

**From:** Lon Goldstein  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** Please extend fracking ban in Boulder county  
**Date:** Tuesday, November 01, 2016 11:18:14 PM

---

Please add mine to the growing list of concerned Boulder County residents who wish to maintain their health and safety and well-being against the environmental disaster that is fracking. We have seen the results in many other locations around the state, and we must speak up to protect ourselves. I'm very concerned that when the moratorium expires, the oil and gas companies might swoop in and set up "test wells" in the hopes of securing the right of being grandfathered against any future legislation. Please have the courage to stand up against Governor Hickenlooper and his oil and gas friends and protect our community.

Lon

-----  
Lon Goldstein  
Boulder, CO  
lon.a.goldstein@gmail.com

**From:** Susan  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** No on Fracking  
**Date:** Wednesday, November 02, 2016 3:09:26 AM

---

Dear County Commissioners

I will not be available for the public hearing but I want you to know how strongly I feel about Boulder County not allowing fracking. The health and environmental issues it causes are starting to become more obvious and very concerning to me. I am proud to say that I live in a County that pays attention to the the health and well being of its residents and to our environment.

Please take a strong stand and say no to fracking.

Thank you  
Susan Morris  
939 West Maple Court  
Louisville

**From:** rockindave\_1@juno.com  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** Il about the money  
**Date:** Wednesday, November 02, 2016 6:53:41 AM

---

This is about the continuing fantasy that fracking or pipeline systems are safe we just had the largest pipeline in the USA shutdown after being offline for 12 days in September for a massive gasoline leak we have repeated oil platform explosions where they are “cleaned up “ the Exxon Valdez was 25 years ago only 25% cleaned up Deep water horizon 10% “cleaned up largest methane leak in history in California that you could see from space station thousands of pipeline leaks land and water pollution until you can guarantee that the earth will have clean air and water for eternity then you should not let any of this continue in this country let alone state and county this is all about the money the earth has gotten repeatedly warmer for 19 months now they say 2/3rds of all animals and aquatic life will be gone in the next 25 years if not sooner because we have about 3 degrees of temperature rise then it is all over for this planet let alone you or your oil industry you can make energy from air now from toilet waste plus all the other clean forms of energy this is nothing but Greed at the expense of the human race and this planet and knowing that since the 1930’s that burning fossil fuels has been depleting our atmosphere that makes you no better than the NRA who want you to take your gun to church but they are not allowed in their headquarters building gun free zone Reynolds tobacco who sell their death sticks all over this earth but you cannot smoke at the factories or headquarters smoke free zone or at the president of Exxon’s estate where he will not allow fracking sorry that is unacceptable to me the state of Oklahoma went from 3 earthquakes a year to now almost 4,000 wait till that big one hits in Cushing the site of the largest oil storage facility in the USA if not the world we will have a new black Sea covering a large portion of that state how is that going to be cleaned up we are still waiting on every big spill in American history to be cleaned up 100% like these companies are going to spend money on that right Colorado should be like New York and have a total ban on fracking it is not safe by any means and we sure as hell should not be running pipelines underneath the major water supplies for a good portion of the American population there are other and much better choices well what do we have to lose this planet for one it is the only one we have why do you think we spend trillions on space exploration we have polluted this planet to the point of no return if we do not turn back now it is goodbye by the time your kids are in college if not sooner we do not get a do over hopefully I will be able to live out my life with clean air and water I do not think that is asking too much for myself and the rest of the people living on this earth it can be a short stay or a continuing and hopefully long life to this planet and the beings that live on it . Dave

Sent from [Mail](#) for Windows 10

---

**[Warning: Don't Diet Before You See This](#)**  
[gundrymd.com](#)  
<http://thirdpartyoffers.juno.com/TGL3142/5819e1b7a85361b52153st03vuc>

**From:** 7205854147@yrmobl.com  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** 1/6  
**Date:** Wednesday, November 02, 2016 8:21:58 AM

---

With climate change affecting coast lines will increase migration. And fracking gas is not the answer for the public and

**From:** 7205854147@yrmobl.com  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** 2/6  
**Date:** Wednesday, November 02, 2016 8:21:58 AM

---

should be banned. Methane gas is 20 % more lethal to the environment. Facking takes freshwater away from living elements

**From:** 7205854147@yrmobl.com  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** 3/6  
**Date:** Wednesday, November 02, 2016 8:21:58 AM

---

that rely on freshwater. Fracking industries use of freshwater is illegal and conditional and wasteful. Fracking

**From:** 7205854147@yrmobl.com  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** 4/6  
**Date:** Wednesday, November 02, 2016 8:21:58 AM

---

contaminates freshwater the size of a football field for drill and drilling happens multiple times before shell can be

**From:** 7205854147@yrmobl.com  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** 5/6  
**Date:** Wednesday, November 02, 2016 8:21:59 AM

---

fracfractured. Again methane is 20% more lethal to our environment and the fracking process increases harm to the general

**From:** 7205854147@yrmobl.com  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** 6/6  
**Date:** Wednesday, November 02, 2016 8:22:00 AM

---

public by the wastefulness of freshwater.

**From:** 7205854147@yrmobl.com  
**To:** [Boulder County Oil and Gas Comment](#)  
**Date:** Wednesday, November 02, 2016 8:22:39 AM

---

No more fracking or wastefulness of freshwater.

**From:** Tanya Markle  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** Boulder County Fracking Moratorium  
**Date:** Wednesday, November 02, 2016 3:07:30 PM

---

Hello,

I will not make it to the upcoming meeting on November 15th to discuss the Boulder County moratorium. Please put my name down in support of a moratorium extension. Thank you!

Best,  
Tanya Markle

**From:** Amelia Hurst  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** Moratorium Support  
**Date:** Wednesday, November 02, 2016 7:32:50 PM

---

We will be out of town on the courthouse date, so please extend begging, pleading, cajoling and flatout threats for me! We cannot let this happen, for the sake of the health of our children and environment!

Thank you!!!!  
Amelia Hurst  
720.443.7052

BTYB amelia's tiny keyboard and a satellite or two.

**From:** Amy Jones  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** In support of continued fracking moratorium  
**Date:** Thursday, November 03, 2016 11:08:10 AM

---

I live in Boulder and am asking that you extend the moratorium on fracking to continue to preserve water supply and the land we live on.

We've done enough to harm nature and earth, let's continue to stay a progressive town that doesn't add to the additional damage to the earth.

--

Amy Jones  
408.390.2095  
Labor & Postpartum Doula  
Massage Therapy  
Life & Relationship Coach

**From:** Tracee Bentley  
**To:** [Boulder County Oil and Gas Comment](#)  
**Cc:** [Neslin, Dave](#)  
**Subject:** Comments on O&G Regulations  
**Date:** Thursday, November 03, 2016 4:17:36 PM  
**Attachments:** [Boulder County Commission OG regulations \(11-03-16\).pdf](#)

---

Please find attached comments from the Colorado Petroleum Council regarding the proposed oil and gas regulations.

Thank you,

Tracee Bentley

***Tracee Bentley***

**Executive Director**

1660 Lincoln Street, Ste 2320

Denver, CO 80264

720.214.7177

Follow us on Twitter: [@COPetroCouncil](#)



This transmission contains information that is privileged and confidential and is intended solely for use of the individual(s) listed above. If you received the communication in error, please notify me immediately. Any dissemination or copying of this communication by anyone other than the individual(s) listed above is prohibited.



**Tracee Bentley**  
Executive Director  
Colorado Petroleum Council

1660 Lincoln Street, Suite 2320  
Denver, CO 80264

Telephone 720-214-7177  
Email BentleyT@api.org  
www.api.org

November 3, 2016

Board of Commissioners, Boulder County  
Boulder County Courthouse  
Third Floor  
1325 Pearl Street  
Boulder, CO 80302

**VIA EMAIL**

**SUBJECT: Proposed Amendments to Oil and Gas Development Regulations (Docket DC-16-0004)**

The Colorado Petroleum Council (“CPC”), a division of the American Petroleum Institute (“API”), respectfully submits the following comments on the Boulder County proposed regulations regarding oil and natural gas development. CPC welcomes and appreciates your consideration of our comments ahead of your hearing on November 15 & 17, 2016 and we believe our comments will help inform any final action by the Commission. These comments are substantially similar to the written comments we submitted to the planning commission on October 12, 2016.

**I. Interest of the Colorado Petroleum Council**

API, doing business in Colorado through its Denver offices as CPC, is the primary national trade association of America’s technology-driven oil and natural gas industry. API’s approximately 650 members are involved in all segments of the industry, including the exploration, production, refining, shipping, and transportation of crude oil and natural gas. In Colorado alone, 111,500 jobs were supported by the oil and natural gas industry in 2012. These jobs provided \$29.6 billion in state economic activity and over \$1.6 billion in state revenue that same year.<sup>1</sup> CPC members have invested billions of dollars in Colorado’s oil and natural gas industry. Together with its member companies, CPC is committed to ensuring a strong, viable oil and natural gas industry capable of meeting the energy needs of our Nation and Colorado in a safe and environmentally responsible manner.

---

<sup>1</sup> See, e.g., <http://www.energyfromshale.org/americas-communities/colorado>.

## II. Provisions of the Proposed Regulations Are Preempted by State Law, and Will Lead to Costly and Unnecessary Litigation

Colorado’s Oil and Gas Conservation Act (the “Act”) was enacted by the legislature to “foster the responsible, balanced development, production, and utilization of the natural resources of oil and gas in the state of Colorado in a manner consistent with protection of public health, safety, and welfare, including protection of the environment and wildlife resources,” to “protect the public and private interests against waste,” and to “enforce the coequal and correlative rights of owners.”<sup>2</sup> Pursuant to the Act, the Colorado Oil and Gas Conservation Commission (“COGCC”) has enacted detailed and comprehensive regulations of oil and gas development in Colorado. Among other provisions, the regulations include well permitting requirement; standards for casing and cementing of wells; minimum setbacks from buildings, roads, and utility lines; site reclamation standards; fire and blow-out prevention measures; aesthetic and noise control standards; measures for the protection of wildlife; bonding requirements; and public disclosure of chemical additives used during well stimulation.<sup>3</sup> The regulations also allow local governments to create Local Government Designees, who are authorized to receive information from the COGCC and well operators, and to participate in the development of comprehensive drilling plans.<sup>4</sup> Compared to other states, it is the experience of API member companies that Colorado possesses some of the very strongest, if not the strongest, regulations regarding oil and natural gas development in the nation, including unequaled provisions related to local government participation and input.

The Colorado Supreme Court has very recently held that counties and municipalities cannot completely prohibit oil and natural gas development within their borders, and cannot regulate oil and natural gas activities in a manner that conflicts with state law or regulations. Building on common law preemption principles announced as far back as 1992, the Court earlier this year announced two decisions, *City of Fort Collins v. Colo. Oil and Gas Ass’n* and *City of Longmont v. Colo. Oil and Gas Ass’n*,<sup>5</sup> that confirmed the fundamental principle of state law primacy with respect to oil and natural gas development: local governments, including county governments, cannot prohibit what the state permits, regulate in a way that conflicts with any state law, or otherwise interfere with the state’s interest in natural resource development and its uniform statewide regulation.

Unfortunately, many provisions of the proposed regulations violate this principle. Even a cursory review of the proposed regulations reveals several facially problematic provisions that are unlikely to survive judicial scrutiny. While some of these are discussed in more detail in Section IV below, CPC believes the following provisions of the proposed regulations, without limitation, are unlawful under Colorado

---

<sup>2</sup> COLO. REV. STAT. § 34-60-102.

<sup>3</sup> See 2 COLO. CODE REGS. §§ 404-1:303, 1:404, 1:603, 1:606A, 1:701-712, 1:801-805, 1:1001-1004, 1:1201-1205.

<sup>4</sup> *Id.* at §§ 404-1:214, 1:216.

<sup>5</sup> 2016 CO 28, 29.

preemption doctrines, as recently confirmed by the Colorado Supreme Court in *Fort Collins* and *Longmont*.<sup>6</sup>

- APD approval, § 12-400(A)(4)
- Completeness Determination, § 12-400(G)
- Emergency Preparedness Plan, § 12-500(L)
- Air Quality, § 12-600(C)
- Floodplains and Floodways, § 12-600(F)
- Natural Resources, § 12-600(I)
- Pipelines, § 12-600(J)
- Water Quality, § 12-600(O)
- Wetlands Protection, § 12-600(P)
- Conditions of Approval Applicable to All Special Review Approvals, § 12-700, especially §§ 12-470(E)-(F), (H), (J)-(K), (T)
- Enforcement, § 12-1000
- Amendments to Art. 4-514(E)(2)

CPC also notes that while the above provisions are likely vulnerable to facial challenges, nothing would preclude affected companies from pursuing as-applied challenges to specific proposed regulations if they were enforced in a manner that conflicted with state law or rendered it superfluous. Indeed, given the extreme breadth of many of the proposed regulations, it is hard to imagine a scenario in which no provision is applied in a conflicting manner at some point in the future. While the effects of the proposed regulations on human health and the environment are speculative at best, it is a near certainty that they will lead to more costly – and avoidable – litigation for the County.

### **III. Boulder County Has Failed to Justify the Need for Additional, Duplicative Regulation of Oil and Natural Gas Production**

While the preemption issues discussed above are the most likely to be litigated – at taxpayer expense – the threshold question of whether additional, duplicative regulations in Boulder County are even warranted has simply not been addressed in a thoughtful way. The summary assertions found in the “Purpose” section of the proposed regulations are familiar to API in the sense that many of these sentiments appear in other legal and regulatory documents aimed at stopping or curtailing oil and natural gas development across the country, but whatever these possess in emotional or political appeal they lack in scientific merit.

---

<sup>6</sup> In contrast to how Colorado stands apart as one of the strongest regulations in the nation, its conflict preemption principles as applied to oil and natural gas regulations are utterly unremarkable. API’s experience with these issues in many other states would also lead us to conclude that these provisions, if enacted at the local level in Michigan, New Mexico, Ohio, Virginia, or West Virginia, to name just a few, would also be invalidated by the courts.

For example, section 12-100(A) states, without support, that oil and natural gas development is “intensive” and “has the potential to significantly impact the surrounding community and environment,” a description that could be applied to a nearly limitless array of activities not singled out for stricter local regulation in Boulder County, including wind energy development, craft brewing, or lawn care. Unsurprisingly, this section cites “concerns” raised by local residents, yet does not mention any number of peer-reviewed scientific assessments that find no connection between such concerns and oil and gas development, including the U.S. Environmental Protection Agency’s own draft assessment on water quality impacts of hydraulic fracturing that found no widespread, systemic impacts to drinking water. And Section 12-100(B) maintains that the COGCC does not adequately review local impacts, without discussion of the many specific COGCC regulations allowing for public input and participation that are unrivaled in any other set of state regulations. Without adequate justification for additional regulation anywhere in the record (and in fact, the record is completely devoid of analysis of how the proposed regulations will promote protection of human health and the environment), it seems more likely that the proposed regulations are driven by local animus towards the industry, not science or other sound policymaking concerns.

#### **IV. Other Specific Comments on the Proposed Regulations**

- *Emergency Preparedness Plan.* The requirements described in section 12-500(L) are potentially preempted by state law, overbroad, and may actually decrease public safety by forcing compliance with unworkable and inflexible response plans. For example, the requirements of section 12-500(L)(4) could create response plans that are far too prescriptive or narrow to be implemented in the event of an actual incident. CPC recommends that these and related provisions be removed and replaced with references to COGCC regulations regarding emergency response plans.

- *Air Quality.* Section 12-600(C) is potentially preempted by state and federal law, and may decrease the safety of certain operations by imposing blanket requirements on “all emissions,” even where, for example, flaring or venting of natural gas may be required to prevent or minimize the likelihood of an incident. CPC recommends removing this provision, or adding an express exception for health and safety related operations.

- *Natural Resources.* Section 12-600(I) contains numerous overly broad, vague, and undefined terms, including “significant natural communities,” “natural areas,” “distinctive rock ... forms,” and “other identified visual ... resources.” CPC recommends that this section be limited to significant riparian corridors and critical wildlife habitats.

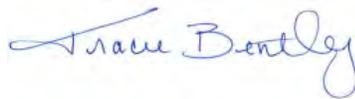
- *Pipelines.* In addition to potential preemption by state law, this provision is also potentially preempted by federal law. CPC recommends it be removed, or revised to apply only to pipelines not under federal jurisdiction.

- *Enforcement.* While CPC is not aware of any jurisdiction in the country where upstream oil and gas operations are lawfully subject to county enforcement actions, the provisions in section 12-1000(A) authorizing county-level “stop work” orders could actually give rise to unsafe operating conditions in the event they conflict with state authorized operations or are based on unsupported concerns. CPC recommends section 12-1000 be removed.

\* \* \*

Thank you for the opportunity to provide comments. If you have any questions, please do not hesitate to contact me at (720) 214-7177, or [bentleyt@api.org](mailto:bentleyt@api.org).

Sincerely,



Tracee Bentley  
Executive Director  
Colorado Petroleum Council

**From:** Holly Froeschner  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** fracking moratorium and regulations  
**Date:** Friday, November 04, 2016 3:59:52 AM

---

I live in Lafayette and am disabled by an immune condition that results in increased sensitivity to many environmental chemicals. I suffer from neurological disorders like migraines, incoordination, seizures, nausea, difficulty walking and breathing. I regularly have to drive through Weld County to visit my doctor in Fort Collins. Every time I do, I have to turn off all of the vents in my car, otherwise I get quite sick during the drive.

While my health condition might seem unusual, it is not really all that uncommon. Recent research has found that air pollution alone causes 200,000 premature deaths per year in the United States. Many others suffer from conditions like respiratory illness, immune disorders or cancer that are triggered by environmental pollutants.

Fracking uses undisclosed dangerous chemicals, which makes the industry very difficult to effectively regulate for health purposes. During the flood of 2013, those chemicals end up spread over the land, when many fracking wells were suddenly underwater. Currently, we are already dealing with a significant problem in the form of air pollution throughout our area from methane, cancer-causing benzene, and other harmful volatile organic compounds, as a result of oil and gas wells.

I live tenuously in Lafayette, where I have been fortunate through the charity of friends to have housing made available at a price I can afford on my meager disability salary. My concern is that if fracking comes to Boulder county, people like me will most likely have to leave. For me, this means homelessness. Others will not have such an obvious and immediate crisis, but will become statistics battling cancer, asthma, birth defects and other harm.

I understand that a recent court ruling struck down Boulder County's right to ban fracking, even in urban and residential areas where it clearly does not belong. Once the ban is lifted on November 18, oil and gas companies have every reason to rush the process of opening new operations, and once operations are established, it will be nearly impossible to remove them. We need a delay. I hope that Boulder County will take a stand by re-imposing a 6 month moratorium on fracking, in order to reevaluate our regulations.

In the mean time, we need to enact regulations to 1. Require that fracking companies prove, through bonds, before beginning operations, that they are financially solvent and able to clean up the entirety of the messes they create. 2. Require that they present viable, environmentally-responsible plans for how they will clean up the waste used and produced in their operations. Polluted fracking water must not be spread over fields or roads, but disposed of in a way that does not risk exposing people to the harmful chemicals it contains.

Thank you for your attention.  
Holly Froeschner

**From:** WindchimeL@aol.com  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** please extend moratorium  
**Date:** Friday, November 04, 2016 10:09:44 AM

---

I am in support of the moratorium on fracking in Boulder County!

Laurie Dameron

2635 Mapleton Ave #4  
Boulder, CO 80304

**From:** sasecord@aol.com  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** Comment in support of a new moratorium  
**Date:** Friday, November 04, 2016 2:00:14 PM

---

Dear County Commissioners,

First, I want to express my sincere appreciation to you for developing new oil and gas regulations for the county. After the Colorado Supreme Court's ruling that local fracking bans and moratoria were unconstitutional, I appreciate all of your efforts to safeguard the health of our community, and to protect our water and air.

I am also writing in support of the recommendation made by the Boulder County Planning Commission (9-0 vote) to pass a new 5-year moratorium on fracking. Their vote, I understand, was influenced by a recently released study by the Yale School of Public Health which showed that fracking can be linked to cancer-causing chemicals. <http://publichealth.yale.edu/news/article.aspx?id=13714>

I want to call your attention to other studies published in recent months that also raise serious concerns about the impacts of fracking:

In April 2016, Environment America published a report entitled Fracking by the Numbers: the damage to our water, land and climate from a decade of dirty drilling. An article about the report can be found here:

<https://thinkprogress.org/frackings-total-environmental-impact-is-staggering-report-finds-7cec0834c0e5#9in485sqb>

Here is the link to the full report:

<http://environmentamerica.org/sites/environment/files/reports/Fracking%20by%20the%20Numbers%20vUS.pdf>

In August 2016, a new study from Johns Hopkins was published in Environmental Health Perspectives. This study revealed associations between fracking and various health symptoms, including nasal and sinus problems, migraines and fatigue. An article about the study is here: <http://www.ecowatch.com/health-dangers-fracking-1986527671.html>

Here is the link to the full report:

[http://www.eenews.net/assets/2016/08/25/document\\_ew\\_01.pdf](http://www.eenews.net/assets/2016/08/25/document_ew_01.pdf)

The Colorado Supreme Court's ruling may make you think that your hands are tied. However, the Court did not have the latest scientific information about the serious health impacts of fracking when making its decision. I urge you to take a new stand against fracking in our community and to vote for a new fracking moratorium.

Thank you for your service,

Susan Secord  
1280 Fairfield Drive  
Boulder, CO 80305

**From:** Gail Hartman  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** Comment for the Oil and Gas Public Hearing  
**Date:** Friday, November 04, 2016 3:55:03 PM

---

To the Board of County Commissioners,

I was delighted to hear of the Planning Commission's recommendation that you impose a new oil and gas moratorium that would extend for as many as five years beyond the current Nov. 18, 2016 end date.

It seems that scientists and engineers are releasing new studies weekly now on the myriad detrimental impacts of fracking. If you haven't already read this, a new fascinating study on the impacts of microbial life in fracking wells was just published in the October issue of *Nature Microbiology*: <http://www.pnnl.gov/news/release.aspx?id=4315>

In Louisville where I reside, we have recently been faced with a developer who announced publicly that he is going to erect a group of mega-mansions and frack the (Mayhoffer) land adjacent to downtown. Although we all realize his hubris upon stating that he doesn't have to get any special permission from the City or County to do any of that, it's just one example of what we're all up against in Boulder County. A moratorium is the only way to stop such supercilious developers who don't care one iota about the health and safety of residents nor our natural environment.

I therefore urge you to accept the recommendation of the Boulder County Planning Commission to place a moratorium on fracking until the time that all ongoing state and national scientific and engineering studies are complete, their data compiled, and analyses made by impartial experts.

