

GAS and WATER DON'T MIX

Dimock, PA



- Columbia University
- April 15, 2011
- Joe Heath

COMPLETE ECONOMIC IMPACT OF FRACKING:

Cornell Professor Susan Christopherson:

smc23@cornell.edu

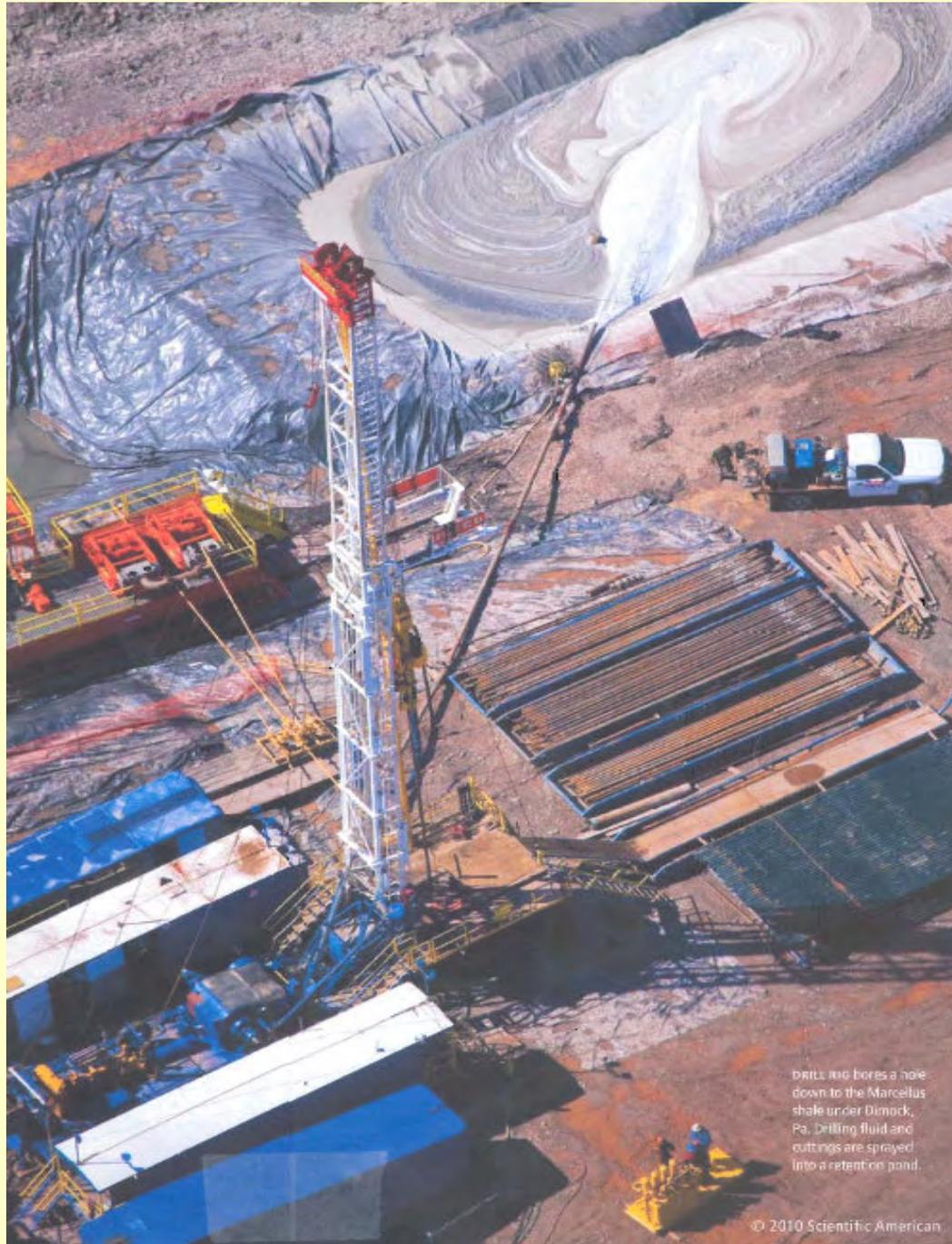
Think back: a vanishing point of reference:







Dimock, PA



***Photo
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Scientific
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DRILLING bores a hole down to the Marcellus shale under Dimock, Pa. Drilling fluid and cuttings are sprayed into a retention pond.

