SoCalGas, June 15th, 2023
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, 2023 June Report
Appendix 8; Rev. 03/30/2023

Notes:
Please round all natural gas emissions to nearest Mscf.

Summary Tables:

System Categories	Emission Source Categories	Fugitive or Vented	For informational and Reference Purposes Only: Original 2015 Baseline Emissions (Mscf)	Approved 2015 Baseline Emissions [Mscf]	Proposed Adjusted 2015 Baseline Emissions (Mscf)	2021 Total Annual Volume of Leaks & Emissions (Mscf)	2021 Total Annual Count of Leak & Emission Items	2022 Total Annual Volume of Leaks & Emissions (Mscf)	2022 Total Annual Count of Leak & Emission Items	Emission Change for Year Over Year Comparison from 2021 to 2022 (Mscf)	Percentage Change for Year Over Year Comparison from 2021 to 2022	Count Change for Year Over Year Comparison from 2021 to 2022	Percentage Change for Year Over Year Comparison from 2021 to 2022	Emission Change for Year Over Year Comparison from 2015 to 2022 (Mscf)	Percentage Change for Year Over Year Comparison from 2015 to 2022	Explanation for Significant Percentage Change for Year Over Year Comparison from 2021 to 2022
Transmission Pipelines	Pipeline Leaks	Fugitive	1,324	1,324	NA	1,292	Leak count: 0 Total System Mileage: 3440	1,271	Total System Mileage: 3,385	(21)	(1.6%)	(55)	(1.6%)	-53	(4.0%)	
	All Damages	Fugitive	0	0	NA	24	Number of emission items: 1	25,100	Number of emission items: 1	25,076	104,483.3%	-	0.0%	25,100	-	Increase in emissions is due to a single damage event that was classified as an Other Outside Force damage.
	Blowdowns	Vented	199,970	199,970	NA	12,757	Number of blowdown events: 1,603	18,819	Number of blowdown events: 2,432	6,062	47.5%	829	51.7%	-181,151	(90.6%)	Blowdown emissions are a function of activity level. Blowdown volume varies by activity. The increase in blowdown emissions can be attributed to increased project activity during 2022 relative to 2021.
	Component Vented Emissions	Vented	0	8,182	NA	1,198	Number of devices: 57	1,198	Number of devices: 57	-	0.0%	-	0.0%	-6,984	(85.4%)	
	Component Fugitive Leaks	Fugitive	N/A	0	NA	0	Number of leaks: 36	0	Number of leaks: 32	NA	NA	(4)	(11.1%)	NA	NA	
	Odorizers	Vented	2,434	2,434	NA	2,727	Number of units: 293	2,892	Number of units: 296	165	6.1%	3	1.0%	458	18.8%	Odorization emissions fluctuate depending on the level of odorant in the gas and the volume of gas flow. Please note that it was identified that analyzers were missing from the 2021 count during the 2022 data review. The 2021 count and emission volume were updated for an accurate apples-to-apples comparison.
Transmission M&R Stations	Station Leaks & Emissions	Fugitive	340,142	110,296	NA	109,930	Number of facilities: 539	114,838	Number of facilities: 562	4,908	4.5%	23	4.3%	4,542	4.1%	The count of Transmission-maintained Farm Taps increased because a district with 13 taps was transferred from Distribution to Transmission, and 7 additional taps were confirmed during field verifications. The reasons for the increase in Pressure Limiting Stations are as follows: -Two stations were transferred from Distribution to Transmission; -Two additional stations were confirmed during field verifications; and -One station was removed from the count because it doesn't have any pressure limiting equipment.
	Blowdowns	Vented	95	95	NA	289	Number of blowdown events: 855	2,271	Number of blowdown events: 1,005	1,982	685.8%	150	17.5%	2,176	2,290.5%	Blowdowns emissions are a function of activity level. Blowdown volume varies by activity. The increase in emissions can be attributed to increased project activity at the stations during 2022 relative to 2021.
Transmission Compressor Stations	Compressor Emissions	Vented	34,810	34,810	NA	22,334	Number of compressors: 38	10,699	Number of compressors: 40	(11,635)	(52.1%)	2	5.3%	-24,111	(69.3%)	The decrease can be attributed to lower average emission flow rate measurements during 2022 relative to 2021. The two rod packing replacements completed as part of the CARB Oil and Gas program during 2021 helped contribute to the lower average emission flow rates during 2022.
	Compressor Leaks	Fugitive	N/A	NA	NA	N/A	N/A	NA	NA	NA	NA	NA	NA	NA	NA	
	Blowdowns	Vented	7,268	7,268	NA	22,809	Number of blowdown events: 667	12,529	Number of blowdown events: 694	(10,280)	(45.1%)	27	4.0%	5,261	72.4%	Blowdowns emissions are a function of activity level. Blowdown volume varies by activity. The decrease in emissions can be attributed to increased project activity at the stations. Due to the increased project activity, equipment was out of service for extended periods of time, and the number of blowdowns from large equipment was reduced.
	Component Vented Emissions	Vented	N/A	4,300	NA	2,922	Number of devices: 139	2,922	Number of devices: 139	-	0.0%	-	0.0%	-1,378	(32.0%)	
	Component Fugitive Leaks	Fugitive	8,430	10,784	NA	1,587	Number of leaks: 124	1,335	Number of leaks: 185	(252)	(15.9%)	61	49.2%	-9,449	(87.6%)	The increase in leak counts can be attributed to increased project activity leading to the commissioning of new equipment and components. The decrease in emissions can be attributed to lower average leak durations in 2022 (56 days) relative to 2021 (69 days).
	Storage Tank Leaks & Emissions	Vented	0	275	NA	165	Number of emission items: 5	165	Number of emission items: 5	-	0.0%	-	0.0%	-110	(40.0%)	
Distribution Main & Service Pipelines	Pipeline Leaks	Fugitive	797,426	576,261	NA	506,238	Number of known leaks: 17,674 Estimated number of unknown leaks: 1,059 Total number of leaks: 18,733	419,855	Number of known leaks: 16,563 Estimated number of unknown leaks: 1,324 Total number of leaks: 17,887	(86,383)	(17.1%)	(846)	(4.5%)	-156,406	(27.1%)	The decrease in emissions can be attributed to SoCalGas's continued efforts to reduce its leak inventory year-over-year. In addition, SoCalGas continued to utilize the Decision Tree (DT) approach throughout 2022, which helped to identify and prioritize the repair of higher-volume leaks. Finally, Aerial Methane Mapping enabled SoCalGas to promptly identify and repair leaks on the distribution system, which helped to decrease leak durations.
