



CLOSUP Student Working Paper Series  
Number 2

February 2016

# **The Struggle for Shared Governance in Hydraulic Fracking Policy: An Interstate Comparison of Texas, Oklahoma, and Colorado**

Carolyn Rice, University of Michigan

This paper is available online at <http://closup.umich.edu>

Papers in the CLOSUP Student Working Paper Series are written by students at the University of Michigan. Any opinions, findings, conclusions, or recommendations expressed in this material are those of the author(s) and do not necessarily reflect the view of the Center for Local, State, and Urban Policy or any sponsoring agency

This research was made possible with financial support from the Eunice Burns Fund

Center for Local, State, and Urban Policy  
Gerald R. Ford School of Public Policy  
University of Michigan

**The Struggle for Shared Governance in Hydraulic Fracturing Policy:**  
**An Interstate Comparison of Texas, Oklahoma, and Colorado**

Carolyn Rice

The Center for Local, State, and Urban Policy

The Gerald R. Ford School of Public Policy

The University of Michigan

Abstract:

*This paper seeks to explore the issue of unilateral state authority over hydraulic fracturing policy and the possibility/ merits of a shared government model that incorporates local input. This analysis explores the balance of state and local power in Texas, Oklahoma, and Colorado and considers how the political, economic, and cultural integration of the oil and gas industry influences the stringency of state regulation and the states' amenability to integrating local input into their decision-making. The report evaluates the merits and limitations of unilateral state control, particularly with regard to the disparate distribution of the costs and benefits between local communities and the state, the state's consideration of the heightened preference intensities of local residents, and the state's capacity to mitigate the varied risks associated with hydraulic fracturing.*

*Keywords: hydraulic fracturing/ fracking, shared governance, local versus state jurisdiction, risk governance, energy-dominance.*

*A Visual Comparison between Texas, Oklahoma, and Colorado*

	<b>Texas</b>	<b>Oklahoma</b>	<b>Colorado</b>
Energy- Dominant	Yes.	Yes.	No.
Political Orientation	R- Dominant.	R- Dominant.	Split Legislature; Democrat Governor.
Resource-Driven Economy	Yes.	Yes.	No.
History of Energy Production	Yes.	Yes.	Yes.
Environmental Ethos	No.	No.	Yes.
Jurisdiction over Oil and Gas Production	Complete state jurisdiction split between the Railroad Commission (RRC) and the Texas Commission on Environmental Quality (TCEQ).	Complete state jurisdiction held by the Oklahoma Corporation Commission (OCC). The Commission is made up of three elected officials.	Complete state jurisdiction by the Colorado Oil and Gas Conservation Commission (COGCC), whose members are appointed by the governor.
History of Fracking Bans/Moratoria	Only one: Denton Fracking Ban in November 2014.	No.	Yes; numerous bans and moratoria passed in the last decade.
State Response to (Actual or Potential) Fracking Ban	House Bill 40, reasserting unilateral jurisdiction of the state and prohibiting fracking bans/moratoria/ any measures that inhibit energy production.	Senate Bill 809, claiming complete state authority and prohibiting fracking bans or any other ordinances that inhibit oil and gas production.	Initially lawsuits against bans brought by the COGCC. In 2014, the governor compromised with advocates of local control by creating an Oil and Gas Task Force, which developed recommendations to implement local input in state policy. The COGCC is currently gathering feedback from municipal governments on two recommendations that will increase local input in state decision-making.
Attempts by Local Governments to Assert Control over Oil and Gas Production <b>since</b> the State Response	Yes, Denton ordinance challenging state primacy passed in July 2015.	Yes, Stillwater ordinance passed in August 2015.	No.

## The State vs. Local Polarity: Different Scales Lead to Different Preferences

As hydraulic fracturing has proliferated throughout the United States in recent years, so have struggles between local and state governments over how best to regulate oil and gas development. The question of how to ideally delegate authority over hydraulic fracturing policy is complicated by contrasting state and local perspectives on the risks and benefits of the practice. These discordant perspectives derive from the separate scales at which state and local governments operate, in which state representatives are responsible for larger and more heterogeneous populations than the smaller and more uniform constituencies represented by local officials. Because state and local representatives are accountable to separate populations that experience the effects of hydraulic fracturing differently, those representatives frequently promote distinct and often divergent policy preferences. For example, many cases have arisen in which localized risks (i.e., groundwater contamination or health concerns) have justified expelling the oil and gas industry and its accompanying economic benefits to local representatives but not to state officials. Therein lies the source of this critical jurisdictional debate: because state and local governments must answer to populations of different sizes (which likely have distinct policy preferences), the two bodies view and prioritize the risks and benefits of hydraulic fracturing differently.

These different perspectives on the risks and benefits of drilling manifest in the contrasting regulatory requirements that state and local governments promote. State government officials typically advocate for uniform regulatory requirements (sometimes referred to as “one-size-fits-all” by opponents) in order to promote the state-wide economic benefits of hydraulic fracturing, in hopes that greater predictability might make investment more attractive to energy companies.<sup>1</sup> Although local officials also try to capitalize on the economic opportunities presented by the energy industry, they are more likely to push for tailored policies (often labeled “a patchwork of regulations” by opponents) that reflect the unique geological, cultural, and

---

<sup>1</sup> Davis, C. (2012a). *Fracking and sub-state federalism: State preemption and local regulatory decisions in Colorado*. Fort Collins, CO: Colorado State University. Finding in Rabe, B., & Mundo, P. (2007). Business influence in state-level environmental policy. In M. Kraft and S. Kamieniecki, (Eds.), *Business and environmental Policy*. Cambridge, MA: MIT Press.

environmental qualities of their communities.<sup>2</sup> Thus, state and local officials frequently construct irreconcilable regulatory preferences, and each calls the other “unreasonable.” These contrasting conceptions of the risks and benefits associated with fracking—and the accompanying regulatory preferences held by state and local governments—have led to a significant jurisdictional quandary. The battle to balance the benefits and risks of hydraulic fracturing, to establish an accepted scale of regulations, and to determine how authority over oil and gas development is divided between the two bodies has dissolved into a proliferation of local bans on fracking, state lawsuits, and court battles. The conflict has become a battle of the wills in which each side struggles to achieve total authority over the issue, rather than to make any meaningful attempt to compromise and create a system of shared control. The staunch polarization of the state/local debate posits an essential question: Can these preferences be reconciled? For that matter, which form of governance is best suited to balance state and local governments’ contrasting perspectives on the risks and benefits of hydraulic fracturing?

#### The Case for State Dominance over Hydraulic Fracturing Policy

Due to a notable federal absence from environmental decision-making, state governments presently dominate the development of hydraulic fracturing policy. Local governments are inherently subordinate because “as creations of the states, local governments may act only in accordance with the powers granted them by the states,”<sup>3</sup> limiting local governments to passing ordinances that are not preempted by overruling state decisions.<sup>4</sup> Lauded as “laboratories of innovation” with regard to environmental policy-making, states are frequently considered the best bodies to handle energy policy-making because of their vast experience and their inherently greater financial resources and regulatory and enforcement capacities.<sup>5</sup> State officials commonly assert that because local officials do not possess these resources, experience with environmental policy-making and relationships with the oil and gas industry, they are inherently unable to effectively balance the promotion of hydraulic fracturing—and the economic advantages it offers—with regulation of the risks that drilling poses.

#### The Case for Greater Local Influence over Hydraulic Fracturing Policy

---

<sup>2</sup> Davis, 2012a. Finding in Tavernise, S. (2011, December 14). As gas drilling spreads, towns stand ground over control. *New York Times*.

<sup>3</sup> Spence, D. B. (2014). The Political Economy of Local Vetoes. *Texas Law Review, Forthcoming*.

<sup>4</sup> Davis, 2012.

<sup>5</sup> Ibid.

The prevalence of local bans on hydraulic fracturing elicits an important question: What are the merits of greater local regulation? Although state officials claim to have greater regulatory capacities and resources, local governments remain the experts on the economic, cultural and environmental preferences of their communities. It has also been suggested that because of their smaller constituencies and the prominence of the issue in communities, local officials are more likely to resist the influence of the energy industry in their decision-making:

“Local government decisions on this issue ought to be less susceptible to business’ organizational advantages than state government decisions because the issue is much more salient at the local level.... [T]his is the kind of very high salience decision for which elected leaders are most responsive to the larger mass of voters and most likely to produce a decision consistent with the wishes of the median voter.”<sup>6</sup>

In contrast, the issue of hydraulic fracturing is significantly less salient at the state level because of its greater scope; hydraulic fracturing competes with issues of equal gravity, and the larger constituency to which state representatives are accountable is more susceptible to collective action problems and is consequently less able to mobilize. However, the most significant case for allocating greater authority to local governments is made by emphasizing the disparate distribution of costs and benefits experienced by hosting communities, locals’ heightened preference intensities concerning fracking decisions, and the merits of local contributions to states’ risk governance.

#### *The Distribution of Costs and Benefits*

An essential point to this debate is the unequal distribution of the costs and benefits of hydraulic fracturing between local communities and the state as a whole. Although the economic benefits as well as the environmental and public health detriments can be felt on both levels, Spence (2014, p. 378) notes that “both tend to be more concentrated within the locality than beyond its borders—the costs more so than the benefits.” A great deal of the dialogue surrounding the costs of fracking focuses on the potential costs of water and air pollution, public health epidemics, and other catastrophic risks that are said to be unlikely or unproven by supporters of the industry. However, this fixation on large-scale (and less likely) impacts obscures local concerns about inevitable costs, “the noise, smells, boomtown effects, and

---

<sup>6</sup> Spence, 2014, p.386.

inconvenience that come with drilling and fracking a well.”<sup>7</sup> In contrast, the benefits of fracking are more diffuse; Spence (2014) observes that while local governments capture much of the profit from drilling through local tax revenues and employment, revenues to state governments are still spread throughout the state. This disparity suggests that “the costs (and, to a lesser degree, the benefits) of fracking may be much more salient to local voters than to non-local voters,”<sup>8</sup> while at the same time, local decision-makers also have greater knowledge of these local costs and benefits.

### *Preference Intensities*

The gulf between the benefits and costs experienced by local and state citizens creates a wide divergence in their ‘preference intensities’ with regard to hydraulic fracturing policy. Preference intensities are generally understood as a measurement of how much importance residents assign to hydraulic fracturing policy, corresponding to the probability that they will be affected by its costs and predictive of their likelihood to mobilize against the practice. Spence (2014) argues that preference intensities have a direct relationship with the concentration of costs —because local residents are more likely to experience the negative impacts of hydraulic fracturing, they are also expected to care more about those consequences and are considered more likely to mobilize against the practice. In contrast, the larger state population is less likely to experience the negative consequences of hydraulic fracturing and is therefore expected to adopt a ‘low preference intensity’.

Although residents of local communities affected by hydraulic fracturing are more likely to adopt high preference intensities, their concerns are less likely to be considered by state legislators because they represent a smaller proportion of their jurisdictions. For this reason, prevalent scholarship asserts that state lawmakers should consider incorporating preference intensities into their decision-making, such that those citizens who possess more intense policy preferences, suffer greater costs and capture fewer benefits (relative to those costs) might have a greater degree of influence over hydraulic fracturing decision-making.<sup>9</sup>

To proponents of greater local involvement, all of these points suggest that a method of shared governance in which local preference intensities are considered in hydraulic fracturing

---

<sup>7</sup> Spence, 2014, p. 381.

<sup>8</sup> Ibid.

<sup>9</sup> Ibid.



decision-making would create a better balance —both between the unequal distribution of costs and benefits as well as between the divergent policy preferences of local and state communities.

### *Risk Perception and Risk Governance*

The risks associated with fracking are immensely important to this jurisdictional debate because most of the struggles over local versus state control derive from the following underlying question; which governmental body is most capable of mitigating the risks of fracking? Throughout energy-producing states, “concerns about health, safety, and environmental risk are motivating local bans and restrictions” because of a spreading belief that state governments have not sufficiently alleviated the impacts of fracking.<sup>10</sup>

#### *What Are the Risks?*

The advent of hydraulic fracturing to communities has correlated to a series of varied risks ranging from increased seismicity to declines in public health and local quality of life. In the dialogue regarding risks, the promise of economic growth is often pitted against claims of environmental degradation and public health risks. In reality, the risks posed by the oil and gas industry are much greater and more complex than this polarity implies. In the following sections, I summarize the risks that have emerged as the most important points of contention in the struggle between state and local governments for control over hydraulic fracturing policies.

#### *Boomtown Effects: Boom-Bust Economies and Slow Recoveries*

Proponents of oil and gas development commonly ascribe a direct relationship between the advent of hydraulic fracturing to local communities and sudden economic growth, while those wary of such development cite the economic downturn that often follows. As one author articulates these respective positions, the arrival of oil and gas development has repeatedly been found to “increase employment and tax revenues, especially in rural areas lacking other opportunities...[but] these blessings are relatively short term and come in booms and busts.”<sup>11</sup> “Boom and bust” describes a sudden economic surge (including increases in local employment, consumer spending, tax revenues, and population size) from the introduction of a resource-dependent industry, followed by a swift economic downturn that typically leaves the affected

---

<sup>10</sup> Spence, 2014, p. 368.

<sup>11</sup> Jacquet, J. (2014a). Risks to communities from shale gas development. In *Risks and risk governance in shale gas development: Summary of two workshops* (51). P. C. Stern (Rapporteur). Board on Environmental Change in Society, Division of Behavioral and Social Sciences and Education. Washington, D.C.: The National Academies Press.

community in a worse economic environment than before the resource development began. Some of the expected costs of boom-bust economic cycles include “increased housing costs; impacts on pre-existing local industries; demands on community infrastructure, police and social services; uneven distribution of private benefits, costs and externalities; and community conflict and mistrust.”<sup>12</sup> Likewise, local residents are often compelled to join the oil and gas workforce because of the higher starting pay, a phenomenon that has quickly de-diversified local economies and even spurred increases in high school drop-outs.<sup>13</sup> The economic instability and decline wrought by resource development often persists longer than the duration of the economic spike, and is correlated to a series of other long-term costs including higher long-term unemployment, poverty, and lower educational attainment than areas that do not invest in resource development.<sup>14</sup>

The economic risk posed to hosting communities by oil and gas development is essential to consider, particularly given the prevalence of dialogue promising economic growth to hosting communities. Because the aforementioned costs primarily afflict local communities, that the input of local officials in a system of shared governance would be invaluable to balancing the benefits of state-wide economic growth with the risks of local economic decline and social degeneration.

### Earthquakes

Since 2008, the central United States has witnessed an enormous increase in seismic events. According to USGS federal geologists, “earthquakes of magnitude 3 or greater are 100 times more likely now than in 2008” within central oil-and-gas-producing states.<sup>15</sup> Critically, the increases in seismicity are located primarily in areas that have no history of seismic activity in the past, and that have hosted significant oil and gas development in recent years. This correlation has suggested to seismologists that the seismicity in many of these instances was

---

<sup>12</sup> Small, M. J., Stern, P. C., Bomberg, E., Christopherson, S. M., Goldstein, B. D., Israel, A. L., ... & Zielinska, B. (2014). Risks and risk governance in unconventional shale gas development. *Environmental Science & Technology*, 48(15), 8289-8297.

<sup>13</sup> King, P. (2015, July 16). Fracking spurred high school dropouts in shale regions—study. *Energywire*. Retrieved from <http://www.eenews.net/energywire/stories/1060021905>

<sup>14</sup> Jacquet, 2014b.

<sup>15</sup> Finley, B. (2015, April 23). USGS drafting new hazard maps as oil and gas boom causes quakes. *The Denver Post*. Retrieved from [http://www.denverpost.com/environment/ci\\_27970894/usgs-drafting-new-hazard-maps-oil-and-gas](http://www.denverpost.com/environment/ci_27970894/usgs-drafting-new-hazard-maps-oil-and-gas)

induced by the deep injection of fluids from neighboring oil and gas operations<sup>16</sup>. Nonetheless, conclusive causational evidence remains elusive for many seismologists, creating a lingering uncertainty regarding the cause of the earthquakes afflicting the central United States. Both state representatives and oil and gas officials have cited this doubt in attributing the increased seismicity to natural causes, even in areas that have never experienced earthquakes of this magnitude. Due to local communities greater proximity to the problem of increased seismicity, they are likely to experience the costs of increased seismicity more personally (i.e. property damage, anxiety) and they tend to develop a greater preference intensity with regard to the issue. For these reasons, local communities often push for tougher regulations on nearby oil and gas operations and for more research.

In light of the startling rise in seismic activity within oil and gas producing states, mounting correlational evidence of the relationship between resource development and increased seismicity, and the fact that local residents suffer more of the associated costs and harbor greater policy preferences, it has become clear that an alternative form of risk governance is necessary. To address these developments, advocates of greater local involvement promote a shared governance model that could provide a better balance between the disparate preference intensities and costs experienced by local communities as a result of hydraulic fracturing activity.

### Public Health Risks

Local bans on fracking are frequently enacted out of concern for the effects of air and water pollution on public health. Local concern over exposure to chemicals associated with hydraulic fracturing is augmented by trade secret confidentiality.<sup>17</sup> Because the EPA does not regulate the injection of fracturing fluids under the Safe Drinking Water Act, the oil and gas industry is “the only industry in America that is allowed by EPA to inject known hazardous materials—unchecked—into or adjacent to underground drinking water supplies.”<sup>18</sup> Many of these chemicals are known carcinogens, but most state laws allow oil and gas corporations to inject them without disclosing their chemical abstract numbers, volumes, or concentrations.

---

<sup>16</sup> Rubinstein, J. L., & Mahani, A. B. (2015). Myths and facts on wastewater injection, hydraulic fracturing, enhanced oil recovery, and induced seismicity. *Seismological Research Letters*, 86(4), 1060-1067.

<sup>17</sup> State laws in Texas, Oklahoma, and Colorado all protect trade secrets for chemicals used in hydraulic fracturing.

<sup>18</sup> The Halliburton Loophole. (n.d.). *Earthworks*. Retrieved from [http://www.earthworksaction.org/issues/detail/inadequate\\_regulation\\_of\\_hydraulic\\_fracturing#.VXWef-tBkfw](http://www.earthworksaction.org/issues/detail/inadequate_regulation_of_hydraulic_fracturing#.VXWef-tBkfw)

Without public knowledge of the chemicals used in oil and gas operations, proponents of local input contend that it is difficult for local residents to test for pollution in their environments, and consequently to identify the hazardous materials to which they may have been exposed. This uncertainty complicates the diagnosis of health problems that may be associated with that chemical exposure. Multiple studies have further indicated that the current use of chemicals in hydraulic fracturing has the capacity to contaminate groundwater. A study by the University of Colorado found that forty-one of the chemicals reported to FracFocus “maintain their initial concentrations over a distance of 300 feet, the average state setback between fracking and drinking water wells,” and that fifteen of those chemicals presented a considerable threat if they were to be exposed to groundwater.<sup>19</sup> A separate study discovered a correlation between exposure to hydraulic fracturing activity and public health when researchers found that households situated within one kilometer of a gas well “more frequently reported upper respiratory and skin symptoms than did people living 2 or more kilometers away from a drill site.”<sup>20</sup> Corroborating those findings, a joint study released by the University of Pennsylvania and Columbia University revealed that “proximity to hydraulically fractured wells is linked to increased hospitalizations for cardiological and neurological conditions.”<sup>21</sup>

Although the causal relationship between oil and gas activity and public health risks is difficult to prove, such widespread correlations between the two have fueled local concern over the risks of hydraulic fracturing. Because local communities are more likely to bear the costs of prospectively impacted public health (outmigration, lower property values, and the actual costs of declining health), this issue resonates more personally with local officials. Locals’ heightened preference intensities and their greater chances of being personally affected by these health risks naturally prompt local government officials to advocate for more stringent regulations on oil and gas activity.

