Effective Date

Pursuant to GO 96-B, Rule 5.1, and OP 2 of D.22-02-025, this Advice Letter is submitted with a Tier 2 designation. The Joint Utilities request that this Tier 2 Advice Letter become effective upon approval.

Authorization

This Advice Letter is submitted by PG&E on behalf of, and with the authorization from, SoCalGas, SDG&E, and SWG.

Notice

In accordance with GO 96-B, Section IV, a copy of this advice letter is being sent electronically to parties shown on the attached list and the parties on the service list for **R.13-02-008**. Address changes to the GO 96-B service list should be directed to PG&E at email address PGETariffs@pge.com. For changes to any other service list, please contact the Commission's Process Office at (415) 703-2021 or at Process_Office@cpuc.ca.gov. Send all electronic approvals to PGETariffs@pge.com. Advice letter submittals can also be accessed electronically at: <http://www.pge.com/tariffs/>.

/S/

Sidney Bob Dietz II
Director, Regulatory Relations

Attachments

cc: Service List R.13-02-008



ADVICE LETTER SUMMARY

ENERGY UTILITY



MUST BE COMPLETED BY UTILITY (Attach additional pages as needed)

Company name/CPUC Utility No.: Pacific Gas and Electric Company (U 39-G)

Utility type:

- ELC GAS WATER
 PLC HEAT

Contact Person: Stuart Rubio

Phone #: (415) 973-4587

E-mail: PGETariffs@pge.com

E-mail Disposition Notice to: SHR8@pge.com

EXPLANATION OF UTILITY TYPE

ELC = Electric GAS = Gas WATER = Water
 PLC = Pipeline HEAT = Heat

(Date Submitted / Received Stamp by CPUC)

Advice Letter (AL) #: 4626-G et al.

Tier Designation: 2

Subject of AL: Standard Biomethane Procurement Methodology Pursuant to Decision 22-02-025

Keywords (choose from CPUC listing): Compliance, Procurement

AL Type: Monthly Quarterly Annual One-Time Other:

If AL submitted in compliance with a Commission order, indicate relevant Decision/Resolution #: D.22-02-025

Does AL replace a withdrawn or rejected AL? If so, identify the prior AL: No

Summarize differences between the AL and the prior withdrawn or rejected AL: N/A

Confidential treatment requested? Yes No

If yes, specification of confidential information: See Confidential Declaration
 Confidential information will be made available to appropriate parties who execute a nondisclosure agreement. Name and contact information to request nondisclosure agreement/ access to confidential information: Chris Fan, ckf4@pge.com

Resolution required? Yes No

Requested effective date: 7/5/22

No. of tariff sheets: 0

Estimated system annual revenue effect (%): N/A

Estimated system average rate effect (%): N/A

When rates are affected by AL, include attachment in AL showing average rate effects on customer classes (residential, small commercial, large C/I, agricultural, lighting).

Tariff schedules affected: N/A

Service affected and changes proposed¹: N/A

Pending advice letters that revise the same tariff sheets: N/A

¹Discuss in AL if more space is needed.

Protests and correspondence regarding this AL are to be sent via email and are due no later than 20 days after the date of this submittal, unless otherwise authorized by the Commission, and shall be sent to:

California Public Utilities Commission
Energy Division Tariff Unit Email:
EDTariffUnit@cpuc.ca.gov

Contact Name: Sidnev Bob Dietz II. c/o Megan Lawson
Title: Director, Regulatory Relations
Utility/Entity Name: Pacific Gas and Electric Company

Telephone (xxx) xxx-xxxx: (415)973-2093
Facsimile (xxx) xxx-xxxx:
Email: PGETariffs@pge.com

Contact Name:
Title:
Utility/Entity Name:

Telephone (xxx) xxx-xxxx:
Facsimile (xxx) xxx-xxxx:
Email:

CPUC
Energy Division Tariff Unit
505 Van Ness Avenue
San Francisco, CA 94102

Clear Form

**BEFORE THE PUBLIC UTILITIES COMMISSION
OF THE STATE OF CALIFORNIA**

**DECLARATION SUPPORTING CONFIDENTIAL DESIGNATION
ON BEHALF OF
PACIFIC GAS AND ELECTRIC COMPANY (U 39 E)**

1. I, Chris Fan, am a Regulatory Principal of Core Gas Supply of Pacific Gas and Electric Company (“PG&E”), a California corporation. Fong Wan, the Senior Vice President of Energy Policy and Procurement of PG&E, delegated authority to me to sign this declaration. My business office is located at:

Pacific Gas and Electric Company
77 Beale Street, Mail Code B5A
San Francisco, CA 94105

2. PG&E will produce the information identified in paragraph 3 of this Declaration to the California Public Utilities Commission (“CPUC”) or departments within or contractors retained by the CPUC in response to a CPUC audit, data request, proceeding, or other CPUC request.

Name or Docket No. of CPUC Proceeding (if applicable): D. 22-02-025

3. Title and description of document(s): Joint IOU SPBM – Attach A – CONF
4. These documents contain confidential information that, based on my information and belief, has not been publicly disclosed. These documents have been marked as confidential, and the basis for confidential treatment and where the confidential information is located on the documents are identified on the following chart:

Check	Basis for Confidential Treatment	Where Confidential Information is located on the documents
<input type="checkbox"/>	<p>Customer-specific data, which may include demand, loads, names, addresses, and billing data</p> <p>(Protected under PUC § 8380; Civ. Code §§ 1798 <i>et seq.</i>; Govt. Code § 6254; Public Util. Code § 8380; Decisions (D.) 14-05-016, 04-08-055, 06-12-029)</p>	
<input type="checkbox"/>	<p>Personal information that identifies or describes an individual (including employees), which may include home address or phone number; SSN, driver’s license, or passport numbers; education; financial matters; medical or employment history (not including PG&E job titles); and statements attributed to the individual</p> <p>(Protected under Civ. Code §§ 1798 <i>et seq.</i>; Govt. Code § 6254; 42 U.S.C. § 1320d-6; and General Order (G.O.) 77-M)</p>	
<input type="checkbox"/>	<p>Physical facility, cyber-security sensitive, or critical energy infrastructure data, including without limitation critical energy infrastructure information (CEII) as defined by the regulations of the Federal Energy Regulatory Commission at 18 C.F.R. § 388.113</p> <p>(Protected under Govt. Code § 6254(k), (ab); 6 U.S.C. § 131; 6 CFR § 29.2)</p>	
<input checked="" type="checkbox"/>	<p>Proprietary and trade secret information or other intellectual property and protected market sensitive/competitive data</p> <p>(Protected under Civ. Code §§3426 <i>et seq.</i>; Govt. Code §§ 6254, <i>et seq.</i>, e.g., 6254(e), 6254(k), 6254.15; Govt. Code § 6276.44; Evid. Code §1060; D.11-01-036)</p>	<p>Joint IOU SPBM – Attach A – CONF document in entirety</p>
<input type="checkbox"/>	<p>Corporate financial records</p> <p>(Protected under Govt. Code §§ 6254(k), 6254.15)</p>	

