

SDG&E, June 13th, 2025

Rulemaking (R.) 15-01-008 to Adopt Rules and Procedures Governing Commission Regulated Natural Gas Pipelines and Facilities to Reduce Natural Gas Leaks Consistent with Senate Bill 1371, Leno.

In Response to Data Request, R15-01-008 2025 June Report

Appendix 6; Rev. 03/27/2025

Notes:

Use a formula-derived value with the formula used in the Annual Emissions column. Do not use a copy and paste-as-value.

At the end of Annual Emissions Column, add a summation total in a cell for a column total, and then highlight orange.

Response:

Customer Meter Total Leaks and Emissions:

Number of Meters	Meter Type	Emission Factor (Mscf/yr)	Annual Emissions (Mscf)
886,031	Residential	0.148	131,133
30,705	Commercial	0.051	1,566
1,579	Industrial	0.051	81
Sum Total			132,779

The extent of the workload is recognized as not fully recognized the English rules and that means that it is not a well-considered. If the expression is compared to existing practice of "Shedding" as a result of the design or how fast, then it is not to be explained the UK and should be revised into the European Database.

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Year	Country	Population (millions)	GDP (billion USD)	Life expectancy (years)	Infant mortality (per 1,000 live births)	Urban population (%)	Renewable energy (%)	Internet usage (%)	Gender inequality index	Corruption index	Human development index
2015	USA	321	16.5	78.5	10.5	80	12	75	0.35	0.85	0.85
2015	China	1370	11.6	76.3	23.8	54	15	55	0.70	0.70	0.70
2015	India	1210	1.7	73.2	47.1	31	10	25	0.65	0.65	0.65
2015	Germany	82	3.8	81.2	7.1	73	25	85	0.25	0.90	0.85
2015	Japan	127	4.9	84.4	7.0	94	20	90	0.20	0.95	0.90
2015	UK	63	2.5	81.1	6.9	89	22	88	0.28	0.88	0.85
2015	France	65	2.4	82.5	6.7	91	21	87	0.26	0.89	0.85
2015	Canada	35	1.7	82.3	6.6	82	28	89	0.22	0.92	0.88
2015	Italy	60	1.9	83.7	6.5	72	18	86	0.24	0.87	0.84
2015	Spain	45	1.5	83.4	6.4	65	15	84	0.23	0.86	0.83
2015	South Korea	50	1.7	83.3	6.3	90	25	92	0.18	0.93	0.89
2015	Australia	23	1.3	83.2	6.2	85	30	91	0.21	0.91	0.87
2015	Brazil	207	1.8	74.7	27.0	54	12	45	0.60	0.60	0.60
2015	Russia	143	1.5	73.3	25.0	74	10	50	0.55	0.55	0.55
2015	South Africa	55	0.4	64.1	59.0	60	8	30	0.75	0.75	0.75
2015	Indonesia	250	0.7	75.0	30.0	56	10	35	0.68	0.68	0.68
2015	Nigeria	188	0.2	53.5	100.0	52	5	15	0.80	0.80	0.80
2015	Egypt	92	0.4	73.6	35.0	48	7	20	0.72	0.72	0.72
2015	Mexico	125	1.2	75.2	28.0	78	10	40	0.62	0.62	0.62
2015	Argentina	43	0.5	76.0	22.0	92	15	70	0.30	0.80	0.75
2015	Colombia	47	0.3	76.5	21.0	80	12	60	0.35	0.75	0.70
2015	Peru	32	0.2	76.8	20.0	75	10	55	0.32	0.72	0.68
2015	Venezuela	28	0.2	75.0	19.0	85	10	50	0.30	0.70	0.65
2015	Chile	17	0.2	78.0	15.0	90	15	65	0.28	0.78	0.72
2015	Uruguay	3.5	0.1	78.5	14.0	95	20	70	0.25	0.80	0.75
2015	Paraguay	7	0.1	77.0	16.0	85	15	60	0.28	0.75	0.70
2015	Bolivia	11	0.1	75.0	18.0	80	10	50	0.30	0.70	0.65
2015	Ecuador	16	0.1	77.0	17.0	85	10	55	0.28	0.72	0.68
2015	Costa Rica	5	0.1	78.0	15.0	90	15	65	0.25	0.78	0.72
2015	Panama	3.5	0.1	79.0	13.0	95	20	70	0.22	0.80	0.75
2015	Dominican Republic	7.5	0.1	77.0	16.0	85	10	50	0.28	0.70	0.65
2015	Honduras	7.5	0.1	75.0	18.0	80	10	40	0.30	0.65	0.60
2015	Guatemala	16	0.1	75.0	19.0	75	10	35	0.32	0.60	0.55
2015	Belize	0.4	0.05	79.0	12.0	90	15	60	0.25	0.75	0.70
2015	Nicaragua	6	0.05	75.0	20.0	75	10	30	0.30	0.60	0.55
2015	El Salvador	6	0.05	75.0	20.0	75	10	30	0.30	0.60	0.55
2015	Haiti	10	0.05	64.0	60.0	60	5	10	0.80	0.80	0.80
2015	Dominican Republic	7.5	0.1	77.0	16.0	85	10	50	0.28	0.70	0.65
2015	Trinidad and Tobago	1.3	0.1	78.0	14.0	90	20	70	0.25		

