



Deep Drilling, Deep Pockets

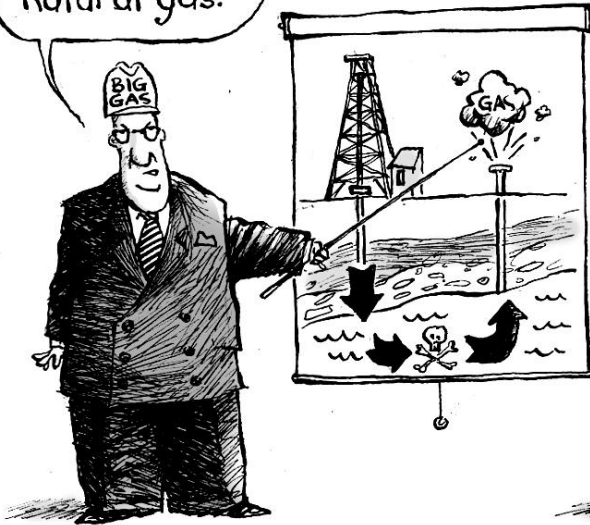
The Campaign Contributions & Lobbying Expenditures of the Natural Gas Industry in Pennsylvania

By Alex Kaplan and James Browning

May 11, 2010

Hydrofracking explained:

Basically, we inject chemicals into the ground, corrupting the water supply while extracting natural gas.



Hydrofracking politics explained:

Basically, we inject money into politicians' pockets, corrupting the democratic process while extracting corporate profits.



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EXECUTIVE SUMMARY

Introduction

Pennsylvania has often been described as the “Wild West” of campaign financing. Ours is one of only eleven states that do not limit campaign contributions, and the state’s online campaign contribution database is not fully searchable or sortable, so that a search for contributions from a particular interest that might take minutes in another state could take hundreds of hours in Pennsylvania. As a result of these two failures—**failure to limit campaign contributions, and failure to make this information truly accessible**—big political donors wield extraordinary influence over the political process in Pennsylvania, even as they face relatively little scrutiny as compared to many other states.

The Natural Gas Boom

The natural gas industry **gave \$2.85 million to political candidates in Pennsylvania between 2001 and March 2010, and it spent \$4.2 million on lobbying since Pennsylvania began requiring lobbyist reporting in 2007.**¹ Spending in both categories has spiked since 2008 as new drilling techniques have enabled the industry to more fully exploit the Marcellus Shale (See chart on p.5). This spike also comes as the industry is seeking to defeat a proposed severance tax on natural gas extraction, defeat a moratorium on drilling in state-owned lands, defeat or delay tougher environmental regulations, and keep information about exactly what mixtures of chemicals are used in natural gas extraction secret. With enough natural gas to fuel domestic demand for at least 10 years—and a current market value estimated at more than \$1 trillion—the Marcellus Shale has enabled the industry to promise a modern-day Gold Rush for the state.

This study tracks the extent of the industry’s giving to elected officials and its success in rapidly expanding operations in the state before the potential for environmental damage from drilling has been fully studied. Pennsylvania and New York are the only major natural gas producing state that does not tax the extraction of this finite natural resource. Revenues from the severance taxes levied in other states are used to fund environmental protection, infrastructure repair, and proper regulation of drilling. On the lack of a severance tax in Pennsylvania, Department of Conservation and Natural Resources Secretary John Quigley recently said, “Quite frankly, the citizens of this state are being played for chumps.”² Or as a spokesman for Chesapeake Energy, which has 519 well permits in Pennsylvania, told a reporter in 2009, “We gladly pay a severance tax in every state where we’re active, except in New York and Pennsylvania.”³

A modern-day Gold Rush in a state with “Wild West” campaign finance laws is a potentially dangerous combination. Without a severance tax, how will Pennsylvania pay to mitigate environmental damage, maintain and expand local infrastructure, and cover other costs that result from drilling? And without further study of the environmental consequences of hydraulic fracturing for the state’s water supply, and the possible risks to human health, how can we know how great this cost will be?

A Bonanza of Lobbying & Campaign Contributions

Below is a summary of this study's key findings.

- **Drillers have a clear favorite in the 2010 gubernatorial race**—Republican Tom Corbett, recipient of \$361,207, with 93% of these contributions coming since January 2008. Among the candidates on the Democratic side, Dan Onorato was the top recipient with \$59,300, followed by Jack Wagner with \$44,550. Joe Hoeffel received a single contribution of \$2,000 from the industry in 2004 while running for the U.S. Senate, but has received nothing since. Democratic candidate State Sen. Anthony Williams received no contributions from the industry, as did Republican candidate State Rep. Sam Rohrer.
- **The biggest single donor by far was S.W. Jack Drilling with \$1 million in contributions**—an amount that comprises more than a third of the industry total of \$2.85 million over the last ten years. Of S.W. Jack Drilling's total, \$990,000 came from CEO Christine Toretti.
- **Gov. Ed Rendell was number six on the list of top recipients with \$84,100.** Rendell has been a leading proponent of a severance tax, but has also called himself the industry's "best ally."
- Among recipients that could be identified as belonging to one of the two major parties, 84% of industry contributions went to candidates and committees that could be identified as Republican (\$2.28 million), while 16% went to candidates and committees that could be identified as Democratic (\$428,000).
- **The industry's annual lobbying expenditures have roughly tripled in the last three years**, from \$579,000 in 2007 to \$1,685,000 in 2009. And from the last quarter of 2009 to the first quarter of 2010, lobbying expenditures rose from \$421,000 to \$716,000.
- **Several of the contributors identified in this study have given to multiple candidates in the 2010 governor's race.** For example, on 12/16/09, Consol Energy CEO J. Brett Harvey gave \$5,000 to Tom Corbett, then gave \$5,000 to Dan Onorato on 12/23/09. From 2009-10, the Range Resources PAC gave \$16,416 to Tom Corbett, \$5,000 to Jack Wagner, and \$5,000 to Dan Onorato.
- The 33 Nay votes in the House's recent passage of a drilling moratorium on state-owned land took on average **3.4 times as much money from the industry** (\$162,400 total, \$4,923 average) as did the 42 co-sponsors of the bill (\$60,650 total, \$1,444 average).

