



Oil/Gas Drilling—Myths v. Reality

---In-depth Version---

YOUR ECONOMIC BENEFITS

MYTH: Signing a lease isn't risky, and it will make you a lot of money.

REALITY: The prospect of a one-time lease signing bonus can be tempting as can the promises made by landmen of future royalty payments once the oil/gas well is in production. However, potential lease signers need to factor in what drilling will do to their land. New, modern day, industrial scale oil/gas development involves clearing of vegetation, building of roads and well pads, heavy truck traffic, noise and light, drilling, waste production and burial, laying of pipelines, and use and storage of toxic chemicals. These operations can change your property, way of life, and health forever.

In addition, as shale oil/gas development increases nationwide, data show that wells often produce less and for shorter times than projected—meaning much lower royalty payments than promised. For example, Barnett Shale wells in Texas were estimated to produce for 30 to 40 years but have been shown, in actuality, to have an average lifespan of less than eight years, and more than 70 percent of production was realized by year five.¹

MYTH: Shale oil/natural gas development creates jobs and is a boon for the economy.

REALITY: Oil/natural gas development can create jobs and generate tax revenues, but these are often far less and don't last as long as the industry often claims.

Between late 2007 and 2010, the Marcellus Shale boom created fewer than 10,000 new jobs in Pennsylvania, much less than the 48,000 figure reported in recent news stories, statements, and commentaries.²

Also, job creation and job loss patterns in this industry tend to follow the “boom and bust” cycle typical in energy development regions.³

1. Deborah Rogers, presentation at the Earthworks People's National Oil & Gas Summit, (2010), <http://www.earthworksactions.org/2010SummitAgenda> (See Panel 7); and Arthur Berman, “Lessons from Barnett Shale suggest caution in other shale plays,” *World Oil 2009*, <http://aspousa.org/index.php/2009/08/lessons-from-the-barnett-shale-suggest-caution-in-other-shale-plays>.

2. “Marcellus Shale Boom Adds Less Than 10,000 New PA Jobs.” PR Newswire, June 21, 2011, <http://www.highbeam.com/doc/1G1-259391056.html>.

3. Jeffrey Jacquet, “Energy Boomtowns and Natural Gas: Implications for Marcellus Shale Local Government & Rural Communities,” NECRD Rural Development paper Number 43, (January, 2009), nercrd.psu.edu/publications/rdppapers/rdp43.pdf.

Recent studies on economic benefits funded by the industry don't even factor in the high costs associated with oil/gas development like road and bridge repairs, declines in farming and tourism revenue, and reduced property values and property tax revenues.⁴

An analysis of the local economic effects of natural gas drilling in shale concluded that it offer few jobs to local residents because the industry requires a relatively small workforce. In addition, the industry employs specialized workers who travel from well site to well site and do not stay long in any one place, working against local economic stability.⁵

Likewise, industry forecasts for total job creation in Ohio from shale oil/gas extraction have been overly optimistic. A non-industry-funded study by Mark Partridge and Amanda Weinstein of Ohio State University demonstrated that industry forecasts of job creation for Ohio are probably inflated by 900 percent.⁶

YOUR PROPERTY VALUES

MYTH: Shale oil/gas drilling will not adversely affect your property.

REALITY: There have many reports of decreased property values where shale oil/gas drilling occurs, with the greatest drops following problems like chemical spills, pipeline explosions, and contamination that leaves homes without potable water.⁷ Often potential purchasers of real estate are less interested in land with an existing oil or gas well, land with infrastructure damage, or land that is already leased for drilling; and it can be difficult to obtain a mortgage on oil/gas-leased property.⁸ Also, HUD, FHA, and other mortgage lenders' guidelines don't allow loans when there is an active oil/gas lease on the property or drilling occurs near a home.⁹ For example, Howard Hannah Realty in Mentor, Ohio requires that in contracts with sellers of real estate, the sellers must assure that no oil/gas wells are located on the property to be sold, due to liability concerns.¹⁰ In general, residential mortgages prohibit borrowers from allowing third parties from causing substantial change to the real property mortgaged. This includes allowing gas drilling.¹¹

4. Jannette Barth, "North American Shale Gas Plays: More Unanswered Questions," (paper prepared in response to questions by Concerned Citizens of New Brunswick, Canada, June 17, 2011).