Thank you,

Gail Hartman

Louisville, CO

**From:** Dann Kramer  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** Fracking Comment  
**Date:** Saturday, November 05, 2016 12:30:11 PM

---

Fracking should not be allowed in Boulder County. Fracking causes pollution. Fracking causes earthquakes. Fracking causes toxic chemicals to be injected into the earth. Fracking pollutes the aquifer. Fracking causes cancer. Fracking promotes the continued use of fossil fuels that are destroying the climate of the only planet we have. Fracking has made a moonscape out of Weld County. Fracking causes decreased property values. Allowing fracking risks considerable lawsuits against the county due to reduced property values. Geologically, Boulder doesn't even contain that much fossil fuel. Fracking should be restricted to Weld county where all the natural gas is. The beauty of Boulder County should be preserved!!

If there is no way fracking can be prohibited, these comment sense restrictions should apply:

- A high standard of evidence that a fracking applicant has the means to fund and complete, without public assistance, post-production well-plugging, clean-up, and restoration.
- Baseline measurements of radioactive pollutants conducted by the applicant in soils at or near the well pad before, during, and after production, and a plan in place for any needed clean-up.
- No use of produced water or flowback on county roads or for agriculture, or disposal in any way that could impact soil, groundwater or surface water. Operators held responsible for any spills or leaks of produced water, flowback, fracking chemicals, sand/silica, or other fracking related inputs or outputs.
- The assumption of all costs and responsibility by the applicant for any damage to roads, shoulders or adjacent properties caused by fracking-associated vehicular traffic.
- A land use mitigation plan submitted by the applicant to reduce noise and lighting nuisances relative to surrounding residential areas, and limiting light and noise pollution to designated hours of the day.
- No flaring of gas, to reduce resource waste and prevent air pollution.
- Pre- and post-development sampling of water wells by the applicant up to at least ½ mile from the wellhead, with readings exceeding prescribed limits cause for suspension of fracking operations and remediation at the expense of the operator.
- Applicants must adhere to all relevant Colorado Air Quality and EPA air emission regulations and be regularly inspected by those agencies.

**From:** Robert  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** Fracking Moratorium  
**Date:** Saturday, November 05, 2016 1:59:04 PM

---

Please extend Boulder County's moratorium on fracking prior to Nov. 18 when the current ban expires. We don't need fracking in this county.

Bob Miller  
1353 Sharpe Place  
Longmont, CO 80501-4261  
303.772.7545

**From:** Amanda Papich  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** Nov 15 public hearing - oil and gas regulations  
**Date:** Saturday, November 05, 2016 7:55:54 PM

---

Boulder County Commissioners,

Since I work during the day, like most of your constituents, and cannot attend the meeting in person, I am writing you in regards to the 12:00 pm Nov 15 public hearing on the draft oil and gas regulations.

Stop kidding yourselves that fracking can be regulated. The citizens of this county elected you to protect us from the cancer causing global suicide of fracking. Your decision not only affects this county but affects the entire globe as fracking speeds climate change. People around the globe are already suffering from droughts, wars, and flooding because of climate change sped up by fossil fuels. Don't knowingly contribute to this problem by allowing fracking here.

If you truly supported Standing Rock in ND, you would not continue to make your constituents beg and plead for our lives, air, water, land, and planet.

Don't be a hypocrite; do your job and make a stand to protect your citizens against John Hickenlooper and Big Oil and Gas.

Mandi Papich  
324 Jasper Peak Ct.  
Lafayette, CO 80026

**From:** Danyelle Taylor  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** Please keep fracking out of our community  
**Date:** Sunday, November 06, 2016 7:08:29 AM

---

My family strongly believes that fracking has no place in Boulder County and we fully support you extending the moratorium.

Thanks for representing us on this key issue and keeping fracking out of our community.

Danyelle Taylor  
596 Sunnyside Street  
Louisville, CO

**From:** k shanafelt  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** Extend the moratorium  
**Date:** Sunday, November 06, 2016 8:42:55 AM

---

Please add my name to the long list of people opposing fracking. Thank you for extending the moratorium on fracking in Boulder County. We are going to run out of fossil fuels eventually, so why not just invest in safe ways to generate energy now?

Thank you,  
Kelly Shanafelt

**From:** ollimaleya@aol.com  
**To:** [Boulder County Board of Commissioners](#)  
**Subject:** 3.1 Earthquake in Weld Today! - Extend the Moratorium!  
**Date:** Sunday, November 06, 2016 1:45:13 PM

---

Carolyn Usher  
2210 Balsam Dr

**From:** Peter Korba  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** Fracking comment  
**Date:** Sunday, November 06, 2016 4:43:40 PM

---

Commissioners,

Thank you for following up on moratorium on fracking. Please to continue all in your power to diminish/minimize the effects and side effects of fracking on our citizens and environment.

Thank you!  
Peter Korba  
SoBo

**From:** David / Donna  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** Boulder County Fracking Moratorium - YES  
**Date:** Monday, November 07, 2016 9:11:37 AM

---

The moratorium that Boulder County has imposed on oil and gas drilling in Boulder County will expire later this month. This moratorium needs to be extended for the following reasons:

1. A decision needs to be made as to whether natural gas or water is more important. Boulder County is in a drought condition and cannot afford to give up water for drilling purposes. There are other sources that can be substituted for natural gas, but all of humanity needs water to survive.
2. There is new scientific research available regarding the health effects of fracking, including effects from fracking-related air pollution. These findings need to be evaluated, which requires time.

With so many uncertainties regarding the effects of fracking, I strongly urge you to extend the moratorium on fracking in Boulder County.

David Rogers

3011 Jefferson St

Boulder, CO 80304

**From:** Anne Carto  
**To:** [Boulder County Oil and Gas Comment](#)  
**Cc:** [Jamie Jost](#); [Mark Mathews](#); [Dan Haley](#); [Pearlman, Ben](#); [Hughes, David](#); [Sanchez, Kimberly](#)  
**Subject:** COGA Comments re 11.15.16 BOCC Hearing  
**Date:** Monday, November 07, 2016 12:08:55 PM  
**Attachments:** [COGA 11-7-16 Redline to Boulder 10-27-16 Redline \(proposed to PC\).pdf](#)  
[COGA Boulder Co Whitepaper 10.10.16.pdf](#)  
[COGA Letter Boulder Co BOCC 11.7.16.pdf](#)

---

Boulder County Commissioners and County Staff,

Attached are the Colorado Oil & Gas Association's comments to Docket DC-16-0004: Proposed Amendments to Oil and Gas Development Regulations. Included for your review you will find a letter, a redline of the regulations, and our Oil & Gas Regulations in the State of Colorado White Paper that was submitted to the Planning Commission for their October 12<sup>th</sup> hearing. Our comments reflect the latest draft available to us, which is the version that was presented to the Planning Commission on October 27<sup>th</sup>. We request that our comments be sent to the County Commissioners prior to the hearing.

We sincerely appreciate the county staff's outreach and ongoing dialogue throughout this process. Please let me know if you have any questions regarding our comments and we appreciate the opportunity to speak on November 15<sup>th</sup>.

Sincerely,

Anne Carto

Anne Carto

Community Outreach Manager

[Colorado Oil & Gas Association](#)

p: 303-861-0362 c: 303-503-8367

**COGA Confidentiality Notice** - This e-mail transmission, and any documents, files or previous e-mail messages attached to it, may contain information that is confidential or legally privileged. If you are not the intended recipient, or a person responsible for delivering it to the intended recipient, you are hereby notified that you must not read or play this transmission and that any disclosure, copying, printing, distribution or use of any of the information contained

in or attached to this transmission is **Strictly Prohibited**. If you have received this transmission in error, please contact the sender and delete the communication and its attachments immediately. Thank you.

November 7, 2016

**VIA EMAIL – NO ORIGINAL TO FOLLOW**

Boulder County Board of County Commissioners  
2045 13<sup>th</sup> Street, Suite 200  
Boulder, Colorado 80302

RE: Colorado Oil & Gas Association – Comments to Docket DC-16-0004:  
Proposed Amendments to Oil and Gas Development Regulations

Dear Board of County Commissioners,

The Colorado Oil & Gas Association (“COGA”) respectfully submits this letter to the Boulder County Board of County Commissioners (“BOCC”) for consideration prior to the BOCC Hearing on Tuesday, November 15, 2016.

Upon review of Docket DC-16-0004: Proposed Amendments to Oil and Gas Development Regulations (“Proposed Regulations”), it is clear that Boulder County has put substantial effort and time into crafting thorough and unique regulations as applied to oil and gas development in Boulder County. COGA appreciates the outreach of the Boulder County Planning Department staff throughout the drafting process and the opportunity to participate in three industry stakeholder meetings to discuss numerous issues and concerns that industry has with the Proposed Regulations. COGA, and its members participating in the meetings, have found these meetings to be fruitful and helpful in understanding the intent and purpose of many of the Proposed Regulations.

COGA has several key concerns with the Proposed Regulations which are addressed in the COGA White Paper, attached hereto as Attachment A, and the redline to the October 27, 2016 draft of the Proposed Regulations presented to the Planning Commission on the same date, attached hereto as Attachment B. COGA developed the White Paper in order to provide respectful feedback on: (1) the legal dividing line between the Colorado Oil & Gas Conservation Commission’s (“COGCC”) primary jurisdiction over oil and gas development and operations in the State of Colorado and Boulder County’s land use authority as it applies to oil and gas development and operations, and (2) the areas of the Proposed Regulation that cause operators the highest level of concern and it is illegal under the law of operational preemption. *See Attachment A, COGA White Paper for further details.* COGA also developed the redline, with substantial comments to each Section in the track changes “bubble format,” in order to provide alternative language and different

viewpoints on the original language in various Sections within the Proposed Regulations. See Attachment B, COGA 11-7-16 Redline Draft to Proposed Regulations for further details.

A brief summary of the key concerns with Boulder County's Proposed Regulations are as follows:

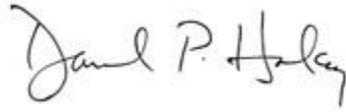
- The regulations in key areas fail to comply with current Colorado law regarding the primary jurisdiction of the COGCC;
- The regulations illegally give the County the ability to mandate siting of oil and gas location;
- The regulations include Best Management Practices or Mitigation Measures that exceed or overlap state agency regulations;
- The regulations include air and water quality standards that exceed or overlap state agency regulations and are operationally preempted;
- The regulations include pipeline permitting requirements that place an extraordinary burden on applications for proposed transmission pipelines;
- The regulations include bonding requirements that are not permitted under current Colorado law and that overlap with state agency bonding requirements;
- The regulations include a potential automatic *de facto* denial of any special review permit for oil and gas operations deemed "incompatible" by the Planning Staff; and the factors that may be considered in this determination include a number of issues over which the State has primary authority; and
- The regulations include a permitting process with an indefinite length of time associated with receipt of an approval/denial of a special review permit.

Finally, COGA understands that the Boulder County Planning Commission has unanimously approved a recommendation to the BOCC that it should consider imposing a moratorium of less than 5 years to craft additional regulations to protect the health safety and welfare of Boulder County residents based on new studies published. Such a moratorium would be operationally preempted by State law under the *City of Longmont v. Colorado Oil and Gas Association* and the *City of Fort Collins v. Colorado Oil and Gas Association* decisions. As you likely know, the Fort Collins lawsuit resulted from a five-year moratorium by the City of Fort Collins in 2013 on hydraulic fracturing and storage of fracking waste product. In its decisions, the Supreme Court held that the regulation of hydraulic fracturing was an issue of mixed state and local concern and that therefore, state law supersedes any conflicting local ordinance. Clarifying decades of confusing law on this issue, the Court explained that it would analyze an operational conflict by considering whether the "effectuation of a local interest would materially impede or destroys a state interest, recognizing that a local ordinance that authorizes what state law forbids or that forbids what state law authorizes will necessarily satisfy this standard." Applying this test, the Court held that Fort Collins' moratorium was operationally preempted because it conflicted with state law regulating and permitting hydraulic fracturing, and therefore materially impeded the state's interest in regulating oil and gas. The Supreme Court's analysis relied upon the state's interest in oil and gas development, as expressed in the Oil and Gas Conservation Act, as well as the "exhaustive set of rules and regulations to prevent waste and to conserve oil and gas in the State of Colorado while protecting public health,

safety, and welfare.” It is COGA’s firm position that any effort at imposing a moratorium on hydraulic fracturing in Boulder is plainly illegal under the Fort Collins decision because it, too, would conflict with the extensive COGCC regulatory regime explicitly permitting the practice of hydraulic fracturing.

COGA looks forward to addressing the Board of County Commissioners at the November 15, 2016 hearing and engaging in conversation with the Commissioners and Staff regarding its concerns. Please contact me with any questions you may have about this submission.

Sincerely,

A handwritten signature in black ink that reads "Dan P. Haley". The signature is written in a cursive, slightly slanted style.

Dan Haley  
President and CEO

Enclosures:

- Redline of Proposed Regulations
- COGA White Paper

cc: Ben Pearlman – Boulder County Attorney  
David Hughes – Boulder County Deputy Attorney  
Dale Case – Boulder County Planning Director  
Kim Sanchez – Boulder County Chief Planner  
Jamie Jost – Jost Energy Law, P.C.; Counsel to COGA  
Mark Mathews – Brownstein, Hyatt, Farber, Schrek LLP; Counsel to COGA

## Exhibit B New Article 12 Special Review for Oil and Gas Operations

### 12-100 Purpose

- A. The County’s objective is to protect public health, safety, welfare, and the environment to the maximum extent permitted by law. Oil and gas exploration and development is industrial in nature, intensive, and has the potential to significantly impact the surrounding community and environment. Boulder County Citizens have raised concerns about health problems, air pollution, water contamination, noise, odor, vibration, property damage, transportation impacts, and other impacts that may be caused by oil and gas development, particularly the extraction method known as hydraulic fracturing or fracking. ~~Traditional zoning would separate these industrial uses from residential and rural areas. However, due to the unique circumstance of the severed mineral estate, complete separation of uses may not be possible and~~ this Article has been promulgated to address this inherent incompatibility and to minimize potential land use transportation conflicts between those activities and current or future land uses.
  
- B. Although Colorado state agencies and the federal government also have controlling authority to regulate certain aspects of oil and gas operations, ~~these agencies~~ they may not adequately review the impact that individual proposed oil and gas development operations may have on local residents. Boulder County believes that a responsible review of such development should include (1) the submission of all necessary information related to proposed oil and gas development and its potential impacts; (2) thorough analysis and review of such information; (3) multiple opportunities for public input, especially from those who are near the proposed development; and (4) action on the proposal, including a thorough evaluation of and determination about all necessary or warranted mitigation measures. These local land use regulations are intended to provide close scrutiny of all proposed oil and gas development and multiple opportunities for public input prior to any decision being made. They also allow staff, the Planning Commission, and the Board of County Commissioners to consider site-specific circumstances related to each development application and to customize avoidance ~~and~~ minimization, ~~and~~ mitigation measures to best address each of the site-specific ~~se~~ circumstances. Finally, these regulations will help to ensure close inspection and monitoring, ~~and enforcement~~ of all post-permit approval compliance with all requirements and mitigation measures imposed by ~~these land use regulations~~ this Article.

**Comment [A1]:** Questionable use of language since the LGD can be involved in Form 2 or Form 2A with the COGCC.

**Comment [A2]:** This might mislead citizens to believe Boulder County has more enforcement authority than it does. Boulder County cannot require an operator to cease its operations as part of its enforcement authority under this Article. The operator will have authority to conduct its operations under the approved COGCC permit. Boulder County may, however, immediately contact the COGCC and request a cease and desist order under the proper COGCC procedures. Boulder County also doesn’t have enforcement authority over areas that are operationally preempted through COGCC regulation.

**Comment [A3]:** Will this be prospective date? It would be helpful to know what planning staff will be asking for.

**Comment [A4]:** There should be clarity that the new regulations apply only to new oil and gas operations and not existing locations, which are set forth in 12-300.B.

**Comment [A5]:** Any permit under this Article 12 should be tied to an Oil and Gas Location, as defined by the COGCC 100 Series Rules, and not “oil and gas operations” which contain any other terms that are well outside the scope of Boulder County’s authority to regulate.

**Comment [A6]:** What if a complete application has been accepted but not approved by the County as of the effective date? Presumably such an application would not be subject to the new Article, but this should be clarified.

### 12-200 Authority of Article

This article is authorized by C.R.S. §§ 25-8-101 et seq., 29-20-101 et seq., 30-28-101 et seq., 34-60-101 et seq., 25-7-101 et seq., and other authority as applicable.

### 12-300 Effective Date; Pre-Existing Uses

- A. This Article shall become effective on the date specified in the adopting resolution of the Board. The provisions of this Article shall apply to all new oil and gas operations locations for which a complete application for special review has not been accepted by the County as of the effective date.
  
- B. Oil and gas operations locations that were legally established prior to the effective date of this Article but do not conform to this Article shall be allowed to continue. Any substantial

~~modification of such oil and gas operations requires special review under this Article. The Director shall make substantial modification determinations for such oil and gas operations as provided in 12-900(D). provided that the post-effective date operation remains effectively the same as the pre-effective date operation. as determined by the Director.~~

~~C. Should the Applicant dispute the Director's determination that a pre-effective date operation is not effectively the same as the post-effective date operation, the Applicant may appeal the Director's determination to the Boulder County Board of Adjustment. During the course of any Board of Adjustment Proceeding or subsequent appeal, the application shall not be processed.~~

**Comment [A7]:** There is no definition of "substantial modification." Clarity, certainty and consistency calls for a non-discretionary definition for an Applicant to understand.

## 12-400 Application Procedure for Special Review

### A. Review and Community Engagement

1. **Special Review Required.** ~~All~~ Except as provided for in 12-300, all new oil and gas ~~operations-locations~~ on public and private land within the unincorporated areas of Boulder County must comply with this Article. Prior to the commencement of any new oil and gas ~~operations-locations~~ in the unincorporated County, an Applicant must submit a special review application and the Board must approve the application according to this Article. No other form of discretionary land use review under this Code is required for oil and gas operations covered by this Article 12. Special review approval is also required prior to, or concurrent to at operator's discretion, the issuance of any County building permits, or associated pipeline, grading, access, floodplain, transportation impact fee, or other County permits necessary for the oil and gas operation. Oil and gas operations that may not require a building or other associated County permit must still obtain special review approval under this Article.
2. **Community Engagement.** Boulder County requires Applicants to engage with local communities, residents, and other stakeholders prior to exploration or development activity. The purpose of this engagement is to provide sufficient opportunity for comment on plans, operations, and performance, to listen to concerns of the community, and to address all reasonable concerns related to the site specific development as a result of a proposed ~~location~~operation.
3. **Surface Use Agreements.** Oil and gas ~~developers~~ operators commonly enter into surface use agreements with landowners at or near the location of the development. The County encourages such agreements but recommends that they not be finalized until the Applicant has completed special review, at which time the impacts related to the proposed siting of the ~~location~~operation will be analyzed. The County recognizes, however, that a private landowner can enter into a surface use agreement with an operator without County involvement.
4. ~~APD approval.~~ Application and Permit to Drill ("APD") approval from the COGCC is not local approval, and compliance with all terms and conditions of special review approval is required in addition to the requirements of APD approval. The County strongly recommends that applicants apply to the County for special review prior to applying for APD so that the Applicant is aware of applicable County to avoid the potential for conflicting requirements and mitigation measures prior to filing its APD application. The County recognizes, however, that the COGCC permits are have primary authority over oil and gas locations operations for all matters outside of these land use regulations.

**Comment [A8]:** Will Boulder County allow for comprehensive development plans to be utilized as an alternative to individual special review permits for each oil and gas location/operation?

**Comment [A9]:** In order to ensure that an operator is tracking for a reasonable approval time, Boulder County should allow concurrent review of the operator's plans for all necessary permits.

**Comment [A10]:** There is no exemption for any form of oil and gas operations.

~~Applicants who choose to proceed with APD prior to special review do so at their own risk.~~

**Comment [A11]:** This statement may be viewed as an immediate denial or delay in any spacing review permit if the COGCC APD is done first, and fails to recognize COGCC preemption. It also misstates the law of operational preemption – Boulder County may not enact regulations or impose conditions that conflict with COGCC regulations except in matters of purely local concern.

**B. Operator Registration.** All operators planning oil and gas ~~locations~~~~operations~~ within the County must complete an Operator Registration Form before requesting a pre-application conference. The Operator Registration Form must contain the following information:

1. Company name, address, email and ~~cellphone~~ ~~mobile phone~~ contact information for two individuals associated with the company who live within ~~or near~~ thirty miles of Boulder County and who will serve as 24 hour emergency contacts.
2. Comprehensive planning information as ~~follows~~:
  - a. Based on an operator’s business plan as of the date of the request, a good faith estimate of the number of wells the operator intends to drill in the next five years within unincorporated Boulder ~~County~~. A publicly traded company’s well estimates may be based on reserves classified as “proved undeveloped” for SEC reporting purposes.
  - b. A map showing the location within unincorporated Boulder County of the Operator’s existing well sites and related production facilities; sites for which the operator has approved or has submitted applications for drilling and spacing orders, or Form 2s or Form 2As; and sites the operator has identified for development on its current drilling schedule for which it has not yet submitted applications for COGCC permits.
3. Well estimates provided under this subsection must be made using reasonable business judgment based on information known to the operator as of the date the estimates are requested. Well estimates are subject to change at any time at the operator’s sole discretion.~~The operator must update the Form at the time of any changes.~~

**Comment [A12]:** Boulder has codified Rule 302.c., with modifications. There will be no requests for this information as allowed by Rule 302.c. – this regulation requires the submittal of the information prior to applying for any pre-application conference under 12-400.D.

**Comment [A13]:** The number of wells will be dependent on the sites. The timing of this provision is not optimal at the time of registration. Once an operators know the sites, it can provides more specifics as to the number of wells. Precise economic analysis cannot be determined without knowing to the location of the oil and gas sites.

**C. Special Review Process.** The special review process is a regulatory process based primarily upon subjective or context-specific criteria for new or substantially modified oil and gas operations. Special review applications require staff review, public hearing, and recommendation by the Planning Commission followed by review, public hearing, and decision by the Board of County Commissioners. Some applications may also require review by the Parks and Open Space Advisory Committee as provided for in subsection (I).

**D. Pre-Application Conference.**

1. **Timing.** A pre-application conference as defined in Article 3-201 of this Code must be held at least forty-five (45) days prior to the Applicant submitting an application for special review.
2. **Conference.** At the pre-application conference, the Director and the Applicant will discuss the points contained in Article 3-201 of this Code and review the County’s special review process so that the Applicant can ~~plan~~ ~~conduct~~ ~~construct~~ ~~and~~ ~~maintain~~ its proposed oil and gas ~~location~~~~operation~~ in a manner that ensures compliance with the special review regulations and applicable state and federal regulations. The pre-application conference allows the Applicant and Director to identify potential site-specific concerns and issues that relate to the special review process, to discuss project impacts and potential mitigation methods, and to discuss coordination of the County process with the State permitting process, if the State permitting process has not already been completed. Applicants are encouraged to, but are not required to, conduct the pre-application conference with the County prior to completing well siting decisions. Completion of the pre-application conference qualifies the Applicant to immediately submit an application for a special review provided the application is filed within six (6) months after the pre-application conference.

