

## **Energy Consequences and Conflicts across the Global Countryside: North American Agricultural Perspectives**

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*Policy measures that address themselves to the “solution” of pressing economic problems often fall short precisely because they fail to come to grips with the everyday practicalities and diverse modes of making and defending a living. (Long 1996, 40)*

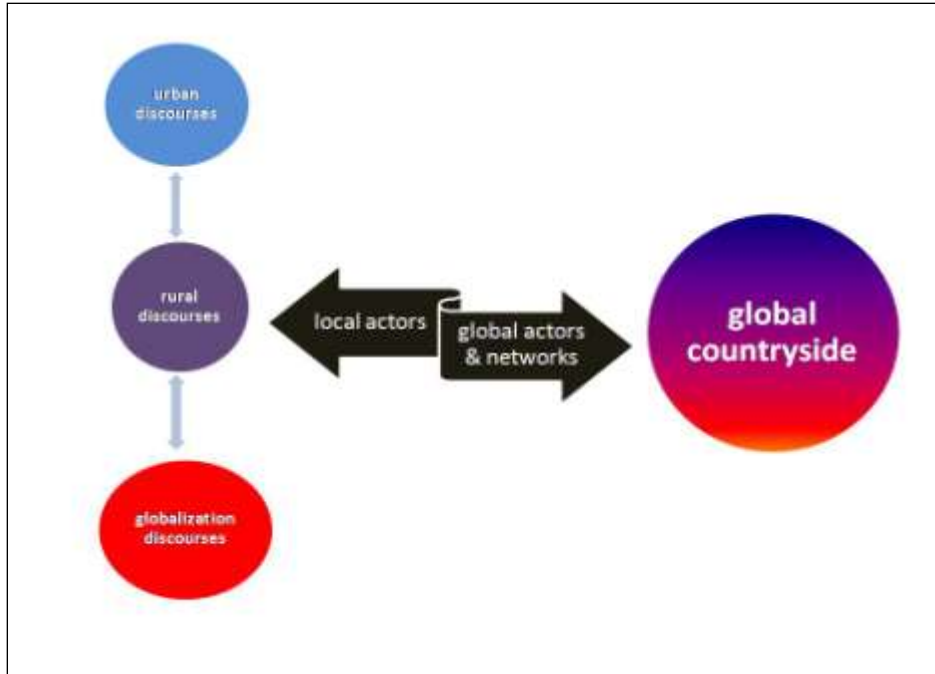
*To mitigate and adapt to climate change we need to stop the assault on small farmers and indigenous communities, to defend their rights to their land and territory, to see them not as remnants of our past but as the path for our future. (Shiva 2008, 46)*

### **Abstract**

Ethnographic and interpretive policy analysis of four different geographic locations where agriculture and unconventional oil and gas development overlap spatially and temporally across North America is used to highlight some of the rural, place-based consequences and conflicts resulting from regional and national energy politics. The analysis focuses on ways that family livestock farmers are currently responding to and being transformed by local, national and regional unconventional energy development policies and regulations across an emerging “global countryside.”

### **Introduction**

To focus the analysis of such broad topics as energy and agriculture and provide tangible evidence of the transformations taking place across rural North America as a result of energy development, this paper geographically and topically draws upon the perspectives of family livestock farmers and networks of farmers across North America being directly impacted by the activities of multi-national energy corporations. The place-based social and environmental changes being brought about by regional and national policies and regulations that promote unconventional energy development activities on and near grazing and crop lands makes these livestock farmers and the places they inhabit part of an emerging “global countryside,” a hypothetical space characterized by a condition of global inter-relatedness articulated through and by certain rural places and peoples that are engaging with and responding to globalization at the local level (Woods 2007, 486; Figure 1).



**Figure 1.** Conceptual model of the “global countryside.” Adapted from Woods 2007.

The livestock operations that are the focus of this analysis include smaller, family farms of less than 1,000 animals who for all, or a significant part of the year, allow their livestock to graze freely. Where possible, the focus has been on capturing the perspectives of family farmers<sup>1</sup> and their communities (National Family Farm Coalition 2008). These family farms include both conventional and organically certified operations.

Unconventional onshore oil and gas development broadly refers to extracting hydrocarbon resources from oil and gas shale, tight gas and tar sands, heavy oil reservoirs, coal bed methane, and methane hydrates. Unconventional oil and gas resources are regional in extent, found in extremely low permeability rock or on sand, and require stimulation (known as fracturing) to produce the gas or oil. These unconventional fossil fuel resources also typically have lower rates of estimated recovery than conventional oil and gas (Energy Information Administration 2011). This type of development is technology driven, using one or a combination of advanced technologies that include horizontal drilling and hydraulic fracturing (also known as “fracing”) in the case of tight sands, coal bed methane, and shales, and in the case of oil sands includes open pit mining and hot water extraction, or in-situ steam extraction practices, such as steam assisted gravity drainage (Holditch 2006). Due to these advanced technologies, higher initial capital investment is required.