5. Thomas Michael Power, "The Local Economic impacts of Natural gas Developments in the Valle Vidal, New Mexico" (a report prepared as comments to Carson National Forest, 2005). Power said that findings in his report regarding employment would also apply to the Marcellus region (personal communication, April 9, 2010).

6. Mark Partridge and Amanda Weinstein, "The Economic Value of Shale Natural Gas in Ohio." The Ohio State University, Department of Agricultural, Environmental, and Developmental Economics, (December, 2011).

7. See "Drilling can dig into land value," *Denton Record-Chronicle*, (September 18, 2010), and "Clearville residents blame reduced property values on natural gas project;" *You-Tube*, (February 14, 2011), and "Drilling pollutes home and groundwater," *Altoona Mirror* (October 10, 2010), <http://www.youtube.com/watch?v=P6qWR8bjNS8>.

8. See "Houses for Shale," *Pike County Courier*, (June 3, 2010).

9. "How Marcellus Shale gas drilling will depress your property values." New York Residents Against Drilling, (2010), <http://www.nyrad.org/downloads.html>

10. Ricky Beck, agent for Howard Hannah Realty of Mentor, (personal communication in answer to a question regarding Howard Hannah's standard sellers agreement, November, 10, 2009).

11. Elisabeth N. Radow, "Homeowners and Gas Drilling Leases: Boon or Bust?" *NYSBA Journal*, 20.

YOUR PROPERTY RIGHTS

MYTH: You have total control over your own property. Your refusal to sign a lease will prevent your land from becoming a part of a drilling Unit.

REALITY: Like most oil/gas producing states, Ohio allows “mandatory pooling” so that drillers can force landowners who don’t agree to lease their land into a designated drilling unit.¹² For example, if neighbors around you sign leases, but you refuse to sign, drillers can apply to the Ohio Department of Natural Resources (ODNR) to force you to become part of the drilling unit if your land is needed to complete the required dimensions of the unit. This amounts to a taking of your property, against your wishes, to the profit of a private business entity. Landowners can appeal a mandatory pooling order to the Technical Advisory Council (TAC), but Council membership is stacked in favor of the industry; and very few appeals from mandatory pooling have ever been granted.

YOUR WATER and YOUR HEALTH

MYTH: Your water will be safe from drilling and fracking because there has never been a proven case of water contamination from hydraulic fracturing.

REALITY: Hydraulic fracturing fluids contain dozens of toxic chemicals like formaldehyde, benzene, toluene, biocides, ethylene glycol, and hydrochloric acid, chemicals which have known adverse health effects and which are being injected through and near aquifers used for drinking water.¹³ A large proportion of fracturing fluids remain underground, and these fluids have been known to travel thousands of feet from wells.¹⁴ Also, cases of methane migration into water wells are being increasingly documented.¹⁵ In a 2011 study of gas wells in Pennsylvania and New York, Duke University researchers documented that the level of methane contamination from these wells into water wells within 3,200 feet of the gas wells was 17 times higher than water wells that were beyond the 3,200-foot gas well radius.¹⁶

Despite growing evidence of contamination of water from fracking, the oil/gas industry frequently claims that there are no documented cases of water contamination from hydraulic fracturing. Thanks to a special exemption from the Safe Drinking Water Act, companies don’t have to disclose

12. See Ohio Department of Natural Resources overview at

www.ohiodnr.com/mineral/mandatory_pooling/tabid/19234/Default.aspx.

13. “Oil and Gas Pollution,” *Earthworks*, <http://earthworksaction.org/oilgaspollution.cfm>.

14. “Hydraulic fracturing, myths and facts,” 2009, <http://www.earthworksaction.org/publications.cfm?pub=ID395-5>.

