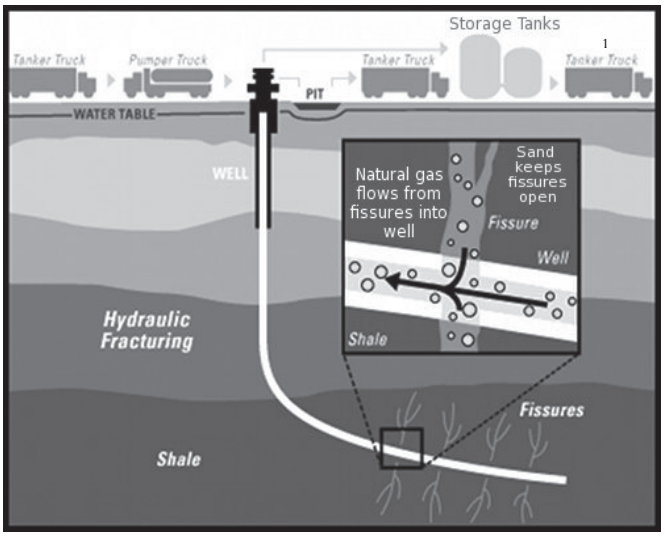
Hydraulic Fracturing

This pamphlet provides opportunities for education, analysis, reflection and action on the issue of hydraulic fracturing. It examines the human and environmental impacts of "Fracking." You are invited to personal and communal study and action on this process used to extract oil and natural gas from underground.

Hydraulic fracturing, commonly referred to as "fracking," is a process used to extract oil and natural gas from under ground. A vertical well is drilled miles beneath the surface, then is turned horizontally and drilled an equal distance into the layer of earth called shale. Small fissures are then made, creating perforations in the rock. Mixtures of water, sand, and chemicals are forced down the shaft at extremely high pressures to free the oil and gas trapped in the shale. The waste fluid from this process is then pumped to the surface and is either stored in above ground holding pools, treated and reused, or pumped into injection wells deeper underground. While fracking has been around for over 60 years, it has been in just the last decade that technological advancements have made this a lucrative industry resulting in significant increases of domestic oil and natural gas production.

In North Dakota it is estimated that the number of wells could increase from the approximately 8,000 currently in operation today to between 40,000 and 50,000 in 20 years. Previously sleepy towns are now bursting at the seams. Some farmers have become overnight millionaires, or shaleionaires, as a result of leasing their land for fracking. "Since early 2006, production from what's known as the Bakken formation has increased nearly 150-fold to more than 660,000 barrels a day, moving ND into second place among state suppliers. No one but a handful of industry insiders saw that coming."[2] The town of Williston, which sits at the center of the oil field, is experiencing an unemployment rate of less than 1%. In Watford City, the population soared from 1,700 to 6,000 in just two years. "My town was dying," said one local resident. "Now we can get back to work."[3]



Fracking, however, has raised environmental and public health concerns. Dimock Township, Pennsylvania, is at the heart of the Marcellus Shale, one of the largest shale regions in the U.S. Victoria Switzer is one of 13 homeowners who believe her well water was contaminated by methane which is released from the shale during fracturing. Chemicals associated with fracking fluid were also identified in the well water. While the fracking company, Cabot Oil, has never admitted their operations are to blame, they supplied bottled water to the households affected and invested in costly technology to clean the water. Switzer fears for her health and is uncertain that she will be able to sell her house in order to relocate from the drilling area. "Can you imagine the ad? 'Beautiful new home. Bring your own water,' " Ms. Switzer said. "We're like a dead zone here."[4]

[1]Graphic by Al Granberg www.propublica.org

[2,3]"The New Oil Landscape." National Geographic, March 2013

[4]"Dark Side of a Natural Gas Boom." www.nytimes.com 8 Dec 2009

Supporters & Opponents of Fracking

Supporters say it will result in:

Energy Independence

The domestic production of energy is critical for moving away from foreign dependence on oil. Some experts believe that "the United States is on track to overtake Saudi Arabia as the world's largest oil producer as early as 2017, start exporting more oil and gas than it imports by 2025, and achieve full energy self-sufficiency by 2030."[5]

Economic Benefits

Fracking has been a boost to the economy locally and nationally. Some property owners receive royalty payments and lucrative leasing agreements; state economies have benefited from increased tax revenues and jobs.

Opponents say: The environmental risks are too great and not enough research has been done. Relying on fossil fuels as a bridge to energy independence is an unsustainable, short-term fix with damage to our environment.

