

New rig on the block: spatial policy discourse and the new suburban geography of energy production on Colorado's Front Range

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ABSTRACT

Drawing from the Critical Discourse Analysis and Cultural Sociology of Space frameworks, this empirical analysis explores the discursive struggle between stakeholders of divergent viewpoints as they respond to the newfound spatial proximity of oil and gas extraction to homes and schools in suburban residential areas on Colorado's northern Front Range. Through an analysis of media, policy-making, and neighborhood meeting discourse, this study examines the social construction of space through policy narratives and regional debates about the American West's relationship to extractive industries. Results reveal that the discursive struggle over suburban drilling hinges upon the question of whether industrial activities belong in residential areas and is carried out through competing policy narratives that invoke differing (spatial versus aspatial) policy solutions. The deliberative quality of these policy narratives is constrained by existing spatial policy practices and further constrains democratic engagement.

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Introduction: the new suburban geography of energy production

Oil and gas development is not entirely new to the Western US, nor to the state of Colorado, nor to Colorado's increasingly populous Front Range region.¹ Hydrocarbons have been extracted in commercial quantities there for more than a century, primarily via vertical wells drilled and hydraulically fractured on rural agricultural lands during energy booms in the 1970s, 1990s, and 2000s (Ladd, 2005). What *is* new along the Interstate-25 corridor north of Denver, since roughly 2010, is the unmistakable arrival of drilling rigs and large, multi-well pads in the suburbs. In recent years, the paired extractive technologies of horizontal drilling and hydraulic fracturing have made the hydrocarbon reservoirs beneath suburban communities both accessible and economically attractive to oil and gas operators. Drawn by un-leased mineral rights under densely populated areas and the heightened production potential of multi-well pads that send lateral wellbores up to two miles underground in multiple directions, some operators are now venturing into suburban environs they once ignored (Healy, 2013).

The newfound proximity of oil and gas development to suburban homes and schools has become a matter of intense public policy controversy in Colorado, magnified further by operators' efforts to spatially condense their operations when drilling in suburban locations. Multi-well pads concentrate the overall footprint of extractive activities, to the benefit of the many, but they intensify the scale of extractive activities in the places they are sited, at the expense of the few. A variety of stakeholders with widely divergent perspectives have clashed (and continue to clash) in a nationally scrutinized

debate over the meaning of this new suburban geography of energy production and its social, environmental, and economic effects (Wines, 2013). Their discursive struggle over suburban drilling is the subject of this study, which utilizes a Critical Discourse Analysis (CDA) approach (Hajer, 1995) informed by the Cultural Sociology of Space (CSS) framework (Richardson & Jensen, 2003) to investigate rival policy narratives and the discursive constructions of space that inform them as they appear in Front Range media, rulemaking comments, and neighborhood meetings.

This investigation launches from arguments made in two separate reviews of the burgeoning hydraulic fracturing literature, both published in 2014. The first, a review of qualitative social science by Willow and Wylie (2014), deemed the recent rise in unconventional oil and gas (UNOG) extraction² in the USA and abroad “a new and urgent lens through which to explore the diversity, dynamism, and politics of human-environment relationships” (p. 3). This investigation begins from their charge, but it also departs from existing discourse analyses of hydraulic fracturing—analytically and theoretically—by explicitly addressing spatiality. It embraces the core argument of a second review article, this one of social and environmental science by Lave and Lutz (2014), which contends that conflicts over UNOG extraction are fundamentally conflicts over the “dramatic geographic shift” in energy production that these extractive technologies are enabling (p. 750). This unprecedented spatial rearrangement is rapidly shifting the socio-environmental costs of energy production away from remote “national sacrifice zones” such as Appalachia and toward “more visible and, in some cases, relatively wealthier areas” that, until recently, had been “both physically and historically distant from energy production” (Lave & Lutz, 2014, p. 750). Indeed, at least 15.3 million Americans now live within a mile of an oil or gas well that has been drilled since 2000 (Gold & McGinty, 2013) and UNOG extraction is also being considered near population centers in the UK, Turkey, India, Poland, and China (EIA, 2011). This study examines a contested spatial policy process in Colorado, but with this broader shift in the geography of energy production in mind.

A case study in spatial policy discourse: Colorado's Front Range

In keeping with Lave and Lutz (2014), public policy debates over the new suburban geography of energy production must be understood at least partly as conflicts over space: where particular kinds of energy production are permissible and where they are not, as well as to whom, under what circumstances, and with what implications for “the symbolic meanings and practical workings” of the spaces and places involved (Richardson & Jensen, 2003, p. 8). Colorado's debate makes for a compelling case study of changing energy geographies because the policy question at its core is a profoundly spatial one: *what is the appropriate distance between oil and gas operations and buildings such as homes and schools that are occupied by people?* While this distance (called a “setback”) is expressed in spatial policy language as a length (i.e. 500 feet), it actually marks the radius of a circular buffer around a wellhead. As elsewhere, setbacks in Colorado are “highly politicized and negotiated space” (Fry, 2013, p. 8). Because there is no straightforward empirical basis for establishing setbacks, their dimensions are the product of regulatory reconciliations between the available science, statute and case law, and competing values, such as public health and safety, environmental quality, and the property rights of mineral owners (Aguilar, 2013).