A complete list of industry contributions and lobbying expenditures may be obtained from the Common Cause Education Fund by contacting akaplan@commoncause.org

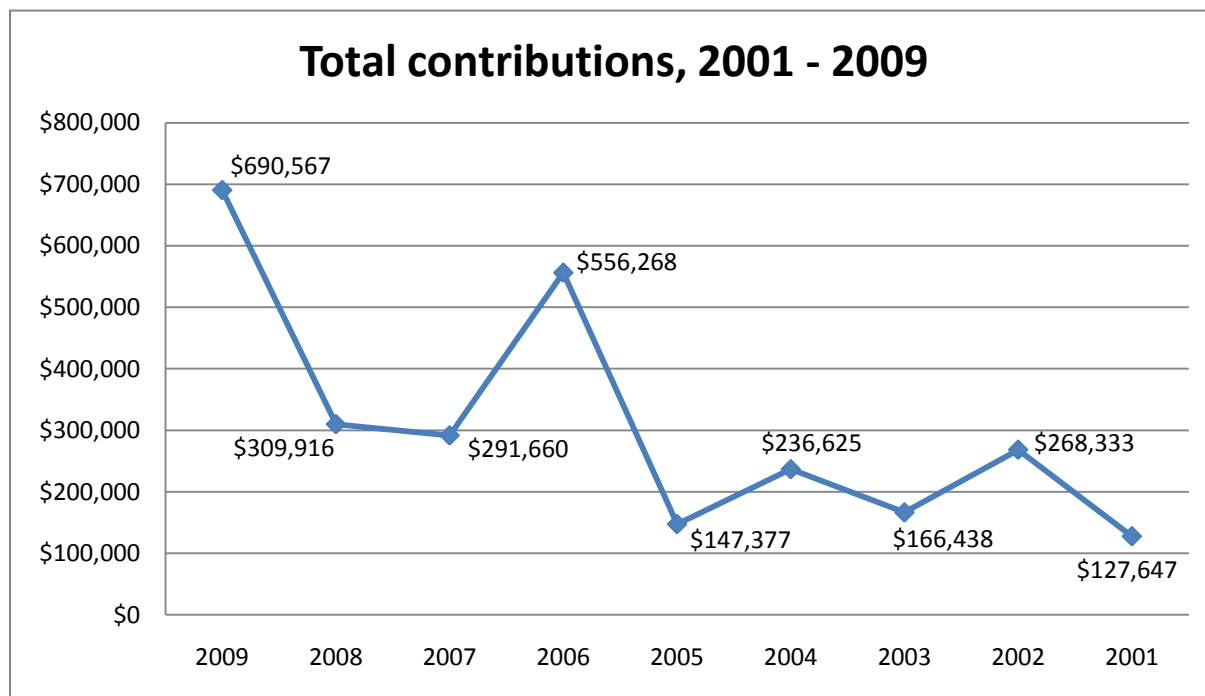
CAMPAIGN CONTRIBUTIONS AND LOBBYING EXPENDITURES

How has the natural gas industry been so successful in achieving its legislative and regulatory goals in Pennsylvania—victories that allow the industry to avoid paying a severance tax, open up publicly-owned lands for drilling, minimize environmental protection, and evade disclosure of exactly what mixtures of toxic chemicals are being used in hydraulic fracturing? Two of their most powerful tools have been campaign contributions and lobbying expenditures.

CAMPAIGN CONTRIBUTIONS

The natural gas industry made **\$2,853,896 in campaign contributions to Pennsylvania candidates, committees, and PACs between 1/1/01 and 3/29/10**. This total includes contributions from twenty-three drilling companies (with a combined 2,418 well permits), two natural gas pipeline companies involved in partnerships with Marcellus drillers, and one trade group (the Pennsylvania Independent Oil and Gas Association).⁴

The graph below details the upward trend in campaign contributions from 2001 to 2009. 2010 Cycle 1 data has been left out of the graph as it represents only one-fourth of the year. A significant increase in giving can be seen from 2005 to 2010 as drilling in the Marcellus Shale expanded.



Analysis

The relative dearth of industry contributions leading up to the 2002 gubernatorial election (Republican Mike Fisher received \$98,000 and Democrat Ed Rendell \$10,000 in 2001-02) reflects the relative lack of interest in Marcellus Shale drilling prior to 2005, and suggests the industry’s purpose behind dramatically increased campaign contributions. The spike in 2006 is due to the gubernatorial race between Republican Lynn Swann, who received \$351,000 from the industry, and Democrat Ed Rendell, who received \$33,500 of his total \$84,000 from the industry from 2005 through the 2006 general

election. And while Rendell may not have been drillers favorite candidate during the election, he received a \$25,000 contribution from one industry CEO immediately after winning in 2006 – the timing of this donation suggesting an attempt to gain access and influence, as opposed to helping Rendell win another election, since he was term-limited and unable to run again in 2010.

More than half of the \$691,000 contributed in 2009 went to the three frontrunners in the 2010 gubernatorial race – Republican Tom Corbett (\$284,000), Democrat Dan Onorato (\$59,000), and Democrat Jack Wager (\$9,000). Given the increasing development of the Marcellus Shale, it can be said that the stance of Pennsylvania’s next governor towards the industry will be even more important than Gov. Rendell’s.

Top 10 natural gas industry donors from January 2001 - March 2010

Company	# of well permits	Contributions
S.W. Jack Drilling	0	\$1,002,000
East Resources	283	\$427,500
Dominion	36	\$323,800
CNX Gas (Consol)	89	\$270,800
Seneca Resources	59	\$201,000
EQT	79	\$192,700
Snyder Bros.	28	\$144,700
Indep. Oil & Gas Association of PA	-	\$77,800
Chesapeake Energy	519	\$58,400
Range Resources	405	\$52,300

Profiles of Top 5 donors

- 1. S.W. Jack Drilling** is based in Indiana, PA, and is the largest privately-held land-based drilling company in The United States, providing services to exploration and production companies in the Appalachian Basin. CEO Christine Toretti’s personal campaign contributions (\$990,000) comprise more than a third of the natural gas industry’s total in Pennsylvania from 2001-2010. Pennsylvania Gov. Mark Schweiker appointed her as his representative on the Interstate Oil and Gas Compact Commission, and she chaired the campaign of 2006 Republican gubernatorial nominee Lynn Swann. She is currently one of four Pennsylvania State Committeemembers on the Republican National Committee. Toretti was married to University of Arizona basketball coach Lute Olson and has also made contributions under the name “Christine Olson.” On May 1, 2010, Toretti announced that S.W. Jack “would be liquidating its operating assets and will be investing the proceeds in endeavors within the energy industry and other innovative realms.”⁵
- 2. East Resources** is headquartered in Warrendale, PA, and has 1.25 million acres of land holdings. Founded in 1983 by Penn State graduate Terrance M. Pegula, East Resources owns and operates more than 2,500 wells in Pennsylvania, New York, West Virginia, and Chicago. The company website emphasizes that a long-term presence in the Marcellus Shale area has brought “relationships with landowners and industry partners to allow East to move quickly and efficiently in this endeavor.” The personal contributions of Terrance Pegula and his wife, Kim, (\$373,000) amount to 13% of the industry’s total contributions in Pennsylvania.
- 3. Dominion Corp** is a multifaceted power and energy company based in Richmond, Virginia. While its natural gas production division, Dominion Exploration and Power, was sold for \$3.48 billion to Consol subsidiary CNX Gas on April 30, 2010, the company website states that Dominion Transmission’s future “activities in the Appalachian region will focus on investments [surrounding]

the significant amount of new gathering and pipeline infrastructure that development of the Marcellus formation will demand.”

