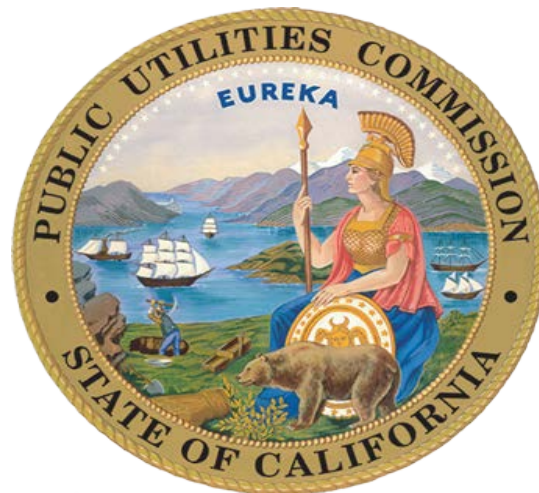


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Gas Quality Standard for Biomethane Injection

CPUC R.13-02-008:

- AB 1900 – CPUC set biomethane injection standard for human and pipeline safety
- SB 840 (Biomethane Study) - California Council on Science and Technology has 9 months, from when the contract is finalized, to issue study that reviews the CPUC existing pipeline biomethane safety standards





Biomethane Interconnection Incentive Program

- \$40 million biomethane interconnection incentive program
- \$3 million per project, or \$5 million for dairy clusters
- Program ends by December 31, 2021 or earlier if funding is exhausted
- Requires options to promote the in-state production and distribution of biomethane when the above \$40 million interconnection incentive program ends





SB 1383 Requirement for CPUC

SB 1383 (2016) introduced Health and Safety Code Section 39730.7(d)(2) :

No later than January 1, 2018, the commission [CPUC], in consultation with the state board and the department [ARB and Dept. of Food and Ag], shall direct gas corporations to implement not less than five dairy biomethane pilot projects to demonstrate interconnection to the common carrier pipeline system. For the purposes of these pilot projects, gas corporations may recover in rates the reasonable cost of pipeline infrastructure developed pursuant to the pilot projects.





CPUC Rulemaking (R.17-06-015): Five Dairy Pilot Programs

Address Four General Categories:

1. Definition of Infrastructure
2. Cost Recovery Framework
3. Pilot Section
4. Data Gathering





BioMAT

- The Bioenergy Market Adjusting Tariff (BioMAT) is a feed-in tariff program for bioenergy generators sized 3 MW or less. BioMAT started in February 2016 and offers developers fixed-price standard contracts with the IOUs.
- To be eligible the project must be located in the IOU service territory, commence operations after June 1, 2013, and have a completed interconnection system impact study.

Originally Allocated Capacity (MW)	PG&E	SCE	SDG&E	Price*
Category 1: Biogas from wastewater, food processing, organic waste diversion	30.5	55.0	24.0	\$127.72
Category 2a: Biogas from Dairy Category 2b: Biogas Other Agriculture	56.5	33.5	0	\$163.72 \$175.72
Category 3: Bioenergy using byproducts of sustainable forest management incl. biomass from high hazard zones	47.0	2.5	0.5	\$151.72
Total: 250	114.5	111.0	24.5	

* Current price as of 6/1/2017; publicly available data, not confidential





Gas Pipeline Safety Regulations

- CPUC has broad authority and regulatory jurisdiction over the safe operation of all investor own entities that operate intrastate gas pipelines and natural gas storage fields in CA
- CA Public Utilities Code Section 701 states that the CPUC may supervise and regulate every public utility in the State and may do all things, whether specifically designated in this part or in addition thereto, which are necessary and convenient in the exercise of such power and jurisdiction





Gas Pipeline Safety Regulations cont'd

- In addition, the CPUC through Certifications and Agreements with the “Pipeline and Hazardous Materials Safety Administration” (PHMSA) under 49 U.S.C. §§ 60105- 60106 enforces the Federal Natural Gas Pipeline Safety Regulations on all investor own entities that operate intrastate gas pipelines and natural gas storage fields in CA
- The Federal Pipeline Safety Regulations prescribes minimum safety requirements for pipeline facilities and the transportation of gas as it relates to Design, Construction, Testing, Operation, and Maintenance of Gas Gathering line, Transmission, and Distribution Piping Systems



Methane Leak Abatement OIR 15-01-008

SB 1371 signed into law September 14, 2014

- Required reporting of natural gas emissions from utility facilities and summarize utility leak management practices
 - Focus is on uncombusted methane leaks
- CPUC and Air Resources Board are directed to establish Best Practices for cost-effective reductions

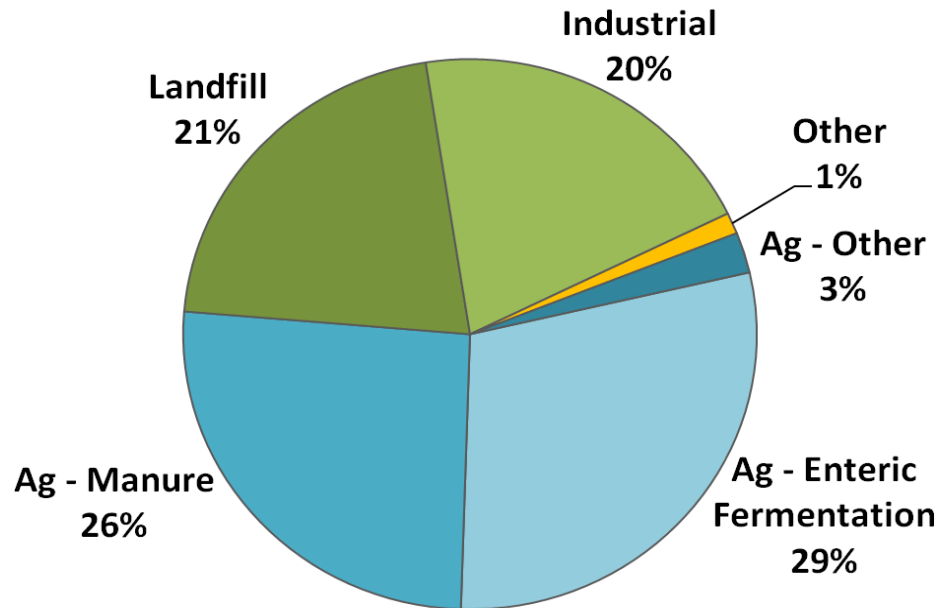
ARB and CPUC Jointly prepared analysis of the 2015 natural gas emissions and leak inventory as a baseline for emissions reductions