**Comment [A14]:** The term “plan” intends to have the conference prior to any siting determination. The term “conduct” provides more flexibility.

3. **Site Visit.** At the discretion of the Director after consultation with the landowner, the Director may require a site visit as part of the pre-application conference with the Applicant to evaluate ~~the oil and gas location, any alternative oil and gas locations on the landowner's property, well locations,~~ compliance with this Article, or mitigation measures that may be required to adequately ensure compliance with this Article.

**Comment [A15]:** This language should be modified to ensure that the regulations do not allow for siting authority to sit within Boulder County's discretion. The issue of siting is solely within the COGCC's jurisdiction.

E. **Applicant Neighborhood Meeting.** The Applicant must conduct a neighborhood meeting with adjacent and surrounding land-owners and other interested parties at a convenient public location. The meeting must occur ~~between 30 and 45~~ days in advance of an application being submitted. The neighborhood meeting must be noticed to the County and to all individuals entitled to notice pursuant to Section 12-400(H)(2) at least ~~thirty-fourteen (1430)~~ days prior to the meeting. At the neighborhood meeting, the Applicant ~~must~~ may provide an overview of its proposed oil and gas ~~location~~ operation and allow those in attendance to provide input as to the proposed ~~oil and gas operations on the operation~~ oil and gas location, including, but not limited to, ~~well siting and well locations,~~ issues that arise from application of this Article to the proposed operation, and suggested mitigation to adequately ensure compliance with this Article. The Applicant must provide a summary of the neighbor comments and any proposals from the Applicant for addressing neighborhood concerns agreed upon mitigation measures to the Director with the Application, within ten (10) days of the meeting.

**Comment [A16]:** A neighborhood meeting may not be an issue, but the meeting prior to the filing of the application is unnecessary. This could happen after the filing of the application and after the completeness review, during the referral period.

F. **Application Submission.** The application must include documentation establishing how the proposed ~~location~~ operation complies with all applicable requirements of Section 12-600. The Applicant must submit the application, the application fee, and supporting documentation in electronic format with ~~up to two (2)~~ four (4) additional copies of the application materials ~~in paper format. The Director may require additional paper copies of the application, or a portion of the application materials, if needed for review purposes, in paper format to the Land Use Department.~~ The application must contain a certification from the Applicant that the proposed ~~operati~~ location complies with all applicable provisions of this Article and that the information in the application, as well as in any accompanying documentation, is true and accurate. The application must be signed by a person authorized to sign on behalf of the Applicant and identify who will be the primary contact during the course of processing the application. The point of contact information in the application must be amended to specify the new point of contact if the Applicant's point of contact changes during the application process, ~~to specify the new point of contact.~~

**Comment [A17]:** This is the Section that Boulder County will use to determine their compatibility analysis.

G. **Completeness Determination.** Upon acceptance of the application, the Director will determine if Land Use staff needs consultants or staff other than the Land Use Department to assist the Director with the completeness determination. Upon review of the application materials by the Director and any necessary outside consultants, the Director shall determine within fourteen (14) days whether a special review application is complete. After notice and consultation with the Applicant and an appropriate time for the Applicant to cure deficiencies, ~~t~~he Director may reconsider his completeness determination ~~at any time~~ during the application process, including upon the request of a referral ~~agency.~~

**Comment [A18]:** Please provide clarification as to what is entailed in this amendment? It will not be kicked out or back, correct? This should be a simple notice

1. **Application Deemed Incomplete.** If the Director finds that the application is incomplete, the Director shall inform the Applicant of the deficiencies. No further action shall be taken on an incomplete application until all of the specified deficiencies have been addressed, or waived under this Code, to the Director's satisfaction. ~~Should~~ Should the Applicant fail to correct deficiencies within twenty-four (24) months, the application shall expire and the Applicant may submit a new application and fee as specified in section (F) above. The twenty-four (24) month time frame may be extended by the Director according to Article 4-604(D). Should the Applicant dispute the Director's completeness determination at any time, the Applicant may appeal the Director's determination to the Boulder County Board of

**Comment [A19]:** An operator needs certainty when planning for a permit and addressing local permitting issues with internal management and investors. A completeness determination should be an expedited part of the review process by the internal planning staff. This is especially true in light of an unknown waitlist period.

**Comment [A20]:** An Applicant should have the opportunity to cure any perceived defect with an application prior to the Director withdrawing the completeness determination. This is especially true if it is day 89 of the 90 day referral period (or as modified as proposed herein).

Adjustment. The Boulder County Board of Adjustment shall hear the appeal at its next meeting or within fourteen (14) day, whichever is sooner. During the course of any Board of Adjustment Proceeding or subsequent appeal, the application shall not be processed.

**Comment [A21]:** Note: Article 2-900 that defines the duties and responsibilities of the Boulder Board of Adjustment does not list Article 12 within its scope of its authority its ability to administer or enforce Article 12.

- 2. **Application Deemed Complete.** If the Director finds that the application is complete within the fourteen (14) day period, containing all documentation required by this Article, the Director shall process the application.

H. **Notice.**

**Comment [A22]:** This will be a second notice as these parties would also have had notice of the neighborhood meeting under Section 12-400.E.

- 1. The Applicant must mail notice to surface owners, to surrounding landowners, to water well owners, and to residents as identified in this section after the neighborhood meeting but no less than fiveten (510) days prior to the application being submitted to the Department. If approved by the Director, the Applicant may provide notice using alternative notice methods.

- 2. Notice of the application must be made as follows:

**Comment [A23]:** The notice radius should reflect the COGCC requirements for notice, which is 1,000' from a building unit for an oil and gas location.

- a. To the surface owner(s) of the parcel(s) of land on which the oil and gas locationoperation is proposed to be located; and

- b. To the owners of the parcels of land within one-half-mileone thousand feet (2,6401,000)-feet of the parcel oil and gas location on which the oil and gas operation is proposed to be located; and

**Comment [A24]:** As measured in accordance with COGCC measurement requirements.

- c. To the physical address of all parcels within one-half mile (2,640one thousand (1,000) feet)-offeet of the parcel-oil and gas location n-which the oil and gas operation-is proposed to be located if Boulder County Assessor's records indicate a mailing address for the parcel owner that is different than the physical address.

- d. Water well owners within one-half mile (2,640 feet) of the parcel on which the oil and gas operation is proposed to be located. The Applicant is responsible for determining the addresses of such well owners and providing a list of such owners to the Director.

**Formatted:** Font:(Default) +Theme Body (Calibri), 10 pt

**Formatted:** Normal, No bullets or numbering

e.

**Comment [A25]:** This is inconsistent with COGCC regulations.

**Formatted:** Indent: Left: 1.25", No bullets or numbering

The Land Use Department shall provide the list of addresses of record for property owners within one-halfone thousand feet mile-(1,000 2,640-feet) of the parcel on which the oil and gas locationoperation is proposed to be located to the Applicant at the pre-application conference so the Applicant can provide notice as required by subsection (a), (b), and (c) of this Section.

- 3. The notice must contain the following:

- a. A message in bolded 14-point or larger font on the front page of the notice that states as follows: "**Attention: An oil and gas operation-location consisting of [number of wells] is being proposed in your area within 1,000 feet of your parcel. Please read this notice carefully.**" Slight variations in this notice language may be approved by the Director at the Applicant's request.

- b. A description of the proposed operation site location, including the legal description; parcel number; a street address for the site, if available from the County's rural addressing system; the company name of the operator; the name of a company contact; the current business address, telephone number, and email address for the

Applicant; a vicinity map; and a brief description and overview of the proposed oil and gas operation, including details of the drilling techniques (i.e., a detailed description of the type and estimated duration of any proposed hydraulic fracturing).

**Comment [A26]:** Boulder County should not include regulations referencing or requiring durational limitations on an Applicant. This is preempted and outside of Boulder’s land use authority.

- c. Information concerning the facilities and equipment proposed at the site oil and gas location when operational, and proposed access roads and gathering lines.
- d. The anticipated submittal date of the application to the Department.
- e. A statement that public comments on the application may be submitted to the County Land Use Department after the application submittal date.
- f. A statement concerning the County's right to enter property that is the subject of the application as follows: "For the purpose of implementing and enforcing the County's special review for oil and gas operation regulations, County staff may from time to time need to enter onto the property that is the subject of a special review application."
- g. The current mailing address, website address, email, and telephone number for both the Local Government Designee for the County Land Use Department and the Local Government Liaison for the COGCC, as well as a statement that additional information on the application will be available from the County Land Use Department.

~~4. Notice Review and Approval. Prior to mailing the required notice, the Applicant must submit a sample copy of the notice form for review and approval by the Director. If the Director determines that the notice does not comply with the requirements of this Article, the Director may require the Applicant to send additional notice complying with this Article. The Director shall approve the form within three (3) days of receipt.~~

~~4.~~

**Formatted:** Font:(Default) +Theme Body (Calibri), 10 pt  
**Formatted:** Normal, Indent: Left: 0.5", No bullets or numbering

5. Posting Public Notice Signage Onsite. Within five (5) days of after submitting the application, the Applicant must post a public notice sign or signs on the site of the proposed operation oil and gas location that meet the following requirements:

- a. The sign must be posted in a location visible to the public (i.e., visible from a public road) and approved by the Director. If the Director determines that a single sign will not provide adequate public notice, multiple signs meeting the requirements of this section may be required.
- b. Signs must be four feet by six feet in area. The background must be bright yellow and the lettering must be in black.
- c. In lettering clearly visible and proportionate to the size of the sign, the sign must contain the following:
  - i. "Attention: An oil and gas location operation consisting of potentially [number of wells] is being proposed in your area. Please read this notice carefully."
  - ii. "The applicant has applied for Special Review, [docket number]"
  - iii. "Information regarding this application may be obtained from the Boulder County Land Use Department at [phone number]"
- d. ~~The contents and design of the sign must be approved by the Director prior to posting. Within five (5) days of the posting of the sign, the Applicant must submit a photograph of the sign or signs as posted for review by the Director. If the Director~~

**Comment [A27]:** These specifics could prove burdensome and costly for each location with the detail required.

**Comment [A28]:**

**Comment [A29]:** This is a lot of detail for signage. This should be parsed down.

determines that the sign not comply with the requirements of this Article, the Director may require the applicant post a sign or signs complying with this Article.

- e. The approved sign or signs must be posted and kept on the site until the special review process is completed. The Applicant must repair or replace signs that are damaged or defaced within five (5) days of learning of damage or defacement.
- I. **Referral Agency Comments.** Following the determination that an application is complete, the Director shall forward one copy to the County Transportation and Parks and Open Space Departments; Boulder County Public Health; the appropriate fire district; County Sheriff; and any appropriate municipality or school district for comment. If the proposed well site is on or within ~~1,000~~500 feet of County Parks and Open Space property, the Parks and Open Space Director ~~shall~~ may refer the application to the Parks and Open Space Advisory Committee for a public hearing. After the public hearing for the Parks and Open Space Advisory Committee, the Parks and Open Space Advisory Committee ~~shall~~ may forward recommendations for assuring the protection of environmental, ecological, wildlife, historical, archeological, and agricultural resources of the open space. The Director may also refer the application to other government agencies or entities for review and comment. Referral comments on the proposed development shall be returned to the Director within ~~ninety~~thirty (30) days of date of referral, unless the referral agency makes a reasonable request to the Director for additional time.
- J. **Consultant Review.** Where reasonable and necessary and discussed in advance with Applicant, the Director may submit the application for review and recommendation by consultants retained by the County with the necessary expertise to review technical or other aspects of the application. Among other consultant reviews, third party consultant review may be required to evaluate the risks and associated mitigation plans addressing the use of hydraulic fracturing near residential development. The Applicant shall be notified if the Director decides to retain a consultant, shall be given the opportunity to provide input concerning consultant selection and scope of work, ~~and shall escrow funds sufficient to cover the anticipated cost of the consultant's review. The Applicant shall be responsible for the actual costs associated with this consultant review and shall be refunded any excess escrowed funds.~~
- K. **Site Visit.** If not conducted with concurrently with the pre-application conference, the Department ~~may~~will conduct a site visit to allow the Director to determine compliance with these standards. The Department may coordinate the a-site visit with other County departments and of governmental agencies.
- L. **Planning Commission Notice and Hearing.** Not less than fourteen (14) days prior to the Planning Commissioner's public hearing, a legal notice of the public hearing shall be published in a newspaper of general circulation within the County, and written notice to the surface owners and surrounding property owners of the time and place of the Planning Commission's public hearing shall be provided pursuant to Section 12-400(H). The Planning Commission shall hold a public hearing on the application and shall make a recommendation of approval, approval with conditions necessary to ensure compliance with this Article, or denial, and the recommendation shall be forwarded to the Board of County Commissioners for review at the next regularly scheduled meeting.
- M. **Notice of Board of County Commissioners' Hearing.** Not less than fourteen (14) days prior to the Board of County Commissioners' public hearing on the standard permit review, a legal notice of the public hearing shall be published in a newspaper of general circulation within the County, and written notice to the surface owner and surrounding property owners of the time and place of the Board's public hearing shall be provided pursuant to Section 12-400(H).

**Comment [A30]:** This distance should reflect Section 12-400.H. Please confirm that other areas of the Code mandate the required footage from County Parks and Open Space property for other industries or zoning purposes.

**Formatted:** Not Highlight

**Comment [A31]:** We believe that this was referring to the Open Space Committee hearing as it does not fit within the special review hearing under this Article. Please confirm.

**Comment [A32]:** This requirement is concerning due to the confirmation of the Planning Staff that most applications, including the first few to be submitted under the new regulations, will be referred out to consultants for review as the expertise is not present in the planning staff.

**Comment [A33]:** An Applicant should not be required to pay for consultants as part of the local review process, especially in light of the unknown timing on receipt of a permit under the proposed process.

**Comment [A34]:** This timing assists in providing certainty to Applicants that, once recommended by the Planning Commission, it will be immediately placed on the BOCC's agenda at the next regularly scheduled meeting.

**N. Board of County Commissioners Hearing and Decision.** The Board of Commissioners shall conduct a noticed public hearing for review of a special review application. Any action taken by the Board of County Commissioners will be based on the entire record of proceedings on the matter, as that record is maintained by the Land Use Department Director and/or the Clerk of the Board of County Commissioners, including but not limited to: recordings or transcripts of public hearings; all written comments of referral agencies; the review and recommendations of the Land Use Department; and all written commitments, statements, or evidence made or submitted by or in behalf of the Applicants, landowners or interest holders or their agents, and interested members of the public who are within 1,000 feet of the oil and gas location. ~~The Applicant shall have the burden of proof to show that the applicable criteria for approval have been met.~~ On the basis of the evidence received at such public hearing(s), the Board shall make its determination to approve, approve with conditions necessary to ensure compliance with this Article, or deny the application. The Board's action shall contain appropriate findings or reasons in support of its decision. The Board shall render its decision on the special review application in writing within five (5) days following the conclusion of the public hearing.

**Comment [A35]:** It is understood that a public meeting is open to all citizens of Boulder County, however, the record should be based on the citizens within the notice radius.

**Comment [A36]:** This should be deleted because, in order to get to the BOCC, this would have already have been met at the planning level.

## 12-500 Application Submittal Requirements

Unless the submittal requirement is waived or modified by the Director based upon the Applicant's request at any point in the application process, the Applicant must submit the information and documents specified in this section with the special review application for oil and gas operations. The Director may waive or modify the submission requirements in this section if (1) because of the nature of the Application, the requested information is unlikely to be useful to the Board in applying the special review criteria or determining appropriate mitigation measures; (2) the usefulness of the information is substantially outweighed by the hardship placed on the Applicant in providing the information. Should the Applicant request a modification or waiver and dispute the Director's determination a submission requirement under this section should not be modified or waived, the Applicant may appeal the Director's determination to the Boulder County Board of Adjustment. During the course of any Board of Adjustment Proceeding or subsequent appeal, the application shall not be processed.

**Comment [A37]:** Is there a required procedure for such waiver or modification request? Also, for the granting of waiver or modification, will the standard be "for good cause shown" as in Proposed 12-700?

### A. County Application Form.

**B. Ownership.** Certification of ownership of the mineral estate proposed for development or of all necessary lease interests in the mineral estate proposed for development. ~~Identification of all persons with a real property interest in the subject property.~~

**Comment [A38]:** Does Boulder County plan on providing a specific form for this certificate of ownership?

**Comment [A39]:** There may not be full title done on the mineral interest of the oil and gas location. This requirement is also unreasonable and unnecessary.

**C. Neighborhood Meeting Information.** A summary of the neighbor comments and any proposals from the Applicant for addressing neighborhood concerns.

~~**C.D. Date of APD Filing.** Anticipated or actual date of associated APD filing with the COGCC. if the APD filing has occurred prior the filing of the application, the Applicant must include a written explanation regarding why the Applicant chose to proceed with APD prior to special review.~~

**Formatted:** Font:Not Bold, Character scale: 100%

**Formatted:** Normal, No bullets or numbering

**Formatted:** Font:(Default) +Theme Body (Calibri), 10 pt, Bold

**Comment [A40]:** This is unreasonable and unnecessary. There is no requirement that the local permit must be applied for or received prior to the governing COGCC permit.

~~**D.E. Surface Agreements.** A copy of any non-confidential surface use agreement(s) or memorandum of surface use agreements recorded with the Boulder County Clerk, the Applicant entered into related to the project-oil and gas location.~~

**Comment [A41]:** Many surface use agreements are confidential and cannot be submitted under this requirement. If a Memorandum of SUA has been recorded, then that may be submitted.

**Comment [A42]:** This should be limited to the oil and gas location since that is the site being approved by Boulder County, not the entire project.

**E.F. Proof of pre-application Conference.** Date the Applicant conducted the pre-application conference with the Department.

**F.G. Proof of Notice.** Certification of proper ~~notice~~, including Director approval of the notice, as required by Section 12-400(H).

**Comment [A43]:** Does Boulder County plan on providing a specific form for this certificate of proper notice?

**G.H. Verification of Legal Access and Use of Private Roads.** Information demonstrating that the Applicant has the right to use private access roads that are necessary for the oil and gas operations on the oil and gas location, and that the Applicant has entered into an agreement with the private road owner regarding maintenance, improvements necessitated by the proposed oil and gas operation, and reimbursement for damages. Recorded or historically used easements providing access to or across the parcel(s) must be provided.

**Comment [A44]:** This language should be deleted as Boulder County has no authority to interfere with the private agreements, and the terms of such agreements, with a private road owner.

**H.I. Proximity of Other Wells and Other Oil and Gas Operations.** A map showing the location of all producing, closed, abandoned, and shut-in wells and any other oil and gas operations within one (1) mile of the site.

**H.J. Site Plan and Parcel Information.** The following information must be included:

1. **Facility siting.** The proposed location of wellhead, pumping units, tanks, treaters, staging and storage areas, temporary use areas and permanent well pads for all phases, fencing, and equipment associated with the oil and gas operation.
2. **Alternative site analysis.** Submission of an alternative site analysis that identifies and examines the feasibility of ~~any at least three (3) alternative~~ any alternative well locations ~~reviewed by Applicant, that would allow for extraction of the resource and that considers concentration of multiple wells on a single well pad versus smaller well pads with fewer or single wells. The Applicant shall show that reasonable consideration has been given to such alternative sites.~~
3. **Existing structures.** Identification of all existing occupied structures and other improvements within ~~one, one-half (1)~~ mile from any wellhead, pumping units, tanks, and treaters.
4. **Water bodies.** Any surface water bodies including, but not limited to, ditches and reservoirs as identified and mapped on the County's Ditch and Reservoir Directory, within one-half one (1) mile of the wellhead, pumping units, tanks, and treaters.
5. **Water wells.** Any domestic or commercial water wells or irrigation wells within one-half mile of the wellhead, pumping units, tanks, and treaters.
6. **Geologic hazards.** All high hazard geologic areas as defined in the Comprehensive Plan within one-half mile of the wellhead, pumping units, tanks, and treaters.
7. **Floodplain.** Mapping of all floodplains and floodways as defined in Article 4-400, including the FEMA Floodplain and the Boulder County Floodplain, within one-half mile of the wellhead, pumping units, tanks, and treaters.
8. **Comprehensive Plan natural resources.** All mapped significant natural communities, natural landmarks and natural areas, rare plant areas, significant riparian corridors, or critical wildlife habitat as each is defined in the Comprehensive Plan, in effect as of the effective date of this Article within one-half one (1) mile of the wellhead, pumping units, tanks, and treaters.
9. **Drainage.** Drainage patterns, ditches, wetlands or aquatic habitat, vegetative cover, wildlife habitat and wildlife migration routes, and geologic features as defined in the

Comprehensive Plan or identified onsite and within one-half mile of the location on which the operation is proposed.

- 10. **Site disturbance.** Dimensions of the site, indicating area in square feet and acres, and the area of the site to be disturbed for permanent operations and temporary operations.
- 11. **Easements and Rights-of-Way.** Utility line easements and rights-of-way within 150 feet of the proposed site and access road.
- 12. **Existing and Proposed Lines.** Existing and proposed water pipelines to or from the site and all other pipelines, tanks, wells, gathering lines, and flow lines servicing the site.
- 13. **Existing and Proposed Roads.** Existing and proposed roads within the parcel and on the site as well as ingress and egress from public and private roads.
- 14. **Topography.** Existing and proposed topography at five-foot intervals to portray the direction and slope of the area within 1,0500 feet of the operation.

**J.K. Agricultural Land Mitigation Plan.** An assessment of any agricultural lands potentially impacted by the proposed operation and a plan for mitigating impacts in compliance with Section 12-600.

**K.L. Air Quality Plan.** A plan establishing compliance with the air quality provisions of Section 12-600.

**L.M. Emergency Preparedness Plan.** Each Applicant with an oil and gas location operation in the County is required to implement an emergency preparedness plan for each oil and gas operation location, unless an overall emergency preparedness plan for an Applicant's oil and gas locations within Boulder County has been approved by the Director. The emergency preparedness plan must consist of at least the following information:

- 1. Name, address and phone number, including 24-hour emergency numbers for at least two persons located in or near Boulder County who are responsible for emergency field operations. The Applicant is responsible for ensuring that at least one of these emergency contacts can respond to a phone call within thirty (30) minutes.