	All Damages	Fugitive	78,646	78,646	NA	68,708	Number of damages: 3,346	74,785	Number of damages: 3,588	6,077	8.8%	242	7.2%	-3,861	(4.9%)	Emissions associated with damages vary based on damage severity, damaged asset dimensions, and pipeline pressure. The slight uptick in emissions from excavation damages can be attributed to increased 3rd party construction activities in SoCalGas territory. Although emissions from damages increased, the number of 811 tickets also increased by more than 60,000 year-over-year.
	Blowdowns	Vented	4,828	4,828	NA	182	Number of blowdown events: 23,061	271	Number of blowdown events: 23,313	89	48.9%	252	1.1%	-4,557	(94.4%)	Blowdown emissions are a function of activity level. Blowdown volume varies by activity, depending on the type of work performed. There were more blowdown events in 2022 relative to 2021 due to increased project activity.
	Component Vented Emissions	Vented	N/A	NA	NA	0	Number of emission items: 0	0	Number of emission items: 0	-	-	-	-	NA	NA	
	Component Fugitive Leaks	Fugitive	3,281	0	NA	0	0	0	0	-	-	-	-	-	-	
Distribution M&R Stations	Station Leaks & Emissions	Fugitive	340,729	0	NA	N/A	Number of stations: NA	NA	Number of stations: NA	NA	NA	NA	NA	NA	NA	
	All Damages	Fugitive	N/A	NA	NA	0	Number of damages: 0	0	Number of damages: 0	-	-	-	-	NA	NA	
	Blowdowns	Vented	94	94	NA	107	Number of blowdowns: 22,623	117	Number of blowdowns: 26,606	10	9.3%	3,983	17.6%	23	24.5%	Distribution M&R Blowdowns are a function of inspection activity level and can vary year-to-year. There were more inspections and more blowdown events in 2022 relative to 2021.
	Component Emissions	Vented	N/A	295	NA	420	Number of emission items:20	420	Number of emission items:20	-	0.0%	-	0.0%	125	42.4%	6 devices were inadvertently left out of the 2021 count. The error was identified during the 2022 data review, and the 2021 number was corrected to show an accurate year-over-year change.
	Component Leaks	Fugitive	N/A	8,898	NA	6,890	Number of leaks: 1,102	6,393	Number of leaks: 956	(497)	(7.2%)	(146)	(13.2%)	-2,505	(28.2%)	SoCalGas's efforts to reduce emissions through increased greasing and exercising of valves during inspections may be contributing to the lower leak rate.
Customer Meters	Meter Leaks	Fugitive	846,235	415,362	582,508	353,967	Number of meters: 6,096,494	358,499	Number of Meters: 6,130,137	4,532	1.3%	33,643	0.6%	-56,863	(13.7%)	The increase in emissions can be attributed to a slight increase (4%) in leak counts year-over-year. Please note that the 2021 volume was updated using the current EFs and the revised MSA leak data submitted to the CPUC on March 7, 2023, in order to provide an accurate year-over-year comparison.
	All Damages	Fugitive	N/A	NA	NA	16,031	Number of damages: 1411	16,105	Number of damages: 1,245	74	0.5%	(166)	(11.8%)	NA	NA	Emissions associated with damages vary based on damage severity, damaged asset dimensions, and pressure.
	Vented Emissions	Vented	2,063	2,063	NA	902	Number of blowdown events: 354,967	1,420	Number of blowdown events: 370,570	518	57.4%	15,603	4.4%	-643	(31.2%)	The increase in emissions can be attributed to projects at industrial customer sites, which contributed 575 Mscf.
Underground Storage	Storage Leaks & Emissions	Fugitive	3,146	3,146	NA	94	Number of leaks: 131	34	Number of leaks: 107	(60)	(63.8%)	(24)	(18.3%)	-3,112	(98.9%)	The CARB Oil and Gas Rule requires leaks ≥1,000 ppm to be repaired. Consequently, the count of leaks ≥10,000 ppm (Appendix 9 threshold) is lower due to repairing leaks when detected at 1,000 ppm.
	Compressor Vented Emissions	Vented	84,609	84,609	NA	6,470	Number of compressors: 47	4,206	Number of compressors: 47	(2,264)	(35.0%)	-	0.0%	-80,403	(95.0%)	The decrease can be attributed to lower average emission flow rate measurements during 2022 relative to 2021. The CARB Oil and Gas program has helped to identify packings in need of replacement over the last several years, which is a contributing factor to the lower overall compressor flow rate emissions. Please note that an error in the 2021 calculations was identified and corrected so that this Appendix provides an accurate year-over-year comparison.
	Blowdowns	Vented	10,812	10,812	NA	2,154	Number of blowdown events: 3,791	1,947	Number of blowdown events: 3,613	(207)	(9.6%)	(178)	(4.7%)	-8,865	(82.0%)	Blowdown emissions are a function of activity level. Blowdown volume varies by activity, depending on the type of work performed.
	Component Vented Emissions	Vented	N/A	5,281	NA	2,460	Number of devices: 117	2,362	114	(98)	(4.0%)	(3)	(2.6%)	-2,919	(55.3%)	Several devices were removed or converted to air by the end of 2021, and 4 additional devices were removed or converted to air during 2022. Please note that one device was inadvertently left out of the 2021 count. The 2021 count was corrected to provide for an accurate year-over-year comparison.
	Compressor and Component Fugitive Leaks	Fugitive	107	21,989	NA	2,956	Number of leaks: 223	1,802	Number of leaks: 124	(1,154)	(39.0%)	(99)	(44.4%)	-20,187	(91.8%)	The CARB Oil and Gas Rule requires leaks ≥1,000 ppm to be repaired. Consequently, the count of leaks ≥10,000 ppm (Appendix 9 threshold) is lower due to repairing leaks when detected at 1,000 ppm.
	Dehydrator Vent Emissions	Fugitive	13,402	0	NA	0	Number of facilities: 4	0	Number of facilities: 4	-	-	-	0.0%	0	0.0%	
Unusual Large Leaks	[Description]		3,630,000	NA	NA	-		-		-		NA	NA	NA	NA	
		Total	**6,409,851**	**1,592,022**		**1,145,613**	NA	**1,082,255**	NA	(63,358)	-6%	NA	NA	-509,767	(32.0%)	