---

<sup>19</sup> King, P. (2015, July 2). Fracking could produce at least 15 groundwater contaminants—study. *Environment and Energy Publishing*. Retrieved from <http://www.eenews.net/energywire/stories/1060005715>

<sup>20</sup> King, P. (2014, September 12.) Study lays groundwork for health research near shale wells. *Environment and Energy Publishing*. Retrieved from <http://www.eenews.net/energywire/stories/1060005715>

<sup>21</sup> King, P. (2015, July 17). Limited study ties fracking to hospitalizations. *Environment and Energy Publishing*. Retrieved from <http://www.eenews.net/energywire/stories/1060021978>

Locals' preferences for more stringent regulations are augmented by their perception that state government regulations are not sufficient to protect their communities from public health risks. In her study on state investigations of public health risks, Rawlins asserts that states choose high standards of proof designed to vindicate the industry from blame rather than to take all possible precautions to defend the public health of affected communities. She refers to a Texas state-led study in which scientists chose a 99 percent level of certainty to ascertain whether nearby oil and gas wells were responsible for a breast cancer incidence rate six times greater than the state average. She wrote, "As a society, we have chosen to vary the level of certainty depending on whether it is more important to avoid a false positive, or a false negative... setting the confidence interval at 99 percent in the context of this study suggests that we are most concerned with avoiding an error that mistakenly maligns industry, rather than avoiding an error that mistakenly dismisses the concern that children are suffering increased rates of cancer."<sup>22</sup>

As previously stated, state and local governments often promote conflicting standards of proof based on their differing scales and consequently divergent perceptions of the costs and benefits of hydraulic fracturing. In this case, the possibility of public health risks is so critical to local communities (even without conclusive causal evidence) that they are significantly more likely to embrace low standards of proof and strict regulation. In contrast, state governments are perceived as more likely to promote high standards of proof that prioritize the state-wide interest of economic growth over concern for possible health issues because the issue of localized public health risks is less salient to the larger state community. This perception that states prefer more lenient standards contributes to local distrust of state regulations.

In the view of those advocating for greater local involvement in hydraulic fracturing decision-making, the optimum hydraulic fracturing policy must mitigate the differing preference intensities, perceptions of risks and benefits, and regulatory preferences of state and local officials. Although reconciling the apparently polarized positions of state and local governments will inevitably be complex and difficult, a more balanced perspective on the risks and benefits of hydraulic fracturing as well as the relative importance of those risks and benefits to local versus

---

<sup>22</sup> Rawlins, R. A. (2013). Planning for fracking on the Barnett shale: Urban air pollution, improving health based regulation, and the role of local governments. *Virginia Environmental Law Journal*, 31(262), 227-307.

state communities will inevitably make for more complete and equitable hydraulic fracturing policy.

### Energy Dominance

Although states generally prioritize the state-wide benefits of oil and gas development over the more localized costs, some states are more susceptible to the industry's influence than others. Scholar Charles Davis<sup>23</sup> defines "energy dominance" in states as an unusual proclivity to promote the interests of the oil and gas industry due to greater economic reliance on the industry, its unusual political clout with political representatives, and a dominant cultural emphasis on oil and gas production (compared to other values such as environmentalism). Davis predicts that energy-dominant state governments consistently prioritize the interests of the oil and gas industry in their decision-making in multiple ways. For example, "industries that hold a privileged position in the state... are often able to effectively veto policy proposals that threaten their interests."<sup>24</sup> Davis also predicts that "under these circumstances, it is very difficult for groups or individuals seeking policy change to overcome the politics of the status quo."<sup>25</sup> Davis also links identification as an "energy-dominant state" to comparatively lax regulations: "It is plausible to expect little or no movement in the direction of additional regulatory restrictions imposed upon natural gas companies engaged in fracking operations within states classified as energy dominant."<sup>26</sup> Therefore, identification as an energy-dominant state is an important predictor of state governance of hydraulic fracturing, including the stringency of its regulations, its capacity to balance the risks and the benefits of fracking, and the state's likelihood of granting local control over the practice.

### The Case for Shared Governance

This overview suggests that creating satisfactory hydraulic fracturing policy in the midst of these varied and formidable risks requires the perspectives of both local and state representatives. Although implementing a system of shared government is infinitely more complex than attributing all energy policy-making decisions to one governmental body, it is the

---

<sup>23</sup> Davis, C. (2012). The politics of "fracking": Regulating natural gas drilling practices in Colorado and Texas. *Review of Policy Research*, 29(2), 177-191.

<sup>24</sup> Davis, 2012, p.2.

<sup>25</sup> Davis, 2012, p. 2.

<sup>26</sup> Davis, 2012, p.3.

only method that can balance state and locals' divergent perceptions of the risks and benefits of hydraulic fracturing.

Scholar Jonathan Fisk posits that state and local governments possess differing types of power that can facilitate but more frequently complicate policy-making.<sup>27</sup> As constitutionally legitimate units, states maintain formal powers that enable them to mandate or restrict local government actions.<sup>28</sup> However, there is enough legal ambiguity for local governments to exercise informal powers, including mobilizing the local communities or passing ordinances that undermine state law.<sup>29</sup> Fisk asserts that consideration of the different constituencies that state and local governments serve, as well as the unique governing capacities that each have developed, should make for better decision-making even if coordination of formal and informal powers is difficult. Because the inability to balance these state and local perspectives is at the heart of most state/local power struggles, a governance system designed to resolve this issue should create the most complete hydraulic fracturing policy.

This conclusion begs the question: Is shared governance possible? And if so, does it actually yield better results than unilateral state control? I address these questions in the following case studies of the state/local struggle for control over fracking policy in Texas, Oklahoma, and Colorado. The former two have dedicated themselves to maintaining complete state authority over hydraulic fracturing, which has led to a great deal of friction between their state and local governments. In contrast, Colorado is in the midst of attempting to create a model of shared governance that incorporates greater local input, the benefits of which are already evident.

#### Case One: A Local Ban in the Birthplace of Fracking, Denton vs. the State of Texas

*The struggle between local and state officials for control over hydraulic fracturing policy is potent in Texas due to its legacy as the "birthplace" of fracking and the deep integration of the energy industry in the politics, economy, and culture of the state. In November 2014, Texas entered this jurisdictional debate when the small city of Denton formally banned hydraulic fracturing within city limits. State officials promptly eradicated this effort by passing a new state*

---

<sup>27</sup> Fisk, J. M. (2014). Environmental governance and fracking in the U.S.: Lessons learned from Colorado's fracking industry. *Public Administration (PA) Times*. Retrieved from <http://www.patimes.org>

<sup>28</sup> Ibid.

<sup>29</sup> Ibid.

law (HB 40) that relegated exclusive control over oil and gas development to the state. This section examines the economic, cultural, and political factors that contributed to the state's reaction to the city's efforts, an evaluation of how the state has mitigated the risks that prompted Denton's fracking ban, and a narrative of the city's fight with the state.

### The Oil and Gas Industry and Texas' Boom- Bust Economy

In the realm of national oil and gas production, Texas is something of an energy juggernaut; the state produces about one third of the U.S.' crude oil and roughly one quarter of the nation's natural gas supply.<sup>30</sup> Just as Texas' commitment to oil and gas production is an essential contributor to the nation's energy supply, the oil and natural gas industry is instrumental to the economic well-being of the state. According to state data from 2012, businesses connected to the oil and gas industry employ over 200,000 people,<sup>31</sup> and the industry supported 41 percent of the state's economy in 2014.<sup>32</sup> In addition, a substantial economic ripple effect takes place in the oil and gas sector, such that every direct oil and gas job creates additional jobs in related industries. The Texas Oil and Gas Association (TXOGA) President Todd Staples estimated, "A typical job in petroleum refining, for example, drives another 26 jobs in other sectors across the Texas economy," such that "more than 2.2 million Texans have a job that's a result of oil and gas activity in our state."<sup>33</sup> As oil and gas production have soared in recent years, the Texas economy has experienced a significant boom in its employment rate and state income. In particular, the state's "Rainy Day Fund" has become saturated with oil and gas revenues, such that over the past eight years the fund has received approximately \$1.4 billion annually.<sup>34</sup> These resources are allocated to address a variety of vital state needs, such as funding for public schools and the maintenance of public infrastructure. However, just as the Texas economy is prone to sudden upswings in the oil and natural gas market, it is equally susceptible to abrupt and devastating downturns. As oil and natural gas prices have plummeted, so have

---

<sup>30</sup> Malewitz, J. (2014a, December 15). Dissecting Denton: How a Texas city banned fracking. *The Texas Tribune*. Retrieved from <http://www.texastribune.org/2014/12/15/dissecting-denton-how-texas-city-banned-fracking/>

<sup>31</sup> Davis, C. (2012b). The politics of "fracking": Regulating natural gas drilling practices in Colorado and Texas. *Review of Policy Research*, 29(2), 177-191.

<sup>32</sup> Fisher, J. (2015a, February 25). Oil, nat gas were Texas taxman's friend in 2014. *Natural Gas Intel Shale Daily*. Retrieved from <http://www.naturalgasintel.com/articles/101482-oil-natgas-were-texas-taxmans-friend-in-2014>

<sup>33</sup> Ibid.

<sup>34</sup> Ibid.



employment and the economic resources of the state. Beginning in January 2015, thousands of jobs have been lost as oil and gas producers scrambled to mitigate losses caused by the sudden price decrease and its consequent (50 percent) decrease in profits.<sup>35</sup> Karr Ingham, a petroleum economist for the Texas Alliance of Energy Producers, predicted that “the January decline very likely represents the onset of industry employment contraction on the way to what will ultimately be tens of thousands of jobs lost.... [W]e should be prepared to settle in for a fairly long period of downturn before the industry begins to recover.”<sup>36</sup> Although Texas’ unemployment rate remained below the national rate, 25,000 additional jobs were lost in March 2015, followed by 8,300 more in April.<sup>37</sup> The oil and gas industry has been an invaluable contributor to the Texas economy; however, its decline is causing the unemployment of hundreds of thousands of Texans, the underfunding or loss of many social services, and a deep loss of tax revenue state-wide. Notwithstanding the variability and devastating downturns of oil and gas production, Texans cling faithfully to economic dependence on the industry<sup>38</sup>. In fact, state officials embrace the capricious boom and bust nature of the oil and gas industry as an inevitable facet of their partnership, stating that energy “is still king of Texas. And that means busts as well as booms.”<sup>39</sup>

#### Texas Politics and its Commitment to Individual Rights

A series of political and cultural factors unique to Texas compound state officials’ valorization of and deference to oil and gas interests. Some of these factors include the cultural importance of property rights, an absence of environmentalism among Texans, and an overwhelmingly conservative and business-friendly legislature.<sup>40</sup> The convergence of energy dominance, cultural emphasis on individual rights, and a growing state opposition to local ordinances led to something of a perfect storm for the city of Denton, whose ban on fracking was perceived as an attack on all three by the state.

---

<sup>35</sup> Fisher, J. (2015b, May 22). Low oil/gas prices yield bankruptcy, share offering, some forbearance. *Natural Gas Intel Shale Daily*. Retrieved from <http://www.naturalgasintel.com/articles/102418-low-oilgas-prices-yield-bankruptcy-share-offering-some-forbearance>

<sup>36</sup> Ibid.

<sup>37</sup> Krauss, C., & Schwartz, N. D. (2015, June 3). Rick Perry hones his image as "Texas miracle" fades. *New York Times*. Retrieved from [http://www.nytimes.com/2015/06/04/business/economy/what-texas-economy-means-for-rick-perrys-presidential-ambitions.html?\\_r=0](http://www.nytimes.com/2015/06/04/business/economy/what-texas-economy-means-for-rick-perrys-presidential-ambitions.html?_r=0)

<sup>38</sup> Fisher, 2015b.

<sup>39</sup> Krauss & Schwartz, 2015.

<sup>40</sup> Rahm, D. (2011). Regulating hydraulic fracturing in shale gas plays: The case of Texas. *Energy Policy*, 39(5), 2974-2981.

### *The Cultural Importance of Property Rights*

The debate surrounding Denton's ban on fracking is particularly divisive because it pits opponents of hydraulic fracturing against the oil and gas industry as well as local residents with mineral rights. Local efforts to gain control over hydraulic fracturing have provoked an outcry among mineral owners because bans and moratoria significantly limit their abilities to drill and, consequently, to profit from their property.<sup>41</sup> This issue has provoked a conversation among Texas state officials regarding the importance of property rights to the state's culture. As State Representative Jim Keffer stated, measures that challenge mineral owners' property rights aren't politically feasible because "there are property rights that have to be protected, and that's what Texas is all about."<sup>42</sup>

### *A Proliferation of Local Regulations and the Erosion of "the Texas Miracle"*

State representatives were particularly responsive to Denton's ban on hydraulic fracturing because of a prior surge in local ordinances concerning a host of issues. These local regulations have proliferated in cities around the state and range from bans on texting while driving, to minimum wage laws, to the prohibition of plastic bags in stores.<sup>43</sup> Although representatives from those cities claim that "the differences between local laws just reflect the differences of the voters in those places," state officials have firmly condemned these local actions as an attack on "the Texas brand."<sup>44</sup> Governor Greg Abbott vehemently warned that these cities "are undermining the business-friendly Texas model with a patchwork of ill-conceived regulations" that will "turn the Texas Miracle into the California Nightmare."<sup>45</sup> Texas' aggressive response to local regulations on other issues suggested that the state government was unlikely to tolerate local bans on any subject. A local ban on fracking not only threatens Texas' relationship with the oil and gas industry; it also threatens the very identity of the state.

### Denton vs. the State of Texas: How a Small City is Taking on the Home of Oil and Gas

---

<sup>41</sup> Malewitz, J. (2015, May 8). Texas House again takes aim at Denton's fracking ban. *The Texas Tribune*. Retrieved from <http://www.texastribune.org/2015/05/08/texas-house-again-aims-dentons-fracking-ban/>

<sup>42</sup> Ibid.

<sup>43</sup> Ramsay, R. (2015, March 12). Analysis: When local control is remote. *The Texas Tribune*. Retrieved from <http://www.texastribune.org/2015/03/12/analysis-local-control-sometimes/>

<sup>44</sup> Ibid.

<sup>45</sup> Ibid.

Denton made state history and drew national fascination when it banned fracking within city limits by a citizens' initiative on November 5, 2014. The city's opposition to the practice garnered even greater attention because of its long history with the oil and gas industry; oil and gas wells have existed in Denton since the 1960s<sup>46</sup> and the city hosts approximately 300 wells<sup>47</sup> within its limits today. However, the city also had a reputation for stringent regulation of the industry, most notably including a 2014 moratorium that was extended numerous times as the city council "weighed efforts to beef up the city's drilling regulations."<sup>48</sup>

Environmental groups and energy corporations from around the country invested hundreds of thousands of dollars throughout the campaign for the ballot explicitly because of the energy-dominant reputation of the state: environmental activists reasoned that a win in Texas indicated that fracking bans could be successful in any state.<sup>49</sup> Energy corporations invested heavily in the fight for the same reason, fearing that if the ballot proposal was successful, similar municipal actions would diffuse throughout the country. To both groups, the fate of local governments' authority to make decisions on hydraulic fracturing appeared to hinge on the outcome of this David and Goliath struggle: the tiny city of Denton versus the Lone Star State.

#### Why Did Denton Pass the Ban? Risks and Risk Governance

Increases in seismicity and public health impacts heightened the Denton community's concern regarding the risks associated with hydraulic fracturing as well as their skepticism regarding the state government's abilities to address them. Multiple studies concerning the links between these risks and oil and gas development were released throughout Denton's fight with the state, from the beginning of the ban's campaign to the aftermath of its repeal. Each discovery reinvigorated the local community's commitment and efforts to banning the practice.

#### *Seismicity and its Contested Link to Oil and Gas Injection Wells*

---

<sup>46</sup> City of Denton, Texas. (2015). *Data time lapse*. Retrieved from <http://www.cityofdenton.com/departments-services/departments-g-p/gas-well-inspections/data/time-lapse>

<sup>47</sup> At the time of this writing, Denton hosts 277 active wells. City of Denton, Texas. (2015). *Gas well locator*. Retrieved from <http://www.cityofdenton.com/departments-services/departments-g-p/gas-well-inspections/gas-well-sites>

<sup>48</sup> City of Denton, Texas. (2015). *Litigation and news*. Retrieved from <http://www.cityofdenton.com/departments-services/departments-g-p/gas-well-inspections/news-notice>

<sup>49</sup> Lee, M. (2014a, October 9). Outside money pours into fracking-ban fight in Texas. *Energywire*. Retrieved from <http://www.eenews.net/energywire/stories/1060007094>

When more than 30 earthquakes racked communities atop the Barnett Shale between November and January 2014, distressed citizens pressured lawmakers in Austin to reconsider the relationship between increased seismicity and the proliferation of oil and gas wastewater injection wells in the state.<sup>50</sup> In response to the outcry, the Texas Railroad Commission (otherwise called the RRC, which is responsible for oil and gas regulation in the state)<sup>51</sup> issued a series of new rules to address the seismicity problem, including requirements that operators disclose volumes and pressures, and clarifying the RRC's right to suspend a well permit in the event that a causal relationship with earthquakes appears likely.<sup>52</sup> These rules did not lower the seismicity rate, but state and industry officials hesitated to implement greater precautions because they remained unconvinced of the link between injection wells and earthquakes.<sup>53</sup> Despite studies by Southern Methodist University, Stanford University, and USGS that claimed a link, "industry officials said researchers should also look at other potential causes, including drought, the level of a nearby reservoir, and natural stress and strain. And the elected officials... questioned whether disposal could cause quakes."<sup>54</sup> State Representative Myra Crownover<sup>55</sup> explained, "We want to know but don't want to blame any single thing till it's a proven link."<sup>56</sup> Even state seismologist Craig Pearson denied the connection<sup>57</sup> and called the growing body of research suggesting the relationship "over-hyped."<sup>58</sup> In May, the RRC held "show-cause"

---

<sup>50</sup> Fisher, J. (2014a, January 21). Quake-plagued Texans "shake the ground" in Austin. *Natural Gas Intel Shale Daily*. Retrieved from <http://www.naturalgasintel.com/articles/97127-quake-plagued-texans-shake-the-ground-in-austin>

<sup>51</sup> The Texas Railroad Commission is the state's regulatory authority over oil and gas production. The RRC regulates every aspect of the oil and gas industry save air quality issues, which are regulated by the TCEQ.

<sup>52</sup> Lee, M. (2014b, October 28). 'Trench fighting' in Texas town as frack ban comes down to the wire. *Energywire*. Retrieved from <http://www.eenews.net/energywire/stories/1060007975>

<sup>53</sup> Lee, M. (2015a, April 21). Oil and gas operators likely caused Texas quakes—study. *Greenwire*. Retrieved from <http://www.eenews.net/greenwire/stories/1060017146>

<sup>54</sup> Ibid.

<sup>55</sup> Representative Crownover heads the Texas House Subcommittee on Seismicity.

<sup>56</sup> Fisher, J. (2015, April 24). Texas quake study shakes regulators to action. *Natural Gas Intel Shale Daily*. Retrieved from <http://www.naturalgasintel.com/articles/102095-texas-quake-study-shakes-loose-some-regulator-curiosity>

<sup>57</sup> Fisher, J. (2015, June 12). Injection well tests don't show quake link, Texas regulator says. *Natural Gas Intel Shale Daily*. Retrieved from <http://www.naturalgasintel.com/articles/102647-injection-well-tests-dont-show-quake-link-texas-regulator-says>

<sup>58</sup> Fisher, J. (2015, April 21). Researchers: injection, extraction wells 'likely' cause of Texas quakes. *Natural Gas Intel Shale Daily*. Retrieved from <http://www.naturalgasintel.com/articles/102054-researchers-injection-extraction-wells-likely-cause-of-texas-quakes>. This skepticism and insistence on extremely high standards of proof to attribute seismicity to oil and gas activity harkens back to Rawlin's

meetings, in which industry officials were forced to prove that their injection wells were not responsible for the seismic events. Although industry officials allowed that the link between injection wells and seismicity has been documented since the 1960s, they insisted that the earthquakes in question were the result of natural causes.<sup>59</sup> On November 3rd, the RRC officially accepted this assessment when it ruled unanimously in favor of the two energy companies, stating that "in both cases it was not likely that the wells were causing earthquakes."<sup>60</sup>

Local communities had cause for concern regarding the RRC's impartiality in the show-cause hearings. Between the two participating energy companies,<sup>61</sup> \$29,500 had been given in campaign contributions to the commissioners within the preceding 18 months.<sup>62</sup> The RRC's acceptance of donations at the time of the hearings was a potent conflict of interest, representative of the larger problem that the RRC is responsible for both promoting and policing the energy industry.<sup>63</sup> The questionable neutrality of the RRC's decision-making is of significant concern to local communities, which feel that the state is incapable of mitigating the risks associated with oil and gas activity because its relationship with the industry "almost turns into a legal bribe."<sup>64</sup>

#### *Exposure to Hydraulic Fracturing and Concerns About Possible Detriments to Public Health*

Denton's decision to campaign for a fracking ban was also largely influenced by concerns that the state government was not adequately mitigating the public health risks posed by hydraulic fracturing. The activists were particularly influenced by a study out of the University of Virginia Law Review,<sup>65</sup> which catalogued the health detriments caused by proximity to oil and gas production and condemned the Texas state government for not taking the appropriate measures to handle those risks. The multitude of health risks included

---

points on how state officials in energy-dominant states choose such high standards to avoid maligning the industry, thereby prioritizing energy development over the well-being of local communities.