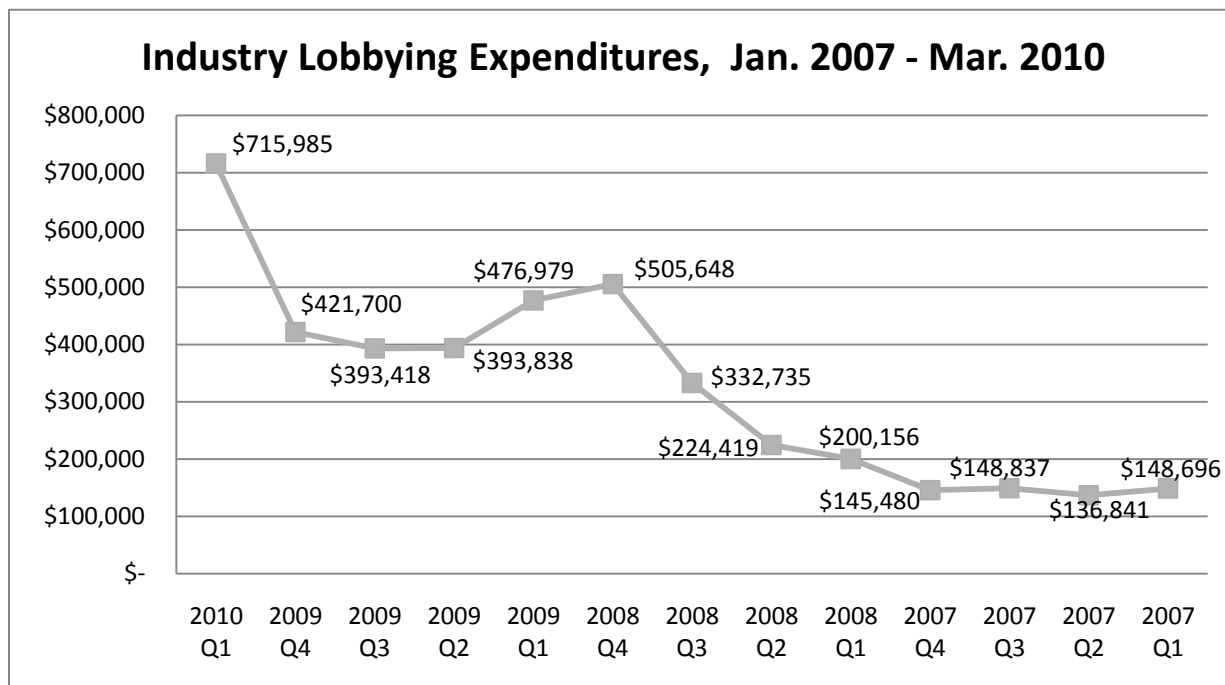
4. **CNX Gas** is headquartered in Pittsburgh, PA, and has leases for 230,000 acres in the Marcellus Shale formation. Consol Energy has 83% ownership stake in CNX Gas, and CEO Brett Harvey recently stated Consol’s intent to buy the remaining publicly traded shares not in its control.⁶ A fundraiser for State Rep. Timothy Solobay’s 2010 Senate campaign (D-Washington county) was recently hosted by “Consol Energy & CNXGASPAC” on 4/29/10.
5. **Seneca Resources** is a wholly-owned subsidiary of National Fuel Gas Corporation and operates approximately 2,500 wells in northwestern Pennsylvania and western New York. Seneca has drilling rights to more than 700,000 acres in northern Pennsylvania, including 18,000 acres of state forests, and plans to spend \$1.3 billion digging 365 new wells over the next three years.⁷

Top 25 recipients of industry contributions from January 2001 - April 2010

		Name	Amount	Current PA role	Description
1	R	Corbett, Tom	\$361,207	Attorney General	2010 Republican Governor candidate for Governor
2	R	Swann, Lynn	\$351,263	-	2006 Republican Governor candidate for Governor
3	R	Scarnati, Joseph	\$105,075	Sen. Pres. & Lt. Gov.	President Pro Tem of Senate, Past chair of Labor and Industry & Sen. Maj. Policy
4	R	Fisher, Mike	\$98,386	-	2002 Republican Governor candidate for Governor
5	R	Lally-Green, Maureen	\$86,610	-	Past Justice PA. Superior Court
6	D	Rendell, Edward	\$84,100	2002-2010 Gov.	Current PA Governor
7	D	Onorato, Dan	\$59,300	Allegheny Cnty. Exec.	2010 Democratic candidate for Governor
8	R	Reed, Dave	\$57,042	House	Chair, Appropriations Subcommittee on Fiscal Policy
9	R	White, Don	\$47,975	Senate	Chair, Banking and Insurance Comm.
10	D	Wagner, Jack	\$44,550	Auditor General	2010 Democratic candidate for Governor
11	R	Corman, Jake	\$33,840	Senate	Chair, Appropriations Comm.
12	R	Jubelirer, Robert C.	\$32,200	-	Lt. Governor of PA 2001-2003
13	D	DeWeese, Bill	\$29,400	House	Past Dem. & Majority Leader
14	R	Turzai, Mike	\$25,900	House	House Minority Whip
15	R	Orie, Jane Clare	\$24,000	Senate	Vice Chair, Rules and Executive Nominations Comm.
16	R	Pippy, John	\$21,200	Senate	Chair, Majority Policy Comm.
17	R	Smith, Samuel	\$17,600	House	House Minority Leader
18	R	Snyder-Starr, Rebekah	\$18,750	-	Ran unsuccessfully for House in 2004 All donations from Snyder Bros. executives
t19	R	Peters, Joe	\$15,000	-	Unsuccessfully pursued 2004 GOP Attorney Gen.
t19	R	Beiler, Chet	\$15,000	-	2010 Republican candidate for Lt. Governor Unsuccessfully pursued 2008 GOP Auditor Gen.
21	R	Melvin, Joan Orie	\$13,363	St. Supreme Ct. Just.	
22	D	Stout, Barry	\$12,650	Senate	
23	R	Tomlinson, Robert	\$12,600	Senate	Vice Chair, Appropriations Comm.
24	R	Pileggi, Dominic	\$12,000	Senate	Senate Maj. Leader Chair, Rules and Executive Nominations Comm.
25	R	Pyle, Jeff	\$11,920	House	Chair, Environmental Resources & Energy Comm. Subcommittee on Mining

LOBBYING EXPENDITURES

In 2007, Pennsylvania became one of the last states to require lobbyists to report their expenditures and the issues on which they have been lobbying. **From January 2007 through March 2010 the industry spent \$4,244,732 on lobbying state government officials.** This graph shows the rapid rise in lobbying expenditures by the natural gas industry since reporting began.



Top 5 industry lobbying expenditures from 2007-2009

Company	# of well permits	Contributions
Dominion	36	\$831,699
Range Resources	405	\$492,974
EQT	79	\$485,243
Chesapeake Energy	519	\$377,319
Spectra Energy	n/a, Pipeline	\$338,303

Many of the drilling companies in this study are members of the Marcellus Shale Coalition. Its mission is “to address issues with regulators, government officials and the people of the Commonwealth about all aspects of drilling and extracting natural gas from the Marcellus Shale formation.”⁸ The Marcellus Shale Coalition first registered to lobby in 2010 and spent \$205,000 in Q1 2010.