[illegible]

1. The first step in the process of creating a new product is to identify a market need. This involves conducting market research to understand the current market landscape, identify gaps, and determine the target audience. Once a market need is identified, the next step is to develop a concept for the new product. This involves brainstorming ideas, creating a prototype, and testing the concept with a small group of potential customers. Once the concept is validated, the next step is to develop a business plan. This involves determining the costs of production, setting a price point, and identifying potential distribution channels. Once the business plan is complete, the next step is to secure funding. This can be done through a variety of methods, including crowdfunding, venture capital, or bank loans. Once funding is secured, the next step is to begin production. This involves sourcing materials, hiring a manufacturing team, and setting up a production line. Once production is underway, the next step is to launch the product. This involves creating a marketing campaign, launching the product on e-commerce platforms, and reaching out to potential customers. Finally, the last step in the process is to monitor the product's performance. This involves tracking sales, gathering customer feedback, and making adjustments as needed to ensure the product's success in the market.

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1. The first step in the process of creating a new product is to identify a market need. This involves conducting market research to understand the current market landscape, identify gaps, and determine the target audience.

2. Once a market need is identified, the next step is to develop a business plan. This plan should outline the product's features, pricing strategy, distribution channels, and financial projections.

3. After the business plan is finalized, the next step is to secure funding. This can be done through various means, including personal savings, loans, or venture capital.

4. Once funding is secured, the next step is to develop a prototype. This involves creating a small-scale version of the product to test its feasibility and gather feedback.

5. The next step is to conduct a pilot test. This involves launching the product on a small scale to evaluate its performance in the market and gather customer feedback.

6. Based on the results of the pilot test, the next step is to refine the product. This may involve making adjustments to the design, features, or pricing.

7. Once the product is refined, the next step is to launch it on a larger scale. This involves implementing a marketing strategy to reach the target audience and generate sales.

8. Finally, the next step is to monitor the product's performance in the market. This involves tracking sales, customer feedback, and market trends to make informed decisions about future product development.

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Notes:

Please show the calculation for determining the total emissions. If additional worksheets are necessary, please include those to show intermediate calculations, such as the formula for Emissions from Leaks Detected from Survey.
At utilities request, fill out with two, three, or four categories that correspond to the bubble-size classification and label the type of leak, whether AG-Haz, or AG-Non-Haz
If highlighted cells are filled in, the other cells will auto-populate

The term "Non-leaker EF" aligns with CARB's definition for "No Bubble EF" for the event of finding a leak even though not through bubble testing
The number of miles surveyed (Column C) should be the number of unique miles surveyed, and should not include any repeated miles surveyed multiple times per year (Column D).

To clarify the definition of O&M Leaks (Column K), the following criteria for O&M Leaks should be met: (1) occur stochastically across the whole territory, (2) are leak reported by customers, (3) found quickly after occurring, (4) found independently of survey activities but would have been found later by surveyors, and (5) considered a small number of leaks.

To clarify the definition of Survey Leaks (Column G), the following criteria for Survey Leaks should be met: (1) found from company employees or contractors actively searching for leaks (2) including, but not limited to, compliance survey leaks and non-compliance survey leaks (e.g. Super Emitter Programs, Aerial Methane Mapping, Corrosion Surveying.)

Please provide the additional information requested on lines 58-60.