Third-Party information subject to non-disclosure or confidentiality agreements or obligations

(Protected under Govt. Code § 6254(k); see, e.g., CPUC D.11-01-036)

Other categories where disclosure would be against the public interest (Govt. Code § 6255(a))

5. The importance of maintaining the confidentiality of this information outweighs any public interest in disclosure of this information. This information should be exempt from the public disclosure requirements under the Public Records Act and should be withheld from disclosure.
6. I declare under penalty of perjury that the foregoing is true, correct, and complete to the best of my knowledge.
7. Executed on this 1st day of July 2022 at San Francisco, California.



Chris Fan
Regulatory Principal
Pacific Gas and Electric Company

**BEFORE THE PUBLIC UTILITIES
COMMISSION OF THE STATE OF CALIFORNIA**

**DECLARATION OF RAYMOND SASAKI
REGARDING CONFIDENTIALITY OF CERTAIN DATA/DOCUMENTS
PURSUANT TO D.17-09-023**

I, Raymond Sasaki, do declare as follows:

1. I am the Director of Gas Acquisition, designated by Elsa Valay-Paz, Vice President of Gas Acquisition for Southern California Gas Company (“SoCalGas”). I have been delegated authority to sign this declaration by Elsa Valay-Paz, Vice President of Gas Acquisition. I have reviewed the “Joint IOU SBPM – Attach A – CONF” to SoCalGas and San Diego Gas & Electric Company’s (“SDG&E”) “Standard Biomethane Procurement Methodology Pursuant to Decision 22-02-025”, submitted concurrently herewith. In addition, I am personally familiar with the facts in this Declaration and, if called upon to testify, I could and would testify to the following based upon my personal knowledge and/or information and belief.

2. I hereby provide this Declaration in accordance with Decision (“D.”) 17-09-023 and General Order (“GO”) 66-D to demonstrate that the confidential information (“Protected Information”) provided in Attachment A submitted concurrently herewith is within the scope of data protected as confidential under applicable law.

3. In accordance with the narrative justification described in Attachment A below, the Protected Information should be protected from public disclosure.

I declare under penalty of perjury under the laws of the State of California that the foregoing is true and correct to the best of my knowledge.

Executed this 1st day of July 2022, at Los Angeles, California.

By:  _____

Raymond Sasaki
Director of Gas Acquisition

ATTACHMENT A

SoCalGas and SDG&E Request for Confidential on the following information in Joint IOU SBPM – Attach A – CONF of Advice Letter 6003/3098-G

Location of Protected Information	Legal Citations	Narrative Justification
Highlighted/shaded items contained in Joint IOU SBPM – Attach A – CONF	CPRA Exemption, Gov't Code § 6254.7(d) (Trade Secrets) CPRA Exemption, Gov't Code § 6254(k) ("Records, the disclosure of which is exempted or prohibited pursuant to federal or state law") <ul style="list-style-type: none">• Cal. Evid. Code § 1060• Cal. Civil Code §§ 3426 <i>et seq.</i>	Data is commercially sensitive, the disclosure of which would provide market participants and SoCalGas' competitors insight into SoCalGas' procurement and decision-making process, which would place Gas Acquisition at an unfair business disadvantage. This could ultimately result in increased cost to core ratepayers.

**BEFORE THE PUBLIC UTILITIES COMMISSION
OF THE STATE OF CALIFORNIA**

**DECLARATION OF VALERIA S. ANNIBALI
REGARDING CONFIDENTIALITY OF CERTAIN INFORMATION**

I, Valeria S. Annibali, do declare as follows:

1. I am the Manager/Sustainable Gas Supply, designated by Frank J. Stanbrough, Vice President/Administration for Southwest Gas Corporation ("Southwest Gas") to submit this declaration. In addition, I am personally familiar with the facts and representations in this Declaration and, if called upon to testify, I could and would testify to the following based upon my personal knowledge and/or belief.
2. I have reviewed the following document and information:
 - Joint IOU SBPM – Attachment A – CONF
3. I provide this Declaration in accordance with Decision ("D.") 16-08-024 to demonstrate that the confidential information ("Protected Information") provided in the subject attachment are within the scope of data protected as confidential under applicable law, and pursuant to Public Utilities ("PUC") Code § 583 and General Order ("GO") 66-D.
4. Specifically, information included in the above-referenced attachment contains, including but not limited to, metrics associated with gas procurement practices, the disclosure of which may give vendors a competitive advantage and result in increased costs to ratepayers. Accordingly, the subject information is eligible for confidential treatment pursuant to Government Code § 6254(e), (k), and 6254.15, 6276,44, Evid. Code §1060, and D.11-01-036 as the subject document contains commercially sensitive information.
5. In accordance with the legal authority described herein, the Protected Information should be protected from public disclosure.

I declare under penalty of perjury under the laws of the State of California that the foregoing is true and correct to the best of my knowledge.

Executed this 5th day of July 2022, at Las Vegas, Nevada.



Valeria S. Annibali
Manager/Sustainable Gas Supply

Attachment A

**Standard Biomethane
Procurement Methodology**

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1 A. CPUC Decision Requiring the Creation of a Standard Biomethane Procurement
2 Methodology (SBPM)

3 On February 24, 2022, the California Public Utility Commission (CPUC) issued Decision (D.)
4 22-02-025¹ (henceforth, the Decision) implementing Senate Bill (SB) 1440 (Hueso, 2018). The Decision
5 ordered Southern California Gas Company, Pacific Gas and Electric Company, San Diego Gas & Electric
6 Company, and Southwest Gas Corporation (henceforth, the Joint Utilities) to hold a workshop on cost-
7 effectiveness and to establish an SBPM, a model for assessing the cost-effectiveness of renewable natural
8 gas (RNG) supplies, addressing feedback received at the workshop.² The Joint Utilities have developed
9 the SBPM described in this document to satisfy this order, addressing workshop feedback and various
10 requirements of the SBPM described in the Decision.