15. “Thermogenic Gas Migration Cases in Pennsylvania,” Pennsylvania Department of Environmental Protection— Draft report on gas migration, 2009, www.uppermon.org/...PA-DEP-Stray%20Gas%20Migration%20Cases.pdf.

16. Stephen G. Osborn, Avner Vengosh, Nathaniel R. Warner, and Robert B. Jackson, “Methane contamination of drinking water accompanying gas well drilling and hydraulic fracturing,” Duke University, (April 14, 2011): 2.

the chemicals they use in fracturing fluids. Without this information, it can be difficult to prove scientifically that the contamination was from hydraulic fracturing and to link particular chemicals with specific oil/gas wells.

Just recently, the U.S. EPA released a preliminary report on their continuous study of pollution of ground water with several toxic chemicals from gas wells near Pavillion, Wyoming. The report concludes that, indeed, hydraulically fractured wells in the area were the probable cause of chemical contamination of that ground water.¹⁷ If there were full disclosure and radioisotope tagging during hydraulic fracturing for each well, it's unlikely that the industry could make this claim or continue to deny responsibility or liability when water wells are contaminated.

Current Ohio oil and gas regulations allow drilling right very close to important streams and in floodplains. Although they require baseline testing of water wells before drilling commences within 300 feet of said water wells, under the Ohio Revised Code, this applies only in urbanized—not in rural—areas.¹⁸

A recent example of the kinds of incidents that have raised concerns is contained in a news report from Canton, Pennsylvania, involving a well owned by Chesapeake Energy:

Workers have stopped the flow of drilling fluids from a natural gas well in rural northern Pennsylvania that leaked the chemical-laced water for two days following an equipment problem. Thousands of gallons of brine water used in the hydraulic fracturing drilling operation leaked from the out-of-control well following the equipment failure Tuesday night. Some of the drilling fluid crossed farm fields and entered a stream...¹⁹

MYTH: Hydraulic fracturing is a well-known method of oil and gas extraction that has been used for many decades.

REALITY: While the basic technology of hydraulic fracturing was first developed in the 1940s, the kind of hydraulic fracturing that is used today in deep shales is much different.²⁰ Drilling in tight shale formations like Marcellus and Utica—the targets for oil/gas development in Ohio and several other states—means drilling and fracking as deep as two miles below the surface, deeper than ever before. This involves the new approach of combining very high volume fracturing (in terms of water, chemicals, and pressure) with horizontal drilling, extending extraction thousands of feet out from the bottom of each vertical well bore. In fact, until very recently, the Utica shale has never been

17. Dominic DiGuilo, Richard T. Wilkin, Carlyle Miller, "Investigation of Groundwater Contamination Near Pavillion, Wyoming." U.S. Environmental Protection Agency, (December, 2011), 15.

18. Ohio Revised Code, Section 1509.03 A (2).

19. "Bradford County Fracking Spill Stopped After Two Days Of Leaking Chemicals In Pennsylvania," *Huffpost Green*, April 22, 2011, http://www.huffingtonpost.com/2011/04/22/fracking-spill-bradford-county-pa-2011_n_852432.html.

20. "Hydraulic Fracturing 101," *Earthworks*, <http://earthworksaction.org/FrackingDetails.cfm>.

horizontally drilled and hydraulically fractured in this state, making Ohio an experimental “test” case for a largely unproven method of oil and gas extraction. (As of February 2012, only about 100 shale wells had been started in Ohio. Projections anticipate tens of thousands of wells in the next one or two decades.)

YOUR SAFETY and WELL-BEING

MYTH: Drilling is safe, and accidents rarely occur.

