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**PACIFIC GAS AND ELECTRIC COMPANY,
SOUTHERN CALIFORNIA GAS COMPANY,
SAN DIEGO GAS & ELECTRIC COMPANY,
AND SOUTHWEST GAS CORPORATION
CONSTITUENTS OF CONCERN UPDATE
PREPARED TESTIMONY**

PACIFIC GAS AND ELECTRIC COMPANY,
SOUTHERN CALIFORNIA GAS COMPANY,
SAN DIEGO GAS & ELECTRIC COMPANY,
AND SOUTHWEST GAS CORPORATION
CONSTITUENTS OF CONCERN UPDATE
PREPARED TESTIMONY

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1 **PACIFIC GAS AND ELECTRIC COMPANY,**
2 **SOUTHERN CALIFORNIA GAS COMPANY,**
3 **SAN DIEGO GAS & ELECTRIC COMPANY,**
4 **AND SOUTHWEST GAS CORPORATION**
5 **CONSTITUENTS OF CONCERN UPDATE**
6 **PREPARED TESTIMONY**

7 **A. Introduction**

8 Pacific Gas and Electric Company (PG&E), Southern California Gas
9 Company (SoCalGas), San Diego Gas and Electric Company (SDG&E), and
10 Southwest Gas Corporation (Southwest Gas) (collectively, “Joint Utilities”)
11 respectfully submit this joint testimony to update constituents of concern (COC)
12 found in biogas for biomethane pursuant to California Public Utilities
13 Commission (CPUC or Commission) Decision (D.) 14-01-034.¹ This chapter of
14 testimony provides an overview of the regulatory history, recommendations and
15 requirements pertaining to new COCs, including testing methods and testing
16 frequency as recommended by the California Air Resources Board (CARB) in its
17 April 2023 Supplemental Report (2023 Report), and proposed tariff modifications
18 to the utilities’ Standard Renewable Gas Interconnection (SRGI) Rules.² The
19 Joint Utilities appreciate CARB’s collaboration on this first update to the COCs.
20 The Joint Utilities also support CARB’s proposed recommendations pertaining to
21 new health and safety COCs.

22 **B. Regulatory Background**

23 Assembly Bill (AB) 1900 (Gatto; Stats. 2012, Ch. 602) was signed by the
24 Governor on September 27, 2012, and became effective January 1, 2013.
25 AB 1900 requires consultation with multiple state agencies including the Office
26 of Environmental Health Hazard Assessment (OEHHA), CARB, Department of
27 Resources Recycling and Recovery, Department of Substances Control,

1 D.14-01-034, Ordering Paragraph (OP) 31.

2 SDG&E Gas Rule 45, PG&E Gas Rule 29, Southwest Gas Rule 22 and SoCalGas
 Rule 45. See Attachment A for proposed modifications to the SRGI Rule.

1 California Energy Commission (CEC), California Environmental Protection
2 Agency (Cal EPA), and the CPUC.³ Specifically:

3 AB 1900 requires OEHHA and the California Air Resources Board (CARB)
4 to compile a list of constituents of concern (COCs) that could pose risks to
5 human health and that are found in varying sources of biogas at
6 concentrations that significantly exceed the constituents in fossil natural gas.
7 AB 1900 further requires the California Public Utilities Commission (CPUC)
8 to adopt, by rule or order (1) standards for biomethane that specify the
9 concentrations of COCs that are reasonably necessary to protect public
10 health and ensure pipeline integrity and safety, and (2) requirements for
11 monitoring, testing, reporting, and recordkeeping. The bill ensures that no
12 entity can inject biogas in a common carrier pipeline in California without
13 meeting these standards and requirements.⁴

14 Additionally, the CPUC directed the Joint Utilities to update the biomethane
15 safety standards every five years, or earlier if new information becomes
16 available. In January 2014, the Commission issued D.14-01-034 which
17 identified 17 new constituents of concern that may be found in biomethane, and
18 adopted concentration standards in addition to monitoring, testing, reporting, and
19 recordkeeping protocols.⁵ This Decision also directed the gas investor owned
20 utilities:

21 ...to either individually or collectively, file an application within five years
22 from the effective date of this decision, or earlier if new information becomes
23 available, or as directed by the Commission in the future, for the
24 Commission to carry out its review and update responsibilities under that
25 code section of Biomethane into the Common Carrier Pipeline.⁶

26 **1. OEHHA Update**

27 In January 2020, OEHHA published the first update to the 2013 Report.
28 The 2020 Report updates the list of COCs by removing three constituents
29 from the 2013 list (copper, methacrolein, and toluene) and adding two new
30 constituents (cadmium, chromium) and four chemical groups
31 (chlorocarbons, fluorocarbons, silicon compounds, and sulfur compounds).
32 The removal and addition of constituents and chemical groups were based
33 on consideration of biogas combustion products, and updates to toxicity

3 Rulemaking 13-02-008 issued February 21, 2013, at 5-6.

4 CARB Report at 3.

5 D.14-01-034, OP 1.

6 D.14-01-034 OP 7.

1 exposure factors. The 2020 Report also revised the hazard quotients (HQ)
2 and cancer risk for all 15 COCs.⁷

3 **2. CARB Update**

4 To fulfill the requirements of AB 1900 and as a supplement to OEHHA's
5 2020 Report, CARB staff: (1) updated the source categories of COCs in
6 biogas to include both "Food/Green" (food and green waste) and "Sewage
7 Treatment" (additional sources without clear categorization); (2) updated the
8 COCs found in study samples for each source; (3) determined the risk
9 management level concentrations for COCs using updated risk values and
10 recent cancer and non-cancer risk management thresholds; (4) updated
11 recommended methods for COC testing requirements; and (5) updated
12 reporting and recordkeeping requirements to clarify language to the
13 reporting schedule.⁸

14 **3. The Joint Utilities Are Required to File an Application Within** 15 **Six Months of CARB Report Issuance**

16 On November 16, 2018, pursuant to Rule 16.6 of the CPUC's Rules of
17 Practice and Procedure, the Joint Utilities requested an extension of time to
18 comply with OPs 7 and 9 of D.14-01-034.⁹ The reasoning for this request
19 was at the time: (1) the Joint Utilities did not have the necessary information
20 to complete the applications contemplated in D.14-01-034 and (2) it would
21 be counter-productive to serve an application initiating the Commission's
22 review and update of the COCs prior to the Commission issuing a final order
23 on the topics, and CARB and OEHHA issuing an updated report. On
24 December 10, 2018, the CPUC authorized the Joint Utilities' extension
25 request and granted the Joint Utilities six months from the issuance of the

7

https://oehha.ca.gov/media/downloads/air/report-document-background/biomethane_010320.pdf AB 1900 Biogas Recommendations at 14.

8

CARB 2023 Report at 4.

9

See Joint Utilities Letter to Executive Director seeking an extension
<http://pgera.azurewebsites.net/Regulation/ValidateDocAccess?docID=543076>.

1 updated health protective standards for biomethane issued by CARB and
2 OEHHA to file an application in compliance with D.14-01-034.¹⁰

3 **4. Regulatory Requirements**

4 On April 25, 2023, the Joint Utilities provided a courtesy notice to the
5 service list of Rulemaking (R.) 13-02-008 informing parties of CARB’s
6 Report Biogas Constituents of Concern and Health Protective Levels for
7 Biomethane: Supplement Report to OEHHA AB 1900 Biogas
8 Recommendations.

9 Pursuant to OP 7 of D.14-01-34 and California Health and Safety Code
10 § 25421(e), the Joint Utilities file this application, as directed by the
11 Commission, for the Commission to carry out its review and update
12 responsibilities under that code section.

13 **C. Standard Renewable Gas Interconnection Rule Updates and** 14 **Recommendations**

15 **1. CARB Recommended Updates**

16 On April 25, 2023, CARB issued the report titled, “Biogas Constituents
17 of Concern and Health Protective Levels for Biomethane: Supplement
18 Report to OEHHA AB 1900 Biogas Recommendations.”¹¹ The 2023 Report
19 proposed 15 Health Protective COCs, risk management levels and testing
20 requirements by biogas source (landfills, dairies, sewage treatment
21 food/green and other).

22 **a. Changes to Constituents of Concern**

23 As a supplement to the OEHHA 2020 Report, CARB Staff in the
24 2023 Report updated the COC list in the 2013 Report,¹² and in support
25 of this the Joint Utilities propose to incorporate these COC

¹⁰ Executive Director Stebbins granted an extension six months from a final decision issued in R.13-02-008 or from the issuance of the updated health protective standards for biomethane, issued by CARB and OEHHA.
<http://pgera.azurewebsites.net/Regulation/ValidateDocAccess?docID=545050>.

¹¹ This 2023 Report is a supplement to the Office of Environmental Health Hazard Assessment’s (OEHHA) “AB 1900 Biogas Recommendations” (2020 Report) and is available at
<https://ww2.arb.ca.gov/sites/default/files/2023-05/AB-1900-Supplement-Report.pdf>.

¹² CARB 2023 Report, Table 1 (*Proposed testing requirements by biogas source*) at 4.

1 recommendations into their modified SRGI Rule (Section K. 2.a.)
2 Table 1 as follows:

3 **1) Cadmium**

4 The constituent Cadmium is added to Health Protective
5 Constituents (HPC) – Cancer Risk.

6 **2) Chromium**

7 The constituent Chromium is added to HPC – Cancer Risk:

8 Following combustion, 2 percent of the total measured
9 chromium is assumed to be Cr VI (Linak et al 1996), which the
10 OEHHA 2020 Report used to develop exposure scenarios.
11 Given this assumption, biomethane samples only need to be
12 evaluated for total chromium.¹³

13 CARB updated it to total chromium. As a result, the Joint
14 Utilities propose to add the following Note (d) to the SRGI Table 1:
15 “Evaluate as only total chromium.” The current test method used for
16 metals by the Joint Utilities can be used to test for total chromium.

17 **3) Chlorocarbons (as Cl)**

18 Chlorocarbons (as Cl) is added to HPC- non-cancer risk. The
19 Joint Utilities propose to modify the SRGI Rule to include Note (f) to
20 Table 1:

21 The compounds for these chemical classes are per Appendix A
22 and Section 4.4 of the Report or newest published version.¹⁴

23 The Joint Utilities’ test method used for the current HPCs can
24 also be used for the Chlorocarbons as proposed in the SRGI Rule
25 Table 1, Note (f).

26 **4) Fluorocarbons (as F)**

27 Fluorocarbons (as F) is added to HPC – non-cancer risk. The
28 Joint Utilities propose to modify the SRGI Rule for these compounds
29 for these classes as reflected in the proposed SRGI Table 1,

¹³ CARB 2023 Report, Table 1, footnote (b).

¹⁴ CARB 2023 Report, Appendix A addresses Chlorocarbons, Silicon Compounds and Sulfur Compounds and Section 4.4 addresses Fluorocarbons.

1 Note (f). These same compounds can be measured by the Joint
2 Utilities' test methods used for the existing HPCs.

3 **5) Silicon Compounds (as Si)**

4 Silicon Compounds (as Si) is added to HPC – non-cancer risk.
5 This is the same list of compounds as the siloxanes (as Si) in the
6 existing SRGI Rule under the Integrity Protective Constituents. The
7 Silicon Compounds for these classes are reflected in the proposed
8 SRGI Table 1, Note (f) and listed in SRGI Rule Table 3, Note (b).

9 **6) Sulfur Compounds (as S)**

10 Sulfur Compounds (as S) is added to HPC – Non-cancer risk.
11 Sulfur is similar to the base gas quality specifications for the Joint
12 Utilities and listed as Total Sulfur. Sulfur compounds are reflected in
13 the proposed SRGI Rule Table 1, Note (f). These are the same
14 compounds measured in current test methods used for mercaptans
15 and Total Sulfur.

16 **7) Copper, Methacrolein and Toluene**

17 Copper, Methacrolein and Toluene are removed as HPC from
18 the proposed SRGI Rule Table 1.

19 **8) 1,4 Dichlorobenzene**

20 The 1,4 Dichlorobenzene is not a new constituent; it is the same
21 as the current COC, p Dichlorobenzene. The CARB/OEHHA 2013
22 Report used p Dichlorobenzene, and Table 1 has been updated to
23 1,4 Dichlorobenzene to match the chemical name used in the
24 Report. This naming convention is consistent with current test
25 methods used by commercial laboratories, as well as reporting
26 protocols used in laboratory reports.

27 **b. Risk Levels and Concentrations**

28 **1) Changes to Risk Management Levels**

29 The values listed in the Risk Management Levels in CARB
30 Table 5 and SRGI Rule Table 2 remained the same. The SRGI

1 Rule Table 2 table name, column titles, actions and significant digits
2 are updated to match the 2023 Report Table 5.¹⁵

3 **2) Changes to Maximum Constituent Concentrations**

4 OEHHA's 2020 Report revised the health protective levels for all
5 remaining 2013 COCs and presented levels for the newly added
6 COCs.¹⁶ CARB then further redefined those HPC levels to Trigger
7 Levels in consideration of its recommended test methods' lowest
8 detectable concentration. Using the same Risk Management
9 Levels, CARB defined Action Ranges listed in Table 2 of the 2023
10 Report¹⁷ as follows: "Recommended risk management level
11 concentrations (mg/m³, except for alkyl thiols in ppm_v)^a".

12 In support of this revision, the Joint Utilities propose to revise
13 the SRGI Rule Table 1 with all of the new Trigger Levels, Lower
14 Action Levels, and Upper Action Levels per CARB 2023 Supplement
15 Report Table 2¹⁸ as follows:

16 **a) Recommended Changes to SRGI Rule Table 1 Structure**

17 The SRGI Trigger Level was updated to align with the
18 CARB Report Table 2, Trigger Level. The HPCs were split into
19 two sections by Cancer and Non-Cancer Risk. Thus, the 2023
20 CARB Cancer and Non-Cancer Risk Lower Levels were placed
21 in the SRGI Rule's Lower Action Level columns, and the 2023
22 CARB Cancer and Non-Cancer Upper Levels were placed
23 under the SRGI's Upper Action Level. All the levels, where
24 applicable, were converted from mg/m³ to ppm_v of the
25 compounds and placed below each value in parentheses.

26 Notes at the bottom of the SRGI Rule Table 1 were
27 reworded to match CARB's notes and converted from numbers

15 CARB 2023 Report, Table 5 at 13.

16 OEHHA 2020 Report, Table 5 at 15.

17 CARB 2023 Report, Table 2 at 6.

18 CARB 2023 Report, Table 2 – Recommended risk management level concentrations (mg/m³, except for alkyl thiols in ppm_v).

1 to letters to avoid possible confusion with superscripts on the
2 units.

3 **b) Arsenic, Cadmium, Chromium, N-nitroso-di-n-propylamine**

4 The Trigger Levels proposed by CARB are the lowest
5 detectable concentrations, but are higher than the Trigger
6 Levels proposed by OEHHA. These Trigger Levels were
7 underlined in the CARB Table 2 – and referenced as
8 footnote (g):

9 The recommended value was set to the lowest detectable
10 concentration. This value is expected to decrease as
11 commercial laboratories improve monitoring technologies to
12 reach the health protective level as recommended in
13 OEHHA's 2020 Report.

14 The Joint Utilities support CARB's recommendation to
15 increase the Trigger Levels to the lowest detection
16 concentrations available by commercial laboratories.

17 **c) Alkyl Thiols (Mercaptans)**

18 The Trigger Level for Alkyl Thiols (Mercaptans) was
19 increased to 17 ppm_v. The Joint Utilities propose to continue
20 monitoring and enforcing the current lower limit in the base gas
21 quality specifications.

22 **d) Sulfur Compounds (as S)**

23 Trigger Level is 13 ppm_v. SRGI base gas quality
24 specification also has Total Sulfur limits. It should be noted that
25 these limits are enforced at the producer receipt point before
26 odorization and allow for supplemental odorization by the
27 utilities.

28 **c. Updated Gas Source Categories**

29 The Report recommended several updates to the Gas Source
30 categories used to determine which COCs require testing.

31 **1) Food/Green and Sewage Treatment**

32 The Report added two new source categories, "Food/Green"
33 and "Sewage Treatment." These categories were previously part of
34 the "Other" organic waste sources including biomethane from

1 publicly owned treatment works (i.e., water treatment and sewage
2 treatment). There are more COCs to be tested for Sewage
3 Treatment than previously required. The Joint Utilities support
4 inclusion of these new source categories.

5 As a result of the new gas source categories, the Joint Utilities
6 also propose a definition for Food/Green and Sewage Treatment to
7 the SRGI Rule Section B. Definitions, under “Gas Source or Source
8 Feedstock.”¹⁹

9 **2) Landfills and Dairies**

10 The current gas sources for landfill and dairies remain the
11 same. Definitions for Landfills and Dairies were also added to the
12 SRGI Section B. Definitions, under “Gas Source or Source
13 Feedstock.”²⁰

14 **3) Other**

15 The “Other” gas source is for sources without clear
16 categorization. All the COCs are to be tested in this “Other”
17 category. Previously, the “Other” category did not test for all the
18 COCs. The Report recommends additional testing to protect the
19 health of customers.

20 A definition for “Other” is also added to the SRGI Rule
21 Section B. Definitions, under “Gas Source or Source Feedstock.”²¹

22 **4) COCs for Each Gas Source**

23 For each gas source, the 2023 Report identified the COCs to be
24 tested in CARB Table 1.²²

25 The Joint Utilities propose to incorporate this information into
26 the SRGI Rule Table 1 (located in the far right columns) under

19 Upon approval of the proposed SRGI modifications, the Joint Utilities propose to file a Tier 2 advice letter to reflect the corresponding modifications to their respective Standard Renewable Gas Interconnection Agreement.

20 Attachment A.

21 Attachment A.

22 2023 CARB Report, Table 1 at 5.

1 “Testing for Gas Source.” See Attachment A for the Joint Utilities’
2 SRGI Rule Table 1.

3 **5) Multiple Gas Sources**

4 When a feedstock has multiple sources, the 2023 Report states
5 that the interconnector shall specify its source feedstock, and its
6 primary source dictates what is tested.

7 The Joint Utilities disagree with CARB’s recommendation, and
8 instead, for multiple gas sources, the Joint Utilities propose testing
9 all the applicable COCs for each feedstock gas source specified by
10 the interconnector. CARB’s recommendation could result in COCs
11 from a secondary feedstock to exceed allowable levels while not
12 being monitored. The proportions of each feedstock source may
13 also vary over time, and the secondary may become the primary
14 source and applicable secondary COCs may not be monitored. The
15 Joint Utilities proposal will help monitor all COCs that could be
16 present.

17 The Joint Utilities’ modifications to the SRGI Rule are included
18 under Section K.5.a. Source Feedstock Based Testing, in the first
19 paragraph.

20 **d. Reduced Siloxanes Testing**

21 In accordance with D.20-12-031,²³ the Joint Utilities adopted a
22 reduced siloxanes testing requirement for several biogas sources.
23 Siloxanes are identified by the Joint Utilities as Integrity Protective
24 Constituents.²⁴

25 The 2023 Report introduced Silicone Compounds (as Si) as an
26 HPC, with testing required for all gas sources. The Silicon Compounds

23 Decision Adopting the Standard Renewable Gas Interconnection and Operating Agreement (issued December 21, 2020), OP 11 at 30, available at <https://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M356/K244/356244030.PDF>.

24 On December 30, 2021, the Joint Utilities filed respective advice letters to Modify the SRGI and Provide Lower and Upper Action Specifications for Ammonia, Mercury, and Siloxanes, Pursuant to D.20-12-031, which was approved by Energy Division effective April 13, 2022. See PG&E Advice Letter (AL or Advice) 4545-G, SoCal AL 5920-G, Southwest Gas Corporation AL 1197-G.

1 as defined in Appendix A of the 2023 Report are the same as the
2 Siloxanes compounds established by the Joint Utilities.

3 The Joint Utilities requested CARB to address the possibility of
4 including new Silicon Compounds in the Reduced Siloxanes Testing
5 requirement, but this was not an option for CARB at this time. As such,
6 the allowance for reduced siloxanes testing will not apply to Silicon
7 Compounds. Periodic testing will be required for Silicon Compounds
8 even if the interconnector may have previously met all the requirements
9 for reduced siloxanes testing.

10 The Joint Utilities do not propose any modifications to the SRGI at
11 this time for reduced siloxanes compounds testing and will continue
12 working with CARB to determine if incorporating Silicon Compounds into
13 the reduced siloxanes testing requirements is a viable option in the
14 future.

15 **e. CARB COC Recommended Test Methods**

16 The 2023 Report published an updated table of recommended test
17 methods for all HPC.²⁵

18 The Joint Utilities propose to adopt CARB’s recommended test
19 methods for HPC. As such, the Joint Utilities propose to modify the
20 SRGI Rule Section, K.5.a to include a reference to OEHHA/CARB’s
21 recommended latest test methods.

22 CARB has expressed a willingness to explore alternative solutions
23 for publishing updates to the table of recommended test methods for
24 use by the Joint Utilities and interconnectors.²⁶ As such, the Joint
25 Utilities also propose to modify Section K.5.a of the SRGI Rule to
26 include “or newest published version.”

27 **f. Updated Monitoring Requirements for COCs**

28 The 2023 Report included modifications to the recommended
29 monitoring requirements which supersedes Figure V-1 in the 2013
30 Report. The 2023 Report recommended the COC monitoring
31 requirements as shown below:

25 CARB 2023 Report, Section 3.3 at 7, Table-3.

26 CARB 2023 Report at 15.

**TABLE 1
MONITORING REQUIREMENTS**

Line No.	Monitoring Result	Action
1	Result < Trigger Level	Annual monitoring
2	Result < Trigger Level for 2 consecutive years	Monitor every two years
3	Trigger Level ≤ Result < Lower Action Level	Quarterly monitoring until Result < Trigger Level for four consecutive test results, then annual monitoring
4	Lower Action Level ≤ Result < Upper Action Level	Quarterly monitoring
5	Lower Action Level ≤ Result < Upper Action Level for 3 results in 1 year (12 months)	Shut off, resolve issue and retest
6	Upper Action Level ≤ Result	Shut off, resolve issue and retest

1) Update to Annual Monitoring

The 2023 report’s new recommended monitoring requirements removed the scenario in which test results exceeding Trigger Level but below Lower Action Level for four consecutive quarterly tests allowed a shift to annual monitoring.

The removal of the aforementioned scenario is ideal because it contradicts the intents of requiring more frequent monitoring as test results exceed Trigger Levels and the intent of immediately shutting off a producer when three quarterly test results in a 12-month period exceed the Lower Action Level.²⁷ An interconnector with quarterly test results approaching the Lower Action Level should not be allowed to move to annual monitoring when three quarters of results exceeding Lower Action Level during that year would have resulted in an immediate shut off.

The new recommended monitoring requirements simplify the process with results below Trigger using annual monitoring, potentially moving to every two years, and results at Trigger or above using quarterly testing. The Joint Utilities support CARB’s recommended monitoring requirements and have modified the SRGI Rule to remove the scenario noted above by removing Section K.5.f.iii.d) and K.5.f.iii.e).

²⁷ 2023 CARB Report, Table 4 at 8.