11 B. The Joint Utilities’ SBPM

12 The Joint Utilities have developed an SBPM capturing many of the attributes of the cost-
13 effectiveness test developed by NW Natural for its 2018 Integrated Resource Plan.³ As in NW Natural’s
14 cost-effectiveness test, the SBPM compares the cost of procuring a quantity of RNG from a qualified⁴
15 project and the cost of procuring the same amount of natural gas from conventional sources.
16 Additionally, the SBPM considers RNG project carbon intensity (CI), costs to society at large,
17 compliance costs under California’s Cap-and-Trade regulation, and other environmental and non-
18 monetary factors over the delivery period of the proposed RNG contract, which may be up to 15 years per
19 the Decision.

20 Overall, the SBPM cost-effectiveness score consists of two main parts: the first part quantifies
21 costs using key factors such as RNG contract price, the price of conventional natural gas, cap-and-trade
22 compliance costs, carbon intensity, social cost of greenhouse gas (GHG) emissions, and natural gas
23 transportation costs. The second part captures other environmental and non-monetary factors such as the
24 environmental benefits of carbon capture, use and storage (CCUS), waste hauler zero-emission vehicles,
25 and other benefits raised in the Decision and the SBPM workshop. The scores from each part are then
26 combined to arrive at a final cost-effectiveness score for the project which will help prioritize projects
27 during the project evaluation phase of SB 1440 procurement efforts. The final step in the selection of
28 projects for procurement will be based on the criteria described in each investor-owned utility’s (IOU’s)
29 Renewable Gas Procurement Plan (RGPP).

30 C. SBPM Prerequisites: Mandatory Conditions

31 Prior to being evaluated for cost-effectiveness, projects must meet all the following requirements
32 specified in the Decision which will be enforced contractually:

¹ <https://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M454/K335/454335009.pdf>

² D.22-02-025, Ordering Paragraph (OP) 1 and 2.

³ <https://edocs.puc.state.or.us/efdocus/HAH/um2030hah144246.pdf>

⁴ The SBPM is only applied to projects meeting a set of requirements specified in the Decision. References follow: D.22-02-025, OP 9, 10, 14, 19, 20, 22, 33, 35, 37, 38, 39, 40, 49. D.22-02-025, p. 33 requires that landfill projects must “stop accepting new organic waste and implement advanced landfill gas capture automation and monitoring technology to decrease fugitive methane emissions”.

Prerequisites	Method of Verification	Frequency
Livestock and dairy biomethane facilities that contract with a gas IOU shall operate in a manner that does not cause adverse impacts to water and air quality (OP 9)	Officer attestation that facility complies with all applicable federal, state, and local air and/or water pollution control standards or requirements, describing any incident of noncompliance, the cause, and when and how it was resolved.	Annual
Producers shall track volumetric injections of biomethane into pipelines through M-RETS (OP 10)	Officer attestation providing active M-RETS account number.	One Time
Biomethane procurement volumes procured and delivered up to 2025 will be produced from organic waste, including wood waste, diverted from landfills (OP 14)	Officer attestation that biomethane must be produced from organic waste, including wood waste, diverted from landfills.	One Time
Biomethane procurement volumes procured and delivered after 2025 may include production from a Dairy facility as long as its operation commenced after December 31, 2021 (OP 19)	Officer attestation with facility's first flow date.	One Time
Biomethane procurement volumes produced from a dairy facility and delivered after 2025 must not have an unresolved citation for violation of rules or requirements for protection of air or water quality from state or local regulatory agencies (OP 20)	Officer attestation that facility complies with all applicable federal, state, and local air and/or water pollution control standards or requirements, describing any incident of noncompliance, the cause, and when and how it was resolved.	Annual
Biomethane is not produced from purpose-grown crops (OP 22)	Officer attestation that biomethane is not produced from purpose-grown crops.	Annual
Producer agrees to limit hydrogen sulfide in gathering lines to 10 parts per million (OP 35)	Officer attestation that hydrogen sulfide is limited to 10 parts per million in gathering lines.	One Time
Producer agrees to specify in contract how tipping fees may modify contract terms, if at all (OP 37)	Officer attestation that modifying tipping fees may modify contract terms.	One Time
Producer agrees that any Class 8 trucks purchased or leased for use in the production of biomethane after the effective date of the Decision are near zero-emission (NZE) or zero-emission (ZE) vehicles (OP 38)	Officer attestation and requirement that producer will provide notification and information about new Class 8 trucks.	Annual

Producer agrees to prospectively cap on-site combustion-based generation of electricity using their own biogas beyond current generation levels (OP 39)	Officer attestation that on-site combustion generation of electricity using their own biogas is capped at current generation levels.	One Time
If facility has yet to purchase or plan and construct electric generation infrastructure, facility shall agree to use only non-combustion technologies for on-site electric generation (OP 40)	Officer attestation that only non-combustion technologies will be used for on-site electric generation.	One Time
Producer agrees to include a methane leak standard in CI accounting (OP 49)	Officer attestation showing methane leak factor included in validated CI calculator.	One Time
Medium-term (2030) procurement only: landfill facility does not accept new organic waste and is implementing advanced landfill gas capture automation and monitoring technology to decrease fugitive methane emissions (Decision, p. 33)	Officer attestation that landfill facility does not accept new organic waste and is implementing advanced landfill gas capture automation and monitoring technology to decrease fugitive methane emissions.	Annual

34 A project that does not meet all the pre-requisites as outlined in table above will be deemed as not
35 qualified per the Decision and will be excluded from the contract evaluation process.

36 **D. SBPM, Part A: Comparing Monetary Costs**

37 Part A⁵ of the SBPM scores the degree of cost-effectiveness of a project based on quantifiable,
38 economic factors. This score is calculated as a ratio of the desired contract price of the supplier and a
39 calculated break-even price:

40
$$score_A = \frac{Contract\ Price}{Break-Even\ Price}$$

41 The break-even price is obtained by balancing the all-in cost of RNG against the all-in cost of
42 conventional natural gas.

43
$$All-In\ Cost\ of\ RNG = All-In\ Cost\ of\ Conventional\ NG$$

44 where the all-in costs of each include the following:

45 Components of All-In Cost of RNG:

- 46 1) Contractual fixed price of the RNG
- 47 2) Variable transportation costs to deliver the RNG to IOU systems
- 48 3) IOU infrastructure investment costs
- 49 4) Social Cost of GHG (based on CI)

51 Components of All-In Cost of Conventional Natural Gas:

- 52 1) Baseload prices of conventional natural gas for the equivalent term of the RNG contract

⁵ A full explanation of the methods used in Part A is presented in the appendix.