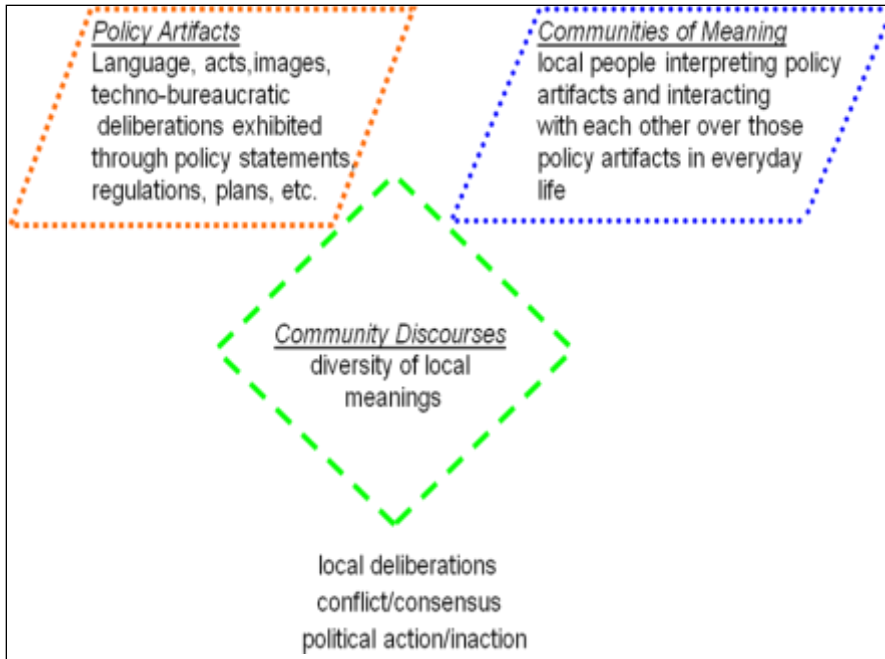
In the political and societal discourses on the exploitation of these unconventional fossil

<sup>1</sup> The definition of family farms used here refers to farms, regardless of acreage, quantity of product, or revenue generated, that are owned by one or more family in which family members are involved in the daily labor and management decisions on the farm.

fuel resources, the full scale development of these “domestic” fossil fuels, and the capital investment required, have been argued for in political debates as promising more “secure” and independent sources of oil and gas that could free the U.S. and Canada from oil and gas supplies in more politically volatile places around the world. In addition, political and societal calls for cleaner burning fossil fuels in the face of global climate change have brought the debate over a switch from coal and oil to “clean-burning” natural gas to the fore. All of these discourses around the promotion of unconventional energy in North America have involved, most notably in the U.S., new tax incentives, new public subsidies, de-regulation, new policies and regulations, permit streamlining, and national security measures that protect the corporations and technologies involved in unconventional oil and gas developments.

### **An Interpretive Policy Analysis of Unconventional Energy Development in Rural North America**

This interpretive policy analysis began with one question: What are the rural, place-based consequences of regional and national energy politics? To answer this question, documentation and analysis was done using an interpretive analytic framework (Figure 2). This type of framework relies on ethnographic documentation and qualitative sociology into the phenomenology of lived experience that enables us to get at the “embodied vocabularies” and “heart” in policies and regulations (Husserl 1973; Bourdieu 1984). This form of public policy analysis views policy as a type of human expression of knowledge, culture, social class and feelings revealed in artifacts and actions such as political rhetoric, regulations, institutional behaviors, and private and public deliberations. These policy expressions, artifacts, and actions further act upon other knowledgeable, cultural, acting, feeling, and deliberating humans in their everyday lives (Yanow 2000).



**Figure 2.** Interpretive policy analysis framework. Adapted from Yanow, 2000.

In this paper, policy artifacts analyzed were of two types. First, government documents, speeches, and research reports related to national and regional policies and regulations that promote unconventional onshore oil and gas developments in Canada and the U.S., and second the organizational documents and testimony, research reports, and media coverage reacting to those promotional policies and regulations. The communities of meaning focused on in this analysis are small livestock farmers and farming places and the ways in which these farmers talk about and interpret, or alternatively ignore and dismiss, policies and regulations directed at incentivizing unconventional energy industries.

Why is this type of interpretive policy analysis important? Local perceptions towards rapid population, economic, and industrial growth and change related to energy development has been documented by rural sociologists and political scientists elsewhere using polling and quantitative survey results (Theodori 2009; Webb, Krannich and Clemente 1980; Greider and Krannich 1985). While this type of quantitative research is valuable in establishing overall trends in societal acceptance or rejection of change brought on by new energy developments, it leaves much untold about the underlying cultural or psychological reasons behind those local perceptions, and polls and surveys may miss entire segments of a population if not grounded in local cultures and belief structures (Myles 2007). Interpretive policy analysis offers an empirical way of investigating underlying reasons behind different perceptions with a grounding in local cultures and beliefs (Yanow 2000). In addition, when designing or implementing a publicly

responsive policy on energy (or any issue of such national and international importance), it is critical to understand the relationship between shifting energy policies set at national and regional levels, and the impact of those policies on livelihoods and the associated cultural artifacts of rural people and places that may undergo change during energy development activities. Sociologists studying the factors involved in community activism have found that these local impacts, or even the threat of those impacts leads to various forms of political action and advocacy or political inaction and activist “burn-out” based on different perceptions of the problem or conflicting policy preferences (Freudenburg and Gramling 1993; Coelho 2006; Forsyth, Luthra and Bankston 2007). Therefore, failure to understand and attempt to account for differences may lead to intractable conflicts and the failure to successfully implement policies, management decisions, or regulations (Harrison and Burgess 2000; Peterson et al. 2002; Herder-Rapp and Goedeke 2005). And, finally, this type of analysis provides a meaningful addition to other more goal-oriented, economic, or institutional public policy analyses.

### **North America’s Unconventional Energy Landscape and Implications for Regional and National “Independence” and “Security”**

Ninety-five percent of Canada’s proven reserves of petroleum lie in the oil sands of northern Alberta (McKinney 2008), with an estimated 80 trillion cubic feet of technically recoverable gas from unconventional onshore sources such as coal bed methane and shale in six Canadian Provinces. In the United States, extensive new onshore gas and oil shale, tight sands, and coal bed methane deposits are currently under development in 35 States, with an estimated 399.4 trillion cubic feet of technically recoverable gas and 6.1 billion barrels of technically recoverable oil (Energy Information Administration 2008).

Trade in energy resources from Canada into the U.S. is tremendous. In 2008, Canada exported 3.6 trillion cubic feet of gas and 2.3 million barrels per day of oil and petroleum products into the U.S. (Energy Information Administration 2008; Fortis Bank SA/NV and VM Group 2008). Playing a large role in paving the way for this development on the continental scale is the lifting of trade barriers under the North America Free Trade Agreement (NAFTA) in 1994 and the coordination of energy security policies with the establishment in 2001 of the North American Energy Working Group under the auspices of the North American Security & Prosperity Partnership (North American Energy Working Group 2006). Government documents on the potential of unconventional energy development in North America abound with discussions about the importance of energy independence and security to both the U.S. and Canada.