<sup>59</sup> Lee, M. (2015b, June 11). Energy giant denies oil development's role in quakes. *Environment & Energy (E&E) Publishing*. Retrieved from <http://www.eenews.net/stories/1060020057>

<sup>60</sup> NGI staff report. (2015, November 3). Briefs -- Railroad Commission of Texas, Armour Energy Ltd. *Natural Gas Intel Shale Daily*. Retrieved from <http://www.naturalgasintel.com/articles/104236-briefs---railroad-commission-of-texas-armour-energy-ltd>

<sup>61</sup> Exxon Mobil Corp. and EnerVest Ltd.

<sup>62</sup> Lee, M. (2015c, June 16). Will Big Oil's money sway Texas regulators' decision on energy-earthquake link? *Environment & Energy (E&E) Publishing*. Retrieved from <http://www.eenews.net/stories/1060020292>

<sup>63</sup> Ibid.

<sup>64</sup> Ibid, para. 6. Quote by Azle Mayor Alan Brundrett.

<sup>65</sup> Rawlins, 2013.

“headaches, respiratory problems, itchy and watery eyes, and nosebleeds” as well as “brain disorders, pre-cancerous lesions, and impairment of motor skills.”<sup>66</sup> In addition, the six counties wherein the most shale gas drilling in Texas takes place contain “the highest incidence of invasive breast cancer in the state” as well as disproportionate levels of asthma among children.<sup>67</sup> Researchers allowed that no direct causation had been proven, but they did find “a correlation between claimed health effects and the known health effects of chemicals associated with shale gas industry operations.”<sup>68</sup> Even without proven causation, the documentation of these health effects and their correlation to oil and gas exposure resonated with Denton residents. Citizens recognized these health effects within their own community, from headaches and skin ailments to increases in respiratory issues.<sup>69</sup>

Concerns about public health were also augmented by multiple discoveries that disturbed the local community. Weeks before the fracking ban was passed, environmentalists released infrared videos demonstrating unchecked air pollution from oil and gas sites within the city.<sup>70</sup> Although Texas regulatory officials had assured residents that any toxic exposure from the sites would be short-term, the footage revealed that the fracking site had been releasing carcinogens for months. Months later, Texas scientists found that drilling-related chemicals had contaminated groundwater in the Barnett Shale<sup>71</sup>. Considered “the largest analysis of groundwater quality in a shale drilling zone,” scientists found “elevated levels of 10 types of metals and the presence of 19 chemical compounds, including benzene, toluene, ethyl benzene and xylene” in direct proportion to the intensity of drilling.<sup>72</sup> These discoveries, compounded with locals’ personal

---

<sup>66</sup> Ibid.

<sup>67</sup> Ibid.

<sup>68</sup> Ibid.

<sup>69</sup> Fisher, J. (2014b, April 10). History, sprawl, legacy wells put fracking focus on Texas town. *Natural Gas Intel Shale Daily*. Retrieved from <http://www.naturalgasintel.com/articles/98018-history-sprawl-legacy-wells-put-fracking-focus-on-texas-town>

<sup>70</sup> King, P. (2014, October 22). Enviro release footage of emissions from Texas oil and gas sites. *Energywire*. Retrieved from <http://www.eenews.net/energywire/stories/1060007696>

<sup>71</sup> Soraghan, M. (2015a, June 18). Texas study finds drilling contaminants in groundwater. *Energywire*. Retrieved from <http://www.eenews.net/energywire/stories/1060020439> Denton sits on the Barnett Shale.

<sup>72</sup> Ibid.

experience with deteriorating health, convinced many Denton residents that the state had not adequately mitigated the health and safety risks associated with hydraulic fracturing.<sup>73</sup>

### Denton Takes on the Lone Star State Government: The Fracking Ban

Although the public health and seismic risks intensified Denton residents' concerns regarding state management of fracking policy, a great deal of their frustration also derived from the daily nuisances caused by their oil and gas facilities. Cathy McMullen, president of Frack Free Denton, lamented fracking's toll on the local quality of life, "It's the smells, which are overpowering when they're 200 feet from a home. It's the constant noise, and then it's the truck traffic."<sup>74</sup> Because these issues are considered "nuisances," the city possessed the authority to pass local measures to mitigate the disproportionate costs oil and gas activities imposed on its community. However, enforcing those regulations were another matter. For example, "a 65 decibel limit was placed on noise; however, McMullen said that when a complaint is investigated, police and inspectors said 'there were so many loopholes in the ordinance that they could not enforce that point.'"<sup>75</sup> The city passed some of the most stringent regulations in the state, including a 1,200-foot setback between gas wells and a moratorium on new gas wells in 2012, but were consistently unable to force energy companies to comply with their standards. This conflict came to a breaking point when Eagleridge Energy defied Denton's setback ordinance and began fracking within 300 feet of homes, claiming "it was exempt because its sites existed before the ordinance was passed."<sup>76</sup> This was the last straw for the "fracktivists" of Denton—frustrated with the comparative leniency of state regulations and the impotence of local authority, they stopped calling for tighter state regulations and began to campaign for an outright ban on the practice.<sup>77</sup>

Residents of Denton were even less financially motivated to accept these detriments to local quality of life because of the state's split estate laws. Mineral rights are separated from and

---

<sup>73</sup> Loftis, R. (2015, March 3). Research: Problems subside when people move away from wells. *Denton Record Chronicle*. Retrieved from <http://www.dentonrc.com/local-news/local-news-headlines/20150303-studies-target-health-fracking.ece>

<sup>74</sup> Fisher, 2014b.

<sup>75</sup> Ibid.

<sup>76</sup> Lee, M. (2014c, November 5). Denton fracking ban passes with wide margin. *Energywire*. Retrieved from <http://www.eenews.net/energywire/stories/1060008408>

<sup>77</sup> Malewitz, J. (2014b, November 5). First lawsuits filed over Denton's new fracking ban. *The Texas Tribune*. Retrieved from <http://www.texastribune.org/2014/11/05/denton-fracking-ban-sees-first-lawsuit/>

have priority over surface rights, such that surface owners cannot block mineral owners from drilling the surface to access oil and gas. Further, the law does not require mineral owners to reimburse surface owners for damages to the land or environment.<sup>78</sup> Split estate laws exacerbate the already-disparate distribution of costs and benefits associated with fracking, particularly in Denton because very few residents own the mineral wealth beneath their property, “energy companies and large corporations own around 80 percent of the roughly \$88 million below Denton... giving voters less motivation to support fracking.”<sup>79</sup> By preventing local residents from capitalizing on the fiscal benefits of fracking, split estate laws likely contributed to the success of the campaign for the local fracking ban.

The campaign for the fracking ban was the most expensive in the city’s history, garnering support from national environmental groups as well as opposition from numerous oil and gas corporations—including companies that didn’t operate in Denton. Opponents of the ban vastly outraised its supporters (10-to-1), and around 97 percent of the funding was donated by oil and gas companies. In fact, “only two of [the opposition’s] donations came from people living in the city.”<sup>80</sup> Unable to compete financially with the energy companies, supporters of the ban resorted to informal tools of campaigning that “would attract big crowds and call attention to their cause.”<sup>81</sup> These tactics ranged from canvassing and voter registration to puppet shows<sup>82</sup> and coffin races. The strategies worked. Although the group opposing the ban (Denton Taxpayers for a Strong Economy) outspent the proponents by hundreds of thousands of dollars, voters approved the fracking ban 59 percent to 41. This victory sent shock waves throughout the energy industry — said one citizen, “...the message it sends to the world... We just banned fracking in the state where it was invented.”<sup>83</sup>

### Backlash to the Ban

---

<sup>78</sup> Rahm, D. (2011). Regulating hydraulic fracturing in shale gas plays: The case of Texas. *Energy Policy*, 39(5), 2974-2981.

<sup>79</sup> Malewitz, 2014a.

<sup>80</sup> Lee, 2014a.

<sup>81</sup> Battaglia, N. D. (2014, November 7). Fracking foes sent supporters out on foot and onstage. *Denton Record-Chronicle*. Retrieved from <http://www.dentonrc.com/local-news/local-news-headlines/20141107-uncommon-tactics.ece>

<sup>82</sup> Popularly known as “The Frackettes.”

<sup>83</sup> Ibid.



The city of Denton was faced with two lawsuits the day after the fracking ban was passed: one from State Land Commissioner Jerry Patterson and the second from the Texas Oil and Gas Association.<sup>84</sup> Both suits maintained that the fracking ban prevented oil and gas production from occurring<sup>85</sup> and was preempted by the state's unilateral authority to regulate oil and gas matters.<sup>86</sup> The passage of the ban and its subsequent lawsuits presented an important jurisdictional question: If local governments have the power to regulate health and safety and the state government has authority over the development of mineral resources, who controls hydraulic fracturing? A representative of the TXOGA explained the regulatory tangle:

Texas law says the state intends its mineral resources to be “fully and effectively exploited,” but courts have said the power is not absolute. The Railroad Commission has jurisdiction over all oil and gas wells in the state, with authority to adopt all “necessary rules for governing and regulating persons and their operations.” Local governments have the right to impose reasonable health and safety restrictions, and the Legislature has granted most Texas cities, including Denton, the power to “regulate exploration and development of mineral interests.”<sup>87</sup>

Given the zoning powers relegated to local governments, the flexibility allotted to home-rule cities like Denton, and the considerable ambiguity regarding state versus local authority articulated by TXOGA, the Denton ban and its subsequent lawsuits presented a compelling question to Texas courts.

State lawmakers aimed to avoid that question by creating a new law that would cement the state's supremacy over fracking policy. Lawmakers filed over ten bills that would prohibit local governments from enacting or amending drilling rules. In contrast, “those watching legislation on the issue say they haven't noticed one proposal to bolster—or even support—local

---

<sup>84</sup> Lee, M. (2014d, November 5). Denton faces lawsuits a day after it passes fracking ban. *Environment and Energy (E&E) Publishing*. Retrieved from <http://www.eenews.net/eenewspm/stories/1060008441>

<sup>85</sup> Denton's ban applied exclusively to hydraulic fracturing and did not prohibit drilling for oil and gas generally. The ban also only applied to new wells.

<sup>86</sup> Lee, 2014d.

<sup>87</sup> Malewitz, 2014b.

control.”<sup>88</sup> On April 17, 2015 House Bill 40 passed the Republican-dominated legislature by overwhelming margins, and was signed into law<sup>89</sup> by Governor Greg Abbott on May 18.<sup>90</sup>

#### House Bill 40: The Express Preemption of Local Government Authority

The preamble of HB 40 definitively secures the state government’s unilateral authority over oil and gas development; the Act is introduced as “relating to the exclusive jurisdiction of this state to regulate oil and gas operations in this state and the express preemption of local regulation of those operations.”<sup>91</sup> The Act relegates all authority to the Texas Railroad Commission, and explicitly preempts any municipality or local political subdivision from regulating an oil and gas operation unless it is an above-ground activity (i.e., noise, traffic, lights) in such a way that is “commercially reasonable” and “does not effectively prohibit an oil and gas operation.”<sup>92</sup> Members of both sides expressed concern over the legal ambiguity of “commercially reasonable,” anticipating that the vague language of the Act would inevitably lead to litigation, but the intent of the Act was clear: to completely disable any future attempts by local governments to ban or restrict fracking. The ambiguity over the division of state and local jurisdiction cited by the ban’s supporters was swiftly eradicated by this sweeping legislation. Vantage Energy resumed fracking in Denton three days after HB 40 was signed.

#### The Aftermath: A Strategic Repeal and a Promise to Keep Fighting

Following the passage of HB 40, Denton city officials found that they could no longer enforce their ban. Officials began to consider how best to resolve the two lawsuits under the certainty that HB 40 would ensure their defeat in court, but without appearing to surrender to the state’s power. Repealing the ban was considered a strategic maneuver rather than an acquiescence to the state’s supremacy; Councilman Kevin Roden explained that “the move was a tactical retreat that may allow Denton to fight the new law in another venue. Denton is already being sued over its ban, and a decision against the city in those cases could set a legal precedent

---

<sup>88</sup> Malewitz, J. (2015, March 17). Denton fracking ban tees up local control fight. *The Texas Tribune*. Retrieved from <http://www.texastribune.org/2015/03/17/local-control-and-fracking-debate/>

<sup>89</sup> House Bill 40 took effect immediately after the governor’s signature.

<sup>90</sup> Malewitz, J. (2015, May 18). Abbott signs "Denton Fracking Bill." *The Texas Tribune*. Retrieved from <http://www.texastribune.org/2015/05/18/abbott-signs-denton-fracking-bill/>

<sup>91</sup> Texas State Legislature. (n.d.). *HB 40*. Retrieved from <http://www.legis.state.tx.us/BillLookup/Text.aspx?LegSess=84R&Bill=HB40>

<sup>92</sup> Ibid.

in favor of HB 40.”<sup>93</sup> Local officials thought that a victory for industry in court could have widespread implications for other cities in the state that have implemented their own oil and gas regulations. The city was also forced to consider the immense cost of the ban—already \$220,000—<sup>94</sup> to defend and which would cost even more if they pursued the lawsuits in court. Despite the strategic and financial value of repealing the ban, the decision was very difficult for some Denton residents, one of whom said that “repealing the ban... would amount to a punch in the gut to the will of voters.”<sup>95</sup> However, the city had no choice when TXOGA and the GLO expanded their original lawsuits to include the city’s 2014 moratorium on new wells in addition to the fracking ban they were no longer enforcing.<sup>96</sup> The state’s unwavering attack on the fracking ban left no other option but for the city to repeal it and pursue other tools of resistance. Denton formally repealed the fracking ban on June 17, insisting that the fight was far from over. Council members consoled the city’s anti-fracking coalition by reasoning that “repealing the ordinance may render the suits moot and avoid a legal precedent that would undercut the city’s authority to regulate oil and gas development.”<sup>97</sup>

#### Informal Tools and the Resolve to “Keep Fighting”

When TXOGA and the State Land Commissioner refused to drop their lawsuits, the city of Denton was compelled to further roll back its setback rules from 1,200 to 1,000 feet in an attempt to pass the state’s “commercially reasonable” standard.<sup>98</sup> However, the city has not given up on asserting its zoning powers and home-rule authority. On August 4, the city revised their oil and gas ordinance to “use zoning powers to regulate what drilling activity they can,” in order to “preserve property values, the character of neighborhoods, and other quality of life issues in Denton.”<sup>99</sup> These efforts included regulations addressing “nuisance and noise

---

<sup>93</sup> Lee, M. (2015d, June 1). Faced with new Texas law, Denton may retreat from its fracking ban. *Energywire*. Retrieved from <http://www.eenews.net/energywire/2015/06/01/stories/1060019401>

<sup>94</sup> Ibid.

<sup>95</sup> Ibid.

<sup>96</sup> Malewitz, J. (2015, June 16). Texas, petroleum industry broaden suits against Denton. *The Texas Tribune*. Retrieved from <http://www.texastribune.org/2015/06/16/texas-and-petroleum-industry-broaden-lawsuits-again/>

<sup>97</sup> Lee, M. (2015e, June 17). Texas town overturns fracking ban, looks for ways to challenge state law that forbids it. *Energywire*. Retrieved from <http://www.eenews.net/energywire/stories/1060020376>

<sup>98</sup> LaFerney, D. (2015, July 29). Council tables decision on setbacks. *Denton Record Chronicle*. Retrieved from <http://www.dentonrc.com/local-news/local-news-headlines/20150729-council-tables-decision-on-setbacks.ece>

<sup>99</sup> Ibid.

mitigation, truck traffic, notice requirements and setbacks.” The city maintained that all of these regulations were permissible under HB 40’s allowance that cities may enact ordinances that regulate aboveground activity deemed to be “commercially reasonable,” and so are not challenging the state law outright. Rather, they are advancing local rights over fracking policy on a smaller and more strategic scale.

The resolve that Denton residents have displayed in the aftermath of HB 40 indicates that the struggle for local input in hydraulic fracturing policy making is far from over—instead, the struggle for authority over oil and gas is quickly becoming a legislative arms race between the city of Denton and the Texas state government. Attempts to advance control over oil and gas seem likely to continue because although HB 40 rendered the fracking ban unenforceable, it did nothing to address the local concerns that inspired it. For as long as the state refuses to integrate local input into its decision-making, the local/state struggle for authority will no doubt continue.

#### Case Two: Oklahoma and State Capture by the Oil and Gas Industry

*In this section, I analyze the obstacles to the state in regulating the oil and gas industry by the industry’s deep integration in Oklahoma’s economy and political system. A recent surge in seismic activity has placed additional pressure on state officials as they attempt to balance the interests of the industry and the growing concerns of local communities. Although the Oklahoma Corporation Commission has implemented some regulatory changes to address induced seismicity, no state-wide legislation has been passed regarding the issue. Instead, the state passed SB 809, a bill that asserted the primacy of the state in regulating oil and gas matters and explicitly prohibiting local governments from implementing measures that might inhibit oil and gas production. The state’s inadequate regulatory strategy, its refusal to implement more stringent precautions, and its sustained dedication to maintaining complete state control has pointed to the state government’s inability to overcome the economic and political influence of the industry in order to sufficiently mitigate the risks associated with hydraulic fracturing. This begs the questions: Can an energy dominant state effectively mitigate the risks of drilling? To what degree could additional local control and input enhance fracking policies when the oil and gas industry is so deeply integrated with the political and economic fabric of a state?*

#### An Energy-Dominant State: The Importance of Oil and Gas to the State of Oklahoma

As an energy-dominant state, the considerable economic and political integration of the oil and gas industry has made state officials wary of “killing the golden goose.” In April 2015,

state officials estimated that one in every five jobs in the state of Oklahoma is tied to the oil and gas business,<sup>100</sup> which represents about one-third of the state economy.<sup>101</sup> Many Oklahomans are economically dependent on the royalties received from leasing their land to the industry or on the tax payments distributed to hosting cities, just as political officials find themselves indebted to oil and gas corporations for large portions of their campaign funds. In fact, representatives of the oil and gas industry constitute the most important contributors to the election campaigns of Governor Mary Fallin, numerous legislators, and all three elected members of the Oklahoma Corporation Commission (OCC)—the state agency that regulates the oil and gas industry.<sup>102</sup> As State Representative Cory Williams noted, “we’ve decided that oil and gas is the best prom date we’ll ever get, and we don’t want oil and gas to go away.”<sup>103</sup>

The state’s considerable economic dependence on oil and gas development has diminished the political will of state representatives to stringently regulate the industry, most particularly with regard to the recent increase in seismicity. As the rate at which wastewater injection wells has proliferated in recent years, so has the incidence of unusual seismic activity, from a historical average of fewer than two 3.0 earthquakes a year, to 585 quakes of 3.0 or greater in 2014.<sup>104</sup> The seismicity rate in 2013 was 70 times greater than that observed in 2008—and the current rate is about 600 times greater.<sup>105</sup> These immense increases in seismicity over the past few years have incited vast concern among local communities, particularly with regard to state officials’ persistent reluctance to acknowledge the correlation between increased seismicity and increases in the creation of wastewater injection wells by oil and gas companies. Long after USGS had linked the earthquakes to wastewater disposal and other states had imposed

---

<sup>100</sup> Oppel Jr., M., & Wines, M. (2015, April 3). As quakes rattle Oklahoma, fingers point to oil and gas industry. *The New York Times*. Retrieved from <http://www.nytimes.com/2015/04/04/us/as-quakes-rattle-oklahoma-fingers-point-to-oil-and-gas-industry.html>

<sup>101</sup> Stecklein, J. (2015, May 4). Cities face losing control over oil and gas rigs. *Stillwater News Press*. Retrieved from [http://www.edmondsun.com/news/business/cities-face-losing-control-over-oil-and-gas-rigs/article\\_bf398860-f2b3-11e4-b78b-8f4218fa1924.html](http://www.edmondsun.com/news/business/cities-face-losing-control-over-oil-and-gas-rigs/article_bf398860-f2b3-11e4-b78b-8f4218fa1924.html)

<sup>102</sup> Oppel Jr. & Wines, 2015.

<sup>103</sup> Ibid.

