

PUBLIC UTILITIES COMMISSION

505 VAN NESS AVENUE
SAN FRANCISCO, CA 94102-3298



December 12, 2014

Ms. Meredith Allen
Senior Director, Regulatory Relations
Pacific Gas and Electric Company
77 Beale Street, Mail Code B10C
San Francisco, CA 94177

Subject: Pacific Gas and Electric Company Advice Letter 3455-G-A Regarding Biomethane Pipeline Injection Requirements in Compliance with Decision (D.) 14-01-034

Dear Ms. Allen:

Pacific Gas and Electric (PG&E) Advice Letter (AL) 3455-G-A is effective October 15, 2014.

Background

California Assembly Bill (AB) 1900 required the California Public Utilities Commission (Commission or CPUC) to approve standards and requirements for health, safety, and pipeline integrity for biomethane injected into utility pipelines, and rules for nondiscriminatory open access.

The Commission is addressing AB 1900 in Rulemaking (R.) 13-02-008 in a Phase I and Phase II decision.

The Phase I decision, Decision (D.) 14-01-034, adopted 17 constituents of concern related to biomethane, and the monitoring, testing, reporting, and recordkeeping protocols that were recommended for adoption by the California Air Resources Board and the Office of Environmental Health Hazard Assessment (ARB and OEHHA, respectively) in their *Recommendations to the California Public Utilities Commission Regarding Health Protective Standards for the Injection of Biomethane into the Common Carrier Pipeline* issued on May 15, 2013. D.14-01-034 also specified pipeline safety and integrity concentration limits modeled on the ARB/OEHHA recommendations.

The Phase II decision in R.13-02-008 is pending. There is no firm date for when the Phase II decision will be issued.

PG&E filed its initial compliance AL 3455-G on February 18, 2014. This advice letter was intended to implement the Phase I decision, D.14-01-034.

The Coalition for Renewable Natural Gas (CRNG)'s Protest

The Coalition for Renewable Natural Gas (CRNG) filed a protest on March 10, 2014. CRNG protested on the grounds that PG&E's Gas Rule 21, Section H.4 and H.6 (Open Access Interconnection of New Gas Supply) would improperly assign costs of interconnection and complying with the Phase I decision to biomethane producers, despite the fact that the Phase II decision might shift some or all of the costs of compliance onto the utility.

PG&E's Reply to Protest

PG&E responded to the protest on March 17, 2014, stating that Section H predates the Phase I decision and that AL 3455-G does not seek to change cost allocation principles therein. Under the pre-existing Gas Rule 21, Section H, parties seeking to interconnect with PG&E pay for such costs regardless of whether they are conventional or biomethane gas producers.

PG&E filed a supplemental AL 3455-G-A on October 15, 2014 to address ambiguities in the initially-filed AL 3455-G. The changes in the supplemental AL do not materially change the CRNG protest or PG&E's reply.

No party filed a protest to PG&E's AL 3455-G-A.

Energy Division

The Energy Division rejects CRNG's protest for the following reasons:

1. PG&E's Gas Rule 21, Section H cost allocation principles predate AL 3455-G and AL 3455-G-A and R.13-02-008.
2. D.14-01-034 did not order a change to the cost allocation principles in PG&E Gas Rule 21, Section H.
3. In the absence of a final Phase II decision in R.13-02-008, there is no reason to believe that interconnection or Phase I compliance cost allocation rules would differ from pre-existing cost allocation rules.
4. Nothing in the Phase I decision or AL 3455-G or AL 3455-G-A precludes changes to the existing cost allocation rules, therefore approval of AL 3455-G or AL 3455-G-A would not prejudice the outcome of the Phase II decision or harm the protesting party.

The Energy Division hereby approves PG&E AL 3455-G-A.

Sincerely,



Edward Randolph
Director, Energy Division

cc: Richard Myers, Energy Division
Franz Cheng, Energy Division
Johannes Escudero, Coalition for Renewable Natural Gas
Kingsley Cheng, PG&E

October 15, 2014

Advice 3455-G-A

(Pacific Gas and Electric Company ID U 39 G)

Public Utilities Commission of the State of California

Subject: Supplemental: Revisions to PG&E Gas Rules 1 and 21 to Adopt Biomethane Standards and Requirements as Required by Assembly Bill 1900

Purpose

Pursuant to direction from Energy Division, this supplemental Advice Letter replaces in its entirety Advice Letter 3455-G filed on February 18, 2014 in order to incorporate suggested revisions to Pacific Gas and Electric Company's (PG&E) tariffs based on recommendations from Energy Division and the California Air Resources Board.

In compliance with Decision (D.) 14-01-034 (Ordering Paragraphs 4, 12, and 14), PG&E filed Advice Letter 3455-G on February 18, 2014 to incorporate the California Public Utilities Commission (Commission or CPUC) adopted standards and requirements for biomethane supplies, including concentration standards for identified constituents of concern related to public health and safety and to pipeline integrity, and monitoring, testing, reporting, and recordkeeping requirements, into PG&E's affected gas tariffs.