Key	Revised on 8/31/2023

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System Wide Leak Rate Data

1/1/2022 - 12/31/2022

The highlighted cells show the volumes that are summed together as the throughput for calculating the system wide leak rate.

Gas Storage Facilities:

Average Close of the Month Cushion Gas Storage Inventory (Mscf)	Average Close of the Month Working Gas Storage Inventory (Mscf)	Total Annual Volume of Injections into Storage (Mscf)	Total Annual Volume of Gas Used by the Gas Department (Mscf)	Total Annual Volume of Withdrawals from Storage (Mscf)	Explanatory Notes / Comments
141,087,404	80,726,719	43,127,082	482,853	62,574,958	

Transmission System:

Total Annual Volume of Gas Used by the Gas Department (Mscf)	Total Annual Volume of Gas Transported to or for Customers* in State (Mscf)	Total Annual Volume of Gas Transported to or for Customers* out of State (Mscf)	Total Annual Volume of Gas Transported to utility-owned or third-party storage fields for injection into storage (Mscf)	Explanatory Notes / Comments
1,652,906	859,010,455	12,905,876	43,127,082	

Distribution System:

Total Annual Volume of Gas Used by the Gas Department (Mscf)	Total Annual Volume of Gas Transported to or for Customers* in State (Mscf)	Total Annual Volume of Gas Transported to or for Customers* out of State (Mscf)	Explanatory Notes / Comments
213,958	750,884,764	**0**	

*The term customers includes anyone that the utility is transporting gas for, including customers who purchase gas from the utility.

Customers can be anyone including residential, businesses, other utilities, gas transportation companies, etc.

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Summary Tables:

Natural Gas Properties	Average Mole Percent	Explanatory Notes / Comments
Methane	94.19	Interstate supplies
Carbon Dioxide	0.79	Interstate supplies
Ethane	3.78	Interstate supplies
C3+	0.25	Interstate supplies
C6+	0.006	Interstate supplies
Oxygen	0.2	Estimated to limit, Not Tested at all locations
Hydrogen		Not Tested
Sulfur	0.00028662	Estimated to include odorant
Water	0.0147	Estimated to Limit, Not Tested at all locations
Carbon Monoxide		Not Tested
Particulate Matter		Not Tested
Inert Gas	1.68	Interstate supplies
Odorant	0.00016	Estimated to guideline rate