

# A Summary Report of Colorado's Local-Level Oil and Gas Political Activity: 1973-2015

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# Questions and Comments

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# Executive Summary

Local level political activity in Colorado related to oil and gas development peaked in the late summer of 2014 when Governor Hickenlooper called for a task force to examine and provide recommendations on state and local regulation of oil and gas development. The Governor’s Task Force was a compromise to end a growing conflict that included local-level bans on drilling, ballot initiatives to expand local control, and lawsuits between local governments, the state, and industry. Local political activity is more varied than the events around the Task Force suggest and do not always result in political conflict. Local political activity also includes local governments participating in state-level rule making processes and creating private contracts with industry, researchers presenting results on development impacts, and community groups holding information sessions about the pros and cons of oil and gas development.

This report examines the varied local political activity with two primary goals. The first goal is to *describe the variety of political activity at the local level*. The second goal is to *explain the relationship between the level of oil and gas production in a local jurisdiction and the related local political activity*. Political activities leading to lawsuits between local governments, industry, and the state are more explicitly examined.

Local political activity was identified through “events”, such as policy change, lawsuits, and citizen-led activities, recorded on publicly available online documents including news articles, legal or policy documents, or press releases. Data were collected from multiple government websites, news media archives, legal archives, and advocacy organization websites. Events were coded for multiple attributes in order to quantify the political activity in thirteen targeted Colorado counties. The research identified 579 events between 1973 and the first quarter of 2015.

## Key findings of the research are:

***Local political activity related to oil and gas development is neither new nor confined to low-production counties.*** Political activities occur in jurisdictions with high, low, and no production. The total number of events per low-production county is not statistically different than the events per high-production county, though trends since 2008 suggest more political activity in low-production counties than high-production counties.

***Local governments in high-production and low-production counties are more similar in their political activity than expected.*** When the timelines of the events in high-production counties are compared to low-production counties, both respond early on to development by creating local policies that instigate lawsuits and conflict with the state and oil and gas industry as a result of public concern.

***Conflictual political activity often emerges from oil and gas development or specific development-related incidents near population centers, in both rural and metropolitan areas.*** The events in this report show proximity of development activity to population, including their water sources, plays a larger role in spurring conflictual political activity than only increases in development activities.

# Introduction

The oil and gas industry has expanded rapidly over the last decade through technological advances such as hydraulic fracturing and horizontal drilling. These technologies provide a way for industry to economically extract oil and gas from porous rock formations such as shale and tight sands thousands of feet below the surface. The industry has expanded activity in locations where conventional drilling occurred for years (i.e. the Wattenberg field) by drilling into the porous layers below the traditional locations. It also has spread into new locations where resources have recently been discovered and are now attainable through hydraulic fracturing and horizontal drilling (e.g. the Niobrara shale which extends along most of the Front Range). For example, the leasing activity along the Front Range in Larimer, Weld, Arapahoe, Douglas, Elbert, and El Paso counties increased by more than 100% between 2008 and 2011 (Jaffe, 2011). Along with the industry's recent boom has come visible political activity, including government policy responses and public debates. At the state level, for example, the Colorado Oil and Gas Conservation Commission (COGCC), Colorado's oil and gas regulating agency, made major changes to its rules between 2007 and 2008 to address the new oil and gas development processes and continued its rule changes in 2011 to address chemical disclosure of hydraulic fracturing chemicals and in 2012 to address groundwater monitoring and the setback distance of well sites to buildings. Each of these rule changes included debate between the public, industry, environmental groups, different governments, and the regulators. Throughout this time, news media was rife with coverage on oil and gas development issues, focusing on public concern with hydraulic fracturing and 'fracking'.

Policy researchers examining oil and gas development related political activity in Colorado have largely focused on state-level issues (Heikkila et al., 2014; Davis, 2012). The state-level focus is for good reason: the state government holds the lion's share of regulatory authority over the oil and gas industry. Scholars show opposing coalitions are engaged in influencing Colorado's rule making processes and the use of strategic narratives by industry and environmental advocates alike to shape public opinion (Heikkila et al, 2014; Davis and Hoffer, 2012). These coalitions are made of a wide variety of actors, including government officials, some of whom have elite positions to influence policy decisions (Heikkila et al, 2014; Davis 2012).

A closer examination of state level politics also indicates a lively and significant level of political activity coming from or directed at local jurisdictions. For example, previous state-level research shows local governmental officials not only testify and comment on state-level rules, but many non-governmental policy actors involved in state-level debates prefer local governments to regulate particular issues related to development (Pierce et al., 2013; Heikkila et al., 2014). The state-level research also shows local government representatives have varied levels of support for oil and gas development that uses hydraulic fracturing; some believe it should be stopped or limited, while others wish for it to continue or expand (Pierce et al., 2013). Local-level variation in support of oil and gas development is also found in official comments or statements by local government representatives

made during their participation in state oil and gas rule making processes (for examples see comments on COGCC Rules website <http://cogcc.state.co.us/reg.html#/rules>).

Evidence of local political activity is also presented by news and advocate websites. Grassroots groups are petitioning for citizen initiatives to increase local control over oil and gas development (Food and Water Watch, May 30 2012; Hunter, 2012) and protesting development in towns across Colorado (Hirji, December, 2014; Hunter, 2013; Stroud, 2013). Local policy decisions have made headlines when local policies result in lawsuits between the local government, the state, and/or industry representatives. For example since 2011, seven highly publicized lawsuits in five counties occurred between either county or municipal governments and the state or advocate groups regarding local oil and gas development policy.<sup>1</sup> While conflictual political activity is more commonly reported, there is also evidence of political activity at the local level that does not challenge state authority and focusses more on managing issues related to development. To-date little research has focused on the local government reaction to oil and gas development in Colorado outside of official regulatory action (Minor, 2014).<sup>2</sup>

On the surface, political activity at the local level appears to be concentrated in jurisdictions with relatively little oil and gas development. For example, production in the local level jurisdictions that banned oil and gas development, which were subsequently sued by either the oil and gas industry or the state in 2012 and 2013, accounted for approximately 1% of all oil and gas produced in the state (COGCC COGIS production database). Furthermore, low-production counties such as Boulder and Broomfield have experienced protests against development and have local grassroots groups actively calling to end fracking in their jurisdictions. On the other hand, areas with higher levels of development such as Weld County, accounting for 81% of all oil produced in Colorado in 2013, or Garfield County, accounting for 35% of gas produced in Colorado in 2013, receive fewer stories about oil and gas-related political activity.<sup>3</sup>

This report seeks to provide a systematic review of local political activity across Colorado and provide insights into the varying local reactions in the Colorado. Local-level political activity is explored using an inductive analysis of “events,” such as protests, policy decisions, major spills, or contracts between governments and industry. Information on the events was obtained through publicly available online data including news media, advocate website content, and local and state government databases. As such, this report also addresses a methodological question as to whether available online sources provide sufficient data to draw conclusions on local political activity. With respect to local political activity this report has two major goals:

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<sup>1</sup> Gunnison County v SG Interests in 2011-2012 for potential local regulations; Longmont v COGA and COGCC in 2012 for local regulations; Longmont v COGA in 2013 for a local ban; Lafayette COGA in 2014 for a ban; Broomfield v Sovereign and then against COGA in 2014 for a local ban; Colorado Springs citizens against the city in 2013 to allow vote on ban; Fort Collins v COGA in 2013 for a local ban).

<sup>2</sup> Minor (2014) provides a thorough review of regulatory action and analysis of how local governments should address development in the future.

<sup>3</sup> Garfield and Weld counties are not conflict free. An anti-fracking group, Erie Rising, formed in 2012 in Weld County and environmental groups have conducted multiple air and water studies in Garfield County.

1. **Describe the variety of political activity at the local level.** Local political activity in Colorado is under-studied. Thirteen of the thirty-eight Colorado counties with permits to drill and compare and contrast the political activity in low and high production areas are examined with respect to the volume of political activity. A second, more in-depth analysis of political activities in high and low production counties is completed using Boulder and Weld counties for comparison.
2. **Explain the relationship between the level of oil and gas production in a local jurisdiction and local political activity.** Conventional wisdom would expect areas with more oil and gas activity to encounter more issues and therefore governments would have more potential for public debate and policy development. However, news reports over the past few years in Colorado tend to focus on political debates in low-production jurisdictions. Because of this, population density will be evaluated with political activity as a potential explanatory variable. Qualitative reviews of the data, along with coded data presented over-time, are used to inform the relationship between production and political activity – particularly activity resulting in political conflict between local governments, the state, and the oil and industry.