Background

Assembly Bill (AB) 1900 required the Commission to approve standards and requirements for health, safety, and pipeline integrity for biomethane injected into utility pipelines and access rules ensuring nondiscriminatory open access. Per D.14-01-034, issued on January 22, 2014, the Commission identified 17 constituents of concern related to biomethane, and adopted the monitoring, testing, reporting, and recordkeeping protocols recommended in the May 15, 2013 "Recommendations to the California Public Utilities Commission Regarding Health Protective Standards for the Injection of Biomethane into the Common Carrier Pipeline."¹

¹ Prepared by the Office of Environmental Health Hazard Assessment (OEHHA) in conjunction with the California Air Resources Board (CARB).

Tariff Revisions

PG&E's Gas Rule 1 has been revised to add a definition of Biomethane, and to update and clarify the definition of Biogas.

Gas Rule 21 has been revised to include a new subsection that describes additional requirements specifically applicable to biomethane injection into PG&E's pipeline system as directed by the Commission, including procedures for pre-injection and periodic testing, and the restarting of biomethane delivery in the event of a shut down. Also included is a prohibition against receipt of gas from hazardous waste landfills, and a reference to the reporting and recordkeeping requirements outlined in D.14-01-034 and referenced in the California Air Resources Board/ Office of Environment Health Hazard Assessment Report (CARB/OEHHA) submitted in Rulemaking (R.) 13-02-008.

This filing 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 filing may do so by letter sent via U.S. mail, facsimile or E-mail, no later than October 27, 2014, which is at least 12 days² after the date of this filing. This shortened protest period is at the direction of Energy Division. Protests must be submitted to:

CPUC Energy Division
ED Tariff Unit
505 Van Ness Avenue, 4th Floor
San Francisco, California 94102

Facsimile: (415) 703-2200
E-mail: EDTariffUnit@cpuc.ca.gov

Copies of protests also should be mailed to the attention of the Director, Energy Division, Room 4004, at the address shown above.

The protest shall also be sent to PG&E either via E-mail or U.S. mail (and by facsimile, if possible) at the address shown below on the same date it is mailed or delivered to the Commission:

² The 10-day protest period concludes on a weekend. PG&E is hereby moving this date to the following business day.

Meredith Allen
Senior Director, Regulatory Relations
Pacific Gas and Electric Company
77 Beale Street, Mail Code B10C
P.O. Box 770000
San Francisco, California 94177

Facsimile: (415) 973-7226
E-mail: PGETariffs@pge.com

Any person (including individuals, groups, or organizations) may protest or respond to an advice letter (General Order 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, telephone number, postal address, and (where appropriate) 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

PG&E requests that this Tier 1 advice filing become effective upon date of filing, which is October 15, 2014.

Notice

In accordance with General Order 96-B, Section IV, a copy of this advice letter is being sent electronically and via U.S. mail to parties shown on the attached list and the parties on the service list for R.13-02-008. Address changes to the General Order 96-B service list should be directed to PG&E at E-mail 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 filings can also be accessed electronically at: <http://www.pge.com/tariffs>.

/S/

Meredith Allen
Senior Director, Regulatory Relations

Attachments

cc: Service List R.13-02-008
The Coalition for Renewable Natural Gas

CALIFORNIA PUBLIC UTILITIES COMMISSION

ADVICE LETTER FILING SUMMARY ENERGY UTILITY

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

Company name/CPUC Utility No. **Pacific Gas and Electric Company (ID U39 G)**

Utility type:

ELC GAS
 PLC HEAT WATER

Contact Person: Kingsley Cheng

Phone #: (415) 973-5265

E-mail: k2c0@pge.com and PGETariffs@pge.com

EXPLANATION OF UTILITY TYPE

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

(Date Filed/ Received Stamp by CPUC)

Advice Letter (AL) #: **3455-G-A**

Tier: **1**

Subject of AL: **Supplemental: Revisions to PG&E Gas Rules 1 and 21 to adopt Biomethane standards and requirements as required by Assembly Bill 1900**

Keywords (choose from CPUC listing): Compliance, Rules

AL filing type: Monthly Quarterly Annual One-Time Other _____

If AL filed in compliance with a Commission order, indicate relevant Decision/Resolution #: D.14-01-034

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: _____

Is AL requesting confidential treatment? If so, what information is the utility seeking confidential treatment for: No

Confidential information will be made available to those who have executed a nondisclosure agreement: N/A

Name(s) and contact information of the person(s) who will provide the nondisclosure agreement and access to the confidential information: _____

Resolution Required? Yes No

Requested effective date: **October 15, 2014**

No. of tariff sheets: **22**

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: Gas Rule 1 and Gas Rule 21

Service affected and changes proposed: N/A

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

Protests, dispositions, and all other correspondence regarding this AL are due no later than 12 days¹ after the date of this filing, unless otherwise authorized by the Commission, and shall be sent to:

California Public Utilities Commission
Energy Division
EDTariffUnit
505 Van Ness Ave., 4th Flr.
San Francisco, CA 94102
E-mail: EDTariffUnit@cpuc.ca.gov

Pacific Gas and Electric Company
Attn: Meredith Allen
Senior Director, Regulatory Relations
77 Beale Street, Mail Code B10C
P.O. Box 770000
San Francisco, CA 94177
E-mail: PGETariffs@pge.com

¹ The 10-day protest period concludes on a weekend. PG&E is hereby moving this date to the following business day.