One clear example from the U.S. of the energy independence and security discourse is found in internal and public deliberations over the Keystone crude oil pipeline from Alberta’s oil sands. The first leg of the Keystone pipeline from Alberta to the State of Illinois and Oklahoma was approved for construction during the G.W. Bush Administration in the early 2000’s, while a

second leg of this pipeline, the 1,700 mile Keystone-XL pipeline that is proposed to transport crude oil from Alberta's oil sands across Saskatchewan, Montana, South Dakota, Nebraska, Kansas, Oklahoma, and to Texas refineries along the Gulf of Mexico coast, is still undergoing environmental and social impact review (U.S. Department of State 2010; U.S. Department of State 2011; U.S. EPA 2010). In 2009 the U.S. State Department complied with the National Environmental Policy Act of 1969<sup>2</sup>, or NEPA, and submitted a National Environmental Impact Assessment for the Keystone XL project to the U.S. EPA. The Assessment justified the need of the proposed crude oil pipeline on the grounds of domestic energy security and independence, saying: "It would also increase the supply of crude oil from a major source outside of the Organization of Petroleum Exporting Countries (OPEC) and augment the security of the energy supply" (U.S. Department of State 2010, 1-8). And, according to the Department of State's analysts, without the pipeline and the new supplies of oil it would carry, the U.S. "would remain dependent upon unstable foreign oil supplies from the Mideast, Africa, Mexico, and South America" (U.S. Department of State 2010, ES-4).<sup>3</sup>

In Canada, regulatory authority with regards to unconventional fossil fuel development is, at least on paper, less directed by national laws than in the U.S. Except for oil and gas development in the Northwest Territories, Nunavut, or the "frontier lands" and offshore sources, the Canadian government exercises no legal authority outside the citing and permitting of pipelines under the Canada Oil and Gas Operations Act<sup>4</sup>. If there is a complaint against a Province, a petition can be brought to the National Energy Board<sup>5</sup>, which does have broad discretionary power to review Provincial energy projects (Hughes 2009). Regulations aside, policy setting on energy development with regard to health and safety and environmental protection is set by Natural Resources Canada (Natural Resources Canada 2009). Besides this policy setting role, Canadian regulations and most policies governing oil and gas developments are handled at the Provincial level through land use planning and environmental assessments.

## **Current and Past Unconventional Oil and Gas Development Incentives in the U.S. and Expert Reactions**

### *Taxes and Operating Expense Exemptions*

In the U.S., most recently from 2001-2007 during the G.W. Bush Administration, policies were championed by the Executive Branch that provided incentives and regulatory guidance, including de-regulation, designed to promote increased exploration and development of domestic

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<sup>2</sup> National Environmental Policy Act of 1969: 42 U.S. C. §4331 et seq., 40 C.F.R. pts 1500-1508.

<sup>3</sup> In 2010, the U.S. EPA rejected the first Environmental Impact Assessment of the Department of State, noting that the pipeline would promote further development of the Alberta oil sands, a significant contributing factor to greenhouse gas emissions across North America. The EPA also noted that the Department did not adequately assess the risks to threatened and endangered species, wetland habitats, Native American rights, cultural resources, and cumulative environmental justice across Montana, South Dakota, Nebraska, Kansas, Oklahoma, and Texas.

<sup>4</sup> R.S.C., c. 0-7 § 3 (1985)

<sup>5</sup> R.S.C., c. N-6, s. 1 (1985)

fossil fuel projects, including most notably unconventional oil and gas shale and coal bed methane projects. As just two larger examples, the Energy Policy Act of 2005<sup>6</sup> and the Energy Independence and Security Act of 2007<sup>7</sup> both contain important provisions that offer regulatory and tax incentives for the expansion of U.S. onshore energy production and transport. Specific incentives in these laws and deliberative documents from the time include justification for extensive oil and gas leasing on federal lands (Energy Information Administration 2001), de-regulation of unconventional fossil fuel exploration and production practices (such as hydraulic fracturing)<sup>8</sup>, and millions of dollars in tax breaks and government subsidies to corporations exploring, developing, or producing unconventional oil and gas (Sissine, Gurevitz and Cunningham. 2009; Lazzari 2008).

These U.S. subsidies are not new, they date back to the 1970's and earlier. In fact, capital intensive unconventional oil and gas exploration, development, and production projects have always relied on energy tax policies such as deduction of intangible drilling costs (IDCs), percentage depletion tax provisions for oil and gas, and unconventional fuel production credits (Sherlock 2010). What is new was an expansion under the Energy Policy Act of 2005 of the unconventional fuel production credit, also known as Section 29 credit and now part of the general business credit section under the tax code (Joint Committee on Taxation, 109th Congress 2007)<sup>9</sup>.

*Triggering the Climate Change Debate: Bridge Fuel or Bridge to Nowhere?*

These unconventional oil and gas development incentives and regulatory changes have sparked heated debate among scientists, economists, and other climate change experts. Some have argued that unconventional fossil fuel development is a short-term “fix” for North America’s dependence on fossil fuels. Others have argued that it is a “bridge” fuel to lower carbon-emitting sources of energy, such as wind, solar, and geothermal, that will eventually reduce greenhouse gas emissions by giving us time to develop better technologies or raise more money. While both of these descriptions may well be true, preliminary life cycle assessments of shale gas and oil sands developments show that the “bridge” scenario is not as benign an option as some energy scholars, policy makers, and corporations have touted (Howarth, Santoro and Ingraffea 2011; Bergerson and Keith 2006).