1 **2) Pre-Injection Test Duration**

2 The 2023 Report recommends that two pre-injection tests
3 should be done at a minimum of two weeks apart.²⁸ Consistent
4 with CARB’s recommendation, the Joint Utilities support this
5 recommendation and propose to modify the SRGI Rule by removing
6 the word “preferably” from Section K.5.e.²⁹

7 **3) Historical Testing Frequency**

8 All COCs will be tested after publication of the new SRGI Rule,
9 and then the Joint Utilities will consider the new result and historical
10 results to determine the testing frequency thereafter. The Joint
11 Utilities recommend that if historical test results have been below
12 the new CARB recommended Trigger Level for existing COCs, and
13 the new test results remain below the new CARB recommended
14 Trigger Level, then the Joint Utilities propose no change to the
15 interconnector’s current test frequency. For example, if the
16 interconnector meets the requirements for biennial testing, the
17 interconnector would not be required to return to an annual testing
18 cycle as the interconnector would have demonstrated compliance
19 with the new proposed Trigger Levels.

20 **g. Additional Changes**

21 **1) Reference to CARB 2023 Report**

22 The Joint Utilities propose updates to the SRGI Rule to include
23 the 2023 Report wherever the original CARB Report is referenced.
24 Updates include Definition Number 9, Table 1, Notes (b) and (f), and
25 Section K.5.a.³⁰

26 **2) Cancer and Non-Cancer Terminology**

27 The Joint Utilities propose changes throughout the SRGI Rule to
28 replace “carcinogenic” with “cancer” and “non-carcinogenic” with
29 “non-cancer” to align with the terminology used by CARB in the

28 2023 CARB Report at 8.

29 Attachment A.

30 Attachment A.

1 2023 Report. Updates include SRGI Table 1, SRGI Table 2,
2 Sections K.5.f.iii., K.5.f.iii.a), K.5.f.iii.b), and K.5.f.iii.f).³¹

3 **2. Additional Clarifications to the Standard Renewable Gas**
4 **Interconnection Rule**

5 The Joint Utilities propose the following modifications to the SRGI Rule
6 to clarify language in the Rule. Please refer to Attachment A for proposed
7 modifications (redlined) of all changes to the Joint Utilities' SRGI Rule.

8 **a. Test Methods for Integrity Protective Constituents**

9 The Joint Utilities propose to add a new Table 3 (shown below) to
10 the SRGI Rule that includes the Joint Utilities' approved test methods for
11 Integrity Protective Constituents for Ammonia, Carbon Monoxide,
12 Hydrogen, Mercury, Siloxanes, and Biologicals. This is done to
13 formalize what test methods are allowed for each constituent and for
14 ease of reference by the interconnectors.

³¹ Attachment A.

**TABLE 2
TEST METHODS FOR INTEGRITY PROTECTIVE CONSTITUENTS**

Line No.	Constituent of Concern	Sample Method	Lab Test Method
1	Ammonia	Collect samples in sulfuric acid treated silica gel sorbent tubes (NIOSH Method 6015)	Visible spectrophotometry (NIOSH Method 6015)
2		Collect samples in glass tubes containing carbon beads impregnated with sulfuric acid (OSHA Method ID-188)	Ion chromatography conductivity detector IC/CD (OSHA Method ID-188)
3		Bubbled through impinger system containing sulfuric acid and silica gel (South Coast Air Quality Management District Method 207.1)	Ion specific electrode ISE (South Coast Air Quality Management District Method 207.1)
4		Collect samples in Tedlar bag or inert cylinders	Gas chromatograph/nitrogen chemiluminescence detector GC-NCD
5	Carbon Monoxide	Collect samples in cylinders or canisters	Gas Chromatograph GC (EPA 3C, ASTM Methods D1946 or D7833)
6	Hydrogen	Collect samples in cylinders or canisters	Gas Chromatograph GC (EPA 3C, ASTM Methods D1945, D1946 or D7833)
7	Mercury ^(a)	Bubble through aqueous acidic solution of hydrogen peroxide and aqueous acidic solution of potassium permanganate (EPA Method 29)	Cold vapor atomic absorption spectroscopy CVAAS (EPA Method 29, EPA Compendium Method IO-3.5)
8		Collect samples on gold-coated silica beads (ASTM Method D5954)	Atomic absorption spectroscopy AAS (ASTM Method D5954)
9		Collect samples on gold-coated silica sand trap (ASTM Method D6350)	Atomic fluorescence spectroscopy AFS (ASTM Method D6350)
10	Siloxanes ^(b)	Collect samples in cylinders or through sorbent tubes (ASTM Method D8230) or through impingers containing methanol solution.	Gas chromatograph/mass spectrometer GC/MS or gas chromatograph/atomic emission detector GC/AED (ASTM Method D8230) or gas chromatograph/ion mass spectrometer GC/IMS (ASTM Method D8455)
11	Biologicals	Flow samples through filtration funnel and collect on 0.2 um filter.	qPCR for APB, IOB, SRB

1 In addition, Section K.5.a. is modified in the second paragraph to
2 reference “the sample method and lab test method listed Table 3” and
3 replaces the generic, “national standard test methods or equivalent.”

4 **b. Compliance With Utility’s Tariffs**

5 The Joint Utilities provide clarification under Section C.
6 Applicability/Open Access, 7. Compliance with Utility’s Tariffs, that gas

1 quality includes specifications, sampling, and test methods. The
2 purpose of this clarification is to confirm that interconnectors must
3 comply with the newly-added Table 3 recommended test methods for
4 Integrity Protective Constituents.

5 **c. Reduced Siloxanes Testing Updates**

6 The Joint Utilities propose the removal of Section K.5.e.ii.a)(ii),
7 which allows for a year of quarterly testing for Reduced Siloxanes
8 Testing if the results are above Trigger Level but below Lower Action
9 Level before ending periodic testing.

10 This allowance is contrary to the requirement in Sections K.4.b.i.
11 and ii. that the interconnector provide certification that the biogas source
12 is one that contains no siloxanes and products are not used that would
13 introduce siloxanes into the gas process. A test result showing
14 siloxanes above the trigger level would indicate that siloxanes are in the
15 gas stream. Additionally, pursuant to the current SRGI Rule in effect,
16 the interconnector could qualify for no further periodic testing even if test
17 results are shown to be approaching Lower Action Level, which would
18 have required an immediate shut off if exceeded in three quarters during
19 a 12-month period.

20 Updates are also proposed in Section K.5.e.ii.a)(iii) and (iv) to
21 replace “Lower Action Level” with “Trigger Level” in alignment with the
22 requirement that Siloxanes not be present in the gas stream to qualify
23 for reduced siloxanes testing.

24 **d. Notification of Sampling**

25 In Testing Responsibility for pre-injection and restart testing
26 (Section K.5.b.i), the Joint Utilities propose the addition of “a minimum of
27 five business days” to the notification requirement in advance of
28 samples being collected. The addition is to allow adequate time for the
29 utility to coordinate having a qualified representative onsite to observe
30 the sample collection process.

31 **e. Biological Testing**

32 In Section K.5.e.iib)(ii), the Joint Utilities propose the addition of
33 “(>0.2 microns)” to clarify the meaning of “commercially free” of

1 biologicals. The quantitative polymerase Chain Reaction (qPCR) test
2 method will provide a count of bacteria greater than 0.2 microns, with
3 anything smaller not being included.

4 This change also aligns with the Northeast Gas Association's
5 recommendation to use 0.2 micron filters to remove bacteria larger than
6 0.2 micron in size.³²

7 **f. Integrity Protective Constituents**

8 The Joint Utilities propose the addition of Section K.5.f.iv.f to clearly
9 state that exceeding the Upper Action Level for Integrity Protective
10 Constituents will result in an immediate shut-in. The wording duplicates
11 the existing wording under the HPC (See Section K.5.f.ii.c and K.5.f.iii.f),
12 and in the Restart Procedure (Section K.5.g.i.c).

13 **g. Reporting and Record Keeping Requirements**

14 The Joint Utilities propose language to Section K.5.h.ii. to clarify the
15 meaning of the term "Startup testing," which does not exist elsewhere in
16 the SRGI Rule, as the initial round of pre-injection testing. Only the
17 results for the initial round of pre-injection testing when a new
18 Renewable Gas facility successfully comes online are provided to the
19 Commission within 30 days. All other test results are provided to the
20 Commission as part of annual reporting (Section K.5.h.iv.).

21 **h. Sharing Test Results (K.5.h.v.)**

22 The Joint Utilities propose updates to the Reporting and Record
23 Keeping Requirements Section and propose language to clarify in
24 Section K.5.h.v. that test results received by the utility that would result
25 in a shut-in will be provided to the interconnector within 24 hours.

26 Additionally, the Joint Utilities propose the same language for
27 Section K.5.h.vi. so that test results received by the interconnector that
28 would result in a shut-in will be provided to the utility within 24 hours. As
29 worded currently in the SRGI Rule, the interconnector can be in receipt
30 of the test data for two weeks before providing to the utility, delaying the

32 Northeast Gas Association Interconnect Guide for Renewable Natural Gas (RNG) in
New York State/GTI (August 2019) at 16.
https://www.northeastgas.org/pdf/nga_gti_interconnect_0919.pdf.

1 shut-in. This will allow the utility to take the necessary precautions to
2 prevent non-compliant gas from entering its system and provides parity
3 on test results sharing between utilities and interconnectors.

4 **3. Carbon Monoxide**

5 On November 1, 2019, the Joint Utilities filed a draft proposed SRGI
6 Tariff which recommended, among other things, adding carbon monoxide
7 (CO) as an Integrity Protective Constituent (IPC) and that the IPC Trigger
8 Level be established at 0.03 mole percent. In D.20-08-035, the Commission
9 concluded that more information was needed to determine whether to add
10 CO as an additional constituent of concern for renewable gas produced by
11 gasification and, if so, what is an appropriate concentration standard for CO.

12 On June 3, 2021, the Commission issued the Phase 4A Staff Proposal
13 in Rulemaking (R.) 13-02-008, which was developed by Energy Division
14 Staff in consultation with several other state agencies, to satisfy the first of
15 the three action items relating to Senate Bill (SB) 1440 implementation
16 outlined in the Phase 4 scoping memo.³³ The Staff Proposal recommended
17 adopting an interim permissible amount of CO in biomethane of
18 0.03 mole percent, noting it was reasonable to reconsider the Joint Utilities'
19 original request in light of the passage of AB 3163.³⁴ In D.22-02-025, the
20 Commission disagreed with the Staff Proposal and the Joint Utilities'
21 recommendation that it was appropriate at the time to adopt an interim
22 permissible amount of CO in biomethane to account for bio-SNG gas
23 quality.³⁵ Instead, the Commission directed the Joint Utilities to address
24 what an appropriate CO standard should be in this Application.³⁶

25 In order to recommend an appropriate CO standard, the Joint Utilities
26 reviewed publicly available reports and literature. One study showed that
27 pipeline steels are susceptible to stress corrosion cracking (SCC) of carbon

33 R.13-02-008 Phase 4A Staff Proposal (DRAFT) at 1.
<https://docs.cpuc.ca.gov/PublishedDocs/Efile/G000/M386/K579/386579735.PDF>.

34 *Id.* at 50, fn. 212.

35 Decision Implementing Senate Bill 1440 Biomethane Procurement Program
(D.22-02-025) at 37.
<https://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M454/K335/454335009.PDF>.

36 *Id.* at 64-65, OP 33.

1 and low alloy steels.³⁷ Another study revealed that tests of 42 different
2 biomethane samples were below 0.0245 mol% CO.³⁸ Research in RNG
3 from gasification concluded that biomethane levels were at 22 ppmv
4 (0.0022 mol% CO) which is less than the Trigger level.³⁹

5 European Standard EN16723-1 for natural gas and biomethane
6 recommends a 0.1 mol % CO limit which is higher than our recommended
7 0.03 mol %.⁴⁰ The European 0.1 mol % limit is a shut off limit, while our
8 proposed 0.03 mol % is a trigger level for increased monitoring. More
9 studies are needed to determine Lower Action Limit and an Upper Action
10 Limit shut off limits applicable to California gas systems as opposed to using
11 a 0.1 mol % CO limit applicable to European systems.

12 At this time, the Joint Utilities do not have Bio-SNG suppliers on their
13 system. However, the Joint Utilities plan to test CO levels in RNG upon
14 approval of their Woody Biomass Projects applications.⁴¹

15 The Joint Utilities continue to recommend an interim CO Trigger level of
16 0.03 % and propose to modify the Joint Utilities' SRGI, Table 1 as shown in
17 Attachment A. This new carbon monoxide level will apply to Bio-SNG only,
18 such as future gasification projects (Woody Biomass). If, however, supplies
19 from Bio-SNG exceed the Trigger level, the Joint Utilities will continue to
20 monitor CO as part of SRGI periodic testing activities.

21 The Commission in D.22-02-025 authorized the CPUC, in collaboration
22 with OEHHA, to contract with a research institution and/or private company

37 CO studies:EIGA: [DOC120 14 Carbon Monoxide and Syngas Pipeline Systems \(eiga.eu\)](https://www.eiga.eu), Battelle study: <https://www.osti.gov/biblio/6698176>.

38 Pipeline Quality Biomethane: North American Guidance Document for Introduction of Dairy Waste Derived Biomethane Into Existing Natural Gas Networks: Task 2, Project 20614, Gas Technology Institute, 9/30/2009.

39 Low-Carbon Renewable Natural Gas (RNG) From Wood Wastes, February 2019. <https://www.gti.energy/wp-content/uploads/2019/02/Low-Carbon-Renewable-Natural-Gas-RNG-from-Wood-Wastes-Final-Report-Feb2019.pdf>.

40 Biogas:Regulations and measurement standards. International Awareness Forum on Environment, Energy and Public Health, Mexico October 11, 2018. [https://www.oas.org/en/sedi/dsd/energy/metrology/Documents/Prese ntaciones/Panel%20Sector%20Energ%C3%ADa/c\)%20Biogas%20Regulations%20and%20mea surement%20standards%20-%20A.%20van%20der%20Veen.pdf](https://www.oas.org/en/sedi/dsd/energy/metrology/Documents/Prese%20ntaciones/Panel%20Sector%20Energ%C3%ADa/c)%20Biogas%20Regulations%20and%20measurement%20standards%20-%20A.%20van%20der%20Veen.pdf).

41 PG&E Woody Biomass to RNG (A.23-06-023) and SoCal Gas Woody Biomass (A.23-06-024).

1 with expertise in bio-SNG research to conduct further study of constituents
2 found in various sources of bio-SNG and/or conduct any necessary
3 laboratory analysis. The Joint Utilities look forward to the results from
4 CPUC's collaboration with OEHHA and private research/ institutions to
5 develop a CO health protective trigger limits.⁴² In addition, the Report
6 indicates that CARB may further evaluate potential COCs of biogas and
7 biomethane from non-anaerobic sources including post-combustion
8 byproducts from other renewable gases (e.g., hydrogen, synthetic natural
9 gas), and their sources (e.g., biomass).⁴³

10 **D. Test Schedule**

11 The 2023 Report recommends that monitoring of the newly identified COCs
12 should begin as soon as is feasible,⁴⁴ with a minimum of one facility monitored
13 no later than three months after the CPUC formally approves utility tariff
14 modifications. Testing for all HPC COCs should be completed for all injecting
15 facilities as soon as feasible or within 12 to 18 months of tariff approval. The
16 HPCs that are newly required to be tested by sources or revised levels per SRGI
17 Table 1 will be tested. Gas utilities receiving biomethane from a large number of
18 facilities may have up to 18 months to complete new COC testing to
19 accommodate current testing schedules. The Joint Utilities support the CARB
20 recommended test schedule and propose to conduct the first test within three
21 months of CPUC approval of the proposed utility tariff modifications. Due to
22 accessibility constraints, weather conditions, scheduling with producers, and
23 length of time required to perform on site testing, the Joint Utilities propose the
24 following timeline for completing all tests for existing interconnections (as of
25 October 2023) based on current available utility resources and the number of
26 renewable gas interconnections:

- 27 • Southwest Gas will complete testing within 3 months;
- 28 • PG&E will complete testing for all sites within 12 months;

⁴² D.22-02-025 at 37:

Contract cost responsibility shall be borne from each IOU's respective cost recovery mechanism to recover costs from core and noncore customers annually through the Joint Utilities respective Annual Gas True-up filings.

⁴³ 2023 CARB Report at 17.

⁴⁴ See AB 1900 CARB/OEHHA Supplement Report recommendations at 8.

- 1 • SDG&E will complete testing for all sites within 12 months; and
- 2 • SoCalGas will complete testing for all sites within 18 months.

3 **E. Request to Streamline Future Regulatory Updates to the SRGI Rule**

4 Since the issuance of D.14-01-034, the Joint Utilities have worked
5 collaboratively to create the standardized renewable gas interconnection rule
6 that was approved by the Commission in D.20-08-035. In this chapter of
7 testimony, the Joint Utilities propose to adopt essentially all of CARB’s
8 recommendations with one limited exception, notably how to test when there are
9 multiple gas sources.

10 D.14-01-034, OP 7⁴⁵ states:

11 Pursuant to Health and Safety Code § 25421(e), Pacific Gas and Electric
12 Company, San Diego Gas & Electric Company, Southern California Gas
13 Company, and Southwest Gas Corporation, either individually or collectively,
14 shall file an application within five years from the effective date of this
15 decision, or earlier if new information becomes available, or as directed by
16 the Commission in the future, for the Commission to carry out its review and
17 update responsibilities under that code section.

18 Further, D.14-01-034 notes the following:

19 Subdivision (e) requires that this update procedure take place every five
20 years, or earlier if new information becomes available. To ensure that this
21 update procedure takes place, we will require the four utilities, either
22 individually or jointly, to file a new application every five years, or earlier if
23 new information becomes available, to have the Commission consider
24 proposals to make changes to the list of constituents and concentrations
25 that may be found in biomethane that impact human health, or that may
26 affect the integrity and safety of the pipeline and pipeline facilities.⁴⁶

27 The Decision did not contemplate the Commission’s subsequent action to
28 adopt a standard renewable gas interconnection rule for the four utilities or the
29 necessary time required for the utilities to assess CARB’s recommendations and
30 either adopt and/or modify proposed recommendations based on safety or
31 integrity concerns for its gas system. As evidenced with this update, the Joint
32 Utilities required a full six months after formal issuance of the Report, With the
33 issuance of D.20-12-031 *Decision Adopting the Standard Renewable Gas*

45 D.14-01-034 at p 154.

46 D.14-01-034 at 131.

1 *Interconnection and Operating Agreement* for the Joint Utilities, the Joint Utilities
2 make the following proposals for the Commission’s consideration:

- 3 1) The Joint Utilities recommend the Commission provide notice to the Service
4 list of subsequent updates issued by OEHHA and/or CARB to ensure the
5 Commission takes official notice of these important updates which pertain to
6 health protective constituents. In the instance where subsequent CARB
7 updates are due to errata and/or updates where the Joint Utilities support
8 adoption of all CARB’s updates as recommended, the Joint Utilities propose
9 these updates can be reviewed and approved through the advice letter
10 process. For new and/or more substantive updates recommended by
11 CARB, the Joint Utilities concur that an application is appropriate.
- 12 2) Establish a minimum period of six months following the issuance of the
13 Report for the Joint Utilities to file its required update. Going forward, in
14 addition to the Application process described above, the Joint Utilities
15 request authorization to jointly update the SRGI Rule through the
16 Commission’s Tier 2 Advice Letter process in order to incorporate
17 subsequent interim updates to the Report pertaining to test methods for
18 COCs, updates to Trigger Levels or to address operational issues more
19 efficiently.

20 **F. Consideration of Environmental and Social Justice Action Plan**

21 The Commission adopted their Environmental and Social Justice Action
22 Plan, Version 2.0 (ESJ2.0) on April 7, 2022, and has increasingly taken steps to
23 integrate ESJ principles into its decision-making processes across the essential
24 utility services the Commission regulates.⁴⁷

25 OEEHA’s mission is to protect and enhance the health of Californians and
26 our state’s environment through scientific evaluations that inform, support and
27 guide regulatory and other actions and is the lead state agency for the
28 assessment of health risks posed by environmental contaminants.⁴⁸ CARB’s
29 mission is to promote and protect public health, welfare, and ecological
30 resources through effective reduction of air pollutants while recognizing and

47 Draft Environmental & Social Justice Action Plan (ver. 2.0), March 25, 2022.
<https://www.docs.cpuc.ca.gov/PublishedDocs/Published/G000/M465/K846/465846599.pdf>.

48 <https://oehha.ca.gov/about/what-we-do>.

1 considering effects on the economy and is the lead agency for climate change
2 programs and oversees all air pollution control efforts in California to attain and
3 maintain health-based air quality standards.⁴⁹

4 In line with their focus on protection of public health, OEHHA and CARB
5 expanded and strengthened levels for COCs. This included consideration of
6 biogas combustion products, updates to toxicity exposure factors, risk values
7 and cancer and non-cancer risk management thresholds resulting in revision to
8 hazard quotients and cancer risk for all 15 COCs as well as updated methods of
9 COC testing. The Joint Utilities propose to incorporate these recommendations
10 with one exception as noted above.

11 Specifically, the Joint Utilities testimony aligns with ESJ Goal 6: Enhance
12 enforcement to ensure safety and consumer protection for all, especially for ESJ
13 communities. Approval of the Joint Utilities proposals will ensure biomethane
14 safety standards are updated accordingly.

15 **G. Conclusion**

16 For the foregoing reasons, the Joint Utilities respectfully request that the
17 Commission adopt CARB's 2023 recommendations and the Joint Utilities'
18 proposed modifications to the SRGI Rule Following a Commission decision on
19 this Application, the Joint Utilities propose to update their respective SRGI Rule
20 within 45 days of issuance of a final decision.

49 <https://ww2.arb.ca.gov/about>.

**PACIFIC GAS AND ELECTRIC COMPANY,
SOUTHERN CALIFORNIA GAS COMPANY,
SAN DIEGO GAS & ELECTRIC COMPANY,
AND SOUTHWEST GAS CORPORATION**

ATTACHMENT A

STANDARD RENEWABLE GAS INTERCONNECTION

PACIFIC GAS AND ELECTRIC COMPANY,
SOUTHERN CALIFORNIA GAS COMPANY,
SAN DIEGO GAS & ELECTRIC COMPANY,
AND SOUTHWEST GAS CORPORATION
ATTACHMENT A
STANDARD RENEWABLE GAS INTERCONNECTION

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A2	PROPOSED CLEAN VERSION

**PACIFIC GAS AND ELECTRIC COMPANY
SOUTHERN CALIFORNIA GAS COMPANY,
SAN DIEGO GAS & ELECTRIC COMPANY,
AND SOUTHWEST GAS CORPORATION**

ATTACHMENT A1

**STANDARD GAS RENEWABLE INTERCONNECTION RULE –
PROPOSED REDLINE VERSION**

STANDARD RENEWABLE GAS INTERCONNECTION

Standard Renewable Gas Interconnections to the Utility’s Pipeline System

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B. Definitions

The definitions set forth in this Section B of this Rule shall only apply to this Rule and may not apply to Utility's other tariffs. Certain words beginning with capital letters that are not defined in this Rule may be defined in SoCalGas' Rule 1 and Rule 30 or as approved by Energy Division.