2. Once construction is finalized on an oil and gas location, a map in a format suitable for input into the County's GIS system depicting the locations and type of above and below ground facilities including sizes and depths below grade of all onsite and offsite oil and gas gathering and transmission lines and associated equipment, isolation valves, surface operations and their functions. The as-built map must be submitted within thirty (30) days of removal of the completions crew from the specific oil and gas location. The information concerning pipelines and isolation valves shall be held confidentially by the County's Office of Emergency Management, and shall only be disclosed in the event of an emergency. The County shall deny the right of inspection of the as-built facilities maps to the public under C.R.S. § 24-72-204.

2. Transportation routes to and from exploration and development sites for emergency response and management purposes, including at least two evacuation routes.

- 3. Detailed information addressing each potential emergency that may be associated with the operation. This may include any or all of the following: explosions, fires, gas, oil or

**Comment [A45]:** Does Boulder County have a specific form it will be using for this plan? An Applicant should not have to assume that its plan form will work, only to be rejected, especially given the extensive, unknown timeline of receipt of a final decision on a special review permit.

**Comment [A46]:** Does Boulder County have a specific form it will be using for this plan? An Applicant should not have to assume that its plan form will work, only to be rejected, especially given the extensive, unknown timeline of receipt of a final decision on a special review permit.

**Comment [A47]:** See comments to 12-600 provisions.

**Comment [A48]:** Does Boulder County have a specific form it will be using for this plan? An Applicant should not have to assume that its plan form will work, only to be rejected, especially given the extensive, unknown timeline of receipt of a final decision on a special review permit.

**Formatted:** Indent: Left: 1", No bullets or numbering

**Comment [A49]:** An as-built can only be created upon completion of the oil and gas location, wells and associated facilities.

**Formatted:** Font:(Default) +Theme Body (Calibri), 10 pt

**Formatted:** Normal, Indent: Left: 0.75", No bullets or numbering

**Formatted:** Font:Character scale: 103%

**Formatted:** Font:(Default) +Theme Body (Calibri), 10 pt

**Formatted:** Normal, No bullets or numbering

water pipeline leaks or ruptures, hydrogen sulfide or other toxic gas emissions, or hazardous material vehicle accidents or spills. This may also include hazards to the site such as earthquakes, floods, or wildfire. For each potential emergency, threshold / trigger levels shall be pre-identified that govern when an emergency state is declared by the Applicant.

4. The plan must include a provision that any spill outside of the containment area or that has the potential to leave the facility or to threaten a water body or groundwater must be reported to the emergency dispatch and the Director immediately. This may also include hazards to the site such as earthquakes, floods, or wildfire..
5. Detailed information identifying access or evacuation routes, and health care facilities anticipated to be used.
6. Project specific emergency preparedness plans are required for any project that involves drilling or penetrating through known zones of hydrogen sulfide gas.
7. The plan ~~must~~ may include a provision that obligates the Applicant to reimburse the appropriate emergency response service providers for costs incurred in connection with any emergency. The appropriate emergency response service provider may specify alternative methods for reimbursement of its services. If requested by the emergency response agency, a provision in the plan that includes regular training exercises.
8. Detailed information that the Applicant has adequate personnel, supplies, and funding to implement the emergency response plan immediately at all times during construction and operations.
9. The plan must include provisions that obligate the Applicant to keep onsite and make immediately available to any emergency responders the identification and corresponding Safety Data Sheets (SDS) of all products used, stored or transported to the site. The SDS must be updated weekly and provided immediately upon request to the Director, a public safety officer, a County Public Health representative, or a health professional. In cases of spills or other emergency events, the plan must include provisions establishing a notification process to emergency responders of potential products they may encounter, including the products used in the hydraulic fracturing fluids.
10. The plan must include a provision establishing a process by which the Applicant engages with the surrounding neighbors to educate them on the risks and benefits of the onsite operations and to establish a process for surrounding neighbors to communicate with the Applicant.

**M-N. Land Disturbance Mitigation Plan.** An assessment of areas of land disturbance, an analysis of the species, character and density of existing vegetation on the site, a summary of the potential impacts to vegetation as a result of the proposed operation, and a plan, including proposed landscaping, revegetation, and other mitigation measures, demonstrating compliance with the standards of Section 12-600. If site work has been done less than one year before the application submittal, the condition of the property prior to site work shall be used as a baseline. The application shall include any COGCC required interim and final reclamation procedures.

**N-O. Operations Plan.** A plan describing the proposed operations including the method, schedule, and duration of time for drilling, completion, transporting, production and post-operation activities.

- Comment [A50]:** It is likely this information and education occurs at the neighborhood meeting prior to filing the application. Would Boulder County accept this meeting as part of the process?
- Comment [A51]:** Does Boulder County have a specific form it will be using for this plan? An Applicant should not have to assume that its plan form will work, only to be rejected, especially given the extensive, unknown timeline of receipt of a final decision on a special review permit.
- Comment [A52]:** The COGCC also requires a reclamation plan. Reclamation of an oil and gas location falls within the realm of the COGCC authority.
- Comment [A53]:** Does Boulder County have a specific form it will be using for this plan? An Applicant should not have to assume that its plan form will work, only to be rejected, especially given the extensive, unknown timeline of receipt of a final decision on a special review permit.
- Comment [A54]:** An Applicant may have an estimate of the duration for drilling, et al, but Boulder County cannot mandate a duration of time/drilling obligation on the oil and gas operations.

**O. Transportation Plan.** The Applicant must submit a ~~report plan establishing compliance with the transportation standards in Section 12-600 and~~ which contains the following information:

1. Map indicating proposed trip routes for all traffic serving the oil and gas ~~operation location~~ during all phases of well development and operations.
2. Indicate for each segment of the proposed route in Boulder County the types, sizes, weight, number of axles, volumes, and frequencies (daily, weekly, total) and timing (times of day) of all vehicles to be used for the proposed oil and gas ~~operation location~~.
3. Identify all measures necessary to ensure the safety and quality of life experience of other users of the county transportation system, adjacent residents, and affected property owners, including without limitation:
  - a. operational measures to minimize impacts to the public including, but not limited to, time of day, time of week, vehicle fuel and emissions reduction technology, noise minimization, and traffic control safety measures;
  - b. maintenance practices on the proposed route, including without limitation, grading of unpaved roads, dust suppression, vehicle cleaning necessary to minimize re-entrained dust from adjacent roads, snow and ice management, sweeping of paved roads/shoulders, pothole patching, repaving, crack sealing, and chip sealing necessary to maintain an adequate surface of paved roads along the proposed route; and
4. any necessary physical infrastructure improvements to ensure public safety for all modes of travel along travel routes to and from the site.

**P. Water Supply.** Applicant must submit estimated water supply requirements and usage for the proposed development including:

1. An estimate of the amount of water needed for the through all phases of the oil and gas operation on the oil and gas location;
2. A list of all available physical water sources of water supply for the project, and if multiple sources are available, and analysis of which source is least detrimental to the environment;
3. A description of the physical source of water supply that the Applicant proposes to use to serve the oil and gas operation on the oil and gas location;
4. Water conservation measures, if any, that may be implemented within the oil and gas operation on the oil and gas location; and
5. An estimate of the amount of water that will be used at the site, where and how the water will be consumed, the amount of wastewater produced, and disposal plans for wastewater.

**Q. Offsite Transport Plan.** A plan identifying the alternatives for transporting water and oil and gas resources to and from the site. The plan must include:

1. Pipeline Option. A plan demonstrating how pipelines may be used to transport water, wastewater, and the resource, including ~~all~~ flowlines, gathering lines, and pipelines located within Boulder County that may be used to serve the site and establishing compliance with the pipeline provisions of Section 12-600.
2. Vehicle Option. A plan demonstrating how truck transportation may be used to transport water, wastewater, and the resource as an alternative to pipelines. The plan must include the information in subsection (O) above with respect to trucks uses to transport water and oil and gas.

**Comment [A55]:** Does Boulder County have a specific form it will be using for this plan? An Applicant should not have to assume that its plan form will work, only to be rejected, especially given the extensive, unknown timeline of receipt of a final decision on a special review permit.

**Comment [A56]:** Does Boulder County have a specific form it will be using for this plan? An Applicant should not have to assume that its plan form will work, only to be rejected, especially given the extensive, unknown timeline of receipt of a final decision on a special review permit.

**R. Electrification Plan.** A plan identifying all sources of electricity that will be brought to or used at the site during all phases, including drilling, completion, and operations.

**Comment [A57]:** Does Boulder County have a specific form it will be using for this plan? An Applicant should not have to assume that its plan form will work, only to be rejected, especially given the extensive, unknown timeline of receipt of a final decision on a special review permit.

**S. Cultural and Historic Resources Mitigation Plan.** A cultural, historical and archeological survey of the parcel or parcels to be used for the proposed oil and gas operation that demonstrates compliance with the standards of Section 12-600.

**Comment [A58]:** Does Boulder County have a specific form it will be using for this plan? An Applicant should not have to assume that its plan form will work, only to be rejected, especially given the extensive, unknown timeline of receipt of a final decision on a special review permit.

**T. Geologic Hazard Area Mitigation Plan.** A geologic hazard mitigation plan identifying hazard types and areas on the parcels demonstrating compliance with the standards of Section 12-600. If the Applicant proposes above-ground oil and gas facilities in the floodplain, a flood mitigation plan must be included as a part of the geologic hazard mitigation plan.

**Comment [A59]:** Does Boulder County have a specific form it will be using for this plan? An Applicant should not have to assume that its plan form will work, only to be rejected, especially given the extensive, unknown timeline of receipt of a final decision on a special review permit.

**U. Natural Resources Mitigation Plan.** A plan identifying natural resources on the parcels and information demonstrating compliance with Section 12-600.

**Comment [A60]:** This plan is concerning as it relates to seismicity, which is monitored and governed by the COGCC, CDPHE and other state and federal agencies.

**V. Recreational Activity Mitigation Plan.** Information identifying recreational activities, such as public trails and open space, in the area of the proposed oil and gas operation location, and a plan demonstrating how impacts will be mitigated and compliance with the standards of Section 12-600.

**Comment [A61]:** Does Boulder County have a specific form it will be using for this plan? An Applicant should not have to assume that its plan form will work, only to be rejected, especially given the extensive, unknown timeline of receipt of a final decision on a special review permit.

**W. Scenic Attributes and Rural Character Mitigation Plan.** An assessment of scenic attributes and rural character potentially impacted by the proposed oil and gas operation and a plan for mitigating impacts in compliance with Section 12-600.

**Comment [A62]:** Does Boulder County have a specific form it will be using for this plan? An Applicant should not have to assume that its plan form will work, only to be rejected, especially given the extensive, unknown timeline of receipt of a final decision on a special review permit.

**X. Surrounding Land Uses Mitigation Plan.** Information identifying surrounding land uses within one-half (1/2) mile of the proposed oil and gas location operation, an assessment of any potential impacts to surrounding land uses, and a plan mitigating impacts in compliance with Section 12-600.

**Comment [A63]:** Does Boulder County have a specific form it will be using for this plan? An Applicant should not have to assume that its plan form will work, only to be rejected, especially given the extensive, unknown timeline of receipt of a final decision on a special review permit.

**Y. Waste Disposal Plan.** Information identifying the projected waste from the site and plans for disposal of such waste.

**Comment [A64]:** Does Boulder County have a specific form it will be using for this plan? An Applicant should not have to assume that its plan form will work, only to be rejected, especially given the extensive, unknown timeline of receipt of a final decision on a special review permit.

**Z. Water Quality Plan.** A plan establishing compliance with the water quality provisions of Section 12-600. The plan may include details such as the Applicant's plans for water quality testing, prevention of illicit or inadvertent discharges, stormwater discharge management, containment of pollutants, and spill notification and response as required by federal and state agencies. The Applicant shall provide the County with the information it provides to the COGCC ensuring compliance with the water quality protection standards contained in Rule 317(B), Rule 910, and any other applicable COGCC rules governing water quality protection. The Applicant shall provide all water well test results. The Applicant shall provide its plans concerning downhole construction details and installation practices, including casing and cementing design, and shall inform the County how the plans establish that the operation does not create significant degradation to surface waters or drinking water aquifers.

**Comment [A65]:** Does Boulder County have a specific form it will be using for this plan? An Applicant should not have to assume that its plan form will work, only to be rejected, especially given the extensive, unknown timeline of receipt of a final decision on a special review permit.

**Comment [A66]:** Does Boulder County have a specific form it will be using for this plan? An Applicant should not have to assume that its plan form will work, only to be rejected, especially given the extensive, unknown timeline of receipt of a final decision on a special review permit.

**Comment [A67]:** See comments in 12-600 to water quality provisions.

**AA.Z. Wetlands Protection Plan.** Information identifying wetlands in the area and demonstrating compliance with the standards of Section 12-600.

**Comment [A68]:** Does Boulder County have a specific form it will be using for this plan? An Applicant should not have to assume that its plan form will work, only to be rejected, especially given the extensive, unknown timeline of receipt of a final decision on a special review permit.

**ABA. Additional Information.** If the Director determines that the County needs additional information to determine whether the proposed oil and gas operation meets the criteria in Section 12-600, the Director may require the Applicant to submit such information prior to the determination of the completeness approval in order to avoid delays in the permitting process.

## 12-600 Special Review Standards

All special review applications shall be reviewed according to the following standards, ~~which the Board, considering the advice of the Director, has determined to be applicable based on the nature and extent of the proposed development.~~ When two or more of the standards listed below conflict, the Board, based upon advice of the Director, shall evaluate the applicability and importance of each of the conflicting standards under the facts of the specific application and make a reasonable attempt to balance the conflicting standards in reaching a decision. The Board’s decision will be based upon compliance with all special review standards it determines are applicable. In evaluating compliance with these standards, the Board shall take into consideration the number of wells proposed on ~~an oil and gas location-well pad and the parcel.~~ Depending on site specific factors, a greater number of wells on a site is likely to have a greater impact and, as a result, may require more mitigation measures than a pad or parcel with fewer wells.

- A. **Adequate Water Supply.** Development applications for proposed oil and gas operations must demonstrate that the available water supply is the least detrimental to the environment among the available sources and adequate to meet the needs of the development. Special review approval may be conditioned upon sufficient proof of adequate water supply.
- B. **Agricultural Land.** Oil and gas operations shall, to the maximum extent practicable, avoid the loss of agricultural land, including farm or ranch land, or any other vegetated land; shall minimize impacts on agricultural operations; and shall avoid impacts to livestock, grazing permits or leases, or grazing permittees or lessees.
- C. **Air Quality.** The installation and operation of any oil and gas operation shall, to the maximum extent practicable, avoid causing ~~degradation~~ to air quality. To the maximum extent practicable, the installation and operation of any oil and gas operation must eliminate, capture, or minimize all emissions and dust associated with onsite activities and traffic on access roads must be minimized.
- D. **Cultural and Historic Resources.** Oil and gas operations shall, to the maximum extent practicable, avoid causing ~~degradation~~ of cultural or historic or archaeological resources, sites eligible for County landmarking, or sites in the National Historic Register.
- E. **Emergency Prevention and Response.** Oil and gas operations shall, to the maximum extent practicable, avoid risks of emergency situations such as explosions, fires, gas, oil or water pipeline leaks, ruptures, hydrogen sulfide or other toxic gas or fluid emissions, and hazardous material vehicle accidents or spills. Oil and gas operations shall ensure that, in the event of an emergency, adequate practices and procedures are in place to protect public health and safety and repair damage caused by emergencies.
- F. ~~**Floodplains and Floodways.** Above ground oil and gas operations are prohibited in floodways. Oil Above ground oil and gas operations may not be located in a floodplain unless the Applicant can demonstrate that extraction or transportation of the resource is impossible from an area outside of the mapped floodplain. All above ground oil and gas operations approved in a floodplain must comply with the flood protection measures in Article 4-400. Tanks in the 500 year floodplain also require flood protection measures.~~
- G. **Geologic Hazard Areas Other than Floodplains and Floodways.** To the maximum extent practicable, oil and gas operations shall not be located in geologic hazard areas as mapped in the Comprehensive Plan.

**Comment [A69]:** Boulder County stated that this section will be used to determine the “compatibility” of an oil and gas operations plan. There is significant concern about using the term “compatibility” as an attempt to trump COGCC rules and regulations, which have primary authority over oil and gas operations in Colorado. Further, all of these standards can be used to deny oil and gas operations by their very nature of being perceived as “inherently incompatible” as stated in 12-100.A.

**Comment [A70]:** See prior comment.

**Comment [A71]:** This standard is subject to the regulations of COGCC, CDPHE and DOW resources. This inclusion falls within the aforementioned concern of “compatibility” being used outside the scope of Boulder’s land use authority.

**Comment [A72]:** This standard is subject to the regulations of COGCC and CDPHE. This inclusion falls within the aforementioned concern of “compatibility” being used outside the scope of Boulder’s land use authority.

**Comment [A73]:** The use of the term degradation is subjective and may be used to deny oil and gas operations by their very nature of being perceived as “inherently incompatible” as stated in 12-100.A.

**Comment [A74]:** The use of the term degradation is subjective and may be used to deny oil and gas operations by their very nature of being perceived as “inherently incompatible” as stated in 12-100.A.

**Comment [A75]:** See COGA White paper comments on Floodplains.

**Formatted:** Strikethrough

**Formatted:** Strikethrough

**Formatted:** Strikethrough

- H. **Land Disturbance.** The installation and operation of any oil and gas operation shall, to the maximum extent practicable, avoid causing degradation to the surface of the property used for the oil and gas operation other than the uses allowed by the surface owner in any surface use agreement or as allowed by the COGCC when utilizing a surface bond. ~~Considerations for application of this standard include, but are not limited to, the natural topography and existing vegetation, unnecessary or excessive site disturbance, and minimization of the amount of cut and fill.~~
- I. **Natural Resources.** The installation and operation of any oil and gas operation shall, to the maximum extent practicable, avoid causing degradation to mapped significant natural communities, natural landmarks and natural areas, rare plant areas, significant riparian corridors, prominent natural features such as distinctive rock and land forms, rivers and streams and other landmarks or other identified visual or scenic resources, wildlife, or critical wildlife habitat as defined in the Comprehensive Plan or identified on the site.
- J. **Pipelines.** Any newly constructed or substantially modified oil and gas pipelines on site must meet the Additional Provisions listed at Article 4-514(E)(5)(a) – (f). ~~If the special review application creates a need for new or substantially modified oil and gas pipelines located off the site of the special review application but within Boulder County, the special review application must be processed in tandem with the separate application for special review required for such offsite pipelines under Article 4-514(E). In such case, any approval of the special review application for oil and gas operations shall be conditioned on approval of the separate special review application for the associated Gas and/or Hazardous Liquid Pipelines, and vice versa. If the special review creates a need for new or substantially modified water or wastewater pipelines located off the site of the special review application but within Boulder County, the special review application must be processed in tandem with the separate special review required for permanent offsite pipelines under Article 4-515(K) or limited impact review required for temporary offsite water or wastewater transmission lines under Article 4-517(J). Any approval of the special review application for oil and gas operations shall be conditions on approval of the separate limited impact special review application and site plan review application, as applicable, for the associated water or wastewater pipelines, and vice versa.~~
- K. **Recreational Activity.** Oil and gas operations shall, to the maximum extent practicable, avoid causing degradation to the quality and quantity of recreational activities in the County. Considerations for application of this standard include, but are not limited to, designated environmental resources, trails, and recreational uses, as identified in the Comprehensive Plan or identifiable on or near the site.
- L. **Scenic Attributes and Rural Character.** Oil and gas operations shall, to the maximum extent practicable, avoid causing degradation to the scenic attributes and rural character of the area.
- M. **Surrounding Land Uses.** Oil and gas operations shall be, to the maximum extent practicable, sited and operated in a manner so that the operation is compatible with surrounding land uses. ~~In applying this standard, separation from surrounding land uses shall be considered the most effective measure to ensure compatibility between proposed oil and gas operations and existing land uses. Considerations for application of this standard also include, but are not limited to, impacts on used or occupied structures; the natural topography and existing vegetation; the location of surrounding land uses; prevailing weather patterns, including wind directions; and hilltops, ridges, slopes, and silhouetting.~~
- N. **Transportation, Roads, and Access.** Oil and gas operations shall, to the maximum extent practicable, be designed and implemented to minimize impacts to physical infrastructure of the county transportation system, ensure public safety, and maintain quality of life for other users of

**Comment [A76]:** The use of the term degradation is subjective and may be used to deny oil and gas operations by their very nature of being perceived as “inherently incompatible” as stated in 12-100.A.

**Comment [A77]:** This standard is subject to the regulations of COGCC, CDPHE, CPW and other state agencies. This inclusion falls within the aforementioned concern of “compatibility” being used outside the scope of Boulder’s land use authority.

**Comment [A78]:** The use of the term degradation is subjective and may be used to deny oil and gas operations by their very nature of being perceived as “inherently incompatible” as stated in 12-100.A.

**Comment [A79]:** Boulder County has determined that pipelines may be utilized as a mitigation measure, yet requires pipelines to be subjected to the lengthy permitting process. Pipelines provide a significant reduction in many impacts from oil and gas development and should be allowed to be permitting on an expedited basis with special review permit under this Article 12.

**Comment [A80]:** Pipeline construction and modifications are jurisdictional and subject to the regulations Colorado Department of Transportation, Colorado Public Utilities Commission, CDPHE and COGCC. Where does this leave Article 4-603? Will Article 4-603 be deleted?

**Formatted:** Strikethrough

**Formatted:** Strikethrough

**Comment [A81]:** The use of the term degradation is subjective and may be used to deny oil and gas operations by their very nature of being perceived as “inherently incompatible” as stated in 12-100.A.

**Comment [A82]:** Please provide examples of “designated environmental resources” for clarity.

**Comment [A83]:** The use of the term degradation is subjective and may be used to deny oil and gas operations by their very nature of being perceived as “inherently incompatible” as stated in 12-100.A.

**Comment [A84]:** Boulder County stated that this section will be used to determine the “compatibility” of an oil and gas operations plan. There is significant concern about using the term “compatibility” as an attempt to trump COGCC rules and regulations, which have primary authority over oil and gas operations in Colorado. Further, all of these standards can be used to deny oil and gas operations by their very nature of being perceived as “inherently incompatible” as stated in 12-100.A.

the county transportation system, adjacent residents, and affected property owners. Where available, existing private roads must be used to minimize or mitigate land disturbance unless traffic safety, visual concerns, noise concerns, or other adverse surface impacts dictate otherwise.

- O. **Water Quality.** Oil and gas operations shall, to the maximum extent practicable, avoid causing degradation to surface or ground waters within Boulder County.
- P. **Wetlands Protection.** Oil and gas operations shall, to the maximum extent practicable, avoid causing degradation to wetlands within Boulder County. Among other methods to achieve compliance with this standard, the proposed oil and gas operation shall not alter historic drainage patterns and/or flow rates or shall include acceptable mitigation measures to compensate for anticipated drainage impacts.