- 53 2) Variable transportation costs to deliver conventional natural gas to IOU systems
54 3) Cap and trade compliance costs
55 4) Social Cost of GHG (based on CI)

56 This scoring method compares the cost of purchasing RNG from a project to the cost of
57 alternatively purchasing conventional natural gas. As a ratio, the score also allows for the comparison of
58 the cost-effectiveness of projects with a variety of feedstocks, carbon intensities, and sizes. Lower scores
59 indicate the project is relatively more cost-effective than projects with higher scores.

60 The Decision states, “The true cost of gas procurement includes the costs to society at large due
61 to the environmental impacts of its production.”⁶ The SBPM utilizes the social cost of GHG emissions,
62 which represents the additional cost to society at large based on life-cycle analyses of each fuel, and the
63 monetary costs of the emissions of each fuel provided by the United States Government’s Interagency
64 Working Group on Social Cost of Greenhouse Gases (IWG).⁷

65 E. SBPM, Part B: Other Environmental & Non-Monetary Factors

66 RNG production yields other costs and benefits which, although not easily quantified, are still
67 relevant for cost-effectiveness. Part B of the SBPM accounts for the factors listed below, which receive
68 [REDACTED]. The references are to ordering paragraphs in the Decision and the SBPM Workshop
69 (WS).⁸

- 70 • Waste byproduct for any GHG-reducing use instead of landfill, e.g., soil amendment (OP 4, 42)
71 • Perfluoroalkyl or polyfluoroalkyl substances removed from waste byproduct (OP 4)
72 • Waste haulers delivering to facility use near-zero emission or zero emission vehicles (OP 5)
73 • CO₂ emissions into atmosphere prevented by Carbon Capture and Use or Storage projects or
74 technology (OP 8, 41, WS)
75 • Project in a remote location (OP 3, 32, WS)
76 • Is a new project, or an expansion to an existing project (WS)

77 The Part B score for a project, $score_B$, decreases as a project possesses more of these benefits. Since all
78 the benefits are [REDACTED] this decrease occurs in [REDACTED].
79 Thus, lower scores are preferred, indicating more benefits and therefore more cost-effective.

80 F. SBPM Project Score (P-Score)

81 Once the scores from both parts of the SBPM have been obtained, their weighted sum is the
82 project score, the *P-Score* :

83
$$P\text{-Score} = [REDACTED] \times score_A + [REDACTED] \times score_B.$$

⁶ D.22-02-025, p. 53, Findings of Fact 12

⁷ https://www.whitehouse.gov/wp-content/uploads/2021/02/TechnicalSupportDocument_SocialCostofCarbonMethaneNitrousOxide.pdf

⁸ See Section G.2 (Appendix: SBPM, Part B) and Attachment B to this Advice Letter.

84 The *P-Score* is the final output of the SBPM. A lower score, closer to zero, indicates more cost-
85 effectiveness. These final scores are be compared between different RNG projects to prioritize
86 procurement. All other things being equal, prioritizing supplies with lower *P-Scores* leads to more cost-
87 effective RNG procurement. Note that the cost-effectiveness scoring provided by the SBPM is meant to
88 serve as a key element of the contract evaluation criteria. Project feasibility, viability, and other
89 considerations not captured by the SBPM will be considered in final contracting decisions. Any such
90 considerations will be detailed in the respective RGPP submitted by each IOU.

91 G. Appendix

92 For clarity and ease of understanding, the previous description of the SBPM described the
93 essentials of the methodology. This appendix provides a full description with references to supporting
94 materials.

95 1. Appendix: SBPM, Part A

96 Part A of the SBPM scores the degree of cost-effectiveness of a project based on quantifiable,
97 monetary factors. The components used to calculate this score are described first followed by the
98 calculations used to combine them into $score_A$, the Part A score.

99 a. RNG/Biomethane Costs (RNG Cost)

100 The cost of RNG over the delivery period of the RNG contract can be expressed as the sum of
101 any associated fixed costs to the IOU, contracted costs of the RNG supply, and variable transport costs to
102 deliver gas to the IOU's system⁹ as follows,

103
$$R(P^*) = X + \sum_t(P^* + Y_t^{RNG})Q_t,$$

104 where R is the cost of RNG over the delivery period of the RNG contract, X (\$) is the IOU infrastructure
105 investment cost over the delivery period of the RNG contract (if applicable), P^* (\$/MMBtu) is the
106 contractual fixed price of the RNG to be solved for, Y_t (\$/MMBtu) is the short-term variable transport cost
107 to deliver RNG to IOU's system over the delivery period of the RNG contract, Q_t (MMBtu/month) is the
108 contractual quantity of RNG supplied per month over the delivery period, and t is the index of time in
109 months.

110 b. Conventional Natural Gas Costs (Conventional NG Cost)

111 The cost of conventional natural gas can be expressed as the sum of the costs of the natural gas
112 supply, the variable transport costs to deliver the gas to the IOU's system, and the sum of the costs of
113 emissions compliance under California's Cap and Trade regulation (costs of California Carbon
114 Allowances (CCAs)) as follows,

115
$$C = \sum_t(V_t + Y_t^{conv} + NG_t)Q_t,$$

116 where C (\$) is the cost of conventional natural gas over the delivery period of the RNG contract, V_t
117 (\$/MMBtu) is the short-term price of the baseload conventional natural gas over the delivery period of the
118 RNG contract, Y_t (\$/MMBtu) is the short-term variable transport cost to deliver conventional natural gas
119 to IOU's system over the delivery period of the RNG contract, N (0.05307 MT CO_{2e}/MMBtu) is the
120 GHG emissions from combusting a unit of natural gas per Cap-and-Trade rules, G_t (\$/MT CO_{2e}) is the
121 short-term price of CCAs over the delivery period of the RNG contract, Q_t (MMBtu/month) is the
122 contractual quantity of the RNG supplied over the delivery period, and t is the index of time in months.

123 Where appropriate, the SBPM risk-adjusts the conventional natural gas prices and CCA prices.
124 Market prices for conventional natural gas and CCAs have quantifiable risks of deviations from their

⁹ No costs associated with compliance with California's Cap and Trade Regulation are calculated here. RNG supplies from within California are exempt from California's Cap and Trade regulation.

125 expected values (i.e., forward curves). When performing risk adjustment, we model these prices as
126 random variables and calculate the [REDACTED] percentile of the overall cost of the conventional natural gas
127 supply from their probability distributions.¹⁰ This [REDACTED] percentile cost is then combined with the expected
128 cost in a weighted sum to arrive at the risk-adjusted conventional natural gas cost as,

129
$$rC = (1 - p) * C + p * [REDACTED] \text{ percentile of prob. dist. of } C$$

130 where $p \in [0,1]$ is the weight of the risk adjustment. For reference, NW Natural uses a similar risk
131 adjustment approach with $p = 0.25$. In the SBPM, each individual IOU selects a weight of the risk
132 adjustment based their own risk assessment process.