## Methods

**Key Terms.** Political activity at the local level is defined by the number of events within a jurisdiction (either the county or a municipality) and by specific attributes of each event. Events are defined as a noteworthy action or occurrence that reflects or is a manifestation of politics within a jurisdiction. A noteworthy action or occurrence is one that arguably affects the politics or reveals the politics of a jurisdiction or reveals or affects relations among individuals or organizations involved in policy making in the jurisdiction. Examples of an event includes public protests, official communication between individuals or organizations involved in oil and gas policy making, public announcements related to oil and gas policy or development issues, scientific studies in the area, the creation of new oil and gas policy, and oil and gas activity specifically described as controversial. For two select cases, Boulder and Weld Counties, the political activity is described more in-depth by coding each event using the following criteria:

1. *When* did the event occur:
  - a. Day, month, year of the event
2. *Why* did the event occur
  - a. The subject of the event
3. *Where*:
  - a. Which jurisdiction was affected or targeted by the debate?
  - b. Where did the event occur (i.e. the policy venue)?
4. *Who* was involved in the event<sup>4</sup>

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<sup>4</sup> The individuals and organizations identified in the events are not analyzed in this report. The organization affiliation of each identified policy actor was used to build list of active organizations per county. Other researchers in the Workshop on Policy Process Research (WOPPR) analyzed this data using a web crawling tool. The report is found on the project webpage housed the University of Colorado School of Public Affairs.

5. *What* happened because of the event:
  - a. What was the central action (e.g. regulate, comment, litigate, instruct, announce, inform)
  - b. What policy did the action affect, if any?
6. *How*, or through what mechanism, did the event change policy? If the event was an official policy-related decision or discussion then what authority mechanism was used (e.g. Memorandum of Understanding, public initiative, or ordinance)?<sup>5</sup>

***Jurisdiction Selection.*** Both county and municipal jurisdictions are included in the study. First a set of counties was selected and then municipalities within each county were selected.<sup>6</sup> To avoid bias from high-profile or high-conflict counties, jurisdiction selection was stratified to include both high-production counties and counties with recent conflicts covered by news media regardless of production level. Production level was measured through yearly oil and gas production in 2013.<sup>7</sup> High production counties are defined as those that ranked in the top 4 of oil or gas production in 2013. Six high-production counties were identified and include Weld, Rio Blanco, Garfield, La Plata, Montezuma, and Cheyenne.<sup>8</sup> High conflict counties are those with a lawsuit present between a local government within the county and industry or state from 2008 to 2014. Seven counties with recent news headlines included are Boulder, Larimer, Broomfield, El Paso, Adams, Arapahoe, and Gunnison. County seats and other major municipalities within each county were included in the search for political activity. The seven high conflict counties are also considered low-production counties (See Table 2 at the end of this report for production and conflict summaries for each County). Municipalities included in the study include the county seat and then other municipalities identified inductively during the search for political activities within each county. The selected thirteen counties represent over 30% of the counties with approved or pending drilling permits between December 2012 and October 2014, 95% of oil production and 87% of gas production in the state in 2013 and 2014, and 54% of Colorado’s population.<sup>9,10</sup>

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<sup>5</sup> Originally asked “What was the outcome (e.g. policy change, information exchange, strategy change, no change)?” but this was too difficult to codify in a consistent manner. Some events had potentially many outcomes. Focusing on policy documents instead captures any outputs from a decision – a more finite and identifiable measure.

<sup>6</sup> A cursory review of the local governments involved with state level oil and gas rulemaking processes from previous research (Heikkila et al, 2014) and a review recent news media for local oil and gas-related political activity found the counties most often commenting on state-level policies were not necessarily the same jurisdictions with oil and gas development-related conflicts

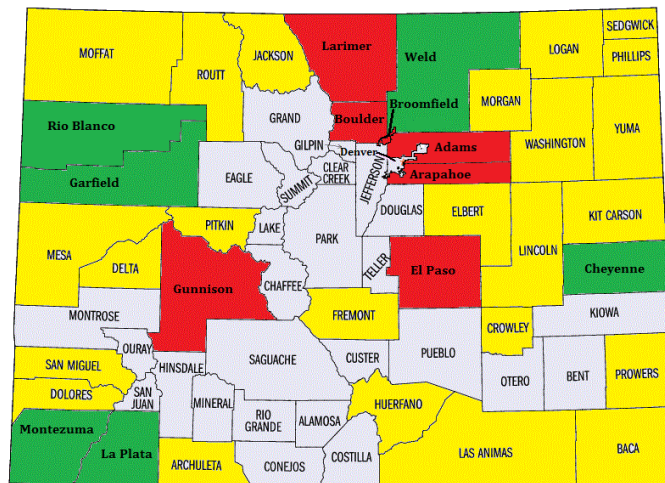
<sup>7</sup> Production numbers from Colorado Oil and Gas Conservation Commission’s COGIS database.

<sup>8</sup> Initially 5 high conflict and 5 high production counties were selected. However after data collection began, enough news stories emerged to include Arapahoe and Adams counties and were then included as low production counties. Rio Blanco is included as a high-production as it is ranked #2 in oil and #6 in gas production in the state, however its oil and gas production is predominately from conventional techniques (i.e. not horizontal drilling and hydraulic fracturing) (Greeley Tribune article <http://www.greeleytribune.com/news/feature2/13743683-113/oil-production-colorado-rangely>).

<sup>9</sup> Thirty-eight counties within Colorado had approved or pending drilling permits between 12/24/2012 and 10/6/2014. From COGCC website

<sup>10</sup> Population data based on the 2013 Census.

Boulder County and Weld County (and the identified municipalities within) were selected for an in-depth analysis of political activities. The two bordering counties vary greatly in their level of production and recent conflict between local jurisdictions, the state, and industry. In 2013, Boulder County was ranked 13<sup>th</sup> in oil production and 16<sup>th</sup> in gas production. In comparison, Weld County was ranked 1<sup>st</sup> in oil production and 3<sup>rd</sup> in gas production in the same time period.<sup>11</sup> Boulder County has high levels of visible political activity related to oil and gas: the county imposed a moratorium on drilling in 2012 (Land Use Resolution 2012-16), has been the site of multiple protests, and after one public oil and gas forum an industry representative was followed to their car by protestors (Weidenbeck, December 29, 2012). Furthermore, beginning in 2011, multiple municipalities within Boulder County passed regulations prohibiting hydraulic fracturing and have been involved in highly publicized lawsuits with the state and industry. Weld County, in contrast, is often found commenting in favor of state rules or modifications to improve production in their county and considered a pro-development county and has noted current state-level regulations are adequate (Vital for Colorado, 2015). Indeed, Weld and Boulder Counties appear to be at opposite ends of the spectrum when local oil and gas regulation are concerned: one Boulder County commissioner was quoted by a local newspaper “Boulder County does not want to be Weld County, and I’m sure the feeling is mutual”, (Antonacci, November 20, 2014). Weld County is, however, home to a local advocacy group called *Erie Rising*, which formed in January of 2012 (CBS Denver, 2012) to advocate for greater distances between oil and gas operations and schools and other sensitive areas in their community (Erie Rising, n.d.).



**Figure 1. Colorado counties included in the study.** Red = Low production counties included in the study; Green = High production counties included in the study; Yellow = Counties with at least one approved or pending permit with COGCC since 2013 that were not included in the study. Grey = Counties without production.

<sup>11</sup> Based on 2013 production levels recorded by the COGCC. Retrieved from the COGCC COGIS database.



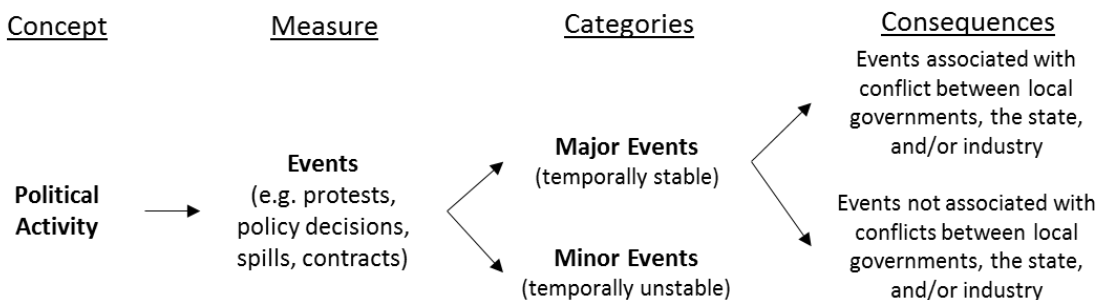
**Data source.** The events to describe the political activity in each jurisdiction were identified through internet searches of public documents on or before the first quarter of 2015. The main sources used to identify events include county and municipal websites, local level news media (e.g. Boulder Daily Camera, Grand Junction Daily Sentinel, Colorado Independent, Four Corners Free Press), state wide news media (e.g. Durango Herald, Denver Business Journal, Denver Post), substantive news sites (e.g. Niobrara News), and public legal documentation (e.g. www.leagle.com) were the main sources used to identify events. Local government websites were searched for regulatory activity or public meetings regarding oil and gas development. News media sources were searched for oil and gas activity reported on at each jurisdiction. Organizations involved in political activity were identified through the various public documents, their organizational websites were scoured for additional information on political activities related to oil and gas development in Colorado. Search terms included the jurisdiction name followed by “hydraulic fracturing”, “fracking”, or “oil development” or “gas development”. Depending on the quality of the source of the data, some events required multiple sources to code the attributes of *when, why, where, who, when, and how* (detailed above).