1. **Alternative Dispute Resolution (ADR)**
Processes administered by the Administrative Law Judge (ALJ) Division of the Commission to help disputants resolve a conflict without a formal decision by a court or agency.
2. **Biogas**
Gas produced from the anaerobic decomposition of organic material.
3. **Biomethane**
Biogas that has been conditioned or upgraded to comply with this Rule's gas quality specifications. Biomethane does not include Biogas collected from a hazardous waste facility, as defined in California Health & Safety Code § 25117.
4. **Blending**
Utility pipeline mixing with other pipeline gas to dilute conditioned or upgraded Raw Product Gas or Biogas that does not meet all gas specifications at the Interconnection Point to achieve pipeline gas quality specifications as required under the Pipeline Blending Exception Study.
5. **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.
6. **Btu District**
A physically identifiable area of the gas transmission and/or distribution system in which the heating value of the Gas is measured and is representative of the entire area.
7. **California Producer or Production**
An entity which interconnects with the Utility's pipeline system to deliver Gas produced in California.
8. **CARB**
California Air Resources Board of the California Environmental Protection Agency.

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STANDARD RENEWABLE GAS INTERCONNECTION

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B. Definitions (Continued)

9. CARB/OEHHA Report

The report entitled Recommendations to the California Public Utilities Commission Regarding Health Protective Standards for the Injection of Renewable Natural into the Common Carrier Pipeline, prepared by Staff of the California Air Resources Board and the Office of Health Hazard Assessment. The CARB/OEHHA Report was submitted in Rulemaking (R.)13-02-008 and adopted in Decision (D.) 14-01-034. In addition, CARB/OEHHA submitted a Supplemental Report in 2023 updating health protective constituents and limits.

10. Clean Renewable Hydrogen

Hydrogen which is produced through a process that results in a lifecycle (i.e., well-to-gate) greenhouse gas emissions rate of not greater than 4 kilograms of CO₂e per kilogram of hydrogen produced and does not use fossil fuel as either a feedstock or production energy source.

11. Commission (CPUC)

The Public Utilities Commission of the State of California, sometimes referred to as the Public Utilities Commission (PUC), CPUC, or Commission.

12. Conditioning or Upgrading

The removal of non-compliant components from Biogas or Raw Product Gas, or the addition of other gases, in order to meet Utility pipeline quality gas specifications. Blending is not considered to be a form of Conditioning or Upgrading.

13. Conditioning or Upgrading Facilities

Interconnector's Facilities used for Conditioning and Upgrading.

14. Constituent of Concern (Constituent)

A chemical or compound that may negatively impact the Merchantability of Renewable Gas.

15. Day(s)

Refers to calendar day(s) unless otherwise stated.

16. Displacement Receipt Point Capacity

Utility pipeline system improvements which increase the takeaway capacity from a Receipt Point but do not increase the overall downstream capacity of the Utility's pipeline system. The addition of Displacement Receipt Point Capacity increases the ability of the Utility to receive gas from a particular Receipt Point or zone in competition with other gas supplies delivered into the Utility's pipeline system.

17. End Use Customer (Customer)

Ultimate consumer of gas using Utility intrastate transportation services on either a bundled, commodity and intrastate transportation basis or an intrastate transportation only basis.

(Continued)

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(Continued)

B. Definitions (Continued)

18. Expansion Receipt Point Capacity

Utility pipeline system improvements which increase the takeaway capacity from a Receipt Point and the overall downstream capacity of the Utility's pipeline system.

19. Gas

Any mixture of combustible and non-combustible gases used to produce heat by burning that can be accepted into a Utility pipeline without any compromise to operational safety or integrity. It shall include, but not be limited to, natural gas, renewable gas, biomethane, manufactured gas, or a mixture of any or all of the above. It shall meet the Utility's quality specifications, tariffs, rules, and other applicable regulations.

20. Gas Source or Source Feedstock

Sources from which biogas can be produced as identified in Table 1 Maximum Constituent Concentrations:

- Landfills – Biogas derived from Non-Hazardous landfills designated for solid-waste collection from residential, industrial, and commercial entities (Class III landfills as defined in Title 27 of CA Code of Regulations).
- Dairies – Biogas derived from the organic waste produced by dairy operations.
- Sewage Treatment – Biogas derived from the solids removed in wastewater treatment processes.
- Food/Green – Biogas derived from plants, animals, or micro-organisms consumed as food for humans or animals, including any mixed-in biodegradable organic material such as food-soiled paper or cardboard, food wrappers, and egg cartons, and from biodegradable organic material resulting from yard, landscaping, forestry and agricultural activities, consisting of leaves, grass, shrubs, plants, branches, and stumps.
- Other – Biogas derived from other feedstock sources not defined above.

21. Group 1 Compound

Any Health Protective Constituent with a concentration below the Trigger Level.

22. Group 2 Compound

Any Health Protective Constituent with a concentration at or above the Trigger Level.

23. Hazardous Waste Landfill

For the purposes of this Rule, Hazardous Waste Landfill shall be given the same definition as provided in the California Health and Safety Code, including facilities permitted by the California Department of Toxic Substances Control.

24. Health Protective Constituents

1. Carcinogenic (cancer risk): Any Constituent determined by the State of California to cause cancer, as listed below in Table 1, Maximum Constituent Concentrations.
2. Non-carcinogenic (non-cancer risk or chronic risk): Any Constituent determined by the State of California to cause non-cancer health risk, as listed below in Table 1, Maximum Constituent

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Concentrations.

25. Heating Value

Total heating value of the gas normally measured on a gross dry higher heating value (HHV) basis (unless otherwise specified), and is defined as the number of British Thermal Units (Btu) 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.

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(Continued)

B. Definitions (Continued)

26. Integrity Protective Constituents

Constituents that may impact the integrity of the Utility’s pipeline system as listed in Table 1 Maximum Constituent Concentrations.

27. Interconnect Capacity

The metering, regulation and odorization daily capacity of the Utility Facilities, which is not necessarily the Takeaway Capacity and is not, nor is it intended to be, any commitment by Utility of Takeaway Capacity.

28. Interconnection Point

The point where the Utility Facilities and Interconnector’s Facilities physically interconnect for delivery of Gas by Interconnector to, and receipt thereof by, Utility.

29. Interconnector’s Facilities

The Gas pipeline facilities constructed and operated by an Interconnector up to the Interconnection Point.

30. Issued for Construction (IFC)

Drawings and documents which are used for construction work and activities.

31. Local Government Entity Renewable Gas Interconnector (Government Entity)

A city or county as defined by Article XI of the California Constitution.

32. Lower Action Level

The concentration or measured value of a Constituent, used to screen Renewable Gas during the initial gas quality review and ongoing periodic testing, requiring a shut-off of Renewable Gas supply if exceeded three times in a 12-month period.

33. Merchantability

The ability to purchase, sell, or market Gas. The Gas shall not contain dust, sand, dirt, gums, oils, microbes, bacteria, pathogens and/or other substances at levels that would be injurious to Utility facilities or which would present a health and/or safety hazard to Utility employees, customers, and/or the public or that would cause Gas to be unmarketable.

34. Million Standard cubic feet per day (MMScfd or MMScf/d)

Volumetric flow rate of Gas measured in millions of standard cubic feet per Day.

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B. Definitions (Continued)

35. OEHHA

Office of Environmental Health Hazard Assessment of the California Environmental Protection Agency.

36. Raw Product Gas or Feedstock Gas

Gas from biogenic or other renewable sources, such as Biogas, biomass, or power to Gas from renewable electricity, before conditioning or upgrading to comply with this Rule's Gas quality specifications.

37. Receipt Point(s) or Points of Receipt

The place(s) where Interconnector delivers, or has delivered on its behalf, Gas into the Utility's pipeline system.

38. Renewable Gas

Gas from biogenic or other renewable sources, such as Biogas, biomass, or power to Gas from renewable electricity that has been conditioned or upgraded to comply with this Rule's Gas quality specifications, including Biomethane.

39. Renewable Gas Interconnector or Producer (Interconnector)

Party physically interconnecting or interconnected with the Utility and effectuates the delivery of Renewable Gas through new or modified facilities, including any third-party delivering renewable gas into the utility pipeline either directly or through one or more intermediary pipelines, and effectuates the delivery of Renewable Gas through new or modified facilities.

40. Takeaway Capacity

Utility's physical takeaway capability downstream of the outlet of the Utility Facilities at the Interconnection Point. Takeaway Capacity for any particular day may be affected by physical flows from other Receipt Points, physical pipeline and/or storage conditions for that Day, and end-use demand on the Utility's pipeline system, and will be solely determined by the Utility.

41. Thousand Standard cubic feet per day (MScfd or MScf/d)

Volumetric flow of Gas measured in thousands of standard cubic feet per day.

42. Trigger Level

The concentration or measured value of a Constituent requiring additional periodic testing and analysis.

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B. Definitions (Continued)

43. Upper Action Level

The concentration or measured value of a Constituent requiring an immediate shut-off of Renewable Gas supply.

44. Utility Facilities

Facilities owned and operated by Utility, including but not limited to, pipelines, appurtenant facilities, meters, regulators, quality measurement, other equipment and related system upgrades at and from the Interconnection Point, for receipt into Utility's pipeline system in the State of California pursuant to the Utility's interconnection agreement.

45. Wobbe Index

HHV / ($\sqrt{\text{Relative Density}_{\text{real}}}$) as defined in Section 2.20 in the 2009 American Gas Association (AGA) Report No. 5 Natural Gas Energy Measurement.

C. Applicability / Open Access

1. Applicability

The Utility shall provide nondiscriminatory open access to its system to any party for the purpose of physically interconnecting with the Utility and effectuating the delivery of Renewable Gas, subject to the terms and conditions set forth in this Rule and the Utility's applicable interconnection, operating, and balancing agreements.

2. End Use Customer Priority

The interconnection and physical flows shall not jeopardize the integrity of, or interfere with, the normal operation of the Utility's pipeline system and provision of service to its End Use Customers.

3. Scheduling and Nominations

The Receipt Point shall be established as a transportation scheduling point, pursuant to the provisions of Utility's transportation of customer owned Gas tariff.

4. Interconnect Capacity and Takeaway Services

The maximum physical capacity of the interconnection will be determined by the sizing of the Receipt Point components, including the metering and odorization capacities, but is not the capacity of the Utility's pipeline system to transport gas away from the Interconnection Point and is not, nor is it intended to be, any commitment by the Utility of Takeaway Capacity. The Utility separately provides takeaway services, including the option to expand system capacity to increase takeaway services, through its otherwise applicable tariffs.

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(Continued)

C. Applicability / Open Access (Continued)

5. Daily Available Receipt Capacity

The available receipt capacity for any particular day may be affected by physical flows from other Points of Receipt, physical pipeline and storage conditions for that day, and end-use demand on the Utility's pipeline system.

6. Pressure Regulation and Flow

Interconnector's Facilities shall be designed, installed, and operated to protect Utility's pipeline system from exposure to pressures in excess of Utility's then current maximum allowable operating pressure and operating pressures at the Interconnection Point.

Interconnector shall monitor discharge pressure and temperature to limit and shut down, or otherwise control, its compression to ensure that it does not cause any damage to the Utility Facilities.

Interconnector shall ensure that compression does not adversely affect or impair the accuracy of Utility measurement equipment at the Interconnect Point. Interconnector shall eliminate compressor-induced pulsation or vibration in compliance with American Petroleum Industry Standards before Gas is delivered at the Interconnection Point. The Utility shall not be required to accept delivery of Interconnector's Gas if compressor-induced pulsation or vibration exists.

7. Compliance with Utility's Tariffs

Interconnector's Gas supply at the Interconnection Point shall comply with all Utility tariffs, including Gas quality specification, sampling and testing methods and nomination procedures, except as permitted under the Pipeline Blending Exception Study procedures of this Rule.

8. Authorization Required to Operate

The Interconnector and Utility shall execute interconnection, operating and balancing agreements prior to any performance, including, but not limited to, final interconnection and gas flow.

9. Separate Agreements Required for Other Services

An Interconnector requiring other Gas services from Utility, including, but not limited to, Utility intrastate transportation service, must enter into agreements with Utility for such services in accordance with Utility's CPUC-approved tariffs.

10. Services Under This Rule Limited to Interconnection

Interconnection with Utility's pipeline system under this Rule does not provide Interconnector any rights to use Utility's pipeline system for the transportation or selling of Gas, nor does it limit those rights.

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(Continued)

C. Applicability / Open Access (Continued)

11. Confidentiality

Utility and Interconnector may enter into a confidentiality or non-disclosure agreement using Utility's then-existing standard agreement, as needed to protect the confidential, critical infrastructure, and trade secret information of either party. If the Utility provides any confidential, critical infrastructure, and/or trade secret information to the Interconnector, provision of such information shall require the Interconnector to enter into a confidentiality or non-disclosure agreement using Utility's then-existing standard agreement.

12. Compliance with and Modifications to Established Deadlines

The Utility shall use reasonable efforts to meet all of the timelines provided in this Rule. In the event the Utility is not able to meet a particular timeline, the Utility shall notify the Interconnector as soon as practicable and provide an estimated completion date with an explanation of the reasons why additional time is needed. The Utility and Interconnector shall mutually agree upon a modified timeline. Should mutual agreement not be reached on a modified timeline, the Utility and Interconnector may participate in a dispute resolution process pursuant to Section N of the Rule.

D. Interconnector Request

Interconnector shall complete Utility's interconnect fact sheet and submit a written request for each scope of work: screening, engineering, procurement, and construction as further described herein.

E. Interconnection Screening

1. Applicability

Any Renewable Gas Interconnector, including an interconnecting pipeline or a supply source, may request one displacement Interconnection Screening for each project, free of charge. Any party may request, on an actual cost basis, an expansion or an additional displacement Interconnection Screening for the project, or a Pipeline Blending Exception Study which entails study of an interconnection to a specific pipeline.

2. Scope of Services

Utility will analyze the impact on its gas system of receiving Interconnector- specified new supply at specified locations.

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(Continued)

E. Interconnection Screening (Continued)

2. Scope of Services (Continued)

Utility conducts the following analysis:

- a. Preliminary, non-binding initial assessment of the nearest pipeline that has Takeaway Capacity to accommodate Interconnector's maximum injection volume/flow rate, and of a pipeline of lesser capacity closest to the Interconnector's Conditioning Facilities and its Takeaway Capacity.
- b. A preliminary pipeline route and length for interconnection to Utility's pipeline system.
- c. The then-current maximum allowable operating pressure and, if available, operating pressures of the existing Utility pipeline system receiving Gas from the Receipt Point.

3. Report

The report provided to the Interconnector summarizes the study parameters, assumptions, limitations and results of Utility's analysis. The report shall be provided by the Utility within fifteen (15) business days of its receipt of a written request and complete interconnection fact sheet.

F. Preliminary and Detailed Engineering Studies

1. Preliminary Engineering Study (PES)

a. Applicability; No Self-Performance

Upon completion of the Section E Interconnection Screening, if requested by the Interconnector in writing. Utility will perform the PES in accordance with this Section F-1 and the applicable agreement. Interconnector will not have the option of self-performing the PES.

b. Interconnector Request

Interconnector submits a written request detailing the interconnection expected minimum, average and maximum hourly production volume(s) and proposed site location(s) in addition to the information provided during the Interconnection Screening.

c. Scope of Services

Utility proposes to analyze the impact on its gas system of receiving Interconnector- specified new supply at specified location.

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(Continued)

F. Preliminary and Detailed Engineering Studies (Continued)

1. Preliminary Engineering Study (PES) (Continued)

c. Scope of Services (Continued)

Utility provides:

- i. Confirmation that the intended Utility pipeline system has sufficient physical Takeaway Capacity to safely accommodate Interconnector’s specified maximum delivery volume.
- ii. Recommendation as to the pipeline route using Utility rights of way for interconnection to the gas system.
- iii. Confirmation of the then-current maximum allowable operating pressure and, if available, operating pressures of the Utility’s gas system.
- iv. Potential obstructions in the pipeline route, if applicable, as determined by physical observation by Utility.
- v. Cost estimate calculated by the Utility including, but not limited to, land acquisition, site development, right-of-way, metering, gas quality, permitting, regulatory, environmental, unusual construction costs and, if applicable, operating and maintenance costs for any facility improvements. Other service costs associated with construction of the facility that are not part of already offered services could include, but not be limited to, engineering, consulting, contracting, construction costs, environmental studies.

Utility will provide a cost estimate accurate to +100%/- 50% or better based on a site visit and route evaluation for the Interconnector’s project in the preliminary engineering estimate.

Because of the exclusions and limitations of this initial review, Utility does not guarantee or recommended use of the PES for any purpose, including any substantive planning or other decisions regarding the cost or viability of its project except to determine whether to proceed with a detailed engineering study.

Any use by the Interconnector is solely at its own risk and should factor in the above risks and limitations.

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STANDARD RENEWABLE GAS INTERCONNECTION

(Continued)

F. Preliminary and Detailed Engineering Studies (Continued)

1. Preliminary Engineering Study (PES) (Continued)

d. Interconnector Pre-payment of Utility Cost Estimates

Interconnector is required to provide funding in advance of a PES being performed for Interconnector's proposed project. Utility personnel will charge their time and any necessary materials to analyze the project on an actual cost basis. Additional funding will be required from Interconnector to continue work if the actual costs exceed the advance.

e. Contracts

The Interconnector and the Utility must execute an agreement prior to initiating any work and Interconnector shall provide payment equal to the estimated cost of the study prior to the Utility proceeding. Within fifteen (15) business days of the Utility's receipt of a request for a PES, the Utility shall provide a draft agreement and estimated cost of the Study to the Interconnector. Payment in full of the estimated cost is required upon execution of an agreement to proceed with the analysis. The Interconnector will be responsible for the actual costs of the services; to this end, an invoice or a refund will be issued to the Interconnector at the completion or earlier termination of the PES for any difference between the actual costs and this advance.

f. PES Report

The Utility shall complete the PES within ninety (90) business days of Interconnector's payment of the estimated study cost. The report summarizes the study parameters, assumptions, limitations and results of Utility's analyses, identifies any facility improvements, and estimates the cost of construction of those improvements. The use and distribution of the PES shall be governed by the confidentiality agreement signed by the Utility and the Interconnector.

2. Detailed Engineering Study (DES)

a. Applicability; Option to Self-Perform

Upon completion of the PES or in combination with a PES, if requested by the Interconnector in writing. Interconnector will have the option of self-performing the DES, in which case:

- i. the Interconnector shall be responsible for all tasks in the DES, including but not limited to, permits, land rights, and environmental studies.

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STANDARD RENEWABLE GAS INTERCONNECTION

(Continued)

F. Preliminary and Detailed Engineering Studies (Continued)

2. Detailed Engineering Study (DES) (Continued)

a. (Continued)

- ii. The Interconnector must pay the Utility for the Utility's review and approval costs of each step of the DES process, and for each stage of construction;
- iii. Within fifteen (15) business days of notice that the Interconnector will prepare a DES, the Utility shall provide relevant guidance regarding the required content of the DES; and
- iv. The Interconnector shall pay the Utility's actual costs for reviewing and assisting with preparation of the DES, within forty (40) business days of receiving invoices from the Utility.

If Interconnector elects to have Utility prepare the DES, the remainder of this Section F-2 shall apply.

b. Interconnector Request

Interconnector submits a written request detailing the interconnection expected production volume(s) and proposed site location(s).

c. Scope of Services (Work)

Utility will design and engineer interconnection facilities or provide specifications, inspection and oversight of the Interconnector design and engineering of the interconnection facilities including a Receipt Point station and lateral pipeline, if applicable. Cost estimates may be generated at 30%, for long-lead material items, 60% level and at Issued for Construction level, of facility design based on the Interconnector's estimated completion date accurate to +50% / - 30%.

- i. Confirm pipeline route using Utility rights-of-way for interconnection to the Gas system.
- ii. Confirm obstructions in the pipeline route, if applicable, as determined by physical observation by Utility.

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(Continued)

F. Preliminary and Detailed Engineering Studies (Continued)

2. Detailed Engineering Study (DES) (Continued)

c. (Continued)

iii. Cost estimate calculated by the Utility including, but not limited to, land acquisition, site development, right-of-way, metering, gas quality, permitting, regulatory, environmental, unusual construction costs and, if applicable, operating and maintenance costs for any facility improvements. Other service costs associated with construction of the facility that are not part of already offered services could include, but not be limited to, engineering, consulting, contracting, construction costs, environmental studies.

d. Interconnector Pre-payment of Utility Cost Estimate

Engineering advances will be collected to fund the DES through commissioning and final drawings. Interconnector is responsible for making all payments in advance of Utility's performance of the interconnection work scope and for the purchase of long lead equipment. All final payments will be determined on the basis of the actual DES project costs incurred by Utility.

e. Contracts

The Interconnector and the Utility must execute an agreement prior to an analysis being performed and payment shall have been provided prior to Utility proceeding with the analysis. Within twenty (20) business days of a request for the Utility to prepare a DES, the Utility shall meet with the Interconnector to discuss project specific design parameters and the Utility shall provide the Interconnector an estimate of the cost to prepare the DES and a proposed agreement. The Interconnector will be responsible for the actual costs of the services; to this end, a refund or an invoice will be issued to the Interconnector at the completion of the DES to true-up actual costs to the estimated costs. Within fifteen (15) business days of notice that the Interconnector will prepare a DES, the Utility shall provide relevant guidance regarding the required content of the DES. The Interconnector shall pay the Utility's actual costs for reviewing and assisting with preparation of the DES, within forty (40) business days of receiving invoices from the Utility.

f. DES Report

The Utility shall complete the DES within one hundred eighty (180) business days of Interconnector's payment of the estimated study cost. The report summarizes the study parameters, assumptions, limitations and results of Utility's analyses, identifies any facility improvements, and estimates the cost of construction of those improvements. The use and distribution of the DES shall be governed by the confidentiality agreement signed by the Utility and Interconnector.

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STANDARD RENEWABLE GAS INTERCONNECTION

(Continued)

G. Procurement and Construction and Installation Options

1. Procurement of Equipment and Materials; Construction and Installation

a. Procurement and Construction and Installation Options

Interconnector may elect for Utility or Interconnector to construct and install new Receipt Point facilities. The party performing the construction and installation work will also be exclusively responsible for procuring the equipment and materials for such work. In either case, Interconnector will be subject to the procurement, construction, and installation terms and conditions provided by the Utility, including those set forth in the interconnection agreement.

b. Commissioning Gas Quality Verification

Prior to commencing Utility operations, sampling of Interconnector's Renewable Gas shall be performed according to the procedures in Section K.5 Renewable Gas Quality and Specifications Testing, as revised from time to time.