<sup>104</sup> Wines, M. (2015, April 21). Oklahoma recognizes role of drilling in earthquakes. *The New York Times*. Retrieved from <http://www.nytimes.com/2015/04/22/us/oklahoma-acknowledges-wastewater-from-oil-and-gas-wells-as-major-cause-of-quakes.html>

<sup>105</sup> Passut, C. (2015, April 22). Oklahoma quakes 'very likely' caused by disposal wells, say scientists. *Natural Gas Intel Shale Daily*. Retrieved from <http://www.naturalgasintel.com/articles/102070-oklahoma-quakes-very-likely-caused-by-disposal-wells-say-scientists>

moratoriums and stringent regulations on injection wells, Oklahoma continued to attribute the seismic changes to natural causes in order to defend their comparatively lenient rules.<sup>106</sup> Until late April of this year, Governor Fallin maintained that these were “just natural earthquakes that have occurred since the beginning of the Earth,” and the state-run Oklahoma Geological Survey supported this position by rejecting findings by other scientists connecting the earthquakes to oil and gas activity.<sup>107</sup> Governor Fallin’s consistent support of the oil and gas industry could be explained by her political indebtedness to the sector, “among industries, oil and gas was the biggest contributor to her campaign” and its great economic importance as “the most prominent industry in the state... [that] enjoys significant political support as a major employer.”<sup>108</sup>

#### Scientists Under a Political Microscope: Industry Sway over the Oklahoma Geological Survey

The economic and political sway of the oil and gas industry has even influenced the scientific conclusions of the seismologists at the Oklahoma Geological Survey. Although the United States Geological Survey has acknowledged the link between wastewater injection wells and induced seismicity for years, their counterparts at the Oklahoma Geological Survey publicly denied the link until very recently.<sup>109</sup> In fact, Oklahoma’s state seismologists suspected the connection for years before publicly endorsing it, but “wavered amid concerns about derailing the state’s most prominent industry.”<sup>110</sup> Multiple reports have surfaced that have connected OGS’ reluctance to tie seismicity to oil and gas activity to the Survey’s economic dependence on the industry for its funding.<sup>111</sup> In October 2013, scientists from OGS joined in a USGS statement which suggested that “activities such as wastewater disposal may be a contributing factor to the

---

<sup>106</sup> Soraghan, M. (2015b, March 3). Okla. agency linked quakes to oil in 2010, but kept mum amid industry pressure. *Environment & Energy (E&E) Publishing*. Retrieved from <http://www.eenews.net/stories/1060014342>

<sup>107</sup> Soraghan, M. (2015c, March 26). In Okla. quake country, still doubt about links to drilling. *Environment & Energy (E&E) Publishing*. Retrieved from <http://www.eenews.net/stories/1060015810>

<sup>108</sup> Soraghan, M. (2015d, July 8). In oil-friendly Okla., Gov. Fallin moved slowly on 'awkward' issue of quakes. *Environment & Energy (E&E) Publishing*. Retrieved from <http://www.eenews.net/stories/1060021388>

<sup>109</sup> Soraghan, M. (2015e, June 23). University of Oklahoma developed quake position while asking oilman for \$25M. *Environment & Energy (E&E) Publishing*. Retrieved from <http://www.eenews.net/stories/1060020697>

<sup>110</sup> Ibid.

<sup>111</sup> Soraghan, M. (2015, May 15). Disposal well near epicenter of Okla.'s biggest quake was too deep. *Environment & Energy (E&E) Publishing*. Retrieved from <http://www.eenews.net/stories/1060018609>; Soraghan, 2015e.

increase of earthquakes.”<sup>112</sup> This statement evoked an immediate response from Harold Hamm, one of the state’s leading oilmen and an important donor to the University of Oklahoma (where the OGS is housed). The state seismologist Austin Holland was famously summoned to “coffee” at the Oklahoma Corporation Commission with Harold Hamm to discuss the statement, after which Holland reversed his position and stated that he would not publicly articulate his suspicions regarding drilling and induced seismicity until he was “absolutely sure.”<sup>113</sup> Holland publicly acknowledged the influence of the industry on his reversal to the press, and reportedly revealed in one encounter that “Harold Hamm and others will not allow me to say certain things.”<sup>114</sup>

As a result of OGS’s skepticism about the link between oil/gas development and increased seismicity, OCC’s efforts to prevent earthquakes were limited to implementing a “traffic-light” method of regulating disposal wells. This regulatory method was designed to address each well as it became problematic, placing “wells proposed in earthquake prone areas under ‘yellow light’ restrictions for volume and pressure. If the earth starts shaking again, the restrictions can be tightened, or the wells shut down.”<sup>115</sup> This method was the most aggressive measure the OCC could take; because disposal wells had not been definitively linked to seismic events, the OCC could mandate a shutdown or operational change only one well at a time, and only in the event that the well had demonstrably violated its operating permit or was indisputably tied to a seismic event. Additionally, the OCC could not impose harsh retributions for violating its orders for as long as the link between seismicity and drilling remained in dispute; wells connected to “seismic swarms” were subjected to review semi-annually and disposal wells within six miles of a 4.0 earthquake were required to report the pressures and volumes of their injections<sup>116</sup>. Geologists quickly realized that the well-by-well strategy was flawed because “the sheer volume of waste being buried in an area with many wells, and not any single well, causes most quakes.... It often is difficult or impossible to assess blame to a particular well.”<sup>117</sup>

---

<sup>112</sup> Soraghan, 2015b.

<sup>113</sup> Ibid.

<sup>114</sup> Schlanger, Z. (2015, March 4). Industry pressure kept Oklahoma's scientists silent on earthquake-fracking link since 2010: Report. *Newsweek*.

<sup>115</sup> Soraghan, M. (2015f, March 9). Amid the shaking, Okla. regulators take a case-by-case approach. *Environment & Energy (E&E) Publishing*. Retrieved from <http://www.eenews.net/stories/1060014675>

<sup>116</sup> Ibid.

<sup>117</sup> Opperl Jr. & Wines, 2015.

### A Reversal: OGS and the State Acknowledge Link, Attempt to Address Induced Seismicity

On April 21, 2015, both the state government and the Oklahoma Geological Survey acknowledged the “very likely” causal relationship between wastewater injection wells and the sudden epidemic of earthquakes.<sup>118</sup> Despite the state’s official recognition of the link, the state government has still been unable to mitigate the problem to the satisfaction of Oklahoma citizens. State Representative Cory Williams demanded a moratorium in the 16-county area most affected by the earthquakes,<sup>119</sup> but Oklahoma Corporation Commissioners contended that , “... they have no authority to impose a moratorium, and only limited powers to address the existing wells that are behind the increase in the tremors.”<sup>120</sup> Because the OCC is an official state body, only the state legislature retains the authority to increase or expand its powers. However, the state legislature has not proposed any statewide legislation regarding the issue. In fact, the legislature even cut the Oklahoma Corporation Commission’s funding in this year’s budget, further hindering their ability to investigate induced seismicity<sup>121</sup>. Unable to enact more stringent regulations or precautionary measures, the OCC is limited to regulating the depths and volumes of individual wells in order to prevent seismic events, even though those efforts have been largely ineffective.<sup>122</sup> Despite OCC mandates to reduce depths and volumes of individual wells, the earthquakes have continued to proliferate and the state broke its seismic record from the prior year with its 586th earthquake of magnitude 3.0 or greater on August 17.

### Senate Bill 809: The Ban on Local Bans

Local officials have been critical of the slowness and unwillingness of the state government to address the problem of increased seismicity. Representative Williams expressed his frustration, “I just want someone to act.... We’ve had the governor and legislative leadership saying that they’re waiting on the science. Those excuses are gone.”<sup>123</sup> State Representative Jason Murphey of Guthrie echoed this sentiment, claiming that OGS’ confirmation of the

---

<sup>118</sup> Wines, 2015.

<sup>119</sup> Ibid.

<sup>120</sup> Ibid.

<sup>121</sup> Soraghan, M. (2015, August 19). Off-shaken Okla. tops last year's quake record. *Environment & Energy (E&E) Publishing*. Retrieved from <http://www.eenews.net/stories/1060023632>

<sup>122</sup> Soraghan, M. (2015, July 17). Okla. boosts scrutiny at disposal wells, hints at volume cut. *Environment & Energy (E&E) Publishing*. Retrieved from <http://www.eenews.net/eenewspm/stories/1060022025>

<sup>123</sup> Soraghan, M. (2015, April 22). Okla. leaders say they're dealing with quakes, but some want a moratorium. *Energywire*. Retrieved from <http://www.eenews.net/energywire/stories/1060017213>



causational relationship gave policymakers the moral authority to pursue more stringent precautions.<sup>124</sup> However, the state legislature declined to place additional regulations on the industry, opting instead to pass legislation that would preemptively block local ordinances or bans.<sup>125</sup> The state legislature's concern regarding a proliferation of local bans on oil and gas surprised local officials; at the time, not a single city had attempted to pass a local ban. The bills were proposed as some residents in Stillwater and Norman (both heavily impacted by recent seismic activity) had called for bans on drilling and hydraulic fracturing, but neither city government had attempted to craft any related legislation. Representative Williams of Stillwater claimed that "we're setting our municipalities up for a protracted legal battle with the wealthiest industry in the state and probably the nation for a problem that doesn't exist."<sup>126</sup> The state legislature's decision is largely explained as a reaction to previously described developments in Texas. Concerned that Denton's desire to augment local authority might diffuse to residents of Oklahoma cities, state legislators preempted another local/state battle by passing SB 809, calling the bill "necessary to avoid a Texas-like standoff that has pitted residents of Denton... against the industry."<sup>127</sup>

Like Texas state representatives, Oklahoma state legislators asserted that uniform state regulations better facilitate the development of natural resources, and that a "patchwork of regulations" would undermine the success of the oil and gas industry and consequently the economic well-being of the state.<sup>128</sup> However, local officials have resisted the state legislature's push for unilateral authority. Mayor Cindy Rosenthal pointed to local officials' better understanding of local preferences and greater accountability to local constituents by noting that "we are far more attuned to some of those local control issues and why they are important to our

---

<sup>124</sup> Ibid.

<sup>125</sup> Monies, P. (2015, January 26). Several Oklahoma bills target local drilling bans. *The Oklahoman*. Retrieved from <http://newsok.com/article/5387992>

<sup>126</sup> Lee, M. (2015f, June 1). Okla. ban on fracking bans becomes law with governor's signature. *Energywire*. Retrieved from <http://www.eenews.net/energywire/stories/1060019371> ; Monies, 2015.

<sup>127</sup> Stecklein, 2015.

<sup>128</sup> As we have seen, most energy-dominant states prefer "uniform" regulations, citing their greater convenience and simplicity. While it is unsurprising that Oklahoma follows this pattern by preferring uniform state authority when it comes to governance over oil and gas, it is interesting to note that the state refused to implement uniform regulations over injection wells in the wake of increased earthquake risk (instead creating well by well restrictions). This inconsistency suggests that uniformity is preferable only when it facilitates oil and gas development, not necessarily because it is less complicated.

communities.”<sup>129</sup> Representative Williams also asserted that supplemental local measures were necessary because of the inadequacy of state government actions regarding earthquake risks. “We’ve started to do plug-backs and volume reductions and have not seen a reduction in earthquakes but instead have seen an increase not only in number but also magnitude.... The state of Oklahoma has a duty not only to protect the industry and foster economic development, but also—and more importantly—to protect its resources and citizens. I think right now we are doing one at the expense of the other.”<sup>130</sup> Despite local opposition, Governor Fallin signed Senate Bill 809 into law on June 1, 2015.

#### Senate Bill 809: Conditions and Consequences

According to the governor’s office, Senate Bill 809 “prohibits municipalities from issuing moratoriums or bans on drilling while preserving their ability to adopt reasonable ordinances, rules and regulations concerning traffic issues, noise, fencing requirements and placing of drilling rigs.”<sup>131</sup> Local governments may implement additional regulations as long as they are not inconsistent with measures passed by the state legislature or the Oklahoma Corporation Commission; in other words, actions taken by local governments are preempted by the state government. The bill stipulates that none of these ordinances may in any way prohibit or ban any oil and gas operations, which include “oil and gas exploration, drilling, fracture stimulation, completion, production, maintenance, plugging and abandonment, produced water disposal, secondary recovery operations, flow and gathering lines or pipeline infrastructure.”<sup>132</sup> Finally, the bill declares that all other powers are subject to the exclusive jurisdiction of the OCC. The difficulty of adhering to SB 809 is compounded by the important “reasonable” standard to which local ordinances are held, which is undefined by the bill and which many legislators and attorneys believe could lead to disproportionate state official discretion or a proliferation of court battles to determine its meaning. However, just as Texas’ House Bill 40 inspired a strategic rebellion against the state’s assertion of power, so has Senate Bill 809.

#### Stillwater Passes an Oil and Gas Ordinance

---

<sup>129</sup> Stecklein, 2015.

<sup>130</sup> Wilmoth, A. (2015, July 23). Oil industry warns of cost of proposed disposal well ban in Oklahoma. *The Oklahoman*. Retrieved from <http://newsok.com/article/5435496>

<sup>131</sup> Lee, 2015f.

<sup>132</sup> Oklahoma State Legislature. (n.d.). SB 809. Retrieved from [http://webserver1.lsb.state.ok.us/cf\\_pdf/2015-16%20ENR/SB/SB809%20ENR.PDF](http://webserver1.lsb.state.ok.us/cf_pdf/2015-16%20ENR/SB/SB809%20ENR.PDF).

Shortly following the end of Oklahoma's 2015 legislative session, Stillwater passed its own oil and gas ordinance. The new ordinance included a 660-foot setback from "protected uses" (i.e., churches, schools, parks), a 400-foot setback from unprotected uses, a 400-foot reverse setback from oil and gas sites, and a 69-decibel noise standard (although the ordinance permits greater noise levels for short periods of time).<sup>133</sup> The new regulations apply exclusively to new wells.<sup>134</sup> The council also created a section for oil and gas development in the city's land development code, cementing the city's discretion over oil and gas matters within its borders.<sup>135</sup>

Local officials adamantly defended the decision-making process that preceded the ordinance, claiming that they had incorporated the opinions of both industry officials and local residents.<sup>136</sup> Mayor Gina Noble called the process "a balancing act," because it had attempted to mitigate the interests of the industry as well as to protect the health, safety and quality of life of local citizens.<sup>137</sup> The city council spent months attempting to find the best compromises by engaging in forums with the community as well as conversations with industry elites. Mayor Nobel explained that implementing all of these opinions was essential to balancing the benefits and costs of oil and gas activity and practicing effective decision-making.<sup>138</sup>

Stillwater officials claim that the new ordinance was written in accordance with the new restrictions created by SB 809, which allows local governments to pass "reasonable" restrictions for setbacks, noise, odors, and traffic problems.<sup>139</sup> City Attorney John Dorman claimed that the ordinance was legal by observing that "we have met the standards that the state established... We're only regulating setback, noise and odors, things specifically related to permitting."<sup>140</sup> However, officials from the oil and gas industry have already expressed their dismay at the ordinance, as well as their skepticism that the new regulations will hold up under SB 809.

---

<sup>133</sup> Charles, M. (2015, July 7). City adopts new oil and gas zoning. *Stillwater News Press*. Retrieved from [http://www.stwnewspress.com/news/city-adopts-new-oil-and-gas-zoning/article\\_b8633b18-2458-11e5-b3b7-3fe21768db9c.html](http://www.stwnewspress.com/news/city-adopts-new-oil-and-gas-zoning/article_b8633b18-2458-11e5-b3b7-3fe21768db9c.html)

<sup>134</sup> Wertz, J. (2015, July 21). Stillwater approves new oil and gas rules, industry says they might violate new law. *National Public Radio*. Retrieved from <https://stateimpact.npr.org/oklahoma/2015/07/21/stillwater-approves-new-oil-and-gas-rules-industry-says-they-might-violate-new-law/>

<sup>135</sup> Wilmoth, 2015.

<sup>136</sup> Ibid.

<sup>137</sup> Charles, 2015.

<sup>138</sup> Ibid.

<sup>139</sup> Wilmoth, 2015.

<sup>140</sup> Ibid.

Representatives of the Oklahoma Independent Petroleum Association as well as the Oklahoma Oil and Gas Association have claimed that the ordinance is “unreasonable” because it prohibits new drilling within city limits, thereby setting “unreasonable standards” and violating the new state law.<sup>141</sup> The vague meaning of “reasonable” upon which the ordinance hinges, as well as the state’s demonstrable dedication to protecting the oil and gas industry, suggests that Stillwater may face a significant battle when the next legislative session begins.

As with HB 40 in Texas, Oklahoma's new legislation prevented local governments from regulating oil and gas without addressing prevalent local concerns. Stillwater's ordinance demonstrates the city's determination to mitigate the risks of hydraulic fracturing and suggests that Oklahoma will continue to struggle with this jurisdictional question for as long as it refuses to incorporate local input in state decision-making.

### Case Three: Colorado, a Shared Governance State

*The response of Colorado’s state government to local fracking bans and moratoriums is a departure from that of Texas and Oklahoma. In stark contrast to the passage of legislation affirming the primacy of state decision-making such as HB 40 and SB 809, Colorado has responded to the surge in local fracking bans and ballot proposals by attempting to integrate local perspectives into state hydraulic fracturing policy. In September 2014, Governor John Hickenlooper compromised with proponents of two anti-fracking ballot propositions by creating an Oil and Gas Task Force. The group was tasked with crafting recommendations to better address the balance of local and state jurisdiction over the practice. Although the nine recommendations finally approved by the Task Force received a mixed response, the state government’s effort to better integrate local decision-making into energy policy significantly lessened tensions between the two levels of government. This result suggests that although the process of implementing a model of shared governance is complicated and difficult, the government’s decision to “use all of its tools” also results in more balanced and effective policy. The following section examines Colorado’s success in integrating local perspectives through a narrative of the chronology by which the state began to embrace a more shared governance model and an analysis of the factors that explain Colorado’s unique approach to the tensions between local and state government.*

### The Economic Importance of Hydraulic Fracturing to the State of Colorado

---

<sup>141</sup> Nemec, R. (2015, July 23). Stillwater, OK, sets new rules for oil, natgas drilling. *Natural Gas Intel Shale Daily*. Retrieved from <http://www.naturalgasintel.com/articles/103075-stillwater-ok-sets-new-rules-for-oil-natgas-drilling>

As with Texas and Oklahoma, Colorado has a long history with the oil and gas industry; energy production is an integral contributor to the state's economy and has held a steady presence since Colorado sunk some of the nation's first wells in the early 1800s. The industry is particularly important to the state as an employer—in 2013-14 the industry was responsible for directly employing about 26,000 Coloradans, not including the additional jobs created by economic ripple effect.<sup>142</sup> With this economic impact included, the industry is estimated to provide closer to 100,000 jobs in the state,<sup>143</sup> which amounts to approximately 6 percent of the workforce.<sup>144</sup> A statement by Governor Hickenlooper estimated that oil and gas production in the state represents “a \$20 billion-a-year industry,”<sup>145</sup> which identifies it as one of the largest contributors to the state economy.

#### A Symbiotic Economic Relationship: The Oil and Gas Industry and Agriculture in Weld County

The proliferation of oil and gas production in the state has reached unprecedented levels due to the rise of hydraulic fracturing and the consequent ease with which shale can be accessed without disturbing valuable surface area. This development has resulted in a symbiotic, if somewhat counterintuitive relationship between the oil and gas industry and the agricultural sector.

The intersection of the oil and gas industry and agriculture is most pronounced in Weld County, widely considered to be “Colorado's agricultural juggernaut.”<sup>146</sup> The county is the epicenter of both oil and gas development and agriculture and livestock production; in 2012, the county was considered “ninth among U.S. counties in total value of agricultural products sold—\$1.8 billion—and third in livestock and poultry,” as more than 40 percent of the state's active wells were located in the county in 2014.<sup>147</sup> Although some farmers retain concerns regarding water quality, traffic and temporary damage to topsoil, the benefits of leasing their mineral rights to oil and gas operators present invaluable financial support to an otherwise variable occupation. Kent Pepler of the Rocky Mountain Farmers Union expressed that “oil and gas adds to the safety net of the success of a family farming operation,” providing something of

---

<sup>142</sup> The Associated Press (2015, February 26). Group backs off plan to put fracking ban on Colorado ballot. *The DailyMail (UK)*. Retrieved from <http://www.dailymail.co.uk/wires/ap/article-2970776/Group-backs-plan-fracking-ban-Colorado-ballot.html>

<sup>143</sup> Ibid.

<sup>144</sup> Davis, 2012b.

<sup>145</sup> The Associated Press, 2015.

<sup>146</sup> Simpson, K. (2015a, February 18). Weld County agriculture and energy intersect in nuanced relationship. *The Denver Post*. Retrieved from [http://www.denverpost.com/managingtheboom/ci\\_27534575/weld-county-agriculture-and-energy-intersect-nuanced-relationship](http://www.denverpost.com/managingtheboom/ci_27534575/weld-county-agriculture-and-energy-intersect-nuanced-relationship)

<sup>147</sup> Ibid.

an “economic windfall that inoculates [farmers], at least temporarily, against the vagaries of agriculture.”<sup>148</sup> This relationship between the agricultural and energy sector has resulted in a formidable political and economic alliance.

