

From: Shori, Sunil  
Sent: 9/4/2013 2:31:58 PM  
To: Doll, Laura (/O=PG&E/OU=CORPORATE/CN=RECIPIENTS/CN=LRDD)  
Cc: Redacted Gas Ops Support  
(/O=PG&E/OU=Corporate/cn=Recipients/cn=SBResponderGroup)  
Bcc:  
Subject: RE: Gas lost to leaks [Lost-and-unaccounted-for (LUAF)]

Thank you, Laura. I had spoken with Richard Myers about this item and he also forwarded me a copy of PG&E's response.

Sunil

**From:** Doll, Laura [mailto:LRDD@pge.com]  
**Sent:** Wednesday, September 04, 2013 2:24 PM  
**To:** Shori, Sunil  
**Cc:** Redacted Gas Ops Support  
**Subject:** FW: Gas lost to leaks [Lost-and-unaccounted-for (LUAF)]

Sunil

We thought you also might like a copy of the info we provided in response to Gurbux Kahlon's data request last week about lost and unaccounted for gas.

Hope you're well.

Laura

**From:** Doll, Laura  
**Sent:** Tuesday, September 03, 2013 2:52 PM  
**To:** 'Kahlon, Gurbux'; BPrusnek@semprautilities.com  
**Cc:** Randolph, Edward F.; Myers, Richard A.; BPrusnek@semprautilities.com; Ramaiya, Shilpa R

([SRRd@pge.com](mailto:SRRd@pge.com))

**Subject:** RE: Gas lost to leaks [Lost-and-unaccounted-for (LUAF)]

Gurbux

Sorry this took so long. As always, Richard is right!

But here's our attempt to answer your questions with the information we do have.

Thanks

Laura

**From:** Kahlon, Gurbux [<mailto:gurbux.kahlon@cpuc.ca.gov>]

**Sent:** Tuesday, August 20, 2013 04:43 PM

**To:** Doll, Laura; 'Prusnek, Brian C' ([BPrusnek@semprautilities.com](mailto:BPrusnek@semprautilities.com)) <[BPrusnek@semprautilities.com](mailto:BPrusnek@semprautilities.com)>

**Cc:** Randolph, Edward F. <[edward.randolph@cpuc.ca.gov](mailto:edward.randolph@cpuc.ca.gov)>; Myers, Richard A. <[richard.myers@cpuc.ca.gov](mailto:richard.myers@cpuc.ca.gov)>

**Subject:** Gas lost to leaks [Lost-and-unaccounted-for (LUAF)]

Laura/Brian: Please see the article below. Governor's office has expressed interest in this area. Their goal seems to be to tighten methane controls, especially if fracking goes forward in California. We have been asked to provide information on how much methane is lost to leaks in your pipelines. The story below is focused on the leaks as a safety issues, but it has caught the attention of the Governor's office and the Air Board due to methane's role in GHG.

Please provide us the information on Lost-and-unaccounted-for (LUAF) gas separating what is unaccounted for due to accounting and measurement problems vs. what is lost to leaks. Richard tells me that this question has come up in the past and utilities have expressed difficulty in providing accurate data.

Here is more detail on this data request.

- 1) Provide the annual volume of lost-and-unaccounted-for gas on the utility pipeline system

for the last ten years. Provide these volumes for distribution pipelines and transmission pipelines separately, as well as total volumes.

- 2) Provide the annual LUAF factors (as a percentage of delivered volumes) for the utility pipeline system for the last ten years. Provide the LUAF percentage for distribution and transmission pipelines separately, as well as the overall system LUAF percentage.
- 3) Provide a breakdown of the LUAF volumes by the different causes, e.g. leakage, dispersing in storage, measurement and accounting problems, etc. If you are unable to determine a breakdown accurately, please explain.
- 4) In the absence of an accurate breakdown of LUAF, have you made an estimate of the amounts of gas lost from your pipeline system (expressed either in volumes or as a percentage) due to leaks? If so, please provide that estimate.
- 5) As LUAF is generally a positive amount, do LUAF volumes generally represent amounts of gas that are lost from the utility pipeline system to the atmosphere? Please explain your response.
- 6) Can LUAF volumes be used as a proxy to determine the amount of gas lost to the atmosphere from utility pipeline systems, for determining LUAF's contribution to GHG emissions? Please explain your response.

Please feel free to call me to go over this. Let me know if we need to meet together. In any case, this has to be done rather soon.

*Gurbux Kahlon*

*Manager, Market Structure, Costs and Natural Gas*

*Energy Division*

*California Public Utilities Commission*

*505 Van Ness Ave, San Francisco Ca 94102*

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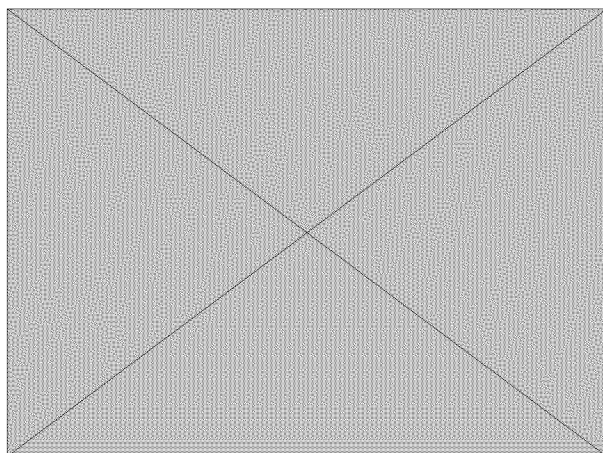
*E-mail: [gkk@cpuc.ca.gov](mailto:gkk@cpuc.ca.gov)*

## **Congressional Report: Failing Natural Gas**

# Infrastructure Costs Consumers Billions, Threatens Environment and Public Safety

Aug 1st, 2013 | By [fjgallagher](#) | Category: [Lead Articles](#), [Natural Gas Leaks](#)

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Corroded natural gas pipelines like the one pictured here cost American consumers billions of dollars each year, threaten the environment and jeopardize the environment, according to a new report issued by the U.S. House of Representatives Natural Resources Committee.

