Unconventional Natural Gas and its Climate Impact

Ohio University
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Power plant CO2 isn’t the whole story

Source: Adapted from Jaramillo et al., (2007) EST 41, 6290
Methane: a powerful GHG
Methane: a big slice of the GHG pie

20-year impact

- US energy: 8%
- Rest of the world
- China energy: 13%
- Deforestation and agriculture: 11% (excluding methane)
- Methane, F-gases, All sources total: 38%

100-year impact

- US energy: 11%
- Rest of the world
- China energy: 17%
- Deforestation and agriculture: 22% (excluding methane)
- Methane, F-gases, All sources total: 16%

- Manmade methane and F-gases, non-agricultural sources
- Methane, agricultural sources
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) leakage
EDF’s CH₄ Emissions Field Studies
Where the ‘fracing’ issues really are

Hydraulic Fracturing

Hydraulic fracturing, or “fracing,” involves the injection of more than a million gallons of water, sand and chemicals at high pressure down and across into horizontally drilled wells as far as 10,000 feet below the surface. The pressurized mixture causes the rock layer, in this case the Marcellus Shale, to crack. These fissures are held open by the sand particles so that natural gas from the shale can flow up the well.
Key Risk Management Areas

- Disclosure
- Well Integrity
- Water and Waste Management
- Communities and Habitats
- Air Quality
Thank You!

Andrew Williams
awilliams@edf.org