An issue with available data from online sources is a question of completeness; the data may not be of high enough quality or representative enough to draw conclusions (Singleton and Straits, 2010). With respect to quality, there may be variation between counties in the amount of resources available to document the political activity related to oil and gas which may result in over-sampling in one county and under-sampling in another. With respect to representativeness, historical data are exposed to issues of selective survival and selective deposit (Singleton and Straits, 2010, p. 411). For example, records of some political activities may not have survived over time; they may have been forgotten, lost, or not uploaded to the Internet. An event may not have been documented or data could have been selectively uploaded to websites or altered since their original creation as well. A final issue with available online data is the maturation of the Internet as an option to store and convey information. Each of these issues may result in recent events being more readily available online than past events.

To account for temporal issues with the available data, policy events are categorized into *major* and *minor* groups that correspond to temporally *stable* and *unstable* events, respectively. **Major events** are *temporally stable* and include records that are less likely to fade with time, such as votes to pass a policy, lawsuit filings or a court decision, scientific publications, the signing a memorandum of understanding, and major development related incidents. Major events will likely have official documentation in public records. **Minor events** are *temporally unstable* and include protests, official meetings of lawmakers or policy actors, and hearings to discuss potential policy or voting down a policy, comments on policy, minor judgements at the courts (i.e. allowing parties to join), or decisions by lawmakers unrelated to policy change (i.e. to form an oil and gas advisory group or fund research related to oil and gas). Minor events may be reported in the news or on advocacy websites, but may not have official public record. The denotation of major and minor does not include the relative impact of the event on policy or politics related to oil and gas development.

Bifurcating events into major and minor categories has two advantages. First, major events that are related to each other can be tracked and linked through their documentation. Linking major events

supports efforts to explain the political activities, which lead to conflict between local governments, the state, and the oil and gas industry. For example, a public vote to pass a local ban on hydraulic fracturing resulting in lawsuit filing and then a court decision are easily linked through court documents. Second, validity issues related to using available data, described above, are addressed by focusing the comparative analyses across jurisdiction on major events and using minor events to provide qualitative information and context to major events. Figure 2 below illustrates how political activity is measured by the two categories of events and that major events are used to focus on conflicts between local governments, the state government, and the oil and gas industry.



**Figure 2.** Political activity measured by major and minor events.

## Results

### Description of local political activity from available online data

**Total numbers of events are similar between low and high production counties.** The research identified 579 local events related to oil and gas development across the 13 selected counties between 1973 and the first quarter of 2015. Of the 579 events, 172 (30%) were major events and 407 (70%) were minor events. Low production counties have a higher rate of events than high production counties (see Table 1).<sup>12</sup>

- **Low production counties** accounted for 362 of the 579 events, or 51.7 events per county. Of those 362 events, 108 (30%) were classified as major events resulting in 15.4 major events per low production county. Conversely, 254 (70%) of the 362 events were classified as minor: a rate of 36.3 minor events per low production county.

<sup>12</sup> A two-sample Wilcoxon rank-sum (Mann-Whitney), a non-parametric test suitable for small N samples (N=13), shows differences between the total official event counts of low production and high production counties are not statistically significant with a p-value of 0.6678. Similarly, total unofficial event counts between low and high producing counties were not found to be statistically different using the same statistical test and null hypothesis (p-value = 0.3914). The next section charts data over-time and reveals more nuance between high and low production county event rates.

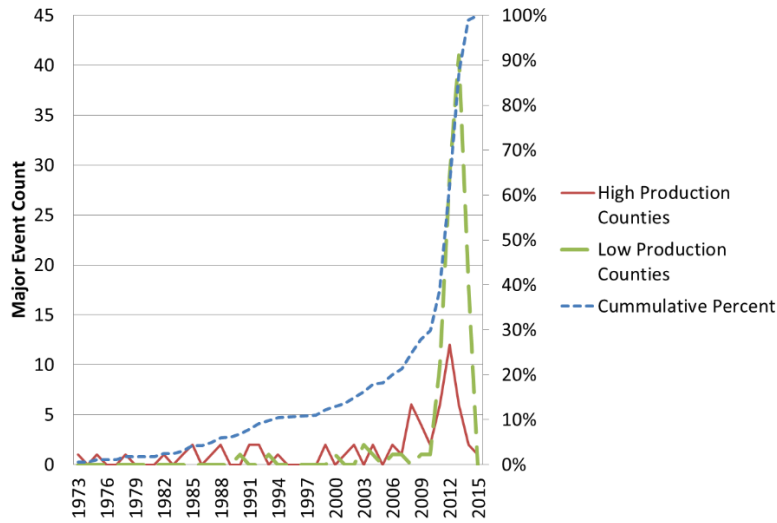
- **High-production counties** accounted for 217 of the 579 events: a rate of 36.2 events per county. Of those 217 events in high-production counties, 64 (29%) were classified as major events: a rate of 10.7 major events per high production county. Conversely, 153 (70%) were classified as minor events: a rate of 25.5 minor events per high production county.

**Table 1:** Total events and rate of events between 1973 and the first quarter of 2015.

| Oil and Gas<br>Production Level | Minor Events |      | Major Events |      | Total Events |      |
|---------------------------------|--------------|------|--------------|------|--------------|------|
|                                 | Count        | Rate | Count        | Rate | Count        | Rate |
| Low Production (n=7)            | 254          | 36.3 | 108          | 15.4 | 362          | 51.7 |
| High Production (n=6)           | 153          | 25.5 | 64           | 10.7 | 217          | 36.2 |
| Total                           | 407          | 31.3 | 172          | 13.2 | 579          | 44.5 |

**Increase in political activity over time.** Local political activity, measured by the number of events related to oil and gas development, has increased over time (Figure 3). Focusing only on major events (e.g. lawsuits, policy changes, major development-related incidents, research programs and publications), the last decade has been significantly more active than any other time period in Colorado’s history for oil and gas-related local political activity. Over 75% of all major local events have occurred since the COGCC updated its rules in 2008 to reflect changes in the industry practices such as hydraulic fracturing and horizontal drilling. Approximately 93% of major events in low production counties have occurred since 2008, compared to only 50% of high production counties’ major events occurring since 2008.<sup>13</sup>

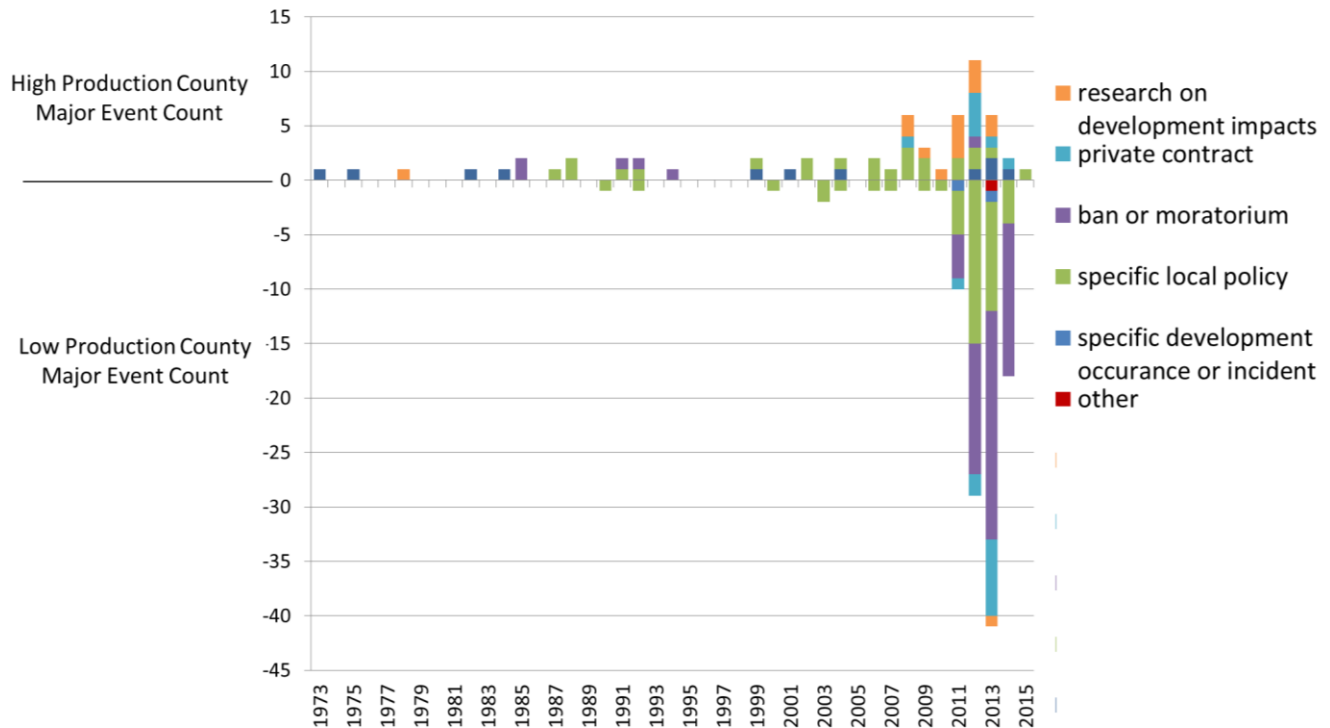
<sup>13</sup> A two-sample Wilcoxon rank-sum test shows differences in official events since 2008 between the low production and high production counties are statistically significant at an 84% confidence level (p-value = 0.1520). This significance level is typically rejected, but does indicate a trend worth investigating. Differences in unofficial events since 2008 between the low production and high production counties are not statistically significant (p-value = 0.3914)