NATURAL GAS AND THE MARCELLUS SHALE

The Marcellus Shale contains the largest natural gas deposit in North America and the second-largest in the world. Most experts agree that the Marcellus Shale contains 250 to 500 trillion cubic feet of extractable natural gas, an amount that could serve domestic needs for over 10 years at current levels of United States demand.

Historically, far more readily accessible “non-associated” natural gas sources, such as natural gas fields, have been the focus of drilling production. But recent advances in drilling techniques have allowed production companies to profitably invest in the extraction of natural gas from “unconventional sources” such as the Marcellus Shale, which is a layer of shale rock between 4,000 and 8,000 feet underneath Pennsylvania, New York, West Virginia, and Ohio.”⁹

Given that natural gas use produces roughly half the amount of carbon dioxide, nitrogen oxides, and other greenhouse gases as do oil-based fuels, this methane-based resource is seen by many as an important “transition fuel” in the fight to limit global warming. And as the dominant non-associated natural gas fields exist in Russia and the Persian Gulf, significant political and economic incentives, coupled with public pressure to achieve energy independence, have driven interest in Marcellus Shale drilling. Rising prices have also played a part. In 2000, the price for a thousand cubic feet (MCF) of natural gas was \$2.60. In mid-2008, the price rose as high as \$10.82/MCF, generating further interest in the profit potential of the Marcellus Shale. And while the recession drove the MCF cost to as low as \$2.92 in September 2009, a recovering economy is expected to raise prices and further spur the need for domestic drilling. The February 2010 price was \$4.89/MCF.¹⁰

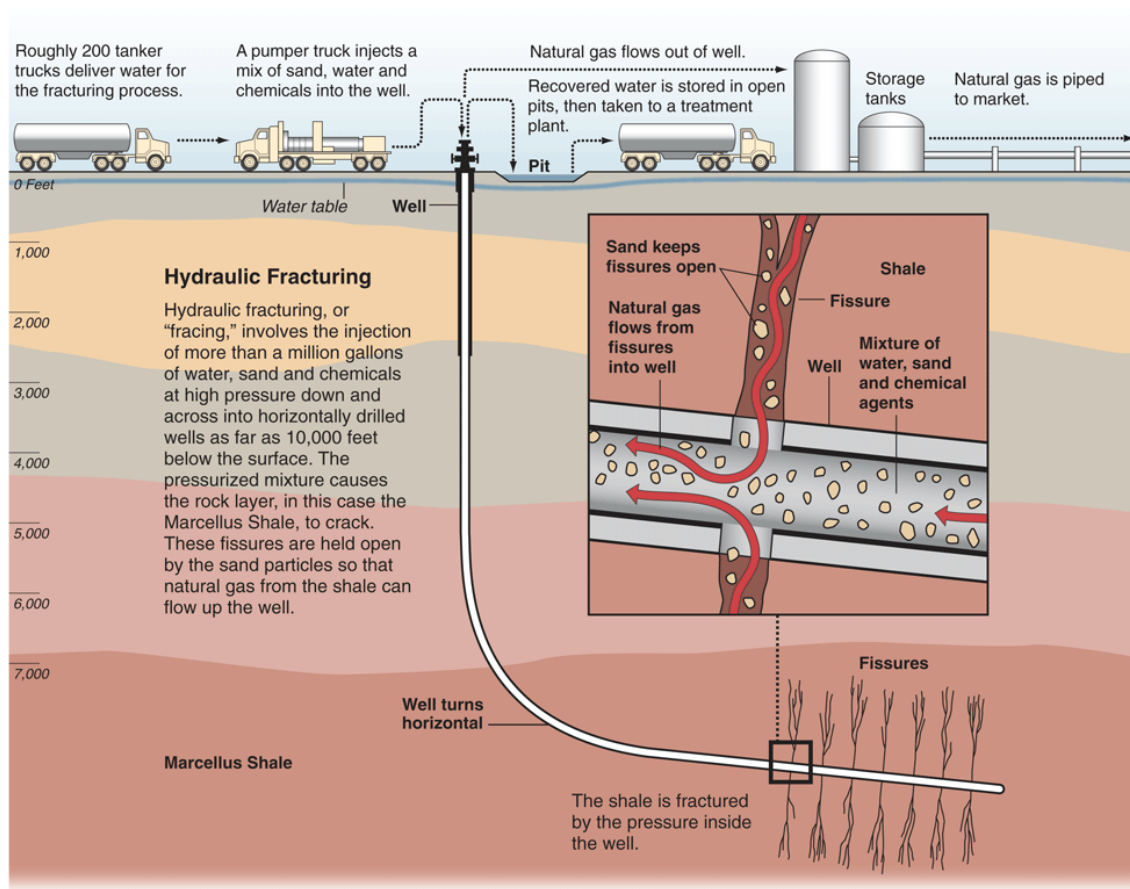


DRILLING OVERVIEW

HYDRAULIC FRACTURING PROCESS

Hydraulic fracturing, a process developed by Halliburton and first used in Oklahoma in 1949, is used to drill for natural gas from unconventional sources in which the natural gas is not readily accessible.¹⁶ The hydraulic fracturing process, commonly referred to as “fracking,” is used to force fluid containing proppants, most often in the form of sand, into very small fissures in the shale rock, enlarging the fissures and freeing the natural gas for extraction. As the pressure is relaxed and the fluid is withdrawn, the sand proppant remains lodged in the fissure to allow the gas to flow from the shale rock and up the well. Water is the primary carrier of the sand, but a proprietary mix of chemicals is added to the fluid to serve a variety of other purposes, discussed on the next page under “Fracking Fluid.”

Hydraulic fracturing involves turning the well horizontal at the depth of the shale rock, typically 50 to 200 feet thick in the Marcellus Shale. This a relatively new technique that allows operators to spout several wells from one location that together have increased access to a bed of shale below an area as large as one square mile. To accomplish this with vertical wells it was previously necessary to drill in multiple locations, making drilling vertically for natural gas in shale rock relatively unprofitable.¹⁷



Graphic by Al Granberg

Courtesy of ProPublica

FRACKING FLUID

Fracking fluid is typically made up of roughly 90% fresh water, 9% proppant (most often sand), and 0.5-1% chemicals for purposes ranging from inhibiting the growth of organisms (biocides), reducing friction and surface tension, and increasing viscosity (gelling agents). As fracking a horizontal well typically uses 5 million gallons of fluid (and 4.5 million gallons of fresh water), it can be expected that between 25,000 and 50,000 gallons of assorted chemicals are used for each well.

