

The contested landscape of unconventional energy development: a report from Ohio's shale gas country

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Abstract Portions of Ohio are experiencing a surge in the development of unconventional sources of natural gas and other fossil fuels using controversial hydraulic fracturing technologies. Natural gas has been celebrated as a clean-burning bridge fuel capable of leading our society beyond its dependence on fossil fuels, a key to energy independence, and a critical catalyst for regional economic recovery. But serious concerns have been raised about possible detrimental impacts on public health and safety, water and air quality, and environmental integrity. Informed by a landscape studies perspective that encourages careful consideration of how people conceive of the world around them, this paper examines how Ohioans' understandings of the environment are being transformed as a result of shale gas extraction. Based on ongoing participant–observation research and open-ended interviews with grassroots anti-fracking activists, nonprofit organization affiliates, and government agents as well as a review of publicly available corporate responsibility statements, it surveys emergent themes in citizens' perspectives—including legacy, way of life, disempowerment, vulnerability, displacement, and prosperity—in order to explore what the contested landscape of unconventional energy development can reveal about the diverse and dynamic ways in which contemporary citizens comprehend the natural environment and their relationships to it. It suggests that responses to energy development are being contoured not only by culturally constituted ways of imagining ideal human–environment interactions but also by the broader sociopolitical structures

that ultimately determine whose perspectives are prioritized and which policies are implemented.

Keywords Energy · Hydraulic fracturing · Landscape · Natural gas · Ohio · Shale gas

One summer morning in 2009, Susan and her family awoke with intense headaches and nausea. Dazed and disoriented, they headed to a nearby park for fresh air. The day before, drilling had begun for a natural gas well only 89 ft from Susan's home in Broadview Heights, Ohio. Unfortunately, a generator near the drill pad was venting directly toward the family's air conditioning unit. Susan, a trained automotive engineer, suspected in retrospect that the symptoms were caused by carbon monoxide poisoning. When they purchased their property in 2003, Susan and her husband looked forward to family campouts in a tranquil backyard frequented by deer, raccoons, and wild turkeys. They hoped their children would experience the kind of environmental connection they both enjoyed in their youth. “Now, this is all gone,” she lamented when asked to describe how her views had changed, “It's just a toxic nightmare back there. And it can't ever be corrected.” Susan felt her family was “under siege” and “had to flee.” They rented an apartment and lived in their house (which they still own after years on the market) for only a brief, anxious period after the well was drilled. Although both she and her son suffered health problems following the incident, Susan acknowledges that her family was lucky to be able to move. Still, her outlook on the world and her place in it were transformed by the experience; as she bluntly put it, “I don't think I will ever feel comfortable again.”¹

It is hard to read this as anything but a horror story. But other Ohioans are interpreting the recent shale gas development surge in very different ways. Eastern Ohio farmers who

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have struggled economically for so long it feels normal are using subsurface lease money to purchase new equipment and luxury items. And, for many residents of a rustbelt state that has endured a generation of economic decline and been hit hard by the recent recession, the jobs and revenue promised by the oil and gas industry have an irresistible ring. In recent years, unconventional sources of natural gas and other fossil fuels have shifted the nation's energy production pattern.² Advances in horizontal drilling and hydraulic fracturing have made extracting natural gas (as well as wet gas, oil, and coalbed methane) from deep shale rock layers economically feasible (U.S. Department of Energy 2009:9). As a result, the area underlain by the Marcellus and Utica shales has seen a dramatic increase in energy exploration and production. While shale gas has been celebrated as a clean-burning bridge fuel capable of leading our society beyond fossil fuel dependence, a path to energy independence, and a critical catalyst for regional economic recovery, serious concerns have been raised about the impacts of hydraulic fracturing (colloquially known as *fracking*) on public health and safety, water and air quality, and environmental integrity. The fluid used in the hydraulic fracturing process is 98 % water, but *proppants* (silica sand or manufactured granules that prop tiny rock fractures open) and a wide range of potentially harmful chemicals comprise the other 2 %. After fracturing, much of the fluid pumped into the earth returns to the surface (U.S. Department of Energy 2009:66). While operators typically contain this fluid, spills can and have occurred.³ Unconventional energy raises several additional environmental and health concerns: Naturally occurring radioactive material could be released and carried to the surface (Marsa 2011; McGraw 2011), and research has shown dangerous methane concentrations in water wells near active drilling sites (Jackson et al. 2013; Osborn et al. 2011). Finally, it appears that air emissions associated with this type of production are significantly higher than originally believed (Howarth et al. 2010).