**Figure 3. Count of major events over time for high and low production counties.**

**Local political activities are a mix of cooperative and conflictual actions.** The majority major events in high production counties are local policies that address specific development issues (36% of all major events) and research on development in the area (22% of all major events). A closer examination of the topics of the events categorized as local policies and research since 2008 include actions to address road impacts, and fund research or fund monitoring programs (Figure 4). Conversely, recent major events in low production states are dominated by bans and moratoriums (47% of all major events) and local policies (40% of all major events). The local policy topics in these counties are often aimed at limiting production and have drawn lawsuits from industry or the state. Both low and high production counties have engaged in private contracts with either the industry through memorandums of understanding (MOUs) or with other governments through intergovernmental agreements (IGAs). MOUs are praised by both industry and the COGCC as ways for local governments to reach their local regulatory objectives without over-stepping their authority and avoid litigation (Dunnahoe, 2013).

**High-production counties have roots in conflict.** Today's highest producing counties have the longest history of oil and gas development. In the high production counties, the earliest major events date back to the 1970s, compared to the first major event found in low production counties which occurred in the early 1990s (See Figure 4). The topics of the early events in high production counties are more similar to the contemporary event topics in low production counties: bans, restrictive local regulations, and lawsuits.



**Figure 4. Count of major events by topic for high and low production counties.**

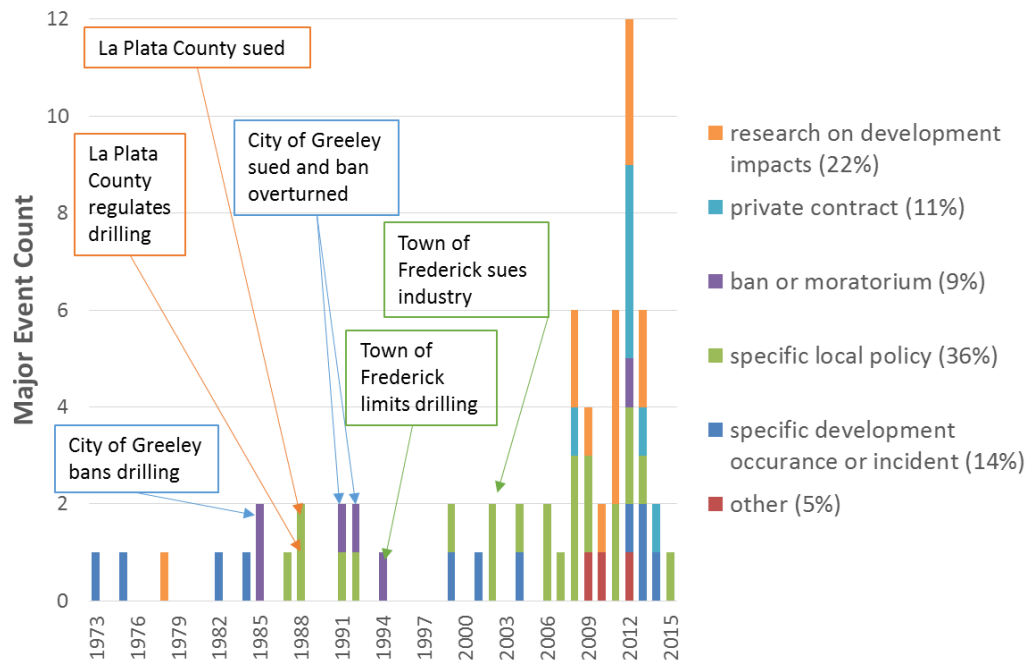
A qualitative examination of the earliest major events shows similar local government reaction in high production counties to the reactions observed in more recent years in low production counties. The early events (i.e. pre 2008) in high production counties offers three vignettes of how local policy decisions to regulate oil and gas development resulted in a high degree of conflict between local governments and industry or the state (Figure 5).

**The City of Greeley, 1985.** In 1985, the citizens of Greeley, the seat of Weld County, voted to ban drilling in the city limits (Greeley Ordinance No. 89, § 4, 1985) and the city council enacted a city ordinance to prohibit drilling in the city limits (Greeley Ordinance No. 90, §§ 1 & 2, 1985). Greeley’s actions were countered by the oil and gas industry and the COGGC in a lawsuit against the City of Greeley that ended in a Colorado Supreme Court decision in 1992 (*Voss v. Lundvall Bros, Inc., 1992*) overturning the ban.

**La Plata County, 1988.** In 1988, La Plata County enacted a new Land Use Code to regulate oil and gas operations (Oil and Gas Regulations of La Plata County, Colorado 1988) and was consequently sued by the oil and gas industry (*Bowen/Edwards v. Board of County Commissioners of La Plata County, 1988*). The lawsuit made its way to the Colorado Supreme Court in 1992 where parts of La Plata County’s regulations were upheld (*Board of County Commissioners, La Plata County v. Bowen/Edwards Associates, Inc., 1992*).

**The Town of Frederick, 1994.** In 1994, the Town of Frederick, also in Weld County, passed an ordinance prohibiting drilling within town limits without a special permit. In 1999, NARCO, an oil

and gas company, began drilling in the town’s boundaries without applying for the required permit and was sued by the Town of Frederick. In 2002, the Colorado Court of Appeals ruled partially in favor of industry and partially in favor of the town. The court concluded portions of the Town of Frederick’s rules related to technical aspects were not permissible due to operational conflict with state law and were struck down, but NARCO was precluded from operating the well that sparked the debate as they had failed to apply for a special permit (*Town of Frederick v. North American Resources, 2002*).<sup>14</sup>



**Figure 5. Major Events in High Production Counties.**

The series of lawsuits in the 1980s and 1990s in high-production counties had lasting effects on local governments’ approach to regulating oil and gas operations. Since the lawsuits in each of the three cases identified above, the local governments in these high-production counties have not attempted to regulate oil and gas operations beyond managing the issues associated with drilling and working directly with industry. The outcomes of the lawsuits also set precedence for how the state and industry react to contemporary local decisions to regulate oil and gas operations. Court cases from the 1980s and 1990s are cited when judgements are made on the recent lawsuits against local regulations.<sup>15</sup> Furthermore, evidence from the minor events shows the state uses the threat of legal action as a means to sway local

<sup>14</sup> Technical aspects included setback distances, noise requirements, and mitigating visual impacts.

<sup>15</sup> *COGA v. City of Longmont*, 13CV63, Colorado District Court (Boulder), 2013; *Sovereign Operating Co. v. City & County of Broomfield*, 14CV30092, Colorado District Court (Brighton), 2014; *COGA v. City of Lafayette*, 3CV31746, Colorado District Court, (Boulder), 2014; *COGA v. City of Fort Collins*, CV31385, Colorado District Court (Fort Collins), 2014.

governments against formulating passing regulations that would be interpreted as violating state law (CBSNews, 2013; COGCC, 2011; Rochat, 2012; Rochat, 2013).<sup>16</sup>

The next section compares and contrasts events in Boulder and Weld counties through three coded attributes: the venues where the event took place (e.g. city council, courts, and county commissions), the levels of local government targeted or affected (e.g. municipal or county government), and the policies documents affected by the policy events (e.g. ordinance or city charter).