There is immense concern on the part of health professionals and environmentalists that many of these chemicals carry adverse health effects and could harm humans and animal species through water contamination. Perhaps most alarming is the use of benzene, a known carcinogen. In an analysis of a list of forty-one fracking chemicals provided by the DEP as known to be used specifically in Pennsylvania drilling, the Endocrine Disruption Exchange (TEDX) found that:

98% are associated with skin, eye or sensory organ effects. Ninety-five percent can cause respiratory effects and 83% are associated with gastrointestinal or liver effects. Sixty-nine percent can harm the brain and nervous system, 67% are associated with cardiovascular system effects, and 62% can have ecological effects (harm to aquatic species, birds, amphibians or invertebrates).¹⁸

The analysis notes that these chemicals, 83% of which are water soluble and 45% of which are volatile (may become airborne), can cause both immediate and long-term side effects: "Complete records for each well must be kept for a realistic picture of what is being introduced into watersheds, air, and soil...The hazard posed by natural gas operations to our health and the environment requires full disclosure of this information."¹⁹

It is estimated by industry experts and regulators that only 15 to 40 percent of the fracking fluid comes back up the well and is recovered, leaving between 60 and 85 percent permanently underground.²⁰ Ken Komoroski, company spokesman for Cabot Oil & Gas and an attorney and lobbyist at the prominent firm K&L Gates, told ProPublica, "Most of the water and sand stays in the formation compared to in other geologic formations."²¹ On the dangers of chemicals remaining underground, drilling companies are quick to point out that these chemicals make up less than 1 percent of the fluid used for each horizontal well. Bucknell geology professor Carl Kirby has called this emphasis "a bit of 'spin'," as roughly 30,000 gallons of chemicals may remain in the ground after each fracking job is complete.²²

Unfortunately, the natural gas industry guards the makeup of fracking fluid as proprietary information, arguing that they must compete against each other to find the chemical mix most effective for fracturing. And as the process of hydraulic fracturing was made exempt from federal oversight and regulation in 2005 (for more on this read "Studies and Regulation," below), health professionals and researchers have no basis to evaluate the realistic health effects of water contamination by these chemicals. State departments have made efforts to compile lists of chemicals they believe may be used in the fracturing process; the draft of New York State's upcoming study on the environmental effects of hydraulic fracturing lists hundreds of potential chemical compounds and details the negative health effects of many.²³ However, without proper oversight any list remains woefully incomplete. The Pennsylvania DEP's Bureau of Oil and Gas management informed Common Cause/PA that they are aware of some chemicals used in fracking that do not appear in New York's draft study, a testament to the fact that lack of federal regulation causes informational disparities with the potential to harm the public interest.

Just as concerning as the lack of regulation of the chemical makeup of fracking fluid additives is the absence of oversight regarding the concentration of those chemicals. A recent Pennsylvania DEP overview of state and federal regulations issued to protect water resources in relation to oil and gas drilling noted that “potential fracture fluid additives such as benzene, ethylene glycol, and naphthalene have been linked to negative health effects at certain exposure levels.” Industry representatives argue that the use of chemicals known to be harmful to human health is permissible given that they are used in quantities low enough so as not to pose danger. Furthermore, the concentration of chemicals in fracking fluid is constantly being altered by industry specialists in order to enhance the effectiveness of drilling. A U.S. Department of Energy report concludes:

“The best way to eliminate concern would be to use additives that are not associated with human health effects. While desirable, this is not yet possible in the case of some additives because the alternatives do not always have the properties necessary to provide the same degree of effectiveness as more traditional constituents...Regardless of relative concentration, it is important that additives be prevented from entering ground water and creating unnecessary risks.”²⁴

ENVIRONMENTAL ISSUES

The natural gas industry touts its product as “a clean-burning energy resource that can be extracted safely, while protecting our environment,”²⁵ and the industry collectively asserts that there has never been a confirmed instance of water contamination due to the hydraulic fracturing process. But water polluted by the drilling process may have a profound effect on human health and our entire ecosystem. Pollution may occur underground, with fracking fluid chemicals or methane natural gas directly contaminating aquifers and drinking wells, or above ground, as streams or tributaries are polluted by spills or improper wastewater disposal and exposed to potentially dangerous levels of fracking chemicals or total dissolved solids (TDS). And while the following section details the various types of water pollution linked to hydraulic fracturing, it should not be forgotten that the drilling process may take other tolls on the environment, ranging from soil erosion and habitat loss (especially in state forests, where land has been leased by the state government to raise revenue and drilling has already begun) to noise and air pollution affecting both nearby residents and wildlife populations. Furthermore, immense amounts of fresh water (roughly 4.5 million gallons) are necessary for each fracturing job, constituting a heavy use of water resources.

Nationwide, over 1,000 complaints of water contamination due to hydraulic fracturing have been catalogued by Abraham Lustgarten at ProPublica, a public interest investigative journalism group that is led by a former managing editor at the Wall Street Journal, and recently won the first Pulitzer Prize (for Investigative Reporting) awarded to an online source.²⁶

What is the potential for such contamination over the decades in which the Marcellus Shale will remain profitable? Pennsylvania has been criticized for the haste with which it has embraced the drilling industry, and for leaving the DEP unprepared to thoroughly review permits for well site and wastewater disposal. The Chesapeake Bay Foundation (CBF) recently called on the DEP to restructure its expedited permit process (implemented in March 2009) which guarantees that permit decisions will be issued within 14 days, arguing that such a short period does not allow citizens and resource agencies the time necessary to review and comment. The CBF emphasized its concern that the “DEP does not conduct any

detailed technical environmental review of the plans that drilling companies are required to submit in order to minimize environmental impacts, so long as those plans are signed and sealed by the paid professional consultant for the drilling company.”²⁷ Indeed, Kathryn Z. Klaber, President of the Marcellus Shale Coalition, has called Pennsylvania the “sweet spot” for Marcellus shale drilling: “New York’s regulatory regime has made it less desirable to invest there. Our members still spend time in Albany, but Pennsylvania has been more hospitable.”²⁸

WATER CONTAMINATION

SUBTERRANEAN GROUNDWATER CONTAMINATION

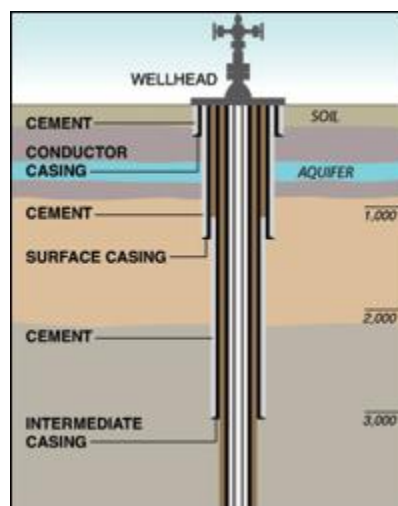
As hydraulic fracturing is a largely industry-regulated process, it is difficult to fully understand the potentially negative health and environmental consequences that originate deep within the earth. The stark lack of oversight and government regulation of what happens when drilling extends not only far underground, but horizontally for as much as a mile, raises a number of serious questions.

Industry representatives contend that the fracking process within shale rock is far too deep underground to allow for migration of methane gas or fracking chemicals into groundwater supplies. But, as discussed below in “Studies and Regulation,” the lack of an independent investigation into the process, especially one that addresses the recent advent and utilization of horizontal drilling, leaves the issue unclear. Furthermore, the enduring environmental effects of leaving underground thousands of gallons of fracking fluid chemicals, long after the drilling industry has profited and moved on, remains completely undetermined. Despite their collective confidence that the fracking process carries no risk of water contamination, the continued absence of thorough investigation and regulation stands in the industry’s best interest.