**Comment [A85]:** This standard is subject to the regulations of COGCC, CDPHE, DOW and other state agencies. The use of the term degradation is subjective and may be used to deny oil and gas operations by their very nature of being perceived as "inherently incompatible" as stated in 12-100.A.

**Comment [A86]:** This standard is subject to the regulations of COGCC, CDPHE, CPW, DOW and other state agencies. The use of the term degradation is subjective and may be used to deny oil and gas operations by their very nature of being perceived as "inherently incompatible" as stated in 12-100.A.

## 12-700 Conditions of Approval Applicable to All Special Review Approvals

The following oil and gas facility operational requirements and mitigation measures are likely necessary to meet the approval criteria in 12-600. Accordingly, unless ~~specifically waived by the Board for good cause shown~~ deems a condition unnecessary to establish compliance with this Article, all of the following shall apply to all oil and gas operations in the form of conditions of approval applicable to each special review permit:

- A. **Anchoring.** All mechanized equipment associated with oil and gas operations must be anchored to minimize transmission of vibrations through the ground and prevent flood hazards.
- B. **Applications and Permits.** The Applicant must provide copies of local, state and federal applications required for the operation, and permits, when issued, to the Director.
- C. **Certification.** An authorized representative for the Applicant must submit monthly annual reports to the Director certifying compliance with all air quality requirements imposed by the State and the County as conditions of approval and documenting any periods of non-compliance, including the date and duration of each deviation and a compliance plan and schedule to achieve compliance. The reports must contain a certification as to the truth, accuracy and completeness of the reports.
- D. **Color.** Facilities must be painted in a uniform, non-contrasting, non-reflective color that blend with the surrounding landscape.
- E. **Discharge Valves.** Open-ended discharge valves on all storage tanks, pipelines and other containers must be secured where the operation site is unattended or is accessible to the general public. Open-ended discharge valves must be placed within the interior of the tank secondary containment.
- F. **Dust Suppression and Fugitive Dust.** Dust associated with on-site activities and traffic on access roads must be minimized throughout construction, drilling and operational activities such that there are no visible dust emissions from access roads or the site to the extent practicable given wind conditions. The Applicant must comply with permit and control provisions of the COGCC, Colorado Air Quality Control Program, and Boulder County Public Health's best management practices for dust suppression.

**Comment [A87]:** Many of these COA overlap the COGCC or other state agency regulations. Boulder County should be aware of the operational conflict and preemption tests applied by the Colorado Supreme Court in the cases referenced in the COGC White paper. Further, an Applicant could be viewed as being subject to dual enforcement under many of the conditions of approval set forth in this section between Boulder County and the COGCC regulations. This does not allow an Applicant any clarity, consistency or certainty as it relates to oil and gas development in Boulder County.

**Comment [A88]:** This COA is governed by COGCC regulations.

**Comment [A89]:** Does Boulder County have a specific form it will be using for this certification? An Applicant should not have to assume that its certification will work, only to be rejected.

**Comment [A90]:** This COA is governed by COGCC regulations.

**Comment [A91]:** This COA is governed by COGCC and CDPHE regulations.

**Comment [A92]:** This COA is governed by COGCC and CDPHE regulations.

- G. Emergency Preparedness Plan.** The Applicant must implement the Emergency Preparedness plan approved by the Director. The plan must be updated on an annual basis, or as conditions change, such as responsible field personnel and ownership.
- H. Exhaust.** The exhaust from all engines, motors, coolers and other mechanized equipment must be vented up or in a direction away from the closest occupied structures.
- I. Flammable Material.** Oil and gas operations must comply with COGCC rules concerning control of fire hazards.
- J. Flares and Combustion Devices.** All flares shall be designed and operated as follows:
1. The flare must be fired with natural gas.
  2. The flare must be designed and operated in a manner that will ensure no visible emissions during normal operation. Visible emissions means observations of smoke for any period or periods of duration greater than or equal to one (1) minute in any fifteen (15) minute period during normal operation, pursuant to EPA Method 22. Visible emissions do not include radiant energy or water vapor.
  3. The flare must be operated with a flame present at all times when emissions may be vented to it.
  4. All combustion devices must be equipped with an operating auto-igniter.
  5. If using a pilot flame ignition system, the presence of a pilot flame must be monitored using a thermocouple or other equivalent device to detect the presence of a flame. A pilot flame must be maintained at all times in the flare's pilot light burner. If the pilot flame goes out and does not relight, then if no telemetry system is in place, a visible alarm shall be in place on-site and activated.
  6. If using an electric arc ignition system, the arcing of the electric arc ignition system must pulse continually and a device must be installed and used to continuously monitor the electric arc ignition system.
- K. Hydrocarbon Emissions Leak and Detection and Repair.** The Applicant must develop and maintain a leak detection and repair program approved by the Director using modern leak detection technologies, such as infra-red cameras, for equipment used on the well site. Any leaks discovered should be reported to the County immediately. Operators must repair leaks as quickly as practicable; if more than 48-hours repair time is needed after a leak is discovered, an explanation of why more time is required must be submitted to the Director.
- L. Lighting.** Except during drilling, completion or other operational activities requiring additional lighting, down-lighting is required, meaning that all bulbs must be fully shielded to prevent light emissions above a horizontal plane drawn from the bottom of the fixture. A lighting plan must be developed to establish compliance with this provision. The lighting plan must indicate the location of all outdoor lighting on the site and any structures, and must include cut sheets (manufacturer's specifications with picture or diagram) of all proposed fixtures. Lighting must be no greater than required for safe operation.
- M. Log.** The Applicant must maintain a log for each well completion operation at each gas wellhead affected facility. The log must be completed on a daily basis and must contain the records specified in 40 C.F.R. § 60.5420(c)(1)(iii).
- N. Maintenance of Machinery.** Routine field maintenance of vehicles or mobile machinery must not be performed within three hundred (300) feet of any water body.

**Comment [A93]:** This COA is governed by COGCC regulations.

**Comment [A94]:** This COA is governed by COGCC and CDPHE regulations.

**Comment [A95]:** This COA is governed by CDPHE regulations.

**Comment [A96]:** This COA is governed by COGCC regulations.

**Comment [A97]:** Applicant's are required to keep these logs pursuant to COGCC regulations.

- O. **Noise.** Any equipment used in drilling, completion, or production of an oil and gas operation must comply with the maximum permissible noise levels set forth ~~in COGCC regulations at C.R.S. § 25-12-103.~~
- P. **Notice of Commencement.** The Applicant must mail notice to the Department; surface owners of the parcels of land on which the oil and gas operation is located; owners of the parcels of land within ~~one-half mile (2,640 feet)~~ of the parcel on which the oil and gas operation location is located; and the physical addresses of all parcels within ~~one-half mile~~ 1,000 feet (2,640 feet) of the parcel on which the oil and gas operation is located at least thirty (30) days prior to the commencement of the drilling and completion phase. The notification must include contact information for the Applicant; the American Petroleum Institute (API) well number; the latitude and longitude coordinates for each well in decimal degrees to an accuracy and precision of five (5) decimals of a degree using the North American Datum of 1983; and the ~~planned-planned~~ date of the beginning of drilling and estimated date of completion.
- Q. **Performance Guarantee.** If approval is conditioned upon ~~revegetation, road improvements, or similar specific site improvements,~~ the Applicant will be required to submit a letter of credit or other financial guarantee in a form satisfactory to the County for the full cost of such road improvements prior to issuance of a special review construction permit. The Applicant may apply to the Director for release of the letter of credit upon completion of the improvements.
- R. **Reclamation Plan.** Any special review approval must include any COGCC required interim and final reclamation procedures.
- S. **Removal of Debris.** Oil and gas operations must comply with COGCC rules concerning removal of debris. Burning of trash must not occur in association with an oil and gas operation per C.R.S. 25-7-128(5).
- T. **Removal of Equipment.** ~~All equipment used for drilling, re-drilling and maintenance of the facility must be removed from the site within thirty (30) days after completion of the work, unless otherwise agreed to by the surface owner and the Director.~~ Permanent storage of equipment on well-pad sites oil and gas locations is not allowed.
- U. **Representations.** The approved special review application is subject to all ~~conditions and~~ commitments of record, including verbal representations made by the Applicant at any public hearing, and written commitments in the application file, and without limitation must encompass compliance with all approved mitigation plans.
- V. **Spills and Leaks.** Chemical spills and releases must be reported and cleaned up according to applicable state and federal laws, including the Oil and Pollution Act and the Clean Water Act, as applicable. Operators must report spills and hydrocarbon emissions leaks to the Director immediately and no later than twenty-four (24) hours of the time the leak or spill is discovered.
- W. **Stormwater Control.** A stormwater control plan that establishes that all operations shall use most effective performance techniques and best management practices to minimize impacts to surface waters from erosion, sediment, and other sources of pollution such as chemicals. The stormwater control plan required by COGCC Rule 1002(f) may be provided to establish compliance with this stormwater control plan provision. Prior to commencement of operations, the Applicant must also provide the Director with a letter from the Water Quality Control Division of the Colorado Department of Public Health and Environment showing that the project is covered under the Colorado Discharge Permit System (CDPS) general permit for *Stormwater Discharges Associated with Construction Activities* (state stormwater discharge permit), when applicable.

**Comment [A98]:** This COA is governed by COGCC regulations for oil and gas operations.

**Comment [A99]:** Any financial assurance required by the COGCC will preempt any financial assurance for oil and gas operations in Boulder County.

**Comment [A100]:** This COA is governed by COGCC regulations.

**Comment [A101]:** This COA is governed by COGCC regulations.

**Comment [A102]:** This COA is governed by COGCC regulations.

**Comment [A103]:** This COA is governed by COGCC, CDPHE and federal agency regulations.

**Comment [A104]:** This COA is governed by CDPHE regulations.

X. **Temporary Access Roads.** Property subject to temporary access roads associated with oil and gas operations shall be reclaimed and re-vegetated to its original state within sixty (60) days after discontinued use of the temporary access roads.

Y. **Transportation Fees.** All applicable transportation fees shall be paid prior to issuance of a special review construction permit, including without limitation:

1. access permit fees;
2. oversize/overweight permit fees;
3. right of way construction permit fees; and
4. fees to mitigate the cumulative impacts of heavy truck traffic on the county transportation system.

Z. **Transportation Infrastructure.** Any costs to improve county transportation system infrastructure necessitated by the proposed oil and gas operation shall be the responsibility of the Applicant. All transportation system infrastructure improvements and associated costs shall be determined by the County Transportation Department after consultation with the Applicant. The County shall perform the work or arrange for it to be performed. If the Applicant disagrees with the infrastructure improvements or associated costs as assessed by County Transportation, it may request that County Transportation approve a different route for its proposed oil and gas operation that avoids the need for such improvements. Alternatively, the Applicant may engage a licensed civil engineering firm to perform a study to independently evaluate county transportation system infrastructure improvements necessitated by the proposed oil and gas operation. The County Transportation Department shall consider the results of such a study in making a final determination on infrastructure improvements.

AA. **Transportation Permits.** Applicant shall obtain all applicable transportation permits as specified in the County's Multimodal Transportation Standards, including but not limited to County access, driveway, utility construction, and oversize and overweight permits, as well as all appropriate Colorado Department of Transportation (CDOT) access permits pursuant to the CDOT State Highway Access Code. Access roads on the site and access points to public roads as identified in the application materials shall be reviewed by the County Transportation Department and shall be built and maintained in accordance with the engineering specifications and access road standards defined in the Multimodal Transportation Standards.

BB. **Vegetation.** An analysis of the existing vegetation on the site establishing a baseline for re-vegetation upon temporary or final reclamation or abandonment of the operation.

CC. **Vehicle Tracking Control Practices.** Vehicle tracking control practices must be used to control potential sediment discharges from operational roads, well pads, and other unpaved surfaces. Practices could include road and pad design and maintenance to minimize rutting and tracking, controlling site access, street sweeping or scraping, tracking pads, wash racks, education, or other sediment controls. Traction chains from heavy equipment shall be removed before entering a County road.

DD. **Water Quality.** A water quality control plan that establishes that all operations shall use most effective performance techniques and best management practices to minimize impacts to water quality, including plans for water quality testing, prevention of illicit or inadvertent discharges, and containment of pollutants as required by state and federal agencies.

EE. **Weed Control.** Oil and gas operations keep wells and surface production facilities free of weeds. comply with COGCC rules concerning weed control, which recommend Applicants consult with Boulder County concerning weed control measures. The Applicant is responsible for ongoing

**Comment [A105]:** While outside the scope of this Article, the transportation fees are unreasonable as related to the individual number of wells and should be reviewed on a well pad basis.

**Comment [A106]:** See comments in Section 12-900.B. below.

**Comment [A107]:** There are numerous concerns with this provision as they place 100% responsibility on an operator for a shared County road.

**Comment [A108]:** As drafted, this language is discriminatory to the oil and gas industry. If the County can attribute the need for improvements solely to oil and gas operations, then the County must present substantial supporting evidence that the operation will cause significant effects. Industry recognizes effects occur on County roads, and are open to reviewing and analyzing the effects, however, a subjective determination by the County Transportation Department is concerning without early input and discussion with the Applicant.

**Comment [A109]:** This COA is governed by COGCC and CDPHE regulations.

**Comment [A110]:** This is not an accurate statement. Rule 603.f. provides: "603.f. Statewide equipment, weeds, waste, and trash requirements. All locations, including wells and surface production facilities, shall be kept free of the following: equipment, vehicles, and supplies not necessary for use on that lease; weeds; rubbish, and other waste material. The burning or burial of such material on the premises shall be performed in accordance with applicable local, state, or federal solid waste disposal regulations and in accordance with the 900-Series Rules. In addition, material may be burned or buried on the premises only with the prior written consent of the Surface Owner."

~~weed control at all locations disturbed by oil and gas operations, pipelines, and along access roads during construction and operation, until abandonment and final reclamation is completed per County or other applicable agency regulations. For access roads, the appropriate weed control methods and species to be controlled must may be determined through review and recommendation by the County Weed Coordinator by reference to the Boulder County Noxious Weed Management Plan and, where appropriate, in coordination with the requirements of the surface owner.~~

**FF. Well Abandonment or Decommissioning.** The Applicant must comply with any COGCC rules regarding well abandonment, ~~decommission or reclamation~~. Upon plugging and ~~abandonment reclaiming~~ of a well, the Applicant must provide the County with surveyed coordinates of the ~~abandoned-decommissioned or reclaimed~~ well. Unless otherwise requested by the surface owner, the Applicant must leave onsite a permanent physical marker of the well location.

**Comment [A111]:** This COA is governed by COGCC and CDPHE regulations.

## 12-701 Potential Site Specific Mitigation Measures

Application of these potential mitigation measures will be site-specific and based on the land use impacts of the particular oil and gas operation, the environmental impacts of the particular oil and gas operation, the Applicant’s ability to undertake particular mitigation measures given the current state of technology, and consideration of any associated standards or rules adopted by the COGCC, the Air Quality Control Commission, or the EPA.

**Comment [A112]:** There is a recognition that these are not mandated Mitigation Measures for all special review applications, however, there is a concern that the “potential” application will become a “mandated” application of the mitigation measures.

### A. Air Quality.

**1. Minimization of Hydrocarbon Emissions.** To protect air quality, hydrocarbon emissions control measures may be required, including, but not limited to, one or more of the following:

**Comment [A113]:** These potential mitigation measures are governed by COGCC and CDPHE regulations.

- a. ~~Where technically and economically feasible or practicable, e~~lectrification from the power grid or from renewable sources of all permanent operation equipment with engines or motors that can be electrified.
- b. Pipelines for water delivery to the ~~site~~.
- c. Pipelines for transportation of oil and gas away from the ~~site~~.
- d. Limitations on truck traffic to and from the site.
- e. Implementation of “tankless” production techniques.
- f. Environmentally sensitive and efficient production techniques, such as using natural gas onsite rather than ~~flaring~~.
- g. For well pads that are not electrically operated, use of quiet design mufflers (also referred to as hospital grade or dual dissipative) or ~~equivalent~~.
- h. Use of acoustically insulated housing or covers to enclose the motor or ~~engine~~.
- i. Manufacture test or other data demonstrating hydrocarbon destruction or control efficiency that complies with a design destruction efficiency of 98% or ~~better~~.
- j. Bleed and vent restrictions on continuous bleed pneumatic devices, intermittent vent pneumatic devices, compressor engines, heater treaters, dehydrator reboilers, process heaters-pilot ~~flames~~.
- k. Proof that any flare, auto ignition system, recorder, vapor recovery device or other equipment used to meet the hydrocarbon destruction or control efficiency requirement is installed, calibrated, operated, and maintained in accordance with the manufacturer’s recommendations, instructions, and operating ~~manuals~~.

**Comment [A114]:** Please see comments below regarding pipelines.

**Comment [A115]:** Please see comments below regarding pipelines.

**Comment [A116]:** These potential mitigation measures are governed by COGCC and CDPHE regulations.

**Comment [A117]:** These potential mitigation measures are governed by COGCC and CDPHE regulations.

**Comment [A118]:** These potential mitigation measures are governed by COGCC and CDPHE regulations.

**Comment [A119]:** These potential mitigation measures are governed by COGCC and CDPHE regulations.

**Comment [A120]:** These potential mitigation measures are governed by COGCC and CDPHE regulations.

**Comment [A121]:** These potential mitigation measures are governed by COGCC and CDPHE regulations.

- l. Emissions controls of 90% or better for glycol ~~dehydrators~~.
- m. Zero-emission desiccant ~~dehydrators~~.
- n. Hydrocarbon control of 95% or better for crude oil, condensate, and produced water tanks with uncontrolled actual emissions of VOCs greater than five (5) ~~TPY~~.
- o. Year-round application of odor requirements as set forth in 5 C.C.R. 1001-9, § XII (as ~~amended~~).
- p. Electronic surveillance monitors to detect when pilot lights on control devices are ~~extinguished~~.
- q. Drilling, completion and operation of wells using closed loop pitless systems for containment and/or recycling of all drilling, completion, flowback and produced ~~fluids~~.
- r. Emission controls of hydrocarbon emissions of 95% or better for centrifugal compressors and reciprocating ~~compressors~~.
- s. Dry seals on centrifugal ~~compressors~~.
- t. Routing of emissions from rod-packing and other components on reciprocating compressors to vapor collection ~~systems~~.
- u. Reduction or elimination of emissions of associated gas from hybrid gas-oil wells (i.e. gas that is co-produced from a well that primarily produces oil), including prohibition of uncontrolled ~~venting~~.
- v. Emission control of 90% or better during liquids unloading (i.e. maintenance activities to remove liquids from existing wells that are inhibiting production), including the installation of an automated plunger ~~lift~~.
- w. Reduction or elimination of emissions from ~~oil and gas pipeline and/or gathering line~~ maintenance activities such as pigging, including routing emissions to a vapor collection ~~system~~.
- x. Proof of compliance with State-required dust control measures and imposition of an opacity requirement as tested using EPA Method ~~9~~.
- y. Odor reduction or elimination outside a specified distance from the well ~~site~~.
- z. Use of an automated tank gauging ~~system~~.

2. **Hydrocarbon Emissions Leak Detection and Repair and Air Quality Monitoring.** The Applicant may be required to develop and maintain an acceptable leak detection and repair program using modern leak detection technologies such as infra-red cameras for equipment used on the well site. Operators may be required to repair leaks on a schedule approved by the Director. Continuous ambient air quality monitoring to measure hydrocarbon emissions and meteorological data may be required.

B. **Water Quality Monitoring and Well Testing.** To protect local water quality, the Board may require the Applicant to implement a water quality monitoring and well testing plan. Water quality testing and control measures may be required, including, but not limited to, one or more of the following:

1. **Notice to Well Owners.** Sixty (60) days prior to completing or hydraulic fracturing a well, the Applicant must identify and provide notice to all water well owners with wells located within one-quarter (¼) mile of the projected track of the borehole of a proposed well and those who have requested notice under 12-400(H)(3)(a). The notice must contain the following provision: "Boulder County informs owners of water wells near the (name of well) that in order to establish base line water well data, it would be prudent to conduct a water well test, in conformance with Boulder County Land Use Code Section 12-700, prior to the anticipated (completion) / (hydraulic fracturing) on (date)."

- Comment [A122]:** These potential mitigation measures are governed by COGCC and CDPHE regulations.
- Comment [A123]:** These potential mitigation measures are governed by COGCC and CDPHE regulations.
- Comment [A124]:** These potential mitigation measures are governed by COGCC and CDPHE regulations.
- Comment [A125]:** These potential mitigation measures are governed by COGCC and CDPHE regulations.
- Comment [A126]:** These potential mitigation measures are governed by COGCC and CDPHE regulations.
- Comment [A127]:** These potential mitigation measures are governed by COGCC and CDPHE regulations.
- Comment [A128]:** These potential mitigation measures are governed by COGCC and CDPHE regulations.
- Comment [A129]:** These potential mitigation measures are governed by COGCC and CDPHE regulations.
- Comment [A130]:** These potential mitigation measures are governed by COGCC and CDPHE regulations.
- Comment [A131]:** These potential mitigation measures are governed by COGCC and CDPHE regulations.
- Comment [A132]:** These potential mitigation measures are governed by COGCC and CDPHE regulations.
- Comment [A133]:** These potential mitigation measures are governed by COGCC and CDPHE regulations.
- Comment [A134]:** These potential mitigation measures are governed by COGCC and CDPHE regulations.
- Comment [A135]:** These potential mitigation measures are governed by COGCC and CDPHE regulations.
- Comment [A136]:** These potential mitigation measures are governed by COGCC and CDPHE regulations.
- Comment [A137]:** These potential mitigation measures are governed by CDPHE regulations.
- Comment [A138]:** These potential mitigation measures are governed by COGCC, CDPHE, and DOW regulations.

2. **Abandoned-Decommissioned Oil and Gas Well Assessment.** Assessment and monitoring of plugged and ~~abandoned-decommissioned or removed from use~~ and dry and ~~abandoned-removed from use~~ oil and gas wells (abandoned or decommissioned wells) within one-quarter (¼) mile of the projected track of the borehole of a proposed well. This may include:

- a. Based upon examination of COGCC and other publicly available records, identification of all abandoned wells located within one-quarter (¼) mile of the projected track of the borehole of a proposed well.
- b. Risk assessment of leaking gas or water to the ground surface or into subsurface water resources, taking into account plugging and cementing procedures described in any recompletion or plugged and abandoned (P&A) report filed with the COGCC.
- c. Notification of the Director and COGCC of the results of the assessment of the plugging and cementing procedures.
- d. Permission from each surface owner who has an abandoned well on the surface owner's property to access the property in order to test the abandoned well. If a surface owner has not provided permission to access after thirty (30) days from receiving notice, the Applicant shall not be required to test the abandoned well.
- e. For each abandoned well for which access is granted, a soil gas survey of the abandoned well prior to production from the proposed well and again one (1) year and then every three (3) years after production has commenced.
- f. Notification of the results of the soil gas survey to the Director and the COGCC within three (3) months of conducting the survey or advise the Director that access to the abandoned wells could not be obtained from the surface owner.

