Infographic: The Climate Risks of Natural Gas — Fugitive Methane Emissions

Fugitive methane emissions are 34 times more potent than carbon dioxide at trapping heat.

Last Revised: March 5, 2014, Union of Concerned Scientists

http://www.ucsusa.org/clean_energy/our-energy-choices/coal-and-other-fossil-fuels/infographic-natural-gas-fugitive-methane-emissions.html#.VTad9N50zAU

Why is there such a large range of fugitive emissions?

Recent studies on methane leakage have found a wide potential range, due largely to differences in assumptions, methodologies, measurement techniques, industry practices, and regional variations that result in a high level of uncertainty in the data.

Practically speaking, methane leakage can vary greatly from site to site depending on the geology, the technologies and practices companies deploy to capture the methane, the age and condition of pipelines, and other factors.

More research is needed to identify the true magnitude of these fugitive emissions and the corresponding climate risk.

How does natural gas escape into the atmosphere?

Natural gas leaks from drilling sites, processing plants, storage facilities, and pipelines that move natural gas from areas of supply to areas of demand. Leaks occur throughout the system; aging pipelines and distribution infrastructure are a common source of leaks in urban environments.

Most studies have shown that more than half of the methane leakage from natural gas comes from drilling sites and gas processing plants (i.e. upstream emissions), with the remainder coming from pipelines and storage systems (i.e. downstream emission).

In addition, studies show that methane emissions are higher for hydraulic fracturing of shale gas than conventional natural gas production.

What can be done to reduce fugitive methane emissions?

The good news is that proven, cost-effective technologies are available to significantly reduce fugitive methane emissions.

Aging, leaky pipelines can be upgraded or replaced. Drilling site emissions can be better monitored, and effective use of available technologies can minimize the amount of fugitive methane that escapes.

Stronger state and federal laws and regulations are also needed, however, for monitoring, evaluating, and mitigating the fugitive methane emissions associated with the production and distribution of natural gas.

What are the climate risks of generating more U.S. electricity from natural gas?

The U.S. electricity system is going through its biggest transformation in half a century as old and inefficient coal plants reach the ends of their lifespans and are retired. The choices we make to replace them will determine our electricity sources for the next 30 to 50 years. And right now the U.S. is moving toward a natural-gas dominated electricity system.

However, a natural gas-dominated electricity system would continue to heat up the planet — heat-trapping emissions from electricity production will barely change if we shift primarily to natural gas for our electricity needs.