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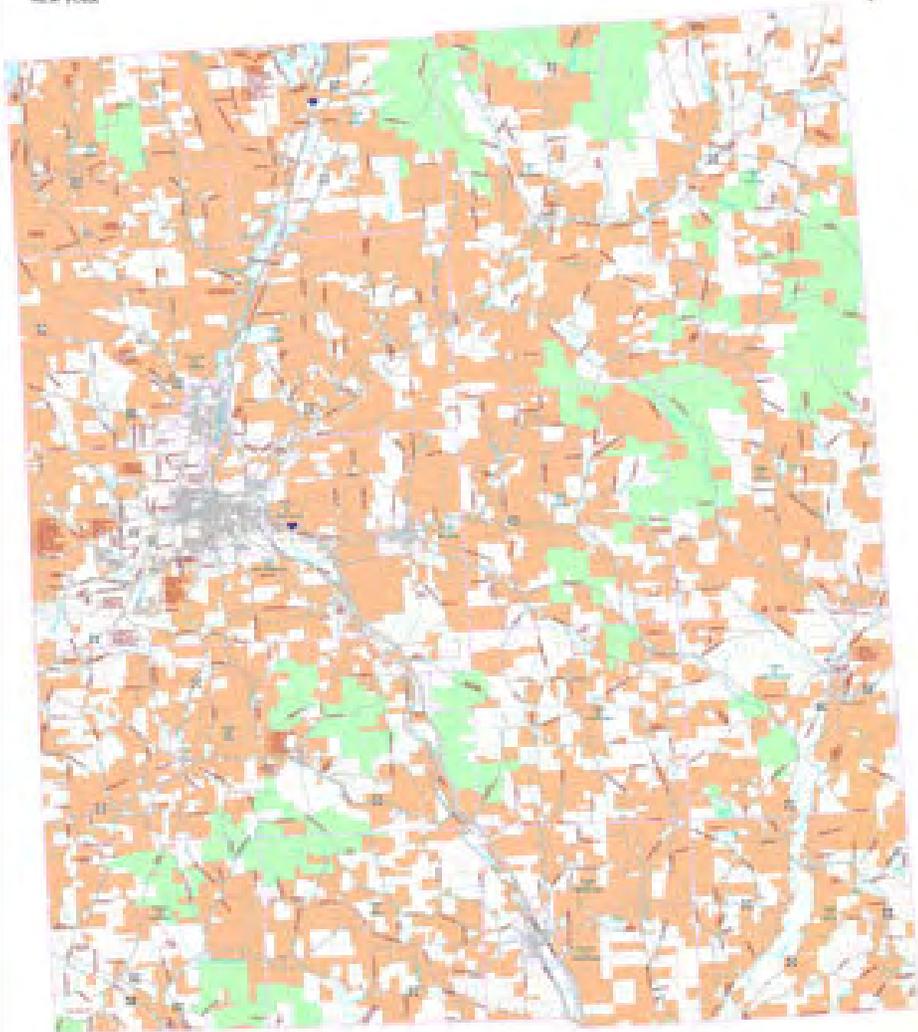