## The Cases of Boulder and Weld Counties

**Boulder County background and descriptive results:** Boulder County is a low production county. Between 2008 and 2013 production in the county accounted for 0.5% and 0.15% of all oil and gas production in Colorado, respectively. Boulder County is known for its policies that slow oil and gas development and result in lawsuits with the industry and state. In 2012 Boulder County Commissioners enacted a moratorium on hydraulic fracturing and have since voted its continuance; three municipalities within Boulder County have also voted to ban oil and gas development since 2011 and been sued by the state and industry representatives.<sup>17</sup> Results from the data collection find Boulder County accounts for 31% of the 362 total events identified in low production counties, including 73 minor and 42 major events.

**Weld County background and descriptive results:** Weld County is the highest oil producing county in the state. Production within Weld County accounted for nearly 72% and 12% of all oil and gas produced in Colorado between 2008 and 2013, respectively. Weld County is considered a pro-development county, often aligning with industry on their comments on COGCC rule makings and has stated they find state-level regulations adequate (Antonacci, 2014; Vital for Colorado, 2015). As such, policy decisions in Weld County have not been the focus of political conflict with industry and the state in recent years. The most vocal voice against oil and gas development in Weld County comes from *Erie Rising*. Results from the data collection find Weld County accounts for 31% of the 217 total events identified in high-production counties, including 48 minor and 20 major events.

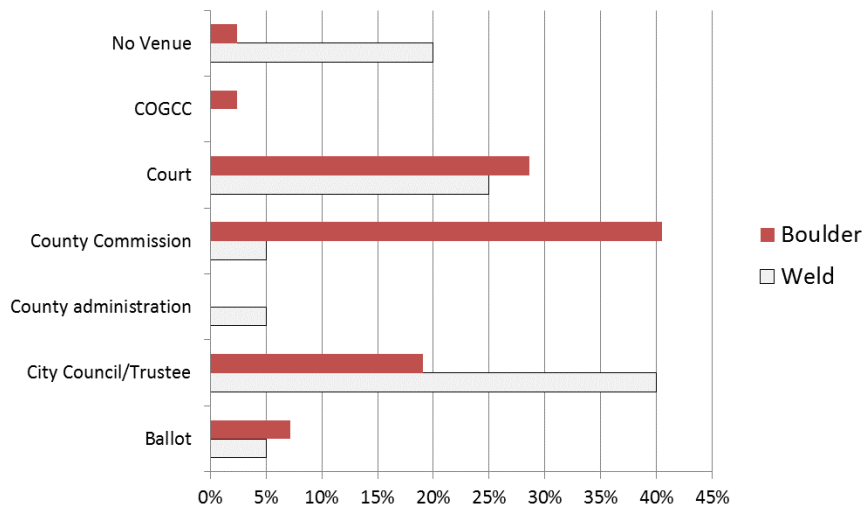
**County vs. Municipal Political Activity:** Each major event was coded for the venue where the event took place (Figure 6), the level of government affected (Figure 7), and the policy document type affected (Figure 8) by the event. For example, if the event was a lawsuit at a district court in which the

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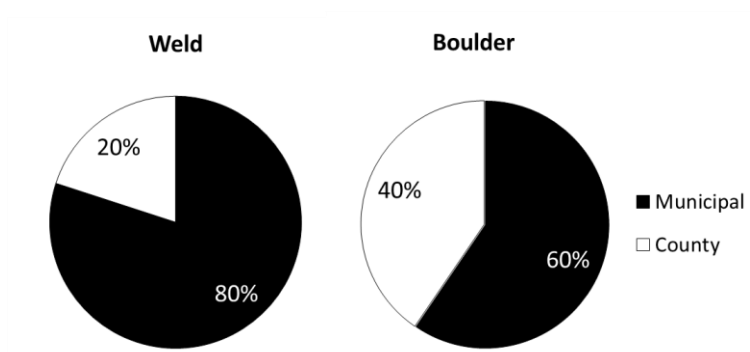
<sup>16</sup> In December of 2011 the Colorado State Assistant Attorney General Jake Matter sends the Commerce City's City Attorney a letter of concern regarding Commerce City's proposed moratorium. On December 16<sup>th</sup>, 2011, the COGCC's Director Dave Neslin sends another letter to Commerce City's City Council also giving warning not to follow through with the moratorium. In 2012 Governor Hickenlooper visited Longmont and warns them against adopting a fracking ban as it could lead to second lawsuit (Rochat, 2013). In February of 2013 Governor Hickenlooper said he would sue any municipality who banned fracking in an interview with Shaun Boyd (CBSDenver, 2013).

<sup>17</sup> In 2011 the City of Longmont, CO city council instructed staff to draft a moratorium on hydraulic fracturing and was passed into law through an ordinance in April 2012. In November of 2012 Longmont voters passed Article 15 to ban fracking. The city of Boulder enacted Emergency Ordinance 7907 in June of 2013 and in November 2013 voters approved ballot Question 2H to suspend fracking. In November of 2013 Lafayette, CO voters passed Question 300 (the Lafayette Community Rights Act) to amend the city charter to ban fracking..

final decision overturned a municipal ordinance regulating oil and gas operations within city limits, then the venue of the event would be coded as the *court*, the affected government would be *municipal government*, and the affected policy document type would be an *ordinance*. The data from major events show a greater percent of political activities in Weld County occur within municipal-level venues or impact municipal governments than those activities that occur in or impact the county. Conversely, political activities in Boulder County are held most often at county-level venues or impact county governments. Of all major events in Weld County, 47% are within municipalities, 25% within the courts, and about 10% within county level venues. Major events within Weld County affected municipal governments 80% of the time and county level governments 20% of the time. Forty-percent of major events in Boulder County are at county level venues, 29% at the courts, and 15% at municipal level venues. Sixty-percent of major events in Boulder County targeted municipal governments and 40% targeted the county.



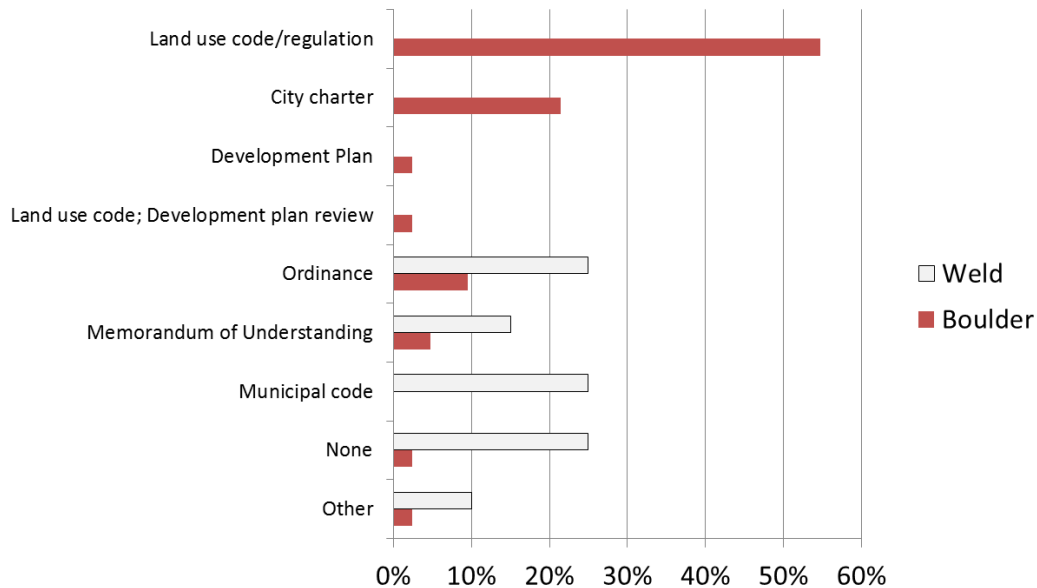
**Figure 6. The percent of venue types in Boulder and Weld counties where major events were held.**



**Figure 7. The percent municipal and county-level governments were affected by major events in Boulder and Weld counties.**



Next policies affected by the events are examined (Figure 8). Examples of policies include ordinances, city charters, and memorandums of understanding. The data show major events in Boulder County were predominately focused on changes to land use codes or regulations and city charter changes. In Weld County, major events affected ordinances, municipal codes, or no policies evenly. Memorandums of understanding (MOUs) were used by local governments in both Weld and Boulder counties, but at a higher rate in Weld County. The policies affected by major events in Boulder and Weld counties reflect the venues where the events were held and show variation in the use of policy tools between the two counties.<sup>18</sup>