While a more comprehensive understanding of the socio-cultural contexts and consequences of unconventional energy development is urgently needed, this literature is just beginning to emerge. Only a handful of publications address this topic, and none include data from Ohio. As well, most existing studies have been informed by quantitative survey methods

rather than qualitative ethnographic inquiry. This leaves much untold about the complex factors that underlie residents' responses and reactions (Perry 2011). For example, Anderson and Theodori (2009) studied local leaders' perceptions of the benefits and detriments of shale gas production in Fort Worth, Texas, but did not address why people feel the way they do or various groups' divergent views. Brasier et al. similarly describe local leaders' attitudes in Pennsylvania and New York but suggest that “future research should address how perceptions of development vary based on community characteristics and an individual's place within the community relative to natural gas development” (2011:55). Viewing unconventional energy development through an ethnographic lens illuminates the human experience of resource extraction. In addition to generating rich narratives that expose energy development's physical and cultural consequences, ethnography empowers research project participants to share their stories and ideas. Ethnography has also proven valuable as a tool for monitoring community health in energy production zones (Perry 2013; see also Wylie 2011) and has directed attention to the similarities and differences that unite and divide occupants of diverse geographic locations and sociopolitical positions.

This paper summarizes ongoing research exploring the contested landscape of unconventional energy development in Ohio. Anthropologists, geographers, and historians working in the landscape studies genre insist that we broaden our notion of *landscape* to encompass how all people “understand and engage with the material world around them” (Bender 2001:3), urge us to redefine landscape not as a mere object but as a relationship and a process (Hirsch 1995; Mitchell 1994), and encourage us to listen carefully to multiple voices and think seriously about how people view their worlds and their relationships within them (Willow 2011). Here, landscape refers neither to unique geophysical characteristics nor to the distant scenery we sometimes stop to admire. It is instead a profoundly cultural phenomenon; landscape is not just what we see but also what we think and feel when we encounter the natural world. In contrast to dichotomous conceptions of the environment as separable from humanity, landscape offers an integrative approach capable of comprehending a unified natural/cultural world in a non-reductionistic manner. How, we ask, do people perceive the places they inhabit? How do they experience and imagine their surroundings?

Studies inspired by these questions interweave dynamic physical settings and historical contexts, diverse cultural conceptions and political perspectives. Social scientific research has demonstrated that differently positioned groups inhabiting the same territory often have very different ways of describing, imagining, and valuing a single place (e.g., Cruickshank 2005; Stewart 1996; Strang 1997, 2001). “Landscape is never inert,” Barbara Bender declares, “people engage with it, rework it, appropriate and contest it” (1993:3). Similarly, Don Mitchell argues that landscape is “a unity of materiality and

² The term *unconventional* refers to the use of new technologies to extract fossil fuels from shale formations, tight gas sands, and coal seams. The terms *alternative* and *renewable*, on the other hand, are used to describe wind, geothermal, solar, and biofuel energy sources.

³ A 2004 Environmental Protection Agency study declared that hydraulic fracturing poses “little or no threat to underground sources of drinking water,” but the EPA is currently reconsidering this position. Residents of the small town of Dimock, Pennsylvania (the early epicenter of the Marcellus natural gas boom), reported water discoloration and health problems ranging from headaches and dizziness to skin conditions (McGraw 2011).

representation, constructed out of the contest between various social groups possessing varying amounts of social, economic, and political power” (1996:28). When groups with divergent views concurrently claim the same places, it becomes obvious that landscapes are “disputed, struggled over, and understood in different ways” (Thomas 2001:181). Landscape, in other words, must be acknowledged and approached as deeply contested.