The setback question took on a new level of urgency in Colorado in 2009, after a successful experimental well completed in the Niobrara Formation launched a horizontal drilling boom on the margins, and in the midst, of several of Colorado's northern Front Range communities. The number of horizontal wells drilled in Weld County, the heart of the oil and gas field, grew from 5 in 2009 to 3273 between 2010 and 2014. Of the new wells permitted statewide between 2009 and 2014, a quarter sat within 1000 feet of a building (Colorado Oil and Gas Conservation Commission [COGCC], 2014). In the same timeframe, five Front Range municipalities responded by banning or delaying hydraulic fracturing within their city limits. In early 2013, the COGCC responded by increasing its minimum setback distance from 350 feet from any occupied building in a high-density area to 500 feet from homes and 1000 feet from high-occupancy buildings such as schools (COGCC, 2013). The new

setback distances did not appease opponents of suburban drilling, however. Four of the five municipalities that adopted bans or moratoria did so after the setback change.

Two referenda that aimed to ban hydraulic fracturing statewide followed in 2014, but were pulled from the ballot in a political compromise that shifted the policy debate to a stakeholder panel. After six months of meetings, that task force unanimously forwarded nine recommendations in early 2015 (COGTF, 2015). Most were aspatial, such as increasing the number of COGCC inspectors. Two were quasi-spatial: that operators submit five-year drilling plans for inclusion in city planning processes and that local officials be included in the well siting process at an earlier stage. The COGCC is expected to take up these suggestions in a rulemaking in late 2015. Meanwhile, state courts have been overturning municipal bans for unlawfully preempting state control of oil and gas development. Many expect that a statewide hydraulic fracturing ban will return to the ballot in 2016. In sum, the state's suburban drilling conflict is far from settled. It is also ripe for discursive analysis.

Examining suburban spaces of energy production

With a few exceptions, existing discourse analyses of hydraulic fracturing have relegated space and place to the margins. Communication scholarship has thus far focused on the role of economic and nationalistic discourses in promoting hydraulic fracturing (Finewood & Stroup, 2012; Hudgins & Poole, 2014; Mercer, deRijke, & Dressler, 2014), the contested meaning of the word “fracking” and people’s top-of-mind associations with the term (Boudet et al., 2014; Evensen, Jacquet, Clarke, & Stedman, 2014), and the development of policy narratives and risk framings in national-level media (Cotton, Rattle, & Alstine, 2014; Jaspal & Nerlich, 2014). While all of these strands of research provide important insights about hydraulic fracturing discourse, none are explicitly grounded in the actual spaces and places in which UNOG extraction occurs. Unfortunately, when spatiality is left out of our analyses, so are two of the most theoretically important aspects of hydraulic fracturing discourse: (1) the ways it communicatively constructs and influences material spaces, and (2), its lessons for energy transitions more broadly. Both areas of inquiry transcend hydraulic fracturing itself. Indeed, the question of how to theorize the links between the discursive and the material is an open one in environmental policy scholarship (Richardson & Jensen, 2003). Our understanding of the spatial and symbolic conflicts associated with changing geographies of energy production is similarly incomplete and policy relevant. Even the move towards a lower carbon future is controversial for bringing renewable energy technologies to places they have not been before (Bridge, Bouzarovski, Bradshaw, & Eyre, 2013). Despite obvious differences between oil and gas wells and wind turbines, both energy technologies spark similar questions about setback distance (Watson, Betts, & Rapaport, 2012).

When existing discourse analyses of hydraulic fracturing do explicitly consider space and/or place, they focus on rural locations (Perry, 2011, 2012). While rural places are an important part of the shift in energy geographies wrought by UNOG extraction, a rural focus overlooks many of the people who now find themselves in close proximity to this form of energy development, such as those who reside in urban and suburban zones of UNOG development in Colorado, Texas, Ohio, California, and elsewhere (Gold & McGinty, 2013; Willow, 2014). Moreover, the literature’s overemphasis on the rural (see also Finewood & Stroup, 2012; Hudgins & Poole, 2014; Mercer et al., 2014) may also serve to further the outdated premises of the energy research of past decades, such as the boomtown literature of the 1970s, which assumed the spatially concentrated extraction of a finite resource from rural locations in a one-time “boom” and “bust” cycle (Gilmore, 1976). UNOG extraction challenges all of these assumptions. It is currently impacting economically diverse suburban locations in addition to rural areas, it is spatially dispersed, and it will likely persist for decades in “repeated waves of mini-booms and mini-busts” that oscillate with hydrocarbon prices (Jacquet & Kay, 2014). To understand this form of energy development, and its discursive and material effects, we must therefore apply a suburban and geographic lens.

This empirical analysis addresses these knowledge gaps in the existing literature by examining the discursive struggles over spatial policy in suburban Colorado. The term “discursive struggle” echoes David Harvey’s (1996) statement that “discursive struggles over re-presentation are ... as fiercely fought and just as fundamental to the activities of place construction as bricks and mortar” (p. 322). Drawing on Foucault (1976), Harvey (1996) considers discursive struggles to be contests over power, knowledge, and understandings of reality conducted via language and regulation. This study combines two related theoretical and analytical frameworks to analyze discursive struggle: CDA influenced by the work of Hajer (1995) and the CSS framework developed in urban political ecology for the discursive analysis of socio-spatial relations. Hajer (1995) defines discourse as “a specific ensemble of ideas, concepts, and categorizations that are produced, reproduced, and transformed in a particular set of practices and through which meaning is given to physical and social realities” (p. 44). Hajer-inspired CDA operates from the understanding that the language that stakeholders use to frame and define policy problems also constructs policy solutions. The CSS framework works from the understanding that all social relations are spatial (Harvey, 1996; Lefebvre, 1974). In the words of its authors, it is an “analytical tool for probing the ways in which spaces and places are represented in policy discourses in order to bring about certain changes of socio-spatial relations and prevent others” (Richardson & Jensen, 2003, p. 16).