Summary of Data by Meters Survey Interval and Results for Annual System Leak Rate and Resulting Number of Unknown Leaks for Each Meter

Meter Classification (AG-Haz, AG-Non-Haz); Bubble Size Category	Total System Meters per survey Cycle	Meters on Annual Survey $[M_{x,A}]$	Meters on Multi-Year Survey Cycles $[M_{x,Int}]$	Survey Interval (yrs) $[I]$	Meters Surveyed Annually from Multi-Year Survey Cycles $[M_{x,I}]$	Total # of Leaks Detected from Survey $[N_{x,L}]$	Annual Leak Rate [Leaks / Meter] $R_X = \frac{N_{x,L}}{M_{x,A} + (I \times M_{x,I})}$	# of Unknown Leaks $N_{x,unk} = \overline{R}_X \times (M_{x,Int}^{\text{net}} - M_{x,I}) \times \frac{I}{2}$	Total # of Leaks Detected from O&M* $[N_{x,O}]$
Not applicable				1			-	-	
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Damage to MSAs (Customer, third party, natural disasters, etc.):

[illegible]

Sum Total	820
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Rulemaking (R.) 15-01-008 to Adopt Rules and Procedures Governing Commission Regulated Natural Gas Pipelines and Facilities to Reduce Natural Gas Leaks Consistent with Senate Bill 1371, Leno.
In Response to Data Request, R15-01-008 2025 June Report
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Notes:
Use a formula-derived value with the formula used in the Annual Emissions column. Do not use a copy and paste-as-value.
At the end of Annual Emissions Column, add a summation total in a cell for a column total, and then highlight orange.

Include items like the following in this tab (Note whether emissions are included in the MSA EF used to estimate emissions for the MSA population and show only the event count.):

Gas vented during all Regulator Change outs due to other than vent leakage.
Large Customer MSA Regulator Inspection - External Regulator Inspections, List avg. amount vented.
Large Customer MSA Regulator Inspection - Regulator change out & Internal Reg Inspection, List avg. amount vented.
Diaphragm - CSF Read & Verify - List amount vented thru meter during read & verify order for decreased usage.
Diaphragm - CSF Clock Test - List amount vented during Clock Test
Diaphragm - CSF Registration Check - List amount ventedn during Registration Checks
Diaphragm Size 1,2,3 Meter Change Out - List avg. gas vented on Size 1 Meter Change Out
All Meter Change Out Size 4 thru 28 - List avg. gas vented for Size 5 to 10 Meter Change outs
Field Meter Test of Diaphragm & Rotary - List avg. gas vented for Size 9 Meters
Customer Orifice Meter Plate Insp. - Orifice Plate Inspected Monthly, List avg. amount vented

Response:

Customer Meter Blowdowns:

Number of Blowdowns	Meter Type	Emission Factor (Mscf/yr)	Annual Emissions (Mscf)	Explanatory Notes / Comments
621	CI	0.005	3.11	All Meter Change Out Size 4 thru 28 - Use avg. gas vented of 5 scf for Size 5 to 10 Meter Change outs
189	CI	0.005	0.95	Field Meter Test of Diaphragm & Rotary - Use avg. gas vented of 5 scf for Size 9 Meters
105	CI	0.015	1.58	Filter Changeout + straight Filter Removal - Estimated avg. gas vented = 15 scf/ea.
1,485	CI	0.006	8.91	Large Customer MSA Regulator Inspection @ 6 scf/insp - Sum of Regulator change out/2 + Internal Reg + IPR + straight reg removal.
1,544	CI	0.002	3.09	Large Customer MSA Regulator Inspection - External Regulator Inspections @ 2 scf/insp. At SDGE External Reg inspection done at meter change out.
15,426	CI/R	0.000625	9.64	Diaphragm - CSF Clock Test - Vent 0.625 scf/inspection during Clock Test and Registration Checks
19,740	CI/R	0.000625	12.34	Diaphragm - CSF Registration Check - Vent 0.625 scf/inspection during Clock Test and Registration Checks
13,719	CI/R	0.001	13.72	Diaphragm Size 1,2,3 Meter Change Out - Use avg. gas vented of 1 scf on Size 1 Meter Change Out
303	CI/R	0.001	0.30	Customer MSA Size 1-2 Standard Pressure Removals, Assumed avg vent 1 scf
33	CI/R	0.003	0.10	Customer MSA Size 3-4 Standard Pressure Removals, Assumed avg vent 3 scf
15	CI	0.005	0.08	Customer MSA Size 5+ Standard Pressure Removals, Assumed avg vent 5 scf
69	CI	0.005	0.35	Customer MSA M&R-Maintained Removals (Estimated gas vented 5 scf/ea.)
28	CI	0.03	0.84	Transmission maintained - Filter Changeout or Filter Inspection w/parts replacement - Estimated avg. gas vented = 30 scf/ea.
4	CI	0.02	0.08	Transmission maintained - Relief Valve Inspection at Customer MSAs - Estimated avg. gas vented = 20 scf/insp. (annual test with Nitrogen, gas vented is volume of gas in valve)
8	CI	0.002	0.02	Transmission maintained gas chromatographs/analyzers - 2 scf/inspection
6	CI	0.025	0.15	Transmission maintained meters - 25 scf/inspection
2	CI	0.002	0.00	Transmission maintained Pneumatic Device Annual Inspection - Estimated avg. gas vented = 2 scf/insp. (Actuators & Controllers)
6	CI	0.02	0.12	Producer Relief Valve Transmission maintained Inspection at Customer MSAs - Estimated avg. gas vented = 20 scf/insp.
1	CI	0.03	0.03	Producer Filter Changeout or Filter Inspection w/parts replacement - Estimated avg. gas vented = 30 scf/ea.
2	CI	0.025	0.05	Producer Meters - 25 scf/inspection
2	CI	0.002	0.00	Producer Gas chromatographs/analyzers - 2 scf/inspection
7	CI	0.002	0.01	Producer Pneumatic Device Annual Inspection - Estimated avg. gas vented = 2 scf/insp. (Actuators & Controllers)
Sum Total			55	