### The Economic Benefits of Oil and Gas to Local Communities

The advent of hydraulic fracturing to Weld County resulted in a considerable surge of economic growth, particularly in light of the lingering effects of the 2008 economic recession. As a local columnist observes, “Oil and gas development played a key role in driving Weld County to the biggest jobs increase in the United States in 2013, a jump that cut unemployment by nearly two-thirds since 2010.”<sup>149</sup> In 2014, the oil and gas industry constituted 63 percent of the county’s tax base, and property assessments rose 28 percent from the previous year.<sup>150</sup> In addition to vast increases in employment, cities within the county experienced growth in their local businesses and infrastructure due to vast increases in new customers, tax revenues and corporate cooperation.<sup>151</sup> In general, the advent of hydraulic fracturing to local communities produces an powerful “economic ripple effect” by increasing in-migration (thereby attracting new consumers to local businesses), and expanding local economies by increasing buying power through increased tax revenues and income.

### Economic “Busts” and the Risks of Hydraulic Fracturing

As with Texas and Oklahoma, the economic “booms” associated with the growth of the oil and gas industry are accompanied by a series of costs to local communities, risks associated with production, and economic downturns. Although hosting cities reap the economic benefits of increased employment, customer bases, and tax revenues, they also suffer significant costs to local quality of life. For example, citizens of Erie<sup>152</sup> have been battling the oil and gas industry for its persistent transgressions of the 65-decibel noise limit on its drilling pads, which “rattled windows and left many... neighbors sleep-deprived for weeks.”<sup>153</sup> Residents of hosting cities also lamented the increases in traffic, damage to roads and

---

<sup>148</sup> Ibid.

<sup>149</sup> Ibid.

<sup>150</sup> Ibid.

<sup>151</sup> Simpson, K. (2015b, February 17). Weld County's energy boom moves small towns to revisit identities. *The Denver Post*. Retrieved from [http://www.denverpost.com/managingtheboom/ci\\_27539507/weld-countys-energy-boom-moves-small-towns-revisit](http://www.denverpost.com/managingtheboom/ci_27539507/weld-countys-energy-boom-moves-small-towns-revisit)

<sup>152</sup> The city of Erie rests partly in Weld County and partly in Boulder County.

<sup>153</sup> Jaffe, M. (2015, February 16). Drilling rigs and housing development face off in Colorado suburbs. *The Denver Post*. Retrieved from [http://www.denverpost.com/managingtheboom/ci\\_27522307/drilling-rigs-and-housing-development-face-off-colorado](http://www.denverpost.com/managingtheboom/ci_27522307/drilling-rigs-and-housing-development-face-off-colorado)

infrastructure, and housing shortages that accompanied the arrival of the industry. The costs of drilling even extend to de-diversification of the local workforce, particularly with regard to teachers and public servants. The high salaries earned by oil and gas workers have had the effect of luring other sectors of the workforce into joining the industry.<sup>154</sup> This migration of public servants and other professionals to the workforce of the oil and gas industry is of particular concern because of the recent national downturn in oil and gas prices, which has already begun to cause layoffs and declining production in many energy-producing states.<sup>155</sup>

Since July 2014, the oil spot prices in Colorado have fallen 49 percent and natural gas prices have fallen by 30 percent. As these prices have been falling, so have rig counts, well permitting, and tax revenues from the oil and gas sector. However, economists are unsure about the effect this downturn will have on Colorado's state economy because it is markedly more diversified than the economies of energy-dominant Texas and Oklahoma. A spokesman for the Colorado Department of Labor assured that "We haven't seen any uptick in unemployment claims in the oil and gas sector.... This may be something coming down the road, but we haven't seen it yet."<sup>156</sup> Although the mass migration of Coloradans to the oil and gas workforce may become problematic given the sudden decline in oil and gas production and growth, the balance and diversity of Colorado's economy may uniquely prepare it for an economic downturn even of the magnitude expected of the oil and gas industry in the coming year.

Possible exposure to harmful BTEX chemicals commonly used in hydraulic fracturing has emerged as an important public health risk in the state. As with other public health risks, it has been very difficult to prove a causal relationship between health symptoms and exposure to oil and gas chemicals; however, the prevalence of correlations between the two has augmented concern and resistance to hydraulic fracturing in many local communities. For example, concerns regarding contaminated groundwater have been substantiated by multiple findings of toxic and oil-and-gas-related chemicals in wells, including a study that found that over the course of three years and over 700 methane samples from 292 locations, "gas drilling adversely affected water quality in dozens of water wells."<sup>157</sup>

---

<sup>154</sup> Simpson, 2015b.

<sup>155</sup> Ibid.

<sup>156</sup> Jaffe, M. (2015, March 8). Nine big Colorado oil, gas drillers reel in spending, steady production. *The Denver Post*. Retrieved from [http://www.denverpost.com/business/ci\\_27663750/9-big-colorado-oil-gas-drillers-reel-spending](http://www.denverpost.com/business/ci_27663750/9-big-colorado-oil-gas-drillers-reel-spending)

<sup>157</sup> Davis, 2012b.

The state has also experienced increased seismicity correlated to oil and gas production. According to USGS geologists in a 2015 study, “earthquakes of magnitude 3 or greater are 100 times more likely now than in 2008.”<sup>158</sup> However, these earthquakes differ from the earthquakes racking Texas and Oklahoma in that they are primarily associated with the occurrence of hydraulic fracturing itself instead of the injection of wastewater.<sup>159</sup> USGS scientist Bill Ellsworth claims that “it is during the hours the fracturing is occurring that there is potential for an induced earthquake.”<sup>160</sup>

### A Proliferation of Local Fracking Bans

In spite of the immense economic growth offered by oil and gas production, this series of economic, public health, seismic, and quality-of-life costs imposed upon hosting communities by hydraulic fracturing—as well as the perceived indifference of the state government—has compelled multiple cities to pursue fracking bans and moratoriums. The most prolonged and contentious battles have been waged by the cities of Longmont, Lafayette, and Fort Collins, which have all pursued bans or moratoriums on hydraulic fracturing due to public health and groundwater contamination concerns.

Longmont banned fracking and wastewater disposal in 2012, claiming that its home-rule status “gave [the city] broad authority to legislate local issues where state officials had failed to regulate.... [B]ecause the Colorado Oil and Gas Commission (COGCC) does not issue fracking permits or require fracking-specific operating procedures, the state left the field open to additional municipal rules.”<sup>161</sup> The COGCC sued the city, and the District Court of Boulder County denied the city’s claim to jurisdiction on July 24, 2014.<sup>162</sup> The court found that “state law comprehensively regulated the oil and gas industry, including fracking, effectively preempting local rules” and asserted that “the purpose of the agency is to provide oversight of the industry, not to micromanage it.”<sup>163</sup> Furthermore, the court found that any local action that might inhibit oil and gas production was strictly prohibited by state law because “Longmont’s regulations conflicted with state law<sup>164</sup> that requires the COGCC to prevent waste of oil and gas... Longmont’s ban caused waste because it left mineral deposits in the ground that could otherwise be

---

<sup>158</sup> Finley, 2015.

<sup>159</sup> Ibid.

<sup>160</sup> Ibid.

<sup>161</sup> Gilmer, E., & Lee, M. (2014, July 25). Colo. court strikes down city's fracking ban. Retrieved from <http://www.eenews.net/stories/1060003502>

<sup>162</sup> Ibid.

<sup>163</sup> Ibid.

<sup>164</sup> The law in question is Colorado’s Oil and Gas Conservation Act, which asserts the primacy of the state government in matters of oil and gas and prohibits measures that inhibit energy production.



extracted from existing wells through fracking.”<sup>165</sup> As part of a later compromise engineered by Governor Hickenlooper, the state withdrew its lawsuit against the city; nonetheless, Longmont appealed its case to the Court of Appeals.<sup>166</sup>

Shortly following Longmont’s defeat, the District Court of Larimer County struck down Fort Collins’ five year moratorium on hydraulic fracturing, also finding that the local ordinance conflicted with state law.<sup>167</sup> The judgment emphasized the importance of state primacy to facilitating oil and gas development, stating that the ban was impermissible because it “impedes a state interest and prohibits what the state allows... it effectively precluded all oil and gas development because fracking is used on ‘virtually all’ wells in Colorado.”<sup>168</sup> Like Longmont, the city of Fort Collins appealed its case to Colorado’s Court of Appeals on September 23, 2014.<sup>169</sup>

Finally, the city of Lafayette implemented a ban on fracking in November 2013 and was promptly sued by the Colorado Oil and Gas Association (COGA) for preventing the extraction of oil and gas and infringing upon the Colorado Oil and Gas Act.<sup>170</sup> In response, Lafayette residents filed a class-action lawsuit against the oil and gas industry and the state in June 2014.<sup>171</sup> Furthermore, residents of the city filed a motion for a preliminary injunction in August 2014, asking the Boulder District Court to prevent COGA and the state from using the Colorado Oil and Gas Act to overturn their ban.<sup>172</sup> Like Longmont, Lafayette asserted the right to regulate oil and gas production as a consequence of its “home-rule” status, claiming that the Oil and Gas Conservation Act violated the city’s constitutional right to govern itself.<sup>173</sup> On August 27, 2014, The District Court of Boulder County rejected Lafayette’s ban and emphasized the incompatibility of state and local law: “The operational conflict in this case is obvious... the State

---

<sup>165</sup> Ibid.

<sup>166</sup> Gilmer, E. (2014, August 8). State withdraws Longmont suit, but city not satisfied. *Energywire*. Retrieved from <http://www.eenews.net/energywire/stories/1060004236>

<sup>167</sup> Gilmer, E. (2014, August 8). Judge strikes down Fort Collins fracking ban. Retrieved from *Energywire*. Retrieved from <http://www.eenews.net/energywire/stories/1060004247>

<sup>168</sup> Ibid.

<sup>169</sup> Gilmer, E. (2014, September 24). Fort Collins to fight for fracking ban in appeal. Retrieved from *Energywire*. Retrieved from <http://www.eenews.net/energywire/stories/1060006355>

<sup>170</sup> The city hosted only twelve wells, making both the ban on fracking and the subsequent jurisdiction battle largely symbolic. Healy, J. (2015, January 3). Heavyweight response to local fracking bans. *The New York Times*. Retrieved from <http://www.nytimes.com/2015/01/04/us/heavyweight-response-to-local-fracking-bans.html>

<sup>171</sup> Gilmer, E. (2014, August 20). Colo. city residents ask court to halt industry challenge to fracking ban. *Climatewire*. Retrieved from <http://www.eenews.net/energywire/stories/1060004693>

<sup>172</sup> Ibid.

<sup>173</sup> Ibid.

permits drilling and Lafayette prohibits it. The State permits handling, transportation and disposal of production waste, and Lafayette prohibits it.”<sup>174</sup> At the time of its defeat, Lafayette’s struggle for local authority over hydraulic fracturing had already cost the city over \$62,000. The Council members decided that they “had had enough” and declined to pursue the matter further.<sup>175</sup> The Court of Appeals passed on Longmont and Fort Collins’ cases in late August 2015,<sup>176</sup> putting the issue of local versus state jurisdiction over hydraulic fracturing on the fast track to the state’s Supreme Court.<sup>177</sup>

Although the state has witnessed a series of local bans and moratoriums on fracking over recent years, the summer of 2014 was particularly concentrated with costly and contentious court battles over the issue. Colorado political analyst Floyd Ciruli observed, “whether approved or defeated... the increasing efforts by voters and municipalities to ban or regulate hydraulic fracturing are ‘putting it on the radar to politicians that at the local level, there are some problems.’”<sup>178</sup>

The proliferation of local bans and moratoria on fracking is an important explanatory factor for Colorado’s distinct approach to the issue of state and local control over the practice. Because Colorado has endured prolonged and costly court battles over the issue for far longer than Texas or Oklahoma, it follows that state officials are more willing to implement a system of shared governance. Instead of passing sweeping legislation such as HB 40 or SB 809 to silence local communities, Colorado has responded to the issue with efforts to compromise and integrate local input into fracking decision-making. However, Colorado’s history with local fracking bans is hardly the only factor that has shaped its response to this jurisdictional quandary.

#### Timing, Political Pressures and Governor Hickenlooper’s Great Compromise

The impetus for Colorado’s efforts to implement local input began when two anti-fracking ballot proposals began to gain traction shortly before the 2014 election. The two measures were backed not only

---

<sup>174</sup> Gilmer, E. (2014, August 28). Colo. court tosses one city's fracking ban while another keeps fighting. *Greenwire*. Retrieved from <http://www.eenews.net/greenwire/stories/1060005000>

<sup>175</sup> Healy, 2015.

<sup>176</sup> Nemec, R. (2015, August 19). Colorado High Court asked to review local frack ban appeals. *Natural Gas Intel Shale Daily*. Retrieved from <http://www.naturalgasintel.com/articles/103371-colorado-high-court-asked-to-review-local-frack-ban-appeals>

<sup>177</sup> The Supreme Court’s decision to take on the issue is still pending, though a decision from the state’s highest court could constitute a final answer to the question of local versus state control. As the state awaits that decision, however, the COGCC and state representatives are continuing to attempt to mitigate the issue with local governments directly.

<sup>178</sup> Wines, M. (2013, November 7). Colorado cities' rejection of fracking poses political test for natural gas industry. *The New York Times*. Retrieved from <http://www.nytimes.com/2013/11/08/us/colorado-cities-rejection-of-fracking-poses-political-test-for-natural-gas-industry.html>

by anti-fracking groups but also by one of the wealthiest and most powerful politicians in the state legislature, Jared Polis (D). The advancing measures would “outlaw drilling within 2,000 feet of homes and schools and give communities more power to restrict drilling.”<sup>179</sup> Political analysts pointed out that the ballot proposals had the potential to weaken Democratic candidates by dividing their support base, “opening an election-year rift between moderate, energy-friendly Democrats and environmentalists who want to rein in drilling or give local communities the power to outlaw it altogether.”<sup>180</sup> Political strategists also predicted that the ballot proposals might increase GOP turnout and fundraising.<sup>181</sup> Therefore, the ballot proposals constituted an even greater informal tool than the fracking bans because they threatened to divide the Democratic voting bloc prior to an election in which Democratic candidates<sup>182</sup> (particularly Governor Hickenlooper<sup>183</sup>) were unusually vulnerable.<sup>184</sup> For this reason, Democrats furiously attempted compromises to prevent the issue from being determined by voters. Governor Hickenlooper explained that putting the jurisdiction issue to a vote was a blunt response to a complex issue.<sup>185</sup> As the race for governor drew to a virtual tie, and following the failure of a compromise bill meant to dissolve the ballot proposals, Governor Hickenlooper finally devised a compromise that convinced Representative Polis to drop his support for the ballot measures. In exchange for the termination of the ballot proposal campaigns, the state government would create an Oil and Gas

---

<sup>179</sup> Healy, J. (2014a, July 16). Effort to avoid vote on fracking falters in Colorado. *The New York Times*. Retrieved from <http://www.nytimes.com/2014/07/17/us/effort-to-avoid-vote-on-fracking-falters-in-colorado.html>

<sup>180</sup> Ibid.

<sup>181</sup> The Associated Press. (2014, August 5). Colorado Democrats avoid fracking fight. *The New York Times/Washington Examiner*. Retrieved from <http://www.washingtonexaminer.com/colorado-democrats-avoid-fracking-fight/article/feed/2154439>

<sup>182</sup> In a Quinnipiac University Poll from November 2013, only 36 percent of voters approved of the way the state legislature was handling its job, compared to 51 percent who disapproved.

<sup>183</sup> In a Quinnipiac University Poll from November 2013, only 42 percent of voters felt that Governor John Hickenlooper “deserves to be re-elected,” compared to 49 percent who felt that the governor did not deserve to be re-elected. When asked how important the issue of fracking was to their choice of governor, 80 percent rated the issue between extremely and somewhat important. However, only 51 percent of voters supported the practice. See Quinnipiac University Polling Institute. (2013, November 19). Colorado gov has early lead in reelect bid, Quinnipiac University poll finds; voters back fracking, mixed signals on gun control. Retrieved from [http://www.quinnipiac.edu/images/polling/co/co11192013\\_h28ca2.pdf](http://www.quinnipiac.edu/images/polling/co/co11192013_h28ca2.pdf)

<sup>184</sup> Healy, J. (2014, June 9). Battle over fracking poses threat to Colorado Democrats. *The New York Times*. Retrieved from <http://www.nytimes.com/2014/06/10/us/battle-over-fracking-poses-threat-to-colorado-democrats.html>

<sup>185</sup> Ibid.

Task Force to make recommendations to better coordinate state and local decision-making on hydraulic fracturing. In addition, the state agreed to drop its lawsuit against the city of Longmont.<sup>186</sup>

The governor's agreement to pursue greater integration of local input in state decision-making was largely caused by the unique political and temporal circumstances in which the ballot measures arose. First, the circumstances were unique in that the state elections were tightly contested between Democrats and Republicans; in Texas and Oklahoma, Republicans completely dominate the state government and so these ballot measures would not have provoked any anxiety in the largely pro-energy, Republican candidates. However, Colorado's mixed government<sup>187</sup>—and particularly the vulnerability of the Democratic Party during the 2014 election—made the ballot proposals an enormous risk for many candidates. In addition, issues related to hydraulic fracturing are uniquely difficult for Colorado politicians because the candidates must appeal to multiple interest groups, including environmentalists, proponents of the oil and gas industry, ranchers, farmers, retirees, and so on. In contrast, proponents of the energy industry in Texas and Oklahoma wield such a disproportionate degree of influence that other interest groups can be largely ignored during elections.

#### The Oil and Gas Task Force of 2014

Governor Hickenlooper created the Oil and Gas Task Force by Executive Order on September 8, 2014. In the order, the governor addressed the unique and occasionally opposed goals of state and local governments: “The Colorado Oil and Gas Conservation Commission ‘COGCC’ is charged with fostering the responsible development of Colorado’s oil and gas resources in a manner consistent with the protection of public health, safety and welfare.... At the same time, counties and municipalities provide planned and orderly development within Colorado and have broad statutory authority to balance human needs and environmental concerns when regulating the use of land within their boundaries.”<sup>188</sup> Acknowledging the overlap between each body’s claims to jurisdiction over oil and gas production, Hickenlooper mandated the purpose of the Oil and Gas Task Force “to reach agreement on recommendations for policy or legislation to harmonize state and local regulatory structures... that benefits Colorado’s economy, quality of life, health, environment and wildlife.”<sup>189</sup> The membership was

---

<sup>186</sup> As mentioned earlier, Longmont continued its appeal anyway.

<sup>187</sup> As of 2015, Democrats control Colorado’s House and Republicans dominate the Senate. Governor John Hickenlooper is a Democrat.

<sup>188</sup> Colorado Office of the Governor. (n.d.). *Executive Order B 2014 005*. Retrieved from <http://dnr.state.co.us/ogtaskforce/Documents/EOCreatingOGTaskForce.pdf>

<sup>189</sup> Ibid.

appointed by the governor and included six representatives of the oil and gas industry, the agricultural industry, and the home-building industry, six representing local government and the conservation community and seven representing “a variety of interests.”

The members of the Oil and Gas Task Force met on seven occasions between September 2014 and February 2015. Each meeting was open to the public, such that the only communication that took place between Task Force members during this period was in the context of these open meetings.<sup>190</sup> The nine approved recommendations<sup>191</sup> addressed a variety of issues related to hydraulic fracturing policy, including a recommendation to enhance the LGD program,<sup>192</sup> to increase the COGCC’s regulatory staff,<sup>193</sup> and to create information clearinghouses, human health risk assessments, a health complaint line, and a compliance assistance program.<sup>194</sup> Other recommendations also included measures to reduce traffic associated with oil and gas development and to implement air quality rules that placed controls on hydrocarbon emissions.<sup>195</sup> The Oil and Gas Task Force approved and sent all nine measures to Governor Hickenlooper on February 24, 2015.

The Task Force’s recommendations received a mixed response. Proponents of local control felt that the Task Force had not only neglected to recommend greater authority for local governments, but had also failed to clarify the current division of authority between local and state governments. Chairwoman Gwen Lachelt called the results “a big disappointment” and task force member Matt Sura admitted, “We failed.... [W]e didn’t enhance local authority; we didn’t even clarify the authority they have.”<sup>196</sup>

---

<sup>190</sup> Colorado’s open meetings law required that “whenever two or more Task Force members discussed any matter related to the issues of the Task Force such discussions must be 1. Open to the public and the press, 2. Noticed to the public and press, and 3. Minutes were to be taken of such discussions.” See Colorado Oil and Gas Task Force/Keystone Center. (2015). Colorado Oil and Gas Task Force Final Report. Denver, CO: Office of the Governor. Retrieved from <http://dnr.state.co.us/ogtaskforce/Documents/OilGasTaskForceFinalReport.pdf> .