One policy artifact from these expert reactions, is a letter from the Council of Scientific Society Presidents, signed May 4, 2010, to federal administrators and legislators recognizing the need for policies to be implemented immediately that curb greenhouse gas emissions, but cautions that the promotion of “bridge” fuels, gas and oil shales in particular, are an example of

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<sup>6</sup> 42 USC § 13201 et seq. (2005)

<sup>7</sup> P.L. 110-140, H.R. 6 (2007)

<sup>8</sup> 42 USC § 13201 et seq., Title III, Subtitle C § 322 (2005)

<sup>9</sup> Section 29 credit was first introduced in the 1980 Windfall Profit Tax Act and expanded under the Omnibus Budget Reconciliation Act of 1990 and Energy Policy Acts of 1992 and 2005.

where policy has dangerously preceded adequate scientific study (Council of Scientific Society Presidents 2010). In addition to greenhouse gas emissions, they raise concerns that the technological practices involved in unconventional oil and gas developments across North America have immediate environmental pollution and public health challenges to overcome, including ground and surface water drawdown and contamination, soil contamination, and air pollution. Despite this continuing scientific debate over unconventional oil and gas being a “bridge” to renewable sources of energy or a “bridge to nowhere,” national, State, and Provincial governments across North America through 2010 continued to provide tax subsidies and to “streamline” regulations for unconventional oil and gas development projects (Brandt and Farrell 2005; Marano and Ciferno 2001).

One of the underlying concerns in scientific community policy documents, such as the one from the Council of Scientific Society Presidents, is that rapid deployment of unconventional oil and gas technologies have not undergone adequate independent scientific assessments to understand their possible short and long-term environmental and health risks. In addition, federal oversight, community input, and mandatory best management practices in the U.S. have been removed as a result of regulatory loopholes placed in various pieces of energy and environmental legislation, such as the Energy Policy Act of 2005 and certain amendments to the U.S. Clean Air Act and the National Emission Standards for Hazardous Pollutants<sup>10</sup> allowing for small source exemptions and deregulation of hydrogen sulfide emissions (Kosnik 2007, 12-15). These regulatory changes around 2005 specifically exempted many of the unconventional technologies, such as high pressure slick water hydraulic fracturing and deep onshore horizontal drilling, from U.S. federal regulations and community-right-to-know provisions.

### **Livestock Farming in an Era of Unconventional Oil and Gas: Wyoming, Alberta, Pennsylvania, and Quebec**

In analyzing the perspectives which family livestock farmers have towards the unconventional oil and gas industry, and particularly the incentives that promote unconventional development, I have compiled data from national statistics, interviews, oral histories, participant observations, archival, institutional, and local news media reports from four different rural places in North America where communities of livestock farmers and unconventional oil and gas projects overlap in space and time: Wyoming (Jacquet 2006), Alberta, Pennsylvania (Perry 2011), and Quebec. Public and private discourses from specific local communities within these four different rural places (Sublette County in Wyoming, Lower Athabasca in Alberta, Bradford County in Pennsylvania, and St. Laurent Lowlands in Quebec) provide preliminary data for the analysis of how agricultural people (and places) are interpreting these energy developments through the ways in which they talk about and choose to act about and upon unconventional fossil fuel projects that are directly impacting their land, their livelihoods, and their families and

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<sup>10</sup> 42 U.S.C. § 7412(n)(4)



communities. There are thousands of stories and voices from these rural places to choose from in the data collected, so selection of the specific rural discourses described here are based on two of the less widely discussed themes that emerged from farmer discourses at these rural locations and that refer to or connect directly with regional, national, Provincial, and State policies and regulations governing unconventional fossil fuel projects in 2010: threats to agricultural livelihoods and farmer participation in policy deliberations<sup>11</sup>.

The geography, spatial scale, and unconventional energy development versus farming characteristics of these four rural places is summarized in Table 1. All data is from the 2006 Canadian Census of Agriculture (Statistics Canada 2006), the 2007 U.S. Census of Agriculture (U.S. Department of Agriculture 2009), and the various state and provincial agencies permitting and tracking oil and gas developments. Overall trends from both the Canadian and U.S. agricultural censuses show that these four rural areas have seen the number of acres in farming declining, number of family farms declining, and an increase in the age of farmers over the past 30 years.

Geographic Location	Type of Family Livestock Operations	Acres in pasture or cropland	Number of farms (yr)	Type of Unconventional Development
<i>Wyoming, United States</i>	cow-calf	27.8 million		
<i>Sublette County</i>		599,289 (private), 2.5 million (public)	366 (2007)	tight sands
<i>Alberta, Canada</i>	cow-calf	40 million		
<i>Lower Athabasca Region</i>		1.1 million	1,202 (2007)	oil sands, coal bed methane
<i>Pennsylvania, United States</i>	dairy	4.9 million		
<i>Bradford County</i>			266,635 297 (2007)	shale gas
<i>Quebec, Canada</i>	dairy	4.8 million		
<i>St. Laurents Lowland Region</i>			5,571 (2006)	shale gas

**Table 1.**

### *Wyoming- Sublette County*

In Wyoming’s Sublette County, much of the unconventional energy resources, in the form of tight gas sand formations, are located underneath federal lands owned by the U.S. Department of Interior’s Bureau of Land Management and the U.S. Department of Agriculture’s Forest Service. Two and a half million acres of these federal lands are leased by farmers to graze their livestock (Bohlmann 2010). These federally owned lands are subject to the U.S. National Environmental Policy Act of 1969 (NEPA). Under NEPA, the development of the main tight sands formations, the Jonah Field and Pinedale Anticline, underwent Environmental Impact Assessments from 1994 to 2008 (Bohlmann 2010). The farmers who use these public lands for grazing had a

<sup>11</sup> Other themes that emerged from this analysis dealt more directly with public and environmental health and contamination concerns.

chance to comment on this Assessment, but have had little say in how the land will be used for energy development, are not guaranteed any direct economic benefit from the gas and oil projects, and have no protection from liability or damages if they, their families, or their livestock are injured by the development project once the lands are leased and drilling is approved by the federal government (Merrill 2008; Nordhaus 2006).