However, far less ambiguous are the concerns regarding improper well casing and groundwater pollution. While the actual hydraulic fracturing process of forcing fluid consisting of water, sand, and chemicals into shale rock to release natural gas takes place thousands of feet below most aquifers used for drinking water, it is not uncommon for a well to pass through or near an aquifer on its way to the gas-rich shale. Cracks in the casing may allow well contents, from the methane gas derived from shale rock to harmful fracking fluid chemicals, to seep into groundwater used for human consumption.

The dangers of pollution caused by improper well casing are not speculation. In 2009, the DEP cited Cabot Oil and Gas for allowing methane natural gas to leak into groundwater in Dimock Township, causing an explosion within a private water

well and contaminating the drinking water of fourteen area homes.²⁹ The cause of methane gas discharge into groundwater was later presumed by the DEP to be a leak due to improper well casing. In April 2010, the DEP fined Cabot \$240,000 for not complying with their previously issued order to fix the well casings.³⁰ While methane itself in water is not necessarily harmful, it can evaporate out of water and into peoples’ homes where it may become flammable, cause brain damage, or lead to suffocation. There have been multiple reports in Pennsylvania and other states of explosions caused by methane in drinking wells and



Courtesy of ProPublica

houses by way of aquifers and plumbing.³¹ And in his recent documentary film “Gasland,” Josh Fox shows one Dimock resident who is able to light his methane-polluted tap water on fire.

The Department of Energy’s May 2009 publication on water protection relevant to natural gas drilling concludes, “Until effective alternatives to other, traditional additives are in wide use, the best way to protect ground water is to isolate hydraulic fracturing fluids from ground water zones.”³²

ABOVE GROUND WATER POLLUTION

The rapid development of gas drilling in Pennsylvania has forced consideration of how to handle the immense amount of wastewater, or flowback fluid, produced by each fracturing job. Problems with spills and improper or ineffective wastewater disposal have recently become a focal point of activists calling to slow or halt Marcellus drilling until impact can be assessed. In 2009, Cabot Oil & Gas spilled 8,400 gallons of fracking fluid into Dimock Township creeks and wetlands.³³

Drilling operations across the nation typically dispose of some of their flowback fluid by injecting it into underground “disposal wells,” administered by the EPA. However, the number of available disposal wells in Pennsylvania is far too small to serve the rapidly growing wastewater needs of the drilling industry.³⁴ Therefore, wastewater must either be trucked to treatment plants or discharged into nearby waterways for absorption. Industry estimates set the demand for wastewater treatment at 9 million gallons per day (MGD) in 2009, 16 MGD in 2010, and 19 MGD in 2011.

Flowback fracking fluid contains the original concentration of fracking chemicals and also may have a high concentration of dissolved solids picked up from deep underground during the fracturing process. Measured as TDS (total dissolved solids), these solids are inorganic salts and other organic matter that often contain toxic metals or organic pollutants and dramatically increase the salinity of the wastewater. When added to rivers and streams, increased salinity as an effect of TDS has caused a drastic “shift in biotic communities,” according to an April 2009 DEP release. Furthermore, the DEP acknowledges that “Many of the areas where the drilling for natural gas is proposed have a history of mining activity and are affected by Abandoned Mine Drainage.”

Discharge of wastewater in the Monongahela River basin in the fall of 2008 caused a violation of water quality standards at all seventeen monitor stations that persisted through December. Citing increases in other rivers, such the Beaver and Conemaugh Rivers in southwestern Pennsylvania, the DEP has stated that “the Monongahela is not an anomalous situation” and that watershed analyses demonstrate that the Susquehanna River is “severely limited in the capacity to assimilate new loads of TDS and sulfates.” The department has indicated its intention to prohibit the discharge of high-TDS fluid into Pennsylvania’ waters by January 2011, proposing in part the partial removal of TDS to achieve low-TDS levels approved for discharge. However, the DEP permitting strategy memo makes no mention of the health concerns raised by the presence of fracking fluid chemicals in all discharged wastewater.³⁵

Plans for wastewater disposal at treatment plants are equally incomplete. While the New Mexico-based company Altela recently demonstrated a treatment process that satisfied DEP observers, the capacity of Altela’s proposed plant in northeastern Pennsylvania is far too small to treat the amount of wastewater produced by the state’s fracking jobs.³⁶ Other, more traditional treatment facilities in the state have woefully inadequate capacities and limited or undetermined effectiveness. Officials at a New York state metropolitan treatment plant also lack confidence in their ability to treat hydraulic fracturing wastewater as the contents remain unknown.³⁷ As detailed in the following section, the natural gas industry’s grip on federal policy makes it impossible for the public to understand the chemical contents of fracking fluid.

STUDIES AND REGULATION

2000-04 EPA STUDY

When the EPA announced in 2000 that they were designing a study to investigate the potential for hydraulic fracturing to contaminate groundwater, the United States Department of Energy stated that the EPA should be careful about regulating the process so as to not hinder economic growth in the industry.³⁸ When released in 2004, the study concluded that the process is environmentally harmless. The two-year project was originally vigorously opposed by the industry, but with the release of these unexpected findings, the oil and gas drilling industry began to cite the research in their calls for less regulation.

Many environmentalists had qualms with the study and called its findings questionable, emphasizing that groundwater testing for the study was not conducted by the EPA but rather by state oil and gas commissions, entities the *Denver Post* said are “traditionally dominated by the industry.”³⁹ But perhaps more concerning are the issues raised by Weston Wilson, an EPA environmental engineer who contacted members of Congress in October 2004 and sought protection under the Federal Whistleblower Protection Act. Wilson, who had worked at the EPA for 31 years, noted that five of the seven members of the study’s external peer review panel of experts had conflicts of interest (three of those five were at the time employed by the gas industry) and criticized its authors for making no attempt to investigate the migration of methane as a result of fracking. Highlighting the fact that the agency could come to such concrete conclusions despite the fact that, as written in the report, the “EPA was unable to find complete chemical analyses of any fracturing fluids,” Wilson called the study’s findings “scientifically unsound and contrary to the purposes of the [Safe Water Drinking Act].”⁴⁰ As *The New York Times* editorialized in November 2009, the EPA’s 2004 study “whitewashed the industry and was dismissed by experts as superficial and politically motivated.”⁴¹

FEDERAL REGULATION EXEMPTION & THE “FRAC” ACT

The findings of the 2004 EPA study led Congress, through the 2005 Energy Policy Act, to exempt hydraulic fracturing from any federal regulation and oversight under the Safe Drinking Water Act.⁴² Normally, any industry looking to inject underground a foreign substance, even salt water, would be required by the EPA to conduct geological studies investigating environmental impact, adhere to strict construction standards, and closely monitor equipment and systems over time so as to be certain that their activities pose no threat to drinking water.⁴³ The exemption was added at the request of Vice President Dick Cheney, whose office, according to the *Los Angeles Times*, was “involved in discussions about how fracturing should be portrayed in the report.” Prior to joining the Bush administration, Cheney was CEO of Halliburton, the company that originally developed the technique of hydraulic fracturing and makes more than \$1.5 billion a year from the use of the process in over 30,000 wells per year.^{44,45} From 1998-2006, Halliburton gave \$1.23 million in campaign contributions to members of congress and congressional candidates.