<sup>191</sup> Each recommendation required a two-thirds majority vote to be approved. See Colorado Oil and Gas Task Force/Keystone Center, 2015.

<sup>192</sup> This refers to Recommendation 25, which enhances the Local Government Designee program. The recommendation suggests enhancing education and outreach to Local Government Designees and augmenting outreach to local governments to better understand and utilize the program. See Colorado Oil and Gas Task Force/Keystone Center, 2015, p. 11.

<sup>193</sup> This refers to Recommendation 27, which proposes hiring 12 additional full time employees to inspect oil and gas wells, conduct environmental investigations, conduct intake and track citizen complaints and perform data analysis for the legislature, the public, the industry, and other stakeholders. See Colorado Oil and Gas Task Force/Keystone Center, 2015, p. 12.

<sup>194</sup> Recommendations 41, 31b, and 52b, respectively.

<sup>195</sup> Recommendations 37 and 49, effectively.

<sup>196</sup> Proctor, C. (2015, February 24). Hickenlooper's oil and gas task force advances 9 recommendations. *The Denver Business Journal*. Retrieved from

Representative Jared Polis, whose support for the ballot proposals inspired the Task Force in the first place, blamed the representatives of the oil and gas industry for the results —“While a strong majority of the task force rose to the occasion and supported common-sense measures to address these issues, unfortunately the oil and gas industry proved they weren’t interested in a compromise or solving the problem.”<sup>197</sup> In contrast, representatives of the oil and gas industry supported the measures (though COGA president Tisha Schuller added that “we would have been content with the status quo.”<sup>198</sup>) Governor Hickenlooper commended the Task Force for their work and resolved to implement their recommendations in future oil and gas policy. Various agencies were relegated with the responsibility to implement the recommendations, from the Governor’s Office to the General Assembly to the Colorado Department of Public Health. A few recommendations have been included in the state’s recent budget; others require state legislation to become codified in state law. The only two recommendations that addressed local input in the state’s hydraulic fracturing policy were delegated to the COGCC, which is currently responsible for implementing the proposals into state policy.

#### The Recommendations Addressing Local Control: 17 and 20

Recommendation 17 is designed to facilitate collaboration between local governments and operators in the siting of large-scale oil and gas facilities for the purpose of reducing impacts to and conflicts with hosting communities.<sup>199</sup> The Task Force planned to integrate local input in the siting process by “enhancing local government participation during the COGCC Application for Permit to Drill (APD) process,” which would also “include siting tools to locate facilities away from residential areas when feasible. Where siting solutions are not possible, the Director [of the COGCC] would require mitigations to limit the intensity and scale of the operations, as well as other mitigations, to lessen the impacts on neighboring communities.”<sup>200</sup> Therefore, an operator would be legally required to “obtain local government consultation” during the APD process, which would provide local governments with “a defined and timely opportunity to participate in the siting of such large scale multi-well oil and gas production facilities before the Operator finalizes those locations.” The process also rewards operators for

---

[http://www.bizjournals.com/denver/blog/earth\\_to\\_power/2015/02/hickenloopers-oil-and-gas-task-force-advances-9.html](http://www.bizjournals.com/denver/blog/earth_to_power/2015/02/hickenloopers-oil-and-gas-task-force-advances-9.html)

<sup>197</sup> The Associated Press. (2015, February 24). Oil-Gas Panel Suggests Consulting Role for Local Government. *The New York Times*.

<sup>198</sup> Ibid.

<sup>199</sup> Colorado Oil and Gas Task Force/Keystone Center, 2015.

<sup>200</sup> Ibid.

developing their plans in conjunction with local development plans by offering expedited permit approvals, and requires that operator consultation with local governments must “be designed to anticipate community concerns.”<sup>201</sup> In the event that local governments and operators cannot agree on a site for oil and gas development, representatives of the COGCC must mediate the agreement.

This recommendation appears to advance a great deal of power to local governments because they are legally guaranteed a process in which their input and preferences must be taken into account by oil and gas operators. However, the recommendation does not allow for local bans on hydraulic fracturing; the requests by local government concerning location “must be based on a set of established reasonable standards or criteria addressing land use and surface related issues resulting from the proposed oil and gas operation, balanced with consideration of responsible development, production and utilization of the natural resources of oil and gas in the state.”<sup>202</sup> Nonetheless, the recommendation is a significant advance for local control over hydraulic fracturing and addresses one of the most important concerns of local governments, which “have expressed the need for more involvement earlier in the process of permitting oil and gas locations... in order to represent land-use impacts and community concerns.”<sup>203</sup>

Recommendation 20 advances local decision-making by requiring “operator registration with certain Local Government Designees (LGD<sup>204</sup>) and upon the request of a municipal LGD, submission of operational information for the purpose of incorporating oil and gas development into local comprehensive plans.”<sup>205</sup> This means that Operators drilling or planning to drill in a local community are required to register those plans with a representative of the local government. In turn, the municipality will identify areas within its borders in which it anticipates minor, significant, or insurmountable siting conflicts with the operator’s intended drilling plans. The recommendation advances local authority by giving local governments the opportunity to identify preferred sites for hydraulic fracturing, as well as by implicitly requiring that operators consider the preferences and plans of local governments before

---

<sup>201</sup> Ibid.

<sup>202</sup> Ibid.

<sup>203</sup> Ibid.

<sup>204</sup> The LGD program was implemented in 1992 to provide a liaison between the local government and the COGCC. LGDs are provided with regular information from the COGCC and free training regarding COGCC rules, processes, and resources. LGDs are also provided with two “Local Government Liaisons” charged explicitly with assisting local governments to navigate the state’s laws. See Colorado Oil and Gas Conservation Commission. (2014). *LGD Fact Sheet 2014*. Denver, CO: Colorado Department of Natural Resources. Retrieved from [http://cogcc.state.co.us/documents/gov/local/LGD\\_Fact\\_Sheet\\_2014.pdf](http://cogcc.state.co.us/documents/gov/local/LGD_Fact_Sheet_2014.pdf)

<sup>205</sup> See Colorado Oil and Gas Task Force/Keystone Center, 2015.

applying for permits. The recommendation is expected to facilitate cooperation between operators and the state government by shaping drilling plans to fit within municipal comprehensive planning, thereby coordinating the two and minimizing conflict.

A crucial element of these recommendations is that neither explicitly addresses the division of jurisdiction between local and state government. In fact, the role of state officials is scarcely mentioned during the recommendations' discussion of the relationship between local governments and oil and gas operators. Although both recommendations seek to increase local input in the process of drilling plans, neither speaks to local *decision-making* on oil and gas policy — for this reason, many advocates for local control claim that the recommendations fail to resolve the issue of local authority. However, Colorado's efforts to enhance local input in state hydraulic fracturing policy constitute a considerable victory for local governments when compared to the actions of states such as Texas and Oklahoma.

The COGCC expressed its intent to conduct outreach meetings in local communities in order to gather input on how to best implement the two recommendations through a press release on June 16, 2015.<sup>206</sup> The COGCC plans to draft the rules after the proposed outreach meetings and before submitting them to formal stakeholders for a final evaluation. The spokesman for the Department of Natural Resources Todd Hartman explained, "We need local government *and* industry input and feedback on these proposals that go beyond the broader discussion that occurred during the task force."<sup>207</sup> In the COGCC's first stakeholder meetings, industry representatives advocated for maintaining the status quo by "keeping the approach clear and flexible and relying on existing rules where possible."<sup>208</sup> However, local government representatives have pushed equally hard for greater local control, particularly with regard to establishing a flexible standard that considers the local impacts of "large-scale" oil and gas sites.<sup>209</sup> Mayor Dennis Coombs of Longmont summarized the sentiment of local government officials at

---

<sup>206</sup> Colorado Oil and Gas Conservation Commission. (2015, June 16). *Press Release: 2015 Governor's Task Force rulemaking, outreach meeting overview*. Denver, CO: Colorado Department of Natural Resources. Retrieved from

[http://cogcc.state.co.us/documents/reg/Rules/GtfRulemaking/GTF\\_Outreach\\_Meetings%20Overview.pdf](http://cogcc.state.co.us/documents/reg/Rules/GtfRulemaking/GTF_Outreach_Meetings%20Overview.pdf)

<sup>207</sup> Proctor, C. (2015, June 19). Colorado to define bigger role for local governments in oil and gas. *The Denver Business Journal*. Retrieved from

[http://www.bizjournals.com/denver/blog/earth\\_to\\_power/2015/06/colorado-to-define-bigger-role-for-local.html](http://www.bizjournals.com/denver/blog/earth_to_power/2015/06/colorado-to-define-bigger-role-for-local.html)

<sup>208</sup> Jaffe, M. (2015, July 8). Industry gets first crack at shaping new Colorado oil, gas rules. *The Denver Post*. Retrieved from [http://www.denverpost.com/business/ci\\_28448301/industry-gets-first-crack-at-shaping-new-colorado](http://www.denverpost.com/business/ci_28448301/industry-gets-first-crack-at-shaping-new-colorado)

<sup>209</sup> Rusch, E. (2015, July 23). Front Range officials weigh in on proposed oil, gas rules. *The Denver Post*. Retrieved from [http://www.denverpost.com/business/ci\\_28524497/front-range-officials-weigh-proposed-oil-gas-rules](http://www.denverpost.com/business/ci_28524497/front-range-officials-weigh-proposed-oil-gas-rules)



the meetings by observing “It needs to be very clear that these new rules are not meant to diminish any aspect of local governments’ existing authority to regulate oil and gas.... [O]therwise we simply can’t support it.”<sup>210</sup>

Anti-fracking groups such as Coloradans against Fracking have also frequented the outreach meetings, in one case rejecting the authority of the COGCC for “failing to regulate energy development” and claiming that the recommendations are insufficient to protect local communities from the industry. A separate environmental group named the Colorado Community Rights has also revived its efforts for a ballot fight in 2016. The ballot proposal’s text almost exactly matches that of the 2014 proposals. Due to the entrenched opposition between the oil and gas industry and local officials, as well as the increasing efforts of anti-fracking groups to inhibit compromises between the two, the COGCC faces a significant battle to implement the two recommendations in such a way that mitigates the divergent preferences of oil and gas officials and local governments. Nonetheless, there is still hope for the implementation of the recommendations and the augmented role of local governments in oil and gas decision-making. In fact, a subsequent lessening of tension between local and state officials implies that simply going through the process of attempting to integrate local preferences may have facilitated cooperation between local communities and the state, and may have even lessened the chances of future bans and ballot propositions. Governor Hickenlooper confidently pointed to “a significant drop in the intensity of frustration” between local officials and the oil and gas industry.<sup>211</sup> He asserted that tension between local officials and the state had significantly lowered since the 2014 election, and that the state’s effort to enhance local input in hydraulic fracturing decisions was responsible for the better relationship: “Part of what was fueling the ballot initiative a year ago was the sense that nothing was happening and that people weren’t being heard and there was no local control.... When I talk to local elected officials now, they feel like we’re moving in the right direction.”<sup>212</sup> Even though the state’s efforts to augment local authority over oil and gas decisions have not yet yielded any rule changes and are still subject to debate, there appears to be some political benefit to simply *trying* to include local input. A political analyst also noted that although anti-fracking groups have revived a ballot initiative similar to the

---

<sup>210</sup> Ibid.

<sup>211</sup> Yachnin, J. (2015, May 27). Colo. governor says state 'moving in the right direction' on fracking. *Greenwire*. Retrieved from <http://www.eenews.net/greenwire/stories/1060019192>

<sup>212</sup> Ibid.

measures advanced in 2014, the “campaigns for next year have not gained as much traction.”<sup>213</sup> Additionally, the efforts to undermine the COGCC outreach meetings and revive the ballot propositions are not backed by elected local officials, but rather activists that will not accept any degree of oil and gas development. For the most part, local representatives (including representatives from embattled cities such as Longmont) are declining to participate in the ballot propositions or campaigns against fracking, instead attempting to work with the COGCC Recommendations in order to advance their input by compromise.<sup>214</sup> The marked decline in tension between local and state government officials, as well as the dedication with which the COGCC is attempting to compromise with local governments, are important indicators that shared governance over oil and gas policy may be possible in Colorado.

Colorado’s experience with negotiating the concerns of the oil and gas industry and local communities illustrates how multiple power centers naturally constrain and complicate decision-making but also make for more balanced, thorough, and mutually beneficial policy. Shared governance is of such enormous import that the state is reaping the benefits of the compromise before the new rules are even finalized. This is due to the lessening tension between local and state officials and their mutual dedication to incorporating local preference intensities, considering the disparate costs, and mitigating the various risks that hydraulic fracturing presents to communities. Therefore, Colorado’s experience constitutes an important lesson for those states struggling with local versus state jurisdiction over oil and gas. Namely, the inclusion of local preferences and perspectives is possible, it does create more balanced and efficient energy policy, and perhaps most importantly, it facilitates cooperation between state governments and local communities.

#### Explanatory Factors: Is Compromise Possible in Other States?

Many of the conditions that gave rise to Colorado’s attempts at shared governance are unique to the state of Colorado and consequently complicate the assumption that dissimilar states can adopt the same method of mitigating the state-local issue. Compared to Texas and Oklahoma, the state of Colorado is remarkably less dependent on the oil and gas industry economically, and the oil and gas industry also has a significantly lesser hold over elected state officials due to the significant influence of environmentalism and other interest groups in the state.

---

<sup>213</sup> Gilmer, E. (2015, June 2). Court keeps activists out of fracking ban lawsuit. *Energywire*. Retrieved from <http://www.eenews.net/energywire/stories/1060019450>

<sup>214</sup> The decision of Coloradan local governments to pursue a compromise with the state government instead of continuing to pass fracking bans is a marked departure from Denton and Stillwater’s moves to continually undermine state policy with subsequent ordinances.

Colorado's history with fracking bans and moratoria may have also uniquely prepared the state for a compromise; having battled numerous cities in courts and lawsuits, it is possible that state officials realized that the continual court battles between cities and the state were not resolving the underlying tensions that gave rise to the cities' initial ordinances. The city of Denton was the first to ever legislatively challenge the primacy of Texas' state government, and certainly the first city to resist oil and gas production in the state. The state of Oklahoma has still not seen a single local fracking ban or moratorium, but the resistance to the state's handling of seismicity emanating from Stillwater and Norman may give rise to more numerous and aggressive moves toward local control over oil and gas production. Given Colorado's lengthy experience with local fracking bans, Texas or Oklahoma might also have chosen a more flexible and compromising manner of mitigating state and local preferences. Finally, Colorado was uniquely suited to create innovative policy because of Governor Hickenlooper's contributions as a policy entrepreneur. Kingdon defines policy entrepreneurs as "individuals with expertise, resources, and a leadership position within an organization and who are willing to bear the transaction cost in advocating for an idea."<sup>215</sup> Governor Hickenlooper was the ideal candidate for a policy entrepreneur as a former geologist and pro-fracking Democratic governor. His dedication to creating a compromise that would satisfy local elected officials as well as prevent the divisive anti-fracking ballots from going to a vote was integral to the creation of the Oil and Gas Task Force and the resulting recommendations for greater integration of local input in state decision-making. If Texas or Oklahoma had a similarly situated policy entrepreneur to mitigate the opposing preferences for state or local control, the implementation of shared governance would be far more likely.

#### Conclusion: What Can Texas and Oklahoma Take From Colorado?

Although this series of explanatory factors predicts Colorado's greater capacity to implement shared governance, it in no way precludes the possibility of similar actions in Texas and Oklahoma. Even if Texas and Oklahoma face greater economic and political pressure from the oil and gas industry, they too might be compelled to pursue a form of shared governance if the enduring fights for local autonomy prove too costly and complex to be mitigated by unilateral state primacy. For although implementing a shared governance model in Colorado is also complex, difficult and enduring, integrating local input also presents more advantages than the comparatively simple yet inefficient method of asserting unilateral

---

<sup>215</sup> Heikkila, T., Pierce, J. J., Gallaher, S., Kagan, J., Crow, D. A., & Weible, C. M. (2014). Understanding a period of policy change: the case of hydraulic fracturing disclosure policy in Colorado. *Review of Policy Research*, 31(2), 65-87.

state primacy as in HB 40 and SB 809. Shared governance naturally improves the completeness of energy policy because local officials are markedly more attuned to local concerns regarding the costs of fracking on the community's health, safety, and quality of life. Input by local governments is also naturally more likely to produce a better balance between the various benefits and costs associated with oil and gas production; to compel the state government to consider the unique preference intensities of hosting cities, and finally to augment the knowledge and appreciation of the varied and substantial risks associated with fracking, from the de-diversification of local economies to induced seismicity.

The inclusion of local input also facilitates cooperation between local and state governments. Although Texas' and Oklahoma's eradication of cities' power to ban fracking had the immediate effect of eliminating the conflict between state and local laws, it in no way resolved the concerns that inspired those local ordinances in the first place. Instead, these aggressive assertions of state power heightened local animosity toward the state government and, importantly, cannot possibly preclude every informal tool that local governments may employ to challenge the authority of the state. Without efforts to include local input, pacify local efforts to challenge state authority and relieve tension between the two levels of governance, local governments in Texas and Oklahoma are sure to continue undermining state policy through other informal tools that constrain decision-making in such a way that is increasingly costly and complex. Although Colorado's effort to establish a form of shared governance has also been costly, complicated, and enduring, its sincere attempt to "use all of its tools" by integrating local input has resolved tensions and inspired cooperation between state and local governments that may soon result in a compromise. Conversely, the legislative arms-race between local and state governments has no end in sight, predicting an expensive, frustrating, and divisive struggle for as long as the state governments of Texas and Oklahoma refuse to include local communities in their decision-making.

# Bibliography

## Scholarship and General Developments

Adgate, J. L., Goldstein, B. D., & McKenzie, L. M. (2014). Potential public health hazards, exposures and health effects from unconventional natural gas development. *Environmental science & technology*, 48(15), 8307-8320.

Bamberger, M., & Oswald, R. E. (2015). Long-term impacts of unconventional drilling operations on human and animal health. *Journal of Environmental Science and Health, Part A*, 50(5), 447-459.

Bradley, D. (2015, March 31). Chemicals Tiny Fraction of Frack Water, But it Adds Up, EPA Finds. Retrieved June 15, 2015.

Bradley, David. (2015, June 4). EPA Study Finds No Overall Impacts on Drinking Water. Environment and Energy Publishing. Retrieved June 8, 2015.

Chemicals and Public Disclosure. FracFocus Chemical Disclosure Registry. Retrieved May 12, 2015.

Davis, C. (2012). Fracking and Sub-state Federalism: State Preemption of Local Regulatory Decisions in Colorado. *Colorado State University*, nd [http://www. google. com/url](http://www.google.com/url), 1-18.

Davis, C., & Fisk, J. M. (2014). Energy abundance or environmental worries? Analyzing public support for fracking in the United States. *Review of Policy Research*, 31(1), 1-16.

Davis, C. (2014, May 9). EPA Seeks Guidance on What Fracking Chemicals, Mixtures Should Be Disclosed. Retrieved June 4, 2015.

Davis, Carolyn. (2015, July 1). Water Used to Fracture Horizontal Wells Increasing Dramatically, Says USGS. Retrieved July 8, 2015.

The Denver Post Editorial Board. (2015, June 11). EPA's reassuring take on fracking. *The Denver Post*. Retrieved June 11, 2015.

Finley, B. (2015, April 23). USGS drafting new hazard maps as oil and gas boom causes quakes. *The Denver Post*. Retrieved June 10, 2015.

Fisher, J. (2015, April 29). Fracking Has Lost a Few Fans, Poll Finds. Retrieved April 29, 2015.

Fisher, J. (2015, May 22). Low Oil/Gas Prices Yield Bankruptcy, Share Offering, Some Forebearance. Retrieved June 15, 2015.

Fisk, J. M. Environmental Governance and Fracking in the US: Lessons Learned From Colorado's Fracking Industry.

Fisk, J. M. (2013). The right to know? State politics of fracking disclosure. *Review of Policy Research*, 30(4), 345-365.

Gilmer, E. (2014, December 15). Industry, enviros dissect mess of litigation as year closes. Retrieved June 17, 2015.

Gilmer, E. (2014, July 28). Silver bullet or long shot? 'Takings' challenges to drilling regs face iffy fate. Retrieved June 17, 2015.

Inglis, J., & Rumpler, J. (2015, January 27). Fracking Failures: Oil and Gas Industry Environmental Violations in Pennsylvania and What They Mean for the U.S. Retrieved May 11, 2015.

Jacquet, J. B. (2014). Review of risks to communities from shale energy development. *Environmental science & technology*, 48(15), 8321-8333.