Like other forms of CDA, the CSS framework examines both text and context, but it also aims to bridge the gap between the discursive and the material by considering discourse and socio-spatial practices together in the context of policy-making. In that vein, it operationalizes three interrelated categories of analysis: *language*, *spatial practices*, and *power rationalities*. In terms of *language*, the CSS framework asks how spaces, actions, institutions, and relations are represented through language. In terms of *spatial practices*, it asks how particular spatial practices (such as a setback distance, for example) operate, and are contested, within a policy process. Finally, in terms of *power rationalities*, it asks how the language and spatial practices at work in spatial policy debates combine to enact and embed different values, norms, logics, reasoning, ideologies—and therefore also power relations—in policy processes. Richardson and Jensen (2003) illustrate this framework in detail by applying it to European spatial policy.

This study makes two methodological interventions to the CSS discourse analysis framework. It brings a Hajerian emphasis to the analysis of *language* and *spatial practices* by considering the ways the two merge in policy narratives. According to Hajer, policy narratives do two important things: (1) they reduce the discursive complexity of environmental problems to favor particular policy solutions, and (2) they draw coalitions of actors together around a particular argumentative approach. Hajer conceives of narrative (he also uses the term “storyline”) broadly, defining it as a political device that seeks to achieve discursive closure on a policy problem and which may include metaphor, analogy, clichés, appeals to collective fears or senses of guilt, and/or the assigning of blame and responsibility. To make Hajer’s broad conception of narrative more specific, this study makes a second methodological intervention. It uses the definition of a policy narrative employed by Shanahan, Jones, McBeth, and Lane (2013): a story that includes a policy judgment and at least one character in the form of a victim (someone suffering from harm), villain (someone causing harm), or hero (someone attempting to fix or prevent harm).

In sum, by bringing spatial theory, policy narratives, and the suburbs into play in hydraulic fracturing-related discourse analysis, this study makes four contributions to our understanding of discourse and energy policy. First, by considering space, this study aims to situate hydraulic fracturing discourse in the wider context of changing energy geographies and energy transitions (Bridge et al., 2013). Second, on a theoretical level, the spatial policy debate underway in Colorado provides an opportunity to better understand the relationship between the discursive and material in environmental conflicts. Third, methodologically, this study explores the ways that policy narratives tie together *language*, *spatial practices*, and underlying *power rationalities* in ways that construct space, spatial problems, and spatial policy solutions. And fourth, on a geographic level, by contemplating the suburban context in Colorado, the study engages longstanding regional debates about the

American West's relationship to extractive industries that have not yet been broached in the hydraulic fracturing literature.

The political ecology of home in the Old and New West

The present surge in UNOG extraction across the American West caught a lot of people by surprise—among them, regional scholars who began predicting the end of the West's traditional extractive industries several decades ago. Eyeing economic shifts toward the service and high-tech sectors, plus an influx of people moving to the West for lifestyle and esthetic reasons, scholars began forecasting a post-industrial future for large swathes of the region in the 1990s (e.g. Riebsame, Robb, Limerick, & Goin, 1997). At the time, the changes appeared stark enough to merit dichotomous labels. The fading extractive industry-based version of the region was the “Old West,” while the up-and-coming, service and tech-oriented version of the region was the “New.” These terms persist in regional discourse and scholarship to this day, employed to describe competing visions for the region. But the labels also embody a contradiction that has never been directly addressed in the literature or on the ground: that New West visions for the region have both expected Old West extractive industries to disappear from the landscape and relied upon the commodities produced by those industries for the achievement of New West lifestyles.

This Old West/New West contradiction is especially prominent in suburban spaces, which rely upon the combustion of petroleum for their anti-urban geography and also the distancing of the production of those hydrocarbons to someplace “beyond” the suburbs themselves (Huber, 2013, p. 159). As important and deeply embedded a contradiction as this is, however, it would be wrong to think of suburban homes only in terms of their natural resource inputs and outputs, which is why the literature on the political ecology of the home also recognizes homes as meaningful centers of everyday lived experience and culture, incubators for evolving human expectations of security, safety, and comfort, and important sites of environmental citizenship and change (Biehler & Simon, 2011). When it comes to studying hydraulic fracturing discourse, therefore, the suburban lens demands that we contemplate how energy production *and* consumption (and their presence and/or absence) are wrapped up in cultural expectations of home, as well as how long-held habits of thinking and living may be challenged by shifting energy geographies—in the New West and elsewhere.

Sample and methods

This analysis triangulates between media, regulatory, and community-based texts (Table 1) because each of these sources provides important and unique insights and because, for Hajer (1995), the linguistic regularities that appear in different texts across policy discussions are the object of

Table 1. Data sources, data types, sample sizes.