Opponents say: The costs involved in fracking outweigh the economic benefits. Fracking results in property damage, increased health care costs, road repairs due to heavy machinery, mine clean up costs, and pollution of water, which in some cases is irreparable.

Opponents say it will result in:

Water Strain and Pollution

Fracturing wells requires billions of gallons of water a year. A number of such wells are developed in regions experiencing high water stress. The waste fluid that comes back up to the surface contains toxic chemicals linked to cancers, nervous system or hormonal disruption and gene mutation. In the U.S., fracking is exempt under the Safe Drinking Water Act, thus companies are not required to disclose the chemicals used.[6]

Supporters say: Drilling occurs thousands of feet below the water table. Furthermore, the quantity of water used is a tiny fraction of overall national consumption.

Climate Change

"Fracked gas is not a 'bridge fuel' to some cleaner era, but a rickety pier extending indefinitely out into a hotter future."[7] Though natural gas burns cleaner than other fuels, the extraction process is harmful for air quality as hazardous pollutants and methane are released. Methane is more potent as a greenhouse gas than carbon dioxide.

Supporters say: Gas is cleaner than coal. It is because of natural gas that the U.S. has been successful at reducing its carbon emissions in recent years.

[5]"The Dark Side of Energy Independence." www.nytimes.com 27 April 2013
[6]Freyman, Monika. "Hydraulic Fracturing and Water Stress" www.ceres.org 2013
[7]McKibben, Bill. "Why Not Frack?" www.nybooks.com 8 March 2012

Economic, Political, Environmental, Social/Cultural Considerations

The fracking debate highlights the many unknowns about the short- and long-term effects on the environment, water, and public health. Scientists warn about the effects that methane, released during the extraction process, will have on climate change.

The chemicals used in the extraction process are not fully disclosed. In the U.S., a clause in the Safe Drinking Water Act (2005) specifically exempts the disclosure of fracking chemicals. In Canada, a review of fracking chemicals completed by the Chemicals Management Plan (CMP), Environment Canada, found that half of the chemicals have not been thoroughly evaluated for the risks to public health and some are known toxins.[8] Toxic chemicals are widely thought to be involved, including ones known to be health hazards causing neurological and hormonal disruption and cancers. As the waste fluid from fracking is either pumped to the surface or into deep injection wells, aquifers and ground water are vulnerable to contamination.

The volume of chemicals that remain below the surface is unknown. This has implications for not only drinking water, but agricultural productivity, soil contamination, and livestock well-being.

In some drilling areas, home and landowners experience decreases in property value due to public concern about water pollution. Some laws grant landowners ownership of only the surface of their land, but not the mineral rights, thus they do not have a say in whether or not fracking occurs on their land or near their wells.

Increased and abnormal seismic activity has been reported in fracking areas, raising questions about the risk of earthquakes.

In light of these concerns, the rapid advancements in technology coupled with soaring profits and lagging regulations are cause for alarm.

The burgeoning development of fracking has influenced the energy conversation debate from one of continued increasing dependence on foreign source to one of possible energy independence. With oil reaching peak prices and new advancements in horizontal drilling, shale beds previously thought expensive to drill are now producing in record amounts. From 1990-2006, total US energy production held steady and now the U.S. is the second highest producer of natural gas in the world. Similarly, oil production is on pace to exceed production levels from a decade ago. Some believe this is a welcome development as the U.S. is the second largest energy consumer.[9]

The timing of this upturn in domestic energy production coincided with local, state, and federal economies experiencing high unemployment and austerity measures at all levels of government. The surge of domestic energy supplies resulted in natural gas at record low prices resulting in lowered costs for electricity, manufacturing, and transportation. Some landowners, communities, and political leaders have applauded the economic benefits of the fracking boom.

The shift in emphasis to fracking for gas and oil risks taking attention away from energy policy reform that would shape a future of cleaner, renewable energies. As fracking has driven some energy costs to record low prices, the investors are less likely to invest in renewables such as wind and solar.