Our research examines how various groups of people living and working within Ohio's Marcellus and Utica shale regions understand the ongoing resource boom and associated extraction process. Specifically, we consider how individuals' ways of imagining the world around them—which both give rise to and reflect lived experiences and actions—are being transformed as a result of unconventional energy development. As we will see, members of different groups are making cultural sense of Ohio's changing environment in very different ways.

Methods and themes

Since January 2012, we have been performing participant–observation research in places where conversations about unconventional energy development are taking place and conducting open-ended interviews with individuals is involved in shaping these conversations. Individuals in three affiliation categories—grassroots anti-fracking activists, nonprofit organization affiliates, and government agents—were located face to face during the participant–observation process, online through nonprofit and government websites and grassroots social media networks, and through the development of several simultaneous referral chains that grew as participants suggested additional contacts. Nineteen interviews have been completed.⁴ Content analysis coding of transcribed interviews revealed six recurring themes used by participants to describe how their ways of experiencing and imagining the environment are changing as a result of ongoing or impending natural gas extraction: legacy, way of life, disempowerment, vulnerability, displacement, and prosperity.

We originally sought to include representatives of Ohio's oil and gas industry, but after repeated attempts to develop contacts and obtain consent from people who were unwilling, uninterested, or unresponsive, we decided instead to review publicly available statements that addressed social and environmental aspects of corporate responsibility.⁵ These statements were coded in the same manner as the interviews noted

above. This lack of participation was not entirely unexpected; similar difficulties were noted by Brasier et al. (2011). In addition, because we were without exception referred to media or public relations departments, there is little reason to believe that interviews would have revealed new themes or divergent patterns (see Berglund 2003). Although a range of opinions is certain to exist among corporate employees, the oil and gas industry's general unwillingness to deviate from or complicate public communications suggests that most industry representatives are amenable to having their views represented through these channels.

The fact that people in different affiliation categories tended to emphasize different topical themes suggests that Ohioans are indeed responding to actual and potential environmental change in very different ways (Table 1). In addition, it indicates that separate—and competing—discourses surrounding shale gas extraction (in general) and hydraulic fracturing (in particular) are operating simultaneously. In the following pages, these themes are examined in order to reveal a preliminary picture of Ohio's contested unconventional energy development landscape.

Legacy

Across all affiliation categories, the most prevalent response to questions about unconventional energy development's impacts on culturally constituted landscapes concerned the concept of legacy.⁶ In other words, regardless of personal position in relation to shale gas activities, participants described thinking about the land with a new or amplified sense of concern for the future and a new or amplified awareness that the decisions we make today influence what we leave behind. Still, because individuals' views of the landscape foreground multiple temporal narratives about Ohio's past, present, and future, significant differences were also apparent in what people take legacy to encompass, what they believe constitutes a positive path forward, and whether or not unconventional energy has a place in the future they imagine.

Grassroots anti-fracking activists' landscapes are informed by implicit definitions of *environment* that mirror the humanized vision of the environmental justice movement (EJM); the environment, for them, is “where we live, where we work, and where we play” (Alston 1991). EJM participants see housing, education, and safety as environmental issues (Checker 2005) and use the term to indicate the surrounding world that continuously permeates and acts upon their bodies and lives. Indeed, the embodied effects of toxic exposure have been a central concern of the EJM since its inception (Bullard 1990; Gottlieb 1993). While not unconcerned about energy

⁴ Open-ended interviews ranged from 25 to 115 min and were designed to elicit frank, in-depth discussions of individuals' perspectives on energy development and related topics.

⁵ Materials chosen for review were produced by Ohio Oil and Gas Association corporate members. Mirroring the wide range in company size and budget, they ranged from simple paragraphs to elaborate professionally produced reports.

⁶ Legacy was noted by 17 of our 19 interviewees and in six of the nine industry documents.

Table 1 Themes discussed by affiliation category

	Number in group	Legacy	Way of life	Disempowerment	Vulnerability	Displacement	Prosperity
Grassroots activists	7	6	5	7	7	5	1
Nonprofit affiliates	7	6	5	4	2	1	4
Government agents	5	5	2	3	1	1	5
Industry documents	9	6	0	0	0	0	6
Total mentions	28	23	12	14	10	7	16

development's impact on ecosystems and nonhuman life, grassroots activists' foremost focus is their families' well-being. As one woman from Union County said, "I want Ohio to be livable for my children. I want them to have the opportunity to be prosperous and healthy."⁷ Several activists talked poignantly about encouraging their children to settle elsewhere or described the frustration of seeing years of hard work to ensure a healthy home so deftly undermined.

