The Natural Gas Bonanza: Promise and Risk

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The Gas Boom Has Clear Advantages in the United States...

- Economic development;
- Increased energy security;
- Less air pollution; and
- Fewer greenhouse gases from combustion than coal.

...if done the “right way”.
...and Potential Risks

1. Ground and surface-water contamination and significant amount of water usage;
2. Air emissions can threaten public health (e.g., VOCs and ozone);
3. Increased greenhouse gas emissions; and
4. Cumulative impacts from truck traffic, noise, lights, etc.

...if not done correctly.

*Lack of public trust due to risks could erode economic and social benefits of the gas boom. It is in everybody’s interest to get it right.*
Power Plant CO₂ Emissions

2,200 lb CO₂/MWh

950 lb CO₂/MWh

Coal

Natural Gas
Power Plant Emissions Aren’t the Whole Story

Methane Leak Rates Affect Climate Benefits of Natural Gas

• Overall leak estimates range between 1% - 7.9%, but much of it based on assumptions.
• 2010 EPA estimates leaks are about 2.5%, 2011 estimates at 1.4%.
• Whether leaks are 1.4% or 2.5%, a recent paper illustrates switching from diesel to natural gas may make things worse for the climate over some time periods.
A recent paper in PNAS shows the point, given current data, for these three fuels at which it is better for the climate in all time frames to switch to natural gas:

- **Coal power plant** = 3.2% (or less) leakage
- **Gasoline** = 1.6% (or less) leakage
- **Heavy Duty Diesel** = 1.0% (or less)
Opportunities

By fixing leaks and reducing waste, significant reductions in emissions can be realized with cost effective controls. “Zero tolerance” for fugitive emissions.

• Green Completions
• Leak Detection and Repair
• Storage Vessels
• Venting and Flaring