The State of Wyoming's Oil and Gas Conservation Commission has an on-line geographic tracking system for oil and gas permits (Wyoming Oil and Gas Conservation Commission 2011) that could serve as a way to provide information to ranchers and farmers about gas development activities. But, as a technology researcher working with a team to develop on-line tools to help landowners report problems with oil and gas developments near their land said, "We haven't included Wyoming in our system because we are having problems getting up-to-date information from the State oil and gas commission. They have an on-line system where citizens supposedly can access well locations and other development information, but it is always down, and even when it's up it's really difficult to use. It appears they don't really want anyone to use it."<sup>12</sup>

#### *Alberta- Lower Athabasca Region*

In Alberta's Lower Athabasca Region development of unconventional fossil fuel resources from oil sands near the settlements of Fort McMurray, Cold Lake, Lac La Biche, and Conklin has disturbed 130,966 acres of the 1.1 million acres currently used for pasture land, with a total of 864,869 acres of mineable oil sands still slated for future development (Government of Alberta 2009). In addition to unconventional development in the oil sands, statistics from the Energy Resources Conservation Board show that coal bed methane wells in the Lower Athabasca Region increased from less than 1,100 wells in 2003 to a total of 12,500 in 2007 (Alberta Land Use Framework 2008). As a result of this rapid and extensive energy development, the Lower Athabasca has undergone tremendous demographic, ecological, and economic changes in the past 12 years leading the Government of Alberta to develop a framework for regional planning and implementation that appears to privilege the economic benefits of the oil and gas fields over the livelihoods of farmers in the region (Government of Alberta 2009). For example, the Province of Alberta recently initiated an "Enhanced Approval Process" (EAP) to streamline the processing of both conventional and unconventional oil and gas development (excluding oil sands) leases and permits and to reduce approval times (Government of Alberta 2010). The EAP website describes this new approval process as promoting Alberta's "economic competitiveness" and providing "an advantage to industry."

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<sup>12</sup> Face-to-face conversation with software developer, March 21, 2011.

*Pennsylvania- Bradford County*

Since 2008, the Marcellus shale gas formation underlying Pennsylvania has been the subject of extensive unconventional shale gas exploration and development activity. As of March 10, 2011, 2,650 shale gas wells have been drilled since 2008 into the Pennsylvania portion of the Marcellus formation (Pennsylvania Department of Environmental Protection 2011). As of April 2011, 1,600 of permitted gas wells were located in Bradford County (Bradford County 2011). Like Alberta, the Susquehanna River Basin Commission, a multi-state, federal agency, and the Commonwealth of Pennsylvania's Department of Environmental Protection have enacted a series of "fast track" or "streamlining" measures to ensure that environmental permits issued to the industry do not hinder the speed and efficiency of the industry's development activities (Rubinkham 2011; Susquehanna River Basin Commission 2008<sup>13</sup>). In addition, a policy issued by the Pennsylvania Governor's office as part of his 2011-2012 budget places ultimate authority "to expedite any permit or action pending in any agency where the creation of jobs may be impacted" into the hands of the Pennsylvania Department of Community and Economic Development (Commonwealth of Pennsylvania 2011). Since development of the Marcellus Shale is heralded by state politicians and even the Pennsylvania State University Extension Service as the savior of Pennsylvania's economy through job creation (PCToday 2010), new shale gas development permits would fall under this policy directive.

*Quebec- St. Laurent Lowlands*

Underlying Quebec's St. Laurent Lowlands (as well as Bradford County) is the Utica shale gas reservoir, in which oil and gas companies have drilled 31 exploratory wells since 2008. In information presented to Quebec's Bureau d'Audiences Publiques sur l'Environnement, known as BAPE, during a series of meetings held in Montreal from 2009 to early 2010, the Ministry of Natural Resources for the Province reported finding 19 methane leaks from those 31 wells (Laliberte 2010). According to Normand Mousseau, author of *La Revolution de Gaz de Schiste* (2010), Quebec's Mining Act, Farmland Protection Act, and other natural resource laws do not deal with unconventional drilling and hydrocarbon exploration in populated areas (Canadian Broadcast Channel 2011). The Mining Act, established in 1880, is being used to oversee shale development in Quebec, which offers no rights or protections for surface owners. And, according to Mousseau (Canadian Broadcast Channel 2011), unlike British Columbia, Alberta, and some of the other Canadian Provinces there is no bidding process for Quebec mineral rights by companies seeking to explore and there is no history of hydrocarbon exploration, particularly in these more populated areas of Quebec. Farmers, other residents, and even municipal political officials, found out about shale gas exploration in the St. Laurent Lowlands only once the industry had arrived with their trucks and drilling rigs.

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<sup>13</sup> Title 18 of the U.S. Code of Federal Regulations, Parts 801,806,807, and 808 as amended through September 10, 2009, effective November 1, 2009.

## **Rural Discourses from Livestock Farmers**

### *Maintenance of and Threats to Agricultural Livelihoods*

In Wyoming, where most of both the livestock grazing and oil and gas development activities are taking place on publicly owned and managed lands instead of privately owned lands such as in the eastern U.S., there have been some trade-offs in citing of development activities that may actually benefit agricultural livelihoods, at least on a small scale. As part of the NEPA Environmental Impact Assessments for the Jonah Infill (U.S. Bureau of Land Management 2006, 8-9) and Pinedale Anticline (U.S. Bureau of Land Management 2008, 14-24) gas fields in Sublette County, a policy has been put in place that requires energy companies to fund and enter into land protection agreements or conservation easements where working lands are preserved and no surface disturbance from oil and gas development can take place. In what has been described as “an extraordinary example of how the conservation of working ranchlands can help mitigate the effects of energy development and rapid growth,” the first of these agreements, the Sommers-Grindstone land protection agreement, was signed in 2010 (Wyoming Stock Growers Agricultural Land Trust 2010). The Sommers-Grindstone agreement placed 19,000 acres of ranch land into permanent agricultural and conservation easement. Funding for the agreement came from oil and gas company money as part of the mitigation requirements of NEPA. From the ranchers’ perspectives, this was the only way in the face of rapid energy development that they could keep their land intact for grazing, wildlife, and future generations. One rancher said, “This easement will allow the land to remain undeveloped, which is a benefit to cattle and wildlife, and it will allow us to pass our ranch along to another generation of ranchers. We are trying to create a future for this ranch.” And, for another rancher, this was the only way to preserve and share their way of life and their agricultural heritage with future generations, “When you have so much history on a piece of land you feel very connected. How this land will be treated in the future is very important to my sister and me.”