**Comment [A139]:** The use of "abandoned" wells here makes it seem as if we are leaving the well with no reclamation. The more accurate term is removal from use of decommission despite the report with the COGCC is "Plugged and Abandoned Report."

**Comment [A140]:** These potential mitigation measures are governed by COGCC regulations.

3. **Water Well Sampling and Testing.** Based upon records of the Colorado Division of Water Resources, the Applicant may be required to identify and offer to sample all water wells located within one-quarter (¼) mile of the projected track of the borehole of a proposed well as follows. Sampling requirements may include:

- a. Sampling wells on either side of the borehole track and in different aquifers, where applicable.
- b. For each water well sampled, at least 30 notice to respective surface owners and opportunity to respond to the notice regarding sampling the water well or advise the Director that Applicant could not obtain access to the abandoned wells from the surface owner.
- c. Testing prior to setting of the conductor casing.
- d. Testing for the analytes listed in Table 1.
- e. Reporting the location of the water well using a GPS with sub-meter resolution.

**Comment [A141]:** Any water quality monitoring and well testing regulation and/or mitigation measure should be in compliance with COGCC Rule 609 or Rule 318A, as applicable.

4. **Field observations.** Reporting on damaged or unsanitary well conditions, adjacent potential pollution sources, odor, water color, sediment, bubbles, and effervescence.

**Comment [A142]:** Any water quality monitoring and well testing regulation and/or mitigation measure should be in compliance with COGCC Rule 609 or Rule 318A, as applicable.

5. **Post Completion Testing.** Within one (1) year after completion of the proposed well, post-completion testing using the same analytical parameters as above and repeated three (3) and six (6) years after the completion of the well. Additional post-completion tests if changes in water quality are identified during follow-up testing or in response to complaints from water well owners.

**Comment [A143]:** Any water quality monitoring and well testing regulation and/or mitigation measure should be in compliance with COGCC Rule 609 or Rule 318A, as applicable.

**6. Test results.** Provide copies of all test results described above to the Director, the COGCC, and the water well owners within three (3) months after collecting the samples.

**Comment [A144]:** Any water quality monitoring and well testing regulation and/or mitigation measure should be in compliance with COGCC Rule 609 or Rule 318A, as applicable.

**7. Resolution and mitigation.** If sampling shows water contamination, mitigation of the contamination may be required. Mitigation measures may include the following:

**Comment [A145]:** Any water quality monitoring and well testing regulation and/or mitigation measure should be in compliance with COGCC Rule 609 or Rule 318A, as applicable.

- a. If free gas or a dissolved methane concentration level greater than one (1) milligrams per liter (mg/l) is detected in a water well, determination of the gas type using gas compositional analysis and stable isotope analysis of the methane (carbon, ~~oxygen~~, and hydrogen).
- b. If the test results indicate thermogenic or a mixture of thermogenic and biogenic gas, an action plan to determine the source of the gas.
- c. Immediate notification to the Director, the COGCC, and the owner of the water well if the methane concentration increases by more than five (5) mg/l between sampling periods, or increases to more than ten (10) mg/l.
- d. Immediate notification to the Director, the COGCC and the owner of the water well if BTEX and/or TPH are detected as a result of testing.
- e. Reasonable good faith efforts to conduct initial baseline testing of the identified water wells prior to the setting of the conductor casing at the site. Post-completion tests for the same analytical parameters listed above.
- f. Further water well sampling in response to complaints from water well owners.
- g. Timely production and distribution of test results, well location, and analytical data in electronic deliverable format to the Director, the COGCC and the water well owner.

**Formatted:** Strikethrough

**2. Qualified Independent Professional Consultant.** All abandoned well assessments and water well testing must be conducted by the Applicant or, if requested by a surface owner, by a qualified independent professional consultant approved by the Director.

**Comment [A146]:** Any water quality monitoring and well testing regulation and/or mitigation measure should be in compliance with COGCC Rule 609 or Rule 318A, as applicable.

<b>GENERAL WATER QUALITY</b>	Alkalinity Conductivity & TDS pH Dissolved Organic Carbon (or Total Organic Carbon)
	Bacteria
	Hydrogen Sulphide
<b>MAJOR IONS</b>	Calcium Chloride Fluoride Magnesium Potassium Sodium Sulfate Nitrate + Nitrite (total)

<b>METALS</b>	Arsenic Barium Boron Chromium Copper Iron Lead Manganese Selenium Strontium
<b>VOLATILE ORGANIC COMPOUNDS</b>	Methane BTEX compounds (Benzene, Toluene, Ethylbenzene, Xylene) Total Petroleum Hydrocarbons (TPH)
<b>OTHER</b>	Water Level Stable isotopes of water ( <del>Oxygen</del> -Hydrogen, Carbon).

C. **Land Disturbance and Compatibility.** Conditions of approval that will reduce impacts to the site, natural resources, environmental resources, agricultural resources, floodways and floodplains, wetlands, and recreational activities, and will enhance compatibility with the surrounding area or scenic and rural character may be required, including, but not limited to, one or more of the following:

1. **Location.** A change of the proposed location of the well pad that allows for extraction of the resource and mitigates the land use impacts.
2. **Reduction.** A reduction of the number of wells on a single pad.
3. ~~**Disruption.** If surrounding occupants of residential structures are significantly adversely affected by drilling and completion activities, that are expected to last more than sixty (60) days, reasonable disruption payments to those occupants. The amount of disruption payments may be calculated using market data prepared by a qualified independent professional consultant, with consideration given to existing surface use agreements with such occupants. Consideration shall be given to the cost of replacement housing, the effect of disruption of health, sleep patterns, or lifestyle, or the cost of replacement housing, home or land-based occupations, moving costs, transportation costs, and other factors affecting residents. If owners or lessees are engaged in agricultural production, disruption payments based on may also be based on diminishment in crop production due to drilling and compaction activities.~~
4. **Pad dimensions.** Adjustment of pad dimensions to the minimum size necessary to accommodate operational needs while minimizing surface disturbance.
5. **Structures and surface equipment.** Adjustment of structures and surface equipment to the minimal size necessary to satisfy operational needs.
6. **Shared infrastructure.** Use of shared existing infrastructure by oil and gas operations, minimizing the installation of new facilities and avoiding additional disturbance to lands

**Comment [A147]:** Boulder County stated that this section will be used to enhance the “compatibility” of an oil and gas operations plan. There is significant concern about using the term “compatibility” as an attempt to trump COGCC rules and regulations, which have primary authority over oil and gas operations in Colorado. Further, all of these standards can be used to deny oil and gas operations by their very nature of being perceived as “inherently incompatible” as stated in 12-100.A.

**Comment [A148]:** Siting of an oil and gas location is not within the authority of Boulder County. The siting of an oil and gas location rests within the primary jurisdiction of the COGCC.

**Comment [A149]:** This provision is concerning as Boulder County does not have legal authority to require a private operator to pay a private surface owner or “surrounding occupants” for the use and development of its real property rights. This section is unreasonable and should be deleted. An Applicant will have already informed the people attending the neighborhood meeting, which would include “surrounding” occupants, if they choose to attend upon receipt of notice of such meeting. There should be no attempted extortion of an Applicant to make monetary payments to “surrounding occupants” for the use and development of its real property rights and the real property rights of the mineral interest owners. There are numerous mitigation measures that will be placed on any special review permit approved under this Article 12. Those mitigation measures are intended to reduce the disruption to “surrounding occupants.” A potential requirement to pay monetary amounts if drilling and completion lasts more than 60 days is unreasonable and unnecessary.

**Formatted:** Font color: Dark Red, Strikethrough

**Comment [A150]:** Siting of an oil and gas location is not within the authority of Boulder County. The siting of an oil and gas location rests within the primary jurisdiction of the COGCC.

**Comment [A151]:** Siting of an oil and gas location is not within the authority of Boulder County. The siting of an oil and gas location rests within the primary jurisdiction of the COGCC.

in a manner that reduces the introduction of significant new land use impacts to the environment, landowners and natural resources.

**7. Landscaping and irrigation.**

- a. Landscaping plans including drought tolerant species that are native and less desirable to wildlife and suitable for the climate and soil conditions of the area.
- b. An irrigation plan may be required where buffering is accomplished with vegetation.

**8. Buffering of Visual Impacts from Sensitive Visual Areas.** Buffering from sensitive visual areas (i.e., roads, property lines, or residences) by providing landscaping, berming, or other types of screening materials along the perimeter of the site between the surface equipment and the sensitive visual area surrounding areas.

**9. Vegetation.** Maximization of the amount of natural screening available for the facility. Natural screening includes, but is not limited to, the use of existing vegetation as a background, the construction of the operation near screening stands of vegetation, or placement in valleys allowing topographic screening. Construction of the operation in a manner that minimizes the removal of and damage to existing trees and vegetation. If the operation requires clearing trees or vegetation, feathering and thinning of the edges of the cleared vegetation and mowing or brush-hogging of the vegetation while leaving root structure intact, instead of scraping the surface.

**10. Equipment.** Use of buried or low profile tanks and less intrusive equipment. Use of secondary containment systems around tanks.

**10-11. Soils.** Testing of soil samples to determine impacts to surface soil quality.

**D. Transportation.** Conditions of approval that will ensure public safety for all modes of travel along travel routes to and from the site and maintain quality of life for other users of the county transportation system, adjacent residents, and affected property owners, including a requirement that the Applicant use a particular route for some or all of the pad construction, drilling, and completion phases of the oil and gas operation; maintenance practices on the proposed route during pad construction, drilling, and completion designed and implement to adequately minimize impacts; and compliance with Boulder County's Multimodal Transportation Standards.

**Comment [A152]:** Siting of an oil and gas location is not within the authority of Boulder County. The siting of an oil and gas location rests within the primary jurisdiction of the COGCC.

**Comment [A153]:** This is subject to COGCC regulations.

**Formatted:** Expanded by 0.05 pt

## 12-800 Judicial Review

A final decision by the Board of County Commissioners on a special review application is subject to judicial review in a court of competent jurisdiction under C.R.C.P. 106(a)(4).

## 12-900 Procedures Following Approval of a Special Review Application

- A. **Right to Enter.** Any site under an approved special review may be inspected by the County at any time to ensure compliance with the requirements of the approved special review, provided that four (4) hours prior notice is given to the contact person at the telephone number supplied by the Applicant. The Applicant shall provide the telephone number of a contact person who may be reached twenty-four (24) hours a day for purposes of being notified of any proposed County inspection under this Section. Each approved special review shall contain the following statement: "Applicant consents to allow the County the right of inspection of this approved operation provided the County contacts the Applicant with four (4) hours prior notice of such inspection." County inspections shall be coordinated with the Applicant to ensure Applicant presence onsite and to ensure the site visit is conducted in accordance with all applicable Applicant safety requirements.

**B. Effect of the Approved Special Review.** After approval of a special review application and following compliance with any applicable conditions of approval, the County Land Use Department shall issue a construction permit for the proposed oil and gas operation within five (5) days of such approval. Following receipt of the permit, the Applicant shall have immediate approval of ~~must obtain shall be entitled to have processed~~ any necessary building, grading, access, floodplain, or other County permits and, following the receipt of these additional permits, is authorized to otherwise proceed with the proposed oil and gas operation. The approval of the special review application under this Article does not result in the vesting of development rights, nor does it authorize the violation of any County or state regulations or preclude the County from refusing to issue any other permit or authorization if the plans and specifications do not comply with applicable County regulations.

**Comment [A154]:** An Applicant should be able to have applied, and have ready in the "queue" all of the permits referenced in this Section. If not, this adds additional unnecessary delay to the overall permitting process in Boulder County. The timeline for a special review permit is already an unknown (likely 6 months or longer). If an operator cannot apply for the permits listed in this section at the same time the special review permit passes completeness, or before, the operator is forced to start a new permit process for each of the other permits listed herein. Again, this unnecessary and unreasonable delay on the allowance of oil and gas operations in Boulder County could be viewed as a de facto ban on oil and gas development due to the never-ending permitting process.

**Formatted:** Strikethrough

**C. Duration of the Approved Special Review.** An approved special review application shall remain effective for a period of three (3) calendar years following the date of final plan approval the Board's written approval. If the operation is not commenced within the effective period of the special review, three (3) calendar years the permit shall expire and the Applicant will have to reapply for a new permit prior to undertaking operations.

**D. Amendments and Modifications.** ~~Any proposal to change an approved special review application approved after the effective date of these Regulations Prior to changing or modifying a special use approved under this Article or any other existing oil and gas operation, the Applicant shall require an application to the Department submit a written request for modification as specified under Article 4-603 except that the Director shall consider the additional criteria specified in this subsection to determine whether the proposed change constitutes a substantial modification to the approved special use or to an operation approved by the County prior to the effective state of this Article.~~

**Comment [A155]:** There is no definition of substantial modification. In order to have clarity, certainty and consistency, there should be a definition for an Applicant to understand. This should not be a discretionary definition.

**Formatted:** Strikethrough

~~In determining whether the proposed modification to a special review approval is substantial, the Director shall consider the record of the special review approval, including any express conditions, limitations, or agreements governing the approved special review application, in addition to the nature, character, and the extent of additional land use impacts of the proposed modification. Unless approved in the original special review permit as to the number of wells on the oil and gas location, ~~t~~The addition of more than five (5) ~~a one or more~~ new wells on wells on an existing pad shall be considered a substantial modification to the entire pad and the entire pad shall be required to come into compliance with this Article, to the extent practical. Other changes shall be considered substantial if they significantly alter the nature, character, or extent of the land use impacts considering past usage prior to of the special review approval or will result in an increase in hydrocarbon emissions. ~~Refracking of an existing well shall be considered a substantial modification by more than 50% of the original use.~~ A modification shall not be considered a substantial modification if it results in a net decrease in hydrocarbon emissions or other net mitigation of existing or potential environmental impacts. A substantial modification shall not include any modification that is made to enhance best management practices or mitigate environmental impacts with new or innovative technology.~~

**Formatted:** Strikethrough

**Formatted:** Strikethrough

**Comment [A156]:** Incorporating a % into the review of "substantial modification" assists both the County and the Applicant in the understanding as to what would be considered for an amendment.

~~1. If the Director determines that the change constitutes a substantial modification, no such change shall be allowed to proceed until an application to amend the approved special use, which shall be treated as a new application, is filed with the Director and approval granted in accordance with this Article. The Applicant or its successor may appeal the Director's decision to require an amended special review to the Board of County Commissioners, provided that any such appeal shall be in writing and shall be filed with the Director no later than thirty (30) days following the date of the Director's decision to require a special use~~

~~amendment. Any Board of County Commissioner's determination on an appeal shall not be considered a final decision subject to judicial review under Section 12-1100.~~

**E. Maintenance and Repair.** ~~The Director may maintain a list of activities that the Director does not consider substantial modifications but rather maintenance and repair. Activities on the list may be undertaken without County review or approval.~~

## 12-1000 Enforcement

If the County determines at any time that there is a violation of an approved special review application, the Director shall be entitled to commence one or more of the following enforcement measures and remedies.

**A. Written Order Suspending the Approval.** The Director may issue a written order to the Applicant (or owner, Applicant, or agent, as applicable) identifying the violation and suspending the approved special use and all activity otherwise allowed by the special use approval. ~~If the violation presents an immediate threat to the health, safety or welfare of the public, the Director may immediately issue the written order to the Applicant in writing and, upon receipt, the Applicant must cease all activities and operations immediately until the violation is remedied. In all other instances,~~ Prior to issuing a written order, the Director shall provide written notice to the Applicant describing the violation, and stating a reasonable time within which the violation must be corrected. If, within that time period, the Applicant has not either corrected the violation or filed a written appeal with the Board of County Commissioners, the written order shall be delivered to the Applicant in writing, ~~and, upon receipt, the Applicant must cease all activities and operations immediately until the violation is remedied.~~ Any appeal to the Board of County Commissioners of the threatened or actual issuance of the written order shall be acted upon pursuant to Section 12-1300(B) below.

**B. Appeal Hearing Before Board of County Commissioners.** If the Applicant files a timely appeal with the Board of County Commissioners of the Director's determination to issue a written order suspending the special use, the Board shall schedule a hearing on the appeal at the soonest possible time of which the Applicant shall receive reasonable prior notice. If the Board confirms at the hearing that the violation has occurred and has not been corrected, the Board in its discretion may confirm issuance of a written order finding a violation of the special review permitsuspending the special use or the determination to draw upon the financial guarantee, if applied to road transportation matters, or the determination to request the COGCC to draw on the Applicant's COGCC required financial assurance. The Board, in its discretion, may also give the Applicant additional time to correct the violation, or may specify the time at which the Director may take appropriate action to have the violation corrected.

**C. Suit to Enjoin COGCC Rule Violation.** ~~If the Director discovers a violation or threatened violation of Title 34, Article 60 of the Colorado Revised Statutes or any rule, regulation, or order made under that Article, the Director shall notify the COGCC commission in writing. If the COGCC fails to bring suit to enjoin any actual or threatened violation, then the County Attorney may file an action on behalf of the Board seeking injunctive relief.~~

**D. Falsification.** ~~If the Director, in the course of administering this Article, learns that any person, has made a false entry, omitted an entry, or altered an entry in violation of CRS § 34-60-121, the Director may report such information to the District Attorney for criminal prosecution.~~

**B.E.**

Formatted: Font:(Default) +Theme Body (Calibri), 10 pt, Font color: Black

Formatted: Normal, Indent: Left: 0"

**Comment [A157]:** Boulder County cannot require an operator to cease its operations as part of its enforcement authority under this Article. The operator will have authority to conduct its operations under the approved COGCC permit. Boulder County may, however, immediately contacting the COGCC and request a cease and desist order under the proper COGCC procedures.

Formatted: Font:(Default) +Theme Body (Calibri), 10 pt

Formatted: Strikethrough

Formatted: Strikethrough

~~6~~ **Other Enforcement Remedies.** In addition to the foregoing enforcement measures, Boulder County has the right to any and all other enforcement measures and remedies provided by law, including but not limited to seeking relief through the courts to enforce an approved special review, ~~or to stop or abate any oil and gas operations occurring or about to occur without the requisite special use or other county approvals.~~

Formatted: Indent: Left: 0.5", No bullets or numbering

## 12-1400 Definitions

Comment [A158]: Any definition herein included in the COGCC 100 Series rules should reflect the COGCC definitions applicable to oil and gas operations.

Terms used in this Article 12 are defined below. Any terms not specifically defined for purposes of Article 12 may be defined in Article 18.

**Abandonment.** The permanent abandonment of a well, which shall be determined at the time of the Applicant's filing of the appropriate abandonment form with the COGCC.

**Adequate Water Supply.** A water supply that will be sufficient for build-out of the proposed development in terms of quality, quantity, dependability, and availability to provide a supply of water for the type of development proposed, and may include reasonable conservation measures and water demand management measures to account for hydrologic variability.

**Agent.** One authorized to make binding representations on behalf of the Applicant.

**Adversely Affected or Adverse Impact.** The impact of an action, after mitigation, that is considerable or substantial, and unfavorable or harmful, including social, economic, physical, health, aesthetic, historical and/or biological impacts, ~~including but not limited to, effects on natural resources, the structure or function of affected ecosystems, or persons, structures or communities.~~

**Applicant.** Person, corporation or other legal entity possessing the legal right to develop the mineral resource who has applied for ~~an oil and gas operations~~ special review permit for an oil and gas operation location.

Formatted: Strikethrough

**BTEX and/or TPH.** Benzene, Toluene, Ethylbenzene, Xylene and Total Petroleum Hydrocarbons.

**Chemical(s).** Any element, chemical compound or mixture of elements and/or compounds.

**Closed Loop Drilling Process or System.** A closed loop mud drilling system typically consists of steel tanks for mud mixing and storage, and the use of solids removal equipment, which normally includes some combination of shale shakers, mud cleaners and centrifuges sitting on top of the mud tanks. This equipment separates drill cutting solids from the mud stream coming out of the wellbore while retaining the water or fluid portion to be reused in the continued drilling of the well bore. The solids are placed in containment provided on the site. The system differs from conventional drilling where a reserve pit is used to allow gravitational settling of the solids from the mud which can then be reused. A Closed Loop Drilling System does not include use of a Conventional Reserve Drilling Pit.

**COGCC.** The Colorado Oil and Gas Conservation Commission.

**Combustion device.** Any ignition device, installed horizontally or vertically, used in exploration and production operations to combust otherwise vented emissions from completions.

**Corridor.** Tracts of land within which a water, wastewater, or oil and gas pipeline right-of-way is located.

**County.** Boulder County, Colorado, and its officers, staff, employees and agents.

**Degradation.** Lowering in grade or desirability; lessening in quality.

**Department.** Boulder County Land Use Department.

**Drilling Operation.** Any work or actual operation undertaken for the purposes of carrying out any of the rights, privileges or duties of a lessee for drilling of an oil well, gas well, or cathodic protection well; ~~including but not limited to the actual operation of drilling in the ground.~~

**Equipment.** Machinery or structures located on well pads, rights-of-way, or other land uses in the oil and gas operation, including, but not limited to, wellheads, separators, dehydration units, heaters, meters, storage tanks, compressors, pumping units, internal combustion engines, and electric motors.

**Flow Line.** ~~Pipeline connecting individual well sites to gathering lines. Those segments of pipe from the wellhead downstream through the production facilities ending at: (a) in the case of gas lines, the gas metering equipment; (b) in the case of oil lines the oil loading point or transfer LACT unit, or (c) in the case of water lines, the water loading point, the point of discharge to a pit, the injection wellhead, or the permitted surface water discharge point. Flow lines are defined and regulated by the COGCC.~~

Formatted: Strikethrough

**Gas Well.** ~~Well capable of producing natural gas. A well, the principal production of which at the mouth of the well is gas, as defined by the Oil and Gas Conservation Act.~~

**Gathering Line.** ~~Pipeline transporting produced gas, oil, or water from multiple well sites to a centralized facility. A pipeline and equipment described below that transports gas from a production facility (ordinarily commencing downstream of the final production separator at the inlet flange of the custody transfer meter) to a natural gas processing plant or transmission line or main. The term "gathering line" includes valves, metering equipment, communication equipment, cathodic protection facilities, and pig launchers and receivers, but does not include dehydrators, treaters, tanks, separators, or compressors located downstream of the final production facilities and upstream of the natural gas processing plants, transmission lines, or main lines. Gathering lines are defined and regulated by the Colorado Public Utilities Commission and CDPHE.~~

**Grading Plan.** Plan view and cross-section of existing and proposed land contours, cuts and fills, topsoil storage location and stabilization methods, and maximum slopes.