REALITY: Modern-day, industrial oil/gas extraction from deep shale formations is inherently risky, involving the transport and use of large amounts of chemicals, heavy machinery, drilling at intense pressures, and the release and processing of highly explosive methane. This is what one of the oil developers said of the industry in its investment prospectus:

Oil and natural gas operations are subject to many risks, including well blowouts, craterings, explosions, uncontrollable flows of oil, natural gas or well fluids, fires, formations with abnormal pressures, pipeline ruptures or spills, pollution, release of toxic natural gas and other environmental hazards and risks...As we begin drilling to deeper horizons and in more geologically complex areas, we could experience a greater risk in operating and financial risks due to inherent higher reservoir pressures and unknown downhole risk exposures.²¹

Gas-related incidents occur frequently. In 2007, a house in Bainbridge Township was blown off its foundation and more than 19 water wells were permanently destroyed following “conventional” drilling of a gas well; residents had to wait for more than two years before a permanent alternate source of water (city water) was provided. Recently, in Allentown, Pennsylvania, five people died; and a neighborhood was destroyed following a gas pipeline explosion.²² In the summer of 2010, well explosions injured several workers in West Virginia; and in Pennsylvania, an explosion released polluted water and gas into the air and into streams.²³

MYTH: Waste water injection wells are a completely safe method of disposing of oil and gas well waste water.

REALITY: Waste water injection wells have been suspected as causes or contributing causes of earthquakes in several states including Arkansas, Colorado, Oklahoma, Texas, and in Ohio.²⁴ Beginning in March 2011, a series of ten earthquakes over a period of ten months were felt in the Youngstown, Ohio—in a region not known to be seismically active. While scientists attributed these

21. “Prospectus,” Range Resources, May 2006.

22. “Pennsylvania gas explosion leaves five dead in Allentown,” *Huff Post Green*, Feb 10, 2011, http://www.huffingtonpost.com/2011/02/10/pennsylvania-natural-gas- n_821280.html.

23. “Pennsylvania Well Blowout, West Virginia Explosion Highlight Dangers of Natural Gas Drilling,” *News Inferno*, June 9, 2010, <http://www.newsinferno.com/health-concerns/pennsylvania-well-blowout-west-virginia-explosion-highlight-dangers-of-natural-gas-drilling/21036>.

24. Alyce Lomax, “Was That Another Fracking Earthquake?” *Daily Finance*, January 4, 2012, <http://www.dailyfinance.com/2012/01/07/was-that-another-fracking-earthquake>.

earthquakes to the injection well, ODNR steadfastly refused to admit that there was any correlation. Then on December 31, 2011, a 4.0 earthquake occurred in Youngstown. Seismographs set up to monitor suspicious earthquakes in the area confirmed that the likely cause of the 4.0 quake was the D & L well in Youngstown.²⁵ Subsequently, the governor of Ohio was forced to order that the D & L injection well as well as injection wells within seven miles of D & L cease operations. In January 2012, the state put a halt on issuing any new injection well permits into bedrock.²⁶

As far back as 1987, it was known that fluid injection could induce earthquakes. In that year fluid injection precipitated a 3.8 earthquake in Ashtabula, Ohio.²⁷ Ohio has close to 200 fluid injection wells. Except for the few wells in Youngstown now under a moratorium, these wells are busily receiving frack waste from Pennsylvania and injecting it into our geology.

MYTH: Ohio is now adding enough oil/gas well field inspectors to keep up with an adequate inspection regime.

REALITY: Until recently, there had been 21 inspectors, and the addition of only eleven new people to the inspection force is not sufficient for the more than 64,000 active and 235,000 total oil/gas wells in Ohio. On average, more than 1,000 new wells are drilled in the state each year. ODNR claims that each new well is inspected eight times during the drilling process. However, in doing the math, it is obvious that 32 inspectors cannot properly oversee the industry or uphold inspection requirements. Thus, the industry is left largely to “self-report” and “self-regulate.”

The situation will become even more serious when much larger horizontally-drilled, ultra large-scale deep shale wells that are hydraulically fractured become more common in the state. Ohio expects 4,000 of these wells by 2016.²⁸ Based on extensive leasing by Chesapeake Energy and others, many thousands more wells are expected in the years beyond 2016. Chesapeake is only one of several players, but Chesapeake alone expects to drill 12,000 wells in Ohio.²⁹ Since Chesapeake projected the 12,000 wells figure, in January 2012 the company disclosed that it was now going to focus even more on Ohio because of the “liquid rich plays” to be found in Ohio’s Utica shale.³⁰ Thus, Chesapeake alone could be drilling far more than 12,000 shale wells in Ohio in the next several years. Pennsylvania is projected by the industry to drill a total of 100,000 wells in the next several decades. Ohio’s total could well be in the same range, given the industry’s intense interest in Ohio’s Utica shale which is thought to be rich in petroleum and in natural gas liquids (NGLs).