A new report issued by the U.S. House of Representatives Natural Resources Committee says a failing natural gas pipeline infrastructure costs American consumers billions of dollars each year, adds to global warming and jeopardizes the public health and safety.

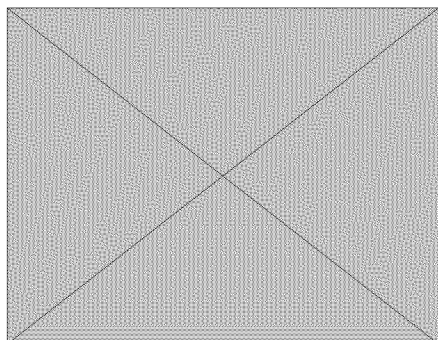
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From the report:

Natural gas has been touted as a cleaner alternative to coal for producing electricity, but its environmental benefits cannot be fully realized so long as distribution pipelines are leaking such enormous quantities of gas, which is primarily comprised of methane, a greenhouse gas that is at least 21 times more potent than carbon dioxide.<sup>6</sup> Americans also remain at risk from gas explosions and other safety hazards caused by leaky natural gas pipelines. From 2002 to 2012, almost 800 significant incidents on gas distribution pipelines, including several hundred explosions,<sup>7</sup> killed 116 people, injured 465 others, and caused more than \$800 million in property damage.

The House committee issued the report at the request of then-Rep. Ed Markey, now a member of the Senate, who asked that the document be prepared when he sat on the panel.

The report documents the extent to which gas companies routinely charge customers for fuel that is never delivered because it instead is lost through leaks that have sprung in aging pipelines, some as old as 100 years or more. The document cites Massachusetts as an example, noting that the Bay State's ratepayers were charged "between \$640 million to \$1.5 billion from 2000-2011 for gas that never reached their homes and businesses."



A new report issued today by the US House of Representatives Natural Resources Committee says natural gas explosions such as the one that occurred in Allentown, Pennsylvania, in February 2011 could have been prevented if natural gas companies had been more aggressive in upgrading their failing natural gas pipelines.

The report also takes U.S. gas companies to task for failing to upgrade their failing infrastructure, calling out a roster of recent high-profile natural gas explosions and noting that, "Some of these accidents might have been prevented had gas companies performed timelier repair, rehabilitation and replacement of high-risk pipeline."

A few other highlights, quoted directly from the document:

- Gas distribution companies in 2011 reported releasing 69 billion cubic feet of natural gas to the atmosphere, almost enough to meet the state of Maine's gas needs for a year and equal to the annual carbon dioxide emissions of about six million automobiles.
- The problem of leaky gas pipelines may be even worse than the data presented in this report suggests. Indeed, companies frequently report negative volumes of unaccounted for gas to various agencies—even though it's physically impossible to dispose of more gas than enters a closed system.
- Nationwide, the natural gas distribution system is the largest source of methane emissions, accounting for 19 percent of total emissions in 2011, according to the U.S. Environmental Protection Agency (EPA).

You can download and read the report for yourself here: [America Pays for Gas Leaks: Natural Gas Pipeline Leaks Cost Consumers Billions](#)

**From:** Ken Alex  
**Sent:** Tuesday, August 13, 2013 9:36 AM  
**To:** Corey, Richard@ARB ([rcorey@arb.ca.gov](mailto:rcorey@arb.ca.gov))  
**Cc:** Cliff Rechtschaffen  
**Subject:** Anthony R. Ingraffea

Richard

I had an interesting talk with Ingraffea (Cornell University fracturing expert) before I sent him along to you. Some highlights:

1. There are now at least 3 peer reviewed studies in the last year re leaks and methane emissions from the gas distribution pipeline system, one for DC, Boston, and the greater LA basin. DC and Boston show levels 15 to 50 times background for methane in areas above pipelines.
2. MOST IMPORTANTLY: utilities do their own studies. They likely know how much leakage occurs because they do a mass balance. They have not shared this info. We should get the CEC and/or PUC to get this info from the utilities. This seems quite important to do. I forwarded the Markey study showing that ratepayers are being billed for the lost gas.
3. Transmission pipes (the large interstate system) are likely not a large source of leakage. However, the compression stations along those lines are old and leaky. US EPA is focusing on these.
4. Valves, gaskets, are leaky depending on the age
5. Upstream: drilling. Leakage is very high from initial drilling and particularly fracking, for a couple of reasons. First, the largest emission are from the flowback from fracking (particularly where the fracked area has intermediate layers of gas bearing shale). Second, there are pipes called "gathering lines." These are not regulated by FERC or local PUC because they are not considered transmission or distribution. With fracking, there are MANY more gathering lines, and they are under much greater pressure, resulting in much higher leakage.
6. The key issue is AGE. Stuff is getting older and leaking. We need to replace the lines.

\*\*\*\*\*CLIFF: we should add reg authority to SB4 re gathering lines!

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