**Ground Water.** Subsurface waters in a zone of saturation.

**Heavy Equipment.** Drilling rigs, completion rigs, construction equipment, and individual truck/trailer combination vehicles with a gross vehicle weight exceeding five tons.

**Improvement.** Any new construction activity, grading or land development, or addition of equipment or materials to a site.

**Mitigation.** One or more of the following actions which are prioritized in order of preference:

**Avoiding Impacts.** Avoiding an impact by not taking a certain action or parts of an action; or

**Minimizing Impacts.** Limiting the degree or magnitude of the action or its implementation, or by changing its location; or

**Rectifying or Remediating Impacts.** Repairing, rehabilitating, or restoring the impact area, facility or service; or

**Reducing or Eliminating Impacts.** Decreasing or removing the impact over time by preservation and maintenance operations; and

**Other Provisions for Addressing Impacts.** Using alternative means not contemplated by this Article to provide equivalent biological, social, environmental and/or physical mitigation effects.

~~**Most Effective Performance Techniques and Practices.** The application of proven and emerging techniques, technologies or other Best Management Practices used in conducting oil and gas exploration and development which avoid, neutralize, exclude, eliminate, mitigate or minimize adverse on and off-site impacts to public health and the environment, landowners, and natural resources, and which may reduce conflicts between potentially impacted landowners and the oil and gas industry.~~

**Occupied Structure.** Any building or structure that requires a certificate of occupancy or building or structure intended for human occupancy.

**Oil and Gas Facility.** ~~Equipment or improvements used or installed at an oil and gas location for the exploration, production, withdrawal, gathering, treatment, or processing of oil or natural gas.~~ Oil and Gas Facilities:

~~The site and associated equipment used for the production, transportation, treatment, and/or storage of oil and gas and waste products; or~~

~~An individual well pad built with one or more wells and operated to produce liquid petroleum and/or natural gas, including associated equipment required for such production; or~~

~~An individual well pad with one or more wells for exploration of oil and gas; or~~

~~Gathering lines, and ancillary equipment including but not limited to drip stations, vent stations, pigging facilities, chemical injection stations and valve boxes; or~~

~~Temporary storage and construction staging yards in place for less than six months; or~~

~~Any other oil and gas operation which may cause significant degradation.~~

**Oil and Gas Location.** A definable area where an operator has disturbed or intends to disturb the land surface in order to locate an oil and gas facility.

**Oil and Gas Operations.** ~~Exploration for oil or gas, including but not limited to conventional oil and gas; Exploratory drilling;~~ the siting, drilling, deepening, recompletion, reworking, refracturing, closure or abandonment of an oil and gas well; oil and gas facilities; and construction, site preparation, reclamation and related activities associated with the development of oil and gas resources; ~~replacement of equipment used in oil and gas facilities; or any change in or alteration to oil and gas facilities that may result in an emissions increase.~~ With respect to any submittal or review requirements under this Section, "oil and gas operations" shall refer to the particular oil and gas operations for which the Applicant is seeking County approval.

**Comment [A159]:** This definition should mirror the COGCC definition as the COGCC governs the siting and governance of the Oil and Gas Facility.

**Formatted:** Font:Bold

**Formatted:** Indent: First line: 0"

**Comment [A160]:** This definition should mirror the COGCC definition as the COGCC governs the siting and governance of the Oil and Gas Location.

**Formatted:** Font:Bold

**Formatted:** Font:Bold

**Comment [A161]:** This definition should mirror the COGCC definition as the COGCC has primary authority over Oil and Gas Operations.

**Formatted:** Font:Not Bold

**Oil Well.** ~~Well capable of producing crude petroleum oil. A well, the principal production of which at the mouth of the well is oil, as defined by the Act.~~

**Comment [A162]:** This definition should mirror the COGCC definition.

**Operation.** Oil and Gas Operations.

**Owner or Applicant.** ~~Person who has the right to drill into and produce from a pool and to appropriate the oil or gas produced either for such owner or others, including owners of a well capable of producing oil, gas, or both. Applicant or others. The person who has the right to drill into and produce from a pool and to appropriate the oil or gas produced therefrom either for such owner or others or for such owner and others, including owners of a well capable of producing oil or gas, or both.~~

**Formatted:** Strikethrough

**Formatted:** Strikethrough

**Permanent Equipment.** Equipment located onsite for a duration greater than ~~six (6)~~ one (1) year months effective one (1) year after the ~~drilling and completion date of first production~~ of a well.

**Person.** Any individual, partnership, corporation, association, company, or other public or corporate entity, including but not limited to the State or Federal governments, and any of their political subdivisions, agencies, or instrumentalities.

**Pit.** Any natural or man-made depression in the ground used for oil or gas exploration or production purposes excluding steel, fiberglass, concrete or other similar vessels which do not release their contents to surrounding soils.

~~**Practicable.** Able to be done or put in practice successfully.~~

**Regulation(s).** Article 12 of the Boulder County Land Use Code.

**Referral Agency.** An agency, organization, or technical consultant deemed appropriate and necessary, by the County, to review an application and provide professional analysis and recommendations, including without limitation other County offices and departments, municipal, state, or federal agencies having an interest in or authority over all or part of the application or permit, and professional or legal consultants.

~~**Residential.** All residential zoned property within unincorporated Boulder County, Colorado.~~

**Right-Of-Way.** The legal right to pass through grounds or property owned by another, or land, property or interest therein, usually in a strip, acquired for or devoted to transportation or conveyance purposes.

~~**Site.** Lands, including the surface of a severed mineral estate, on which exploration for, or extraction and removal of, oil or gas is authorized under a lease. The areas that are disturbed during the drilling and subsequent operation of, or affected by production facilities associated with, any oil well or gas well and its associated well pad.~~

**Formatted:** Space Before: 0 pt, Line spacing: single

**Surface Owner.** ~~The~~ owner of the surface property on which the ~~facility oil and gas operation location~~ will be located or constructed.

**Formatted:** Strikethrough

**Surrounding.** Within ~~one-half mile~~ 1,000 feet of a proposed oil and gas ~~operation location~~.

**Temporary Use Area.** Disturbed lands immediately adjacent to the well pad or right of way used by an Applicant during the construction or maintenance of a well, pipeline or other facility that will be reclaimed for permanent operations.

**TPY**—Tons per year.

**Transmission Line.** Pipeline transporting oil, natural gas or any other products derived from oil and gas production, which is defined as a transmission line by the U.S. Department of Transportation regulations under the Natural Gas Pipeline Safety Act of 1968, as amended.

**VOC.** Volatile organic compounds.

**Water or Water Body.** Any surface waters which are contained in or flow in or through Boulder County, excluding ephemeral streams, roadway ditches, water in sewage systems, water in treatment works of disposal systems, water in potable water distribution systems, stock ponds or irrigation ditches not discharging to live streams, and all water withdrawn for use until use and treatment have been completed.

**Water Supply Entity.** A municipality, county, special district, water conservancy district, water conservation district, water authority, or other public or private water supply company that supplies, distributes, or otherwise provides water at retail.

~~**Well or Wellhead.** Equipment attached to the casing of an oil, gas or injection well above the surface of the ground. An oil or gas well, a hole drilled for the purpose of producing oil or gas, a well into which fluids are injected, a stratigraphic well, a gas storage well, or a well used for the purpose of monitoring or observing a reservoir.~~

**Well Blowdown.** Maintenance activity designed to remove unwanted fluids from mature wells during which time gas is often vented to the atmosphere.

~~**Well Completion.** The process that perforates well casing, stimulates the reservoir using various techniques including but not limited to acid treatment and hydraulic fracturing, allows for the flowback of petroleum or natural gas from wells to expel drilling and reservoir fluids, and tests the reservoir flow characteristics, which may vent produced hydrocarbons to the atmosphere via an open pit or tank. An oil well shall be considered completed when the first new oil is produced through wellhead equipment into lease tanks from the ultimate producing interval after the production string has been run. A gas well shall be considered completed when the well is capable of producing gas through wellhead equipment from the ultimate producing zone after the production string has been run. A dry hole shall be considered completed when all provisions of plugging are complied with as set out in these rules. Any well not previously defined as an oil or gas well, shall be considered completed ninety (90) days after reaching total depth. If approved by the Director of the COGCC, a well that requires extensive testing shall be considered completed when the drilling rig is released or six months after reaching total depth, whichever is later.~~

**Well Pad.** Area in which permanent operations for the well take place including, at a minimum, that portion of the pad area occupied by permanent production equipment. Well pads may contain one or more wellheads and associated equipment.

## EXHIBIT A.2

### Amendment to Article 2

Amend Section 2-800(C)(1) as follows:

#### C. Duties and Responsibilities

1. The Board of Adjustment holds regular meetings to hear appeals of any order, requirement, decision, or determination made by the Land Use Director or County Engineer in administering or enforcing Article 4 related provisions (i.e., definitions in Article 18) of this Code, to hear appeals of the Director specified provisions of Article 12, and to consider certain variances from the requirements of Article 4 of this Code.

Amend section 2-800(c)(2) by adding the additional section:

g. from any provision of Article 12.

### Amendment to Article 3

#### 3-300 Application Submittals and Processing

- A. The Director may create a waitlist for accepting applications. When the Director establishes a waitlist, Land Use shall inform prospective applicants regarding the waitlist and notify Applicants when they have reached the front of the waitlist so that their applications may be accepted and processed. With the exception of special review applications for oil and gas operations under Article 12 of this Code, prospective applicants shall generally be placed on the waitlist on a first come, first served basis. However, the Director may prioritize items basis on special circumstances, such as reconstruction-related permit applications submitted after a natural disaster.
- B. When the Director establishes a waitlist, no time limit for processing applications shall apply until the application is removed from the waitlist and accepted for processing.

**Comment [A163]:** Overall, this waitlist should not apply to a special review permit for oil and gas operations. This could cause an infinite delay in the ultimate development of private property mineral rights and the valuable hydrocarbon resources necessary for our State and Nation. Further, this waitlist could be viewed as nothing more than a ban on oil and gas operations and development for an unknown period of time, which is illegal under Colorado law.

**Comment [A164]:** This language could be viewed as nothing more than a ban on oil and gas operations and development for an unknown period of time, which is illegal under Colorado law.

### Amendments to Article 4-500 (use definitions)

1. Amend Article 4-506(D) to exclude injection wells as a permitted use in the General Industrial District.

D. Major Oil and Gas Operations

A-33

~~1. Definition: Water injection wells and facilities, Centralized water transfer stations, centralized water pump stations, storage yards and construction staging yards in place for longer than six months, and any other oil and gas operation the location of which is not dependent upon development of the mineral resource or subject to Article 12.~~  
~~Districts Permitted: By Special Review in GI~~  
~~Parking Requirements: None~~  
~~Loading Requirements: None~~  
~~Additional Provisions: Water injection wells and facilities are prohibited in all districts.~~

~~2. Amend Article 4-508 Mining Uses by deleting current Sections 4-508(B) and 4-508(C) and replacing with new Section 4-508(B):~~

- B. Oil and Gas Operations
  - 1. Definition: See Article 12-1400
  - 2. Districts Permitted: By special development plan review for oil and gas operations in all districts (Article 12)
  - 3. Parking Requirements: None
  - 4. Loading Requirements: None
  - 5. Additional Provisions: None

Re-order remaining items and update cross-references as needed.

~~3. Amend Article 4-514 Utility and Public Service Uses:~~

Amend the definition of the use entitled "Gas and/or Hazardous Liquid Pipelines" so that it reads as follows:

- E. Gas and/or Hazardous Liquid Pipelines
  - 1. Definition: Pipelines for the collection and transmission of crude oil, natural gas or other hazardous liquids, but not including gathering lines or flowlines.
  - 2. Districts Permitted: In all districts by Special Review, or review under Article 8 (areas and activities of state interest), as applicable. If known, gathering lines, and flowlines, flow lines and pipeline transmission lines which are part of a new oil and gas development operations location and which are located on or adjacent to the same parcel or parcels as an the well head, pumping units, tanks and/or treatersoil and gas location will referenced in the special use permit application e subject to Special Review under Article 12 of this Code and debit are not required not required to obtain separate permits for such lines. Boulder County recognizes that the gathering lines, flow lines and pipeline transmission lines may be operated by an entity outside of the Applicant.
  - 3. Parking Requirements: None
  - 4. Loading Requirements: None
  - 5. Additional Provisions:
    - a. This use is not required to be located on a building lot, or comply with the minimum lot size requirement for the district in which it is located.
    - b. The Applicant must provide written notice of the application to all property owners within 500 feet of the centerline of the proposed pipeline.
    - c. Siting.
      - i. Such lines shall, to the maximum extent practicable, be sited to avoid areas containing residential, commercial, and industrial buildings; places of public assembly; and surface water bodies. In no instance may a Gas and/or Hazardous Liquid Pipeline be located closer than fifty (50) feet from a residential, commercial, or industrial buildings; a place of public assembly; or a the high-water mark of any surface water body.

Formatted: Indent: Left: 0.25", No bullets or numbering

Formatted: Indent: Left: 0.25", No bullets or numbering

**Comment [A165]:** Boulder County should not require a special review permit for gathering lines, flowlines or pipelines as other state and federal agencies govern the permitting of such lines. It is recognized that certain locations of pipelines fall under the land use authority of Boulder County, but not to the extent of requiring the special review permit process to apply.

- This distance shall be measured from the nearest edge of the pipeline. Pipelines and gathering lines that pass within 150 feet of general residential, commercial, and industrial buildings or the high water mark of any surface water body shall incorporate leak detection and repair, secondary containment, or other mitigation, as appropriate.
- ii. Such lines shall, to the maximum extent practicable, be sited to avoid areas that will impact county open space or road rights-of-way ~~parkway parks~~. Surface impacts and habitat fragmentation and disturbance must be minimized where such pipelines are permitted.
  - iii. To the maximum extent practicable, Applicants shall share existing pipeline rights-of-way and consolidate new corridors for pipeline rights-of-way to minimize surface impacts.
  - iv. To minimize negative impacts to the channel, bank, and riparian areas, when crossing streams, rivers or irrigation ditches, operators must use boring technology or alternative Director-approved most effective performance techniques and practices.
- d. Construction.
- i. Flow lines, gathering lines, and transmission lines shall be buried below the level of cultivation, and must be installed so that the cover between the top of the pipe and the ground level, road bed, river bottom, or underwater natural bottom is at least four (4) feet deep, ~~unless otherwise agreed to between the landowner and Applicant via private agreement~~.
  - ii. The Department may require an Applicant for a pipeline to provide a risk-based engineering study for all or part of its proposed pipeline right of way that may require the implementation of more stringent construction or operation standards or space between the pipeline and other structures.
  - iii. During pipeline construction for trenches that are left open for more than five (5) days and are greater than five feet in width, install wildlife crossovers and escape ramps where the trench crosses well-defined game trails and at a minimum of one-quarter mile intervals where the trench parallels well-defined game trails.
  - iv. All pipe installed in a ditch must be installed in a manner that minimizes the introduction of secondary stresses and the possibility of damage to the pipe.
  - v. Any pipe installed underground must have at least twelve (12) inches of clearance between the outside of the pipe and the extremity of any other underground structure, except that for drainage tile the minimum clearance may be less than 12 inches but not less than two (2) inches. Where twelve (12) inches of clearance is impracticable, the Director may approve a request by the operator to reduce the minimum clearance if adequate provisions are made for corrosion control.
- e. Records. A complete record that shows the following must be maintained by the operator for the ~~life~~ of each pipeline facility and provided to the County in electronic format compatible with the County's geographic information system for reference in case of emergency:
- i. The total number of girth welds and the number nondestructively tested, including the number rejected and the disposition of each rejected weld.
  - ii. The amount, location, and cover of each size of pipe installed.

**Comment [A166]:** The typical records retention is determined by federal and state agency requirements.

- iii. The location of each crossing of another pipeline.
- iv. The location of each buried utility crossing.
- v. The location of each overhead crossing.
- vi. The location of each valve and corrosion test station.
- f. Where appropriate given the context of the application, in reviewing an application or formulating a condition of approval the Director may consult the pipeline guidelines published by the U.S. Department of Transportation Pipeline and Hazardous Materials Safety Administration for acceptable separation distances between residential, institutional, recreational, commercial, or industrial uses and hazardous operations, available at 24 C.F.R. Part 51.

Amend existing use definition in 4-514(K) as follows:

Sewage, Wastewater, or Water Transmission Lines

- 1. Definition: Pipelines used for the transport of water, wastewater, or sewage.
- 2. Districts Permitted: By review under the regulation of areas and activities of state interest or location and extent review in all districts, unless the line is serving an oil and gas facility, in which case special review in all districts.
- 3. Parking Requirements: None
- 4. Loading Requirements: None
- 5. Additional Provisions:
  - a. This use is not required to be located on a building lot, or comply with the minimum lot size requirement for the district in which it is located.

Add a new Temporary Use as 4-517(J):

Temporary Water or Wastewater Transmission Line

- 1. Definition: Temporary above-ground pipelines used for the transport of water or wastewater to or from an oil and gas facility or location.
- 2. Districts Permitted: By limited impact special review in all districts
- 3. Parking Requirements: None
- 4. Loading Requirements: None
- 5. Additional Provisions:
  - a. This use is not required to be located on a building lot, or comply with the minimum lot size requirement for the district in which it is located.

## EXHIBIT A.3

### Amendment to Board of Adjustment provisions

Modify ~~S~~section 4-1201(D) as follows:

~~D. No Appeals to the Board of Adjustment or requests for variances before the Board of Adjustment are permitted for related to any matters under Article 12, Development Plan Special Review for Oil and Gas Operations, must be specifically permitted under Article 12.~~

Add new section 4-1204 as follows:

#### **4-1204 Appeal**

A. Any party to a proceeding before the Board of Adjustment may appeal the Board of Adjustment's final decision under C.R.C.P. 106(a)(4).

## EXHIBIT A.4 Development Standards

Modify ~~Section~~ **Section 7-904(D)(4)** as follows:

4. A ~~Development Plan Review (“DPR”)~~ Special Review permit authorizing oil and gas operations subject to a stormwater control plan approved under Article 12-~~800~~ 700 or 701 of this Code (~~conditions of approval applicable to all county oil and gas operations DPR permits~~), shall be considered the equivalent of a County Engineer stormwater quality under this Article 7-904; and a separate permit application under this Article 7-904 for such operations shall not be required.

## EXHIBIT A.5

### Clerical changes necessary to conform rest of Land Use Code to DC-16-\_\_\_\_\_

1. Delete references to ~~to~~ <sup>to</sup> “Development Plan review for Oil and Gas Operations” and replace with “Special Review for Oil and Gas Operations”
2. Delete references to “Development Plan Review” and “DPR” and replace with “Special Review.”
3. Update Table of Contents and associated cross-references in Code as necessary.
4. Update use tables as necessary.
5. All other clerical amendments necessary to conform entire Land Use Code to primary text amendments approved in this DC-16-\_\_\_\_\_.

## OIL & GAS REGULATION IN THE STATE OF COLORADO WHITE PAPER

The Colorado Oil and Gas Association (“COGA”) appreciates the opportunity to present this White Paper to Boulder County.

In the past few years, the Colorado Oil and Gas Conservation Commission (“COGCC”) has implemented numerous precedent-setting regulations, including baseline groundwater testing and monitoring, air regulations targeting methane leak detection and repair, spill detection and reporting, and large scale facility requirements in urban mitigation for the oil and gas industry.<sup>1</sup> The COGCC, with a staff of almost 100 experienced oil and gas personnel, has implemented these regulations to provide operators, local government and citizens with consistency, clarity and certainty regarding virtually every technical aspect of oil and gas operations. Before implementing its proposed oil and gas regulations (“Proposed Regulations”) in the Boulder County Land Use Code (“Code”), Boulder County should carefully consider the extent to which its Proposed Regulations could conflict with these extensive state regulations.

The purpose of this White Paper is two-fold. COGA first provides an overview of the law of preemption, which precludes local governments from regulating areas of oil and gas operations that the state regulates. The White Paper then explains some of the state regulations already in place, showcasing the depth and breadth of the existing regulatory framework, and points out certain Proposed Regulations that likely conflict with state regulations and may therefore be preempted by state authority.

### **I. Boulder County is Preempted from Implementing Regulations that Conflict with State Law.**

Before implementing the Proposed Regulations, Boulder County should understand that Colorado law precludes local governments from regulating areas of oil and gas operations that are already regulated by state authority. The law of preemption, as recognized by statute and Colorado courts, plainly establishes what aspects of oil and gas operations local governments may and may not regulate.

<sup>1</sup> <http://cogcc.state.co.us/reg.html#/rules>; <https://www.colorado.gov/pacific/cdphe/aqcc-regs>.

The state's broad authority to regulate oil and gas arises under the Colorado Oil and Gas Conservation Act ("Act"), which mandates that the state foster the responsible development of Colorado's oil and gas natural resources.<sup>2</sup> Specifically, the Act requires the COGCC to regulate oil and gas development in Colorado to ensure: (i) the efficient exploration and production of oil and gas resources in a manner consistent with the protection of public health, safety and welfare, (ii) the prevention of waste, (iii) the protection of mineral owners' correlative rights, and (iv) the prevention and mitigation of adverse environmental impacts.<sup>3</sup>

The Colorado Supreme Court recently addressed the scope of the COGCC's authority to regulate oil and gas operations under the Act in two decisions, *Fort Collins v. COGA*<sup>4</sup> and *Longmont v. COGA*.<sup>5</sup> These cases define a new preemption balance between state and local government regulation of oil and gas development and clarify what local governments can regulate, how they can regulate, and how their regulations can be challenged.

The *Longmont* decision arose from Longmont's decision to ban hydraulic fracturing and the storage and disposal of fracking wastes. The *Fort Collins* decision resulted from a five-year moratorium enacted by Fort Collins in 2013 on hydraulic fracturing and storage of fracking waste product. In each case, the trial court held on summary judgment that the ban and the moratorium were operationally preempted by state law. On appeal, the Colorado Supreme Court upheld the decision of each trial court, concluding that Longmont's ban and Fort Collins's moratorium operationally conflicted with applicable state law and were therefore preempted.

These decisions impact local government regulation of hydraulic fracturing in two important ways. First, the cases articulate a clear statement of the operational conflict test. Clarifying decades of confusing law on the issue, the Court explained the operational conflict test as: "considering whether the effectuation of a local interest would materially impede or destroy a state interest, recognizing that a local ordinance that authorizes what state law forbids or that forbids what state law authorizes will necessarily satisfy this standard."<sup>6</sup> Under this test, local government law can be preempted in two ways: (i) if it directly conflicts with state law; or (ii) if it indirectly conflicts with state law by materially impeding a state interest. As the Court made clear, this test applies beyond bans and moratoria to all efforts by local governments to regulate any aspect of hydraulic fracturing.<sup>7</sup>

Applying this test, the Court held that Longmont's ban and Fort Collins's moratorium were operationally preempted because the cities' restrictions materially impeded the state's interest in regulating oil and gas by undermining the state's interest in the uniform

<sup>2</sup> Colo. Rev. Stat. § 34-60-101, *et seq.*

<sup>3</sup> Colo. Rev. Stat. §34-60-102(1)(a).