Utility may, at Interconnector's expense, perform gas quality and equipment startup testing to verify compliance with this Rule's gas quality specifications and proper operation of gas quality monitoring equipment and enforcement system. Commissioning Gas Quality Verification, as described in this section, also applies to any new gas source supplying Renewable Gas upstream of an existing gas interconnection point.

c. Receipt Point Facilities Ownership

Receipt Point facilities provided by Utility under this Rule or transferred to Utility as part of any Interconnector design-build shall, at all times, be and remain the property of Utility.

2. Alternative Interconnection of a Renewable Gas Production Facility

The parties may consider alternatives to Receipt Point and Utility Facilities to enable interconnection of a Renewable Gas production facility to the Utility pipeline system such as, but not limited to, the utilization of mobile and temporary resources for the delivery of Renewable Gas to the Utility pipeline system. At the Utility's sole discretion, the parties may negotiate interconnection alternatives.

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(Continued)

H. Interconnection Request Withdrawal

1. Interconnector may withdraw its Interconnection Request at any time by written notice of such withdrawal to Utility.
2. Withdrawal shall result in the removal of the Interconnection Request from the interconnection process and Utility shall return any unspent funds less any costs to discontinue the work and return the site(s) to pre-existing conditions received from the Interconnector, if applicable.
3. In the event of such withdrawal, Utility shall provide, at Interconnector’s request, any completed engineering study conducted up to the date of withdrawal of the Interconnection Request.

I. Costs

1. Interconnector Cost Responsibility
The Interconnector shall pay all costs necessary to effectuate and maintain deliveries at and from the Interconnection Point, including but not limited to computer programming changes to the Utility’s pipeline system, engineering, equipment and construction (valves, separators, meters, quality measurement, odorant, and other equipment), land rights and permits necessary to regulate and deliver gas to and from the Interconnection Point, and repairs, upgrades, modifications, or replacements of the Utility Facilities.
2. Expansion of Receipt Point and/or Takeaway Capacity
The Utility will expand specific Receipt Point capacity and/or Takeaway Capacity at the request and expense of the Interconnector. The Interconnector and the Utility must execute the applicable Utility agreement prior to any work commencing.
3. Operation and Maintenance
Utility shall recover its operation and maintenance costs, as determined from time to time by the Utility, associated with the operation and maintenance of the metering equipment and other related facilities at and from the Interconnection Point that are owned and operated by the Utility and that are necessary to accept Renewable Gas from Interconnector and redeliver it to End Use Customers in accordance with good industry practice, Utility’s normal procedures and governmental regulations pursuant to the Utility interconnection agreement.

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(Continued)

I. Costs (Continued)

4. Repair, Upgrade, Modification or Replacement of Utility's Facilities

a. Utility

Utility shall provide notice, except under emergency conditions, to Interconnector if Utility determines, at Utility's sole discretion, that the Utility's Facilities, require repair, upgrade, modification or replacement to operate in compliance with applicable laws, regulations or Public Utilities Commission orders.

Utility's notice shall describe and include Utility's estimate to perform the necessary repairs, upgrades, modifications or replacements, all of which will be at Interconnector's expense as set forth in this Rule's Section I.1, and, if applicable, be prorated for each Interconnector based on each Interconnector's share of the total Interconnect Capacity.

b. Interconnector

Interconnector shall notify Utility within thirty (30) days of receipt of Utility's notice that the Interconnector requests that Utility make the necessary repairs, upgrades, modifications or replacements, which will be at Interconnector's expense.

The Interconnector shall have the right to review and to propose reasonable changes to any Utility proposal or request to repair, upgrade, modify or replace existing equipment so long as the Interconnector's proposed changes meet industry and Utility's standards and applicable codes and neither delay implementation nor jeopardize timely safety and code compliance. Utility is, however, under no obligation, expressed or implied, to accept such proposed changes.

Interconnector shall pay Utility within sixty (60) days of the date of the Interconnector's receipt of Utility's estimate for the necessary repairs, upgrades, modifications or replacements. At Utility's sole discretion, the Parties may agree on a mutually agreeable payment schedule subject to Utility's credit requirements.

If any Interconnector fails to request in writing that Utility make the necessary repairs, upgrades, modifications or replacements within thirty (30) days of receipt of Utility's notice and fails to pay Utility's estimated costs, within sixty (60) days of receipt of Utility's estimate, then Utility shall have the right to refuse to accept that Interconnector's Gas, and may proceed to reallocate the Interconnect Capacity and costs to the remaining Interconnectors or abandon, retire, or sell the Receipt Point facilities, at its sole discretion.

Any Utility abandonment shall be at Interconnector's sole expense.

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STANDARD RENEWABLE GAS INTERCONNECTION

(Continued)

I. Costs (Continued)

4. Repair, Upgrade, Modification or Replacement of Utility's Facilities (Continued)

c. Reconciliation of Actual to Estimated Costs

If, at any time and upon completion of the work, the Utility costs exceed or are expected to exceed Utility estimated costs or Interconnector's payments, Utility will invoice the Interconnector for the difference between the estimate and the Utility costs. Interconnector shall pay the invoice for the remaining amount to Utility within thirty (30) days of receipt. At Utility's sole discretion, the Parties can agree on a mutually agreeable payment schedule subject to Utility credit requirements. Upon completion of the work, if the Utility costs are less than Utility's estimate, Utility will refund the difference between the paid estimate and the Utility costs within thirty (30) days of the invoice.

5. Incentive Programs

a. Background

Pursuant to D.15-06-029, as modified by D.16-12-043 and D.19-12-009 and expanded by D.20-12-031, the Utility shall provide a monetary incentive to eligible Biomethane Interconnections built before December 31, 2026. The monetary incentive program shall be in effect until the end of December 31, 2026, or until the program has exhausted its \$40 million funding, including the California Council on Science and Technology study costs.

b. Monetary Incentive

The monetary incentive is for up to 50% of the eligible interconnection costs incurred by a Biomethane Interconnector, up to \$3 million per interconnection for a non-dairy cluster Biomethane Interconnector and up to \$5 million per interconnection for a dairy cluster Biomethane Interconnector. A dairy cluster Biomethane interconnection project, as defined by Public Utilities Code Section 399.19(b), is a Biomethane project of three or more dairies in close proximity to one another employing multiple facilities for the capture of Biogas that is transported to a centralized processing facility and ultimately injected into the Utility pipeline through a single interconnection.

The funds authorized pursuant to D.20-12-031 may be expended once the funds approved pursuant to D.15-06-029 have been allocated to projects with an incentive reservation.

Should a project in a gas utility's service territory not be operational within the three-year period established in D.19-12-009, then the funds reserved for that project shall instead be made available to the next candidate in that service territory.

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STANDARD RENEWABLE GAS INTERCONNECTION

(Continued)

I. Costs (Continued)

5. Incentive Programs (Continued)

b. Monetary Incentive (Continued)

If a balance remains in the funds approved pursuant to D.15-06-029 and there are no candidates remaining in that service territory on the waitlist, then the funds shall be made available to the next project on the waitlist, regardless of service territory.

If there are funds remaining at the time of program termination, Biomethane Interconnectors that have started to deliver qualifying Biomethane into the Utility’s pipeline system as of the termination date of this program are eligible for an incentive payment if they otherwise meet the program criteria.

c. Eligible Interconnection Costs

The monetary incentive is limited to eligible interconnection costs, which include:

- i. Engineering costs (Interconnect Screening, Preliminary Engineering Study, and Detailed Engineering Study costs).
- ii. Costs associated with facilities downstream of the Biomethane Interconnector’s processing plants used for delivering Biomethane into the Utility or third-party pipeline system.
- iii. Total installed costs of receipt point facilities. These facilities include, but are not limited to: meters, regulators, appurtenant facilities, quality measurement, odorization facilities, and auxiliary facilities.
- iv. Facility enhancement costs. These enhancements include but are not limited to: enhancements to gas pipelines and other related system upgrades that are required to enable continued safe and reliable operation of Utility’s system due to the addition of each Biomethane Interconnection.
- v. For dairy cluster Biomethane Interconnection, costs incurred for Biogas gathering lines to help reduce emissions of short-lived climate pollutants pursuant to Section 39730 of the Health and Safety Code shall be considered eligible costs.

Other costs associated with processing and blending upstream of Interconnection Point, including facilities serving natural gas to Biomethane Interconnector’s facilities, are ineligible costs.

(Continued)

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STANDARD RENEWABLE GAS INTERCONNECTION

(Continued)

I. Costs (Continued)

5. Incentive Programs (Continued)

d. Eligibility of Interconnector for Monetary Incentive

To be eligible for the monetary incentive program, a Biomethane Interconnector must:

- i. Comply with Utility's rule regarding transportation of customer-owned gas SoCalGas Rule 30, Transportation of Customer Owned Gas, and this Rule.
- ii. Comply with the standard and protocols adopted in D.14-01-034 as modified by D.16-11-008.
- iii. Successfully interconnect to the Utility or third-party California pipeline system and meet the operational requirement as described in D.15-06-029 as modified by D.16-12-043. This operational requirement entails that the Biomethane Interconnector produce Biomethane flow for a minimum of 30 days out of a 40- day testing period, within the minimum and maximum measurement range of the meter, as specified by Utility's measurement standards and based on the meter type specified by the Utility.
 - a) Biomethane Interconnectors must declare in a written notice to the Utility at least two business days in advance, the specific start and end date of this 40- day testing period.
 - b) The 30 out of 40-day requirement is extended 1 day for each day that the Biomethane Interconnector is unable to produce flow because of an interruption of delivery as set forth in Utility's rule regarding interruption of delivery.
 - c) Biomethane Interconnectors may elect to restart the 40-day testing period by providing a new written notice declaring the new start and end dates at least two business days in advance of when the new 40-day testing period is to begin.
- iv. Provide cost information to Utility for eligible costs in a timely manner, as specified by Utility.

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(Continued)

I. Costs (Continued)

5. Incentive Programs (Continued)

e. Payment of Monetary Incentive

Within 60 days following successful compliance with the 30 out of 40-day biomethane delivery requirement, the Utility will pay the Biomethane Interconnector the amount up to 50% of the eligible reconciled and undisputed portions of the interconnection costs, not to exceed \$3 million per interconnection for a non-dairy cluster Biomethane Interconnector, or \$5 million per interconnection for a dairy cluster Biomethane Interconnector. Payment will be provided to the Biomethane Interconnector if all costs have been paid in full; if there are remaining costs it shall be treated as a credit. In the event that all interconnection costs have not been reconciled by the Utility and the Biomethane Interconnector within 60 days following the successful compliance with the 30 out of 40-day Biomethane delivery requirement, the Utility shall resume paying the Biomethane Interconnector upon cost reconciliation. If additional eligible cost information becomes available within 12 months following the initial payment, the Utility shall pay to the Biomethane Interconnector up to 50% of the remaining eligible interconnection costs, not to exceed \$3 million per interconnection for a non-dairy cluster Biomethane Interconnector, or \$5 million per interconnection for a dairy cluster Biomethane Interconnector, including all previous payments. The Utility will provide notification to the CPUC Director of the Energy Division and the Biomethane Interconnector of the initial payment as well as any other potentially eligible future payments.

f. Monetary Incentive Reservation Application Process

- i. Interconnector must submit the standard Incentive Reservation Application as required by D.19-12-009.
- ii. Upon receipt of a standard Incentive Reservation Application, the Utility will note the date and time of the receipt of the application.
- iii. Utilities must verify that the project meets the Incentive Reservation qualifications. The required qualifications are:
 - a) A completed application which includes Contact Information, Interconnecting Facility Information, and a Proposed Schedule.
 - b) Documentation of a fully executed and funded agreement to conduct a detailed engineering study.

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(Continued)

I. Costs (Continued)

5. Incentive Programs (Continued)

f. Monetary Incentive Reservation Application Process (Continued)

iii. (Continued)

- c) Utilities will deliver verified Incentive Reservation Applications to the Commission’s Energy Division within 5 business days of its receipt.
- d) Utilities will provide a quarterly report to the Energy Division within 5 business days of the end of each quarter for all applicants with a reservation on the waiting list reporting the status of the interconnection project.
- e) Applicant’s project must be operating within three years of the date of the Energy’s Division’s award of an Incentive Reservation to qualify to receive the incentive.

J. Local Government Entity Renewable Gas Interconnectors

Local Government Entity Renewable Gas Interconnectors may be evaluated by the Utility on a case-by-case basis for the granting of contractual provisions that recognize commercial considerations unique to local government entities including, but not limited to:

- 1. Transference of title to land owned by the government entity to the Utility or, alternatively, provision of easements satisfactory to the Utility, for the purpose of establishing the Utility’s Facilities;
- 2. Local Government Entity Renewable Gas Interconnectors that generally can meet contractual obligations are not required to post performance assurance; and
- 3. Allowance of additional flexibility for a Local Government Entity Renewable Gas Interconnector to make payments based on the meeting cycle of the governing body.

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STANDARD RENEWABLE GAS INTERCONNECTION

(Continued)

K. Renewable Gas Quality and Specifications

1. Base Utility Gas Specifications

Renewable Gas must meet the gas quality specifications identified in SoCalGas' Rule 30 I. and this Rule 45, as adopted and periodically updated by the Commission.

2. Renewable Gas Constituent Concentrations

In addition to Section K.1. requirements, the following requirements are also applicable to Renewable Gas injected into the Utility's gas system. The Biomethane rules in this section are intended to implement D.14-01-034 and D.19-05-018, including rules regarding Constituent concentration standards, monitoring and testing requirements, and reporting and record keeping requirements.

a. Renewable Gas must conform to the specifications listed in Table 1 and Table 2

Table 1								
Maximum Constituent Concentrations								
Renewable Gas Injection Constituents				Testing for Gas Source				
	Trigger Level	Lower Action Level	Upper Action Level	Non-Hazardous Landfill	Dairies	Sewage Treatment	Food/Green	Other
	<u>mg/m³</u> <u>(ppmv)</u>	<u>mg/m³</u> <u>(ppmv)</u>	<u>mg/m³</u> <u>(ppmv)</u>					
Base Gas Quality Specifications ^a				x	x	<u>x</u>	<u>x</u>	x
Health Protective Constituents (HPC) – Carcinogenic <u>Cancer risk</u> ^b								
p1,4-Dichlorobenzene	<u>5.74.3</u> <u>(0.950.69)</u>	<u>5742</u> <u>(9.56.75)</u>	<u>140100</u> <u>(2416.07)</u>	x	<u>x</u>	<u>x</u>	<u>x</u>	x
Arsenic	<u>0.0190.0020</u> <u>(0.0060.0006)</u>	<u>0.190.0040</u> <u>(0.060.0013)</u>	<u>0.480.010</u> <u>(0.150.0031)</u>	x				<u>x</u>
<u>Cadmium</u>	<u>0.0020</u> <u>(0.0004)</u>	<u>0.0032</u> <u>(0.0007)</u>	<u>0.0080</u> <u>(0.0017)</u>		<u>x</u>	<u>x</u>		<u>x</u>
<u>Chromium</u> ^d	<u>0.0020</u> <u>(0.0009)</u>	<u>0.0048</u> <u>(0.0022)</u>	<u>0.012</u> <u>(0.0055)</u>	<u>x</u>		<u>x</u>		<u>x</u>
Ethylbenzene	<u>2620</u> <u>(6.04)</u>	<u>260190</u> <u>(6042)</u>	<u>650490</u> <u>(150109)</u>	x	x	<u>x</u>	<u>x</u>	x
N-nitroso-di-n-propylamine	<u>0.0330.028</u> <u>(0.0060.01)</u>	<u>0.330.24</u> <u>(0.060.04)</u>	<u>0.840.61</u> <u>(0.150.11)</u>	*	x			<u>x</u>
Vinyl Chloride	<u>0.840.63</u> <u>(0.330.24)</u>	<u>8.46.3</u> <u>(3.32.38)</u>	<u>2415</u> <u>(8.35.67)</u>	x	<u>x</u>	<u>x</u>	<u>x</u>	x

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K. Renewable Gas Quality and Specifications (Continued)

2. Renewable Gas Constituent Concentrations (Continued)

a. (Continued)

Table 1 (Continued)								
Maximum Constituent Concentrations								
Renewable Gas Injection Constituents				Testing for Gas Source				
	Trigger Level	Lower Action Level	Upper Action Level	Non-Hazardous Landfill	Dairies	Sewage Treatment	Food/Green	Other
	mg/m³ (ppm_v)	mg/m³ (ppm_v)	mg/m³ (ppm_v)					
Health Protective Constituents (HPC) – Non-Carcinogenic Cancer risk ^{2b}								
Alkyl Thiols (Mercaptans) ^{6c}	- (12 17)	- (120 170)	- (610 860)	x	x	x	x	x
Antimony	0.60 0.062 (0.01)	6.00 0.62 (1.20 12)	303.1 (6.10 6)	x				x
Copper	0.060 (0.02)	0.60 (0.23)	3.0 (1.2)	*				
Methacrolein	1.1 (0.37)	11 (3.7)	53 (18)	*				
Toluene	904 (240)	9,000 (2,400)	45,000 (12,000)	*	*			*
Chlorocarbons (as Cl) ^f	4.9 (3)	50 (33)	250 (167)	x	x	x	x	x
Fluorocarbons (as F) ^f	7.4 (9)	75 (93)	370 (460)	x			x	x
Hydrogen Sulfide ^{6c}	30-63 (22-44)	300-860 (216-596)	1,500-4,300 (1,080-2,978)	x	x	x	x	x
Lead	0.0750 0.047 (0.0090 0.05)	0.750 0.47 (0.09 0.54)	3.82 3 (0.442 0.62)	x		x		x
Silicon Compounds (as Si) ^f	0.49 (0.41)	5.0 (4.2)	25 (21.0)	x	x	x	x	x

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<u>Sulfur Compounds</u> (as S) ^f	<u>13</u> (10)	<u>130</u> (96)	<u>640</u> (471)	<u>x</u>	<u>x</u>	<u>x</u>	<u>x</u>	<u>x</u>
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(Continued)

Table 1 (Continued)								
Maximum Constituent Concentrations								
Renewable Gas Injection Constituents				Testing for Gas Source				
	Trigger Level	Lower Action Level	Upper Action Level	Non-Hazardous Landfill	Dairies	Sewage Treatment	Food/Green	Other
Integrity Protective Constituents (IPC) ^c								
Ammonia	0.0004% (3 mg/m ³) (4 ppm _v)	0.001% (7 mg/m ³) (10 ppm _v)	0.0025% (18 mg/m ³) (25 ppm _v)	x	x	x	x	x
Carbon Monoxide	0.03% (300 ppm _v)	TBD	TBD					x ^j
Hydrogen ⁱ	0.1% (1000 ppm _v)	1% (10,000 ppm _v)	5% (50,000 ppm _v)	x	x	x	x	x
Mercury	0.08 mg/m ³ (0.01 ppm _v)	TBD ^{5g}	TBD ^{5g}	x	x	x	x	x
Siloxanes ^{7h}	0.05 mg Si/m ³ (0.04 ppm _v)	0.1 mg Si/m ³ (0.08 ppm _v)	0.3 mg Si/m ³ (0.25 ppm _v)	x	x	x	x	x

Notes:

- 1a. Base Utility Gas Specifications are identified in K.1.
- 2b. Health Protective Constituents (HPC) are shown in Table V-32 of the 2023 CARB/OEHHA AB1900 Supplemental Report.
- 3c. Integrity Protective Constituents are shown in Section 4.4.3.3 of D.14-01-034 and identified as pipeline-integrity protective constituents.
- 4. Other organic sources, includes all Biogas sources other than landfill and dairy manure, including but not limited to, a sewage treatment plant or wastewater plant ("Publicly Owned Treatment Works" or "POTW").
- d. Evaluate as only total chromium.
- 6e. Testing requirement will be the stricter of the stated Renewable Gas values or other tariff requirements.
- f. The compounds for these chemical classes per Appendix A and Section 4.4 of the 2023 CARB/OEHHA AB1900 Supplemental Report or newest published version.
- 5g. The Lower and Upper Action Levels are specific to Biomethane pursuant to Decision 22-12-057 and will continue to be reviewed in the next update proceeding.
- 7h. The Interconnector that meets this Rule's Section K.4.b certification requirements shall have reduced siloxanes testing requirements per K.5.e.ii.a. Utility, at its discretion and at its own cost, may still test pursuant to Utility's applicable tariff rules. If the Utility test results show the siloxane levels exceed the Lower Action Level, the full siloxane testing requirements will apply as described in this Rule.
- i. Lower Action Level and Upper Action Level is specific to the by-product of the biomethane production process and is not intended as a pure hydrogen blending limit.

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j. Carbon Monoxide will be tested in Bio-SNG only.

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STANDARD RENEWABLE GAS INTERCONNECTION

(Continued)

K. Renewable Gas Quality and Specifications (Continued)

2. a. (Continued)

Table 2 <u>Collective Risk from Carcinogenic Cancer and non-Carcinogenic Cancer Risk Management</u> <u>Thresholds for Constituents</u>			
Risk Management Levels	<u>Potential Risk from Carcinogenic Cancer Risk Constituents</u> <u>(Chance in a million)</u>	<u>Hazard Index from Non-Cancer Total Hazard Quotient Constituents</u>	Action
Trigger Level ^{a1}	≥ 1.0	≥ 0.1	Periodic Testing Required
Lower Action Level ^{b2}	≥ 10.0	≥ 1.0	Supply shut-in <u>and repair</u> after three exceedances in 12 months in which deliveries occur
Upper Action Level ^{3b2}	≥ 25.0	≥ 5.0	Immediate supply shut-in <u>and repair</u>

Notes:
 1a. Applies to individual Constituent concentrations.
 2b. 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.

3. RESERVED

4. Interconnector Renewable Gas Source Certification

a. Non-Hazardous Waste Facility

Renewable Gas sourced from Hazardous Waste Landfills will not be knowingly purchased, accepted into or transported on the pipeline system.

- i. Interconnector must certify and provide documentation or other suitable proof that: the Renewable Gas source feedstock was not derived or collected from a Hazardous Waste Facility, as that term is defined in Section 25117.1 of the California Health and Safety Code, as may be amended from time to time, and Interconnector is in compliance with the following Health and Safety Code Sections 25421(g)(1) and (2), as they may be amended from time to time.

b. Siloxanes

To qualify for reduced siloxanes testing, Interconnector must execute Utility’s certification attesting that:

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STANDARD RENEWABLE GAS INTERCONNECTION

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K. Renewable Gas Quality and Specifications (Continued)

4. Interconnector Renewable Gas Source Certification (Continued)

b. Siloxanes (Continued)

- i. Interconnector's Biogas is sourced only from dairy, animal manure, agricultural waste, forest residues, and/or commercial food processing waste;
- ii. Products containing siloxanes are not used at Interconnector's Facilities in any way that allow siloxanes to enter the Biogas and/or Biomethane and
- iii. Interconnector shall notify Utility within 30 days of discovery, in accordance with the notice provision of the associated interconnection agreement, that the certifications set forth in the above paragraphs are no longer true.

5. Testing

a. Source Feedstock Based Testing

Testing shall be determined according to the source feedstock per Table 1 above. The interconnector shall specify their source feedstock. For facilities utilizing multiple gas sources or co-digestion, where smaller amounts of different gas source types are utilized to increase methane production, the facility will be required to test for all of the COCs for each source feedstock utilized.