Source	Type (n)
<i>Denver Post</i>	In-house editorials, opinion editorials, letters-to-the-editor n = 183
(Greeley) <i>Tribune</i>	In-house editorials, opinion editorials, letters-to-the-editor n = 111
(Boulder) <i>Daily Camera</i>	In-house editorials, opinion editorials, letters-to-the-editor n = 252
COGCC setback rulemaking	Prehearing statements and recommendations (57) Public comments (116; unique = 38) Government comments (13) Business sector comments (10) n = 118
Greeley neighborhood meetings	Triple Creek (25 September 2014) South Greeley Directional (30 September 2014) n = 2

analysis. The print media sample included texts from before, during, and after the COGCC's setback rulemaking and a provided venue for broader arguments about energy development. The rulemaking itself fielded more specific spatial policy recommendations, and the neighborhood meetings opened a window into spatial discourse grounded in the context of actual well sites. To investigate media discourse, the opinion pages of three major northern Front Range newspapers were sampled from 1 January 2011 to 12 January 2014. Articles were collected from *The Denver Post* (via ProQuest), the Boulder *Daily Camera* (via ProQuest), and the Greeley *Tribune* (via the newspaper's online archive). Opinion coverage was selected over news coverage in order to emphasize stakeholder voices rather than journalistic practices. Combined, these three newspapers include perspectives from communities with intensive oil and gas activity and generally conservative politics (e.g. Greeley), communities with drilling moratoria and generally liberal politics (e.g. Boulder), as well as a statewide view (via *The Denver Post*). All searches used the primary keywords of analysis in the literature: "fracking" (media-preferred), "fracing" (industry-preferred), or "hydraulic fracturing."³ To capture regulatory discourse, written comments submitted to COGCC's 2012–2013 setback rulemaking docket were collected from the agency's website. At the neighborhood level, two meetings on proposed multi-well sites conducted in Greeley in Autumn 2014 were observed and transcribed.

All texts were coded and analyzed using qualitative data analysis software (NVivo). The analysis proceeded through a thematic coding process that utilized codes established a priori from the literature on policy narratives and representations of space, as well as others that emerged during analysis. More specifically, analysis involved close reading and coding of the texts for elements of the three analytical spheres set out in the CSS framework: *spatial language*, *spatial practices*, and *power rationalities*. In regard to *language*, the texts were coded for representations and framings of space—for example, arguments about setback distance or descriptions of home. Spatial representations were also identified by way of common metaphors and symbols used by stakeholders to describe spaces and imbue them with meaning. In terms of *spatial practices*, the texts were examined in the context of whether they invoked spatial or non-spatial policy solutions to suburban drilling. In a methodological addition to the CSS framework, the texts were also coded for policy narratives that incorporated both *spatial language* and *spatial practices*—in other words, stories about space that included a spatial policy judgment and at least one obvious character in the form of a victim, villain, or hero (see Shanahan et al., 2013). After coding, all coded text was closely re-read to distinguish recurring patterns and what it might reveal about underlying *power rationalities*.

Results

In broad terms, all of the texts featured and contributed to a discursive struggle between opponents and proponents⁴ of suburban drilling that hinged upon the question of whether UNOG extraction belongs in suburban residential spaces. Roughly speaking, this discursive struggle engaged a combination of three interrelated geographic scales: regional/state, community, and neighborhood. For the sake of organization, the results on *spatial language* and *spatial practices* will be presented here in that scalar order. An analysis of *power rationalities* will follow in the discussion section. All unattributed quotations presented in the results are representative terms and phrases (i.e. wording found repeatedly) drawn directly from the analyzed texts.

Colorado and the West, Old and New

A contest of policy narratives centered upon dueling interpretations of Western history emerged as an overarching theme in the discursive struggle. Old West policy narratives were identified as those that looked backward in time, contemplated the state's relationship to extractive industries, and cast the oil and gas industry as either a hero with historic ties to the state or a villain preventing progress in the transition toward renewable energy sources. New West policy narratives were identified as

those that looked forward in time, contemplated whether energy extraction and suburban populations could spatially coexist, and cast the oil and gas industry as either innovative heroes of energy production or villains threatening Front Range quality of life and New West economies. These policy narratives appeared most prominently in op-eds, but they were also present in letters-to-the-editor, suggesting that Old and New West references are common conceptual ground for Coloradans. These policy narratives are significant for the ways that they use time to make policy judgments about space and belonging. For brevity's sake, only the Old West policy narratives will be discussed here.

Both proponents and opponents of suburban drilling invoked Colorado's extractive history in their policy narratives, but they did so to promote divergent policy solutions. Proponents used historical references to celebrate the current oil and gas boom and naturalize it temporally, describing it as a logical next step for the state along a path that has its origins in earlier extractive chapters, such as the Gold Rush. "Colorado was born from a foundation of mineral extraction," began one op-ed contributor to *The Denver Post*, typifying this discursive approach. Proponents of suburban drilling connected the state's extractive history to the present by arguing that all Coloradans are tied to it, either through their communities' origins as towns built around extractive industries or their personal consumption of oil and gas. Through their attempts to naturalize oil and gas extraction in time, proponents of suburban drilling also sought to naturalize extractive activities in space. For example, Boulder County was referred to repeatedly as a "hotbed for fracking opposition" that has forgotten its own petroleum-oriented history, symbolized by the county's single remaining oil well from the early 1900s, which now stands (somewhat ironically) next to a major highway. These historically-oriented policy narratives aimed to spatially authorize extractive activities by framing them in a logic of legitimization common to the American West: as arriving "first" and having prior claim to space, even in Boulder.