133 c. Social Cost of GHG

134 There are costs associated with natural gas that are beyond the market-based costs found in
135 contracts for RNG and conventional natural gas transactions. This is recognized in the Decision, which
136 states, “The true cost of gas procurement includes the costs to society at large due to the environmental
137 impacts of its production.”¹¹ The Social Cost of GHG represents the costs to society as a whole resulting
138 from the life-cycle GHG emissions of conventional and renewable natural gas.

139 The Social Cost of GHG can be used in the SBPM, as presented in the main body of this
140 document, by adding it to both the RNG and conventional natural gas costs to get the all-in costs for both.
141 Since, by definition, RNG will always have a CI that is lower than conventional natural gas,¹² we can take
142 the difference of the social costs of conventional natural gas and RNG to express the benefit of displacing
143 conventional gas with renewable gas as so,

144
$$\text{Social Cost of GHG} = \frac{\text{Conventional NG}}{\text{Social Cost of GHG}} - \frac{\text{RNG}}{\text{Social Cost of GHG}}$$

145 In this form the Social Cost of GHG is interpreted as the life-cycle benefit to society from displacing
146 conventional natural gas with RNG.¹³

147 To calculate this form of the Social Cost of GHG for a given year, the difference in the carbon
148 intensity between conventional natural gas supply and the candidate RNG supply is calculated in terms of
149 metric tons of CO₂ equivalent (MTCO_{2e}) emissions per dekatherm. For a project without a CI score, the
150 current CA-GREET model for the LCFS program can calculate an indicative CI using the various
151 simplified CI calculators. The calculated CI of the project can then be compared to the respective CI of
152 conventional natural gas (Lookup Table Pathways (Table 7-1)¹⁴) for comparison. As stated above, the
153 difference of the two CI’s represents the life-cycle benefit to society of the displacement of conventional
154 natural gas by RNG. This benefit is then multiplied by the quantity of RNG to be supplied to arrive at the

¹⁰ These distributions can be calculated via Monte Carlo methods or other methods such as historical simulation.

¹¹ D.22-02-025, p. 53, Findings of Fact 12

¹² American Gas Foundation, “Renewable Sources of Natural Gas: Supply and Emissions Reduction Assessment”, p.1,
<https://gasfoundation.org/wp-content/uploads/2019/12/AGF-2019-RNG-Study-Full-Report-FINAL-12-18-19.pdf>

¹³ <https://ww2.arb.ca.gov/resources/documents/lcfs-life-cycle-analysis-models-and-documentation>

¹⁴ California Air Resources Board Lookup Table Pathways (Table 7-1) available at
<https://www.arb.ca.gov/fuels/lcfs/ca-greet/lut.pdf?ga=2.82944479.836877858.1654481394-1461991828.1648240563>.

155 reduction in GHG emissions, measured in MTCO_{2e}. The dollar impact of this reduction is calculated by
 156 applying the social cost of CO₂ emissions per MTCO₂ as provided by the U.S. Government’s Interagency
 157 Working Group on Social Cost of Greenhouse Gases (IWG).¹⁵ The social costs calculated by the IWG
 158 assume a ■■■ discount rate is used and risk-adjusted. For candidate contracts beginning later than the
 159 IWG base year, the social costs are adjusted for inflation using the annual GDP Implicit Price Deflator.

160 The calculation of the risk-adjusted Social Cost of GHG (SC-GHG) for year *T* is,

$$161 \quad rSC-GHG_T = (CI^{CONV} - CI^{RNG}) \times \left[\frac{\text{conversion}}{\text{factor}} : \frac{gCO_2e}{MJ} \rightarrow \frac{MTCO_2e}{Dth} \right] \times Q_T \times r(SC-CO_2)_T$$

162 where *CI* (gCO_{2e}/MJ) is the carbon intensity, *Q_T* (MMBtu/year) is the contractual quantity of the RNG
 163 over the delivery period, and *r(SC-CO₂)* (\$/MT CO₂) is the risk-adjusted IWG social cost of CO₂, adjusted
 164 for inflation.

165 Landfills are not able to capture all their methane emissions. Both the EPA and the current CA-
 166 GREET model assume that 75% of this methane is captured. More recent data on methane point sources
 167 suggests that the capture rate may be lower.¹⁶ Consequently, the social cost of methane will be used to
 168 quantify the additional societal benefit of the avoided methane venting from ■■■ of the RNG volume
 169 produced from a landfill’s diverted organic waste. To capture this benefit, the calculation of the risk-
 170 adjusted Social Cost of GHG (SC-GHG) for year *T* is the following:

$$171 \quad rSC-GHG_T = (CI^{CONV} - CI^{RNG}) \times \left[\frac{\text{conversion}}{\text{factor}} : \frac{gCO_2e}{MJ} \rightarrow \frac{MTCO_2e}{Dth} \right] \times Q_T \times r(SC-CO_2)_T$$

$$172 \quad + \text{■■■} \times Q_T \times r(SC-CH_4)_T.$$

173 Note that this equation only applies to diverted organic waste feedstock and only until a new GREET
 174 model has been developed to capture the benefit.

175 As with conventional natural gas supply, risk-adjustment may be applied to the social cost
 176 calculations. The risk-adjusted IWG social cost of both CO₂ and CH₄ are given by,

$$177 \quad r(SC-GHG)_T = (1 - p) * (SC-GHG)_T + p * \text{■■■ percentile of freq. dist. of } (SC-GHG)_T$$

178 where,

$$179 \quad SC-GHG = \begin{cases} SC-CO_2 \text{ for carbon dioxide emissions} \\ SC-CH_4 \text{ for methane emissions} \end{cases}.$$

¹⁵ Technical Support Document: Social Cost of Carbon, Methane, and Nitrous Oxide, p. 24, Table 1 and Table 2.
https://www.whitehouse.gov/wp-content/uploads/2021/02/TechnicalSupportDocument_SocialCostofCarbonMethaneNitrousOxide.pdf

¹⁶ Duren, R.M., Thorpe, A.K., Foster, K.T. et al. California’s methane super-emitters. *Nature* 575, 180–184 (2019).
<https://doi.org/10.1038/s41586-019-1720-3>