Testing for the Health Protective Constituents shall be by the recommended methods specified in Table 3 of the 2023 CARB/OEHHA AB1900 Supplemental Report submitted in or newest published version R.13-02-008 as approved by D.14-01-034 or an equivalent national standard test. Testing for Integrity Protective Constituents shall be by the sample method and lab test methods listed in Table 3 below national standard test methods or equivalent. Feedstock Based Testing, as described in this section, also applies to any new gas source supplying Renewable Gas upstream of an existing gas interconnection point.

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STANDARD RENEWABLE GAS INTERCONNECTION

(Continued)

K. Renewable Gas Quality and Specifications (Continued)

5. Testing (Continued)

Table 3 Test Methods for Integrity Protective Constituents		
Constituent of Concern	Sample Method	Lab Test Method
Ammonia	Collect samples in sulfuric acid treated silica gel sorbent tubes (NIOSH Method 6015)	Visible spectrophotometry (NIOSH Method 6015)
	Collect samples in glass tubes containing carbon beads impregnated with sulfuric acid (OSHA Method ID-188)	Ion chromatography conductivity detector IC/CD (OSHA Method ID-188)
	Bubbled through impinger system containing sulfuric acid and silica gel (South Coast Air Quality Management District Method 207.1)	Ion specific electrode ISE (South Coast Air Quality Management District Method 207.1)
	Collect samples in Tedlar bag or inert cylinders	Gas chromatograph/nitrogen chemiluminescence detector GC-NCD
<u>Carbon Monoxide</u>	<u>Collect samples in cylinders or canisters</u>	<u>Gas Chromatograph GC (EPA 3C, ASTM Methods D1946 or D7833)</u>
Hydrogen	Collect samples in cylinders or canisters	Gas Chromatograph GC (EPA 3C, ASTM Methods D1945, D1946 or D7833)
Mercury ^a	Bubble through aqueous acidic solution of hydrogen peroxide and aqueous acidic solution of potassium permanganate (EPA Method 29)	Cold vapor atomic absorption spectroscopy CVAAS (EPA Method 29, EPA Compendium Method IO-3.5)
	Collect samples on gold-coated silica beads (ASTM Method D5954)	Atomic absorption spectroscopy AAS (ASTM Method D5954)
	Collect samples on gold-coated silica sand trap (ASTM Method D6350)	Atomic fluorescence spectroscopy AFS (ASTM Method D6350)
Siloxanes ^b	Collect samples in cylinders or through sorbent tubes (ASTM Method D8230) or through impingers containing methanol solution.	Gas chromatograph/mass spectrometer GC/MS or gas chromatograph/atomic emission detector GC/AED (ASTM Method D8230) or gas chromatograph/ion mass spectrometer GC/IMS (ASTM Method D8455)
Biologicals	Flow samples through filtration funnel and collect on 0.2 um filters.	qPCR for APB, IOB, SRB

- a. Mercury represents total mercury, not only elemental mercury.
- b. Siloxanes is a total value inclusive of Trimethylsilanol, Hexamethyldisiloxane (L2), Octamethyltrisiloxane (L3), Decamethyltetrasiloxane (L4), Dodecamethylpentasiloxane (L5), Hexamethylcyclotrisiloxane (D3), Octamethylcyclotetrasiloxane (D4), Decamethylcyclopentasiloxane(D5), and Dodecamethylcyclohexasiloxane(D6).
- c. Acronyms:
 ASTM ASTM International

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EPA Environmental Protection Agency
NIOSH National Institute for Occupational Safety & Health

b. Testing Responsibility

i. Interconnector Pre-Injection and Restart Procedure Testing

Pre-injection and Restart Procedure testing for gas quality will be performed by the Interconnector using independent certified third-party laboratories. The Utility shall be notified of the sampling a minimum of five business days in advance and have the option to observe the samples being taken.

ii. Utility Periodic Testing

The Utility will collect the samples and send the samples to an independent certified laboratory for Constituent analyses. The results will be shared with the Interconnector within two weeks of the Utility receiving the data. If it is agreed to by both parties, the Interconnector can be the periodic testing entity at the interconnection.

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(Continued)

K. Renewable Gas Quality and Specifications (Continued)

5. Testing (Continued)

c. Cost Responsibility

Interconnector is responsible for Pre-Injection, Periodic Testing and Restart testing costs. If requested, any retesting for validation of results shall be done at the cost of the entity requesting the retest.

d. Utility Discretionary Testing

This Rule does not prohibit the Utility from engaging in discretionary gas or facility testing on its system at Utility's expense.

e. Pre-Injection Testing Procedure

Interconnector will conduct two successful tests for all Constituents over a two to four-week period, ~~preferably~~ at least two weeks apart.

i. Health Protective Constituents

If during the pre-injection testing, any Health Protective Constituents are found at or above the Trigger Level, the collective potential cancer or non-cancer risk must be calculated. The collective potential cancer or non-cancer risk is calculated by summing the individual risk for each Health Protective Group 2 Compound.

If the collective 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 Renewable Gas cannot be accepted or transported by the Utility's pipeline system.

The Interconnector shall make necessary modifications to lower the collective potential cancer or non-cancer risk below the Lower Action Level and restart pre-injection testing.

If all the Health Protective Constituents are below the Trigger Level or the collective potential cancer risk and non-cancer risk from the Group 2 Compounds are below the Lower Action Level in both pre-injection tests, the Renewable Gas may be injected into the pipeline system subject to all other requirements set forth in this Rule.

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STANDARD RENEWABLE GAS INTERCONNECTION

(Continued)

K. Renewable Gas Quality and Specifications (Continued)

5. Testing (Continued)

e. Pre-Injection Testing Procedure (Continued)

ii. Integrity Protective Constituents

If any Integrity Protective Constituents are above the Lower Action Level, the Renewable Gas may not be injected into the Utility's system. The Interconnector shall make necessary modifications to lower the levels of the Integrity Protective Constituents to levels below the Lower Action Level equivalent and restart pre-injection testing.

If Integrity Protective Constituents are at or below the Lower Action Level, the Renewable Gas may be injected into the Utility's system subject to all other requirements set forth in this Rule.

a) Reduced Siloxanes Testing

Pursuant to Section K.4.b Renewable Gas certified for reduced siloxanes testing will be as follows:

(i) If the pre-injection testing siloxanes levels are at or below the Trigger Level, then no periodic testing for siloxanes is required.

~~(ii) If the pre-injection testing siloxanes level exceeds the Trigger Level, then quarterly testing for siloxanes is required for one year, and if none of those samples are above the Lower Action Level, then no periodic testing for siloxanes is required.~~

(ii) If the siloxanes are above the ~~Lower Action~~ Trigger Level, then the Renewable Gas certification for reduced testing is no longer applicable and the Interconnector will be required to comply with the periodic testing requirements for siloxanes.

~~(iii)~~ Utility, at its discretion and at its own cost, may still test pursuant to Utility's applicable tariff rules. If the Utility test results show the siloxanes levels exceed the ~~Lower Action~~ Trigger Level, this Rule's full siloxanes testing requirements will apply.

b) Biologicals

(i) Renewable Gas must be commercially free of bacteria which cause corrosion, also referred to as biologicals.

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K. Renewable Gas Quality and Specifications (Continued)

5. Testing (Continued)

e. Pre-Injection Testing Procedure (Continued)ii. Integrity Protective Constituents (Continued)

b) Biologicals (Continued)

- (ii) To ensure Renewable Gas is commercially free of biologicals (>0.2 microns), the Interconnector will test for total bacteria including but not limited to Acid-producing Bacteria (APB), Sulfate-reducing Bacteria (SRB), and Iron-oxidizing Bacteria (IOB) by quantitative polymerase Chain Reaction (qPCR) method during pre-injection testing. If the total bacteria results are at or below 4×10^4 /scf, then Renewable Gas may be injected into the Utility's system subject to all other requirements set forth in this Rule.

f. Periodic Testing

i. Group 1 Compounds

- a) Group 1 Compounds will be tested once every 12-month period in which injection occurs.
- b) Any Group 1 Compounds with a concentration below the Trigger Level for two consecutive annual tests will be tested once every two-year period in which injection occurs.
- c) A Group 1 Compound will become a Group 2 Compound if testing indicates a concentration at or above the Trigger Level and will be tested quarterly.

ii. Group 2 Compounds

- a) Testing for Group 2 Compounds will be quarterly (at least once every three-month period in which injection occurs).
- b) Any Group 2 Compound with a concentration below the Trigger Level in four consecutive quarterly tests will become a Group 1 Compound and will be tested once every 12-month period in which injection occurs.
- c) If any constituent is above the Upper Action Level, the Renewable Gas shall be shut-in until the concentration level is below the Lower Action Level, after which it will be subject to the Section K.5.g. Restart Procedure.

(Continued)

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SUBMITTED Apr 1, 2021EFFECTIVE May 1, 2021

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Sheet 36

(Continued)

K. Renewable Gas Quality and Specifications (Continued)

5. Testing (Continued)

f. Periodic Testing (Continued)

iii. Collective risk from ~~Carcinogenic~~ Cancer and Non-~~carcinogenic~~ cancer Health Protective Constituents

a) Cancer Risk

The collective potential cancer risk for Group 2 Compounds is determined by summing the individual potential cancer risk for each ~~carcinogenic~~ cancer Constituent of Concern. Specifically, the cancer risk is calculated using the ratio of the concentration of the Constituent in the Renewable Gas 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 Compounds (for reference, see CARB/OEHHA Report submitted in R.13-02-008, p. 67).

b) Non-Cancer Risk

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

c) If the result is at or above the Lower Action Level on three occurrences in a 12-month period, the Renewable Gas shall be immediately shut-in until the levels are below the Lower Action Level, after which it will be subject to the Restart Procedures.

~~d) If quarterly testing over four consecutive tests demonstrates that the collective risk from Carcinogenic and Non-carcinogenic Constituents is below the Lower Action Level, then the testing period will change to once every 12-month period during which injection occurs for each Constituent in the group.~~

(Continued)

(TO BE INSERTED BY CAL. PUC)

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STANDARD RENEWABLE GAS INTERCONNECTION

Sheet 37

(Continued)

K. Renewable Gas Quality and Specifications (Continued)

5. Testing (Continued)

f. iii. (Continued)

- e) ~~If annual testing demonstrates that collective risk from Carcinogenic and Non-carcinogenic Group 2 Compounds is at or above the Lower Action Level, then testing will revert to quarterly.~~
- f) If the collective risk from Carcinogenic Cancer risk or Non-carcinogenic cancer risk Constituents, is at or above the Upper Action Level, the Renewable Gas shall be shut-in until the concentration is below the Lower Action Level, after which it will be subject to the Restart Procedures.
- g) If Interconnector's Renewable Gas is refused in accordance with this Rule, testing for all Group 1 and Group 2 Compounds will then be performed according to the Restart Procedure.

iv. Integrity Protective Constituents

- a) Constituents shall be tested once every 12-month period in which injection occurs.
- b) Any Constituent with a concentration at or below the Trigger Level during two (2) consecutive annual periodic tests shall be tested once every two-year period in which injection occurs.
- c) If periodic testing demonstrates that any Constituent is above the Trigger Level, then it will be tested quarterly.
- d) If the Constituent is above the Trigger Level, then it will be tested quarterly until there are four (4) consecutive quarterly tests at or below the Trigger Level, then it will be reduced to once every 12-month period in which deliveries occur.
- e) When any Constituent is above the Lower Action Level three times in a 12-month period, the Renewable Gas shall be immediately shut-in and subject to Restart Procedures set forth in Section K.5.g. of this Rule.
- f) When any Constituent is above the Upper Action Level, the Renewable Gas shall be immediately shut-in and subject to Restart Procedures set forth in Section K.5.g. of this Rule.

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STANDARD RENEWABLE GAS INTERCONNECTION

(Continued)

K. Renewable Gas Quality and Specifications (Continued)

5. Testing (Continued)

g. Restart Procedure

- i. Interconnector will repeat the Pre-Injection Testing Procedure until one successful test of all Constituents is completed, when any of the following occurs:
 - a) There is a change in the Gas source at the facility or a change of the Gas 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.
 - b) A shut-in of the Renewable Gas into the pipeline because there are three exceedances of the Lower Action Level in a 12-month period of the same Constituent.
 - c) A shut-in of the Renewable Gas into the pipeline because a Constituent concentration or the collective cancer or non-cancer risk is above the Upper Action Level.
- ii. After re-starting Renewable Gas deliveries, Periodic Testing will resume based on the results of the successful test.

h. Reporting and Record Keeping Requirements

Reporting and Record Keeping will be in compliance with D.14-01-034 and the CARB/OEHHA Report and includes the following:

- i. Pre-injection testing results shall be provided by Interconnector to the Utility within five days of receiving the data.
- ii. Startup test results from the initial successfully completed Pre-injection testing shall be provided to Commission within 30 days of receiving the test data by the testing entity (Utility or Interconnector).
- iii. Maintain records of all test results for 3 years from the date when the tests were conducted by the testing entity (Utility or Interconnector).
- iv. Annual report to Commission: all test data, production rate, monitoring parameters, and shutoff events.

(Continued)

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(Continued)

K. Renewable Gas Quality and Specifications (Continued)

5. Testing (Continued)

h. Reporting and Record Keeping Requirements (Continued)

- v. If the Utility is the testing entity, test results shall be provided by Utility to the Interconnector within two weeks of receiving the data. Test data that results in a shut-in ~~off~~ shall be provided by Utility to the Interconnector within 24 hours of receiving the data.
- vi. If the Interconnector is the testing entity, the Interconnector shall provide the above information to the Utility within two weeks of receiving the data. Test data that would result in a shut-in will be provided by Interconnector to the Utility within 24 hours of receiving the data.

L. Pipeline Blending Exception Study (Blending Study)

1. Intent

In an effort to encourage interconnections of Renewable Gas to Utility pipelines as ordered in D.19-05-018, the Utility will review and consider each blending request thoroughly and make a determination regarding each request. Blending exception requests will be accepted if the Renewable Gas is interchangeable with historical or contractual Gas supplies after blending and will not cause increased risk or safety concerns to the Utility's employees, downstream customers or pipeline. The Interconnector requesting the Blending Study will be responsible for the cost for the Utility to conduct the Blending Study and provide a determination.

2. Interconnector Blending Study Request

Interconnector may request a Blending Study to determine the Utility's downstream blending capability from an Interconnection Point, or proposed Interconnection Point, and the associated Utility monitoring and equipment enhancement costs, if any to be borne by Interconnector.

Interconnector may request an exception to the Gas quality and Heating Value standards established in this rule for a Receipt Point to allow blending in the pipeline of conditioned or upgraded Raw Product Gas or Biogas that does not meet all gas specifications at the Interconnection Point to achieve pipeline gas quality specifications.

Interconnector may initiate a Blending Study request as part of the Interconnection Screening or a subsequent Preliminary or Detailed Engineering Study.

The Blending Study will evaluate feasibility of blending to determine interchangeability with historical or contractual Gas supplies and the increased risk or safety concerns to the Utility's employees, downstream customers or pipeline.

The Utility will evaluate whether it is safe to authorize blending following receipt of the request that shall include the following:

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(Continued)

L. Pipeline Blending Exception Study (Blending Study) (Continued)

2. Interconnector Blending Study Request (Continued)

- a. Desired interconnect location(s) on the Utility's system
- b. Maximum and minimum flow rates, including seasonal variations, if appropriate
- c. Maximum concentrations of all Constituents listed within this Rule
- d. Maximum and minimum Heating Value and Wobbe Index
- e. Ability of Interconnector to accept limits on flow rates
- f. Reason for request
- g. Information collected from Interconnection Request

3. Utility Evaluation

If blending is requested, the Utility will evaluate requests for safely blending into the pipeline to determine whether injection of any new or modified supply source can be safely injected into the Utility's pipeline system. At a minimum, the Utility will consider the following factors when determining whether an exception can be allowed:

- a. Flow rates and directional consistency of receiving pipeline(s), including daily and seasonal variations.
- b. Historical Gas composition and contractual Gas quality specification at the Utility's receipt points and area of influence for purposes of determining impact on a Btu District.
- c. Current and expected future composition of Gas supplies at the Utility's Receipt Points for the purpose of determining interchangeability on customers' end use equipment and the pipeline system's future capability to accommodate supplies.
- d. Potential for increased internal corrosion threat at and through the Receipt Point, Receipt Point pipeline lateral and receiving pipelines due to Gas composition.
- e. Current and future customers in receiving pipeline flow rate, distance to these customers, time to first receiving customer, and anticipated downstream Gas demand growth.
- f. Maximum time and distance required for complete mixing to occur under all pipeline flow conditions.

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(Continued)

L. Pipeline Blending Exception Study (Blending Study) (Continued)

3. Utility Evaluation (Continued)

- g. The design, operation, and overall condition of the receiving pipeline(s), including any sensitivities to Gas Constituents.
- h. Additional monitoring, control, and/or mixing equipment that may be required to verify and ensure that adequate blending has occurred in the receiving pipeline system.

A request for gas quality exception will be undertaken as part of the Interconnection Screening or subsequent Preliminary and Detailed Engineering Studies upon receipt of all requested information. The evaluation will be completed within 30 additional business days.

4. Utility Report

Utility shall provide the Interconnector, within thirty (30) business days, with the acceptance or denial of blending request with the associated Interconnection Screening or subsequent Preliminary and Detailed Engineering Studies.

The Utility will notify the Energy Division of each request for exception, and state whether the request is granted or denied along with reason for denial.

a. Acceptance

For each granted request, the Utility shall provide a determination of the following:

- i. Volumetric flow rate: Authorized volume for blending, or a specific volume that is less than requested, and the conditions under which flow will be limited or otherwise restricted;
- ii. Length of time authorization valid: How long authorization for blending in the pipeline is valid before it must be re-evaluated; and
- iii. Special conditions: Any restrictions, special conditions, and/or special equipment, as determined by the Utility, required to grant acceptance.

b. Denial

If denied, a written explanation of the basis for denial and all engineering evaluations and calculations prepared to evaluate the request will be provided to the Interconnector. The explanation may include, but not be limited to:

- i. Historical pipeline flow profiles and proposed Interconnector flow.

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(Continued)

L. Pipeline Blending Exception Study (Blending Study) (Continued)

4. Utility Report (Continued)

b. Denial (Continued)

iii. Customer and/or safety impact.

Information is subject to a non-disclosure agreement for confidential information, if any.

5. Utility Right to Re-evaluate and Rescind Blending

The Utility shall have the continuing right at any time to re-evaluate, revise, and potentially rescind, the granted exception allowing for blending in the pipeline due to insufficient flow, ongoing operations, changes in the way the Utility manages the operation of its system, or requirements in accordance with the Utility's CPUC-approved tariffs.

M. Discontinuance and Termination

Discontinuance of use and/or termination will be administered pursuant to the terms of the Interconnector and Utility interconnection agreement.

N. Dispute Resolution

1. The Commission shall have initial jurisdiction to interpret, add, delete, or modify any provision of this Rule and/or tariff ("Interconnection Tariff") and to resolve disputes regarding Utility's performance of its obligations under the Interconnection Tariff pursuant to this Rule.
2. Any dispute arising between Utility and Interconnector (individually referred to as "Party" and collectively "the Parties") regarding Utility's or Interconnector's performance of its obligations under the Interconnection Tariffs shall be resolved according to the following procedures:
 - a. The dispute shall be documented in a written notice by the aggrieved Party to the other Party containing the relevant known facts pertaining to the dispute, the specific dispute and the relief sought, and express written notice by the aggrieved Party that it is invoking the procedures under this Section. The written notice shall be sent to the Party's email address and physical address set forth in any interconnection agreement between the Parties or the Interconnection Request, if there is no interconnection agreement. The receiving Party shall acknowledge the written notice within ten (10) Days of its receipt.

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(Continued)

N. Dispute Resolution (Continued)

- b. The Parties shall negotiate in good faith to resolve the dispute. If a resolution is not reached in forty-five (45) Days from the date of the written notice, either 1) a Party may request to continue negotiations for an additional forty-five (45) Days or 2) the Parties may by mutual agreement make a written request for mediation to the Alternative Dispute Resolution (ADR) Coordinator in the Commission’s administrative law judge (ALJ) Division. The request may be submitted by electronic mail to adr_program@cpuc.ca.gov. The dispute and its resolution shall be governed by the Commission’s ADR rules and procedures. Alternatively, both Parties by mutual agreement may request mediation from an outside third-party mediator with costs to be shared equally between the Parties.
- 3. If resolution is not reached pursuant to this Section N., either Party may file a formal complaint before the Commission pursuant to California PUC section 1702 and Article 4 of the Commission’s Rules of Practice and Procedure. Nothing in this section shall be construed to limit the rights of any Party to exercise rights and remedies under applicable Commission decision, order, rule or regulation.
- 4. Pending resolution of any dispute under this Section, the Parties shall proceed diligently with the performance of their respective obligations under the Interconnection Tariffs, unless the related agreements have been terminated. Disputes as to the Interconnection Request and implementation of this Section shall be subject to resolution pursuant to the procedures set forth in this Section.
- 5. Guidance can be provided in letter form by the Director of Energy Division or designated delegate.
- 6. Notwithstanding anything to the contrary set forth in this Section N, if Utility and Interconnector are parties to one or more of the agreements relating to the interconnection to the Utility’s pipeline system, and any such agreement(s) includes a dispute resolution procedure, the dispute resolution procedure set forth in such agreement(s) shall control over the dispute resolution procedure set forth in this Section N.

(TO BE INSERTED BY UTILITY)

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**PACIFIC GAS AND ELECTRIC COMPANY
SOUTHERN CALIFORNIA GAS COMPANY,
SAN DIEGO GAS & ELECTRIC COMPANY,
AND SOUTHWEST GAS CORPORATION**

ATTACHMENT A2

**STANDARD GAS RENEWABLE INTERCONNECTION RULE –
PROPOSED CLEAN VERSION**

STANDARD RENEWABLE GAS INTERCONNECTION

Standard Renewable Gas Interconnections to the Utility’s Pipeline System

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B. Definitions

The definitions set forth in this Section B of this Rule shall only apply to this Rule and may not apply to Utility's other tariffs. Certain words beginning with capital letters that are not defined in this Rule may be defined in SoCalGas' Rule 1 and Rule 30 or as approved by Energy Division.

1. **Alternative Dispute Resolution (ADR)**
Processes administered by the Administrative Law Judge (ALJ) Division of the Commission to help disputants resolve a conflict without a formal decision by a court or agency.
2. **Biogas**
Gas produced from the anaerobic decomposition of organic material.
3. **Biomethane**
Biogas that has been conditioned or upgraded to comply with this Rule's gas quality specifications. Biomethane does not include Biogas collected from a hazardous waste facility, as defined in California Health & Safety Code § 25117.
4. **Blending**
Utility pipeline mixing with other pipeline gas to dilute conditioned or upgraded Raw Product Gas or Biogas that does not meet all gas specifications at the Interconnection Point to achieve pipeline gas quality specifications as required under the Pipeline Blending Exception Study.
5. **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.
6. **Btu District**
A physically identifiable area of the gas transmission and/or distribution system in which the heating value of the Gas is measured and is representative of the entire area.
7. **California Producer or Production**
An entity which interconnects with the Utility's pipeline system to deliver Gas produced in California.
8. **CARB**
California Air Resources Board of the California Environmental Protection Agency.