Opponents of suburban drilling invoked the state's extractive history in an effort to delegitimize the current oil and gas boom. These less celebratory Old West policy narratives framed UNOG extraction as a step backward for Colorado or a turn in a dangerous new direction, utilizing metaphors of collisions (between the state's "mining past" and "suburban present") or crossroads (where "past experience" intersects with "current values"). Suburban drilling opponents framed the present drilling boom as an old-fashioned energy solution that has permanent downsides. They argued, for example, that present-day extractive activities are sending Colorado back to the historic days of being a natural resource "sacrifice zone" for the nation. Drilling opponents brought these historical policy narratives to life by casting industry actors and regulators as disagreeable Old West characters, referring to regulators as inept and to operators as villains wronging townspeople in a "Wild West" that lacks law and order. By framing oil and gas extraction as an outlaw relic of the past, opponents of suburban drilling used another common set of Western tropes—those of the fictional Western film genre—to make a case for the industry being temporally and spatially out of place in modern Colorado.

Competing representations of home

Differing representations of the space that is "home" could be found across the media, regulatory, and neighborhood meeting data. Most of the discursive struggle was captured in two major renderings of home that diverged on the question of whether industrial activity belongs in residential spaces. These representations of home localized elements of the regional-scale Old and New West policy narratives just described and were brought to life through five prominent policy narratives built from differing quality-of-life arguments and perceptions of risk.

Industrial as out-of-place: three policy narratives of attack, experiment, gambling

Opponents of suburban drilling utilized three thematically similar policy narratives to communicate their construction of home on the Front Range and the threats that drilling activities pose to it. These

policy narratives presented the New West as a departure from the Old—a suburban pastoral of scenic and serene living now under siege by Old West extractive activities. Drilling opponents characterized home on the Front Range as being about majestic views, clean air, and outdoor recreation. Home was described as an island of health, safety, peace, and quiet in communities set amidst open spaces. Drilling opponents also portrayed home as a major financial investment. On several occasions, they appealed to community master planning in defense of this spatiality, arguing that they made emotional and financial investments in their homes based upon spatial planning that purposefully separated residential from industrial areas.

More specifically, Front Range drilling opponents conveyed the oil and gas industry's threats to their sense of home and quality of life at home through a surprise attack policy narrative that echoed the Western film framings previously mentioned by depicting bewildered residents as victims and rogue oil and gas operators and apathetic regulators as villains. These archetypes met in a tragic plot in which the "Colorado dreams" of homeowners were despoiled by the invasion of an Old West industry and mineral rights regime. The story of US Congressman Jared Polis waking up to his second home "being fracked" was oft repeated as an example of the surprise attack experience. Oil and gas activities were described, above all, as being "industrial," and more specifically as "toxic," "smelly," "dirty," and "noisy." The surprise factor of this policy narrative was expressed through terms such as "no notice," "no warning," "happens overnight," "under siege," "trespass," and "invaded."

Drilling opponents also leveraged two policy narratives based on risk. The first of these followed an uncontrolled experiment plotline that featured unsuspecting Front Range residents as victims of an experiment being conducted by the oil and gas industry and state regulators. The risk at the center of this policy narrative was the cumulative health impacts of potential exposure to benzene and other air pollutants. Terms such as "unstudied," and "uncertain" characterized regulators' knowledge, while Front Range residents were portrayed as "guinea pigs," "lab rats," and "canaries in the coal mine." The second of these risk-based policy narratives centered upon low-probability catastrophic risks, such as malfunctioning equipment or accidents caused by human error. Operating via a reckless gambling policy narrative, it portrayed residents as victims who have the common sense to know that such risks cannot be fully managed and cast industry members and regulators as villainous gamblers who believe that they have the power to eliminate risk. Drilling opponents referred to real oil field accidents that occurred in Weld County between 2013 and 2014 in the weaving of this policy narrative.

Industrial as belonging: two policy narratives of NUMBY-ism, getting the facts

Proponents of suburban drilling utilized two thematically similar policy narratives to communicate their construction of home on the Front Range and the threats that opponents pose to it. These policy narratives presented the New West as a direct extension of the Old—a suburban pastoral of comfort, convenience, and energy consumption that presumes oil and gas extraction in order to fuel it. In their quality-of-life-oriented policy narratives, proponents of Front Range drilling characterized home as a place of warmth, light, and electronics, commuted to and from in gasoline-burning vehicles and filled with petroleum-based products ranging from aspirin to roof shingles. Heroic industry-employed neighbors were providing the energy resources to fuel this version of home.

Drilling proponents conveyed this energy intensive quality-of-life-based policy narrative through a "NUMBY" (Not *Under My Backyard*, see Cotton, 2013) narrative that again cast residents of Boulder County in a lead role. These policy narratives portrayed Boulderites as wealthy, energy-guzzling villains with big houses, all the latest gadgets, far more gasoline-burning vehicles than electric ones, a preponderance of outdoor gear derived primarily from petrochemicals, and no awareness of their own fossil-fuel consumption. A handful of other Front Range energy consumers were also cast in this role—for example, a sport-utility vehicle driver displaying an anti-fracking bumper sticker on the fossil-fuel-intensive 200-mile round-trip on Interstate-70 to go skiing, among others. Drilling proponents did not cast oil and gas operators as victims per se, but they did impugn

Boulderites and other New West NUMBYies for ignoring the plight of those who struggle to pay their energy bills and for outsourcing the costs of their energy consumption.