However, under these mitigation measures, unconventional gas development using horizontal and directional drilling and hydraulic fracturing can take place underneath the land’s surface despite such easements as long as the activities do not disturb the surface of the land or interfere with current uses of the land. In the case of the Sommers-Grindstone agreement, for example, the mineral rights were conveyed on a portion of the property to the Wyoming Game and Fish Commission, allowing for directional drilling to access the fossil fuel resources.

As in Sublette County and the mitigation measures set up under NEPA for protecting current and future conservation and heritage uses of the land, the Alberta Land Stewardship Amendment Act<sup>14</sup> also codifies the establishment and funding of initiatives and mechanisms, including permanent conservation directives in regional plans, that protect, conserve, or enhance agricultural land.

In all locations, regardless of land protection agreements or conservation easements,

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<sup>14</sup> Bill 10 § 25, 37 (2011) amended ch. A-26.8 of the Statutes of Alberta (2009).

farmers refer to the unconventional oil and gas industry as a significant threat to agricultural livelihoods. One way agricultural producers have used to describe this threat is in the ways that the oil and gas industry de-values, and subsequently sacrifices, the “natural capital” of agricultural landscapes, where “natural capital” is broadly defined as the productivity and rural quality of life provided by well-managed agricultural lands (Worbets and Berdahl 2003).

In Alberta, several agricultural summits held from 2003-2004, called the Ag Summit and Agrivantage Strategic Initiatives Project (Agriculture and Food Council of Alberta 2005), sought to address agricultural concerns that many of the oil and gas development activities taking place in the Province were being permitted, and even promoted, without due consideration to natural capital.<sup>15</sup> One of the primary concerns of agricultural producers, as evidenced in documents arising from these Canadian summits, is that the speculative value of land for non-agricultural purposes is forcing farmers to make the economic survival choice of keeping the land in farming or selling it for other purposes; therefore, forcing competition between agricultural and non-agricultural land uses. The exact source of this speculation is referred to in documents from Alberta as “forestry, energy, recreation, and urban development industries” (Agriculture and Food Council of Alberta 2005, 19). But, it is clear from Alberta’s active promotion of the Lower Athabaskan oil sands and gas fields and the spike in human population that is occurring in the region, that energy development is the primary driver of this speculative increase in the value of private agricultural land for non-agricultural uses. In addition to clearing of forested lands for mining operations, forestry and urban development industries are both off –shoots of the unconventional oil and gas industry. Forests are cut down to supply raw materials and wood products for expanding residential and commercial building needs. And, as the population grows, new residential developments and residential amenities and infrastructure needs more land (Government of Alberta 2008).

In Pennsylvania, the dire economic situation of most farmers in Bradford County and northern areas of Pennsylvania and the deep divisions that already existed between farmers and townspeople prior to when the unconventional energy development “boom” began there in the late-2000’s, are threatening agricultural livelihoods and lives in slightly different, but similar ways. This quote: “Some once dirt-poor farmers are millionaires, but not everyone’s happy,” appeared in a Bradford County, Pennsylvania newspaper advertisement for a live TV talk show entitled “Boom Town Towanda” (*Towanda Daily Review* 2010), and only partially speaks to this threat. Partly due to press coverage such as this, partly due to industry advertisements touting that the shale gas industry will be responsible for “saving” the family farm, and partly due to a growing distrust towards neighbors, politicians, the government, and almost every aspect of

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<sup>15</sup> The definition used by agricultural producers who took place in the Alberta summits from 2003-2004 is from Canada West Foundation’s report, *Western Canada’s Natural Capital*. In the report, “natural capital” refers to the resources which provide the raw materials used in the production of manufactured goods, the land and water resources that ensure quality of life and support economic activity such as agriculture, forestry, tourism, and recreation, and the living ecosystems (grasslands, oceans, forests) that cleanse the air and water, reinvigorate soil, and ensure a stable climate.

public and social life, these divisions between farmers and townspeople have been getting deeper and more entrenched as development of Marcellus shale gas has accelerated in Bradford County. In interviews with townspeople, politicians, and industry experts from inside and outside the County, as well as gas industry employees, it is common to hear statements such as “farmers invited the gas industry in” or “farmers who are unhappy with the gas industry in the county are only feeling buyer’s remorse.” Many of the farmers I have interviewed feel these characterizations may be correct on the surface, but that those unfamiliar with the difficult economics of farming do not understand how the gas company “sold” them on the industry. When asked about this perception held by non-farmers regarding farmers and the experiences of being offered more money for a lease by the gas companies, one farmer told me, “We leased our 160 acre farm like we have done the past 40 years. The process started in the spring of 2006. This time was different; they offered \$25, then \$35. The gas company land man insinuated that it was due to a government subsidy. We knew something was wrong, but couldn’t get any answers. They (the gas company landmen) were willing to pay so much more than the routine \$1 to \$5 an acre. At the time, you couldn’t find a lawyer that had knowledge of the oil and gas laws. Talk about not knowing what to do. There were many hours spent in our garage holding meetings with other farmers trying to find answers. Since our lease signing four years ago, we have experienced many slanted comments, ‘The farmer brought the gas industry to the area’ or ‘Why didn’t those dumb farmers get a lawyer?’ or ‘Those farmers are just greedy and are mad because they didn’t get ‘good leases.’ They just don’t understand.”<sup>16</sup>

According to this farmer’s recounting of their leasing experience, they were told by the gas company representatives, or landmen, of a “government subsidy” allowing them to offer more money to landowners per acre. Given the time frame of the offer (early 2006), it is likely that these were the 2005 Energy Policy Act’s subsidies that increased the unconventional fuel production credit and created exemptions from the Safe Drinking Water Act, Clean Air Act, Resource Conservation and Recovery Act (for handling solid wastes), and various community right-to-know sections of environmental laws.