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(Continued)

B. Definitions (Continued)

9. CARB/OEHHA Report

The report entitled Recommendations to the California Public Utilities Commission Regarding Health Protective Standards for the Injection of Renewable Natural into the Common Carrier Pipeline, prepared by Staff of the California Air Resources Board and the Office of Health Hazard Assessment. The CARB/OEHHA Report was submitted in Rulemaking (R.)13-02-008 and adopted in Decision (D.) 14-01-034. In addition, CARB/OEHHA submitted a Supplemental Report in 2023 updating health protective constituents and limits.

10. Clean Renewable Hydrogen

Hydrogen which is produced through a process that results in a lifecycle (i.e., well-to-gate) greenhouse gas emissions rate of not greater than 4 kilograms of CO₂e per kilogram of hydrogen produced and does not use fossil fuel as either a feedstock or production energy source.

11. Commission (CPUC)

The Public Utilities Commission of the State of California, sometimes referred to as the Public Utilities Commission (PUC), CPUC, or Commission.

12. Conditioning or Upgrading

The removal of non-compliant components from Biogas or Raw Product Gas, or the addition of other gases, in order to meet Utility pipeline quality gas specifications. Blending is not considered to be a form of Conditioning or Upgrading.

13. Conditioning or Upgrading Facilities

Interconnector's Facilities used for Conditioning and Upgrading.

14. Constituent of Concern (Constituent)

A chemical or compound that may negatively impact the Merchantability of Renewable Gas.

15. Day(s)

Refers to calendar day(s) unless otherwise stated.

16. Displacement Receipt Point Capacity

Utility pipeline system improvements which increase the takeaway capacity from a Receipt Point but do not increase the overall downstream capacity of the Utility's pipeline system. The addition of Displacement Receipt Point Capacity increases the ability of the Utility to receive gas from a particular Receipt Point or zone in competition with other gas supplies delivered into the Utility's pipeline system.

17. End Use Customer (Customer)

Ultimate consumer of gas using Utility intrastate transportation services on either a bundled, commodity and intrastate transportation basis or an intrastate transportation only basis.

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(Continued)

B. Definitions (Continued)

18. Expansion Receipt Point Capacity

Utility pipeline system improvements which increase the takeaway capacity from a Receipt Point and the overall downstream capacity of the Utility's pipeline system.

19. Gas

Any mixture of combustible and non-combustible gases used to produce heat by burning that can be accepted into a Utility pipeline without any compromise to operational safety or integrity. It shall include, but not be limited to, natural gas, renewable gas, biomethane, manufactured gas, or a mixture of any or all of the above. It shall meet the Utility's quality specifications, tariffs, rules, and other applicable regulations.

20. Gas Source or Source Feedstock

Sources from which biogas can be produced as identified in Table 1 Maximum Constituent Concentrations:

- Landfills – Biogas derived from Non-Hazardous landfills designated for solid-waste collection from residential, industrial, and commercial entities (Class III landfills as defined in Title 27 of CA Code of Regulations).
- Dairies – Biogas derived from the organic waste produced by dairy operations.
- Sewage Treatment – Biogas derived from the solids removed in wastewater treatment processes.
- Food/Green – Biogas derived from plants, animals, or micro-organisms consumed as food for humans or animals, including any mixed-in biodegradable organic material such as food-soiled paper or cardboard, food wrappers, and egg cartons, and from biodegradable organic material resulting from yard, landscaping, forestry and agricultural activities, consisting of leaves, grass, shrubs, plants, branches, and stumps.
- Other – Biogas derived from other feedstock sources not defined above.

21. Group 1 Compound

Any Health Protective Constituent with a concentration below the Trigger Level.

22. Group 2 Compound

Any Health Protective Constituent with a concentration at or above the Trigger Level.

23. Hazardous Waste Landfill

For the purposes of this Rule, Hazardous Waste Landfill shall be given the same definition as provided in the California Health and Safety Code, including facilities permitted by the California Department of Toxic Substances Control.

24. Health Protective Constituents

1. Carcinogenic (cancer risk): Any Constituent determined by the State of California to cause cancer, as listed below in Table 1, Maximum Constituent Concentrations.
2. Non-carcinogenic (non-cancer risk or chronic risk): Any Constituent determined by the State of California to cause non-cancer health risk, as listed below in Table 1, Maximum Constituent

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Concentrations.

25. Heating Value

Total heating value of the gas normally measured on a gross dry higher heating value (HHV) basis (unless otherwise specified), and is defined as the number of British Thermal Units (Btu) 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.

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(Continued)

B. Definitions (Continued)

26. Integrity Protective Constituents

Constituents that may impact the integrity of the Utility’s pipeline system as listed in Table 1 Maximum Constituent Concentrations.

27. Interconnect Capacity

The metering, regulation and odorization daily capacity of the Utility Facilities, which is not necessarily the Takeaway Capacity and is not, nor is it intended to be, any commitment by Utility of Takeaway Capacity.

28. Interconnection Point

The point where the Utility Facilities and Interconnector’s Facilities physically interconnect for delivery of Gas by Interconnector to, and receipt thereof by, Utility.

29. Interconnector’s Facilities

The Gas pipeline facilities constructed and operated by an Interconnector up to the Interconnection Point.

30. Issued for Construction (IFC)

Drawings and documents which are used for construction work and activities.

31. Local Government Entity Renewable Gas Interconnector (Government Entity)

A city or county as defined by Article XI of the California Constitution.

32. Lower Action Level

The concentration or measured value of a Constituent, used to screen Renewable Gas during the initial gas quality review and ongoing periodic testing, requiring a shut-off of Renewable Gas supply if exceeded three times in a 12-month period.

33. Merchantability

The ability to purchase, sell, or market Gas. The Gas shall not contain dust, sand, dirt, gums, oils, microbes, bacteria, pathogens and/or other substances at levels that would be injurious to Utility facilities or which would present a health and/or safety hazard to Utility employees, customers, and/or the public or that would cause Gas to be unmarketable.

34. Million Standard cubic feet per day (MMScfd or MMScf/d)

Volumetric flow rate of Gas measured in millions of standard cubic feet per Day.

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B. Definitions (Continued)

35. OEHHA

Office of Environmental Health Hazard Assessment of the California Environmental Protection Agency.

36. Raw Product Gas or Feedstock Gas

Gas from biogenic or other renewable sources, such as Biogas, biomass, or power to Gas from renewable electricity, before conditioning or upgrading to comply with this Rule's Gas quality specifications.

37. Receipt Point(s) or Points of Receipt

The place(s) where Interconnector delivers, or has delivered on its behalf, Gas into the Utility's pipeline system.

38. Renewable Gas

Gas from biogenic or other renewable sources, such as Biogas, biomass, or power to Gas from renewable electricity that has been conditioned or upgraded to comply with this Rule's Gas quality specifications, including Biomethane.

39. Renewable Gas Interconnector or Producer (Interconnector)

Party physically interconnecting or interconnected with the Utility and effectuates the delivery of Renewable Gas through new or modified facilities, including any third-party delivering renewable gas into the utility pipeline either directly or through one or more intermediary pipelines, and effectuates the delivery of Renewable Gas through new or modified facilities.

40. Takeaway Capacity

Utility's physical takeaway capability downstream of the outlet of the Utility Facilities at the Interconnection Point. Takeaway Capacity for any particular day may be affected by physical flows from other Receipt Points, physical pipeline and/or storage conditions for that Day, and end-use demand on the Utility's pipeline system, and will be solely determined by the Utility.

41. Thousand Standard cubic feet per day (MScfd or MScf/d)

Volumetric flow of Gas measured in thousands of standard cubic feet per day.

42. Trigger Level

The concentration or measured value of a Constituent requiring additional periodic testing and analysis.

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B. Definitions (Continued)

43. Upper Action Level

The concentration or measured value of a Constituent requiring an immediate shut-off of Renewable Gas supply.

44. Utility Facilities

Facilities owned and operated by Utility, including but not limited to, pipelines, appurtenant facilities, meters, regulators, quality measurement, other equipment and related system upgrades at and from the Interconnection Point, for receipt into Utility's pipeline system in the State of California pursuant to the Utility's interconnection agreement.

45. Wobbe Index

HHV / ($\sqrt{\text{Relative Density}_{\text{real}}}$) as defined in Section 2.20 in the 2009 American Gas Association (AGA) Report No. 5 Natural Gas Energy Measurement.

C. Applicability / Open Access

1. Applicability

The Utility shall provide nondiscriminatory open access to its system to any party for the purpose of physically interconnecting with the Utility and effectuating the delivery of Renewable Gas, subject to the terms and conditions set forth in this Rule and the Utility's applicable interconnection, operating, and balancing agreements.

2. End Use Customer Priority

The interconnection and physical flows shall not jeopardize the integrity of, or interfere with, the normal operation of the Utility's pipeline system and provision of service to its End Use Customers.

3. Scheduling and Nominations

The Receipt Point shall be established as a transportation scheduling point, pursuant to the provisions of Utility's transportation of customer owned Gas tariff.

4. Interconnect Capacity and Takeaway Services

The maximum physical capacity of the interconnection will be determined by the sizing of the Receipt Point components, including the metering and odorization capacities, but is not the capacity of the Utility's pipeline system to transport gas away from the Interconnection Point and is not, nor is it intended to be, any commitment by the Utility of Takeaway Capacity. The Utility separately provides takeaway services, including the option to expand system capacity to increase takeaway services, through its otherwise applicable tariffs.

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(Continued)

C. Applicability / Open Access (Continued)

5. Daily Available Receipt Capacity

The available receipt capacity for any particular day may be affected by physical flows from other Points of Receipt, physical pipeline and storage conditions for that day, and end-use demand on the Utility's pipeline system.

6. Pressure Regulation and Flow

Interconnector's Facilities shall be designed, installed, and operated to protect Utility's pipeline system from exposure to pressures in excess of Utility's then current maximum allowable operating pressure and operating pressures at the Interconnection Point.

Interconnector shall monitor discharge pressure and temperature to limit and shut down, or otherwise control, its compression to ensure that it does not cause any damage to the Utility Facilities.

Interconnector shall ensure that compression does not adversely affect or impair the accuracy of Utility measurement equipment at the Interconnect Point. Interconnector shall eliminate compressor-induced pulsation or vibration in compliance with American Petroleum Industry Standards before Gas is delivered at the Interconnection Point. The Utility shall not be required to accept delivery of Interconnector's Gas if compressor-induced pulsation or vibration exists.

7. Compliance with Utility's Tariffs

Interconnector's Gas supply at the Interconnection Point shall comply with all Utility tariffs, including Gas quality specification, sampling and testing methods and nomination procedures, except as permitted under the Pipeline Blending Exception Study procedures of this Rule.

8. Authorization Required to Operate

The Interconnector and Utility shall execute interconnection, operating and balancing agreements prior to any performance, including, but not limited to, final interconnection and gas flow.

9. Separate Agreements Required for Other Services

An Interconnector requiring other Gas services from Utility, including, but not limited to, Utility intrastate transportation service, must enter into agreements with Utility for such services in accordance with Utility's CPUC-approved tariffs.

10. Services Under This Rule Limited to Interconnection

Interconnection with Utility's pipeline system under this Rule does not provide Interconnector any rights to use Utility's pipeline system for the transportation or selling of Gas, nor does it limit those rights.

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(Continued)

C. Applicability / Open Access (Continued)

11. Confidentiality

Utility and Interconnector may enter into a confidentiality or non-disclosure agreement using Utility's then-existing standard agreement, as needed to protect the confidential, critical infrastructure, and trade secret information of either party. If the Utility provides any confidential, critical infrastructure, and/or trade secret information to the Interconnector, provision of such information shall require the Interconnector to enter into a confidentiality or non-disclosure agreement using Utility's then-existing standard agreement.

12. Compliance with and Modifications to Established Deadlines

The Utility shall use reasonable efforts to meet all of the timelines provided in this Rule. In the event the Utility is not able to meet a particular timeline, the Utility shall notify the Interconnector as soon as practicable and provide an estimated completion date with an explanation of the reasons why additional time is needed. The Utility and Interconnector shall mutually agree upon a modified timeline. Should mutual agreement not be reached on a modified timeline, the Utility and Interconnector may participate in a dispute resolution process pursuant to Section N of the Rule.

D. Interconnector Request

Interconnector shall complete Utility's interconnect fact sheet and submit a written request for each scope of work: screening, engineering, procurement, and construction as further described herein.

E. Interconnection Screening

1. Applicability

Any Renewable Gas Interconnector, including an interconnecting pipeline or a supply source, may request one displacement Interconnection Screening for each project, free of charge. Any party may request, on an actual cost basis, an expansion or an additional displacement Interconnection Screening for the project, or a Pipeline Blending Exception Study which entails study of an interconnection to a specific pipeline.

2. Scope of Services

Utility will analyze the impact on its gas system of receiving Interconnector- specified new supply at specified locations.

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STANDARD RENEWABLE GAS INTERCONNECTION

(Continued)

E. Interconnection Screening (Continued)

2. Scope of Services (Continued)

Utility conducts the following analysis:

- a. Preliminary, non-binding initial assessment of the nearest pipeline that has Takeaway Capacity to accommodate Interconnector's maximum injection volume/flow rate, and of a pipeline of lesser capacity closest to the Interconnector's Conditioning Facilities and its Takeaway Capacity.
- b. A preliminary pipeline route and length for interconnection to Utility's pipeline system.
- c. The then-current maximum allowable operating pressure and, if available, operating pressures of the existing Utility pipeline system receiving Gas from the Receipt Point.

3. Report

The report provided to the Interconnector summarizes the study parameters, assumptions, limitations and results of Utility's analysis. The report shall be provided by the Utility within fifteen (15) business days of its receipt of a written request and complete interconnection fact sheet.

F. Preliminary and Detailed Engineering Studies

1. Preliminary Engineering Study (PES)

a. Applicability; No Self-Performance

Upon completion of the Section E Interconnection Screening, if requested by the Interconnector in writing. Utility will perform the PES in accordance with this Section F-1 and the applicable agreement. Interconnector will not have the option of self-performing the PES.

b. Interconnector Request

Interconnector submits a written request detailing the interconnection expected minimum, average and maximum hourly production volume(s) and proposed site location(s) in addition to the information provided during the Interconnection Screening.

c. Scope of Services

Utility proposes to analyze the impact on its gas system of receiving Interconnector- specified new supply at specified location.

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(Continued)

F. Preliminary and Detailed Engineering Studies (Continued)

1. Preliminary Engineering Study (PES) (Continued)

c. Scope of Services (Continued)

Utility provides:

- i. Confirmation that the intended Utility pipeline system has sufficient physical Takeaway Capacity to safely accommodate Interconnector’s specified maximum delivery volume.
- ii. Recommendation as to the pipeline route using Utility rights of way for interconnection to the gas system.
- iii. Confirmation of the then-current maximum allowable operating pressure and, if available, operating pressures of the Utility’s gas system.
- iv. Potential obstructions in the pipeline route, if applicable, as determined by physical observation by Utility.
- v. Cost estimate calculated by the Utility including, but not limited to, land acquisition, site development, right-of-way, metering, gas quality, permitting, regulatory, environmental, unusual construction costs and, if applicable, operating and maintenance costs for any facility improvements. Other service costs associated with construction of the facility that are not part of already offered services could include, but not be limited to, engineering, consulting, contracting, construction costs, environmental studies.

Utility will provide a cost estimate accurate to +100%/- 50% or better based on a site visit and route evaluation for the Interconnector’s project in the preliminary engineering estimate.

Because of the exclusions and limitations of this initial review, Utility does not guarantee or recommended use of the PES for any purpose, including any substantive planning or other decisions regarding the cost or viability of its project except to determine whether to proceed with a detailed engineering study.

Any use by the Interconnector is solely at its own risk and should factor in the above risks and limitations.

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STANDARD RENEWABLE GAS INTERCONNECTION

(Continued)

F. Preliminary and Detailed Engineering Studies (Continued)

1. Preliminary Engineering Study (PES) (Continued)

d. Interconnector Pre-payment of Utility Cost Estimates

Interconnector is required to provide funding in advance of a PES being performed for Interconnector's proposed project. Utility personnel will charge their time and any necessary materials to analyze the project on an actual cost basis. Additional funding will be required from Interconnector to continue work if the actual costs exceed the advance.

e. Contracts

The Interconnector and the Utility must execute an agreement prior to initiating any work and Interconnector shall provide payment equal to the estimated cost of the study prior to the Utility proceeding. Within fifteen (15) business days of the Utility's receipt of a request for a PES, the Utility shall provide a draft agreement and estimated cost of the Study to the Interconnector. Payment in full of the estimated cost is required upon execution of an agreement to proceed with the analysis. The Interconnector will be responsible for the actual costs of the services; to this end, an invoice or a refund will be issued to the Interconnector at the completion or earlier termination of the PES for any difference between the actual costs and this advance.

f. PES Report

The Utility shall complete the PES within ninety (90) business days of Interconnector's payment of the estimated study cost. The report summarizes the study parameters, assumptions, limitations and results of Utility's analyses, identifies any facility improvements, and estimates the cost of construction of those improvements. The use and distribution of the PES shall be governed by the confidentiality agreement signed by the Utility and the Interconnector.

2. Detailed Engineering Study (DES)

a. Applicability; Option to Self-Perform

Upon completion of the PES or in combination with a PES, if requested by the Interconnector in writing. Interconnector will have the option of self-performing the DES, in which case:

- i. the Interconnector shall be responsible for all tasks in the DES, including but not limited to, permits, land rights, and environmental studies.

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STANDARD RENEWABLE GAS INTERCONNECTION

(Continued)

F. Preliminary and Detailed Engineering Studies (Continued)

2. Detailed Engineering Study (DES) (Continued)

a. (Continued)

- ii. The Interconnector must pay the Utility for the Utility's review and approval costs of each step of the DES process, and for each stage of construction;
- iii. Within fifteen (15) business days of notice that the Interconnector will prepare a DES, the Utility shall provide relevant guidance regarding the required content of the DES; and
- iv. The Interconnector shall pay the Utility's actual costs for reviewing and assisting with preparation of the DES, within forty (40) business days of receiving invoices from the Utility.

If Interconnector elects to have Utility prepare the DES, the remainder of this Section F-2 shall apply.

b. Interconnector Request

Interconnector submits a written request detailing the interconnection expected production volume(s) and proposed site location(s).

c. Scope of Services (Work)

Utility will design and engineer interconnection facilities or provide specifications, inspection and oversight of the Interconnector design and engineering of the interconnection facilities including a Receipt Point station and lateral pipeline, if applicable. Cost estimates may be generated at 30%, for long-lead material items, 60% level and at Issued for Construction level, of facility design based on the Interconnector's estimated completion date accurate to +50% / - 30%.

- i. Confirm pipeline route using Utility rights-of-way for interconnection to the Gas system.
- ii. Confirm obstructions in the pipeline route, if applicable, as determined by physical observation by Utility.

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(Continued)

F. Preliminary and Detailed Engineering Studies (Continued)

2. Detailed Engineering Study (DES) (Continued)

c. (Continued)

iii. Cost estimate calculated by the Utility including, but not limited to, land acquisition, site development, right-of-way, metering, gas quality, permitting, regulatory, environmental, unusual construction costs and, if applicable, operating and maintenance costs for any facility improvements. Other service costs associated with construction of the facility that are not part of already offered services could include, but not be limited to, engineering, consulting, contracting, construction costs, environmental studies.

d. Interconnector Pre-payment of Utility Cost Estimate

Engineering advances will be collected to fund the DES through commissioning and final drawings. Interconnector is responsible for making all payments in advance of Utility's performance of the interconnection work scope and for the purchase of long lead equipment. All final payments will be determined on the basis of the actual DES project costs incurred by Utility.

e. Contracts

The Interconnector and the Utility must execute an agreement prior to an analysis being performed and payment shall have been provided prior to Utility proceeding with the analysis. Within twenty (20) business days of a request for the Utility to prepare a DES, the Utility shall meet with the Interconnector to discuss project specific design parameters and the Utility shall provide the Interconnector an estimate of the cost to prepare the DES and a proposed agreement. The Interconnector will be responsible for the actual costs of the services; to this end, a refund or an invoice will be issued to the Interconnector at the completion of the DES to true-up actual costs to the estimated costs. Within fifteen (15) business days of notice that the Interconnector will prepare a DES, the Utility shall provide relevant guidance regarding the required content of the DES. The Interconnector shall pay the Utility's actual costs for reviewing and assisting with preparation of the DES, within forty (40) business days of receiving invoices from the Utility.

f. DES Report

The Utility shall complete the DES within one hundred eighty (180) business days of Interconnector's payment of the estimated study cost. The report summarizes the study parameters, assumptions, limitations and results of Utility's analyses, identifies any facility improvements, and estimates the cost of construction of those improvements. The use and distribution of the DES shall be governed by the confidentiality agreement signed by the Utility and Interconnector.

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(Continued)

G. Procurement and Construction and Installation Options

1. Procurement of Equipment and Materials; Construction and Installation

a. Procurement and Construction and Installation Options

Interconnector may elect for Utility or Interconnector to construct and install new Receipt Point facilities. The party performing the construction and installation work will also be exclusively responsible for procuring the equipment and materials for such work. In either case, Interconnector will be subject to the procurement, construction, and installation terms and conditions provided by the Utility, including those set forth in the interconnection agreement.

b. Commissioning Gas Quality Verification

Prior to commencing Utility operations, sampling of Interconnector’s Renewable Gas shall be performed according to the procedures in Section K.5 Renewable Gas Quality and Specifications Testing, as revised from time to time.

Utility may, at Interconnector’s expense, perform gas quality and equipment startup testing to verify compliance with this Rule’s gas quality specifications and proper operation of gas quality monitoring equipment and enforcement system. Commissioning Gas Quality Verification, as described in this section, also applies to any new gas source supplying Renewable Gas upstream of an existing gas interconnection point.

c. Receipt Point Facilities Ownership

Receipt Point facilities provided by Utility under this Rule or transferred to Utility as part of any Interconnector design-build shall, at all times, be and remain the property of Utility.

2. Alternative Interconnection of a Renewable Gas Production Facility

The parties may consider alternatives to Receipt Point and Utility Facilities to enable interconnection of a Renewable Gas production facility to the Utility pipeline system such as, but not limited to, the utilization of mobile and temporary resources for the delivery of Renewable Gas to the Utility pipeline system. At the Utility’s sole discretion, the parties may negotiate interconnection alternatives.

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H. Interconnection Request Withdrawal

1. Interconnector may withdraw its Interconnection Request at any time by written notice of such withdrawal to Utility.
2. Withdrawal shall result in the removal of the Interconnection Request from the interconnection process and Utility shall return any unspent funds less any costs to discontinue the work and return the site(s) to pre-existing conditions received from the Interconnector, if applicable.
3. In the event of such withdrawal, Utility shall provide, at Interconnector’s request, any completed engineering study conducted up to the date of withdrawal of the Interconnection Request.