The EPA and the three major fracturing companies (Halliburton, BJ Services, and Schlumberger) entered into a voluntary memorandum of agreement (MOA) in 2003 to discontinue the use of diesel fuel in fracking fluids. This MOA wholly constitutes the current extent of federal regulation of hydraulic fracturing. In an inquiry initiated by Energy and Commerce Committee chairman Rep. Henry Waxman (D-CA), Halliburton and BJ Services were found to have knowingly violated the MOA between 2005 and

2007, using fracking fluid with hundreds of thousands of gallons of diesel fuel containing chemicals that have confirmed negative health effects.^{46, 47}

Sen. Robert Casey (D-PA) recently emphasized the importance of federal regulation, stating, “We have to do this the right way this time. It's so fundamental to the lives of Pennsylvania families...People need to know what's being injected into the ground to release natural gas. That's one reason we need to pass the FRAC Act.”⁴⁸ The FRAC Act, pending legislation introduced in both the House and the Senate, would require drillers to disclose the full content of their fracking fluid and amend the Safe Drinking Water Act to include federal regulation of hydraulic fracturing.

The Independent Oil and Gas Association of Pennsylvania (IOGA), the board of which includes executives of many of the prominent natural gas drilling companies active in the Marcellus Shale region, has for months had on its website an action alert asking members and visitors to lobby Sen. Casey to reconsider his support for the FRAC Act and increased regulation.⁴⁹

2010 EPA STUDY

In compliance with a 2009 mandate from Congress, the EPA recently announced plans to study the environmental and human health impact of hydraulic fracturing.^{50, 51} The EPA has asked for public input regarding research strategy and study design, and Halliburton Energy Services, Inc. has submitted comments criticizing the EPA for the “overbreadth” of the proposed study scope. Claiming that the EPA’s stated intent to consider the impact of drilling on “water resource functions, such as aquatic ecosystems and recreational activities” goes beyond the intention and authorization of Congress, Halliburton wrote:

“...the health of aquatic ecosystems and the use of water for recreational purposes have nothing whatsoever to do with the use of water for human consumption. In fact, the congressional mandate to study the relationship between hydraulic fracturing and drinking water clearly indicates that the focus of the study should be on human health, not on potential environmental impacts.”⁵²

What will this new study find, and how much environmental damage will have occurred before it has been completed? The chief economist of the American Petroleum Institute recently stated that the natural gas industry does not oppose the second EPA study “as long as it’s not something that is used by opponents just to stop [drilling].”⁵³

ECONOMIC ISSUES

Pennsylvania's portion of the Marcellus Shale is proving to be the industry's "sweet spot" for another important reason—the fact that Pennsylvania does not levy a severance tax on natural gas extraction, unlike every other major fossil-fuel producing state. This is especially striking because the Marcellus Shale's proximity to the highly-profitable northeast natural gas market gives Pennsylvania's drillers and suppliers a significant cost advantage over those in western states. The U.S. Energy Information Administration estimates that 48% of the cost of natural gas to consumers is driven by the price of transportation and distribution.⁵⁴ Gas drilling in Pennsylvania will no doubt bring an economic boost to the state, and similar formations in Texas and Arkansas have recently brought substantial increases in employment and economic activity.⁵⁵

TAXING NATURAL GAS DRILLING

SEVERANCE TAX IN PENNSYLVANIA

Gov. Ed Rendell has called the Marcellus Shale Pennsylvania's "golden goose" and described himself as the natural gas industry's "best ally." At the same time he has called for levying a severance tax and using 90% of the revenue to fund programs begun under the American Reinvestment and Recovery Act of 2009, while giving 10% to municipalities in which wells are being drilled.⁵⁶ Severance taxes are imposed by every major fossil-fuel producing state in the nation and these taxes are typically used to cover costs created by drilling activity. These costs are referred to by economists as "externalities" and include infrastructure wear and tear, safety oversight, emergency response services, and – most of all – the prevention and repair of environmental damage resulting from groundwater contamination, chemical spills, soil erosion, forest fragmentation and habitat loss, and noise and air pollution. Such externalities will impose a significant financial burden on local and state governments. A severance tax would also serve to compensate the state and its residents for the extraction and loss of a limited natural resource, one which drilling operators will sell at a profit.

Drilling companies and other interested parties have from the start scorned the idea of a severance tax, insisting that such a tax would destroy the industry in its formative years. Range Resources vice president Ray Walker, Jr. wrote in a *Pittsburgh Post-Gazette* editorial that "Imposing the tax on the conventional oil and gas industry would make the development of marginally profitable wells impossible."⁵⁷

In his 2009-10 budget, Governor Rendell proposed a severance tax of 5% of the sale price and \$0.047 per thousand cubic feet of production, a rate that mirrors West Virginia's successful tax and is modest in relation to other gas-producing states. Texas taxes natural gas at 7.5 percent of the market value while Montana has the highest severance tax of any state, at 15.06 percent.⁵⁸ Given current gas prices, the proposed Pennsylvania severance tax would amount to roughly 6.2%.⁵⁹ To formulate a tax structure that would not impede the growth of the drilling industry, Rendell sought the input of Governor Joe Manchin III of West Virginia. Manchin assured him that his state's severance tax did not "inhibit gas extraction and that it is continuing at a record pace," and that "it's reaping critically needed revenues so the state can provide services to its citizens."

Rendell estimated the tax would raise \$107 million in its first year. But when the 2009-2010 budget emerged after the legislature's infamous 101-day deadlock, the severance tax was not included. The result, according to state Rep. Greg Vitali (D., Delaware), was an example of the "same old

influential groups getting their way.” Rendell told reporters that the industry had made solid arguments against the tax and that he did not want to slow the “gold rush.”⁶⁰ Rendell then proposed the same tax in his 2010-11 budget, estimating that, based on drilling increases over the past year, the tax would raise \$160.7 million for FY2010-11 and \$475.5 million in FY 2014-15. At a March 2010 industry conference in Fort Worth, Texas, Rendell told the audience that drilling interests currently have “the chance to work with a governor who is pro-industry and who has stood up publicly and fought for the industry” to construct a reasonable severance tax.⁶¹

The ability of state and local governments to collect tax revenue from natural gas production is marred by exemptions and specific corporate structuring. Landowners leasing drilling rights to operators pay income tax at 3.07% on the royalties they negotiate and receive prior to drilling. But while it is intended that drillers pay the higher 9.9% Pennsylvania corporate net income tax, so many drilling operators and other interested parties are structured as limited liability corporations or limited partnerships that most pay at the far lower personal income tax rate of 3.07%. In fact, a 2009 analysis found that of the roughly 1,500 Marcellus Shale wells active at the time, 70% were operated by LLCs or LPs.⁶² Further, in 2002 the state Supreme Court exempted oil and gas from the list of natural resources that may be taxed by municipalities, denying local Pennsylvania governments an essential opportunity to exercise autonomy and collect revenue to offset the costs of a variety of direct and indirect externalities introduced by natural gas drilling.⁶³ Legislation stalled in the Pennsylvania House of Representatives (HB 10) would reverse this exemption.⁶⁴