**ATTACHMENT 1
Advice 3455-G-A**

Cal P.U.C. Sheet No.	Title of Sheet	Cancelling Cal P.U.C. Sheet No.
31559-G	GAS RULE NO. 1 DEFINITIONS Sheet 3	25123-G
31560-G	GAS RULE NO. 1 DEFINITIONS Sheet 4	29671-G
31561-G	GAS RULE NO. 1 DEFINITIONS Sheet 5	29672-G
31562-G	GAS RULE NO. 1 DEFINITIONS Sheet 6	26824-G
31563-G	GAS RULE NO. 1 DEFINITIONS Sheet 8	18200-G
31564-G	GAS RULE NO. 21 TRANSPORTATION OF NATURAL GAS Sheet 16	29232-G
31565-G	GAS RULE NO. 21 TRANSPORTATION OF NATURAL GAS Sheet 17	29233-G
31566-G	GAS RULE NO. 21 TRANSPORTATION OF NATURAL GAS Sheet 18	29234-G
31567-G	GAS RULE NO. 21 TRANSPORTATION OF NATURAL GAS Sheet 19	29235-G
31568-G	GAS RULE NO. 21 TRANSPORTATION OF NATURAL GAS Sheet 20	29236-G
31569-G	GAS RULE NO. 21 TRANSPORTATION OF NATURAL GAS Sheet 21	
31570-G	GAS RULE NO. 21 TRANSPORTATION OF NATURAL GAS Sheet 22	

**ATTACHMENT 1
Advice 3455-G-A**

Cal P.U.C. Sheet No.	Title of Sheet	Cancelling Cal P.U.C. Sheet No.
31571-G	GAS RULE NO. 21 TRANSPORTATION OF NATURAL GAS Sheet 23	
31572-G	GAS RULE NO. 21 TRANSPORTATION OF NATURAL GAS Sheet 24	
31573-G	GAS RULE NO. 21 TRANSPORTATION OF NATURAL GAS Sheet 25	
31574-G	GAS RULE NO. 21 TRANSPORTATION OF NATURAL GAS Sheet 26	
31575-G	GAS RULE NO. 21 TRANSPORTATION OF NATURAL GAS Sheet 27	24445-G
31576-G	GAS RULE NO. 21 TRANSPORTATION OF NATURAL GAS Sheet 28	22735-G
31577-G	GAS RULE NO. 21 TRANSPORTATION OF NATURAL GAS Sheet 29	22736-G
31578-G	GAS RULE NO. 21 TRANSPORTATION OF NATURAL GAS Sheet 30	22737-G
31579-G	GAS TABLE OF CONTENTS Sheet 1	31556-G
31580-G	GAS TABLE OF CONTENTS Sheet 6	31395-G



GAS RULE NO. 1
DEFINITIONS

Sheet 3

BALANCING SERVICE: A best-efforts service to accommodate imbalances between actual Customer usage and Customer-owned gas delivered to PG&E.

BASELINE: A rate structure mandated by the California Legislature and implemented at PG&E in 1984 that ensures all residential customers are provided a minimum necessary quantity of gas at the lowest possible cost.

BILLING CYCLE: The regular interval at which a bill for gas service is rendered; typically spans a 27-to-33 day period.

BIOGAS: Biogas refers to gas that is produced from the anaerobic decomposition of organic material. The gas is a mixture of methane, carbon dioxide, and other constituents, and must be conditioned into Biomethane prior to receipt into the natural gas pipeline system. This includes gas from landfills permitted by the Department of Toxic Substances Control.

(N)
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 (N)

BIOMETHANE: Biomethane refers to biogas that meets the standards adopted pursuant to subdivisions (c) and (d) of Health and Safety Code Section 25421 for injection into a common carrier pipeline. Biomethane must be free from bacteria, pathogens and any other substances injurious to utility facilities, or other constituents that would cause the gas to be unmarketable. Biomethane must conform to the gas quality specifications identified in Gas Rule 21, and to all other tariffs and standard utility operating practices and guidelines.

BRANCH SERVICE: A service that is not connected to a gas main and has another service as its source of supply.

BRITISH THERMAL UNIT (Btu): The standard unit for measuring a quantity of thermal energy. One Btu equals the amount of thermal energy required to raise the temperature of one pound of water one degree Fahrenheit and is exactly defined as equal to 1,055.05585262 joule, rounded to 1,055.056 joule. (A joule is equal to one watt-second.)

BROKERAGE FEE: Rates for customers, including UEG and Wholesale, who procure supply from PG&E's gas supply portfolio, include a component for the Brokerage Fee.

Btu AREA: A physically identifiable area of the gas transmission and/or distribution system in which the Btu and specific gravity of the gas is measured at a single point representative of the entire area.

