A Political Ecology of Hydraulic Fracturing for Natural Gas in Northeastern Pennsylvania's Marcellus Shale

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Political Ecology

Politics are endemic to and embedded in the physical landscape. Humans construct environments, both in terms of perception and in terms of physical space.

(Robbins 2004)
Outline

- Background of Marcellus Shale Gas Play
- Current Events: The Case of PA
- Geography of Fracking in Study Region
- Research Questions and Methods
- Conclusions and Future Research
WASHINGTON — The use of the controversial “fracking” method of natural gas extraction will continue to expand across the country. According to the National Petroleum Council, 60% to 80% of all wells in the United States in the next decade will require hydraulic fracturing to remain profitable.
U.S. shale gas production increased 14-fold over the last decade; reserves tripled over the last few years.
The National Energy Conversation

[Obama seeks to] reduce the nation's dependence on imported oil...by a third (npr.org/blogs/itsallpolitics).
Natural gas climbs as Obama announces US energy plan, oil prices edge lower

By Chris Kahn, The Associated Press – 18 minutes ago

NEW YORK, N.Y. — Natural gas prices climbed Wednesday as President Barack Obama said he wanted the United States to use more of it instead of foreign oil. Colder weather also pushed up prices, as forecasters predicted a cold snap for much of the U.S. in coming weeks.

Natural gas for May delivery rose eight cents to US$4.339 per 1,000 cubic feet in afternoon trading on the New York Mercantile Exchange.
What is high-volume, high-pressure slick water hydraulic fracturing, and its associated geographic patterns in PA?
Hydraulic Fracturing Process

Why now?

• Global Geopolitics
• National energy demands
• Local economic growth
• Green energy
• Water availability
Why now?

- Global Geopolitics
- National energy demands
- Local economic growth
- Green energy
- Water availability
- The Halliburton Loophole
2007

Permit Data Courtesy PA DEP
2008

Permit Data Courtesy PA DEP
2009

Permit Data Courtesy PA DEP
2010

Permit Data Courtesy PA DEP
2011

Permit Data Courtesy PA DEP
Marcellus Shale Natural Gas Well Drilling in Pennsylvania (all years)

Legend:
- Major River
- Waterbody
- Marcellus Permits (2007)
- Marcellus Permits (2008)
- Marcellus Permits (2009)
- Marcellus Permits (2010)
- Marcellus Permits (2011)
- Counties
- Marcellus Shale-Extent
- [Research Area of Interest]


Permit Data: Courtesy PA DEP
Local Concerns

**Propublica**

**Buried Secrets**

Gas Drilling’s Environmental Threat

**Deteriorating Oil and Gas Wells Threaten Drinking Water, Homes Across the Country**

![Image](image1.png)

Gas company employees test this temporary tent to see if it’s safe for Nick Kellington and his family to visit their home. The Kellingtons were evacuated after gas from a nearby abandoned well caused a small explosion in West Mifflin, Pa. (Nicholas Kusnetz/ProPublica)

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**Montreal Gazette**

Fracking will cause 'irreversible harm'

Shale-gas extraction a huge risk. Process will threaten water, jeopardize agriculture, expert says

**BY KEVIN DOUGHERTY, THE GAZETTE** MARCH 7, 2011

**Quebec** – A geological engineering professor whose specialty is rock mechanics and hydrogeology says hydraulic fracturing to free natural gas from shale rock formations will cause “irreversible harm” lasting thousands of years.

And the gas companies will be long gone, leaving behind costly remediation, Marc Durand said in an interview, suggesting the gas producers should be forced to establish a reserve fund.

“It's billions required would be much more than all the profits beckoning now,” said the retired Université du Québec à Montréal professor.

**Photograph by: TIM SHAFFER**

REUTERS FILE PHOTO, The Gazette

A worker pours salt into a mixer as he prepares drilling fluid—a combination of water, sand and chemicals—for fracking.
PA “Community Opinions”

Scenes from the January 2011 Inauguration of Gov. Tom Corbett

PA’s Marcellus Shale Country is constructed as a Neoliberal Environment

• Residents are expected to weigh out costs and benefits with imperfect knowledge.
• Water is understood as an abundant and cheap economic input for natural gas production.
  – Potable water is trucked in from the cheapest permitted entity from which O&G is able to buy water
  – “Flow-back” wastewater is trucked off-site to municipal WWTPs
• Regional public health and resource values are reduced to a cost/benefit scenario.
Research Questions and Methods

1. What motivates landowners to lease (or not to lease)?

2. What are sources of knowledge about the risks and benefits?

3. What role do state and federal regulatory agencies play in managing hydraulic fracturing?

4. What are the environmental health impacts?
A political ecology of hydraulic fracturing

Why this approach?

– Water quantity and quality
– Public health and perspectives
– Better understanding of socio-ecological costs and benefits

-> better regulation
“Communities living on top of natural resources private interests wish to extract[.] shale gas in the US, sand mines in Wisconsin, oil in the Ecuadoran Amazon, oil in the Niger Delta... are indigenous native communities. Where the US historically has acted in its sovereign interests at home and operated at times without respect for third world sovereign rights and natural resources, it seems corporate multinational interests are dominating our local state government when it comes to PA citizens[’] right to clean drinking water. The residents of Dimock...dispossessed of their natural resource, clean drinking water, are the new native Americans: the indigenous community atop a natural resource desired by the natural gas industry, a multinational group. I fear this may be the fate of all communities in shale regions.”

- Post on Susquehanna Co. O&G Forum
  Jan. 4, 2011
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