Proponents of drilling on the Front Range also countered drilling opponents' risk-based policy narratives with their own. They characterized concerns about long-term public health consequences as unfounded, and accidents as effectively managed through technology. Suburban drilling proponents conceded only nuisances (noise, light, dust, and traffic) to be problematic, but also characterized them as temporary. These risk arguments were conveyed primarily via a get-the-facts narrative that featured out-of-state "fractivists" as villains and both uneducated suburbanites and the facts as victims. According to this policy narrative, the industry has made significant strides to mitigate its impacts and is subject to extensive regulation, but Front Range residents remain uneducated about these facts, either because they have not had an opportunity to learn them or because they have been purposefully misinformed by "fractivists." According to this policy narrative, residents also remain particularly uneducated about Colorado's complicated mineral rights regime. Drilling proponents relayed anecdotes of operators effectively addressing people's concerns on a case-by-case basis as a part of this policy narrative.

Divergent policy narratives and prescriptions, and a new spatial regime

In sum, opponents of drilling on the Front Range expressed their constructions of home, and made quality-of-life and risk arguments in and through divergent policy narratives that set up the terms for differing policy prescriptions. Drilling opponents' policy narratives of homeowners as victims being attacked, experimented upon, and put in harm's way invoked spatial solutions—distancing extractive activities to a location outside of residential zones.⁵ Drilling proponents' policy narratives of NUMBYism and ignorance invoked non-spatial solutions—primarily education about industry operations, but also mitigation of industry impacts through technology. Policy proposals made during the COGCC's setback rulemaking reflected these spatial versus non-spatial policy solutions. Opponents of suburban drilling proposed minimum well-to-building setback distances of 700 feet, 1000 feet, 1500 feet, 2000 feet, 2 miles, and 50 miles—and, in some cases, banning hydraulic fracturing everywhere. Proponents called for no change to the spatial status quo of 350 feet.

After grappling with these different policy narratives and prescriptions, COGCC updated its setback rules in early 2013. The agency tried to appease drilling opponents with an increase in minimum setback distances to 500 feet (homes) and 1000 feet (high-occupancy buildings), as described above. The agency reasoned that this new setback regime would not interfere with mineral owners' right to develop their subsurface claims, but that it would provide some spatial relief for neighbors to UNOG extraction (COGCC, 2013). Regulators responded to drilling proponents' non-spatial policy narratives about education, and also drilling proponents' policy narrative of surprise attack, with increased notice procedures for building owners within 1000 feet of a well site. COGCC also took up industry's non-spatial arguments by imposing technological mitigation requirements. The agency's efforts at compromise did not comport with any stakeholder's preferred policy prescription. In response, the conflict shifted policy venues, as previously described, and proceeds on today.

New setback regime, same discursive struggle

Suburban UNOG extraction has continued under COGCC's new spatial regime. The two meetings observed in Greeley were held so that operators could explain revised plans for well pads sited under the old COGCC setback regime, but which they were moving in response to neighbors' requests that they comply with the new spacing rules. At the first meeting, two local operators with a suburban drilling business focus, working in partnership, discussed plans for a 22-well site that had been moved from a site that was 350 feet from homes to another site that would be 1000 feet from homes. At the second meeting, the same operators discussed plans for a 19–24 well site next to an elementary school, businesses, and homes that they had shifted from 800 feet from the school

to a new position of 1450 feet. The meetings drew crowds of about 50 and 100, respectively. Some attendees voiced support for the sites, but most raised concerns.

The conversations at these public meetings included all of the discursive themes discussed thus far to some degree, but shifted strongly in emphasis toward the risk narratives used by each group. Indeed, the meetings revealed that, when this discursive struggle is waged in the context of a specific site, the conversation becomes increasingly grounded in residents' consternation about why operators choose the sites they choose, especially given advances in horizontal drilling, and concerns about the potential for public health risks and industrial hazards (see Table 2). Differing perceptions of risk became apparent at these meetings. Operators put their get-the-facts policy narrative into action by explaining that their chosen drilling site would maximize returns for their mineral leaseholders and describing the industry-leading practices they plan to use to mitigate their impacts and manage risk. Residents responded by questioning whether the operators had considered all possible alternative locations and expressing concerns about uncertain cumulative impacts of potential exposure to air pollutants and the possibility of a catastrophic well blowout or fire. The discourse at these meetings confirmed that increased setback distances have not significantly changed the contours of the debate over whether or not oil and gas operations belong in residential spaces.

Discussion

As per the CSS framework, the goal of analyzing *language* and *spatial practices* is to ascertain what they reveal about *power rationalities*—the values, norms, rationalities, ideologies, and power relations that become embedded in, and enacted through, policy discourses (Richardson & Jensen, 2003). The suburban drilling debate in Colorado makes for a compelling case in these dynamics because it is still unsettled and therefore a crucible for competing *power rationalities*. Similarly, Hajer's ultimate concern in environmental discourse analysis is with the democratic quality of public policy debate, as gauged through its inclusivity, openness, accountability, and reciprocity—features he combines in the concept of “deliberativeness” (Hajer, 1995). This discussion will highlight three ways this discursive struggle is shaped by, and reflects, competing *power rationalities*, with consequences for the deliberative quality of the policy debate.

Table 2 . Greeley neighborhood meetings discourse.