Conversely, while not unconcerned about the human impacts of shale gas development, the landscapes envisioned by nonprofit organization employees tend to rest upon a conservation-biological base that defines the environment in ecosystemic terms and encourages an emphasis on threats to natural areas. The need to create a sustainable ecological legacy shapes how nonprofit affiliates approach the unconventional energy debate. "You want to pass on something as good if not better," explained an Ohio Environmental Council lawyer, and "we have a situation where we're just handing off a problem to later instead of finding a way we can fix that problem."⁸ While some see shale gas as a troubling trajectory, most nonprofit affiliates have realistic goals; accepting its inevitability, a Nature Conservancy staffer asserted that because damage to natural resources is irreversible, we need to be very vigilant and make certain not to repeat the mistakes of the past.⁹

Government agents also acknowledge environmental legacy as an important consideration. Across Ohio, energy development has prompted an increased awareness of how citizens' perceptions of local landscapes translate into tangible impacts. As a council person for the City of Stow (Summit County) observed, this kind of issue really "gets the community researching...people are paying more attention to what's being done with land use."¹⁰ Along similar lines, a municipal leader from Cuyahoga County suggested that energy development is making people think more carefully about local land use choices and has some residents constantly calculating whether or not each well is worth it.¹¹ Other government agents emphasized the need to ensure proper regulations are

in place so that the environment is used responsibly rather than abused.¹² Still others framed energy development as an opportunity to promote a positive environmental future.¹³ Finally, the oil and gas industry regularly highlights its commitment to leaving a positive legacy through environmental stewardship. As articulated in multiple industry documents, this means striving to have as little adverse impact as possible through careful management, monitoring, and remediation.

Way of life

Although not mentioned as frequently as legacy, issues pertaining to way of life—positive valuations placed on the ability to make a living from the local environment and/or pride in participating in a distinctive sense of place—were raised by various individuals.¹⁴ Some people (mainly grassroots anti-fracking activists) for whom these traits form key components of perceived landscapes are deeply disturbed by the prospect of losing their connections to the immediate environment and the lifestyle it enables. One activist from Tuscarawas County expressed fears that the way of life she now enjoys will be compromised and that her quality of life will decline as development accelerates.¹⁵ An activist from Athens County put it even more bluntly:

My survival, my health comes from taking hikes in these woods. And if there's trucks, if there's drilling, if there's pollution, if the birds aren't singing anymore, you know, what's the point? There's certainly no reason to live here anymore.¹⁶

Individuals who oppose shale gas development also voiced concerns that it jeopardizes the distinctive characteristics that make their communities special. Several pointed out that

⁷ January 18, 2012.
⁸ January 30, 2012.
⁹ February 17, 2012.
¹⁰ August 24, 2012.
¹¹ August 12, 2012.

¹² August 24, 2012.
¹³ One state representative celebrated the indirect environmental benefits of natural gas development, suggesting that if farmers can use lease money and royalties to purchase modern equipment, they will be able to employ more efficient techniques that are better for the environment (April 25, 2012).
¹⁴ Although no industry documents mentioned this topic, 12 of our interviewees did.
¹⁵ February 6, 2012.
¹⁶ February 20, 2012.

many impacted areas previously offered a peaceful, rural, and/or agricultural lifestyle.¹⁷