I. Costs

1. Interconnector Cost Responsibility
The Interconnector shall pay all costs necessary to effectuate and maintain deliveries at and from the Interconnection Point, including but not limited to computer programming changes to the Utility’s pipeline system, engineering, equipment and construction (valves, separators, meters, quality measurement, odorant, and other equipment), land rights and permits necessary to regulate and deliver gas to and from the Interconnection Point, and repairs, upgrades, modifications, or replacements of the Utility Facilities.
2. Expansion of Receipt Point and/or Takeaway Capacity
The Utility will expand specific Receipt Point capacity and/or Takeaway Capacity at the request and expense of the Interconnector. The Interconnector and the Utility must execute the applicable Utility agreement prior to any work commencing.
3. Operation and Maintenance
Utility shall recover its operation and maintenance costs, as determined from time to time by the Utility, associated with the operation and maintenance of the metering equipment and other related facilities at and from the Interconnection Point that are owned and operated by the Utility and that are necessary to accept Renewable Gas from Interconnector and redeliver it to End Use Customers in accordance with good industry practice, Utility’s normal procedures and governmental regulations pursuant to the Utility interconnection agreement.

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STANDARD RENEWABLE GAS INTERCONNECTION

(Continued)

I. Costs (Continued)

4. Repair, Upgrade, Modification or Replacement of Utility's Facilities

a. Utility

Utility shall provide notice, except under emergency conditions, to Interconnector if Utility determines, at Utility's sole discretion, that the Utility's Facilities, require repair, upgrade, modification or replacement to operate in compliance with applicable laws, regulations or Public Utilities Commission orders.

Utility's notice shall describe and include Utility's estimate to perform the necessary repairs, upgrades, modifications or replacements, all of which will be at Interconnector's expense as set forth in this Rule's Section I.1, and, if applicable, be prorated for each Interconnector based on each Interconnector's share of the total Interconnect Capacity.

b. Interconnector

Interconnector shall notify Utility within thirty (30) days of receipt of Utility's notice that the Interconnector requests that Utility make the necessary repairs, upgrades, modifications or replacements, which will be at Interconnector's expense.

The Interconnector shall have the right to review and to propose reasonable changes to any Utility proposal or request to repair, upgrade, modify or replace existing equipment so long as the Interconnector's proposed changes meet industry and Utility's standards and applicable codes and neither delay implementation nor jeopardize timely safety and code compliance. Utility is, however, under no obligation, expressed or implied, to accept such proposed changes.

Interconnector shall pay Utility within sixty (60) days of the date of the Interconnector's receipt of Utility's estimate for the necessary repairs, upgrades, modifications or replacements. At Utility's sole discretion, the Parties may agree on a mutually agreeable payment schedule subject to Utility's credit requirements.

If any Interconnector fails to request in writing that Utility make the necessary repairs, upgrades, modifications or replacements within thirty (30) days of receipt of Utility's notice and fails to pay Utility's estimated costs, within sixty (60) days of receipt of Utility's estimate, then Utility shall have the right to refuse to accept that Interconnector's Gas, and may proceed to reallocate the Interconnect Capacity and costs to the remaining Interconnectors or abandon, retire, or sell the Receipt Point facilities, at its sole discretion.

Any Utility abandonment shall be at Interconnector's sole expense.

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STANDARD RENEWABLE GAS INTERCONNECTION

(Continued)

I. Costs (Continued)

4. Repair, Upgrade, Modification or Replacement of Utility’s Facilities (Continued)

c. Reconciliation of Actual to Estimated Costs

If, at any time and upon completion of the work, the Utility costs exceed or are expected to exceed Utility estimated costs or Interconnector’s payments, Utility will invoice the Interconnector for the difference between the estimate and the Utility costs. Interconnector shall pay the invoice for the remaining amount to Utility within thirty (30) days of receipt. At Utility’s sole discretion, the Parties can agree on a mutually agreeable payment schedule subject to Utility credit requirements. Upon completion of the work, if the Utility costs are less than Utility’s estimate, Utility will refund the difference between the paid estimate and the Utility costs within thirty (30) days of the invoice.

5. Incentive Programs

a. Background

Pursuant to D.15-06-029, as modified by D.16-12-043 and D.19-12-009 and expanded by D.20-12-031, the Utility shall provide a monetary incentive to eligible Biomethane Interconnections built before December 31, 2026. The monetary incentive program shall be in effect until the end of December 31, 2026, or until the program has exhausted its \$40 million funding, including the California Council on Science and Technology study costs.

b. Monetary Incentive

The monetary incentive is for up to 50% of the eligible interconnection costs incurred by a Biomethane Interconnector, up to \$3 million per interconnection for a non-dairy cluster Biomethane Interconnector and up to \$5 million per interconnection for a dairy cluster Biomethane Interconnector. A dairy cluster Biomethane interconnection project, as defined by Public Utilities Code Section 399.19(b), is a Biomethane project of three or more dairies in close proximity to one another employing multiple facilities for the capture of Biogas that is transported to a centralized processing facility and ultimately injected into the Utility pipeline through a single interconnection.

The funds authorized pursuant to D.20-12-031 may be expended once the funds approved pursuant to D.15-06-029 have been allocated to projects with an incentive reservation.

Should a project in a gas utility’s service territory not be operational within the three-year period established in D.19-12-009, then the funds reserved for that project shall instead be made available to the next candidate in that service territory.

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(Continued)

I. Costs (Continued)

5. Incentive Programs (Continued)

b. Monetary Incentive (Continued)

If a balance remains in the funds approved pursuant to D.15-06-029 and there are no candidates remaining in that service territory on the waitlist, then the funds shall be made available to the next project on the waitlist, regardless of service territory.

If there are funds remaining at the time of program termination, Biomethane Interconnectors that have started to deliver qualifying Biomethane into the Utility’s pipeline system as of the termination date of this program are eligible for an incentive payment if they otherwise meet the program criteria.

c. Eligible Interconnection Costs

The monetary incentive is limited to eligible interconnection costs, which include:

- i. Engineering costs (Interconnect Screening, Preliminary Engineering Study, and Detailed Engineering Study costs).
- ii. Costs associated with facilities downstream of the Biomethane Interconnector’s processing plants used for delivering Biomethane into the Utility or third-party pipeline system.
- iii. Total installed costs of receipt point facilities. These facilities include, but are not limited to: meters, regulators, appurtenant facilities, quality measurement, odorization facilities, and auxiliary facilities.
- iv. Facility enhancement costs. These enhancements include but are not limited to: enhancements to gas pipelines and other related system upgrades that are required to enable continued safe and reliable operation of Utility’s system due to the addition of each Biomethane Interconnection.
- v. For dairy cluster Biomethane Interconnection, costs incurred for Biogas gathering lines to help reduce emissions of short-lived climate pollutants pursuant to Section 39730 of the Health and Safety Code shall be considered eligible costs.

Other costs associated with processing and blending upstream of Interconnection Point, including facilities serving natural gas to Biomethane Interconnector’s facilities, are ineligible costs.

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STANDARD RENEWABLE GAS INTERCONNECTION

(Continued)

I. Costs (Continued)

5. Incentive Programs (Continued)

d. Eligibility of Interconnector for Monetary Incentive

To be eligible for the monetary incentive program, a Biomethane Interconnector must:

- i. Comply with Utility's rule regarding transportation of customer-owned gas SoCalGas Rule 30, Transportation of Customer Owned Gas, and this Rule.
- ii. Comply with the standard and protocols adopted in D.14-01-034 as modified by D.16-11-008.
- iii. Successfully interconnect to the Utility or third-party California pipeline system and meet the operational requirement as described in D.15-06-029 as modified by D.16-12-043. This operational requirement entails that the Biomethane Interconnector produce Biomethane flow for a minimum of 30 days out of a 40- day testing period, within the minimum and maximum measurement range of the meter, as specified by Utility's measurement standards and based on the meter type specified by the Utility.
 - a) Biomethane Interconnectors must declare in a written notice to the Utility at least two business days in advance, the specific start and end date of this 40- day testing period.
 - b) The 30 out of 40-day requirement is extended 1 day for each day that the Biomethane Interconnector is unable to produce flow because of an interruption of delivery as set forth in Utility's rule regarding interruption of delivery.
 - c) Biomethane Interconnectors may elect to restart the 40-day testing period by providing a new written notice declaring the new start and end dates at least two business days in advance of when the new 40-day testing period is to begin.
- iv. Provide cost information to Utility for eligible costs in a timely manner, as specified by Utility.

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STANDARD RENEWABLE GAS INTERCONNECTION

(Continued)

I. Costs (Continued)

5. Incentive Programs (Continued)

e. Payment of Monetary Incentive

Within 60 days following successful compliance with the 30 out of 40-day biomethane delivery requirement, the Utility will pay the Biomethane Interconnector the amount up to 50% of the eligible reconciled and undisputed portions of the interconnection costs, not to exceed \$3 million per interconnection for a non-dairy cluster Biomethane Interconnector, or \$5 million per interconnection for a dairy cluster Biomethane Interconnector. Payment will be provided to the Biomethane Interconnector if all costs have been paid in full; if there are remaining costs it shall be treated as a credit. In the event that all interconnection costs have not been reconciled by the Utility and the Biomethane Interconnector within 60 days following the successful compliance with the 30 out of 40-day Biomethane delivery requirement, the Utility shall resume paying the Biomethane Interconnector upon cost reconciliation. If additional eligible cost information becomes available within 12 months following the initial payment, the Utility shall pay to the Biomethane Interconnector up to 50% of the remaining eligible interconnection costs, not to exceed \$3 million per interconnection for a non-dairy cluster Biomethane Interconnector, or \$5 million per interconnection for a dairy cluster Biomethane Interconnector, including all previous payments. The Utility will provide notification to the CPUC Director of the Energy Division and the Biomethane Interconnector of the initial payment as well as any other potentially eligible future payments.

f. Monetary Incentive Reservation Application Process

- i. Interconnector must submit the standard Incentive Reservation Application as required by D.19-12-009.
- ii. Upon receipt of a standard Incentive Reservation Application, the Utility will note the date and time of the receipt of the application.
- iii. Utilities must verify that the project meets the Incentive Reservation qualifications. The required qualifications are:
 - a) A completed application which includes Contact Information, Interconnecting Facility Information, and a Proposed Schedule.
 - b) Documentation of a fully executed and funded agreement to conduct a detailed engineering study.

(Continued)

(TO BE INSERTED BY CAL. PUC)

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STANDARD RENEWABLE GAS INTERCONNECTION

(Continued)

I. Costs (Continued)

5. Incentive Programs (Continued)

f. Monetary Incentive Reservation Application Process (Continued)

iii. (Continued)

- c) Utilities will deliver verified Incentive Reservation Applications to the Commission's Energy Division within 5 business days of its receipt.
- d) Utilities will provide a quarterly report to the Energy Division within 5 business days of the end of each quarter for all applicants with a reservation on the waiting list reporting the status of the interconnection project.
- e) Applicant's project must be operating within three years of the date of the Energy's Division's award of an Incentive Reservation to qualify to receive the incentive.

J. Local Government Entity Renewable Gas Interconnectors

Local Government Entity Renewable Gas Interconnectors may be evaluated by the Utility on a case-by-case basis for the granting of contractual provisions that recognize commercial considerations unique to local government entities including, but not limited to:

1. Transference of title to land owned by the government entity to the Utility or, alternatively, provision of easements satisfactory to the Utility, for the purpose of establishing the Utility's Facilities;
2. Local Government Entity Renewable Gas Interconnectors that generally can meet contractual obligations are not required to post performance assurance; and
3. Allowance of additional flexibility for a Local Government Entity Renewable Gas Interconnector to make payments based on the meeting cycle of the governing body.

(Continued)

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STANDARD RENEWABLE GAS INTERCONNECTION

(Continued)

K. Renewable Gas Quality and Specifications

1. Base Utility Gas Specifications

Renewable Gas must meet the gas quality specifications identified in SoCalGas' Rule 30 I. and this Rule 45, as adopted and periodically updated by the Commission.

2. Renewable Gas Constituent Concentrations

In addition to Section K.1. requirements, the following requirements are also applicable to Renewable Gas injected into the Utility's gas system. The Biomethane rules in this section are intended to implement D.14-01-034 and D.19-05-018, including rules regarding Constituent concentration standards, monitoring and testing requirements, and reporting and record keeping requirements.

a. Renewable Gas must conform to the specifications listed in Table 1 and Table 2

Table 1								
Maximum Constituent Concentrations								
Renewable Gas Injection Constituents				Testing for Gas Source				
	Trigger Level	Lower Action Level	Upper Action Level	Non-Hazardous Landfill	Dairies	Sewage Treatment	Food/Green	Other
	mg/m³ (ppm_v)	mg/m³ (ppm_v)	mg/m³ (ppm_v)					
Base Gas Quality Specifications ^a				x	x	x	x	x
Health Protective Constituents (HPC) – Cancer risk ^b								
1,4-Dichlorobenzene	4.3 (0.69)	42 (6.75)	100 (16.07)	x	x	x	x	x
Arsenic	0.0020 (0.0006)	0.0040 (0.0013)	0.010 (0.0031)	x				x
Cadmium	0.0020 (0.0004)	0.0032 (0.0007)	0.0080 (0.0017)		x	x		x
Chromium ^d	0.0020 (0.0009)	0.0048 (0.0022)	0.012 (0.0055)	x		x		x
Ethylbenzene	20 (4)	190 (42)	490 (109)	x	x	x	x	x
N-nitroso-di-n-propylamine	0.028 (0.01)	0.24 (0.04)	0.61 (0.11)		x			x
Vinyl Chloride	0.63 (0.24)	6.3 (2.38)	15 (5.67)	x	x	x	x	x

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STANDARD RENEWABLE GAS INTERCONNECTION

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K. Renewable Gas Quality and Specifications (Continued)

2. Renewable Gas Constituent Concentrations (Continued)

a. (Continued)

Table 1 (Continued)								
Maximum Constituent Concentrations								
Renewable Gas Injection Constituents				Testing for Gas Source				
	Trigger Level	Lower Action Level	Upper Action Level	Non-Hazardous Landfill	Dairies	Sewage Treatment	Food/Green	Other
	mg/m³ (ppm_v)	mg/m³ (ppm_v)	mg/m³ (ppm_v)					
Health Protective Constituents (HPC) – Non-Cancer risk ^b								
Alkyl Thiols (Mercaptans) ^c	- (17)	- (170)	- (860)	x	x	x	x	x
Antimony	0.062 (0.01)	0.62 (0.12)	3.1 (0.6)	x				x
Chlorocarbons (as Cl) ^f	4.9 (3)	50 (33)	250 (167)	x	x	x	x	x
Fluorocarbons (as F) ^f	7.4 (9)	75 (93)	370 (460)	x			x	x
Hydrogen Sulfide ^e	63 (44)	860 (596)	4,300 (2,978)	x	x	x	x	x
Lead	0.047 (0.05)	0.47 (0.54)	2.3 (2.62)	x		x		x
Silicon Compounds (as Si) ^f	0.49 (0.41)	5.0 (4.2)	25 (21.0)	x	x	x	x	x
Sulfur Compounds (as S) ^f	13 (10)	130 (96)	640 (471)	x	x	x	x	x

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STANDARD RENEWABLE GAS INTERCONNECTION

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Table 1 (Continued)								
Maximum Constituent Concentrations								
Renewable Gas Injection Constituents				Testing for Gas Source				
	Trigger Level	Lower Action Level	Upper Action Level	Non-Hazardous Landfill	Dairies	Sewage Treatment	Food/Green	Other
Integrity Protective Constituents (IPC) ^c								
Ammonia	3 mg/m ³ (4 ppm _v)	7 mg/m ³ (10 ppm _v)	18 mg/m ³ (25 ppm _v)	x	x	x	x	x
Carbon Monoxide	0.03% (300 ppm _v)	TBD	TBD					x ^j
Hydrogen ⁱ	0.1% (1000 ppm _v)	1% (10,000 ppm _v)	5% (50,000 ppm _v)	x	x	x	x	x
Mercury	0.08 mg/m ³ (0.01 ppm _v)	TBD ^g	TBD ^g	x	x	x	x	x
Siloxanes ^h	0.05 mg Si/m ³ (0.04 ppm _v)	0.1 mg Si/m ³ (0.08 ppm _v)	0.3 mg Si/m ³ (0.25 ppm _v)	x	x	x	x	x

Notes:

- a. Base Utility Gas Specifications are identified in K.1.
- b. Health Protective Constituents (HPC) are shown in Table of the 2023 CARB/OEHHA AB1900 Supplemental Report.
- c. Integrity Protective Constituents are shown in Section 4.4.3.3 of D.14-01-034 and identified as -integrity protective constituents.
- d. Evaluate as only total chromium.
- e. Testing requirement will be the stricter of the stated Renewable Gas values or other tariff requirements.
- f. The compounds for these chemical classes per Appendix A and Section 4.4 of the 2023 CARB/OEHHA AB1900 Supplemental Report or newest published version.
- g. The Lower and Upper Action Levels are specific to Biomethane pursuant to Decision 22-12-057 and will be reviewed in the next update proceeding.
- h. The Interconnector that meets this Rule's Section K.4.b certification requirements shall have reduced siloxanes testing requirements per K.5.e.ii.a.
- i. Lower Action Level and Upper Action Level is specific to the by-product of the biomethane production process and is not intended as a pure hydrogen blending limit.
- j. Carbon Monoxide will be tested in Bio-SNG only.

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STANDARD RENEWABLE GAS INTERCONNECTION

(Continued)

K. Renewable Gas Quality and Specifications (Continued)

2. a. (Continued)

Table 2 Cancer and non-Cancer Risk Management Thresholds for Constituents			
Risk Management Levels	Potential Risk from Carcinogenic Cancer Risk (Chance in a million)	Non-Cancer Total Hazard Quotient	Action
Trigger Level ^a	≥ 1	≥ 0.1	Periodic Testing Required
Lower Action Level ^b	≥ 10	≥ 1	Supply shut-in and repair after three exceedances in 12 months in which deliveries occur
Upper Action Level ^b	≥ 25	≥ 5	Immediate supply shut-in and repair

Notes:
a. Applies to individual Constituent concentrations.
b. Applies to the sum of all Constituent concentrations over the Trigger Level.

3. RESERVED

4. Interconnector Renewable Gas Source Certification

a. Non-Hazardous Waste Facility

Renewable Gas sourced from Hazardous Waste Landfills will not be knowingly purchased, accepted into or transported on the pipeline system.

i. Interconnector must certify and provide documentation or other suitable proof that: the Renewable Gas source feedstock was not derived or collected from a Hazardous Waste Facility, as that term is defined in Section 25117.1 of the California Health and Safety Code, as may be amended from time to time, and Interconnector is in compliance with the following Health and Safety Code Sections 25421(g)(1) and (2), as they may be amended from time to time.

b. Siloxanes

To qualify for reduced siloxanes testing, Interconnector must execute Utility’s certification attesting that:

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STANDARD RENEWABLE GAS INTERCONNECTION

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K. Renewable Gas Quality and Specifications (Continued)

4. Interconnector Renewable Gas Source Certification (Continued)

b. Siloxanes (Continued)

- i. Interconnector’s Biogas is sourced only from dairy, animal manure, agricultural waste, forest residues, and/or commercial food processing waste;
- ii. Products containing siloxanes are not used at Interconnector’s Facilities in any way that allow siloxanes to enter the Biogas and/or Biomethane and
- iii. Interconnector shall notify Utility within 30 days of discovery, in accordance with the notice provision of the associated interconnection agreement, that the certifications set forth in the above paragraphs are no longer true.

5. Testing

a. Source Feedstock Based Testing

Testing shall be determined according to the source feedstock per Table 1 above. The interconnector shall specify their source feedstock. For facilities utilizing multiple gas sources or co-digestion, where smaller amounts of different gas source types are utilized to increase methane production, the facility will be required to test for all of the COCs for each source feedstock utilized.

Testing for the Health Protective Constituents shall be by the recommended methods specified in Table 3 of the 2023 CARB/OEHHA AB1900 Supplemental Report -or newest published version. Testing for Integrity Protective Constituents shall be by the sample method and lab test methods listed in Table 3 below. Feedstock Based Testing, as described in this section, also applies to any new gas source supplying Renewable Gas upstream of an existing gas interconnection point.

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(Continued)

K. Renewable Gas Quality and Specifications (Continued)

5. Testing (Continued)

Table 3 Test Methods for Integrity Protective Constituents		
Constituent of Concern	Sample Method	Lab Test Method
Ammonia	Collect samples in sulfuric acid treated silica gel sorbent tubes (NIOSH Method 6015)	Visible spectrophotometry (NIOSH Method 6015)
	Collect samples in glass tubes containing carbon beads impregnated with sulfuric acid (OSHA Method ID-188)	Ion chromatography conductivity detector IC/CD (OSHA Method ID-188)
	Bubbled through impinger system containing sulfuric acid and silica gel (South Coast Air Quality Management District Method 207.1)	Ion specific electrode ISE (South Coast Air Quality Management District Method 207.1)
	Collect samples in Tedlar bag or inert cylinders	Gas chromatograph/nitrogen chemiluminescence detector GC-NCD
Carbon Monoxide	Collect samples in cylinders or canisters	Gas Chromatograph GC (EPA 3C, ASTM Methods D1946 or D7833)
Hydrogen	Collect samples in cylinders or canisters	Gas Chromatograph GC (EPA 3C, ASTM Methods D1945, D1946 or D7833)
Mercury ^a	Bubble through aqueous acidic solution of hydrogen peroxide and aqueous acidic solution of potassium permanganate (EPA Method 29)	Cold vapor atomic absorption spectroscopy CVAAS (EPA Method 29, EPA Compendium Method IO-3.5)
	Collect samples on gold-coated silica beads (ASTM Method D5954)	Atomic absorption spectroscopy AAS (ASTM Method D5954)
	Collect samples on gold-coated silica sand trap (ASTM Method D6350)	Atomic fluorescence spectroscopy AFS (ASTM Method D6350)
Siloxanes ^b	Collect samples in cylinders or through sorbent tubes (ASTM Method D8230) or through impingers containing methanol solution.	Gas chromatograph/mass spectrometer GC/MS or gas chromatograph/atomic emission detector GC/AED (ASTM Method D8230) or gas chromatograph/ion mass spectrometer GC/IMS (ASTM Method D8455)
Biologicals	Flow samples through filtration funnel and collect on 0.2 um filters.	qPCR for APB, IOB, SRB

- a. Mercury represents total mercury, not only elemental mercury.
- b. Siloxanes is a total value inclusive of Trimethylsilanol, Hexamethyldisiloxane (L2), Octamethyltrisiloxane (L3), Decamethyltetrasiloxane (L4), Dodecamethylpentasiloxane (L5), Hexamethylcyclotrisiloxane (D3), Octamethylcyclotetrasiloxane (D4), Decamethylcyclopentasiloxane(D5), and Dodecamethylcyclohexasiloxane(D6).
- c. Acronyms:
 ASTM ASTM International

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STANDARD RENEWABLE GAS INTERCONNECTION

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EPA Environmental Protection Agency
NIOSH National Institute for Occupational Safety & Health

b. Testing Responsibility

i. Interconnector Pre-Injection and Restart Procedure Testing

Pre-injection and Restart Procedure testing for gas quality will be performed by the Interconnector using independent certified third-party laboratories. The Utility shall be notified of the sampling a minimum of five business days in advance and have the option to observe the samples being taken.

ii. Utility Periodic Testing

The Utility will collect the samples and send the samples to an independent certified laboratory for Constituent analyses. The results will be shared with the Interconnector within two weeks of the Utility receiving the data. If it is agreed to by both parties, the Interconnector can be the periodic testing entity at the interconnection.