Energy corporations have a vested interest in gaining and keeping political support. A U.S. energy company, Lone Pine, is suing Canada for $250 million under the North American Free Trade Agreement (NAFTA) saying the moratorium placed on new drilling permits in Quebec violates their "right" to frack.[10] The Fracturing Responsibility and Awareness of Chemicals Act (FRAC Act), a bill in the U.S. that would mandate corporations disclose the chemicals used in fracking, has failed in Congress

numerous times largely due to corporate lobbying. Furthermore, energy companies continue to receive $10-$52 billion in subsidies a year. Politicians on both sides of the aisle continue subsidizing these companies, in spite of continued record profits, and at a time of self-inflicted sequestration and deep cuts to all programs.[11]

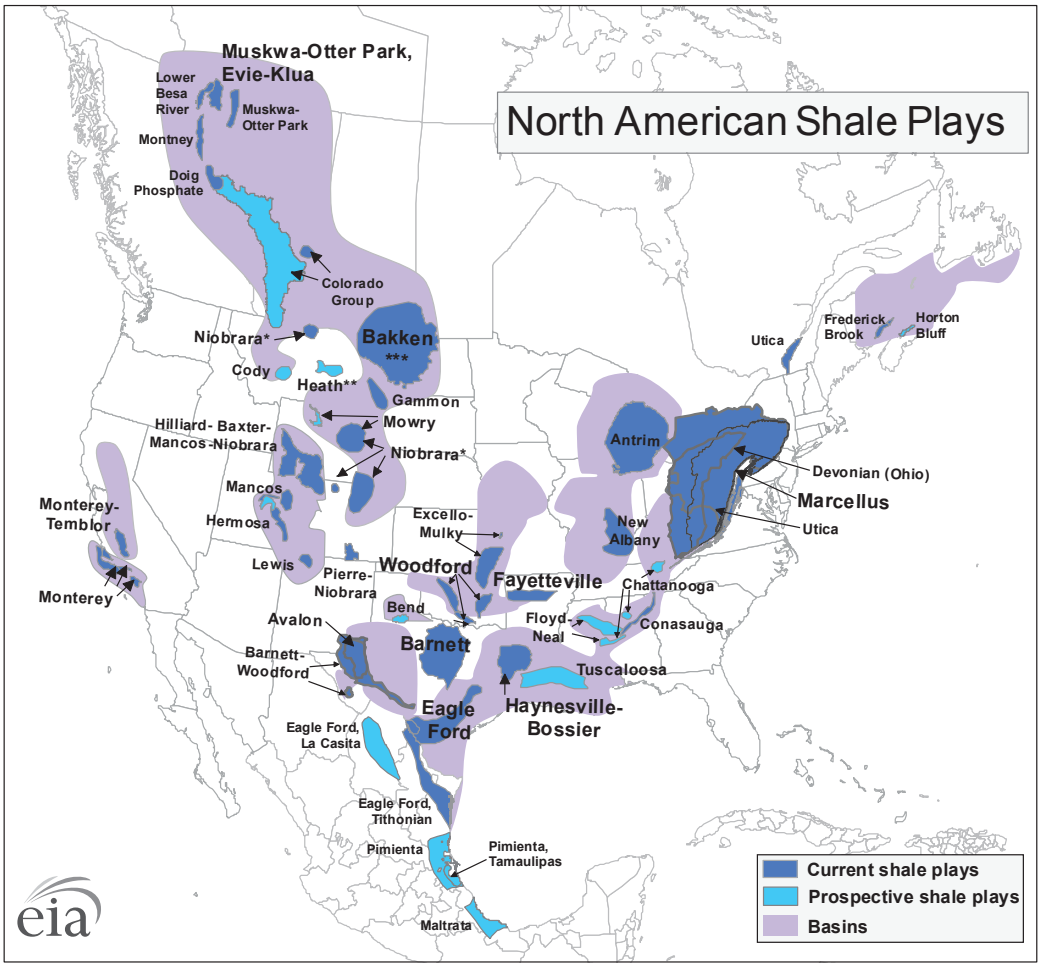
While supporters of fracking will argue that this energy development is critical for energy needs, economic benefits, and future energy independence, it is imperative to ask the question, "What is the cost of fracking to our environment, health and communities?"

[8] "Report of the Commissioner of the Environment and Sustainable Development," Office of the Auditor General of Canada, Fall 2012.

[9]"Benefits of Hydraulic Fracking." American Enterprise Institute. 4 April 2013

[10]Press Release www.canadians.org 14 May 2013

[11]"No Fracking Way" www.theglobalist.com 1 October 2012



Source: U.S. Energy Information Administration based on data from various published studies. Canada and Mexico plays from ARI.
Updated: May 9, 2011

Theological Reflection

"We are all called to be good stewards of the planet we share, which requires that resources of land, air, and water be managed in a responsible and sustainable manner; consistent with our faith, we have a moral obligation to prevent harm to our fellow human beings, including future generations who will inherit the earth. An industrialized landscape created by the large-scale proliferation of fracking threatens to supplant existing and emerging economies which offer hope for a more sustainable future, protective of the earth and people."