**PROPERTIES WITH GAS LEASES
CORTLAND COUNTY
NEW YORK**



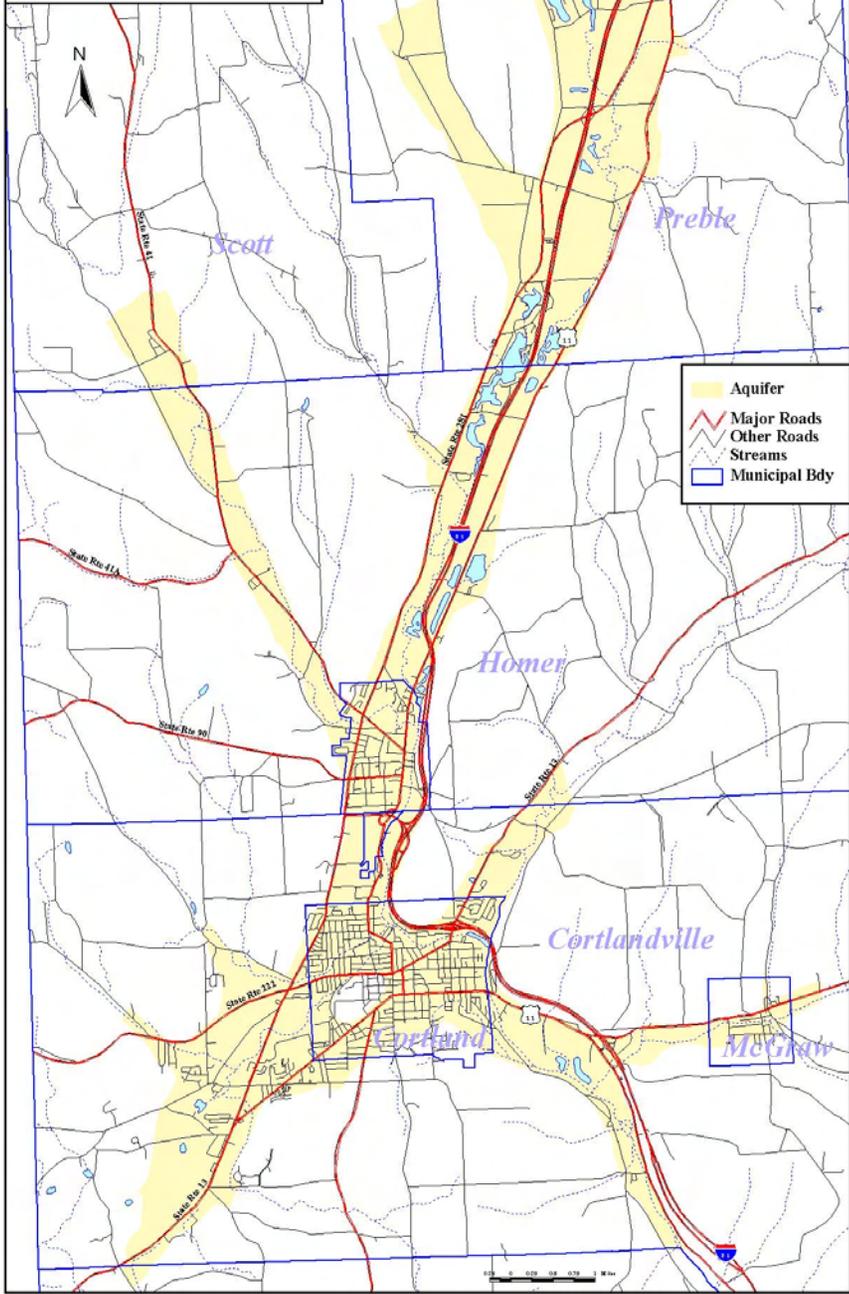
APRIL 2017

PROPERTIES WITH GAS LEASES
STATE FOREST



**Cortland-Homer-Preble Aquifer
Primary Aquifer
in Cortland County**

Cortland County Planning Dept
Geographic Information System
4 South Avenue
Cortland, New York 13840



SUMMARY OF MY POSITION, BASED UPON A GREAT DEAL OF RESEARCH & DATA TO SUPPORT:

- FRACKING IS NOT SAFE;
- FRACKING IS NOT GREEN or A BRIDGE FUEL;
- FRACKING IS NOT PROPERLY REGULATED;
- FRACKING IS NOT DEMOCRATIC;
- FRACKING TAKES AWAY THE RIGHTS OF LAND OWNERS;
- FRACKED GAS IS NOT ABOUT ENERGY INDEPENDENCE
- WE NEED TO DEVELOP A NATIONAL ENERGY POLICY, THAT IS BUILD UPON RENEWABLES & DECENTRALIZATION.

Article from today's *Daily Review*, in Bradford County PA:

“Residents: Dozens of Wells Have Been Contaminated”

At the Bradford County Commissioners' meeting, last night:

“Several residents said dozens [between 70 to 100] of households have had their well water contaminated by gas drilling”

Other problems:

- Traffic congestion,
- High rents,
- Unsafe air,
- Barium in well water.

Article from today's *Daily Review*, page 2:

“People want to get out [of their homes] but can't sell their house.”

“Their properties are worth 1/10th what it was before gas drilling.”

Resident with contaminated wells, “Have had to face skyrocketing electricity bills, from having to heat the water in their water buffaloes to keep them from freezing and from running water filtration systems at their homes.”

“One household monthly bill increased from \$120 to \$450, and another from \$150 to 520 per month.”

FRACKING IS NOT SAFE, AS ADMITTED BY COMPANIES IN STATEMENTS TO THEIR INVESTORS:

RANGE RESOURCES: S.E.C. FILING, May 2006:

“Oil and gas operations are subject to many risks, including:

1. Well blowouts,
2. Explosions, uncontrolled flows of gas or well fluids,
3. Fires,
4. Pipeline ruptures or spills,
5. Pollution, releases of toxic gas, and
6. Other environmental risks.

RANGE RESOURCES SEC FILING, page 2:

“We could sustain substantial losses as a result of:

- a. Injury or loss of life;
- b. Severe damage to, or destruction of:
 - i. Property,
 - ii. Natural resources, and
 - iii. Equipment.
- c. Pollution or other environmental damage;
- d. Clean-up responsibilities;
- e. Regulatory investigations and penalties, and
- f. Suspensions of operations.