(Continued)



GAS RULE NO. 1
DEFINITIONS

Sheet 5

COMMON USE AREAS: Those areas that may be shared or used by occupants within a multifamily accommodation, including, but not limited to, laundry room, recreation room, swimming pool, tennis courts, gardens, hall/outdoor lighting. (L)

COMPANY: Pacific Gas and Electric Company (PG&E). |

COMPANY'S OPERATING CONVENIENCE: The use, under certain circumstances, of facilities or practices not ordinarily employed which contribute to the overall efficiency of PG&E's operations; the term does not refer to customer convenience nor to the use of facilities or adoption of practices required to comply with applicable laws, ordinances, rules, regulations, or similar requirements of public authorities. |

CONSUMER PRICE INDEX: The Index, as published monthly by the Bureau of Labor Statistics in its "Consumer Price Index Detailed Report"; specifically therein referred to as the "San Francisco-Oakland Consumer Price Index." (L)

CORE END-USE CUSTOMER: A Core End-Use Customer is a Customer physically connected to the local distribution system. Core End-Use Customers normally lack alternatives to natural gas service. Core End-Use Customers include all residential Customers, and non-residential Customers whose natural gas use does not meet the minimum usage requirements specified in the noncore rate schedules, or whose gas use meets the minimum usage requirements, but do not elect to be classified as a Noncore End-Use Customer.

CORE PROCUREMENT GROUP: Core Transport Groups and PG&E's Core Gas Supply Department.

CORE TRANSPORT AGENT: An individual or company that contracts with PG&E and participating core gas transportation service Customers as the responsible agent to manage natural gas deliveries to PG&E on behalf of a Core Transport Group.

CORE TRANSPORT GROUP: Any combination of core Customers (individual commercial and/or residential customers) whose total gas use is greater than or equal to 120,000 therms on an annual basis. The aggregation of gas accounts into a Core Transport Group is needed for core Customers to qualify for core gas transportation service.

COST OF OWNERSHIP (COO): A monthly charge applied to special facilities to recover the cost to PG&E of operating the special facility. When applicant-financed the charge includes the cost components for operations and maintenance (O&M), administration and general expenses (A&G), property taxes, and franchise fees and uncollectibles, and the cost of replacement facilities at no additional cost for sixty (60) years The applicant-financed percentage is also used to calculate COO charges on unsupported distribution line extension costs. See Rule 15.E.6 (L)

(Continued)



GAS RULE NO. 1
DEFINITIONS

Sheet 6

When PG&E-financed the monthly cost components include all of those listed above for applicant-financed special facilities plus components to cover the costs of income taxes, return on investment, and depreciation. The PG&E-financed COO is also used to calculate line extension allowances. (See Rule 15. C. 2 & C.3.) (L)

CPUC (CALIFORNIA PUBLIC UTILITIES COMMISSION): The Public Utilities Commission of the State of California. |

CUBIC FOOT OF GAS: The quantity of gas that, at a temperature of sixty (60) degrees Fahrenheit and a pressure of 14.73 pounds per square inch absolute, occupies one cubic foot. (L)

CUSTOMER: The person, group of persons, firm, corporation, institution, municipality, or other civic body, in whose name service is rendered, as evidenced by the signature on the application, contract, or agreement for that service or, in the absence of a signed instrument, by the receipt and payment of bills regularly issued in that name, regardless of the identity of the actual user of the service.

CUSTOMER-OWNED GAS: Gas procured by the Customer which is not part of PG&E's procured supplies.

DAILY AVAILABLE CAPACITY: The maximum capacity of a pipeline system on a given day. This capacity can vary from day to day depending on the operating conditions, e.g., load pressures and ambient temperatures, and the availability of facilities and equipment, such as compressor units.

(Continued)



GAS RULE NO. 1
DEFINITIONS

Sheet 8

GAS: Any combustible gas or vapor, or combustible mixture of gaseous constituents used to produce heat by burning. It shall include, but not be limited to, natural gas, gas manufactured from coal or oil, Biogas, Biomethane, or a mixture of any or all of the above. (T)

HEATING VALUE: The term "heating value" as used in these rules shall mean total heating value of the gas normally measured on a dry basis (unless otherwise specified), and is defined as the number of British Thermal Units evolved by the complete combustion, at constant pressure, of one standard cubic foot of gas with air, the temperature of the gas, air and products of combustion being 60 degrees Fahrenheit and all of the water formed by the combustion reaction being condensed to the liquid state.

HOUSING PROJECT: A building or group of buildings located on a single premises and containing residential dwelling units for which master metering of gas service at one location has been requested.

INDIVIDUAL METERING: Where PG&E installs a separate service and meter for each individual residence, apartment dwelling unit, mobilehome space, store, office, etc.

INDUSTRIAL USE: Services to Customers engaged primarily in a process which creates or changes raw unfinished materials into another form or product. Industrial use is further defined as uses in the categories falling under Division B, Mining, Division C, Construction, and Division D, Manufacturing in the Standard Industrial Classification Manual issued by the Executive Office of the President, Office of Management and Budget.