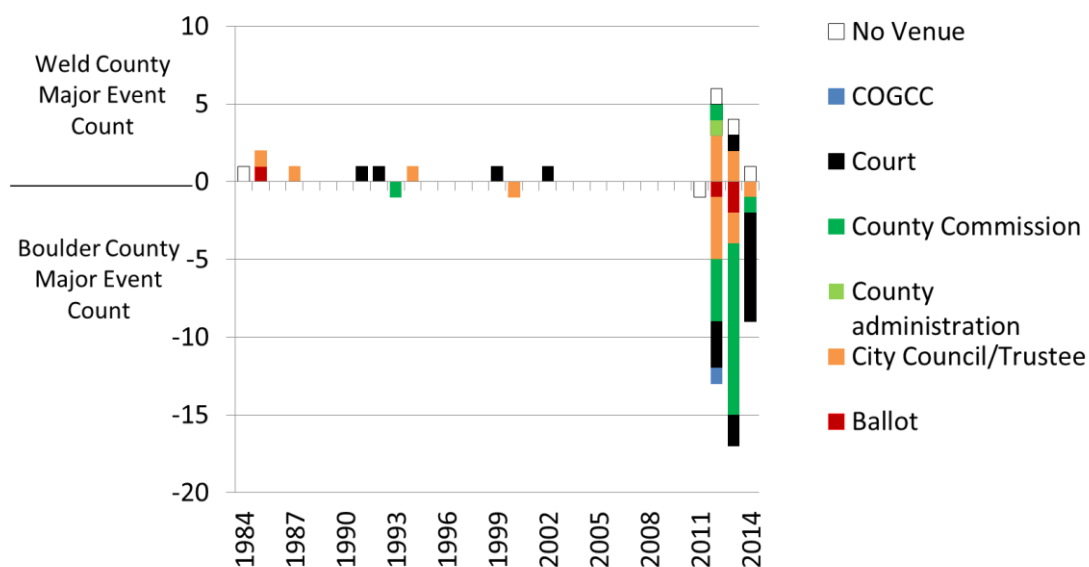
**Figure 8. Percent of policy type affected by major events in Boulder and Weld counties.**

***Political conflict emerges from development-related incident.*** Charting the venues associated with political activity over time shows how much more active the Boulder County government is than Weld County (Figure 9). The Boulder County Commission was the most active venue in 2012 and 2013 when compared to all other venues in the Boulder County. Boulder County Commissioners were involved in imposing, discussing, and extending a moratorium on hydraulic fracturing and updating county-level land use regulations. Weld County Commissioners were not inactive during this time, but their decisions are not as controversial so they may have not required as many multiple public hearings, votes, and updates. A qualitative review of the events shows Weld County is actively addressing multiple issues related to oil and gas development such as water monitoring and development-related road

<sup>18</sup> “How” or authority of change are not discussed directly because of the overlap with policy document and venue. While policy document and the authority used to change the document were both coded, only the policy document is discussed in this report. In some cases, the document and the authority are one in the same (i.e. a decision making body enacts an ordinance and that ordinance is the new law) and at other times the document affected is different than the authority (i.e. a judge rules that an ordinance is invalid). However, the discussion of venues above highlights the different authorities used in the policy events. For example, courts and ballots imply the authority of a judge or citizen vote.

damage. Information from the minor events show Weld County and municipalities within the county are also active at the state-level through their comments on COGCC rulemakings and the Governor’s Task Force on oil and gas (COGCC website; Vital for Colorado, 2015).

Within both Weld and Boulder counties, municipalities are the source of the court-based political activities.<sup>19</sup> As discussed above, in Weld County, the City of Greeley and the Town of Frederick passed regulations resulting in lawsuits between the state and industry. Within Boulder County, the City of Longmont and the City of Lafayette were involved in multiple lawsuits since 2012 regarding local regulations or bans on oil and gas development using hydraulic fracturing.



**Figure 9. Venue type of major events in Weld and Boulder Counties.**

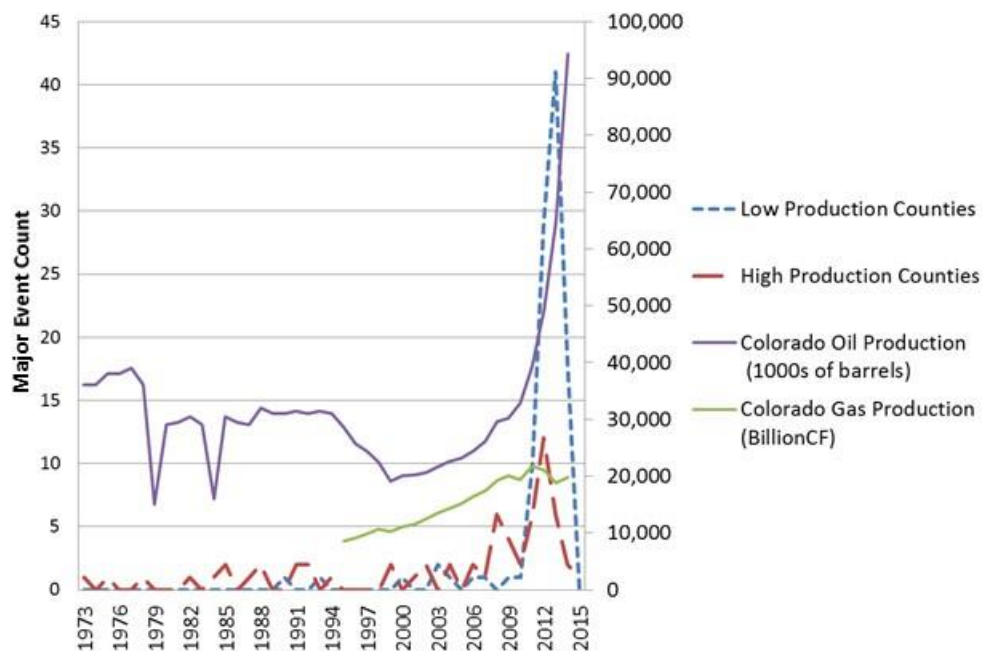
Aligning the two county’s timelines by the first major event, the two counties show more similarities than differences. Boulder County’s timeline of events begins in 1993 when the County enacted an oil and gas Development Plan Review and then when a city within the county (Longmont) in 2000 adopted their original oil and gas regulations. Major events begin again in 2011 when a well near Union Reservoir was found to have been contaminating groundwater for several years. This incident is cited as beginning the local debates in Boulder County against drilling (Dodge, 2013; Rochat, 2011). As referenced above, the first major events found in the online search in Weld County was in 1984 after Wickes Lumberyard exploded from a natural gas build-up (Guffey, 1984) a few miles from Greeley’s city center (Hood, 2014 citing 1985 Greeley Tribune article). Soon after the explosion, the City of Greeley banned drilling in the city limits after and was consequently sued by industry and the COGCC. After the lawsuits involving Greeley and other local governments in Weld County between the late 1980s and

<sup>19</sup> The only identified event at a court in Weld County since 2008 was in 2013 and was initiated by Jared Polis who sued an operator to stop drilling next to his property (Brennan, 2013).

early 2000s, events in Weld County did not emerge again until 2012 when the County updated their oil and gas permit application.

## The relationship between oil and gas production and local political activity

**The level of local political activity is not directly related to the level of production:** The number of major events and oil and gas production in Colorado have both increased over the past few years to levels greater than any other time in the last 30 years (Figure 10). The level of political activity since the early 2000s does track with the increase in oil and gas production in the state, but Figure 10 also shows low-production counties have had nearly four-times the number of major events since 2012 than the high-production counties.



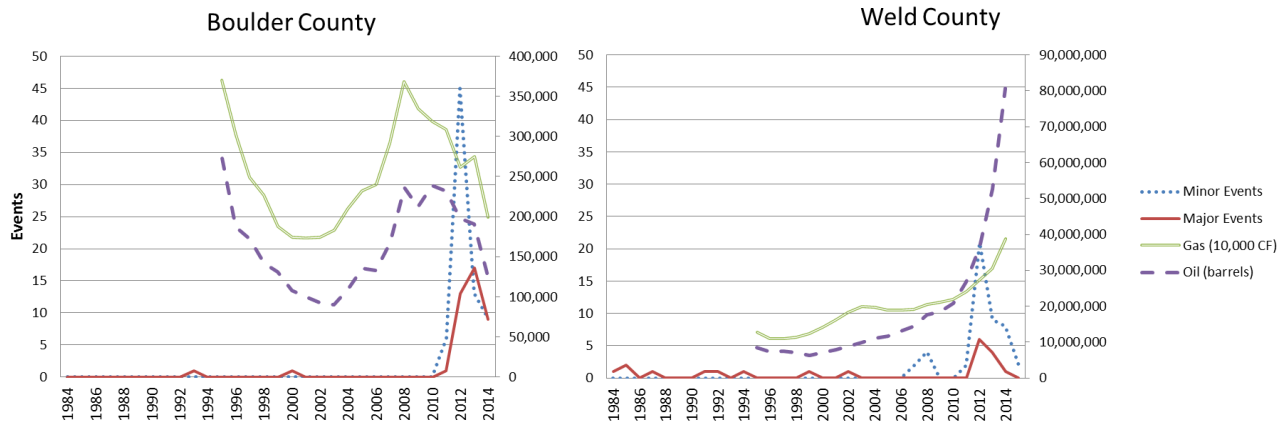
**Figure 10. Oil and Gas Production and Major Events in High and Low Production Counties.**<sup>20</sup>

Boulder and Weld counties are representative examples of the differences in political events between high and low production counties. The number of major and minor events in Boulder County is twice to three times greater than the number of events in Weld County, but production levels in Boulder County are less than one percent of production in Weld County (Figure 11). Change in production levels does not appear to account for the differences in Boulder and Weld either. Boulder experienced more than a 100% increase in oil production from 2003 to 2008 (from approximately 100,000 barrels/year to 250,000 barrels/year), but since then production has dropped to around 125,000 barrels/year. Political

<sup>20</sup> Pre-1995 gas production reports do not include CO<sub>2</sub> and so are left out due to change in reporting. Pre-1995 oil production estimated from graphic created by COGCC and presented on Nov 6, 2013 by Director Matt Lepore to the IOGCC 2013 Annual Meeting and From Greeley Tribune story Jan 4, 2015 “Energy Pipeline: Colorado’s oil production flips between fields” provided to story by Tom Kerr.