Jacquet, Jeffrey. "Risks to Communities from Shale Gas Development." *Risks and Risk Governance in Shale Gas Development; Summary of Two Workshops*. By Stern P.C. Washington, D.C.: National Academies, 2014. 51-57. Print.

King, Pamela. (2015, July 2). Fracking could produce at least 15 groundwater contaminants—study. Environment and Energy Publishing. Retrieved July 8, 2015.

King, P. (2015, July 16). Fracking spurred high school dropouts in shale regions-- study. Retrieved July 16, 2015.

King, P. (2015, July 17). Limited Study Ties Fracking to Hospitalizations. Environment and Energy Publishing. Retrieved July 17, 2015.

King, P. (2015, July 22). Shallow wells could present groundwater contamination risk- study. Retrieved July 22, 2015.

- King, P. (2014, September 12.) Study lays groundwork for health research near shale wells. Environment and Energy Publishing. Retrieved June 8, 2015.
- Liroff, R., Fugere, D., Reusner, L., & Heim, S. (2014). 2014 Disclosing the Facts: Transparency and Risk in Hydraulic Fracturing. Retrieved June 10, 2015.
- McFeeley, M. (2012, July 1). State Hydraulic Fracturing Disclosure Rules and Enforcement: A Comparison. Retrieved May 30, 2015.
- Murrill, B., & Vann, A. (2012, June 19). Hydraulic Fracturing: Chemical Disclosure Requirements. Retrieved May 23, 2015.
- Passut, C. (2015, June 18). Feds Say Oil/Gas Downturn Surprised Investors, Dented Manufacturing Sector. Retrieved June 15, 2015.
- Passut, C. (2015, July 6). Study Finds 15 Frack Fluids Would Be Dangerous in Groundwater. Retrieved July 8, 2015.
- Perez-Peña, R. (2015, April 23). U.S. Maps Pinpoint Earthquakes Linked to Quest For Oil and Gas. *The New York Times*. Retrieved June 8, 2015.
- Pless, J. (2012, June). Natural Gas Development and Hydraulic Fracturing: A Policy Makers Guide. The National Center of State Legislatures. Retrieved May 11, 2015.
- Pless, J. (2013, March 1). States Take the Lead on Regulating Hydraulic Fracturing: Overview of 2012 State Legislation. Retrieved May 11, 2015.
- Rawlins, R. A. (2014). Planning for fracking on the Barnett shale: Urban air pollution, improving health based regulation, and the role of local governments. *Improving Health Based Regulation, and the Role of Local Governments*.
- Rubinstein, J., & Mahani, A. (2015). Myths and Facts on Wastewater Injection, Hydraulic Fracturing, Enhanced Oil Recovery, and Induced Seismicity. *Seismological Research Letters*, 86(4).
- Soraghan, M. (2015, June 10). Science Journals look at man-made quakes and misunderstandings. Retrieved June 10, 2015.
- Soraghan, M. (2015, January 29). Senate votes to keep Halliburton loophole; regulation stays with state. Retrieved June 8, 2015.
- Spence, D. B. (2014). Political Economy of Local Vetoes, The. *Tex. L. Rev.*, 93, 351.
- Stern, P. C. (Ed.). (2014). *Risks and Risk Governance in Shale Gas Development:: Summary of Two Workshops*. National Academies Press.

Stern, P. C., Webler, T., & Small, M. J. (2014). Special issue: Understanding the risks of unconventional shale gas development. *Environmental science & technology*, 48(15), 8287-8288.

Summary of FracFocus 1.0 Hydraulic Fracturing Data: User Guide for State Summaries. (n.d.). Retrieved May 30, 2015.

Summaries for the FRAC Act. Library of Congress. Retrieved June 9, 2015.

Wiseman, H. J. (2011). Trade secrets, disclosure, and dissent in a fracturing energy revolution. *Columbia Law Review Sidebar*, 111, 1-13.

## **Texas**

The Associated Press. (2015, April 17). Texas: Bill Prohibiting Cities from Banning Fracking Advances. *The New York Times*. Retrieved June 5, 2015.

The Associated Press. (2015, May 4). Texas: Bill Stops Cities from Banning Fracking. *The New York Times*. Retrieved June 5, 2015.

Baker, M. (2015, May 18). Governor Abbott signs Denton fracking bill. *The Star Telegram*. Retrieved June 12, 2015.

Baker, M. (2014, December 23). Top 10 Stories of 2014: Fracking Fight Shifts from Denton to the Statehouse. *The Star Telegram*. Retrieved June 23, 2015.

Battaglia, N. (2014, November 7). Uncommon Tactics; Fracking Foes sent supporters out on foot and onstage. *Denton Record Chronicle*. Retrieved June 22, 2015.

Borenstein, S. (2015, April 21). Quake scientists find well link. *The Denton Record-Chronicle*. Retrieved June 22, 2015.

Cocklin, J. (2015, February 10). EPA Releases Final Report on Disposal Well- Induced Seismicity. Retrieved June 15, 2015.

Davis, Carolyn. (2015, June 18). Barnett Shale Water Contaminants Point to Need for More Study, Say Researchers. Retrieved June 22, 2015.

Davis, C. (2012). The politics of “fracking”: Regulating natural gas drilling practices in Colorado and Texas. *Review of Policy Research*, 29(2), 177-191.



Dewan, S. (2015, February 23). States Are Blocking Local Regulations, Often at Industry's Behests, Often at Industry's Behest. *The New York Times*. Retrieved June 5, 2015.

Denton gas well fire. (2015, May 8). *The Denton Record Chronicle*. Retrieved June 22, 2015.

Fisher, J. (2014, June 18). Barnett Injection Well Data Released for Quake Research. Retrieved June 15, 2015.

Fisher, J. (2015, May 26). Denton, TX, Braces for Fracking's Return, Protests. Retrieved June 1, 2015.

Fisher, J. (2015, March 31). Drilling- Friendly Texas Bill Advances With Some Changes. Retrieved June 15, 2015.

Fisher, J. (2014, April 10). History, Sprawl, Legacy Wells Put Fracking Focus on Texas Town. Retrieved June 2, 2015.

Fisher, J. (2015, June 12). Injection Well Tests Don't Show Quake Link, Texas Regulator Says. Retrieved June 15, 2015.

Fisher, J. (2015, May 22). Low Oil/Gas Prices Yield Bankruptcy, Share Offering, Some Forebearance. Retrieved June 15, 2015.

Fisher, J. (2015, February 25). Oil, Nat Gas Were Texas Taxman's Friend in 2014. Retrieved June 15, 2015.

Fisher, J. (2015, May 4). Operators Should Bring 'A' Game to Texas Seismicity Hearings, Lawyer Says. Retrieved June 15, 2015.

Fisher, J. (2015, July 29). Production is Guest that Won't Leave Texas Low-Price 'Party'. Retrieved July 29, 2015.

Fisher, J. (2015, March 24). Pro-Drilling Bills Aired in Texas House Committee. Retrieved June 15, 2015.

Fisher, J. (2015, April 21). Researchers: Injection, Extraction Wells 'Likely' Cause of Texas Quakes. Retrieved June 15, 2015.

Fisher, J. (2013, October 9). Shales Make It Rain Severance Taxes in Texas. Retrieved June 16, 2015.

Fisher, J. (2014, October 28). Texas Adopts Quake-Minded Injection Well Rules. Retrieved June 15, 2015.

Fisher, J. (2015, April 14). Texas Bill Targeting Fracking Ban Stumbles in House. Retrieved June 15, 2015.

Fisher, J. (2015, April 17). Texas House Lawmakers Preliminarily Approve Frack-Friendly Bill. Retrieved June 15, 2015.

Fisher, J. (2015, March 12). Texas Local Control Bills Rankle Muni League. Retrieved June 15, 2015.

Fisher, J. (2014, December 5). Texas Fracking Case Draws National Environmental Groups. Retrieved June 15, 2015.

Fisher, J. (2015, March 13). Texas Oil/Gas Industry Barometer Falling; Job Losses Climbing. Retrieved June 15, 2015.

Fisher, J. (2015, April 28). Texas Operators Completing More Gas Wells, Far Fewer For Oil. Retrieved June 15, 2015.

Fisher, J. (2015, February 26). Texas Rig Count, Permitting, Completions Falling. Retrieved June 15, 2015.

Fisher, J. (2015, April 24). Texas Rig Count Proves Again: The Bigger They Are... Retrieved June 15, 2015.

Fisher, J. (2015, April 24). Texas Quake Study Shakes Regulators to Action. Retrieved June 15, 2015.

Fisher, J. (2014, January 21). Quake Plagued Texans "Shake the Ground" in Austin. Retrieved June 15, 2015.

"Gas Well Locator". (2015). Retrieved from "City of Denton; Departments and Services" website at <http://www.cityofdenton.com/departments-services/departments-g-p/gas-well-inspections/gas-well-sites> on November 11, 2015.

Gilmer, EM. (2014, October 1). Texas Lawyer challenges Denton fracking restrictions. Retrieved June 17th, 2015.

Gronewold, N. (2014, August 21). Despite the boom, Texas, La. oil and gas officials rehash complaints about regulation, activists, lawsuits. Retrieved June 17, 2015.

HB 40. (n.d.). Retrieved from <http://www.legis.state.tx.us/BillLookup/Text.aspx?LegSess=84R&Bill=HB40>

Heinkel- Wolfe, P. (2015, June 17). Ban on hydraulic fracturing repealed. *The Denton Record Chronicle*. Retrieved June 22, 2015.

Heinkel-Wolfe, P. (2015, May 31). Crowd in Control: Those seeking answers on HB 40's impact rally in front of City Hall. *The Denton Record Chronicle*. Retrieved June 22, 2015.

Heinkel-Wolfe, P. (2014, November 5). Fracking Banned: Denton voters pass proposition with 59 percent. *The Denton Record-Chronicle*. Retrieved June 22, 2015.

Heinkel-Wolfe, P. (2015, June 1). Fracking protesters arrested: 3 local activists held for a few hours after blocking gas well site. *The Denton Record Chronicle*. Retrieved June 22, 2015.

Heinkel-Wolfe, P. (2015, May 21). Vantage to get back to fracking. *The Denton Record Chronicle*. Retrieved June 22, 2015.

Hildenbrand, Z. L., Carlton Jr, D. D., Fontenot, B. E., Meik, J. M., Walton, J. L., Taylor, J. T., ... & Schug, K. A. (2015). A Comprehensive Analysis of Groundwater Quality in The Barnett Shale Region. *Environmental science & technology*, 49(13), 8254-8262.

King, P. (2014, October 22). Enviro release footage of emissions from Texas oil and gas sites. Retrieved June 17, 2015.

Krauss, C., & Schwartz, N. (2015, June 3). Rick Perry Hones His Image as "Texas Miracle" Fades. Retrieved June 9, 2015.

LaFerney, D. (2015, July 29). Council tables decision on setbacks. *Denton Record Chronicle*. Retrieved July 29, 2015.

Lee, M. (2014, December 8). After Denton frack ban, the wrangling over drilling rules goes on. Retrieved June 17, 2015.

Lee, M. (2015, July 29). After overturning fracking ban, Denton looks to ease other drilling rules. Retrieved July 29, 2015.

Lee, M. (2014, October 9). Advocacy: Outside money pours into fracking-ban fight in Texas. Retrieved June 17, 2015.

Lee, M. (2014, November 5). Denton fracking ban passes with wide margin. Retrieved June 17, 2015.

Lee, M. (2014, November 5). Denton faces lawsuits a day after it passes fracking ban. Retrieved June 1, 2015.

Lee, M. (2014, December 17). Denton tries another approach to protect residents from drilling. Retrieved June 17, 2015.

Lee, M. (2015, June 11). Energy giant denies oil development's role in quakes. Retrieved June 11, 2015.

Lee, M. (2015, June 1). Faced with new Texas law, Denton may retreat from its fracking ban. Retrieved June 1, 2015.

Lee, M. (2014, May 7). Fracking ban aimed at city in heart of Barnett Shale. Retrieved June 17, 2015.

Lee, M. (2015, January 9). Incoming Texas leaders pan fracking bans. Retrieved June 1, 2015.

Lee, M. (2015, April 21). Oil and gas operators likely caused Texas quakes-- study. Retrieved June 8, 2015.

Lee, M. (2014, November 13). Texas legislators look for middle ground in response to Denton ban. Retrieved June 1, 2015.

Lee, M. (2015, May 5). Texas Legislature sends 'no fracking bans' bill to governor. Retrieved June 2, 2015.

Lee, M. (2015, May 11). Teas rejects some injection wells as tremors continue. Retrieved May 13, 2015.

Lee, M. (2014, July 16). Texas town's fracking ban will go to voters. Retrieved June 17, 2015.

Lee, M. (2015, June 17). Texas town overturns fracking ban, looks for ways to challenge state law that forbids it. Retrieved June 17, 2015.

Lee, M. (2014, October 28). 'Trench Fighting' in Texas Town as frack ban comes down to the wire. Retrieved June 17, 2015.

Lee, M. (2015, June 16). Will Big Oil's money sway Texas regulators' decision on energy-earthquake link? Retrieved June 16, 2015.

“Litigation and News”. (2015). Retrieved from “City of Denton; Departments and Services” website at <http://www.cityofdenton.com/departments-services/departments-g-p/gas-well-inspections/news-notices> on November 11, 2015.

Loftis, R. (2015, March 3). Studies Target Health: Research: Problems Subside When People Move Away From Wells. Denton Record Chronicle. Retrieved June 22, 2015.

Malewitz, J. (2015, May 18). Abbott Signs "Denton Fracking Bill" *The Texas Tribune*. Retrieved June 1, 2015.

Malewitz, J. (2015, June 3). After Fracking Ban, Denton Residents Ponder Next Steps. *The Texas Tribune*. Retrieved June 9, 2015.

Malewitz, J. (2014, December 18). Amid Tension, Texas Mulls Oversight of Urban Drilling. *The Texas Tribune*. Retrieved June 9, 2015.

Malewitz, J. (2015, March 23). Confusion Swirls Over Bill to Clarify Drilling Rules. *The Texas Tribune*. Retrieved June 9, 2015.

Malewitz, J. (2015, March 17). Denton Fracking Ban Tees Up Local Control Fight. *The Texas Tribune*. Retrieved June 9, 2015.

Malewitz, J. (2014, December 15). Dissecting Denton: How a Texas City Banned Fracking. *The Texas Tribune*. Retrieved June 1, 2015.

Malewitz, J. (2014, November 5). First Lawsuits Filed over Denton's New Fracking Ban. *The Texas Tribune*. Retrieved June 9, 2015.

Malewitz, J. (2014, December 1). Fracking a “Nuisance,” Denton Tells Court. *The Texas Tribune*. Retrieved June 9, 2015.

Malewitz, J. (2015, July 29). Groundwater Districts Seek Help Tracking Disposal Wells. *The Texas Tribune*. Retrieved July 30, 2015.

Malewitz, J. (2015, July 7). Shale Drilling Leaks More Methane Than Feds Thought. *The Texas Tribune*. Retrieved July 8, 2015.

Malewitz, J. (2015, May 8). Texas House Again Takes Aim at Denton's Fracking Ban. *The Texas Tribune*. Retrieved June 1, 2015.

Malewitz, J. (2015, June 16). Texas, Petroleum Industry Broaden Suits Against Denton. *The Texas Tribune*. Retrieved June 17, 2015.

Malewitz, J. (2015, June 1). Though Fracked Again, Denton Says Fight Isn't Over. *The Texas Tribune*. Retrieved June 9, 2015.

Malewitz, J. (2015, April 29). UT Survey Finds Support for city Fracking Decisions. *The Texas Tribune*. Retrieved June 9, 2015.

Malewitz, J. (2015, May 22). With HB 40 Signed, Fracking to Resume in Denton. *The Texas Tribune*. Retrieved June 1, 2015.

Malewitz, J. & Satija, N. (2015, January 14). Obama's Methane Plan: Why It Matters. *The Texas Tribune*. Retrieved June 9, 2015.

McPhate, C. (2015, June 18). New study reveals potential contamination. *The Denton Record Chronicle*. Retrieved June 22, 2015.

NGI staff report. (2015, November 3). Briefs -- Railroad Commission of Texas, Armour Energy Ltd. Retrieved November 11, 2015.

Passut, C. (2015, June 17). Denton, TX, ‘Strategically Repeals’ Frack Ban; Lawsuits Move Forward. Retrieved June 18, 2015.

Rahm, D. (2011). Regulating hydraulic fracturing in shale gas plays: The case of Texas. *Energy Policy*, 39(5), 2974-2981.

Ramsey, R. (2015, March 12). Analysis: When Local Control is Remote. Retrieved June 9, 2015.

Soraghan, M. (2015, June 18). Texas study finds drilling contaminants in groundwater. Retrieved June 18, 2015.

Steis, A. (2015, May 4). Texas Senate Sends Frack Bill to Governor. Retrieved June 2, 2015.

Texas Administrative Code, Title 16, Part One Chapter Three. Retrieved on May 18, 2015 at [https://texreg.sos.state.tx.us/public/readtac\\$ext.ViewTAC?tac\\_view=4&ti=16&pt=1&ch=3&rl=Y](https://texreg.sos.state.tx.us/public/readtac$ext.ViewTAC?tac_view=4&ti=16&pt=1&ch=3&rl=Y)

“Time Lapse”. (2015). Retrieved from “City of Denton; Departments and Services” website at <http://www.cityofdenton.com/departments-services/departments-g-p/gas-well-inspections/data/time-lapse> on November 11, 2015.

## **OKLAHOMA**

Bradley, D. (2015, April 23). USGS Wants More Frequent Earthquake Studies. Retrieved June 15, 2015.

Charles, M. (2015, July 7). City adopts new oil and gas zoning. *Stillwater News Press*. Retrieved July 8, 2015.

Charles, M. (2015, May 19). City pushes oil and gas ordinance to mid-June. *Stillwater News Press*. Retrieved June 23, 2015.

Charles, M. (2015, July 21). Stillwater City Council tweaks, passes oil, gas well regs. *Stillwater News Press*. Retrieved July 23, 2015.

Cocklin, Jamison. (2015, May 27). Low Oil Prices Restrain Job Growth in Energy-Rich States. Retrieved June 15, 2015.

Conn, A. (2015, May 21). The Science Between OK’s Man-made Earthquakes, Part 1. *FracTracker Alliance*. Retrieved June 23, 2015.

Conn, A. (2015, May 27). The Science Between OK’s Man-made Earthquakes, Part 2. *FracTracker Alliance*. Retrieved June 23, 2015.

Day, C. (2015, July 24). Oil industry report defends wastewater injection. *Stillwater News Press*. Retrieved July 30, 2015.

U.S. Energy Information Administration (EIA). Oklahoma State Energy Profile. Retrieved June 8, 2015 from <http://www.eia.gov/state/print.cfm?sid=OK>

Fisher, J. (2015, May 11). Texas Injection Wells Shut; New Oklahoma Rules Having Effect. Retrieved June 15, 2015.

Hertneky, D. (2015, July 21). Stillwater City Council Passes Strict Regulations on Oil and Gas Drilling. *The Oklahoman*. Retrieved July 24, 2015.

Holland, A. A. (2013). Earthquakes triggered by hydraulic fracturing in south -central Oklahoma. *Bulletin of the Seismological Society of America*, 103(3), 1784-1792.

Holland, A. (2011). Examination of possibly induced seismicity from hydraulic fracturing in the Eola Field, Garvin County, Oklahoma. *Oklahoma Geological Survey Open-File Report OF1-2011*.

Holland, A. (2015, April 21). Oklahoma Geological Survey Position Statement on Seismicity. Retrieved June 8, 2015 from Oklahoma Government Website "Earthquakes in Oklahoma" at [http://earthquakes.ok.gov/wp-content/uploads/2015/04/OGS\\_Summary\\_Statement\\_2015\\_04\\_20.pdf](http://earthquakes.ok.gov/wp-content/uploads/2015/04/OGS_Summary_Statement_2015_04_20.pdf)

Jones, C. (2015, June 22). Oklahoma on record earthquake pace, up 90 percent from over a year ago. *Tulsa World*. Retrieved July 29, 2015.

Krehbiel, R. (2015, June 29). Update: EnergyWire stands by story questioning OU, Oklahoma Geological Survey. *Tulsa World*. Retrieved July,29, 2015.

Lee, M. (2015, June 1). Okla. ban on fracking bans becomes law with governor's signature. Retrieved June 1, 2015.

Marks, J. (2014, December 27). Oklahoma City Company Withdraws Application to Drill for Oil Near Lake Hefer. *The Oklahoman*. Retrieved June 10, 2015.