- Methane inventory from all sources = 9% of total CA GHG per CARB 2015 inventory





California Methane Inventory – All Sources 2015



2015 Total CH₄ Emissions: 39.6 MMTCO₂e

Gas Pipeline equivalent volume of Methane (CH₄) (counted in Industrial sector, comprising transportation, distribution & storage not including Aliso Canyon) comes to 2.96 MMTCO₂e, or 7.47% of the total Methane emissions of 39.6 MMTCO₂e reported in 2015.

Methane emissions from all sources 39.6 MMTCO₂e equals 8.99% of all GHG emitted in California, which was 440.4 MMTCO₂e in 2015. Source: CARB





California Methane Inventory – All Sources 2015

- Gas Sector (Industrial) = 7.5% of total CA methane emissions
- That means Gas Sector emissions = < 0.7% of total CA GHG
- Total methane from Gas Sector = 6,601 million standard cubic feet (MMscf) or 118,226 metric tons Methane (MMTCH₄)
 - 22% of the 7.5% of total CA methane emissions are from “safety” graded leaks (1, 2, & 3)
 - 64% of the 7.5% of total CA methane emissions are from ungraded leak sources (e.g. components, MSAs, M&R and Compressor stations)





Methane Leak Abatement OIR 15-01-008

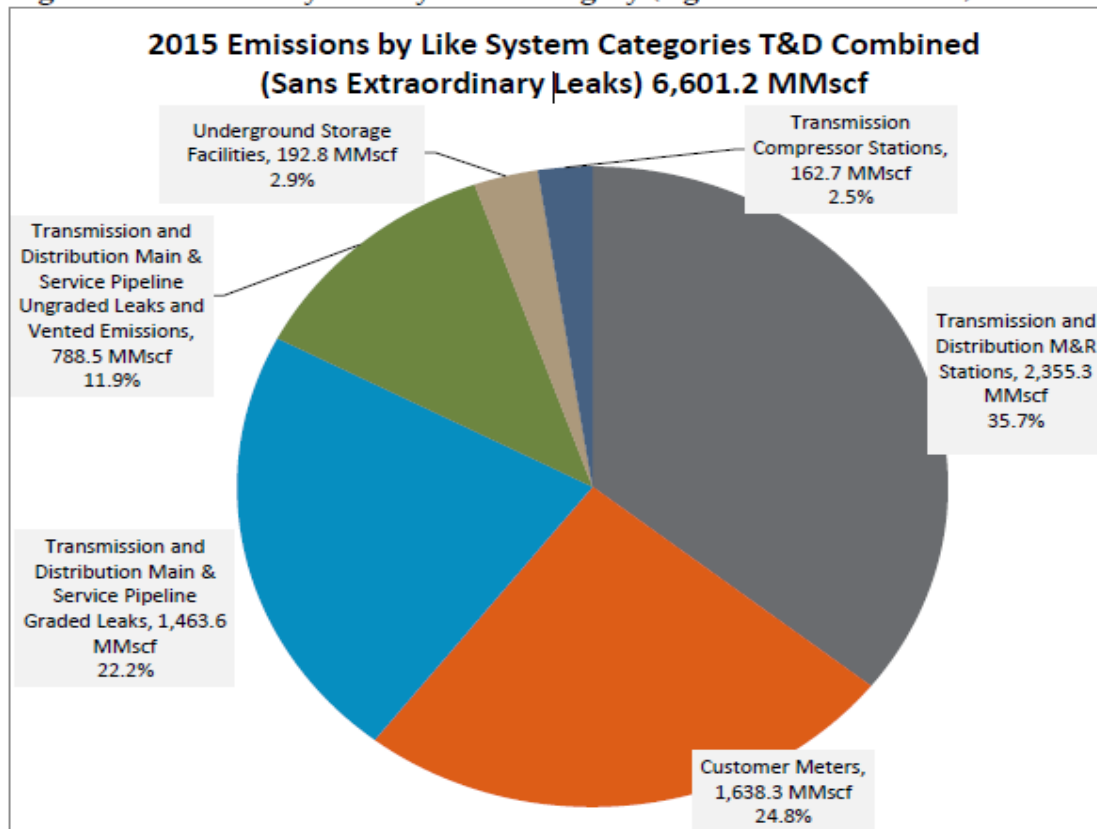
Phase 1

- Decision rendered June 15, 2017 (D.17-06-015)
- Adopts annual reporting templates
- Soft target = 40% methane reduction by 2030
- 26 Best Practices for planning, leak detection/repair, and worker training
- Compliance Plans due March 2018
- Review progress in 2020 and make course corrections



Key Findings: 2015 Emissions Joint CPUC/ARB Report Jan. 2017

Figure 2: Emissions by Like Systems Category (e.g. All M&R stations.):⁵⁶



Source: CPUC/ARB Joint Report on 2015 methane emissions





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