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This worksheet is intended to capture the actual number of equipment and components in this asset category that vent emissions as a part of their design and normal function. By listing the number and types of components (not captured elsewhere in other templates) that vent emissions we hope to obtain information that may provide insight into how to evolve to a method of reporting emissions based on the actual number of units and types emitting rather than a crude population based estimate.

No emissions estimates from this worksheet should be included in Appendix 8, as this is being collected for informational purposes at this time. Use a formula-derived value with the formula used in the Annual Emissions column. Do not use a copy and paste-as-value. At the end of Annual Emissions Column, add a summation total in a cell for a column total, and then highlight orange. Response:

ID (Number of Devices)	Geographic Location	Device Type	Bleed Rate	Manufacturer	Number of Days Emitting	Engineering or Manufacturer's based Estimate of Emissions	Annual Emissions (Mscf)	Explanatory Notes / Comments
4	P	I			366	0.0576	84.33	Transmission Pneumatics
Sum Total							84	

Appendix 6; Rev. 03/27/2025

Header column "Comment" boxes displayed below for reference.	
In Response to Data Request, Description and Definition of Required Contents (If not self-explanatory)	
Meter Leaks, Population Based	
Number of Meters	
Meter Type	CI = commercial or industrial meter R = residential meter
Emission Factor (Mscf/yr)	
Annual Emissions (Mscf)	
Identified MSA Leaks, Leaker	
ID	
Geographic Location	GIS, zip code, or equivalent
Meter Classification (Commercial/Industrial or Residential)	If available, indicate whether the meter is commercial or industrial "CI", or a residential "R" meter. If that information is not available then note as "N/A". CI = Commercial or Industrial R = Residential N/A = not available
Leak Classification (Grade)	AH = Above Ground Hazardous AN = Above Ground Non-hazardous AM = Above Ground Non-hazardous Minor If Above Ground, and operator uses the Bubble grading methodology with an alphanumeric grade, then provide an explanation for the meaning each grade in the notes above the table. For example: A = grade A - Large Leak or equates to with AH above with an approximate EF of 10.2035 scfh. B = grade B - Equates to AN above with an approximate EF of 0.5138 scfh. Etc. If the MSA leak is Below ground and not included in DM&S , then use the following grades: 1 = grade 1 2 = grade 2 3 = grade 3 N = Non-Graded
Leak Discovery Method	S = Routine Leak Survey M = O&M (e.g. O&M activities, third party reports, customer odor reports, etc.)
Discovery Date (DD/MM/YY)	
Leak Repair Date (MM/DD/YY)	Use the date the leak ceases emitting NG.
If not repaired by 12/31/xx List the Scheduled Date of Repair (DD/MM/YY)	The final repair may be completed after the leak has been stopped. If leak is open, specify the scheduled date of repair Otherwise type "M," signifying that the leak is being monitored with no scheduled date of repair Then, provide the reason for not scheduling a repair in Comments column.
Reason for Not Scheduling a Repair	If repair hasn't been scheduled, then provide the reason for not scheduling a repair in this column. If using a reason code, then provide a table with codes and corresponding explanations.
Number of Days Leaking	Leak Duration (in days) = End Date + 1 day - Start date End Date: The repair date or December 31st of subject year, whichever is earlier. Start Date: If discovered by survey use January 1st or prior survey date whichever is more recent, or if an O&M or customer called in leak, then use discovery date for start of the leak. (Leaks carried over should use January 1st as start date for emissions calculations.) For O&M discovered leaks, assume that the leak begins with the discovery date <u>thru</u> repair date or December 31st of subject year, whichever is earlier.
Number of Days to Repair.	Leak Discovery date minus repair date or 12/31 of the subject year plus 1 = number of days to repair for the subject year. Addition of 1 day to include the date repaired.
Comments or Additional Information	
Meter Leaks, Leak Count, Leaker	
Meter Classification (AG-Haz, AG-Non-Haz); Bubble Size Category	Utilities should add rows according to their bubble size categories and nomenclature, and should include a no-bubble category. For example, include a row for each: Foam/ Indeterminate; Bubbles; Soap Blown Off; and No Bubbles.
Total System Meters per survey Cycle	
Meters on Annual Survey $[M_{A,1}]$	
Meters on Multi-Year Survey Cycles $[M_{A,700}]$	
Survey Interval (yrs) $[I]$	
Meters Surveyed Annually from Multi-Year Survey Cycles $[M_{A,1}]$	