Concerns raised by residents: risk	Concerns raised by residents: quality-of-life	Best management practices listed by operators
<ul style="list-style-type: none"> • Public health impacts of emissions • Explosion, blowout, or well fire • General industrial accidents, especially by subcontractors • Current operator selling site to an operator with lower safety standards • Earthquakes • Spills and leaks of drilling/fracturing fluids • Threatening nearby wildlife habitats 	<ul style="list-style-type: none"> • Increased traffic congestion • Damage to nearby roads • Noise pollution • Light pollution • Dust • Length of drilling and fracturing timeframe given multi-well site • Decreased property values 	<ul style="list-style-type: none"> • Piping all fluids to/from site to reduce truck traffic and emissions • Using an electric drilling rig to reduce noise relative to a diesel rig • Sound walls • Dimming and angling lights at night • Containing 95–99% of emissions • Remote monitoring of well pad 24/7, daily in-person checks • Training fire department for worst-case scenarios

Example well siting dialog—Greeley meeting #2

Neighbor: “I’m pro-oil-and-gas, pro-fracking, but when I look at that map and I see the school, Walmart, Sam’s Club, and the library, I don’t think oil and gas. Can’t you drill somewhere else?”

Operator: “This is the only site where we can develop all the minerals we bought, with the technology we have.”

Neighbor: “Weld County is the largest county in the U.S.? Why do you have to drill here, where people and kids are? If you can drill for two miles, can’t you go further away?”

Operator: “There isn’t oil and gas everywhere. This is where it’s found and where it’s economic to develop. These wells already are two miles long. We can’t drill any farther.”

The spatial practice of setback distance as a delimiter of democratic deliberation

First, the *spatial practice* of governing by setback distance carries its own *power rationalities*. Setback distance has become the dominant way of thinking and talking about the spatial regulation of suburban drilling in Colorado partly because of uncertainty about whether other forms of spatial regulation—such as local bans, zoning, and comprehensive planning—are legally viable. The results of this analysis suggest that debating suburban drilling by way of setback distance locks stakeholders into a formulaic discursive struggle over proximity that constrains meaningful deliberation. As demonstrated in Greeley, as well as in the print media and regulatory texts, debating suburban drilling via setback distance positions residents to use spatial policy narratives that demand more space against a previously established minimum area and operators to use aspatial policy narratives to insist that they can operate safely within the allotted radius (or to move a site by several hundred feet and hope that residents' concerns will shrink accordingly).

The standardization of setback distance at the state level seems to further solidify this discursive formula by appearing to remove the politics from this politically negotiated space (Fry, 2013). Even though the new 500 feet/1000 feet setbacks are *minimum* distances to which exceptions are allowed, their standardization somewhat sanctions them as the most appropriate radii between wellbores and buildings. The concerns that Greeley residents expressed under the COGCC's updated spatial regime, and the uncontrolled experiment and gambling policy narratives present in the media across the study period, suggest that a standardized minimum setback distance may be too simple a spatial tool for the deliberation and governance of suburban drilling. The meetings and competing policy narratives also revealed that the spatial knowledge that might be most important to those living in this new suburban geography of energy production—the details of how and why oil and gas operators choose drilling sites when the ability to drill horizontally for roughly two miles provides them with some (albeit limited) spatial flexibility—is not readily available to those who are trying to make sense of their newfound proximity to a well pad. Ultimately, more nuanced and democratic discussion of space and spatial policy seems necessary if suburban drilling conflicts are to be fully addressed. The oil and gas task force's recommendation that operators be required to provide five-year drilling plans for municipalities' comprehensive planning processes may be a step in this direction.

Use of policy characters to communicate moral logics & claims to rationality

Second, the ways that stakeholders employed characters in the form of victims, villains, and heroes in their policy narratives reflected logics of morality and claims to rationality underlying this discursive struggle. When suburban drilling opponents cast the stock characters from vintage Western films in their policy narratives, they effectively framed the debate in a familiar narrative known for its binary "good guy" versus "bad guy" moral framework. In a similar fashion, when suburban drilling proponents characterized opponents as uneducated NUMBYies, they made a fundamental claim on rationality. While these respective castings of familiar characters are likely effective in rallying discourse coalitions around particular conceptions of morality and rationality, their use of stereotype and caricature is not without problems. For example, when suburban drilling opponents leverage Western film's stock characters, they also sign up for the genre's unproductive storyline, in which communities are defined by their dysfunction and conflict is never effectively resolved (West, 2012). When drilling proponents assume that increased exposure to industry information will automatically generate public acceptance of extractive activities, they use deficit model logic to imply that industry expertise is more important than other forms of knowing these contested spaces (Cotton, 2013). Both sets of policy narratives rely on hyperbolized versions of real stakeholders that dismiss rather than engage and are not adequate to describe genuine differences in risk perceptions, spatial preferences, or constructions of home. In Greeley, exchanges between residents and oil and gas operators illustrated both that some operators are working to mitigate their impacts under existing spatial

regulations (defying their outlaw villain classification) and that some residents have thoughtful concerns to raise anyway (countering their NUMBY label). Ironically, the use of caricatured victims, villains, and heroes in policy narratives may serve both to unify some coalitions of stakeholders and to diminish the deliberative quality of the policy discourse, further perpetuating the debate.