An analogous recognition of rural Ohioans' desire to maintain their current lifestyle—tempered by the challenge of balancing environmental and economic needs—guides how nonprofit affiliates and government agents approach this theme. For example, a manager for the Sierra Club's Ohio Chapter contemplated the difficult choices faced by people who own land that has been in their family for generations. Offered considerable sums to lease their land, some are weighing the monetary value of their land against the environmental worst-case scenario, “I think there are people who are having to make those kinds of calculations as they get offers made to them,” he said; they are now “thinking about their property and [asking] what does this mean to me.”¹⁸ Once again, energy development is elevating the natural world's complex cultural meanings to a conscious level. With similar considerations in mind, some government agents argue that energy development may actually function as “a farmland preservation tool” because leasing and royalty checks will encourage younger generations to stay on the farm.¹⁹ But others foresee energy development as precipitating a gradual decline of agriculture and believe we will “see that emotional attachment people have to their land start to erode” as quiet communities are transformed into quasi-industrial parks.²⁰ Finally, although some of the larger oil and gas companies operating in Ohio discuss commitments to making life better for local residents through volunteer and charitable programs, the way of life theme was not specifically mentioned in any of the reviewed documents and appeared to be off the industrial radar screen.

Disempowerment

A theme that arose in every single conversation with grassroots anti-fracking activists as well as in several conversations with nonprofit affiliates and government agents is the notion of disempowerment—infringement on citizens' rights and the potential or actual hindrance of citizens' ability to control their immediate surroundings.²¹ Often, those who are most directly impacted by unconventional energy development lack access to information about development processes and plans and

must work reactively to educate themselves—often through alternative and social media channels—about hydraulic fracturing techniques, relevant operators and regulations, potential dangers, and ways to protect themselves from harm. For many people in this situation, the landscape has become deeply political. Uninvited energy development is seen as a breach of fundamental rights and, given the starkly uneven spatial and social distribution of unconventional energy development's costs and benefits, as an affront to basic democratic principles.

Grassroots activists object to the fact that a small number of landowners who stand to gain financially have the ability to transform the entire region. They argue that decisions are being made by distant leaders who do not fully comprehend local consequences and criticize public officials they believe have been “bought out” by the oil and gas industry. Many feel that their fundamental rights are being violated; as one Union County resident declared, “the state has said we're going to sacrifice certain communities for the benefit of everybody. And I don't think the state should have the right to do that.”²² Some interviewees openly shared strong emotions, and a few fought tears while describing their loss of control and inability to protect their families.²³ Yet the same people are also familiar with state legislation that allows an objecting property owner to be mandatorily pooled and makes it impossible for municipalities to limit oil and gas activity. Combining intense feelings of personal violation with this kind of legal substantiation, activists frequently frame unconventional energy development as a civil rights issue and argue along these lines that their basic right to live in a clean environment is being denied. As an interviewee from Cuyahoga County asserted, “it's like we no longer have the right to say we wanna live in a place with clean air, clean water, a clean environment.”²⁴

While none of the industry documents mentioned disempowerment in any sense of the word, three government agents—speaking from both sides of the aisle—expressed concern that local communities and/or individual landowners are being stripped of their rights. Interestingly, a number of nonprofit affiliates also cited citizen disempowerment as an important theme. Recognizing the politically charged landscape of unconventional energy development, an Environment Ohio employee hypothesized that the reason it is such a heated issue may have more to do with the size and power of the companies and the public perception that the system is not

¹⁷ A Sierra Club volunteer from Athens County, for example, said “there's a huge community here of people who are really into sustainability and farming and [unconventional energy development] will change the entire community in ways that I don't think will be best for anybody” (May 9, 2012).

¹⁸ April 13, 2012.

¹⁹ April 25, 2012.

²⁰ August 24, 2012.

²¹ In addition to all seven grassroots activists, four of seven nonprofit affiliates and three of five government agents discussed disempowerment. This theme was not raised in any industry documents.

²² January 18, 2012.

²³ When a well was constructed and hydraulically fractured near her home, one mother and activist from Cuyahoga County lamented that this was “the first time ever that I felt I had absolutely no control of keeping my child safe” (February 27, 2012). This statement points to the need for research that extends previous examinations of the association between motherhood and the anti-toxics movement (see Hay 2009; Steingraber 2001; Unger 2012) into the emerging field of unconventional energy research.