(Continued)

Advice Letter No: 3455-G-A
 Decision No. 14-01-034

Issued by
Steven Malnight
 Senior Vice President
 Regulatory Affairs

Date Filed October 15, 2014
 Effective October 15, 2014
 Resolution No. _____



GAS RULE NO. 21
 TRANSPORTATION OF NATURAL GAS

Sheet 16

C. QUALITY OF GAS

Gas delivered to PG&E for transportation to the Delivery Point(s) shall meet the gas quality specifications stated in the service agreement between the delivering pipeline company and PG&E. If no gas-quality specifications agreement exists between the delivering pipeline company and PG&E for the Receipt Point(s), or if the natural gas is not delivered by a pipeline, the gas received by PG&E shall meet the following specifications:

1. Carbon dioxide: The gas shall contain no more than one percent by volume of carbon dioxide.
2. Oxygen: The gas shall contain no more than 0.1 percent by volume of oxygen.
3. Hydrogen sulfide: The gas shall contain no more than 0.25 grains of hydrogen sulfide, measured as hydrogen sulfide, per one hundred standard cubic feet (4 parts per million (ppm)).
4. Mercaptan sulfur: The gas shall contain no more than 0.5 grains of mercaptan sulfur, measured as sulfur, per one hundred standard cubic feet (8 ppm).
5. Total sulfur: The gas shall contain no more than one grain of total sulfur, measured as sulfur, per one hundred standard cubic feet (17 ppm).
6. Water vapor: The gas shall contain no more than seven pounds of water vapor per million standard cubic feet at 800 pounds per square inch gauge (psig) or less; dew point of 20° Fahrenheit (F) if gas is supplied at over 800 psig.
7. Hydrocarbon dewpoint: The gas shall have a hydrocarbon dewpoint of 45°F or less for gas delivered at 800 psig or below, but measured at 400 psig; or 20°F for gas delivered at above 800 psig, also measured at 400 psig.
8. Liquids: The gas shall contain no liquids at, or immediately downstream of, the Receipt Point(s).
9. Merchantability: The gas shall not contain dust, sand, dirt, gums, oils, or other substances in an amount sufficient to be injurious to PG&E facilities or which shall cause the gas to be unmarketable.
10. Temperature: The gas shall not be delivered at less than 60 degrees Fahrenheit or more than 100 degrees Fahrenheit. (L)
11. Gas interchangeability: The gas shall be interchangeable with the gas in the receiving pipeline. Interchangeability shall be determined in accordance with the methods and limits presented in Bulletin 36 of the American Gas Association. (L)

(Continued)



GAS RULE NO. 21
TRANSPORTATION OF NATURAL GAS

Sheet 18

C. QUALITY OF GAS (Cont'd.)

(N)

recycling of hazardous waste. The facility may consist of one or more treatment, transfer, storage, resource recovery, disposal, or recycling hazardous waste management units, or combinations of these units. This includes facilities permitted by the Department of Toxic Substance Control.

7. Testing Action Levels

- a. Trigger Level: Constituents found at or above the Trigger Level require additional periodic testing and analysis.
- b. Lower Action Level: The Lower Action Level is used to screen Biomethane during Pre-Injection Testing, Periodic Testing, and in the Biomethane Restart Procedure.
- c. Upper Action Level: The Upper Action Level establishes the point at which an immediate shut-off of the Biomethane supply occurs.

b. Biomethane Constituents and Quality Specifications

- 1. Biomethane must conform to the specifications shown in Table 1.

Table 1						
Maximum Constituent Concentrations						
Biomethane Injection Constituents				Testing for Biogas Source		
	Trigger Level	Lower Action Level	Upper Action Level	Landfill	Dairies	POTW ⁴
Traditional Gas Quality Requirements ¹				X	X	X
Health Protective Constituents - Carcinogenic ²						
Arsenic	0.019 mg/m ³ 0.006 ppmv	0.19 mg/m ³ 0.06 ppmv	0.48 mg/m ³ 0.15 ppmv	X		
p-Dichlorobenzene	5.7 mg/m ³ 0.95 ppmv	57 mg/m ³ 9.5 ppmv	140 mg/m ³ 24 ppmv	X		X
Ethylbenzene	26 mg/m ³ 6.0 ppmv	260 mg/m ³ 60 ppmv	650 mg/m ³ 150 ppmv	X	X	X
n-Nitroso-di-n-propylamine	0.033 mg/m ³ 0.006 ppmv	0.33 mg/m ³ 0.06 ppmv	0.81 mg/m ³ 0.15 ppmv	X	X	
Vinyl Chloride	0.84 mg/m ³ 0.33 ppmv	8.4 mg/m ³ 3.3 ppmv	21 mg/m ³ 8.3 ppmv	X		X

(Continued)



GAS RULE NO. 21
TRANSPORTATION OF NATURAL GAS

Sheet 19

C. QUALITY OF GAS, Table 1 (Cont'd.)

(N)