25. Mark Fishetti, “Ohio Earthquake Likely Caused by Fracking Wastewater,” *Scientific American*, January 4, 2012.

26. “ODNR puts hold on permits for brine wells,” *VINDY.COM*, January 19, 2012, <http://www.vindy.com/news/2012/jan/19/odnr-puts-hold-on-permits-for-brine-well/?print>.

27. Leonardo Seeber, John G. Armbruster, and Won-Young Kim, “A Fluid-Injection-Trigered Earthquake Sequence in Ashtabula, Ohio: Implications for Seismologists in Stable Continental Regions,” *Bulletin of the Seismological Society of America*, 94, (February 2004): 76-87.

28. “Gas exploration spurs economic surge in Carroll County,” *OHIO.COM*, February 2, 2012, <http://www.ohio.com/news/local-news/gas-exploration-sparks-economic-surge-in-carroll-county-1.249839>.

29. *Ibid.*

30. Dan Gearino, “Chesapeake Energy’s shift seen as good for Ohio,” *The Columbus Dispatch*, January 23, 2012.

MYTH: Current federal law and Ohio’s oil/gas law (ORC. 1509) and regulations are sufficiently strong and will thoroughly protect Ohioans.

REALITY: The oil and gas industry is exempt from key provisions of seven major federal environmental laws that protect human health and the environment, such as the Clean Air Act, The Clean Water Act, The Safe Drinking Water Act, and the Superfund Law.³¹ In addition, Ohio’s oil and gas regulations are deficient in several areas since they—

- Do not address the particular problems associated with new Marcellus and Utica shale oil/gas development, such as the huge water withdrawals and wastewater treatment required and higher risk of chemical spills and radioactivity.
- Do not actually require that an inspector visit a well during drilling.
- Do not actually require that an active well be inspected at all.
- Contain no special regulations for **high-volume horizontal hydraulic fracturing** (the NEW process for drilling in deep shales), which involves injection pressures over 10,000 psi and injection of toxic chemicals (about 200,000 gallons per well) into the ground.
- Allow oil and gas well drilling in residential neighborhoods, in violation of local zoning, health, and safety ordinances.
- Allow wellhead and oil and brine tanks to be located as close as 150 feet from a home in urban areas and as close as 100 feet from such structures in rural areas. This, in spite of the fact that exploding tanks have been known to spread debris more than 400 feet from the tanks.
- Call for insufficient cementing and well casing standards for very high pressure horizontal hydraulic fracturing. Current standards for these ultra-high pressure wells are less than for Ohio wastewater injection wells which operate under much lower pressures.
- Exclude oil and gas operations from having to comply with the State Fire Code.
- Allow drillers to change approved locations of oil/gas wells, with permission, in only one day.
- Allow open pits and dikes for catching and temporarily storing toxic waste products from drilling. Furthermore, there are no setback requirements for well waste collection areas.
- Allow operators to bury toxic drilling and fracking sludge on site.
- Do not require ODNR to fine a company for even flagrant, willful violations, making it easy for offenders to violate again. ODNR rarely fines anyone. This also results in a lack of a paper trail of accountability.

31. Renee Lewis Kosnik, “The Oil and Gas Industry’s Exclusions and Exemptions to Major Environmental Statutes,” *Earthworks*, 2007, <http://www.earthworksaction.org/files/publications/PetroleumExemptions1c.pdf?pubs/PetroleumExemptions1c.pdf>.

