Regulating Flaring and Venting of Associated Gas

CLEAN AIR TASK FORCE

The Issue:

Gas flaring is a waste of gas and results in unnecessary emissions of methane, CO_2, and pollutants such as particulate matter that directly harm human health. The EPA is working on strengthening regulations of methane from the oil and gas operations, and must address routine flaring as part of that rulemaking.

What do we mean by "routine" flaring?

"Routine flaring" of associated gas — the natural gas produced along with oil at many oil wells — may be defined as **"flaring that occurs during the normal production of oil, and in the absence of sufficient facilities to utilize the gas on-site, dispatch it to a market, or re-inject it."**[1]

Why does routine flaring happen?

Operators often flare natural gas at oil wells. **This waste occurs when oil producers, driven by the rush to sell oil, simply burn off the gas from producing oil wells instead of capturing the gas the well produces.** Flaring gas wastes the resource and produces large amounts of pollution.

Operators often flare because they are producing oil and associated gas at wells:

- With no pipelines for associated gas
- With insufficient pressure to inject gas into the available pipelines (while operators could install compressors to address this problem, some simply choose to burn off the gas instead of doing so)
- In areas where the available gas gathering pipelines are too full to accept more gas, or where there is insufficient capacity at the processing plant

Can operators produce oil without routine flaring?

Many operators produce oil with no flaring, even in areas where flaring is common like the Permian basin in Texas and New Mexico, or the Bakken shale formation in North Dakota. These operators **plan development so that all wells have sufficient gas infrastructure in place before oil production is started.**

Even in cases where a gas pipeline is not connected, there are a variety of other technologies that operators can use to avoid routine gas flaring at oil wells. Recognizing this, **New Mexico and Colorado have recently passed rules that will fully phase out routine flaring in those states by spring 2022.**

Photography Credit: Sharon Wilson

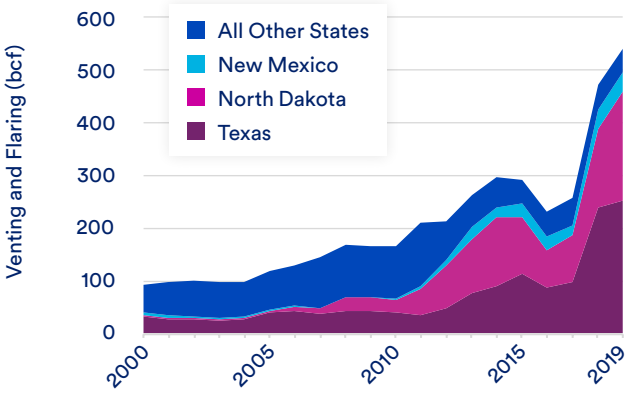
[1] World Bank, Zero Routine Flaring Initiative, Q&A

How large a problem is flaring in the US?

- The US Energy Information Administration reports that 538 billion cubic feet of gas was vented or flared in 2019.[2] This is more than **3x more flaring than in 2010, and nearly 6x more flaring than in 2000.**
  - This is more than the amount of gas used by **residential customers in California**, and more than the amount of gas used by **homes in Pennsylvania and New England combined.**
- This translates to more than **72 million metric tons of CO_2-equivalent** (using a 20 yr GWP of 87 for methane).
  - This is as much as **18 coal-fired power plants or 16 million cars.**

Venting and Flaring in the U.S.

Source: EIA



Health Impacts of Flaring

- Flaring emits particulate matter (PM), nitrogen oxides (NOx), and toxic air pollutants, as well as carbon dioxide and methane. **Exposure to PM can adversely affect cardiovascular and respiratory systems and can lead to increased hospitalizations or emergency room visits, absences from school or work, or even premature death.** Exposure to NOx also negatively affects the human body's respiratory system.
- A recent study in one Texas region with high flaring found that **mothers living within five kilometers of flaring during pregnancy had higher rates of preterm birth.** Further study reveals that nationwide, "over half a million people in these basins reside within 5 km of a flare, and 39% of them lived near more than 100 nightly flares. **Black, indigenous, and people of color were disproportionately exposed to flaring.**"
- **EPA should carefully evaluate the impacts of flaring on environmental justice communities and tribal communities living with oil and gas development in their midst.** Regulations on flaring that reduce NOx, PM, air toxics emissions, and noise and light pollution from flaring could all be highly significant for such communities.

How can we reduce flaring?

EPA should use its authority under the Clean Air Act and ban routine flaring. Regulatory precedents have been set by New Mexico & Colorado, both of whom recently finalized rules that prohibit routine flaring.

There are many ways that operators can handle gas so that it does not need to be flared. These include:

- **Capture gas into a pipeline**, with or without additional compression to reach pipeline pressure
- **Reinject gas into underground formations** for enhanced oil recovery or storage
- **Onsite combustion to produce electricity** for onsite or offsite use
- **Compress gas and truck it to a gas processing plant** or other delivery point
- **Separate natural gas liquids (NGLs) from the raw gas**, with the remaining dry gas handled with above methods
- **Temporarily shut-in the well** until infrastructure is available

[2] https://www.eia.gov/dnav/ng/ng_prod_sum_a_EPG0_VGV_mmcf_a.htm

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