180 The [redacted] percentiles of the social costs of GHGs are taken from the IWG’s table for social costs of the
 181 GHGs and represent the [redacted] percentile of the IWG estimates based on a [redacted] discount rate.¹⁷ Because the
 182 IWG provides yearly social costs of the GHGs that are adjusted to year 2020 values while all other values
 183 in the SBPM are in their nominal/future-valued (FV) forms, the IWG social costs of these GHGs are
 184 adjusted to their future values. These adjustments are made using inflation forecasts of the annual GDP
 185 Implicit Price Deflator.¹⁸ These values are then summed to arrive at the risk-adjusted Social Cost of GHG
 186 as,

187
$$rSC-GHG = \sum_T FV(rSCGHG)_T.$$

188 d. SBPM, Part A Score Calculation

189 The final calculation of Part A of the SBPM combines the previously described components to
 190 calculate the degree of cost-effectiveness of the candidate RNG supply. The degree of cost-effectiveness
 191 is calculated by solving the below equality for the break-even RNG contract price P^* ,

192
$$R(P^*) = rC + rSC-GHG.$$

193 Using the proposed RNG contract price P , and the break-even RNG contract price P^* , the cost-
 194 effectiveness score for Part A can be calculated by,

195
$$score_A = \frac{P}{P^*}.$$

196 RNG supplies with lower proposed contract prices relative to their calculated P^* have lower
 197 scores, indicating more cost-effectiveness. As a ratio, the score also allows for the comparison of the
 198 cost-effectiveness of projects with a variety of feedstocks, carbon intensities, and sizes. Like prices for
 199 consumers, lower scores are better, indicating increased cost-effectiveness compared to higher scores.

200 2. Appendix: SBPM, Part B

201 RNG production may yield important benefits which, although not easily quantified, are still relevant for
 202 cost-effectiveness and procurement prioritization. Part B of the SBPM accounts for the below set of such
 203 benefits and [redacted].

SBPM Part B	Method of Verification	Frequency
Waste byproducts are used for any GHG-reducing use instead of landfill, e.g., soil amendment (OP 4, 42)	Officer attestation with regulatory reports on waste byproducts	Annual

¹⁷ Technical Support Document: Social Cost of Carbon, Methane, and Nitrous Oxide, p. 24, Table 1 and Table 2.
https://www.whitehouse.gov/wp-content/uploads/2021/02/TechnicalSupportDocument_SocialCostofCarbonMethaneNitrousOxide.pdf

¹⁸ The annual GDP Implicit Price Deflator values in the U.S. Bureau of Economic Analysis’ (BEA) NIPA Table 1.1.9 are a part of the inflation adjustment.

Perfluoroalkyl or polyfluoroalkyl substances removed from waste byproduct (OP 4)	Officer attestation with regulatory reports on Perfluoroalkyl or polyfluoroalkyl substances	Annual
Waste haulers delivering to facility use near-zero emission or zero emission vehicles (OP 5)	Officer attestation that waste haulers delivering to facility use near-zero emission or zero emission vehicles	Annual
CO ₂ emissions into atmosphere prevented by Carbon Capture and Use or Storage projects or technology (OP 8, 41, WS)	Officer attestation with regulatory reports on Carbon Capture and Use or Storage projects or technology	Annual
Project in a remote location (OP 3, 32, WS)	Officer attestation that the project is not within an HCA (per 49 CFR § 192.903) replacing 1000m for the distance	One Time
Is a new project, or an expansion to an existing project (WS)	Officer attestation that the facility is new or an expansion project	One Time

204 The weighted values of the benefits provided by an individual project are then summed to arrive at a score
205 for the project, S . The maximum weighted possible score (i.e., maximum possible value of S) is denoted
206 by S_{max} . Part B then calculates as,

207
$$score_B = 1 - \frac{S}{S_{max}} .$$

208 $score_B$ can range from 1, for projects with none of the above benefits, to 0, for projects with the
209 maximum number of the above benefits. A lower score indicates more benefits and therefore, a higher
210 degree of cost-effectiveness. [REDACTED] of $score_B$.

211 3. Appendix: SBPM Project Score (P-Score)

212 Once the scores from both parts of the SBPM have been obtained, their weighted sum is the project score,
213 the *P-Score*:

214
$$P-Score = [REDACTED] \times score_A + [REDACTED] \times score_B .$$

215 The *P-Score* is the final output of the SBPM. A lower score, closer to zero, indicates more cost-
216 effectiveness. The *P-Scores* can be compared for different RNG supplies to prioritize contracting. Note
217 that the cost-effectiveness scoring provided by the SBPM is meant to serve as key element of the contract
218 evaluation criteria. Project feasibility, viability and other considerations not captured by the SBPM will
219 be considered in final contracting decisions. Any such considerations will be detailed in the respective
220 RGPP submitted by each IOU.

Attachment B

**Standard Biomethane
Procurement Methodology**

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EXECUTIVE SUMMARY

Introduction

The California Public Utility Commission (CPUC) issued Decision (D.) 22-02-025¹ (henceforth the Decision) implementing Senate Bill (SB) 1440 (Hueso, 2018) on February 24, 2022. The Decision ordered Southern California Gas Company, Pacific Gas and Electric Company, San Diego Gas & Electric Company, and Southwest Gas Corporation (henceforth, Joint Utilities) to hold a workshop on cost-effectiveness within 45 days of the effective date of the Decision with an agenda based on Sections 3.3.1, 3.3.2.2 and 3.3.2.3 of the Decision.²

The Joint Utilities held the Standard Biomethane Procurement Methodology (SBPM) Workshop on April 5-6, 2022, with multiple panelists addressing the six questions raised in the Decision. The Joint Utilities invited the public to participate in the Workshop and provide any feedback for incorporation into the SBPM. The Joint Utilities noted all feedback from the Workshop from both panelists and audience members – this feedback is summarized in this report. To the extent feedback was in the scope of and in compliance with the Decision, it was incorporated into the SBPM by the Joint Utilities. All panelist materials were provided to the service list of R.13-02-008 after the Workshop.³

Summary by Panel

1. What specific items should be addressed in SBPM cost-effectiveness (CE) test?

- a. **Ray Sasaki, Joint Utilities:** monetary (all-in) costs and other factors that provide incremental benefits to use of renewable natural gas (RNG)
- b. **Michael Colvin, Environmental Defense Fund (EDF):** consider the counterfactual and how much projects reduce greenhouse gas (GHG) emissions
 - i. Consider actual/verifiable leakage rates in RNG projects and how this compares to conventional, feedstocks and their impacts on local communities, optimal contract lengths for cost recovery
 - ii. Work towards developing a standard set of attributes for emissions associated with RNG
- c. **Ryan Bracken, NW Natural:** implemented NW Natural model considers all-in costs of RNG, with risk-adjustment and time accounting
 - i. Implements requirements: model does not currently include non-monetary inputs
- d. **Q&A/Comments:**
 - i. Environmental groups expressed concern about emissions, leakage from particular feedstocks, and how investor-owned utilities (IOUs) will consider secondary impacts/associated costs
 - ii. Environmental groups urge IOUs to think creatively about attaining all attributes of projects, since CA will be a leader with this RNG program

2. Discussion of environmental justice and community benefits related to biomethane procurement.

¹ D.22-02-025, available at

<https://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M454/K335/454335009.PDF>.