YOUR LOCAL COMMUNITY'S RIGHT TO DECIDE

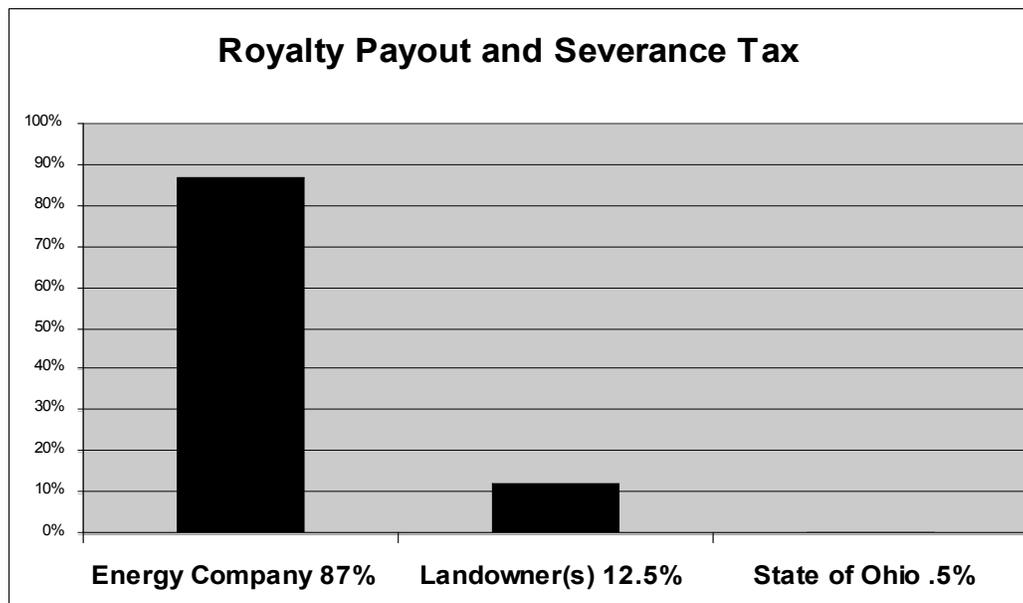
MYTH: Local input is not needed in deciding where oil and gas wells in our communities should be located. The State of Ohio, through ODNR, will assure that wells are located in safe and appropriate places. If there are people in our communities who think that a proposed well location is unsafe, they can make their objections known to ODNR before well permits are issued.

REALITY: Acting under color of a 2004 law (HB 278), ODNR's Division of Mineral Resources Management has asserted exclusive authority over permitting, drilling, and production of oil and gas in the state—effectively stripping away local control and zoning powers. So now an inherently risky drilling process can occur just 150 feet or less from your home. Thousands of wells have already been permitted as close as 100 feet from homes, places of worship, and schools. Records show that well permit applications are rarely denied by ODNR.

BENEFITS TO OUR STATE

MYTH: Oil/gas drilling will be a windfall for Ohio. Some call it a “godsend.”

REALITY: No. It will be a windfall for the energy companies. A godsend for Ohio?—hardly. The energy companies will make approximately 87 percent of the profits—clearly the lion's share—on most wells, as the standard lease grants that much profit to the energy companies and only 12 ½ percent to the landowners (and each landowner's share is divided by the total number of landowners that are part of each drilling unit). That leaves only ½ percent for the State of Ohio.



BENEFITS TO THE NATION

MYTH: We need to fully exploit domestic natural gas and oil resources for the U.S. to be energy-independent from the Middle East.

REALITY: Even if we could tap into all the recoverable natural gas in the U.S., it wouldn't translate into energy independence from other sources. For example, at generally accepted rates of recovery, the Marcellus Shale, often called a "shale super giant," would provide enough natural gas for just a few years at our current level of consumption.³² It should be noted, gas development cannot help us very much with transportation needs, which make up a significant portion of our total energy consumption—almost 28 percent.³³ Only a very small portion of the U.S. transportation fleet uses natural gas,³⁴ and economists say that this cannot be changed for several decades, assuming that the U.S. were to go in the direction of massive development of natural gas-fueled vehicles.