²⁴ February 15, 2012.

working in people's best interest than with any of hydraulic fracturing's environmental impacts. "It's out of their hands and that scares a lot of people," he said, "it's a rights issue."²⁵

Vulnerability and displacement

Whereas legacy was a common theme across all affiliation categories and nonprofit affiliates and government agents both discussed way of life and disempowerment to some degree, there were two themes grassroots activists raised very frequently that were only rarely mentioned by members of any other group: vulnerability and displacement.²⁶ It appears that individuals who speak out against unconventional energy development are often motivated by firsthand encounters with new landscapes of fear and loss. For grassroots activists (as for EJM participants more broadly), feelings of vulnerability are closely associated with human health concerns. Many reported anxiety related to their own health and that of their families. They worry that hydraulic fracturing will contaminate the water and air, resulting in short- and long-term adverse physical health effects. Some additionally discussed stress and mental health consequences. Several people who have experienced energy development near their homes spoke of the nearly constant worry that began when wells were drilled and may not ever end. Interviewees talked about being afraid to go to sleep with drilling and fracturing underway, about feeling the need to endlessly rehearse evacuation procedures, about knowing there is danger out there but being unable to pin it down, and about having to decide on a daily basis whether their home is safe to inhabit. In addition to fears related to accidents and direct effects, not knowing if—and how much—contamination is present has also been highly stressful.

For those who have not yet experienced energy development's direct effects, awaiting its arrival has created a palpable sense of anticipatory anxiety. As a Union County interviewee stated, the likelihood that energy development will take place in the area "has undermined my security...it's incredibly stressful."²⁷ Worried that the environment they rely on will soon be changed for the worse, activists in this situation are now imagining landscapes of uncertainty and apprehension. A restaurant owner from Athens County said she has surveyed farmland for years in hopes of someday purchasing property

and growing food for her sustainable business. She said that she recently stopped looking at the land. "I guess I see it now as an unknown," she explained, "so if I were to drive in the country I'd be looking and saying, oh my gosh, what's gonna be over there, you know? Is this gonna exist anymore?"²⁸

In contrast with other groups, grassroots activists commonly also mentioned displacement—both in the literal sense of people voluntarily or necessarily leaving zones of energy development and in the figurative sense of feeling that connections to place have been severed. Five interviewees (from areas with ongoing development as well as areas anticipating it) talked about trying to decide whether or not they should move, three mentioned others who had moved away for this reason, and one had already left the region.²⁹ As well, even people with no immediate plans to leave talked about distancing themselves emotionally, physically, and fiscally from the land due to fears that they may soon look upon a landscape that differs considerably from what they currently know and love. Along these lines, the concept of *dysplacement*—recently developed by Jackson (2011)—evokes the ability of environmental degradation to convert formerly positive experiences of place into experiences of profound alienation; even when people are not physically displaced, perceptions of pollution can bring about detrimental psychological separation.

Prosperity

The theme of prosperity—financial gains and associated increases in standard of living—was noted by a wide variety of project participants and received a total of 16 mentions.³⁰ For the oil and gas industry and for others eager to benefit from lease money, royalties, tax revenue, and/or indirect economic stimulus, recent attention to subsurface resources has

²⁵ February 17, 2012.

²⁶ Every grassroots activist we spoke to described feelings of vulnerability when asked how the process or prospect of unconventional energy development was changing their view of the environment. In contrast, only two of seven nonprofit affiliates and one of five government agents mentioned this theme. In addition, five of seven grassroots activists (but only one nonprofit affiliate and one government agent) mentioned displacement and disconnection.

²⁷ January 18, 2012.

²⁸ February 20, 2012.

²⁹ Even if these individuals ultimately elect not to leave, long-term adverse impacts could result. Whether due to an unfolding environmental disaster or to the instability of residence associated with poverty, people's feelings of attachment to—and associated willingness to invest in—communities are likely to decline when they know they may not stay in the area (on place attachment, see Low and Altman 1992).