Policy narratives derived from selective interpretations of regional history

Third, both suburban drilling opponents and proponents selectively interpreted Western history in the service of their policy prescriptions. Scholars have come to expect this from environmental policy narratives in general (Hajer, 1995), but perhaps not from the interpretations of history within them. And yet when they characterize UNOG extraction as a natural next step along a linear path of industrial progress or as an outlaw industry straight out of the Wild West, both sets of stakeholders oversimplify historical complexity to promote their own policy prescriptions and naturalize their preferred version of Front Range space. Drilling proponents ignore the environmental damage and social conflict inherent to the larger history of extractive industries in Colorado, while drilling opponents ignore suburban space's petroleum dependence and historical distancing from processes of energy production (Limerick, 2015). By building their policy narratives upon partial histories, each group merely echoes the contradictions of the Old West/New West dichotomy—that the New West both rejects Old West extractive industries and is tethered to them through consumption—rather than engaging that contradiction in a solution-oriented way.

These selective interpretations of history manifest in the present day in the social construction of the suburban home. The suburban home is a zone of serenity and safety purposefully distanced from its environmental impacts *and* it is also a relational site of energy consumption connected to broader ecologies and economies. Significant tensions remain between these dueling constructions. As the surprise attack policy narrative illustrates on the Front Range, and as similar invasion language reveals elsewhere (Perry, 2012), expectations of home as a place of peace and safety that is located away from industrial activity run deep for many Americans. By the same token, drilling proponents' efforts to naturalize the new suburban geography of energy production by celebrating Colorado's extractive history and asserting prior appropriation of space ignore this historical spatiality and the novelty of the new suburban geography of energy production. The increasing proximity of extractive activities to suburban populations is indeed unprecedented. Whether this is Old West meets New, New West meets Old, or simply a geographic coexistence that will characterize the Next West, the Front Range has not before faced this significant a spatial challenge to energy production, suburban living, and cultural expectations of home. It is also true that—high-energy suburban lifestyles or not—a relatively small number of people are taking on the downsides of UNOG extraction for a relatively large number of beneficiaries. Naturalizing a new geography of energy production without acknowledging its fundamentally unequal spatial nature overlooks this policy reality (Bridge et al., 2013).

Conclusions

Despite a recently updated spatial regulatory regime, the spatial question at the heart of the suburban drilling debate—*what is the appropriate distance between oil and gas operations and buildings such as homes and schools that are occupied by people?*—is still very much under debate on the Front Range. The answer to this question matters most directly to those living the new suburban geography of energy production in Colorado. The *way* that this question is answered matters more broadly, as a growing number of people in the US and abroad look to spatial policy processes to negotiate the terms of their newfound proximity to hydrocarbon extraction (EIA, 2011; Fry, 2013; Gold & McGinty, 2013).

Ultimately, the policy narratives at work in Colorado's debate over suburban drilling discursively construct space and materially influence spatial practices by setting up the terms of the debate over

this new geography of energy production and related spatial policy responses. In dialectical fashion, the practice of regulating suburban drilling primarily via setback distance also serves to delimit spatial policy discourse and democratic engagement in well siting. Thus far, this dialectical relationship has produced policy narratives that appear to further hamper deliberation by operating via caricature and selective interpretations of history that invoke exclusively spatial or aspatial policy solutions. In theoretical terms, these results illustrate the ways that the discursive and material are co-constructed in the “highly politicized and negotiated spaces” of energy policy-making (Fry, 2013, p. 8). Colorado’s debate over suburban drilling confirms that spatial practices and on-the-ground spatial arrangements have real influence on policy language and dialog, and vice versa. In practical terms, these results suggest that the deliberative quality of policy-making on suburban drilling—and energy transitions more broadly—could be bolstered with more nuanced state-level spatial practices, more transparency surrounding the spatial information and analyses behind well siting, and more explicit acknowledgement of potential spatial inequities.

As energy choices become increasingly difficult in the American West, and as existing geographies of energy production shift and change, we can expect the continued contestation of the natural resource politics of suburbs, questions of risk and quality-of-life, and the meaning of the extractive industries to the region. Future research on these dynamics should address the limitations of this study. For example, the dataset did not reflect the thoughts of the politically underrepresented on the Front Range—non-English speakers and low-income residents whose voices have not yet been heard in this primarily middle-class debate. It also did not incorporate broadcast media, such as radio or television, or social media, such as Twitter or Facebook. Further, while the analysis did take on a spatial perspective, the data were not geographically differentiated, making it impossible to assess discursive differences between people who live 500 feet or 50 miles from extractive activities.

Notes

1. Front Range is a colloquial term for Colorado’s most populous region, which runs north-to-south where the Rocky Mountain foothills meet the plains. The suburbs that are the subject of this analysis extend from Denver’s north side through Fort Collins.
2. Unconventional oil and gas extraction is defined as the process of extracting hydrocarbons from “unconventional” geologic formations with low permeabilities via horizontal drilling and hydraulic fracturing.
3. The keyword “shale gas” was not used because the Denver-Julesburg Basin produces oil *and* gas from unconventional geologic formations that are not shales.
4. Summarizing perspectives in binary terms risks oversimplification, but this framework is operationalized here for the sake of clarity and is supported by the data. Public opinion on UNOG extraction defies binary categorization, but when it comes to the *specific* subject of *drilling in residential areas*, stakeholders generally group in clear support or opposition.
5. Local control made up a second central aspect of drilling proponents’ proposals, but a full engagement with this topic is beyond the scope of this analysis.

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