<http://www.greeleytribune.com/news/feature2/13743683-113/oil-production-colorado-rangely>

activity in Boulder County, on the other hand, increased after production declined in the county beginning in 2008. Production in Weld County increased from 10,000,000 barrels/year in 2003 to 20,000,000 barrels/year in 2008 and as of 2014 was at 80,000,000 barrels/year, but political activity based on event counts in Weld County peaked in 2012.



**Figure 11. Production and event count in Boulder and Weld County.** Note the production scale between Boulder County and Weld County (right side scale) are different

**Political activity resulting in conflict between local governments, the industry, or the state is related to public concern over development-related events.** Table 2 below shows the event counts for each county, lawsuit record, production data, and population density. Contrary to the expectation that political activity would correlate with population density, no statistical relationship is found between total event counts for each county and the county’s population density.<sup>21</sup> However, a qualitative review of the major and minor events surrounding conflictual political activity between local governments and the industry or the state, highlights a more nuanced relationship between population density and local political activity.

**Weld County:** As noted above, the Town of Greeley’s decision to ban drilling in their city limits came after a lumberyard exploded due to natural gas buildup inside and the source was believed to be from previously drilled wells (Guffey, 1985).

**Boulder County:** Similarly, political activity in Longmont, CO and at the Boulder County Commission began after groundwater contamination occurred near Union Reservoir and Trail Ridge Middle School in 2011. The public concern over this event reportedly led to moratoriums in the City of Longmont in fourth quarter of 2011 and Boulder County in the first quarter of 2012(Dodge, 2013).

<sup>21</sup> Spearman R, a non-parametric correlation test, showed no significant relationship between population density and official events (Spearman rho = 0.2366; p-value = 0.4364) or unofficial events (Spearman rho = 0.2473; p-value = 0.4154).

**Adams County.** Political activity and conflict emerged in Commerce City after drilling rigs appeared on county-owned land next to Reunion Neighborhood in November 2011 (CBS Denver, 2011). By mid-December of the same year Commerce City had passed a 6-month moratorium (7NewsDenver, 2012).

**Garfield County.** Political activity in Garfield County began with citizen concern over local air quality in 2000 and, as a result, the Grand Valley Citizens Alliance began an air monitoring program (Garfield County, 2013).<sup>22</sup> Citizen concern increased in the area with reports of water contamination in 2001 (Amos, n.d.). Then, in 2004 the COGCC delivered a Notice of Alleged Violation to Encana in the Mamm Creek area in association with water contamination (COGCC, 2004). Less than a month after the COGCC issued the violation to Encana, Garfield County created an Energy Advisory Board to help the Board of County Commissioners assess the recognized impacts of oil and gas on the “citizens and local governments of Garfield County” (Garfield County, Resolution No. 12.40). In 2005 the County funded a two-year air quality monitoring study across the county (Rada, 2007). Garfield County and the municipalities within the county have since been the focus of multiple health risk studies by the County and other researchers.

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<sup>22</sup> Garfield County is ranked third in oil and number one in gas production in Colorado.

**Table 2. County demographic, production, and event data.**

| County                 | Population 2013 |                                      | Oil Production |                    | Gas Production |                    | Lawsuits*    |             | Minor Events |             | Major Events |             |
|------------------------|-----------------|--------------------------------------|----------------|--------------------|----------------|--------------------|--------------|-------------|--------------|-------------|--------------|-------------|
|                        | Total           | Density<br>persons/mile <sup>2</sup> | Rank<br>2013   | % Total<br>'08-'13 | Rank<br>2013   | % Total<br>'08-'13 | 1973-<br>'07 | '08-'15     | Count        | Rate        | Count        | Rate        |
| <b>Low Production</b>  | <b>2.43MM</b>   | <b>avg = 517</b>                     | <b>2.34%</b>   |                    | <b>0.66%</b>   |                    | <b>1/7</b>   | <b>5/7</b>  | <b>254</b>   | <b>36.3</b> | <b>108</b>   | <b>15.4</b> |
| El Paso                | 655,044         | 293                                  | 37             | 0.00%              | 39             | 0.00%              | No           | Yes         | 36           |             | 12           |             |
| Gunnison               | 15,507          | 5                                    | 36             | 0.003%             | 19             | 0.09%              | Yes          | Yes         | 42           |             | 11           |             |
| Broomfield             | 59,471          | 1,692                                | 17             | 0.21%              | 18             | 0.07%              | No           | Yes         | 13           |             | 12           |             |
| Arapahoe               | 607,070         | 717                                  | 9              | 0.34%              | 22             | 0.02%              | No           | No          | 31           |             | 4            |             |
| Larimer                | 315,988         | 115                                  | 11             | 0.36%              | 24             | 0.02%              | No           | Yes         | 24           |             | 18           |             |
| Boulder                | 310,048         | 406                                  | 13             | 0.48%              | 16             | 0.15%              | No           | Yes         | 73           |             | 42           |             |
| Adams                  | 469,193         | 394                                  | 8              | 0.94%              | 14             | 0.30%              | No           | No          | 35           |             | 9            |             |
| <b>High Production</b> | <b>0.42MM</b>   | <b>avg = 21</b>                      | <b>91.89%</b>  |                    | <b>84.83%</b>  |                    | <b>2/6</b>   | <b>0/6</b>  | <b>153</b>   | <b>25.5</b> | <b>64</b>    | <b>10.7</b> |
| Cheyenne               | 1,890           | 1                                    | 4              | 3.22%              | 13             | 0.31%              | No           | No          | 1            |             | 0            |             |
| Rio Blanco**           | 6,807           | 2                                    | 2              | 11.30%             | 6              | 4.20%              | No           | No*         | 15           |             | 13           |             |
| Montezuma***           | 25,642          | 13                                   | 15             | 0.35%              | 4              | 15.46%             | No           | No*         | 16           |             | 3            |             |
| La Plata               | 53,284          | 30                                   | 23             | 0.08%              | 2              | 20.28%             | Yes          | No          | 22           |             | 6            |             |
| Garfield               | 57,302          | 19                                   | 3              | 5.27%              | 1              | 32.20%             | No           | No*         | 51           |             | 22           |             |
| Weld                   | 269,785         | 63                                   | 1              | 71.67%             | 3              | 12.38%             | Yes          | No*         | 48           |             | 20           |             |
| <b>Grand Total</b>     |                 |                                      | <b>94.23%</b>  |                    | <b>85.49%</b>  |                    | <b>3/12</b>  | <b>5/12</b> | <b>407</b>   | <b>31.3</b> | <b>172</b>   | <b>13.2</b> |

\* Lawsuits counted are those between local governments and other entities. Counties with “\*” indicate a development-related lawsuit has occurred within the county’s boundary or related to land within the county, but the suit was between advocacy groups or individuals, federal government, or industry.

\*\* The majority of Rio Blanco oil and gas is from the Rangely formation which uses conventional oil and gas techniques (rather than horizontal drilling and hydraulic fracturing) “Energy Pipeline: Colorado’s oil production flips between fields” (<http://www.greeleytribune.com/news/feature2/13743683-113/oil-production-colorado-rangely>). From the 1950s to the early 2000s, Rangely field was the largest source of oil in the state.

\*\*\* Montezuma’s production of gas is mostly CO2. COGCC production reports from the COGIS database from 2000 to Present do not differentiate types of gas. Other COGCC production reports of only coalbed and natural gas production (excluding CO2 and coalbed methane), show Garfield as the top gas producer (54% of the state’s total) and La Plata County as the number 2 producer (30% of the state’s total) in 2013.