³⁰ This theme was noted by one of seven grassroots activists, four of seven nonprofit affiliates, and five of five government agents, as well as in six of the nine reviewed industry documents. Interviewees were based in counties with income levels ranging from the relatively impoverished Athens County (with a 2007–2011 average household median income of \$33,546, compared to the Ohio average of \$48,071) to the relatively wealthy Union County (with an average of \$68,279). Because significant differences in income and employment exist *within* counties, however, and because the economic benefits of energy development are unevenly distributed, it is difficult to use such data to corroborate or refute proponents' views regarding the necessity of pursuing unconventional energy development (Data from US Census Bureau. State and County Quick Facts Ohio. <http://quickfacts.census.gov/qfd/states/39000.html>, accessed March 25, 2013).

produced a landscape of prosperity. Among laborers who extract resources for a living and families who have worked the land for generations, unconventional energy development is encouraging a greater appreciation of what the land can offer. A majority of the reviewed industry documents mentioned the positive impacts an influx of money will have on communities where energy development takes place. In some cases, the promise of local royalties and job creation are referred to directly.³¹ In other instances, the economic effects of energy development are presented in broader terms that highlight economic health and recovery.³² As one state representative noted, some areas “are getting the first wave of dollars. The lease bonus checks are coming in to individuals who own land and they’re starting to use those dollars to purchase items they haven’t been able to purchase in a while.”³³ Most government agents consider local context when discussing the economic benefits of energy development. While many are celebrating the potential economic stimulus, they concurrently emphasize the need for responsible regulation and investment to ensure that long-term benefits are maximized. A community leader from Athens County (located in Appalachian Ohio) observed that in an area of widespread poverty “there are a lot of people who feel like, finally, a chance to make some money off of the land” but also insisted that this wealth must be invested in long-term regional economic development.³⁴ Similarly, a state representative from the same region noted that “there are people who have never had two pennies to rub together that suddenly have found this money...the question is will it have a long-lasting effect.”³⁵ In Ohio’s more industrial northeast, the energy industry’s need for steel pipe and the associated increase in steel mill production and employment were cited as an important economic benefit.³⁶

Interviewees affiliated with nonprofit organizations tended to present a balanced perspective when discussing this landscape of prosperity. A Policy Matters employee talked about the need for proactive fiscal and environmental policy but was frank about the need to ameliorate the economic hardship experienced by Ohioans. “People are taking the recent recession on the chin in their own households,” she commented, “it’s ricocheting through families and it’s making people much

more willing to take risks to do whatever they have to do to make it in this economy.”³⁷ While environmental group affiliates emphasized the need to ensure that strong environmental regulations accompany the new wave of energy development, they also voiced a widespread recognition of the need for economic opportunity in Ohio. One grassroots activist offered a similarly balanced perspective. Finally, it is necessary to note that several additional grassroots activists raised the theme of prosperity but did so in an oppositional manner in order to refute what they know to be shale gas development’s most commonly cited benefit.³⁸ These discussions revolved around beliefs that much of the money earned will not stay in Ohio, that income will not be distributed evenly, that we will see a temporary boom followed by a bust, and that economic benefits will be eclipsed by costly damage to environmental and community sustainability.

Conclusion: the contested landscape of unconventional energy development

This paper sheds new light on how Ohioans’ ways of experiencing and imagining the world around them are changing as a result of unconventional energy development and offers new strategies for exploring the sociocultural impacts of environmental transformation. Drawn from qualitative ethnographic inquiry, our findings contribute to an emerging understanding of why energy development has generated such fierce disagreement and indicate important areas for further research and analysis. Substantiating the most pertinent point of the landscape theoretical approach that informs this project, examining Ohio’s contested energy development landscape reminds us that occupying a shared physical space does not prevent people from conceptualizing the dynamic worlds they inhabit in radically dissimilar ways. As we have seen, individuals involved in conversations about energy development in Ohio differ significantly in how they are interpreting ongoing and impending environmental change, in their associated attitudes and consequent actions, and in the vocabulary and discursive tools they use to communicate their views.

Many grassroots activists—including people with no previous environmental or civil rights involvement—now see the environment as a site of disempowerment, injustice, and violation. Newly mindful of connections between the external environment and human health, anti-fracking activists now look upon a landscape they once appreciated for recreational and esthetic reasons as a harbinger of illness, traumatic stress, and anxiety. For some, fear and instability have also led to disconnection and displacement; as people discover their dependence upon the environment, they simultaneously struggle

³¹ For example, Artex states that it “has improved the local economy by paying landowners tens of millions of dollars in royalties while providing hundreds of jobs and generating significant revenue for local governments” (<http://www.artexoil.com/message.htm>, accessed April 9, 2012).