² *Id.*, Ordering Paragraph 1.

³ See <http://pgera.azurewebsites.net/Regulation/ValidateDocAccess?docID=698193>.

- a. **Shayne Petkiewicz, Anaergia**: SBPM should prioritize biomethane facilities that divert SB 1383 organics and social benefit of projects should be evaluated based on carbon intensity (CI)
 - i. Prioritizing organic waste diverted from landfills is mandated in the Decision
 - ii. Encourages utilizing the Greenhouse gases, Regulated Emissions, and Energy use in Technologies (GREET) model and updating landfill capture assumptions/price of social cost of methane with latest numbers
 - b. **Jamie Katz, Leadership Council for Justice & Accountability**: IOUs can not ensure dairy facilities are not causing adverse impacts to water/air quality nor that they maintain reasonable herd sizes
 - c. **Lyle Schlyer, Calgren Dairy Fuels**: Calgren projects are monitored by various agencies to verify/check impacts to local communities, including water and air
 - d. **Q&A/Comments**:
 - i. Debate between producers and environmental groups over weighting feedstocks – consensus among panel that organic waste diversion should be prioritized above dairies, despite dairies being more carbon negative
 - 1. Environmental groups express opinion that dairies pollute water and air, so should be completely excluded
 - 2. Dairy producers acknowledge that dairy biomethane can be used for vehicle fuel, but should not be completely excluded from this program
- 3. How should carbon intensity be measured in the SBPM cost-effectiveness test? What criteria shall be used in modified GREET and who shall be tasked with developing the model? What criteria shall be used in a preliminary Cost Effectiveness (CE) test while a modified GREET model is being developed?**
- a. **Sam Wade, Coalition for RNG**: CI should be the primary weighting factor
 - i. RNG producers should supply costs as well as a self-adjusted lifecycle CI score
 - ii. Third party consultants should be relied upon to use GREET to produce an appropriate CI for utility end uses
 - b. **David Lindenmuth, Ecoengineers**: to get the highest reduction per dollar, established GHG accounting principles/concepts should be considered
 - i. Preliminary criteria in a CI test should be determined based on the ultimate goal of the program and the behavior it is aiming to incentivize
 - c. **Nina Robertson, Earthjustice**: CI is only one of many required considerations and should not be the most heavily weighted to ensure program is not incenting “bad behavior”
 - i. Intentionally producing methane means any leakage is GHG-positive and model should use GHG-conscious baseline assumptions
 - ii. Preliminary CE test will contain a lot of uncertainty – IOUs should proceed with caution
 - d. **Q&A/Comments**:
 - i. Debate between panelists on whether CI should be the primary weighting factor in SBPM and what the baseline/counterfactuals should be
 - 1. Environmental groups believe CI should not be weighted more than air/water quality and that baselines should be GHG-conscious
 - 2. Industry experts (Coalition for RNG) believe CI should be most heavily weighted and that baselines should be based on current reality, not optimistic futures
- 4. What cost control mechanism such as above market cost caps or rate increase limits should be used for each gas IOUs?**
- a. **Ray Sasaki, Joint Utilities**: Renewable gas procurement plans (RGPP) will provide program-level guidance for expected bill impacts, and CE test will provide guidance for individual contracts

- i. Cost is an important consideration, and cost control mechanisms are needed to keep costs in check
- b. **Julia Levin, Bioenergy Association of California:** Any cost-effectiveness test that the IOUs adopt has to be tied to the level of short-lived climate pollutant (SLCP) and GHG reductions
 - i. RNG project costs should only be compared to other RNG projects
 - ii. Preferred cost cap mechanism is 100% performance/CI-based
- c. **Marcel Hawiger, The Utility Reform Network (TURN):** above market cost cap should be established for individual projects based on the principle of ratepayer neutrality
 - i. Preferred mechanism is capping individual contract prices at a unit price based on incremental cost
- d. **Q&A/Comments:**
 - i. Panelists (TURN and Bioenergy Association) agree that cost caps should be project-specific
 - ii. Debate between panelists on whether LCFS carbon price should be used as a price floor
 - 1. Bioenergy asserts it is necessary for this program to compete with LCFS
 - 2. TURN argues if ratepayers are paying for program, projects should have additionality (additional waste diversion) and not be biomethane that could otherwise be used for LCFS
 - iii. Bioenergy Association emphasizes importance of moving this program into practice quickly as climate cannot wait

KEY RECOMMENDATIONS

No.	Recommendation	Included in SBPM? (Y=Yes, N=No, or N/A)
<i>Carbon Intensity Calculations & GREET</i>		
1	Joint Utilities should evaluate social benefit of biomethane facilities based on Carbon Intensity.	Y, Part A
2	Joint Utilities should measure both societal cost of carbon and societal cost of methane.	Y, Part A
3	Joint Utilities should use GREET 3.0 as a starting point for evaluating CI of biomethane facilities.	Y, Part A
4	Joint Utilities should include distance traveled on pipeline in SBPM in order to acknowledge that there is greater opportunity for climate harm with greater distance traveled on pipeline.	Y, Part A (CI)
5	Joint Utilities should additionally consider carbon negative biomethane projects when evaluating social cost and pricing and update the CI tier 1 calculator to reflect carbon negative ability for biogas.	Y, Part A
6	Joint Utilities should consider how RNG procurement program intersects with other markets and the value required to incentivize development.	Y, Part A
7	Joint Utilities should factor in upstream emissions and leakage when calculating CI.	Y, Part A, GREET
8	Joint Utilities should require RNG producers to supply both cost (on per unit energy basis) and lifecycle CI score in their bids.	Y, Part A
9	Joint Utilities should consider projects “carbon negative” if they include carbon sequestration.	Y, Part A & B
10	Joint Utilities should rely on third party consultants to use/modify GREET to produce an appropriate CI for utility end use and consider the following GREET modifications: <ul style="list-style-type: none"> • Update the landfill capture rate to reflect latest direct measurement studies • Establish a conventional NG baseline for state/region • Change final use to thermal load (residential/industrial) rather than vehicle use • Review SLCP treatment in GREET vs. what LCFS has established • Review more industrial applications (incl. home water heaters) 	Y, Part A
11	Joint Utilities should assess RNG projects based on existing frameworks, particularly when considering counterfactuals/baselines for CI, and compare costs of projects only to other sources of biomethane eligible for the program.	Y, Part A, GREET
12	Joint Utilities should use GHG-conscious baseline assumptions and prioritize alternatives that avoid methane generation.	N/A