Health Protective Constituents - Non-Carcinogenic²						
Antimony	0.60 mg/m ³ 0.12 ppmv	6.0 mg/m ³ 1.2 ppmv	30 mg/m ³ 6.1 ppmv	X		
Copper	0.060 mg/m ³ 0.02 ppmv	0.60 mg/m ³ 0.23 ppmv	3.0 mg/m ³ 1.2 ppmv	X		
Hydrogen Sulfide ⁶	30 mg/m ³ 22 ppmv	300 mg/m ³ 216 ppmv	1500 mg/m ³ 1080 ppmv	X	X	X
Lead	0.075 mg/m ³ 0.009 ppmv	0.75 mg/m ³ 0.09 ppmv	3.8 mg/m ³ 0.44 ppmv	X		
Mercaptans (Alkyl Thiols) ⁶	12 ppmv	120 ppmv	610 ppmv	X	X	X
Methacrolein	1.1 mg/m ³ 0.37 ppmv	11 mg/m ³ 3.7 ppmv	53 mg/m ³ 18 ppmv	X		
Toulene	904 mg/m ³ 240 ppmv	9000 mg/m ³ 2400 ppmv	45000 mg/m ³ 12000 ppmv	X	X	X
Pipeline Integrity Protective Constituents³						
Ammonia	0.001%	TBD ⁵	TBD ⁵	X	X	X
Biologicals	4 x 10 ⁴ / scf (qPCR per APB, SRB, IOB ⁷ group) and commercially free of bacteria of > 0.2 microns	TBD ⁵	TBD ⁵	X	X	X
Hydrogen	0.10%	TBD ⁵	TBD ⁵	X	X	X
Mercury	0.08 mg/m ³	TBD ⁵	TBD ⁵	X	X	X
Siloxanes	0.01 mg Si/m ³	0.1 mg Si/m ³	TBD ⁵	X	X	X

Notes:

1. Traditional gas quality requirements are found in Gas Rule 21.C in Sections 1-12.
2. Health protective constituents are shown in Table V-3 the CARB/OEHHA Report.
3. Pipeline integrity protective constituents are shown in Section 4.4.3.3 of D.14-01-034.
4. POTW means "Publicly Owned Treatment Works" or sewage treatment plant, or wastewater plant, and includes all biogas sources other than landfill and dairy manure.
5. The lower and upper action levels will be established in the next update proceeding.
6. Testing requirement will be the lower of stated biomethane values or other tariff requirements.
7. Acid-producing Bacteria (ABP), Sulfate-reducing Bacteria (SRB), and Iron-oxidizing Bacteria (IOB).

(N)

(Continued)



GAS RULE NO. 21
 TRANSPORTATION OF NATURAL GAS

Sheet 20

C. QUALITY OF GAS (Cont'd.)

2. Biomethane must conform to the specifications shown in Table 1.

Table 2			
Total Risk from Carcinogenic and non-Carcinogenic Constituents			
Risk Management Levels	Risk from Carcinogenic Constituents	Hazard Index from Non-Carcinogenic Constituents	Action
Trigger Level ¹	≥ 1.0	≥ 0.1	Periodic Testing Required
Lower Action Level ²	≥ 10.0	≥ 1.0	Supply shut-in after three exceedances in 12 months
Upper Action Level ³	≥ 25.0	≥ 5.0	Immediate supply shut-in

1. Applies to individual constituent concentrations.
 2. Applies to the sum of all constituent concentrations over the trigger level.
 3. Applies to individual constituent concentrations or to the sum of all constituent concentrations over the trigger level.

c. Testing

1. Testing shall be determined according to the source feedstock. Testing for the Health Protective Constituents shall be by the methods specified in Table V-4 of CARB/OEHHA Report submitted in R. 13-02-008 as approved by D. 14-01-034.
2. If requested, any retesting for validation of results can be done at the cost of the entity requesting the retest.
3. Responsibility for Testing
 - a. During Pre-Injection Testing and Biomethane Restart Procedure testing, gas quality testing will be performed by the Supplier using independent certified third party laboratories, and results will be shared with the receiving utility.
 - b. During Periodic Testing, gas quality testing will be performed by the utility using independent certified third party laboratories, and test results will be shared with Supplier.

(N)

(Continued)



GAS RULE NO. 21
 TRANSPORTATION OF NATURAL GAS

Sheet 21

C. QUALITY OF GAS (Cont'd.)

(N)

4. Pre-Injection Testing Procedure

- a. Supplier will conduct two tests for all Constituents over a two to four week period.
- b. If during the pre-injection testing, any Health Protective Constituents are found at or above the Trigger Level, the Biomethane's total potential cancer risk or non-cancer risk must be calculated. The total potential cancer risk or non-cancer risk can be calculated by summing the individual risk for each Constituent above the trigger level. If the total potential cancer risk or non-cancer risk is at or above the Lower Action Level (the cancer risk Lower Action Level is >10 in a million and the non-cancer risk Lower Action Level is a Hazard Index of >1), the biomethane cannot be accepted or transported by the Utility's pipeline system. The Supplier shall make necessary modifications to lower the total potential cancer risk or non-cancer risk below the Lower Action Level and restart pre-injection testing.
- c. If during the pre-injection testing the Health Protective constituents total potential cancer risk and non-cancer risk is below the Lower Action Level and Pipeline Integrity Protection Constituents are found to be below the Lower Action Level, if applicable, the Biomethane may be injected into the pipeline with Periodic Testing.

5. Periodic Testing

- a. Group 1 Constituents
 - 1. Group 1 Constituents will be tested once every 12 month period in which injection occurs.
 - 2. Any Group 1 Constituent with a concentration below the test detection level or below the Trigger Level for two consecutive annual tests will be tested once every two year period in which deliveries occur.
 - 3. A Group 1 Constituent will become a Group 2 Constituent if testing indicates a concentration at or above the Trigger Level.

