16 September 2013

Natural Gas And The Methane Problem: Study Shows Climate Benefit Depends On Fixing The Leaks

Methane, the primary component of natural gas, is a powerful greenhouse gas – 72 times more potent than carbon dioxide over a 20-year time frame. The largest single source of U.S. methane emissions is the vast network of infrastructure and activity involved in the production, processing and delivery of natural gas. These emissions, if not controlled, pose a significant risk to the climate. In the near term, the opportunity to maximize the climate benefit of natural gas compared to other fossil fuels rests on whether methane emissions can be minimized.

A groundbreaking study released today demonstrates that some operators have been successful in deploying technologies and strategies to minimize methane emissions from production, creating optimism that we can make the natural gas climate bet payoff. However, we also know that such technologies and strategies are not universally deployed in the industry and, not surprisingly, other studies demonstrate much higher methane leakage rates.

We simply need to be vigilant to ensure that such production is done right.

The University of Texas study, published in the *Proceedings of the National Academy of Sciences*, involved taking direct measurements of actual methane emissions – as opposed to estimating emissions through indirect methods such as engineering formulas, as has often been the case in earlier studies. Measurements were taken at well sites in multiple geographic regions – including the Rocky Mountain West. It is the first of 16 studies EDF is participating in to assess the scope of methane leakage throughout the natural gas supply chain (from production on through to local distribution and key end users).

Nine companies volunteered to have emissions at their well sites measured for the study. We don't know whether the data collected from the well sites operated by these nine companies are representative of industry at large (the 478 wells visited by the UT team constitute about 0.1% of all onshore natural gas wells in the U.S.), but we do know enough to say there are plenty of opportunities to reduce methane emissions:

- According to data in the UT study, operators in the Rockies may be releasing up to 2.6 billion cubic feet of natural gas annually into the atmosphere through fugitive emissions – i.e., leaky equipment – instead of getting it into a sales line. From a greenhouse gas perspective, that is the equivalent of

pollution from almost 560,000 passenger vehicles. And at $3.00 per MCF, it represents an economic waste of more than $75 million per year.

- Operators that utilize reduced emission completions (RECs or "green completions") are able to dramatically reduce methane emissions, as compared to EPA estimates of emissions from wells that don't use green completions.
- While other studies using different methods of measuring total leakage (e.g., flyover measurements of entire basins) paint a bleaker picture of the methane footprint of natural gas operations, this study demonstrates that robust control technologies and strategies can be very effective in reducing such methane emissions.
- The federal government and the states should build on the regulatory frameworks they already have in place and develop new, cost-effective rules to enhance the efficiency and reduce the emissions profile of natural gas operations. Key regulatory improvements include expanding the EPA's green completions requirement, mandating robust leak detection and repair (LDAR) programs to control fugitive emissions, and applying emission control requirements to existing sources – not just new ones.

In Colorado, the Air Quality Control Commission is crafting rules to address many of these very issues. It is absolutely critical that the state help us realize the climate promise of natural gas by adopting, for example, rigorous LDAR requirements for well sites and capture requirements for storage tanks.

It is reassuring to know that America's natural gas bounty holds the promise to help slow the pace of global climate change. But now it is up to us to insist that such promise not be allowed to go up in fumes.