— Interfaith Statement on Hydrofracking, 2012, New York

"We cannot interfere in one area of the ecosystem without paying due attention both to the consequences of such interference in other areas and to the well being of future generations."

— World Day of Peace, 1990, Pope John Paul II

"First Nations have long understood the urgency of taking care of the land and the water. With the growing environmental crisis...we are called to work towards active changes that will protect the environment."

— Statement on oil sands development in Canada, 2009, Archbishop Murray Chatlain

"The moral dimensions of energy policy" principles:

- Uphold the right to life
- Accept responsibility for the welfare of Creation
- Accept limitation and preserve the common good
- Strive for a more just society
- Give special attention to those who are poor and members of minority groups
- Participate in the decision making process

— Reflections on the Energy Crisis, 1981, U.S. Catholic Bishops

Reflection Questions

Experience

1. How do I see myself connected to the issue of fracking?
2. In what ways do I/ my family/community play a role in fracking through my/our energy consumption patterns or policy engagement?

Analysis

1. How does my understanding of fracking influence my perspective on oil independence, renewable energy and care of all creation?
2. What different cultural, economic and political values do I see at play that I would like to examine more carefully?

Theological Reflection

1. When have I experienced a challenge to live the "Energy Policy Principles" related to my energy consumption?
2. What motivates a spiritual or faith response in me to the issue of water and fracking?

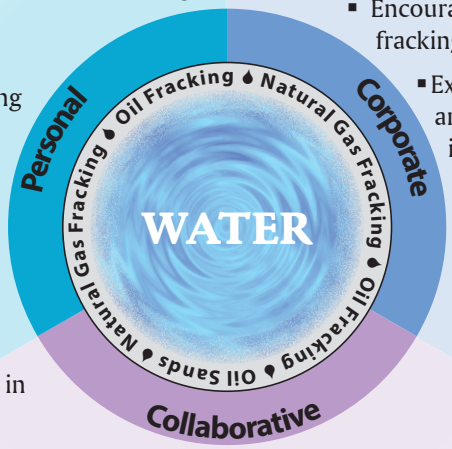
Action

1. How might I/we act to protect my/our communities or country from the adverse effects of fracking?
2. What one next step am I/we called to take?

Action

- Read articles, books/watch movies and hold a discussion
- Calculate your personal/family/community carbon footprint: www.nature.org/greenliving/carboncalculator/
- Take small steps to reduce, reuse and recycle to lessen your carbon footprint
- Educate yourself on the international dimensions of fracking: laws, treaties, rights
- Post a "No Fracking" yard sign
- "Like" on Facebook organizations addressing the issue of fracking/oil sands
- Write a letter to the editor
- Write to elected officials at the state, province, federal levels
- Visit Helen Garvey's blog at www.aguawateragua.blogspot.com
- Pray for the care of creation and environmental sustainability; include these in liturgical prayers

- Write a letter to companies
- Follow shareholder advocacy activity with energy companies
- Encourage company shareholders to vote proxies on fracking/oil sands, water and energy
- Track zoning & permitting processes in your region
- Encourage businesses to support a moratorium on fracking in your region
- Explore shareholder screens, investment and active ownership options of companies involved in fracking/oil sands



- Form or join a coalition to educate about fracking/oil sands in your state, province or country
- Circulate a petition for a moratorium or ban on fracking
- Create a postcard campaign about fracking
- Organize a media event
- Join or form faith-based networks
- Start a "Parents for Climate Protection" group

- Network with First Nations people to address the issue of fracking/oil sands
- Initiate an intergenerational and interfaith discussion group on water, fracking and the commons
- Learn & Act on Fracking in your region: www.earthjustice.org/fracking (U.S.) www.canadians.org/fracking (Canada)

Resources

DVDs

Gasland (2010); Anti-Fracking documentary; Available for loan at www.ipjc.org

FrackNation (2013); Pro-Fracking documentary

Websites

www.earthjustice.org/fracking
www.ewg.org/key-issues/energy/fracking
www.foodandwaterwatch.org
www.shalebubble.org
www.frackaction.com

Online Video Clips

"Facts about Fracking" (4 min)
www.youtube.com/watch?v=51wOisfdIPo

"The Consequences of Fracking" (7 min)
www.youtube.com/watch?v=aU6DJE9h6uc

"Shale Gas Drilling: Pros & Cons" (13 min)
www.youtube.com/watch?v=-0Xn21q-yQk

Interfaith Resources

www.jewsagainsthydrofracking.org
www.nccecojustice.org
www.catholicclimatecovenant.org

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