(N)

(Continued)



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 TRANSPORTATION OF NATURAL GAS

Sheet 22

C. QUALITY OF GAS (Cont'd.)

(N)

b. Group 2 Constituents

1. Testing for Group 2 Constituents will be quarterly.

2. Individual Constituents

a. Any Constituent with a concentration below the Trigger Level in four consecutive quarterly tests will be tested once every 12 month period in which injection occurs.

b. If annual testing demonstrates that a Constituent concentration is at or above the Trigger Level, testing for that Constituent will revert to quarterly.

c. If any constituent is above the Upper Action Level, the biomethane cannot be injected into the pipeline until the concentration level is below the Lower Action Level.

d. If applicable, when a Pipeline Integrity Protective Constituent is found at or above the Lower Action Level three times in a 12 month period, the biomethane shall be shut-in and subject to the biomethane restart procedures.

(N)

(Continued)



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Sheet 23

C. QUALITY OF GAS (Cont'd.)

(N)

3. Total risk from Carcinogenic and Non-carcinogenic Health Protective Constituents

a.

i. Cancer Risk

The potential cancer [risk] for Group 2 compounds can be estimated by summing the individual potential cancer risk for each carcinogenic constituent of concern. Specifically, the cancer risk can be calculated using the ratio of the concentration of the constituent in the biomethane to the health protective ("trigger") concentration value corresponding to one in a million cancer risk for that specific constituent and then summing the risk for all the Group 2 constituents. (for reference, see CARB/OEHHA Report submitted in R. 13-02-008, p. 67)

ii. Non-Cancer Risk

The non-cancer risk can be calculated using the ratio of the concentration of the constituent in biomethane to the health protective concentration value corresponding to a hazard quotient of 0.1 for that specific non carcinogenic constituent, then multiplying the ratio by 0.1, and then summing the non-cancer chronic risk for these Group 2 constituents. (for reference, see CARB/OEHHA Report submitted in R.13-02-008, p. 67)

(N)

(Continued)



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Sheet 25

C. QUALITY OF GAS (Cont'd.)

(N)

- c. If any Constituent concentration, or the total risk from Carcinogenic or Non-carcinogenic Constituents, is at or above the Upper Action Level, the Biomethane cannot be injected into the pipeline until the concentration is below the Lower Action Level.
- d. If Supplier's Biomethane is refused in accordance with this Rule, testing for all Group 1 and Group 2 Constituents will then be performed according to the Biomethane Restart Procedure.

6. Biomethane Restart Procedure

- a. The Pre-Injection Testing Procedure will be performed by the Supplier if
 - 1. There is a change in the biogas source at the facility or a change of the biogas processing equipment design (other than for functional equivalence) that the Commission determines will potentially increase the level of any Constituent over the previously measured baseline levels.
 - 2. Biomethane injection into the pipeline is refused because there are three occurrences of a Constituent concentration being over the Lower Action Level in a 12-month period.
 - 3. Biomethane injection into the pipeline is refused because a Constituent concentration or the total cancer or non-cancer risk is above the Upper Action Level.
- b. If the results of the first test indicate that all Constituents and total potential cancer and non-cancer risk are below the Lower Action Level, Biomethane may be injected into the pipeline subject to the testing requirements in Section C.13.c.5.
- c. After re-starting Biomethane deliveries, Periodic Testing for all Group 1 and Group 2 Constituents will be performed as indicated in Section C.13.c.5.

(N)

(Continued)



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Sheet 26

- | | |
|--|-----|
| C. QUALITY OF GAS (Cont'd.) | (N) |
| d. Gas from Hazardous Waste Landfills | |
| 1. Biomethane sourced from Hazardous Waste Landfills will not be knowingly purchased, accepted into or transported on the pipeline system. | |
| 2. Supplier must certify and provide documentation or other suitable proof that the biogas source feedstock was not derived or collected from a hazardous waste landfill, as defined herein. | |
| e. Reporting and recordkeeping will be as described in D.14-01-034 and as specified in the CARB/OEHHA Report submitted in R.13-02-008. | |
| | (N) |

(Continued)

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 Decision No. 14-01-034

Issued by
Steven Malnight
 Senior Vice President
 Regulatory Affairs

Date Filed October 15, 2014
 Effective October 15, 2014
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Sheet 28

D. ACCOUNTING AND BILLING (Cont'd.)

(L)

3. BOOKS AND RECORDS

PG&E and the Customer shall keep accounting records and books in accordance with generally accepted accounting principles and practices in the industry. PG&E and the Customer shall have the right to examine those books and accounting records of the other.

Any examination will be at the examining party's expense, must be conducted at a reasonable time, and must be confined to the extent necessary to verify the accuracy of any statement, charge, or computation or any demand made under or as a result of transporting Customer-Owned Gas.

