“TOO DIRTY, TOO DANGEROUS”

Why Health Professionals Reject Natural Gas

Based on a report by Physicians for Social Responsibility
March 2017
This is what the energy future can look like

Clean, renewable sources and energy efficiency:

- Zero emission of climate pollutants
- Zero fuel combustion => Health threats dramatically reduced
- Vulnerable populations protected
- Jobs created
Using fossil fuels, we won’t get there.

- Fossil fuels emit deadly pollutants, heat-trapping gases
  - Coal and natural gas
- Utilities moving to replace coal-fired power plants with natural gas (methane)
- But...
What’s the problem with natural gas?

• Too Dirty
  • Toxic air, water, land contamination, especially from fracking

• Too Dangerous
  • Potent climate change driver -- worse than coal?
  • Climate change endangers health and survival
What’s the problem with natural gas?

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Too Dirty: Toxics We Put into the Earth

- What’s in fracking fluid:
  - known human carcinogens (benzene, toluene, arsenic)
  - neurotoxics (ethylene glycol, lead)
  - endocrine-disrupting chemicals
  - ...and more

- What we don’t know: “proprietary business information”

- Contaminates huge volumes of water
Too Dirty: Contaminants We Pull out of the Earth

Wastewater can contain naturally occurring contaminants:

- salts
- radioactive materials
- heavy metals
- PAH’s
- volatile organic compounds

(Drilling fluid splashing past the liner, Dimock, PA, Spring 2009)
Too Dirty: Fracking-Related Air Pollutants

Volatile organic compounds
- Emitted across the natural gas supply chain
  - can cause cancer, affect the nervous system, cause birth defects
- Contribute to formation of ground-level ozone (smog)
  - can cause irreversible lung damage, significantly increase risk of premature death

Particulate matter
- Emitted by trucks, diesel motors
- Causes decreased lung function, aggravated asthma symptoms, nonfatal heart attacks, high blood pressure
- Children particularly vulnerable to lung effects: decreased lung function, worsening asthma symptoms, chronic bronchitis
- Long-term repeated exposure associated with cardiovascular disease, death
What the science shows: dangerous exposures

- Uintah County, UT, one of highest-producing oil and gas fields in US: **dangerously high levels of VOCs and ozone.**

- **Colorado, dangerous airborne levels of benzene**

- **Excessive amounts of ambient benzene, carbon disulfide** near gas drilling operations in northern Texas.
What the science shows: Health outcomes

- 2015: Statistical association between well density and **increased rates of hospitalization** for cardiac, neurological, urological, cancer-related and skin-related problems.

- 2016: Statistical association between the patient’s proximity to natural gas fracking operations and progressively **worsening asthma symptoms**.
What the science shows: Health outcomes, cont.

- 2014: Statistical association between density and proximity of natural gas wells within a 10-mile radius of mothers’ residence, and the prevalence of congenital heart defects.

- 2016: Statistical association between expectant mothers living in most active fracking areas, and increased risk of premature birth.
More science: Are EPA air standards strict enough?

Air standards don’t account for:

- **long-term health effects** of chemicals

- **risks of episodic spikes** in contaminant levels
  - Weinberger, B. et al. (April 23, 2016) ATSDR Releases Investigation of Pennsylvania Compressor Station. Southwest Pennsylvania Environmental Health Project.

- enhanced **risks to especially sensitive populations**, such as pregnant women, young children and the elderly.