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STANDARD RENEWABLE GAS INTERCONNECTION

(Continued)

K. Renewable Gas Quality and Specifications (Continued)

5. Testing (Continued)

c. Cost Responsibility

Interconnector is responsible for Pre-Injection, Periodic Testing and Restart testing costs. If requested, any retesting for validation of results shall be done at the cost of the entity requesting the retest.

d. Utility Discretionary Testing

This Rule does not prohibit the Utility from engaging in discretionary gas or facility testing on its system at Utility's expense.

e. Pre-Injection Testing Procedure

Interconnector will conduct two successful tests for all Constituents over a two to four-week period, at least two weeks apart.

i. Health Protective Constituents

If during the pre-injection testing, any Health Protective Constituents are found at or above the Trigger Level, the collective potential cancer or non-cancer risk must be calculated. The collective potential cancer or non-cancer risk is calculated by summing the individual risk for each Health Protective Group 2 Compound.

If the collective 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 Renewable Gas cannot be accepted or transported by the Utility's pipeline system.

The Interconnector shall make necessary modifications to lower the collective potential cancer or non-cancer risk below the Lower Action Level and restart pre-injection testing.

If all the Health Protective Constituents are below the Trigger Level or the collective potential cancer risk and non-cancer risk from the Group 2 Compounds are below the Lower Action Level in both pre-injection tests, the Renewable Gas may be injected into the pipeline system subject to all other requirements set forth in this Rule.

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(Continued)

K. Renewable Gas Quality and Specifications (Continued)

5. Testing (Continued)

e. Pre-Injection Testing Procedure (Continued)

ii. Integrity Protective Constituents

If any Integrity Protective Constituents are above the Lower Action Level, the Renewable Gas may not be injected into the Utility's system. The Interconnector shall make necessary modifications to lower the levels of the Integrity Protective Constituents to levels below the Lower Action Level equivalent and restart pre-injection testing.

If Integrity Protective Constituents are at or below the Lower Action Level, the Renewable Gas may be injected into the Utility's system subject to all other requirements set forth in this Rule.

a) Reduced Siloxanes Testing

Pursuant to Section K.4.b Renewable Gas certified for reduced siloxanes testing will be as follows:

- (i) If the pre-injection testing siloxanes levels are at or below the Trigger Level, then no periodic testing for siloxanes is required.
- (ii) If the siloxanes are above the Trigger Level, then the Renewable Gas certification for reduced testing is no longer applicable and the Interconnector will be required to comply with the periodic testing requirements for siloxanes.
- (iii) Utility, at its discretion and at its own cost, may still test pursuant to Utility's applicable tariff rules. If the Utility test results show the siloxanes levels exceed the Trigger Level, this Rule's full siloxanes testing requirements will apply.

b) Biologicals

- (i) Renewable Gas must be commercially free of bacteria which cause corrosion, also referred to as biologicals.

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STANDARD RENEWABLE GAS INTERCONNECTION

(Continued)

K. Renewable Gas Quality and Specifications (Continued)

5. Testing (Continued)

e. Pre-Injection Testing Procedure (Continued)ii. Integrity Protective Constituents (Continued)

b) Biologicals (Continued)

- (ii) To ensure Renewable Gas is commercially free of biologicals (>0.2 microns), the Interconnector will test for total bacteria including but not limited to Acid-producing Bacteria (APB), Sulfate-reducing Bacteria (SRB), and Iron-oxidizing Bacteria (IOB) by quantitative polymerase Chain Reaction (qPCR) method during pre-injection testing. If the total bacteria results are at or below 4×10^4 /scf, then Renewable Gas may be injected into the Utility's system subject to all other requirements set forth in this Rule.

f. Periodic Testing

i. Group 1 Compounds

- a) Group 1 Compounds will be tested once every 12-month period in which injection occurs.
- b) Any Group 1 Compounds with a concentration below the Trigger Level for two consecutive annual tests will be tested once every two-year period in which injection occurs.
- c) A Group 1 Compound will become a Group 2 Compound if testing indicates a concentration at or above the Trigger Level and will be tested quarterly.

ii. Group 2 Compounds

- a) Testing for Group 2 Compounds will be quarterly (at least once every three-month period in which injection occurs).
- b) Any Group 2 Compound with a concentration below the Trigger Level in four consecutive quarterly tests will become a Group 1 Compound and will be tested once every 12-month period in which injection occurs.
- c) If any constituent is above the Upper Action Level, the Renewable Gas shall be shut-in until the concentration level is below the Lower Action Level, after which it will be subject to the Section K.5.g. Restart Procedure.

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(Continued)

K. Renewable Gas Quality and Specifications (Continued)

5. Testing (Continued)

f. Periodic Testing (Continued)

iii. Collective risk from Cancer and Non- cancer HealthProtective Constituents

a) Cancer Risk

The collective potential cancer risk for Group 2 Compounds is determined by summing the individual potential cancer risk for each cancer Constituent of Concern. Specifically, the cancer risk is calculated using the ratio of the concentration of the Constituent in the Renewable Gas 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 Compounds (for reference, see CARB/OEHHA Report submitted in R.13-02-008, p. 67).

b) Non-Cancer Risk

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

c) If the result is at or above the Lower Action Level on three occurrences in a 12-month period, the Renewable Gas shall be immediately shut-in until the levels are below the Lower Action Level, after which it will be subject to the Restart Procedures.

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(Continued)

K. Renewable Gas Quality and Specifications (Continued)

5. Testing (Continued)

f. iii. (Continued)

- f) If the collective risk from Cancer risk or Non- cancer risk Constituents, is at or above the Upper Action Level, the Renewable Gas shall be shut-in until the concentration is below the Lower Action Level, after which it will be subject to the Restart Procedures.
- g) If Interconnector's Renewable Gas is refused in accordance with this Rule, testing for all Group 1 and Group 2 Compounds will then be performed according to the Restart Procedure.

iv. Integrity Protective Constituents

- a) Constituents shall be tested once every 12-month period in which injection occurs.
- b) Any Constituent with a concentration at or below the Trigger Level during two (2) consecutive annual periodic tests shall be tested once every two-year period in which injection occurs.
- c) If periodic testing demonstrates that any Constituent is above the Trigger Level, then it will be tested quarterly.
- d) If the Constituent is above the Trigger Level, then it will be tested quarterly until there are four (4) consecutive quarterly tests at or below the Trigger Level, then it will be reduced to once every 12-month period in which deliveries occur.
- e) When any Constituent is above the Lower Action Level three times in a 12-month period, the Renewable Gas shall be immediately shut-in and subject to Restart Procedures set forth in Section K.5.g. of this Rule.
- f) When any Constituent is above the Upper Action Level, the Renewable Gas shall be immediately shut-in and subject to Restart Procedures set forth in Section K.5.g. of this Rule.

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STANDARD RENEWABLE GAS INTERCONNECTION

(Continued)

K. Renewable Gas Quality and Specifications (Continued)

5. Testing (Continued)

g. Restart Procedure

- i. Interconnector will repeat the Pre-Injection Testing Procedure until one successful test of all Constituents is completed, when any of the following occurs:
 - a) There is a change in the Gas source at the facility or a change of the Gas 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.
 - b) A shut-in of the Renewable Gas into the pipeline because there are three exceedances of the Lower Action Level in a 12-month period of the same Constituent.
 - c) A shut-in of the Renewable Gas into the pipeline because a Constituent concentration or the collective cancer or non-cancer risk is above the Upper Action Level.
- ii. After re-starting Renewable Gas deliveries, Periodic Testing will resume based on the results of the successful test.

h. Reporting and Record Keeping Requirements

Reporting and Record Keeping will be in compliance with D.14-01-034 and the CARB/OEHHA Report and includes the following:

- i. Pre-injection testing results shall be provided by Interconnector to the Utility within five days of receiving the data.
- ii. Startup test results from the initial successfully completed Pre-injection testing shall be provided to Commission within 30 days of receiving the test data by the testing entity (Utility or Interconnector).
- iii. Maintain records of all test results for 3 years from the date when the tests were conducted by the testing entity (Utility or Interconnector).
- iv. Annual report to Commission: all test data, production rate, monitoring parameters, and shutoff events.

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STANDARD RENEWABLE GAS INTERCONNECTION

(Continued)

K. Renewable Gas Quality and Specifications (Continued)

5. Testing (Continued)

h. Reporting and Record Keeping Requirements (Continued)

- v. If the Utility is the testing entity, test results shall be provided by Utility to the Interconnector within two weeks of receiving the data. Test data that results in a shut-in ~~off~~ shall be provided by Utility to the Interconnector within 24 hours of receiving the data.
- vi. If the Interconnector is the testing entity, the Interconnector shall provide the above information to the Utility within two weeks of receiving the data. Test data that would result in a shut-in will be provided by Interconnector to the Utility within 24 hours of receiving the data.

L. Pipeline Blending Exception Study (Blending Study)

1. Intent

In an effort to encourage interconnections of Renewable Gas to Utility pipelines as ordered in D.19-05-018, the Utility will review and consider each blending request thoroughly and make a determination regarding each request. Blending exception requests will be accepted if the Renewable Gas is interchangeable with historical or contractual Gas supplies after blending and will not cause increased risk or safety concerns to the Utility's employees, downstream customers or pipeline. The Interconnector requesting the Blending Study will be responsible for the cost for the Utility to conduct the Blending Study and provide a determination.

2. Interconnector Blending Study Request

Interconnector may request a Blending Study to determine the Utility's downstream blending capability from an Interconnection Point, or proposed Interconnection Point, and the associated Utility monitoring and equipment enhancement costs, if any to be borne by Interconnector.

Interconnector may request an exception to the Gas quality and Heating Value standards established in this rule for a Receipt Point to allow blending in the pipeline of conditioned or upgraded Raw Product Gas or Biogas that does not meet all gas specifications at the Interconnection Point to achieve pipeline gas quality specifications.

Interconnector may initiate a Blending Study request as part of the Interconnection Screening or a subsequent Preliminary or Detailed Engineering Study.

The Blending Study will evaluate feasibility of blending to determine interchangeability with historical or contractual Gas supplies and the increased risk or safety concerns to the Utility's employees, downstream customers or pipeline.

The Utility will evaluate whether it is safe to authorize blending following receipt of the request that shall include the following:

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STANDARD RENEWABLE GAS INTERCONNECTION

(Continued)

L. Pipeline Blending Exception Study (Blending Study) (Continued)

2. Interconnector Blending Study Request (Continued)

- a. Desired interconnect location(s) on the Utility's system
- b. Maximum and minimum flow rates, including seasonal variations, if appropriate
- c. Maximum concentrations of all Constituents listed within this Rule
- d. Maximum and minimum Heating Value and Wobbe Index
- e. Ability of Interconnector to accept limits on flow rates
- f. Reason for request
- g. Information collected from Interconnection Request

3. Utility Evaluation

If blending is requested, the Utility will evaluate requests for safely blending into the pipeline to determine whether injection of any new or modified supply source can be safely injected into the Utility's pipeline system. At a minimum, the Utility will consider the following factors when determining whether an exception can be allowed:

- a. Flow rates and directional consistency of receiving pipeline(s), including daily and seasonal variations.
- b. Historical Gas composition and contractual Gas quality specification at the Utility's receipt points and area of influence for purposes of determining impact on a Btu District.
- c. Current and expected future composition of Gas supplies at the Utility's Receipt Points for the purpose of determining interchangeability on customers' end use equipment and the pipeline system's future capability to accommodate supplies.
- d. Potential for increased internal corrosion threat at and through the Receipt Point, Receipt Point pipeline lateral and receiving pipelines due to Gas composition.
- e. Current and future customers in receiving pipeline flow rate, distance to these customers, time to first receiving customer, and anticipated downstream Gas demand growth.
- f. Maximum time and distance required for complete mixing to occur under all pipeline flow conditions.

(Continued)

(TO BE INSERTED BY UTILITY)

(TO BE INSERTED BY CAL. PUC)

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STANDARD RENEWABLE GAS INTERCONNECTION

(Continued)

L. Pipeline Blending Exception Study (Blending Study) (Continued)

3. Utility Evaluation (Continued)

- g. The design, operation, and overall condition of the receiving pipeline(s), including any sensitivities to Gas Constituents.
- h. Additional monitoring, control, and/or mixing equipment that may be required to verify and ensure that adequate blending has occurred in the receiving pipeline system.

A request for gas quality exception will be undertaken as part of the Interconnection Screening or subsequent Preliminary and Detailed Engineering Studies upon receipt of all requested information. The evaluation will be completed within 30 additional business days.

4. Utility Report

Utility shall provide the Interconnector, within thirty (30) business days, with the acceptance or denial of blending request with the associated Interconnection Screening or subsequent Preliminary and Detailed Engineering Studies.

The Utility will notify the Energy Division of each request for exception, and state whether the request is granted or denied along with reason for denial.

a. Acceptance

For each granted request, the Utility shall provide a determination of the following:

- i. Volumetric flow rate: Authorized volume for blending, or a specific volume that is less than requested, and the conditions under which flow will be limited or otherwise restricted;
- ii. Length of time authorization valid: How long authorization for blending in the pipeline is valid before it must be re-evaluated; and
- iii. Special conditions: Any restrictions, special conditions, and/or special equipment, as determined by the Utility, required to grant acceptance.

b. Denial

If denied, a written explanation of the basis for denial and all engineering evaluations and calculations prepared to evaluate the request will be provided to the Interconnector. The explanation may include, but not be limited to:

- i. Historical pipeline flow profiles and proposed Interconnector flow.

(Continued)

(TO BE INSERTED BY UTILITY)

(TO BE INSERTED BY CAL. PUC)

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STANDARD RENEWABLE GAS INTERCONNECTION

(Continued)

L. Pipeline Blending Exception Study (Blending Study) (Continued)

4. Utility Report (Continued)

b. Denial (Continued)

iii. Customer and/or safety impact.

Information is subject to a non-disclosure agreement for confidential information, if any.

5. Utility Right to Re-evaluate and Rescind Blending

The Utility shall have the continuing right at any time to re-evaluate, revise, and potentially rescind, the granted exception allowing for blending in the pipeline due to insufficient flow, ongoing operations, changes in the way the Utility manages the operation of its system, or requirements in accordance with the Utility's CPUC-approved tariffs.

M. Discontinuance and Termination

Discontinuance of use and/or termination will be administered pursuant to the terms of the Interconnector and Utility interconnection agreement.

N. Dispute Resolution

1. The Commission shall have initial jurisdiction to interpret, add, delete, or modify any provision of this Rule and/or tariff ("Interconnection Tariff") and to resolve disputes regarding Utility's performance of its obligations under the Interconnection Tariff pursuant to this Rule.
2. Any dispute arising between Utility and Interconnector (individually referred to as "Party" and collectively "the Parties") regarding Utility's or Interconnector's performance of its obligations under the Interconnection Tariffs shall be resolved according to the following procedures:
 - a. The dispute shall be documented in a written notice by the aggrieved Party to the other Party containing the relevant known facts pertaining to the dispute, the specific dispute and the relief sought, and express written notice by the aggrieved Party that it is invoking the procedures under this Section. The written notice shall be sent to the Party's email address and physical address set forth in any interconnection agreement between the Parties or the Interconnection Request, if there is no interconnection agreement. The receiving Party shall acknowledge the written notice within ten (10) Days of its receipt.

(Continued)

(TO BE INSERTED BY UTILITY)

(TO BE INSERTED BY CAL. PUC)

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STANDARD RENEWABLE GAS INTERCONNECTION

(Continued)

N. Dispute Resolution (Continued)

- b. The Parties shall negotiate in good faith to resolve the dispute. If a resolution is not reached in forty-five (45) Days from the date of the written notice, either 1) a Party may request to continue negotiations for an additional forty-five (45) Days or 2) the Parties may by mutual agreement make a written request for mediation to the Alternative Dispute Resolution (ADR) Coordinator in the Commission’s administrative law judge (ALJ) Division. The request may be submitted by electronic mail to adr_program@cpuc.ca.gov. The dispute and its resolution shall be governed by the Commission’s ADR rules and procedures. Alternatively, both Parties by mutual agreement may request mediation from an outside third-party mediator with costs to be shared equally between the Parties.
- 3. If resolution is not reached pursuant to this Section N., either Party may file a formal complaint before the Commission pursuant to California PUC section 1702 and Article 4 of the Commission’s Rules of Practice and Procedure. Nothing in this section shall be construed to limit the rights of any Party to exercise rights and remedies under applicable Commission decision, order, rule or regulation.
- 4. Pending resolution of any dispute under this Section, the Parties shall proceed diligently with the performance of their respective obligations under the Interconnection Tariffs, unless the related agreements have been terminated. Disputes as to the Interconnection Request and implementation of this Section shall be subject to resolution pursuant to the procedures set forth in this Section.
- 5. Guidance can be provided in letter form by the Director of Energy Division or designated delegate.
- 6. Notwithstanding anything to the contrary set forth in this Section N, if Utility and Interconnector are parties to one or more of the agreements relating to the interconnection to the Utility’s pipeline system, and any such agreement(s) includes a dispute resolution procedure, the dispute resolution procedure set forth in such agreement(s) shall control over the dispute resolution procedure set forth in this Section N.

(TO BE INSERTED BY UTILITY)

(TO BE INSERTED BY CAL. PUC)

SUBMITTED Sep 28, 2020

EFFECTIVE Oct 28, 2020

RESOLUTION NO. _____

**PACIFIC GAS AND ELECTRIC COMPANY
SOUTHERN CALIFORNIA GAS COMPANY,
SAN DIEGO GAS & ELECTRIC COMPANY,
AND SOUTHWEST GAS CORPORATION
APPENDIX A
STATEMENTS OF QUALIFICATIONS**

1 **WITNESS STATEMENT OF QUALIFICATIONS**

2 ***Ronald V. Castle***

3 My name is Ronald V. Castle (Ron), and I am a Manager of Engineering Staff at
4 Southwest Gas Corporation (Southwest Gas or Company). I am responsible for overseeing the
5 policies, procedures, and technical support for Southwest Gas' five operating divisions across
6 three states, including the Company's interstate transmission pipeline subsidiary, for engineering
7 design, energy measurement, pressure control, cathodic protection, gas quality analysis, SCADA
8 system, and the training and qualification of technical services and gas control personnel. I hold
9 a Bachelor of Science degree in Mechanical Engineering, Cum Laude, from the University of
10 Nevada, Las Vegas.

11 I joined Southwest Gas in 2000 as an Engineer with Southern Nevada Division in
12 Las Vegas, NV, and was subsequently promoted to Engineer II and Distribution Engineer. In
13 2004, I transferred to Northern Nevada Division in Carson City, NV, and in 2006 was promoted
14 to Supervisor of Engineering over pipeline safety code compliance. In 2010, I was promoted to
15 Manager of Engineering over Great Basin Gas Transmission Company (formerly Paiute Pipeline
16 Company), Southwest Gas interstate transmission pipeline subsidiary, overseeing the operational
17 departments of engineering, construction, and technical services (measurement, pressure control,
18 cathodic protection, compression, and gas quality analysis), and also overseeing technical
19 services activities for Northern Nevada Division. In 2016, I transferred to Southwest Gas'
20 Corporate Office in Las Vegas, NV, in my current role of Manager of Engineering Staff.

21 I am jointly sponsoring Exhibit (Joint Utilities-01) – Prepared Testimony, Chapter 1-
22 Constituents of Concern Update.

1 **PACIFIC GAS AND ELECTRIC COMPANY**
2 **STATEMENT OF QUALIFICATIONS OF KARLI K. MAEDA**

3 Q 1 Please state your name and business address.

4 A 1 My name is Karli K. Maeda, and my business address is Pacific Gas and
5 Electric Company (PG&E), 6121 Bollinger Canyon Road, San Ramon,
6 California.

7 Q 2 Briefly describe your responsibilities at PG&E.

8 A 2 I am the Senior Manager of Gas Measurement and Regulation Services in
9 PG&E's Gas Operations. The department is focused on pressure regulation
10 and delivering pipeline quality gas to our customers safely and reliably. I am
11 responsible for the oversight of gas quality and, gas metering and regulation
12 across the service territory, and the Renewable Natural Gas (RNG)
13 Program. The RNG Program includes managing the gas quality aspects
14 associated with PG&E's Standard Renewable Gas Interconnection Rule and
15 related reporting as required.

16 Q 3 Please summarize your educational and professional background.

17 A 3 I received a Bachelor of Science degree in Mechanical Engineering from
18 University of California, Los Angeles, in 2000. I am a California-Registered
19 Professional Engineer in Mechanical Engineering and have 22 years of
20 experience in gas engineering and operations. I am also a member of the
21 American Gas Association and serve on the Gas Transmission
22 Measurement Committee. Since joining PG&E's Gas Department in 2011,
23 I have held a wide range of responsibilities for PG&E's Gas Operations
24 related to: PG&E's underground storage facilities, compressor stations,
25 pipeline terminals, pressure regulation stations, and other facilities.

26 Q 4 What is the purpose of your testimony?

27 A 4 I am co-sponsoring the following testimony in PG&E's Constituents of
28 Concern Update Testimony:

- 29 • Exhibit (Joint Utilities-01), "Prepared Testimony."

30 Q 5 Does this conclude your statement of qualifications?

31 A 5 Yes, it does.

1 **WITNESS STATEMENT OF QUALIFICATIONS**

2 My name is Maria T. Martinez. My business address is 555 W. Fifth Street, Los
3 Angeles, California, 90013. I am employed by SoCalGas as the Gas Engineering Director for
4 SoCalGas and SDG&E. In this position, I am responsible for providing centralized program
5 support for a variety of engineering disciplines, technical expertise on equipment and procedures,
6 company policies, material quality, and material specification for Transmission, Storage, and
7 Distribution. To accomplish this responsibility, I manage an organization of over 300 employees
8 with varying degrees of technical expertise. In addition, I possess a broad background in
9 engineering and natural gas pipeline operations, with twenty years of experience at SoCalGas. I
10 have held numerous positions with increasing responsibilities within Pipeline Integrity, Gas
11 Distribution Operations, and Gas Transmission Operations. I have held my current position as
12 Director of Gas Engineering since December 2020.

13 I hold a Bachelor of Science degree in Mechanical Engineering from California State
14 Polytechnic University, Pomona. I hold a California Professional Engineering License in
15 mechanical engineering from the state of California.

16 I am jointly sponsoring Exhibit (Joint Utilities-01) – Prepared Testimony, Chapter 1-Constituents
17 of Concern Update.

18 I have previously testified before the Commission.