E. ADDITIONAL FACILITIES

Transportation of Customer-Owned Gas does not obligate PG&E to construct any additional facilities (including measuring facilities) or to modify any existing facilities to provide for receipt of Customer-Owned natural gas into the PG&E system. Customer shall have a separate agreement covering any new facilities or necessary modifications for either receipt or delivery of Customer-Owned Gas.

F. POSSESSION OF GAS

For Customer Owned Gas, the Customer shall be deemed to be in control and possession of the gas until the gas is delivered to PG&E at the Receipt Point(s). The Customer shall be deemed to regain control and possession of the gas upon delivery from PG&E to or on behalf of the Customer.

G. INDEMNIFICATION

The Customer shall indemnify and hold harmless PG&E, its officers, agents and employees against all loss, damage, expense, and liability, resulting from injury to or death of any person, including but not limited to employees of PG&E, Customer or any third party, or for loss, destruction, damage to property, including but not limited to property of PG&E, Customer, or any third party, arising out of or in any way connected with the transportation of customer-owned gas, however caused, except to the extent caused by the active negligence or willful misconduct of PG&E, its officers, agents and employees. The Customer shall on PG&E's request, defend any suit asserting a claim covered by this indemnity. The indemnifying party shall pay all costs that may be incurred by the other party in enforcing this indemnity, including all reasonable attorney's fees.

(L)

(Continued)



GAS RULE NO. 21
TRANSPORTATION OF NATURAL GAS

Sheet 29

H. OPEN ACCESS Interconnection of NEW GAS SUPPLY

(L)

PG&E will provide non-discriminatory interconnection to its pipeline system for an Applicant to deliver new gas supply. Upon interconnection PG&E will provide open access transportation of the gas under the applicable PG&E rate schedules, rules and transportation agreements. PG&E will perform interconnection-related work under the following conditions:

1. The Applicant's gas supply can be received into PG&E's existing system without jeopardizing the integrity or normal operation of its pipeline system and without adversely affecting PG&E's Customers. The specific interconnection point will be determined by PG&E.
2. The maximum delivery capacity for Applicant's gas at the interconnection point will be determined by the size of the interconnection facilities and PG&E's ability to redeliver the gas supply downstream of the interconnection point.
3. The available capacity for Applicant's gas supply on any particular day may be affected by physical flows from other points of receipt, daily pipeline operating conditions, and end-use demand.
4. The Applicant shall pay PG&E's costs for all engineering and construction of facilities on PG&E's side of the interconnection point necessary to receive Applicant's gas. Such facilities may include, but are not limited to, taps, valves, piping, measuring equipment, odorizing equipment, land rights, permits, and communication equipment. The Applicant also shall pay for computer programming changes to PG&E's scheduling system, if any, required to add the Applicant's new interconnection point for the purpose of nominating the gas. PG&E shall own and operate all facilities on PG&E's side of the interconnection point.
5. The Applicant shall execute a standard "Agreement to Perform Tariff Schedule Related Work" (Form 62-4527), which shall contain a description of the work to be performed by PG&E, the cost estimate, and payment terms.
6. The Applicant, at its expense, shall obtain all land rights, easements, permits or other authorizations, and shall design and construct the piping, valves, filter separators, and other equipment that is required on the Applicant's side of the interconnection point to effectuate deliveries of gas to PG&E, in accordance with sound and prudent natural gas industry practice and with all applicable laws, rules, and regulations of any authority having jurisdiction.

(L)

(Continued)



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Sheet 30

- H. OPEN ACCESS Interconnection of NEW GAS SUPPLY (Cont'd.) (L)
- 7. The Applicant shall install and maintain in good working condition the necessary pressure regulation and flow equipment to effectuate delivery of gas to the interconnection point at or above the prevailing pressure in PG&E's pipeline. Applicant's equipment shall be designed and installed to protect PG&E's pipeline from exposure to pressures in excess of PG&E's then current maximum operating pressure at the interconnection point.
 - 8. Applicant's gas supply at the interconnection point shall comply with all PG&E tariffs and rules including gas quality and nomination procedures.
 - 9. The Applicant and PG&E shall execute operating and balancing agreements prior to final interconnection and gas flow. (L)



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Issued by
Steven Malnight
 Senior Vice President
 Regulatory Affairs

Date Filed October 15, 2014
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Issued by
Steven Mainight
 Senior Vice President
 Regulatory Affairs

Date Filed October 15, 2014
 Effective October 15, 2014
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**PG&E Gas and Electric
Advice Filing List
General Order 96-B, Section IV**

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Anderson & Poole	Ellison Schneider & Harris LLP	Pacific Gas and Electric Company
BART	G. A. Krause & Assoc.	Praxair
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Coast Economic Consulting	Manatt Phelps Phillips	Tiger Natural Gas, Inc.
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Cool Earth Solar, Inc.	McKenna Long & Aldridge LLP	Utility Cost Management
County of Tehama - Department of Public Works	McKenzie & Associates	Utility Power Solutions
Crossborder Energy	Modesto Irrigation District	Utility Specialists
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Day Carter Murphy	NLine Energy, Inc.	Water and Energy Consulting
Defense Energy Support Center	NRG Solar	Wellhead Electric Company
Dept of General Services	Nexant, Inc.	Western Manufactured Housing Communities Association (WMA)
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