³² Chesapeake Energy Corporation’s 2010 annual report points out that “while much of the U.S. is still struggling to recover from the economic recession, the positive impact of natural gas and oil operations has provided a valuable economic recovery stimulus for states that are home to exploration and development activities” (2010:24).

³³ April 25, 2012.

³⁴ August 27, 2012.

³⁵ August 24, 2012.

³⁶ August 12, 2012.

³⁷ April 18, 2012.

³⁸ These instances are not included in our tally of total mentions.

to protect themselves by creating emotional and physical distance. Nonprofit organization affiliates hold a wide variety of personal viewpoints regarding shale gas development but tend to emphasize environmental change as a potential threat to the positive legacy they hope to leave behind. At the same time, they are realistic about the need for economic opportunity in Ohio and accordingly imagine the landscape of unconventional energy development as a stage for a new generation of regulation, negotiation, and compromise. Government agents we spoke with are similarly pragmatic, recognizing natural gas as a much-needed source of revenue in a challenging economic era but simultaneously acknowledging the need for proactive regulation and regional investment in order to ensure that the long-term benefits of energy development outweigh the environmental and social risks. Finally, for the oil and gas industry and other proponents of unconventional energy development, it appears that Ohio has become a landscape of immense potential prosperity as well as an opportunity to leave a positive legacy through environmental and social responsibility.

Driven by the sense of urgency that accompanies rapid industrial development, differently positioned individuals have begun to self-consciously evaluate their own views of and relationships to the environment and concurrently take stock of the opposing views of others. As a result, formerly latent divisions have risen to the surface. Divergent reactions to unconventional energy can be partially attributed to contrasting comprehensions of ideal human–environment interactions, with changes in perceived landscapes underlain by a continuum of conceptions of the natural world and the place of people within it. Simply stated, some North Americans envision humans as environmental caretakers and/or as physical bodies that bear evidence of constant interaction with the surrounding world (this outlook is most frequently found among grassroots activists and nonprofit affiliates who oppose unconventional energy development), while others appreciate the environment as a realm of opportunity and a resource for citizens' utilization and/or corporations' financial gain (this perspective is more often associated with government agents and industry representations that espouse unconventional energy's economic benefits). But views of the environment and our relationship to it do not tell the whole story. Ohioans differ not only in how they are reimagining the landscape but also in what they take *well-being* to mean, alternatively giving primacy to human and environmental health (while accepting some degree of economic sacrifice) or to economic growth (even when it entails sacrificing health). It further appears that a set of overlapping and deeply entrenched ideological incongruities—whether, for example, emphasis is placed on collective benefit or individual gain, local autonomy or centralized control, a viable future or a prosperous present—both inform and have been amplified by the current debate. Such polarization may explain actors' unwillingness to come together to forge a common consensus; while some nonprofit affiliates

and government agents have attempted to position themselves as mediators, their relatively moderate assessments are easily eclipsed by those of highly vocal grassroots activists and industrial public relations officers who have little in common to say about unconventional energy development.

As landscape studies scholars attest, the various ways in which human communities inhabit their worlds “generate conflicts that are more fundamental than differences of perception” (Thomas 2001:187). Interpretations of the environment are always *also* about social relationships and political structures. Likewise, the debate about unconventional energy development and hydraulic fracturing goes far beyond environmental issues. It is a fight over what our collective human–environment relationship should look like and, more profoundly, about who has the power to decide what it *does* look like. It is in this manner that contested landscapes become politicized. The abilities to access timely and accurate information, shape public discourse concerning hydraulic fracturing and its effects, and inform regulatory frameworks govern who will prevail in the unconventional energy dispute. Responses to energy development are consequently contoured not only by culturally constituted ways of imagining human–environment interactions but also by the broader sociopolitical configurations that ultimately determine whose perspectives are prioritized and which policies are implemented. Future studies that approach unconventional energy development as one arena in which larger and longer-term contests play out will enable us to more fully understand the significance of the Marcellus and Utica shales in North America's social and environmental history.

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