As a result of increasing U.S. news coverage by national investigative journalism organizations (ProPublica and New York Times) and recent peer-reviewed scientific findings on the dangers of hydraulic fracturing and other unconventional oil and gas development technologies (Osborn et al. 2011), farmers are now feeling that they were not provided with enough information from the gas companies to make an informed decision about the risks, whether financial, health, or environmental. In over 100 cases documented in Bradford County, Pennsylvania, gas industry land men knowingly built up false expectations about the potential for financial gain, or misled farmers about the small amount or exact location of surface land that would be disturbed by gas development activities (Perry 2011).

This last point is of particular importance when looking at the ability of small farmers’ in Bradford County, Pennsylvania to maintain their livelihoods in areas where unconventional oil

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<sup>16</sup> Ethnographic interview with farmer in Sheshequin Township, Bradford County, PA, February 2010.

and gas development is taking place. It is also important elsewhere in the eastern U.S. where most farm land and much of the area currently being considered for unconventional oil and gas development is privately owned. Obviously, without arable land and fertile soil farmers cannot grow their crops or graze their livestock. It is common in Bradford County to meet farmers and other landowners that signed a lease with the gas company but were never informed of the location and extent of the activities that would take place on their properties. In the case of one farmer in Bradford County, the gas company placed the well pad on the pasture they used to graze their cows, built the access road to the pad between their house and one of their barns, and placed an above-ground pipe carrying brine and hydraulic fracturing fluids across one of their corn fields, which burst in the freezing temperatures. In addition, the financial loss to their farming business is not being made up with revenues from gas production. Although the gas well site, including wellhead, brine separator tanks, and compressor station is located entirely on their property, they receive less than 10% of the total amount of money generated from the well because most of the shale gas is actually being extracted from underneath neighboring properties. As a result, the family has had to sell their cows, no longer uses the barn across the road, lives within 500 feet of an active gas well, is exposed daily to the noise and diesel pollution from a small compressor station, and has an approximately six acre area of contaminated soil in their corn field that they will not be able to plant for several years.<sup>17</sup> In the summer of 2010, these farmers' drinking water well was found to contain explosive levels of methane and volatile organic compounds.<sup>18</sup>

In summary, examples such as these show that farmers living in areas where unconventional oil and gas activities are taking place are finding themselves increasingly thinking about and being forced to make tough decisions about how best to maintain usability and profitability of their land in the face of a competing land use. Livestock farmers in the U.S. West and parts of Alberta Canada relying on public lands leased for unconventional oil and gas development may not have any direct power to prevent land use changes from occurring unless they have enough private land to take advantage of land protection easements. In contrast, farmers in the U.S. and Canadian East, who rely solely on private lands for their livestock operations, have not been provided with enough information or have been provided with misleading information by the energy companies, leaving them unable to make informed decisions about agricultural uses or farm versus non-farm profitability. Livestock farmers looked at here identify as small family business owners. To many of them this is an economic and multi-generational problem caused by competition for “natural capital”— finite land and water resources, livestock-specific resources such as seasonal supplies (e.g., sawdust, lime, grasslands, etc.), and human labor (e.g., milk truck drivers, farm hands, family members, etc.).<sup>19</sup>

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<sup>17</sup> Ethnographic interview with farmer from Granville Township, Bradford County, PA, 31 March 2010.

<sup>18</sup> E-mail correspondence with farmer from Granville Township, Bradford County, PA, 1 July 2010.

<sup>19</sup> Focus group interviews from February to August 2010.

*Farmer Participation in Policy Deliberations*

During the summits held with the agricultural industry in Alberta during 2003-2004, there was a call for better understanding and incorporation of agricultural perspectives into land use planning in the Province, including inviting agricultural producers to sit “at the table with other resource industries, governments, and the public” (Agriculture and Food Council of Alberta 2005, 20-21, 25). This issue of participation has arisen numerous times throughout the period of rapid growth in the Province, and while many of the recommendations from the agricultural summits of the early 2000’s were incorporated into the province’s overarching Land Use Framework document (Agriculture and Food Council of Alberta 2009; Government of Alberta 2008), it is difficult to find any evidence that the Province has taken the idea of agricultural participation seriously in their creation of the Lower Athabasca regional land use overview report (Government of Alberta 2009). The Lower Athabasca overview report says that the Framework is to provide information on the “key social, economic, and environmental factors in the Lower Athabasca region that need to be considered in developing a regional plan” (Government of Alberta 2009, 2). However, the report devotes only three and a half pages to agriculture and eight pages to oil sands and natural gas development, with no mention in the section on “Ecosystems and Environment” (Government of Alberta 2009, 47-64) of the important role natural capital from well managed agricultural landscapes can play in the stewardship of land, water, soil, and biological diversity.