# Conclusions

***Local political activity related to oil and gas development in Colorado has been occurring for several decades and occurs in both low and high production counties.*** Contrary to the assumption that political activity related to oil and gas development is mainly in low-production counties, the total number of events per low-production counties found between 1973 and the first quarter of 2015 is not statistically different than the events per high-production counties in the same time period. However, the analysis of major events since 2008 suggests more political activity related to oil and gas development is occurring in low-production counties.

***Local political activity is a mix of policy decisions, information gathering and dissemination activities, and public debates.*** Local governments have used a number of policies to address oil and gas development and include land use codes, changes to city charters, ordinances, and private contracts with the industry called memorandums of understanding. They have setup advisory bodies focused on development issues, conducted or funded research and information gathering endeavors such as air and water monitoring programs, road damage assessments, and shared information through public meetings or publications. Local regulations have both restricted oil and gas development and managed issues associated with development without hindering industry's growth. While local political activity is typically found at municipal and county governmental venues, when policy decisions made by local government or the public that restrict development and conflict with state laws, the venues in which the political activity plays out often moves to the courts.

***Local governments in high-production and low-production counties are more similar in their policy responses than expected.*** When the timelines of the events in high-production counties are compared to low-production counties, both respond early on by creating local policies that instigate lawsuits and conflict with the state and oil and gas industry as a result of public concern. Local governments in the Colorado who are currently thought to be pro-development have engaged in policy development as divisive to state laws as some of the current policies pursued by those considered anti-development such as Boulder County, the City and County of Broomfield, the City of Longmont, and the City of Fort Collins. Qualitative reviews of the data show many of public debates and lawsuits in both low and high production counties are a result of development-related events inciting public concern.

***Conflictual political activity often emerges from oil and gas development or specific development-related incidents near population centers, in both rural and metropolitan areas.*** A 2009 report by the Groundwater Protection Council for U.S. DOE argues that the changes brought by oil and gas development result in questions by the public, regulators, and policy makers. The report further argues the changes, and therefore questions and concern, are especially drastic in areas where development is new (Groundwater Protection Council, 2009). This report adds to this argument by showing the changes brought by oil and gas development cause more concern when development occurs *in proximity to human population (large or small)*. Incidents or development near populations, including their water sources, then result in local level political activity and conflictual events between local governments, the state, and industry. Further analysis incorporating time and proximity of wells

will provide more quantitative evidence on the relationship between oil and gas activity, population, and local political activity

Not all oil and gas development triggers political activity or public concern. The events in high and low production counties in this research highlights how specific development related incidents or activity caused public concern which led to conflictual political activity in Colorado. Much of the conflictual political activity was preceded by public concern that was associated with incidents or activity in close proximity to neighborhoods or municipalities. Furthermore, conflictual political activity is not isolated to dense city centers, but rural communities also react when oil and gas development activity draws near or incidents occur next to neighborhoods. Governor Hickenlooper has made reducing the conflict between local governments, the state, advocacy groups, and industry a priority. The Governor's Task Force was one attempt to find a way forward to reduce conflict and balance the regulatory control over the oil and gas industry between local and state levels of government. This research shows a concerted effort to maintain distance between oil and gas development activity, the population, and their water sources, is a way to reduce development-related conflict even further.



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**Appendix 1: Guidelines and Definitions of Local Analysis of Hydraulic Fracturing**

**Version 11.11.14**

|   |   |
|---|---|
| <b>Events (E)</b>                                   | Noteworthy actions or occurrences that reflects or is a manifestation of politics within a jurisdiction. Noteworthy is a significant occurrence that arguably affects the politics or reveals the politics of a jurisdiction. Noteworthy events reveal or affect the individual attributes or relations among policy actors, policy actor beliefs, issues, venues, (E.g., protest, communication between policy actors)<br>A new event occurs if actors, venue, rules of interaction, issue (or time) change. |
| <b>Temporally Stable Event (S) – Major events</b>   | Events that are less likely to fade with time and include records such as votes to pass a policy, lawsuit filings or a court decision, scientific publications, the signing a memorandum of understanding, and major development related incidents.   |
| <b>Temporally Unstable Event (U) – Minor events</b> | Events such as protests, official meetings of lawmakers or policy actors, and hearings to discuss potential policy or voting down a policy, comments on policy, minor judgements at the courts (i.e. allowing parties to join), or decisions by lawmakers unrelated to policy change (i.e. to form an oil and gas advisory group or fund research related to oil and gas).  |
| <b>Time (T)</b>                                     | Temporal identifier. When did the event occur: Day, month, year of event  |
| <b>Topic (Top)</b>                                  | Why did the event occur, what was the overarching subject or salient problem or topic on the public agenda (ban or moratorium, local regulation, development related event, etc)  |
| <b>Jurisdiction Affected by Event (J)</b>           | Legal designated geographical boundary. e.g., county, city, state   |
| <b>Venues of Event (V)</b>                          | Locations where authoritative decisions are made or where debates about authoritative decisions are made. e.g., courts, legislatures, formal rulemaking commissions (vs. media or protests)   |
| <b>Policy Actors (A)</b>                            | Individuals professionally affiliated with an organization involved in the target policy area and dedicated at least some time to hydraulic fracturing politics. E.g., person speaking at public hearing and associated with advocacy group   |
| <b>Organization (OR)</b>                            | The group that the policy actor is affiliated. In some instances an event may cite an organization rather than a policy actor (i.e. “COGA sued the City of Boulder”).   |
| <b>Engaged Citizens (EC)</b>                        | Individuals living in a jurisdiction who participate in politics but are not affiliated with an organization. e.g., person speaking at a public hearing as a citizen  |
| <b>General Public (GP)</b>                          | Individuals living in a jurisdiction  |
| <b>Policy (P)</b>                                   | The policy document of focus – the policy may include multiple issues   |
| <b>Outcomes (O)</b>                                 | The immediate consequence of an event. Include status quo; information gathering; information exchange; strategy changes; rule or law changes; venue shift; multiple outcomes.  |

## Appendix 2: Research Limitations

Data collection of available online information leaves the researcher and reader questioning three major points that can impact the internal validity of the resulting research. First is the variability in the amount of information posted online by news, governments, and other organizations. A case-in-point is the variation in data found between counties. At one extreme is Cheyenne County, with the 4<sup>th</sup> highest level of production, where information for one event was found associated with Cheyenne County and the source of this event was the COGCC's rulemaking records. Boulder County, on the other hand, has detailed records of events related to oil and gas (public hearings, commissioner votes, open houses, information discussions, meetings). The county and municipal websites within Boulder County yielded enough information to account for 105 total events. Weld County is somewhere in-between Cheyenne County and Boulder County in terms of available information. Weld County's website provided information about current regulations and programs associated with oil and gas development, but did not provide information about public hearings or commissioner votes related to these events. The available information found for Weld County and the municipalities within provided evidence for 70 events. The question remains whether the variation in event counts is due to true variation in political activity or due to selective deposit or selective survival of information (Singleton and Straits, 2010), but using multiple sources of information (i.e. newspaper archives and advocacy websites) does ameliorate the uncertainty and improve the internal validity.

A second issue, that of the maturation through increased availability of technology and the public's use of the Internet, may have impacted the observed increase in growth rate in events over-time. The use of the Internet, oil and gas production, and political activity in Colorado related to development have all increased over-time. The bifurcation of events into major and minor events, focusing the majority of analyses on major events, and the breadth of collection sites (i.e. local and state-wide newspapers, government websites, and advocate sites), mitigates some of the data concerns. Official records appear to have staying power as they were found back to 1970s and , as the time-series representation of the data (Figure 11) shows, the major events date back far beyond the earliest minor event. Furthermore, data for many of the major events were found on multiple websites: for example, newspapers and legal archives both gave information the lawsuits and associated local regulations dating back to the 1980s. Maturation of the Internet's use and technology may also work in favor of available online data. For example, the information for one of earliest major events, an explosion near Greeley in 1984, was found in a Google archive of scanned local news articles.

The final concern with available online data is its potential to miss events which happen behind closed doors, in private meetings between stakeholders, or in open conversation which are never recorded. As other research on the politics of hydraulic fracturing at UC Denver (Heikkila, et al., 2014) shows, interviews of policy actors involved in the political activity can give insights into these events. It is notable that the available online data did include some personal communication between government officials and news articles giving insights into some of these more-private events.

Given the above limitations, and the researcher's methodology to mitigate resulting validity issues, the analysis of available data provides valuable insights into the varied political activity in

counties with high and low levels of oil and gas development in Colorado. The qualitative and quantitative data from multiple sources show patterns related to oil and gas development and political activity that can inform our understanding of today's policy debates related to "fracking" and oil and gas development, in-general.