SEVERANCE TAX STUDIES

The natural gas industry has relied on the findings of a 2009 Penn State study to support their position against the severance tax as an added cost that would drastically hinder economic growth and job creation. But while it is not mentioned anywhere in the publication, lead author Robert Watson, emeritus professor of petroleum and natural gas engineering, has since acknowledged that the study was funded by the Marcellus Shale Coalition (MSC), a lobbying group comprised of the roughly ninety primary Marcellus Shale drilling interests, including most of the major exploration and production companies operating wells in the state. The MSC paid Penn State \$100,000 to write the study.⁶⁵

In late 2009, the Pennsylvania Budget and Policy Center closely investigated the details of the Penn State study and determined that the authors “overplay[ed] the positive impacts of increased natural gas production, while minimizing the negative,” “exaggerate[d] the impact a severance tax would have on development of the Marcellus Shale and overstate[d] what taxes the industry now pays,” and “inflate[d] the economic impact of expanded gas production in Pennsylvania to puff up the industry’s economic promise.”⁶⁶ The report pointed to studies from Wyoming and Utah that demonstrated how increases or decreases in state severance taxes had little impact on industry activity and production but dramatically affected government revenues for extended periods of time. The PBPC also took issue with the authors’ use of an overly optimistic input-output spending multiplier, calling the use of such models to predict economic growth resulting from drilling “an inexact science” and citing a 2009 state of California report cautioning that “multipliers usually overstate indirect impacts.”⁶⁷ Similarly, the *New York Times* recently called attention to a 2009 Columbia University report that warned of the incompleteness of studies projecting impressive tax and retail revenue for counties looking to promote drilling and called these economic forecasts “entirely speculative” due to the unpredictable and conceivably hefty price of environmental cleanup and potential toll on residents’ health.⁶⁸

The Pennsylvania Budget and Policy Center report concludes:

[The Penn State study] “serves the narrow financial interests of its funder, the natural gas industry. The decision for Pennsylvania policymakers should not be whether they will entice drillers to the state, but rather whether they want to continue to subsidize the industry by not collecting a tax, which forces other taxpayers to foot the bill for cleanup, environmental damage, infrastructure repair, emergency services, and other social costs.”⁶⁹

In April 2009, the Pennsylvania Budget and Policy Center released its own study investigating the potential benefits and disadvantages of a severance tax, concluding that such a tax would “be smart state fiscal policy” and would allow the state to better cope with “infrastructure, environmental, and other significant costs” imposed by natural gas drilling.⁷⁰

CONCLUSIONS: “REMARKABLE PRODUCTION”

Two of the industry’s biggest political donors in Pennsylvania—both of whom have contributed to multiple candidates for governor in 2010 (see Key Findings on p. 4)—are bullish on the industry’s prospects in a state that is both a “sweet spot” for the natural gas industry, and, because of its weak campaign finance laws, a “sweet spot” for any big donor hoping to influence the political process. Consol President and Chief Executive Officer Brett Harvey recently stated, “Our total Marcellus position of 760,000 acres vaults us into the top acreage holders of what may be the world’s most prolific natural gas formation” and that Consol subsidiary CNX Gas “has drilled its best ever horizontal Marcellus Shale well...This production is remarkable.”^{71, 72} Range Resources CEO John Pinkerton called first quarter drilling results “outstanding” and said they reflect the ability Range and other drilling companies recently have to extract natural gas from high yield and low cost areas.⁷³

Industry enthusiasm for the profit potential of the Marcellus Shale is hardly limited to recent months. In the second half of 2009, oil giant Exxon-Mobil negotiated to purchase Fort Worth-based XTO, a company with large holdings in the Marcellus Shale that has pioneered hydraulic fracturing for natural gas extraction. *The Houston Chronicle* commented on Exxon Mobil’s \$40 billion acquisition, stating, “Exxon Mobil’s move to join XTO, a company with expertise in unconventional gas production, and tap into its potentially 45 trillion cubic feet of natural gas reserves, signal the oil giant’s confidence in the commercial viability of shale gas.”⁷⁴

As the country begins to emerge from the greatest economic downturn since the Great Depression, and as gubernatorial candidates mine the state for votes, the natural gas industry is keenly aware of the power of suggesting that a severance tax will deprive the state of jobs and revenue and force operators to seek business opportunities elsewhere. As Governor Manchin of West Virginia said, “The Marcellus Shale is a tremendous producer...Believe me, if we didn’t have the gas, they wouldn’t be here;” The industry cannot find a similarly profitable domestic natural play in any other state.⁷⁵ But as a spokesman for Chesapeake Energy, which has 519 well operate permits in Pennsylvania, told a reporter in 2009, “We gladly pay a severance tax in every state where we’re active, except in New York and Pennsylvania.”⁷⁶

RECOMMENDATIONS

Pennsylvania should take the following steps to limit the role of campaign contributions in shaping elections and public policy, and to make information about these contributions more readily available to the public.

I. Contribution Limits.

The current system allows big political donors to wield extraordinary influence over the political process in Pennsylvania, even as they face relatively little scrutiny, compared to many other states. Pennsylvania is one of eleven states that do not limit campaign contributions to candidates for statewide office and its state legislature. To protect the integrity of its legislative, regulatory, and judicial processes, Pennsylvania should limit contributions from both individuals and PAC's to candidates for state and local offices. A recommended limit for General Assembly candidates would be \$1,000 per election cycle. For statewide offices, limits should not exceed the limit set by the Federal Election Campaign Act for Federal candidates. Donors should also have an aggregate limit on contributions made to all candidates during an election cycle.

II. A Better System of Disclosure.

The state's campaign finance database is not easily searchable and search results are not sortable, so that a search for natural gas interests which might take a few minutes with the more sophisticated databases used by New York or Maryland, for example, would take hundreds of hours in Pennsylvania. Electronic files obtainable from the Pennsylvania Department of State are not well standardized and are often rife with typos, forcing multiple searches based on name, address, and employer to ensure the complete collection of relevant data. For example, a simple search for Consol should not require additional searches to discover contributions under the names Colsol, Consal, and Consoe. Due to reporting errors by campaign treasurers, the database is also rife with duplicates⁷⁷.

III. More frequent disclosure of campaign contributions.

Pennsylvania should require the quarterly disclosure of campaign contributions during non-election years. Citizens should not have to wait for as long as twelve months to learn about the influence of campaign contributions from key supporters of legislative and regulatory efforts. In election years legislative candidates should be subjected to the same disclosure schedule as statewide candidates – adding a report due on the 6th Friday prior to an election.

Endnotes

¹ This study includes contributions of \$100 or more to candidates and political committees in Pennsylvania from 1/1/2001 to 3/29/2010.¹ The study includes contributions recorded by the Pennsylvania Department of State (DOS) and by the Federal Election Commission, but does not include contributions to candidates for local, municipal, and other offices who were not required to file contribution reports with the DOS during this time.

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