In Bradford County, elected politicians such as local county commissioners and state senators are fond of conjuring the imagery of the “dirt poor farmer” benefiting from shale gas development in terms of more jobs, more business, and more revenue to a County that had an 11% poverty rate and declining population in 2007 (U.S. Census Bureau 2009; Bradford County Comprehensive Plan 2004; Bradford County Resource Data Book 2009). However, the County’s Natural Gas Task Force, made up of members from of local government, businesses, emergency services, social agencies, banking institutions, police services, etc. tasked with helping the County plan for the current and future development of the gas shale, has no direct representation from within the agricultural community. When presenting a research plan to study the impact of shale gas development on the agricultural landowners in the County, the author was told that there would be no more agriculture in the County soon and that it was a “dying” industry.<sup>20</sup>

The conclusion of most farmers who feel threatened or misled by the energy industry and face critical shortages of land, supplies, labor, and clean drinking water, is that the politicians, and even the environmental regulators, they thought were going to protect them “do not care” and “have been paid off.”<sup>21</sup> Farmers from Pennsylvania, Wyoming, Colorado, Texas, and Arkansas no longer trust companies, their governments, their state universities, and perhaps worst of all some of their neighbors. They have feelings of overwhelming frustration, anger,

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<sup>20</sup> Presentation to Bradford County Planning Subcommittee, Natural Gas Task Force, December 2009.

<sup>21</sup> Focus groups and ethnographic interviews with agricultural landowners in Bradford County, PA from January 2010-March 2011.



sadness, and depression.<sup>22</sup> These feelings are increasingly being expressed in political cartoons, op-eds in local and national newspapers, hand-made signs on roadsides (Figure 3), and in public testimony before government commissions.



**Figure 3.** Handmade road sign in East Smithfield, Bradford County, Pennsylvania says: “DEAR GOD Oh Lord Please save Our Town. I love my earthly home. (1) 6” PIPELINE LEAK (1) DIESEL FUEL SPILL (1) HYDRAULIC FLUID SPILL (2) BROKEN HEARTS. HOME OF OUR GRANDCHILDREN. Please help, I ask in Jesus name. Collins Rd – Okic Acres Farm- Bruce D. Kennedy”. Photo by C.F. taken April 2011.

### **Conclusion: Unconventional Energy Development and the Emerging Global Countryside**

What do these brief examples of rural, agricultural discourses have to tell us about the consequences and conflicts from energy development across rural North America and an emerging global countryside? First, by documenting and then analyzing these discourses within

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<sup>22</sup> Focus groups and ethnographic interviews with agricultural landowners in Bradford County, PA from January 2010-March 2011, and field notes from Bradford County, PA and Susquehanna County, PA January 2010- March 2011.

a broader context, policy makers and political and social scientists can see how entire rural places and communities where local, family agriculture and unconventional oil and gas development activities overlap are changing in fundamental, and sometimes threatening, ways as a direct result of national, regional, and global economic and political processes. Secondly, such ethnographic information can be used as a starting place to evaluate current local, national, and regional energy policies and regulations against local knowledge, culture, and feelings and possibly adapt those policies and regulations to incorporate local, place-based perspectives. And, thirdly, documenting and understanding these rural, place-based discourses allows everyone, including rural peoples, a way to compare, contrast, and analyze interconnections between the perspectives of rural, urban, and global places and people in a rapidly globalizing world.

In his conceptualization of the global countryside concept, Woods (2007) was careful to recognize the historical nature of globalization and thus, this analysis recognizes that the rural locations used as examples are already the product of past exposure to global networks of capital and people. In using the global countryside concept to globally place local impacts, though, this analysis recognizes that the contemporary globalization processes, networks, and connections in the late twentieth and early twenty-first century are marked by a much greater intensity, immediacy, density, and contingency spurred by the rapid pace of the competitive global economy (487), and threats of global climate change disruptions and ecological crises (Kousis 2002; Buttel and Taylor 1992). This is what makes this sort of interpretive, place-based analysis even more urgent.

This type of analysis also provides evidence that the interconnections that make up the global countryside, between the local and the global and the rural and the urban may be rooted in the stories and voices from rural places. At the People's Oil and Gas Summit in Pittsburgh, Pennsylvania in November 2010, the local, everyday discourses of rural people and places being impacted by unconventional oil and gas development were publicly shared and placed in dialogue with what in North America have been considered urban and global discourses of climate change, carbon footprints, non-carbon energy technologies, free-market capitalism, environmental justice, and human rights.<sup>23</sup> While not discussed explicitly in this analysis, concerns around environmental contamination and public health and safety impacts from the unconventional oil and gas industry are voiced frequently in rural farming communities across North America (*The Economist* 2010), thus leading to the possibility of further discourse convergences with labor and environmental groups already working on global issues. Such convergences and coalitions have been labeled "new social movements" because they respond to social needs generated by recent world-wide globalization or development practices (Fuentes and Gunder Frank 1989). Such "new social movements" appear to be at the early stages of forcing changes in the policies and regulations, or lack of regulations, currently governing unconventional oil and gas development in North America and around the world.

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<sup>23</sup> Field notes from Earthwork/OGAP's People's Oil and Gas Summit in Pittsburgh, PA 18-20 November 2010.

In the U.S., federal laws are being proposed that would re-instate existing federal environmental regulations, or make voluntary “best management practices” mandatory and subject to regulations and fines (Williams 2011). These U.S. federal laws, if implemented properly, could protect water, air, soil, public health, as well as the public right to know regarding energy industry practices. The federal government has also launched a study to assess the ecological and public health impacts of hydraulic fracturing and other related unconventional technologies across the U.S. (U.S. EPA 2011). At the state level in the U.S., state budgetary crises are making matters more difficult as State’s see the potential for unconventional energy development to assist in economic recovery through job growth and increased tax revenues (Diffendorf 2011). However, despite these economic promises, New York State, and most recently Maryland, have both decided to slow down the pace of unconventional oil and gas development until they can complete more studies regarding the near-term, future, and cumulative impacts of shale gas development on both urban (i.e., New York City watershed) and rural places and people.

In Canada, Quebec’s government in March 2010, on the recommendation of the BAPE, decided to place a halt on production of shale gas from the St. Laurents Lowlands, although exploration already permitted is still allowed to go on for now (Sequin 2011). And, most recently outside of North America, South Africa, France, and one German state have placed bans on the unconventional extraction technology of hydraulic fracturing until further studies of the technology’s environmental and health impacts are completed (Picy and Sage 2011; UK House of Commons 2011; Moran 2011; Wyputta 2011).

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