RANGE RESOURCES SEC FILING, page 3:

“As we begin drilling to deeper horizons and in more geologically complex areas, we could experience a greater increase in operation and financial risks due to the inherent higher reservoir pressures and unknown downhole exposures.”

May 4, 2010 Letter from the Council of Scientific Society Presidents:



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May 4, 2010

We represent the leadership of over 1.4 million scientists in over 150 scientific disciplines.

The acceleration of greenhouse gas (GHG) emissions from human activity is increasingly leading to harmful climate change and ocean acidification. Societies must act urgently to reduce these emissions to protect the life-sustaining biophysical systems of the Earth. As noted by DoE Secretary Steven Chu in his April 28, 2010 testimony to the Senate Subcommittee on Energy and Water Development, the necessary transition "will require nothing short of a new industrial revolution." We agree with this assessment of the scale of response needed. We need to work aggressively to conserve energy and increase the efficiency of energy use, and we need rapidly to develop less polluting energy systems. Objective science has a critical role to play, and we urge that the nation fully use and incorporate the best available science in designing and implementing the energy and environmental policies necessary to guide the revolution.

America should move ahead quickly to develop a comprehensive energy policy to greatly reduce our GHG emissions. We urge that any potential approach be first evaluated in terms of the net benefits on environmental integrity, including a full analysis of GHG emissions, recognized by the Supreme Court as air pollutants, as well as other environmental concerns. The analysis of GHG emissions should include indirect land use effects and emissions of methane and nitrous oxide as well as carbon dioxide. No policy should be implemented without a full understanding of the consequences on the environment. Uncertainties will remain, which points to the necessity of also having the ability to reverse a policy action if unintended consequences are discovered.

Some energy bridges that are currently encouraged in the transition away from GHG-emitting fossil energy systems have received inadequate scientific analysis before implementation, and these may have greater GHG emissions and environmental costs than often appreciated. We find that their environmental impact studies and EPA determinations necessary to proceed are absent or inadequate. These include the production of ethanol from corn, where recent, more inclusive research concludes this is a poor option. As scientists we are concerned about the impact of the ethanol scale-up on water supply and quality, land use, GHG emissions, and net energy gain. In 2007, the nation used 27% of its corn harvest to produce 1.3% of total liquid fuels. One unintended result is greater nutrient flows down the Mississippi River, aggravating the

May 4, 2010 Letter from the Council of Scientific Society Presidents, page 2:

[The CSSP is an umbrella group representing 1.4 million Of the nation's scientists in 150 different disciplines.]

Cautioned that some energy systems which are promoted to help with climate change, have not received adequate scrutiny, and may aggravate global warming and pollute the environment to a greater extent than commonly appreciated.

Mentioned the development of diffuse gas in shale formations as an example of where energy policy have moved ahead without an adequate base in objective science.

May 4, 2010 Letter from the Council of Scientific Society Presidents, page 3:

“Prior, thorough science-based studies are required to evaluate the impact of massive shale development on rural land uses, water supply and quality, and full, life-cycle greenhouse gas emissions.”

FRACKING IS NOT SAFE:



FRACKED GAS IS NOT CLEAN OR A “GREEN, BRIDGE FUEL”:

Study by Cornell professors Robert Howarth and Anthony Ingraffea:

Looks at the entire life cycle of the production process:

1000s of huge diesel engines in drilling, fracking, compressing, pumping and trucks;

Methane leaks—

- almost 8 % of total, and
- methane is 72 times worse for climate change than CO₂, over a 20 year period:

FRACKED GAS IS NOT CLEAN OR A “GREEN, BRIDGE FUEL”, page 2:



Cornell University
College of Agriculture and Life Sciences



Developing Natural Gas in the Marcellus and other Shale Formations is likely to Aggravate Global Warming



**Bob Howarth, Renee Santoro, and
Tony Ingraffea**

Department of Ecology & Evolutionary Biology and
School of Civil and Environmental Engineering
Cornell University

March 15, 2011



FRACKED GAS IS NOT CLEAN OR A “GREEN, BRIDGE FUEL”, page 3:

Study: Gas from ‘fracking’ worse than coal on climate - The Hill's E2-Wire

Page 1 of 3

THE HILL

E² Wire

THE HILL'S Energy & Environment Blog

Study: Gas from ‘fracking’ worse than coal on climate

By Ben Geman - 04/10/11 02:40 PM ET

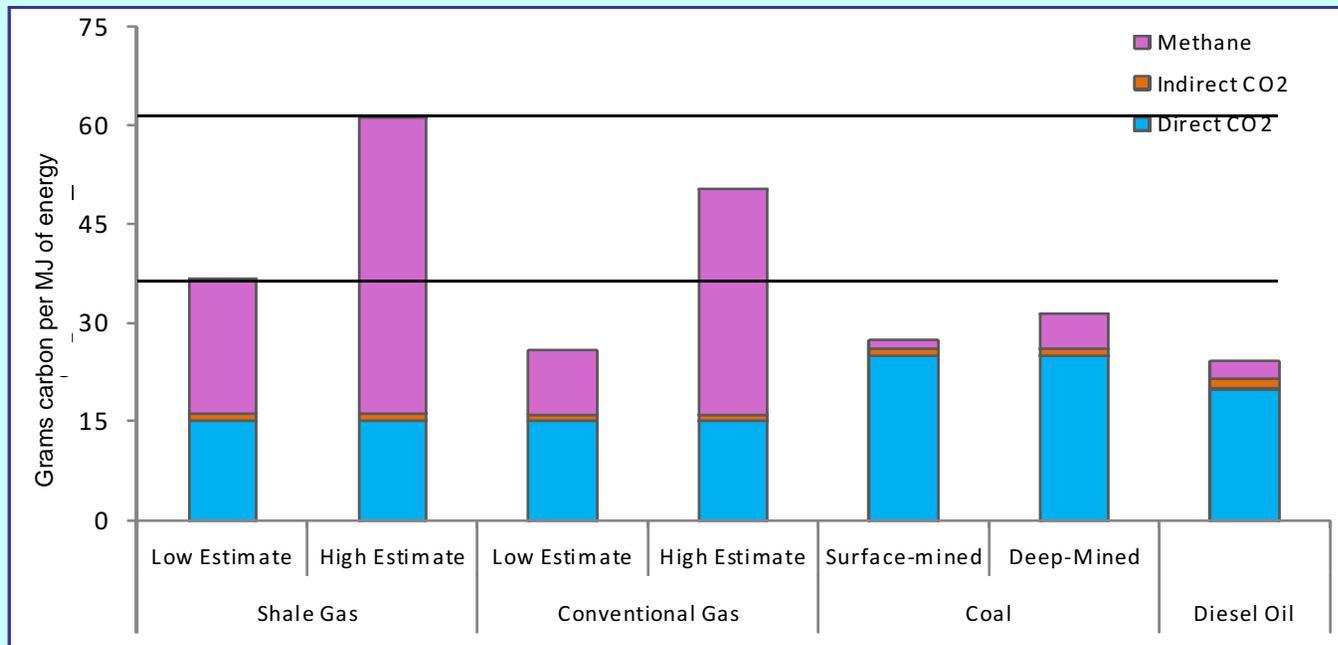
Cornell University professors will soon publish research that concludes natural gas produced with a drilling method called “hydraulic fracturing” contributes to global warming as much as coal, or even more.

The conclusion is explosive because natural gas enjoys broad political support – including White House backing – due to its domestic abundance and lower carbon dioxide emissions when burned than other fossil fuels.

Cornell Prof. Robert Howarth, however, argues that development of gas from shale rock formations produced through hydraulic fracturing – dubbed “fracking” – brings far more methane emissions than conventional gas production.

FRACKED GAS IS NOT CLEAN OR A “GREEN, BRIDGE FUEL”, page 4:

Greenhouse gas footprint of shale gas and other fossil fuels
(20-year analysis; methane given in CO2 equivalents,
assuming Global warming Potential = 105)



(Howarth et al. 2011)

FRACKING IS NOT PROPERLY REGULATED:

FEDERAL LAWS: Exempt from most provisions of most Federal environmental laws—2005 Haliburton loophole;

STATE LEVEL: DEC has 3 way conflict:

Mandated to “promote” this resource,
Then to also regulate it, and
DEC leases state forests for a profit.

PA—regulators told this week that they can not issue any citations of frack violation without specific approval from head of DEP

TOWNS: supposedly little authority under NY’s “home rule.”

FRACKING IS NOT DEMOCRATIC:

HUGE INTERNATIONAL CORPORATIONS.

IN CORTLAND COUNTY—48 % of land leased, by 8 % of
The people.

COMPULSORY INTEGRATION,

BULLYING BY COMPANIES DURING LEASING &
EXTENSIONS,

EMINENT DOMAIN FOR PIPELINES AND ROADS





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Photo © 2009, Laurence P. Dewitt

Geothermal—my basement:





Image thanks to Earthjustice

Contact information and reference sources:

jheath@atsny.com

Onondaga Nation: **onondaganation.org**

Gas Drilling Awareness of Cortland County:
<http://gdacc.wordpress.com>