13	Joint Utilities should be wary of negative CI scores creating risks or incentivizing bad behavior.	N/A
Accounting, Feedstocks & Model Weights		
14	CI is only one of the required considerations in the Decision, and the Joint Utilities should not weight it more heavily than other factors in SBPM.	Y, Parts A & B
15	Joint Utilities should use CI/emissions reduction as the strongest weight in the SBPM model to achieve the greatest GHG reductions.	Y, Parts A & B
16	Joint Utilities should consider risk adjustment to account for uncertain costs and time, particularly when not contractually obligated.	Y, Part A
17	Joint Utilities should use a performance-based cost assessment similar to low carbon fuel standard (LCFS) that considers the base price of lifecycle CI, the modified GREET model, carbon reduction prices, and cost adders for items listed in Decision.	Y
18	Joint Utilities should weight feedstocks in SBPM to prioritize procuring biomethane produced from organic waste over biomethane produced from dairy, despite dairies being more carbon negative than organics.	N See Decision
19	Joint Utilities should weight feedstocks in SBPM to extend prioritization of SB 1383 organic waste diversion from short-term requirement to the medium-term requirement.	N See Decision
Environmental & Social Justice		
20	Joint Utilities should consider project location and how it impacts priorities (e.g., high poverty and unemployment rates, environmental and social justice, air and water quality issues).	Y, Part B (location)
21	Joint Utilities should include in SBPM consideration of the different ways that biogas can create hotspots of pollution (e.g., fuel cells as considered in Decision).	Y, Part B (location)
22	Joint Utilities should keep an eye on costs to help underserved communities, since high utility bills harm customers.	Y
23	Joint Utilities should ensure that SBPM relies on air and water board compliance at the time of procurement, just as the California Department of Food and Agriculture (CDFA) does for the Dairy Digester Research and Development Program (DDRDP).	Y, prereq.
24	Joint Utilities should take into account in SBPM air and water quality and welfare in local communities.	Y, prereq.
Contract/Project Requirements		
25	Joint Utilities should expressly include any livestock facility generating animal manure that is used to produce biomethane in SBPM analysis.	Y, prereq. and Part B
26	Joint Utilities should ensure that biomethane for the program is in addition to existing production so as not to divert RNG from existing and operational uses.	Y, Part B
27	Joint Utilities should scrutinize contracts with a term of 10-15 years more than contracts with terms of less than 10 years.	N/A

28	Joint Utilities should consider adding an “out clause” or penalty to long-term contracts if producers are not able to meet cost-effectiveness standard (which may not be fully developed at the time contracts are signed) or promised performance level.	N/A
29	Joint Utilities should ask producers for all GHG accounting information (including monitoring, leakage, updates on production resources, etc.).	N/A
30	Joint Utilities should use an “above market” cost cap – contract prices should cover only the incremental cost of producing biomethane for pipeline injection.	N/A
31	Joint Utilities should exclude projects that increase emissions and exclude dairy biomethane projects.	N/A See Decision
32	Joint Utilities should procure from dairy biomethane projects whose activities are monitored by various agencies (e.g., Water Board, CARB, etc.).	N/A
33	Joint Utilities should not procure dairy biomethane as part of the Renewable Gas procurement program, since they cannot ensure that dairy biomethane facilities are not causing adverse impacts to water and air quality or maintaining a reasonable herd size.	N/A See Decision
34	Joint Utilities should strike a balance between populating all methodology components and ability to negotiate contracts.	N/A
35	Joint Utilities should use a portfolio approach when procuring RNG – maintain flexibility around project selection to meet obligations and compare RNG projects.	N/A
36	Joint Utilities should ensure program is reducing emissions by enforcing leak control/tracking GHGs at every link of the chain (including production/source), from start to finish of a project.	N/A

**PG&E Gas and Electric
Advice Submittal List
General Order 96-B, Section IV**

AT&T
Albion Power Company

Alta Power Group, LLC
Anderson & Poole

Atlas ReFuel
BART

Barkovich & Yap, Inc.
Braun Blasing Smith Wynne, P.C.
California Cotton Ginners & Growers Assn
California Energy Commission

California Hub for Energy Efficiency
Financing

California Alternative Energy and
Advanced Transportation Financing
Authority
California Public Utilities Commission
Calpine

Cameron-Daniel, P.C.
Casner, Steve
Center for Biological Diversity

Chevron Pipeline and Power
City of Palo Alto

City of San Jose
Clean Power Research
Coast Economic Consulting
Commercial Energy
Crossborder Energy
Crown Road Energy, LLC
Davis Wright Tremaine LLP
Day Carter Murphy

Dept of General Services
Don Pickett & Associates, Inc.
Douglass & Liddell

East Bay Community Energy Ellison
Schneider & Harris LLP
Engineers and Scientists of California

GenOn Energy, Inc.
Goodin, MacBride, Squeri, Schlotz &
Ritchie
Green Power Institute
Hanna & Morton
ICF
International Power Technology

Intertie

Intestate Gas Services, Inc.
Kelly Group
Ken Bohn Consulting
Keyes & Fox LLP
Leviton Manufacturing Co., Inc.

Los Angeles County Integrated
Waste Management Task Force
MRW & Associates
Manatt Phelps Phillips
Marin Energy Authority
McClintock IP
McKenzie & Associates

Modesto Irrigation District
NLine Energy, Inc.
NRG Solar

OnGrid Solar
Pacific Gas and Electric Company
Peninsula Clean Energy

Pioneer Community Energy

Public Advocates Office

Redwood Coast Energy Authority
Regulatory & Cogeneration Service, Inc.
SCD Energy Solutions
San Diego Gas & Electric Company

SPURR
San Francisco Water Power and Sewer
Sempra Utilities

Sierra Telephone Company, Inc.
Southern California Edison Company
Southern California Gas Company
Spark Energy
Sun Light & Power
Sunshine Design
Stoel Rives LLP

Tecogen, Inc.
TerraVerde Renewable Partners
Tiger Natural Gas, Inc.

TransCanada
Utility Cost Management
Utility Power Solutions
Water and Energy Consulting Wellhead
Electric Company
Western Manufactured Housing
Communities Association (WMA)
Yep Energy