

MEA Midwest Energy Association – Presenting Natural Gas to Community Leaders – Open Form Discussion

Here is some information I keep handy for discussions such as yours. It's not in any particular order, just some info I keep handy. I think all the sources are listed with the info.

Education is key, as you stated, no need to argue. The Global Methane Budget picture is somewhat confusing, but it is published by the Global Carbon Project. They do their best to show Methane from industry is bad and is increasing, but if you really study the graph it could be decreasing based on the ranges they use in each category. Also their color choices are interesting...why is methane from wetlands green if methane is "bad".

I don't know all what is being discussed, but a point to make is these proposed regulations are unfair at best and discriminatory at worst. **People deserve energy choice and should not be forced into electrification.** Natural gas is a very cost effective way for people to heat their homes to stay warm in the winter. Banning natural gas for new construction will ultimately increase the cost per customer to maintain the existing system. The poorest customers who cannot afford to replace their appliances will have to pay more as more affluent customers get tax breaks or incentives to put solar and or batteries on their homes. We all want a cleaner environment but we need to consider the unintended consequences of passing laws that can do more harm to our most venerable population.

Hope this helps.....Good luck.

The largest source of methane emissions is Natural sources (Global Carbon Project)
Methane is naturally recycled from the atmosphere ("Sink from chemical reactions In atmosphere")

Oil and Gas companies in the US have reduced methane emissions by 24% since 1990. Even while providing more gas for electricity production.

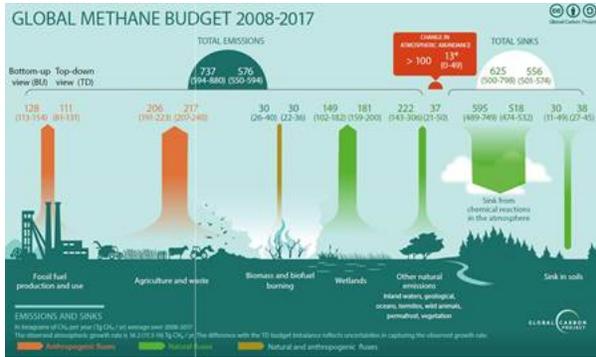
The US has decreased greenhouse gas emissions. This was accomplished primarily by power plants switching from coal to natural gas.

Over 80% of methane emissions do not come from oil and gas.

Distribution companies account for only 2% - 6% of methane emissions.

Atmosphere is 78% nitrogen, 21% oxygen, 0.9% argon, 0.3% CO₂, **Methane is 0.00015%**

Determining the amount of methane in atmosphere is very challenging. According to the Global Carbon Projects numbers methane it is not unreasonable to assume a zero increase in methane as it is within the range of estimates.



IOO (0-49) 625 556 (500-798) (501-574) 206 TOTAL EMISSIONS 737 576 (94-880) (550-594) 30 30 149 181 (102-182) (159-200) Wetlands 222 37 Other natural emissions Inland waters, geological, 595 518 (489-749) (474-532) Sink from chemical reactions in the atmosphere 30 38 (11-49) (27-45) Sink in soils Agriculture and waste Biomass and biofuel burning oceans, termites, wild animals, permafrost, vegetation In teragrams of CH₄ per year (Tg CH₄ / yr) average over 2008-2017 The observed atmospheric growth rate is 18.2 (17.3-19) Tg CH₄ / yr. The difference with the TD budget imbalance reflects uncertainties in capturing the observed growth rate. Anthropogenic fluxes Natural fluxes Natural and anthropogenic fluxes GLOBAL CARBON PROJECT ">

In power generation, natural gas emits 1/2 the CO₂ as coal
I don't think many people realize this - Atmosphere is 78% nitrogen, 21% oxygen, 0.9% argon, 0.3% CO₂, Methane is 0.00015%.

Methane emission intensity is 40% lower than 1990 levels %emitted versus % consumed

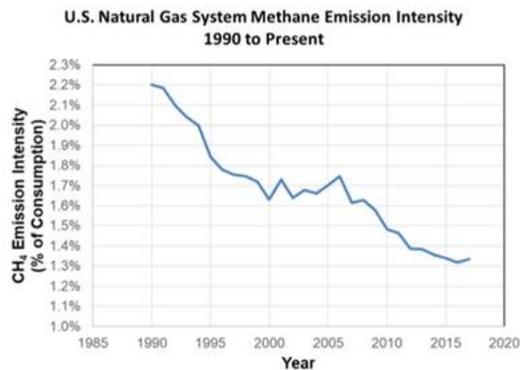


Figure 3. Annual Methane Emission Intensity Based on Annual Consumption per US EIA