In Response to Data Request, Description and Definition of Required Contents (If not self-explanatory)	
Total # of Leaks Detected from Survey [N_{XL}]	
Annual Leak Rate [Leaks / Meter]	$R_X = \frac{N_{XL}}{M_{XA} + (I \times M_{XI})}$
# of Unknown Leaks	$N_{X,unk} = R_X^- \times (M_X^{tot} - M_{XI}) \times \frac{I}{2}$ <p>If the operator changed the leak survey cycle during the report year that requires more detailed calculations based on the approved calculation methodology to determine the number of unknown leaks an additional worksheet may be added to show the calculations.</p>
Total # of Leaks Detected from O&M* [$N_{X,O}$]	
All Damages	
ID	
Geographic Location	GIS, zip code, or equivalent
Damage Type	E = Excavation Damage N = natural force damage O = other outside force damage
Meter Type	CI = commercial or industrial meter R = residential meter
Leak Classification (Grade)	AH = Above Ground Hazardous AN = Above Ground Non-hazardous AM = Above Ground Non-hazardous Minor
Discovery Date (DD/MM/YY)	
Leak Repair Date (MM/DD/YY)	Use the date the leak ceases emitting NG. The final repair may be completed after the leak has been stopped.
If not repaired by 12/31/xx List the Scheduled Date of Repair (DD/MM/YY)	If leak is open, specify the scheduled date of repair. Otherwise type "M," signifying that the leak is being monitored with no scheduled date of repair. Then, provide the reason for not scheduling a repair in the Column provided.
Reason for Not Scheduling a Repair	Provide the reason for not scheduling a repair.
Number of Days Leaking	<p>If date and time stamp are reliable and used consistently by respondent, then emissions may be calculated based on actual time leaking. E.G. Repair time - damage event time = duration of event.</p> <p>If respondent has average or historical leak duration based on the nature and circumstances of damages, then these may be applied to like damage events. The emissions factors should be adequately supported and explained in the filing.</p> <p>If actual time stamps and historical averages are not available, then whole days should be used in the engineering calculation. The leak begins with the damage event date thru repair date or December 31st of subject year, whichever is later. E.G. Days Leaking = Repair date - date of damage + 1 day.</p>
Engineering Estimate (Mscf/Day)	
Annual Emissions (Mscf)	
Explanatory Notes / Comments	
Vented and Blowdown Emissions	
Number of Blowdowns	For metering set assembly (MSA)
Meter Type	CI = commercial or industrial meter R = residential meter
Emission Factor (Mscf/event)	
Annual Emissions (Mscf)	
Explanatory Notes / Comments	
Component Vented Emissions	
ID	
Geographic Location	GIS, zip code, or equivalent
Device Type	C = connector OE = open-ended line M = meter P = pneumatic device PR = pressure relief valve V = valve O = other devices
Bleed Rate	L = low bleed I = intermittent bleed H = high bleed NA = not applicable
Manufacturer	
Number of Days Emitting	Because the emissions are a factor of design or function, these emissions counted for the entire year.
Engineering or Manufacturer's based Estimate of Emissions	
Annual Emissions (Mscf)	<p>The emissions should be based on 365 days times the actual volume emitting if known, or the approved Emissions Factor.</p> <p>Note whether the emissions are based on actual volumetric measures in the next column.</p>
Explanatory Notes / Comments	