Monies, P. (2015, June 18). New studies address wastewater disposal link to Oklahoma earthquakes. *The Oklahoman*. Retrieved July 29, 2015.

Monies, P. (2015, July 17). Oklahoma Corporation Commission again expands areas for disposal well scrutiny in wake of earthquakes. *The Oklahoman*. Retrieved July 29, 2015.

Monies, P. (2015, January 26). Several Oklahoma bills target local drilling bans. *The Oklahoman*. Retrieved June 8, 2015.

Monies, P. (2015, July 29). Three disposal wells change operations after earthquakes. *The Oklahoman*. Retrieved July 29, 2015.

Murray, KE. (2014). Class II Underground Injection Control Well Data for 2010-2013 by Geologic Zones of Completion, Oklahoma. Oklahoma Geological Survey Open File Report OFI-2014). Retrieved April 23, 2015.

Nemec, R. (2015, July 23). Stillwater, OK, Sets New Rules for Oil, NatGas Drilling. Retrieved July 23, 2015.

The Oklahoma Corporation Commission. Part 3: Completions, 165: 10-3-10. *FracFocus*. Retrieved April 23, 2015.

Oklahoma Statute 52 O.S. 2011 Section 137. Retrieved from <http://www.oklegislature.gov/osstatuestitle.html>.

Oppel Jr, R., & Wines, M. (2015, April 3). As Quakes Rattle Oklahoma, Fingers Point to Oil and Gas Industry. *The New York Times*. Retrieved June 8, 2015.

Oppel Jr, R. (2015, June 30). Oklahoma Court Rules Homeowners Can Sue Oil Companies Over Quakes. *The New York Times*. Retrieved July 8, 2015.

Passut, C. (2015, July 20). Oklahoma Expands Scope of Disposal Well Directive. Retrieved July 20, 2015.

Passut, C. (2015, June 1). Oklahoma Governor Signs Bill Limiting Local Control of Oil/Gas Activities. Retrieved June 4, 2015.

Passut, C. (2015, April 23). Oklahoma House Passes Bills Limiting Local Control of Oil/Gas Activities. Retrieved June 8, 2015.

Passut, C. (2015, April 22). Oklahoma Quakes 'Very Likely' Caused by Disposal Wells, Say Scientists. Retrieved June 15, 2015.

Passut, C. (2015, July 29). Two Oklahoma Disposal Wells Voluntarily Shut In; Another Halves Injections. Retrieved July 29, 2015.

Revkin, A. (2015, April 24). Oklahoma's Options Now That State and Federal Scientists Confirm Big Earthquake Impact from Water Disposal. *The New York Times*. Retrieved June 8, 2015.

Schlanger, Z. (2015, March 4). Industry Pressure Kept Oklahoma's Scientists Silent on Earthquake-Fracking Link Since 2010: Report. *Newsweek*.



Senate Bill 809. Retrieved from the website of the Oklahoma State Legislature on July 15, 2015 at [http://webserver1.lsb.state.ok.us/cf\\_pdf/2015-16%20ENR/SB/SB809%20ENR.PDF](http://webserver1.lsb.state.ok.us/cf_pdf/2015-16%20ENR/SB/SB809%20ENR.PDF)

Soraghan, M. (2015, July 29). 2 wells temporarily shuttered after Okla. quakes. Retrieved July 29, 2015.

Soraghan, M. (2015, March 9). Amid the shaking, Okla. regulators take a case-by-case approach. Retrieved June 8, 2015.

Soraghan, M. (2015, July 28). Big back-to-back quakes shake Okla. Retrieved July 28, 2015.

Soraghan, M. (2015, May 15). Disposal Well near epicenter of Okla.'s biggest quake was too deep. Retrieved July 8, 2015.

Soraghan, M. (2015, April 24). House hearing on fracking bans veers into induced earthquakes. Retrieved June 8, 2015.

Soraghan, M. (2015, July 8). In oil-friendly Okla., Gov. Fallin moved slowly on 'awkward' issue of quakes. Retrieved July 8, 2015.

Soraghan, M. (2015, March 26). In Okla. quake country, still doubt about links to drilling. Retrieved June 8, 2015.

Soraghan, M. (2015, May 13). More than 200 disposal wells caught in latest Okla. sweep. Retrieved June 8, 2015.

Soraghan, M. (2015, August 19). Oft-shaken Okla. tops last year's quake record. Retrieved August 20, 2015.

Soraghan, M. (2015, July 7). Okla. activists ask EPA to take over regulation of wastewater disposal. Retrieved July 8, 2015.

Soraghan, M. (2015, March 3). Okla. agency linked quakes to oil in 2010, but kept mum amid industry pressure. Retrieved June 8, 2015.

Soraghan, M. (2015, July 17). Okla. boosts scrutiny at disposal wells, hints at volume cut. Retrieved July 20, 2015.

Soraghan, M. (2015, May 26). Okla. lawmaker seeking interim study on quakes. Retrieved June 8, 2015.

Soraghan, M. (2015, April 22). Okla. leaders say they're dealing with quakes, but some want a moratorium. Retrieved June 8, 2015.

Soraghan, M. (2015, June 26). Okla. officials to move within days on disposal measures after streak of quakes. Retrieved June 26, 2015.

Soraghan, M. (2015, April 21). Okla. science agency links quakes to oil. Retrieved June 8, 2015.

Soraghan, M. (2015, July 2). Okla.'s top quake scientist leaving for USGS post. Retrieved July 8, 2015.

Soraghan, M. (2015, June 19). Reduce injection to reduce quakes, but that's not always easy. Retrieved June 22, 2015.

Soraghan, M. (2015, June 18). Studies link quakes to oil and gas wastewater disposal. Retrieved June 18, 2015.

Soraghan, M. (2015, June 23). University of Oklahoma developed quake position while asking oilman for \$25M. Retrieved June 23, 2015.

Staff Report. (2015, April 22). State Rep. Cory Williams seeks moratorium on wastewater disposal wells. *The Stillwater News Press*. Retrieved June 23, 2015.

Stecklein, J. (2015, May 4). Cities face losing control over oil and gas rigs. *Stillwater News Press*. Retrieved June 23, 2015.

Stillwater OKs new rules for oil, gas drilling in city. (2015, July 21). *Houston Chronicle*. Retrieved July 23, 2015.

Stillwater Ordinance 3310. Retrieved July 21, 2015 from [http://stillwater.org/government/city\\_departments/development\\_services/docs/OIL\\_GAS\\_3310\\_APPROVED\\_EXECUTED\\_72015.pdf](http://stillwater.org/government/city_departments/development_services/docs/OIL_GAS_3310_APPROVED_EXECUTED_72015.pdf).

Talley, T. (2015, April 23). House limits cities from limiting oil, gas drilling. *Stillwater News Press*. Retrieved June 23, 2015.

The Washington Post. (2015, June 12). After plunge in oil prices, hope fades for group of long-beleaguered workers. *The Washington Post*. Retrieved July 30, 2015.

Wertz, J. (2015, July 21). Stillwater Approves New Oil and Gas Rules, Industry Says They Might Violate New Law. Retrieved July 23, 2015.

Wilmoth, A. (2015, July 21). Council in Stillwater unanimously approves rules for oil, gas drilling. *The Oklahoman*. Retrieved July 29, 2015.

Wilmoth, A. (2015, July 23). Oil industry warns of cost of proposed disposal well ban in Oklahoma. *The Oklahoman*. Retrieved July 29, 2015.

Wilmoth, A. (2015, July 1). Oklahoma Supreme Court allows earthquake lawsuit to continue. *The Oklahoman*. Retrieved July 29, 2015.

Wines, M. (2015, April 21). Oklahoma Recognizes Role of Drilling in Earthquakes. *The New York Times*. Retrieved June 8, 2015.

## **COLORADO**

The Associated Press. (2014, August 5). Colorado Democrats Avoid Fracking Fight. *The New York Times*. Retrieved May 11, 2015.

The Associated Press. (2015, February 26). Group Backs Off Plan to Put Fracking Ban on Colorado Ballot. *The New York Times*. Retrieved May 11, 2015.

The Associated Press. (2015, February 24). Oil-Gas Panel Suggests Consulting Role for Local Government. *The New York Times*. Retrieved May 11, 2015.

Bartels, L. (2015, March 7). Hickenlooper's oil and gas task force co-chair offers insights: 'disheartening' and 'hopeful'. *The Denver Post*. Retrieved May 11, 2015.

Berwyn, B. (2014, December 5). Report: Fracking chemicals threaten reproductive health. *The Colorado Independent*. Retrieved June 23, 2015.

Bone, E. (2015, July 13). Writers on the Range: A Valley in Colorado fights for its rural life. *The Denver Post*. Retrieved July 30, 2015.

Chemnick, J. (2015, May 18). Colo. will comply with EPA carbon rule, Hickenlooper tells McConnell. Retrieved May 18, 2015.

Colorado Oil and Gas Conservation Commission. (2015, June 16). Press Release: 2015 Governor's Task Force Rulemaking, Outreach Meeting Overview. Retrieved June 16, 2015 from [http://cogcc.state.co.us/documents/reg/Rules/GtfRulemaking/GTF\\_Outreach\\_Meetings%20Overview.pdf](http://cogcc.state.co.us/documents/reg/Rules/GtfRulemaking/GTF_Outreach_Meetings%20Overview.pdf)

COGCC approves stronger penalties in latest regulatory upgrade. (2015, January 5). Press Release by the Colorado Oil and Gas Conservation Commission from the Department of Natural Resources of Colorado website. Retrieved June 23, 2015.

COGCC bulk data for wellbore testing, complaints now available to public. (2015, May 12). Press Release by the Colorado Oil and Gas Conservation Commission from the Department of Natural Resources of Colorado website. Retrieved June 23, 2015.

Colorado Regulators Delay Fracking Rules Action. (2011, December 8). Retrieved June 4, 2015 from <http://www.naturalgasintel.com/articles/print/2405-colorado-regulators-delay-fracking-rules-action>

Colorado Sets Fracking Chemical Rules as 'Model' for U.S. (2011, December 14). Retrieved June 15, 2015 from <http://www.naturalgasintel.com/articles/print/2427-colorado-sets-fracking-chemical-rules-as-model-for-u-s>

Davis, C. (2012). The politics of “fracking”: Regulating natural gas drilling practices in Colorado and Texas. *Review of Policy Research*, 29(2), 177-191.

Decision: Colorado Oil and Gas Association, Plaintiff, v. City of Lafayette Colorado, Defendant. (2014, August 27). State of Colorado Judicial Department. Decision retrieved online on May 11, 2015 from <https://www.erieco.gov/DocumentCenter/View/5736>.

Decision: Colorado Oil and Gas Association, and Colorado Oil and Gas Conservation Commission, Plaintiffs, Top Operating CO., Plaintiff-Intervenor v. City of Longmont, Colorado, Defendant, and The Sierra Club, Earthworks, Our Helath, Our Future, Our Longmonth, and Food and Water Watch, Defendant-Intervenors. (2014, July 24). State of Colorado Judicial Department. Retrieved online on May 11, 2015 from [https://www.courts.state.co.us/userfiles/file/Court\\_Probation/20th\\_Judicial\\_District/Cases\\_of\\_Interest/13CV63%20Order%20Granting%20Motions%20for%20Summary%20Judgment.pdf](https://www.courts.state.co.us/userfiles/file/Court_Probation/20th_Judicial_District/Cases_of_Interest/13CV63%20Order%20Granting%20Motions%20for%20Summary%20Judgment.pdf).

Detrow, S. (2015, February 11). Republicans aim for alternative energy rollbacks in Colo. and elsewhere. Retrieved May 11, 2015.

Dunn, S. (2014, September 7). Energy Pipeline: Brighton oil, gas moratorium sets precedent of cooperation. *Greeley Tribune*. Retrieved July 30, 2015.

Elliott, D. (2015, June 13). Quakes near Colorado wastewater injection well subside. *Stillwater News Press*. Retrieved July 30, 2015.

Executive Order B 2014 005 retrieved from <http://dnr.state.co.us/ogtaskforce/Documents/EOCreatingOGTaskForce.pdf> on June 6, 2015.

Finley, B. (2012, March 10). Colorado oil and gas task force starts sorting out local efforts at regulating growing industry. *The Denver Post*. Retrieved May 11, 2015.

Finley, B. (2015, April 23). USGS drafting new hazard maps as oil and gas boom causes quakes. *The Denver Post*. Retrieved June 10, 2015.

Frank, J. (2015, February 24). As Colorado oil and gas task force finishes, obstacles remain. *The Denver Post*. Retrieved May 11, 2015.

Frank, J. (2015, February 25). House speaker calls oil and gas report ‘disappointing,’ may go to ballot initiative. *The Denver Post*. Retrieved June 15, 2015.

General Rules, Section 205 A: Hydraulic Fracturing Chemical Disclosure. (2015, January 30). Retrieved May 11, 2015 at [http://cogcc.state.co.us/Announcements/Hot\\_Topics/Hydraulic\\_Fracturing/Rule205A.pdf](http://cogcc.state.co.us/Announcements/Hot_Topics/Hydraulic_Fracturing/Rule205A.pdf).

Gilmer, E. (2014, August 20). Colo. city residents ask court to halt industry challenge to fracking ban. Retrieved June 2, 2015.

Gilmer, E., & Lee, M. (2014, July 25). Colo. court strikes down city's fracking ban. Retrieved June 2, 2015.

Gilmer, E. (2014, August 28). Colo. court tosses one city's fracking ban while another keeps fighting. Retrieved June 2, 2015.

Gilmer, E. (2015, June 2). Court keeps activists out of fracking ban lawsuit. Retrieved June 2, 2015.

Gilmer, E. (2014, September 24). Fort Collins to fight for fracking ban in appeal. Retrieved June 26, 2015.

Gilmer, E. (2014, November 25). Industry group sues over local fracking ban. Retrieved June 26, 2015.

Gilmer, E. (2014, August 8). Judge strikes down Fort Collins fracking ban. Retrieved June 26, 2015.

Gilmer, E. (2014, August 8). State withdraws Longmont suit, but city not satisfied. Retrieved June 26, 2015.

Goodland, M. (2015, June 18). Fracktivists: Oil and gas group's new rule blocks opponents. *The Colorado Independent*. Retrieved June 23, 2015.

Healy, J. (2014, June 9). Battle Over Fracking Poses Threat to Colorado Democrats. *The New York Times*. Retrieved May 11, 2015.

Healy, J. (2014, August 4). Deal Struck in Colorado Over Vote on Drilling. *The New York Times*. Retrieved May 11, 2015.

Healy, J. (2014, July 16). Effort to Avoid Vote on Fracking Falters in Colorado. *The New York Times*. Retrieved May 11, 2015.

Healy, J. (2015, January 3). Heavyweight Response to Local Fracking Bans. *The New York Times*. Retrieved May 11, 2015.

Heikkila, T., Pierce, J. J., Gallaher, S., Kagan, J., Crow, D. A., & Weible, C. M. (2014). Understanding a period of policy change: the case of hydraulic fracturing disclosure policy in Colorado. *Review of Policy Research*, 31(2), 65-87.

Jaffe, M. (2015, February 19). 5 months in, Colorado oil, gas task wrestles with conflicting news. *The Denver Post*. Retrieved May 11, 2015.

Jaffe, M. (2012, April 13). Colorado drilling task force tries to defuse state-local battle. *The Denver Post*. Retrieved May 11, 2015.

Jaffe, M. (2015, April 8). Colorado logs fewer violations for each oil and gas well drilled. *The Denver Post*. Retrieved July 30, 2015.

Jaffe, M. (2015, February 25). Colorado oil, gas task force sends 9 measures on to governor's desk. *The Denver Post*. Retrieved May 11, 2015.

Jaffe, M. (2015, February 26). Colorado oil, gas task force roils already troubled waters. *The Denver Post*. Retrieved May 11, 2015.

Jaffe, M. (2015, February 16). Drilling rigs and housing development face off in Colorado suburbs. *The Denver Post*. Retrieved May 11, 2015.

Jaffe, M. (2012, February 29). Hickenlooper forms task force to address drilling regulations. *The Denver Post*. Retrieved May 11, 2015.

Jaffe, M. (2015, July 8). Industry gets first crack at shaping new Colorado oil, gas rules. *The Denver Post*. Retrieved July 8, 2015.

Jaffe, M. (2015, March 8). Nine big Colorado oil, gas drillers reel in spending, steady production. *The Denver Post*. Retrieved August 10, 2015.

Johnson, K. (2011, October 24). Drilling in Fast-Growing Areas Ushers in New Era or Tension. *The New York Times*. Retrieved May 11, 2015.

Lachelt, G. (2012, May 4). Guest Commentary: Colorado's failure to enforce oil and gas rules. *The Denver Post*. Retrieved May 11, 2015.

"LGD Fact Sheet 2014" from the website of the COGCC, retrieved from [http://cogcc.state.co.us/documents/gov/local/LGD\\_Fact\\_Sheet\\_2014.pdf](http://cogcc.state.co.us/documents/gov/local/LGD_Fact_Sheet_2014.pdf).

Mignogna, R. (2012, June 2). Guest Commentary: Inconsistencies in Colorado's energy developments. *The Denver Post*. Retrieved May 11, 2015.

Murray, J. (2015, April 8). Fractivists renew push for Denver moratorium with petition delivery. *The Denver Post*. Retrieved May 11, 2015.

Nemec, R. (2015, August 19). Colorado High Court Asked to Review Local Frack Ban Appeals. Retrieved August 19, 2015.

Nemec, R. (2015, July 27). Colorado Oil/Gas Regulators Reach Out to Local Governments. Retrieved July 28, 2015.

Nemec, R. (2015, June 22). Colorado Starts Process for More Oil/Gas, Local Government Mix. Retrieved June 23, 2015.

Oil and Gas Task Force Final Report (2015, February 24). Retrieved February 24, 2015 from <http://dnr.state.co.us/ogtaskforce/Documents/OilGasTaskForceFinalReport.pdf>

Oil and gas task force makes recommendations related to state and local regulatory jurisdiction. (2012, April 18). Retrieved May 11, 2015 from <http://www.colorado.gov/cs/Satellite/GovHickenlooper/CBON/1251621390178>.

Proctor, C. (2015, June 19). Colorado to define bigger role for local governments in oil and gas. *The Denver Business Journal*. Retrieved June 23, 2015.

Proctor, C. (2015, April 24). Colorado oil and gas task force recommendations are part of state budget. *Denver Business Journal*. Retrieved June 23, 2015.

Proctor, C. (2015, February 24). Hickenlooper's oil and gas task force advances 9 recommendations. *The Denver Business Journal*. Retrieved May 11, 2015.

Quinnipiac University Polling Institute. (2013, November 19). Quinnipiac University Poll: Colorado Gov Has Early Lead in Reelect Bid, Quinnipiac University Poll Finds; Voters Back Fracking, Mixed Signals on Gun Control. Retrieved May 11, 2015.

Rinfret, S., Cook, J. J., & Pautz, M. C. (2014). Understanding State Rulemaking Processes: Developing Fracking Rules in Colorado, New York, and Ohio. *Review of Policy Research*, 31(2), 88-104.

Rusch, E. (2015, July 23). Front Range officials weigh in on proposed oil, gas rules. *The Denver Post*. Retrieved July 28, 2015.

Schwartz, J. (2014, December 22). Natural Gas: Abundance of Supply and Debate. *The New York Times*. Retrieved May 11, 2015.

Simpson, K. (2015, February 18). Weld County agriculture and energy intersect in nuanced relationship. *The Denver Post*. Retrieved May 11, 2015.

Simpson, K. (2015, February 17). Weld County's energy boom moves small towns to revisit identities. *The Denver Post*. Retrieved May 11, 2015.

Staff Writer. (2015, July 24). Erie trustees finalize agreement with Encana oil and gas, delay vote to Aug. 25. *The Denver Post*. Retrieved July 28, 2015.

Tomasic, J. (2015, April 15). Looking at another soft-focus fracking story from the gas patch. *The Colorado Independent*. Retrieved June 23, 2015.

Wines, M. (2013, November 7). Colorado Cities' Rejection of Fracking Poses Political Test for Natural Gas Industry. *The New York Times*. Retrieved May 11, 2015.

Yachnin, J. (2015, April 17). Colo. congressman pulls back from direct role in anti-fracking fight. Retrieved May 11, 2015.

Yachnin, J. (2015, May 27). Colo. governor says state 'moving in the right direction' on fracking. Retrieved June 1, 2015.

Yachnin, J. (2015, March 3). Colo. latest state to reject scale-back of renewable standards. Retrieved May 11, 2015.

Yachnin, J. (2015, January 19). Colo. panel split over question of local control. Retrieved May 11, 2015.

Yachnin, J. (2015, February 4). Drilling task force advances local control, health proposals. Retrieved May 11, 2015.