3.7 Natural Gas Systems (CRF Source Category 1B2b)

The U.S. natural gas system encompasses hundreds of thousands of wells, hundreds of processing facilities, and over a million miles of transmission and distribution pipelines. This IPCC category (1B2b) is for fugitive emissions, which per IPCC include emissions from leaks, venting, and flaring. **Total greenhouse gas emissions** (CH₄, CO₂, and N₂O) from natural gas systems in 2018 were 174.9 MMT CO₂ Eq., a **decrease of 19 percent from 1990**, primarily due to decreases in CH₄ emissions, and an increase of 3 percent from 2017, primarily due to increases in CO₂ emissions. From 2008, emissions decreased by 6 percent, primarily due to decreases in CH₄ emissions. National total dry gas production in the United States increased by 71 percent from 1990 to 2018, and by 12 percent from 2017 to 2018, and by 52 percent from 2008 to 2018. Of the overall greenhouse gas emissions (174.9 MMT CO₂ Eq.), 80 percent are CH₄ emissions (140.0 MMT CO₂ Eq.), 20 percent are CO₂ emissions (35.0 MMT), and less than 0.01 percent are N₂O emissions (0.01 MMT CO₂ Eq.). **Overall, natural gas systems emitted 140.0 MMT CO₂ Eq. (5,598 kt CH₄) of CH₄ in 2018, a 24 percent decrease compared to 1990 emissions**, and less than 1 percent increase compared to 2017 emissions (see Table 3-57 and Table 3-58). There was a total of 35.0 MMT CO₂ Eq. (34,972 kt) of non-combustion CO₂ in 2018, an 9 percent increase compared to 1990 emissions, and a 15 percent increase compared to 2017 levels. The 2018 N₂O emissions were estimated to be 0.01 MMT CO₂ Eq. (0.03 kt N₂O), a 116 percent increase compared to 1990 emissions. The 1990 to 2018 trend is not consistent across segments or gases. **Overall, the 1990 to 2018 decrease in CH₄ emissions is due primarily to the decrease in emissions from the following segments: distribution (73 percent decrease), transmission and storage (41 percent decrease), processing (43 percent decrease), and exploration (72 percent decrease). Over the same time period, the production segment saw increased CH₄ emissions of 41 percent (with onshore production emissions increasing 30 percent, offshore production emissions decreasing 80 percent, and gathering and boosting [G&B] emissions increasing 91 percent).** The 1990 to 2018 increase in CO₂ emissions is primarily due to increase in CO₂ emissions in the production segment, where emissions from flaring have increased over time.

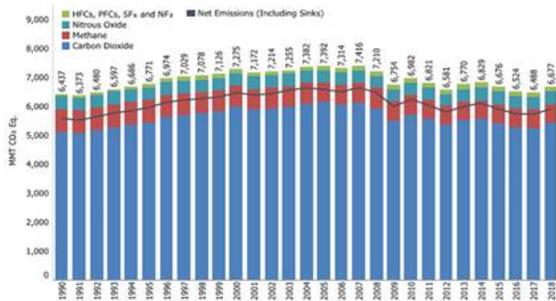
Methane and CO₂ emissions from natural gas systems include those resulting from normal operations, routine maintenance, and system upsets. Emissions from normal operations include: natural gas engine and turbine uncombusted exhaust, flaring, and leak emissions from system components. Routine maintenance emissions originate from pipelines, equipment, and wells during repair and maintenance activities. Pressure surge relief systems and accidents can lead to system upset emissions. Emissions of N₂O from flaring activities are included in the Inventory, with most of the emissions occurring in the processing and production segments. Note, CO₂ emissions exclude all combustion emissions (e.g., engine combustion) except for flaring CO₂ emissions. All combustion CO₂ emissions (except for flaring) are accounted for in Section 3.1 – CO₂ from Fossil Fuel Combustion .

Each year, some estimates in the Inventory are recalculated with improved methods and/or data. These improvements are implemented consistently across the previous

Inventory's time series (i.e., 1990 to 2017) to ensure that the trend is accurate. Recalculations in natural gas systems in this year's Inventory include:

EPA - 2020 GHG report

Figure 2-1: Gross U.S. Greenhouse Gas Emissions by Gas



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Original Message:
Sent: 1/7/2021 6:53:00 PM
From: Darin Yusi
Subject: Presenting Natural Gas to Community Leaders

We are seeing the push to get rid of natural gas in California and other places and that push is making its way toward our distribution system in the state of Washington. We have groups forming in our town that have been presenting information to our City Council trying to get

them to eliminate the utility all together. I'm posting this to see if anyone out there has material, documents or better yet, presentations in support of natural gas that I could use.

I am not looking to argue with the groups and rebuke their information, but I just want to gather and present a full presentation to our City Council and explain the many benefits and value of keeping, maintaining and even growing our utility. I have started on this, but figured it would be good to reach out and see if anyone has additional info or if anyone has dealt with this and has some good presentation material.

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