Also, major energy corporations, like Chesapeake Energy, are financing their acquisition of mineral leases in Ohio, and other states, with capital from foreign entities such as Total from France and from Sinopec, a Chinese company.³⁵ Obviously, these entities expect to obtain some of the gas extracted from Ohio. Last year, at the urging of major energy players, the U.S. government began allowing natural gas export facilities to be constructed. This will certainly have a negative economic impact on Ohioans.

Some companies that control America's natural gas are pushing for government approval to export gas overseas for higher profits on the international market, a move that will significantly drive up prices in the United States because this nation still imports more than ten percent of its domestic needs. Among the biggest expected customers for American gas exports: energy-thirsty China, other Asian nations, and Europe... On May 20 [2011], the Department of Energy quietly gave approval for Cheniere Energy Inc. to export 2.2 billion cubic feet of natural gas per day...the first time the government granted permission to export American-produced gas overseas from the lower 48 states.³⁶

Currently, we have a huge oversupply of natural gas with natural gas prices the lowest they have been in several years—so much that we are exporting it at a record rate: "Net U.S. exports to Mexico rose 53 percent from April 2008 to a record this past April [2011]".³⁷

32. Lisa Sumi, "Shale Gas: Focus on the Marcellus Shale," *Earthworks*, June, 2008, <http://www.earthworksaction.org/files/publications/OGAPMarcellusShaleReport-6-12-08.pdf?pubs/OGAPMarcellusShaleReport-6-12-08.pdf>.

33. U.S. Department of Energy "U.S. Primary Energy Consumption by Source and Sector, 2008", (2009).

34. *Ibid.*

35. "Sinopec and Total Continue Shale Gas Buying Spree," *Dealbook*, January 3, 2012, <http://dealbook.nytimes.com/2012/01/03/total-buys-2-3-billion-stake-in-chesapeake-shale-assets/>.

36. Manufacturers and Business Association, "Natural Gas Prices Set to Jump with Exports," June 13, 2011.

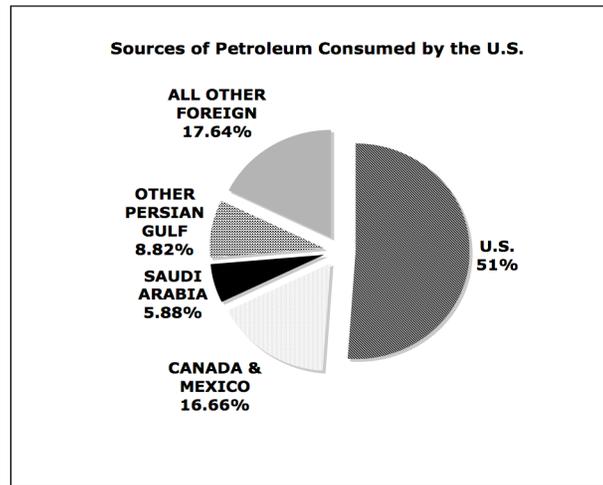
37. "Gas glut fuels record U.S. exports to Mexico," *chron.com*, July 17, 2011, <http://www.chron.com/business/article/Natural-gas-glut-fuels-record-U-S-exports-to-2082288.php>.

Corporations, following profit opportunities, will take a portion of our natural gas and sell it overseas. Drilling for natural gas will not make us “self-reliant.” Natural gas is becoming an increasingly fungible commodity on the world market. Energy corporations will always sell to the highest bidder, whether in Mexico, Canada, or even via ships to other continents. The corporate plan is not for American energy independence, but, as usual, the corporate plan is to maximize profits for the corporation.

Currently, 71 percent of petroleum consumed in the U.S. is used for transportation.³⁸ U.S. oil reserves are much smaller than natural gas reserves, and so even if we tear up the whole country to get every last drop of oil, this will only amount to a “drop in the bucket” relative to the total amount we use.

Currently the U.S. imports 49 percent of the oil it uses each year.³⁹ And even with slightly increased U.S. production in recent years, this overall percentage is likely to remain near or somewhat above the 50 percent mark due to the greatly increasing demand from China, India, and other Asian nations. However, our sources of foreign petroleum are fairly diverse and not focused as much on the Middle East as some might believe. Saudi Arabia supplies only 5.88 percent of our oil, while all other Persian Gulf countries combined provide only another 8.82 percent of our total consumed. Canada and Mexico combined provide us with 16.66 percent, almost twice as much as Saudi Arabia. All of the rest of the world combined provide the additional 17.64 percent.⁴⁰

To sum up, we are not as dependent on the Middle East for oil as we might think; and domestic natural gas can help us very little with transportation, since it only supplies about three percent of our transportation needs,⁴¹ while economic and technological factors (e.g., providing natural gas fueling station infrastructure) prevent this from changing for several decades.



38. U.S. Energy Administration, U.S. Department of Energy “U.S. Primary Energy Flow by Sector, 2010,” (October 19, 2011). [2010 is the latest year for which complete data is available.]

39. U.S. Energy Administration, U.S. Department of Energy, “How Dependent Are We on Foreign Oil?” (June 24, 2011)

40. *Ibid.*

41. U.S. Department of Energy, “U.S. Primary Energy Flow by Sector, 2010,” (October 19, 2011). [2010 is the latest year for which complete data is available.]

MYTH: We need to fully exploit all hydrocarbon resources such as coal, oil, and natural gas because renewable energy technology is still far off in the future.

REALITY: Actually, renewable energy is quickly emerging as cost-competitive. (Energy companies and government never seem to factor in the cost of damage to the environment from the use of hydrocarbon fuels.⁴²) Even states like Texas are implementing wind turbine generating capacity on a huge scale. California, other states, and many foreign nations are doing likewise.⁴³ Ohio has a budding wind turbine sector, but it should be given much more attention and support as should solar photovoltaic power generation.

Solar photovoltaic cell technology is becoming much more advanced and cost effective as are solar concentrator electric generators. For example, there are now photovoltaic cells that a consumer can install that use even ambient light to generate power.⁴⁴ Many experts are suggesting distributive power is the wave of the future, whereby every house and building can use its surfaces to support photovoltaic cells or even photovoltaic paint. The problem is that the big hydrocarbon corporations use their immense power to make sure that government and the public are confined to their paradigm of non-renewable fuels.⁴⁵ But there is a heavy price to pay if we continue doing it their way—threats to safe drinking water, clean air, and uncontaminated soil.

If we continue to exploit hydrocarbons with ever more extreme extraction technologies such as fracking, mountaintop removal, strip mining, and tar sands, we will seriously damage the life-supporting ecosystem of which we are a part. We may see huge increases in cancer (including childhood cancers), lung disease, cardiovascular disease, and endocrine disruption, to say nothing of ruined landscapes and an end to any sort of quiet, peaceful, unpolluted rural or suburban life in Ohio. And eventually, we will run out of those non-renewable resources anyway. The United States has an immense pool of scientific and engineering talent. If we really focus on bringing in renewable energy, we can do it and save the planet.⁴⁶ What is needed is political will. Of course, sensible conservation measures and further improvements in efficiency will aid in the transition to renewables.

NEOGAP Network for Oil & Gas Accountability and Protection
www.neogap.org

42. Maryruth Belsey Priebe, “Environmental Impacts from Non-Renewable Energy,” *ecolife*, June 20, 2011, <http://www.ecolife.com/blog/energy/environment-and-non-renewable-energy.html>.

43. Megan Phelps, “The Best States for Wind Power,” September 2, 2009, *Mother Earth News*, <http://www.motherearthnews.com/Renewable-Energy/Wind-Resources-United-States.aspx?page=2>.

44. “Photovoltaic Cells – electricity from sunlight,” 2012,” *dasolar.com*, <http://www.dasolar.com/solar-energy/photovoltaic-cells>.

45. Jeremy Rifkin, *The Third Industrial Revolution* (New York: St. Martin’s Press, 2011), 150.

46. For a full discussion of how the world can shift completely to renewables, see Mark Z. Jacobson and Mark A. Delucchi, “A Plan to Power 100 Percent of the Planet with Renewables,” *Scientific American*, (October 29, 2009): 167 & ff.