<sup>4</sup> *City of Fort Collins v. Colo. Oil and Gas Ass'n*, 2016 CO 28.

<sup>5</sup> *City of Longmont v. Colo. Oil and Gas Ass'n*, 2016 CO 29.

<sup>6</sup> 2016 CO 29, ¶42.

<sup>7</sup> 2016 CO 29, ¶42.

regulation of oil and gas development. The Colorado Supreme Court’s analysis relied upon the state’s interest in oil and gas development as expressed in the “exhaustive set of rules and regulations to prevent waste and to conserve oil and gas in the State of Colorado while protecting public health, safety, and welfare.”<sup>8</sup> These “pervasive rules and regulations,” according to the Court, would be rendered “superfluous” by the ban and moratorium.<sup>9</sup>

Second, and just as important as offering a clear operational conflict test, the Court also clarified how this operational conflict test is applied. The Court rejected arguments by the cities that an operational conflict can only be shown through a fact-based, evidentiary hearing, ruling instead that “in virtually all cases,” the operational conflict test “will involve a facial evaluation of the respective statutory and regulatory schemes, not a factual inquiry as to the effect of those schemes ‘on the ground.’”<sup>10</sup> Under this holding, challenges to local government oil and gas regulation should be resolved on summary judgment within a few months of the filing of a complaint by the trial court comparing the language of the applicable state regulation with the local government ordinance and determining whether they facially conflict.

In the wake of these decisions, local government authority to implement oil and gas regulation is limited to areas that do not conflict with state law and that do not impinge upon the technical and operational areas that are solely within the jurisdiction of the COGCC to regulate. This means that local governments may not adopt regulations that facially conflict with state requirements or that render those state requirements “superfluous.”<sup>11</sup> For example, under the *Longmont* and *Fort Collins* cases, no local government may impose more extensive setbacks or mitigation requirements than provided by the state (COGCC rules specify “statewide location requirements” (Rule 603) and setbacks and mitigation measures for oil and gas facilities and drilling and servicing operations (Rule 604)).

Additionally, local governments may not enact regulations mirroring state law and then seek to enforce those provisions. The Colorado Court of Appeals has specifically rejected the authority of a statutory town to enforce COGCC requirements on oil and gas operations.<sup>12</sup> That decision is consistent with the Colorado Supreme Court decisions in *Longmont* and *Fort Collins*, under which duplicative regulations were deemed to impede the COGCC’s comprehensive authority to permit oil and gas wells and to achieve uniform regulation of fracking and oil and gas operations in general.

<sup>8</sup> 2016 CO 29, ¶52; 2016 CO 28, ¶29.

<sup>9</sup> 2016 CO 29, ¶53; 2016 CO 28, ¶30.

<sup>10</sup> 2016 CO 29, ¶ 15; 2016 C 28 ¶21.

<sup>11</sup> Of course, this means not only that local governments may not in the future adopt unlawful regulations, but also that existing regulations adopted by local governments that facially conflict with state requirements or render state requirements “superfluous” are operationally preempted and open to legal challenge. It is possible that some of the current Code provisions fall into this latter category. A list of Code provisions potentially preempted by state regulations is attached as Appendix A.

<sup>12</sup> *Town of Frederick v. N. Am. Res. Co.*, 60 P.3d 758, 765-766 (Colo. App. 2002).

Finally, local governments also may not implement broad “performance-based” oil and gas regulations purporting to ensure compatibility with surrounding uses or to protect public health, safety and welfare that conflict with the state’s interests. Although such regulations are cloaked in land-use terms such as “compatibility,” regulations of this sort nonetheless seek to give local governments decision-making control in areas such as environmental impacts of operations or final siting authority that are heavily regulated by the state. Preemption law is about who gets to make the ultimate decisions, and performance-based regulations may unlawfully attempt to shift final authority to the local governments. Moreover, performance-based standards may interfere with the COGCC’s interest in the uniform regulation of oil and gas operations covered by the comprehensive state regulations. While local governments can, under their general police power, require permits for certain aspects of oil and gas facilities, regulate road traffic and transportation improvements associated with oil and gas operations, and require building permits for above-ground structures, they cannot adopt regulations that essentially switch ultimate decision-making authority from the state to themselves under the guise of performance-based standards.

Colorado courts have not hesitated to strike down local government laws that they view as preempted by State statute and regulations. Colorado courts have done so in both facial and as-applied challenges to local government regulations. For example, in *Town of Frederick*,<sup>13</sup> the court of appeals affirmed the trial court’s facial invalidation of several Town regulations because they were in conflict with state regulations. Those included the Town’s setback requirements for the location of wells that conflicted with COGCC Rule 603a; the Town’s noise abatement requirements that went beyond those required by the State; and the Town’s visual impact requirements that conflicted with the detailed requirements in five COGCC rules. *See also Bd. of Cnty. Comm’rs. v. BDS Int’l*,<sup>14</sup> (holding that a county cannot reserve the right to determine financial requirements where the COGCC has reserved for itself the sole authority to impose fines.)

Colorado courts have been even more willing to strike down local government regulations on operationally preemption ground in as-applied challenges. While courts have sometimes required further evidence in a facial challenge to determine whether certain performance standards conflict with State law, they have readily struck down conflicting local government regulations and permit conditions on an as applied basis. *See e.g., Bd. of Cnty. Comm’rs. v. Vandemoer*,<sup>15</sup> (court strikes down local government’s ban of sprinkler systems on county roads after hearing on preliminary injunction because it operationally conflicted with state law allowing such usage); *Commerce City v. State*,<sup>16</sup> (upholding trial court’s decision that sections of local government law on automated vehicle identification system were operationally preempted because they conflicted with state law, including local regulations concerning use of signage, lack of warning to first-time traffic violators, and size of fines). These decisions all presage the *Longmont* holding that local government

<sup>13</sup> *Town of Frederick*, 60 P.3d at 765-766 (Colo. App. 2002).

<sup>14</sup> *Bd. of Cnty. Comm’rs. v. BDS Int’l*, 159 P.3d 773 (Colo. App. 2006).

<sup>15</sup> *Bd. of Cnty. Comm’rs. v. Vandemoer*, 205 P.3d 423, 427 (Colo. App. 2008).

<sup>16</sup> *Commerce City v. State*, 40 P.3d 1273, 1285 (Colo. 2003).

regulations, whether challenged facially or on an as-applied basis, will be struck down if they conflict with state law.

Because of the *Fort Collins* and *Longmont* decisions, operators, local governments and citizens in Colorado have a clear statement articulated by the highest state court as to what the operational conflict standard is and how it will be applied. The Colorado Supreme Court also explicitly recognized the “exhaustive” and “pervasive” set of state rules and regulations governing virtually every aspect of oil and gas development. While the Court recognized that local governments have some authority to regulate the land use aspects of oil and gas activity, there is no doubt that such scope of authority is confined to a limited area of regulation that does not operationally conflict with state law.<sup>17</sup>

## **II. Several aspects of the Proposed Regulations are Likely Preempted by Comprehensive State Regulations.**

The purpose of this section of the White Paper is to present the extensive nature of COGCC regulations in certain areas that are also addressed in the Proposed Regulations. As discussed above, any local government regulation that conflicts with state law will be null and void under the operational conflict preemption doctrine. Given this established law, it is startling that the Proposed Regulations provide, “[t]he County strongly recommends that applicants apply to the County for special review prior to applying for [Application and Permit to Drill] to avoid the *potential for conflicting requirements and mitigation measures*.”<sup>18</sup> Because conflicting requirements are unlawful, that statement strongly suggests that application of some of the Proposed Regulations may result in terms and conditions that are illegal under the preemption doctrine.

### *A. Siting of Oil and Gas Operations.*

The Act and COGCC regulations plainly give the state authority to site oil and gas operations.<sup>19</sup> This has been confirmed by the Colorado Supreme Court in *Longmont v. COGA*. There, in characterizing *Voss v Lundvall Bros.*,<sup>20</sup> the Court stated: “[W]e

<sup>17</sup> While state law plainly preempts local governments from regulating in many areas of oil and gas operations, local governments do have meaningful involvement in the COGCC permitting process. Indeed, the COGCC actively facilitates collaborative development of oil and gas within a local jurisdiction’s boundaries by providing local governments with many opportunities to be involved in the state permitting process. Boulder County and other local governments have express authority to participate in the COGCC regulatory process and to cooperate with the operation seeking a permit at the early stages of oil and gas development. For example, the COGCC has enacted numerous regulations over the past few years that allow local governments immediate notice of Form 2, Applications for Permit to Drill (“APD”) and Form 2A, Oil and Gas Location Assessment (Form 2A or Oil and Gas Location), permits. COGCC 300 Series and 500 Series Rules (as of March 16, 2016). COGCC Rules 303, 305A, 305, 306, 507 and 508 also provide express authority for a local government, through a Local Government Designee (“LGD”), to provide early and immediate input on Large Scale Facilities in Urban Mitigation Areas, other Oil and Gas Locations or APDs, and drilling and spacing units proposed by operators within the boundaries of their jurisdictions. See Appendix B.

<sup>18</sup> Proposed Regulation, 12-400 A (4)(emphasis added).

<sup>19</sup> Colo. Rev. Stat. §§34-60-103(6.5), 35-60-106 (1)(f),(2)(a),(2)(c).

<sup>20</sup> *Voss v Lundvall Bros.*, 830 P.2d 1061, 1065 (Colo. 1991).

concluded that the state’s interest in the efficient and fair development of oil and gas resources in the state, including the location and spacing of individual wells, suggested that the matter was one of state concern . . . . In our view the same reasoning applies to the state’s interest in hydraulic fracturing.”<sup>21</sup>

The Proposed Regulations appear to intrude upon the state’s authority to decide all oil and gas siting issues. The Proposed Regulations give the County authority to impose site-specific mitigation measures that include the ability to change the proposed location of the well pad.<sup>22</sup> Several of the “special review standards” listed in the Proposed Regulations also appear to give the County siting authority, including the County’s virtual ban on operations in floodplains (discussed below), the mitigation criteria for land disturbance, and the requirement that operations shall be compatible with surround land uses, as determined by the County.<sup>23</sup> The County may not grant to itself under the Proposed Regulations final siting authority that alters the state’s siting authority for oil and gas operations.

### B. *Floodplains*

Boulder County proposes an outright ban on oil and gas operations in floodplains “unless the Applicant can demonstrate that extraction of the resource is impossible from an area outside of the mapped floodplain.”<sup>24</sup> This regulation forbids what the COGCC regulations permit. On March 2, 2015, the COGCC adopted regulations in response to the 100-year flood of 2013. The COGCC officially defined “Floodplains” in its 100-series rules and regulations as “any area of land officially declared to be in a 100-year floodplain by and Colorado Municipality, Colorado County, State Agency, or Federal Agency.” COGCC Rule 603.h explicitly permits operations in floodplains if operators follow certain well control and safety requirements. The County’s Proposed Regulation on floodplains clearly falls within the operational conflict test by forbidding what state law expressly authorizes.

### C. *Best Management Practices (BMPs)*

The use of Best Management Practices is the defining factor in what makes Colorado the most thoroughly and robustly regulated state in the country with respect to oil and gas. The state’s BMPs are specifically designed to accomplish two important objectives: (i) create and maintain an operating environment that prioritizes and ensures safety at all times and at all phases of operations, and (ii) minimize, where possible, any inconveniences or impacts to the community that could possibly occur as a result of oil and natural gas development.

<sup>21</sup> 2016 CO 29, ¶ 22.

<sup>22</sup> Proposed Regulation, 12-701 (C) (1).

<sup>23</sup> Proposed Regulations, 12-600 (F), (H), and (M).

<sup>24</sup> Proposed Regulation, 12-600 (F).

Many of the applicable BMPs are governed by the COGCC<sup>25</sup> and the Colorado Department of Public Health and Environment (“CDPHE”). BMPs are defined by the COGCC as practices that are designed to prevent or reduce impacts caused by oil and gas operations to air, water, soil, or biological resources and to minimize adverse impacts to public health safety and welfare, including the environment and wildlife resources.<sup>26</sup> Additionally, the COGCC specifies that in minimizing adverse impacts, cost-effectiveness and technical feasibility must be taken into consideration.<sup>27</sup> Similarly, BMPs for water quality are defined by the CDPHE as a practice or combination of practices that are determined to be “the most effective, practicable (*including technological, economic; and institutional considerations*) means of preventing or reducing the amount of pollution.”<sup>28</sup> Under COGCC and CDPHE regulations, changing the configuration of the BMPs would require technical expertise applied on a site-by-site basis.

The Proposed Regulations frequently use a concept similar to BMPs, but there the practices are labeled “Most Effective Performance Techniques and Practices” and are *not* made upon a determination that the practices are practicable in terms of technological, economic, and institutional considerations.<sup>29</sup> This could lead the County to require “Most Effective Performance Techniques and Practices” that materially impede the state’s interest in recovering oil and gas resources by imposing practices that are cost-prohibitive for oil and gas development or that are technologically and/or institutionally impracticable.

#### D. *Air Quality*

Air quality for oil and gas operations is regulated by the CDPHE and partially the COGCC. The State of Colorado, through regulation by the CDPHE, has the most stringent air regulations in the United States, with the EPA using Colorado’s air quality regulations as a model for its own rulemakings. On February 23, 2014, Colorado’s Air Quality Control Commission (“AQCC”) voted to adopt new precedent-setting rules targeting air emissions from the oil and gas industry. These regulations fully adopted federal regulations (EPA’s NSPS OOOO) and added controls and strategies to reduce fugitive Volatile Organic Compounds (“VOCs”) and hydrocarbon emissions from condensate tanks and other sources. Colorado’s regulations include mandatory installation of emission control devices and implementation of leak detection and repair programs. Key elements of the 2014 air quality regulations<sup>30</sup> include, among several other components, leak detection and repair (“LDAR”), storage tank regulations, and expanded applicability to include pneumatics. Additionally, there are plentiful COGCC Rules that address air quality.<sup>31</sup> Boulder County should review each and every one of the CDPHE and COGCC rules relating to air quality

<sup>25</sup> COGCC Rules 604, 802, 803, 804 and 805.

<sup>26</sup> See COGCC 100 Series, Definitions.

<sup>27</sup> See *id.*

<sup>28</sup> 5 C.C.R. §1002-31.5(6)(emphasis added).

<sup>29</sup> See Proposed Regulation, 12-400.

<sup>30</sup> <https://www.colorado.gov/pacific/cdphe/aqcc-regs>.

<sup>31</sup> COGCC Rule 604.c.1 and 805.b.(1) – (3).

and emissions when analyzing the inclusion of air quality standards in its Code. While local governments can regulate in the air quality space, regulations that extend so far beyond the state regulations that they effectively prohibit the practicable extraction of oil and gas are likely operationally preempted.

E. *Pipelines.*

Pipelines are regulated in varying capacities by the CDPHE, CDOT, COPUC and certain federal agencies, depending upon the type of pipeline. In February 2016, the COGCC issued an Operator Guidance (“Guidance”) that explains the differences between the different types of lines.<sup>32</sup> In this Guidance, the COGCC unequivocally defers the regulation of gas gathering lines to the COPUC and confirms that regulation of gathering lines is beyond the scope of the COGCC policy.

Boulder County proposes that all oil and gas pipelines be subject to special review, the contours of which are unclear.<sup>33</sup> Because this area is heavily regulated by state and federal agencies, local governments should be wary of establishing regulations related to pipelines and gathering lines. Indeed, local government regulation in this area is likely preempted by state and Federal law by another preemption doctrine: express preemption.

F. *Water Quality*

The COGCC has comprehensive regulations regarding water monitoring and testing, disposal, and use of water in oil and gas operations.<sup>34</sup> It also regulates thoroughly spill notification and remediation of groundwater contamination.<sup>35</sup> The COGCC also regulates the management of Exploration & Production Waste (“E&P Waste”) and produced fluids (produced water) in the 900-series rules that govern the treatment of produced water and E&P waste relating to the permitting, lining and closure of pits, spills and releases of E&P waste and produced fluids, remediation and closure of sites, and closure concentrations.<sup>36</sup> The CDPHE also has regulations regarding produced water and E&P waste relating to injection, commercial facilities and discharge of produced water or E&P waste.

As with air quality, Boulder County should review these rules relating to water use and quality when considering appropriate water quality standards for its Code. The Proposed Regulations appear to grant the County extensive authority to require sampling and remediation of groundwater and to evaluate water quality information as part of the approval process.<sup>37</sup> These regulations are likely preempted as conflicting with state authority to regulate water quality aspects of oil and gas operations.

<sup>33</sup> Proposed Regulation, 12-600 (J).

<sup>34</sup> COGCC Rules 609 and 318A.f.

<sup>35</sup> COGCC Rule 909.

<sup>36</sup> COGCC Rules 901 through 910.

<sup>37</sup> Proposed Regulations, 12-600 (0), 12-700 (DD), 12-701(B), 12-500(Y).

## G. *Compatibility*

The Proposed Regulations allow the County to approve, deny or condition a permit based on its “compatibility” with nearby land uses.<sup>38</sup> The Proposed Regulations will determine compatibility of Applications based upon the Special Review Standards set forth in 12-600. This is an illegal expansion of issues that local government’s authority may legally consider, because it allows the County to consider virtually every aspect of oil and gas operations in considering permit applications. , including many technical and environmental areas already subject to extensive COGCC regulations. As the Colorado Supreme Court determined in the *Longmont* and *Fort Collins* decisions, local governments may not impose regulations or conditions of approval on permits that conflict with state statute and regulations. Yet this is precisely what the broad definition of “compatibility” (as informed by the provisions of 12-600) allows.

## H. *Fees and Bonding Requirements*

The COGCC regulations require oil and gas operators to provide financial assurance or a “bond” to the COGCC to ensure performance of the Act’s standards and regulations promulgated thereunder, as well as to fund the Oil and Gas Conservation and Environmental Response Fund, which performs site reclamation and remediation and conducts other authorized environmental activities.<sup>39</sup>

Provision 12-700 (Q) of the Proposed Regulations provides: “If approval is conditioned upon revegetation, road improvements, or similar specific site improvements, the Applicant will be required to submit a letter of credit in a form satisfactory to the County for the full cost of such improvements prior to issuance of a special review construction permit.” This regulation is duplicative of the bonding required by the COGCC, renders the COGCC bonding “superfluous,” and is therefore likely to be operationally preempted. Indeed, local governments may not impose fees or bonding requirements on areas within COGCC jurisdiction. See *Bd. of Cnty. Comm’rs. v. BDS Int’l*,<sup>40</sup> (holding that a county cannot reserve the right to determine financial requirements where the COGCC has reserved for itself the sole authority to impose fines); *Town of Milliken v. Kerr-McGee*<sup>41</sup> (relevant inquiry is whether the Town’s inspection fees concern “matters that are subject to rule, regulation, order, or permit conditions administered by the commission.”)

## IV. Conclusion

The COGCC, the CDPHE and other state agencies regulate Colorado oil and gas operations under some of the nation’s most rigorous regulations for oil and gas development. To avoid operational conflict preemption under established Colorado law, local governments

<sup>38</sup> Proposed Regulation, 12-701 (C).

<sup>39</sup> COGCC Rule 701, et seq.; *Colo. Rev. Stat. §34-60-124*.

<sup>40</sup> *Bd. of Cnty. Comm’rs. v. BDS Int’l*, 159 P.3d 773 (*Colo. App.* 2006).

<sup>41</sup> *Town of Milliken v. Kerr-McGee*, 2013 WL 1908965, \*1 (2013)

that enact oil and gas regulations under their land use authority must ensure that such regulations do not conflict with state regulations. To that end, it is crucial that Boulder County has a thorough understanding of the issues and legal implications set forth in this White Paper. The information and principles provided herein also inform all other parties involved as they review and provide input on any revisions to the Code's oil and gas operations regulations that Boulder County proposes to enact.

## Appendix A

### Code provisions potentially preempted by COGCC and/or CDPHE regulations

- Section 12-400 (E),(H): Applicant Neighborhood Meeting, Notice
- Section 12-500(I), (K),(M),(Q), (R), (U), (X),(Y): Site Plan and Parcel Information, Air Quality Plan, Land Disturbance Mitigation Plan, Offsite Transport Plan, Electrification Plan, Natural Resources Mitigation Plan, Surrounding Land Uses Mitigation Plan, Water Quality Plan
- Section 12-600(C), (I), (J), (M), (O): Air Quality, Natural Resources, Pipelines, Surrounding Land Uses, Water Quality
- Section 12-700(A),(C),(E),(F),(I),(Q),(S),(T),(V),(W),(BB),(DD),(EE): Anchoring, Air Quality Certification, Discharge Valves, Dust Suppression and Fugitive Dust, Flammable Material, Performance Guarantee, Removal of Debris, Removal of Equipment, Spills and Leaks, Stormwater Control, Vegetation, Water Quality, Weed Control
- Section 12-701(A), (B), (C): Air Quality, Water Quality Monitoring and Well Testing, Land Disturbance and Compatibility
- Section 12-1000: Enforcement
- Section 12-1400: Definitions, certain of these, particularly Most Effective Performance Techniques and Practices
- Amendment to Article 4-514 Utility and Public Service Uses, “Gas and/or Hazardous Liquid Pipelines”

## Appendix B

### COGCC Regulations Requesting Local Government Comment, Consultation and Collaboration

- Rule 303.b.(1).J, K requires operators to certify that the appropriate LGD has been notified of and has been given opportunity to comment and consult on a Form 2A under Rule 305A and 305.a. and b. COGCC Rule 303.b.(1).J, K.
- Rule 305A.a., b. and c. requires operators to deliver a written Notice of Intent to Construct a Large Urban Mitigation Area facility no later than 90 days from initiating the Form 2A process and such notice must include an offer to meet and consult on the specific location of the Form 2A. COGCC Rule 305.A.a., b. and c.
- Rule 305.a. and b. require operators to notify the LGD if an Oil and Gas Location will be located within an Urban Mitigation Area and provides building unit owners within 1,000 feet of an Oil and Gas Location with the LGD's contact information if there are concerns. The rule further provides for the notice of a Large Urban Mitigation Area facility to the LGD. The LGD, if on its own volition or on a request from a building unit owner, may provide comment and input on an operator's Form 2A early in the permitting process or may provide input on the Large Urban Mitigation Area facility prior to an operator submitted a Form 2A. COGCC Rule 305.a., b.
- Rule 306 provides that local governments that have appointed a Local Governmental Designee and have indicated to the Director a desire for consultation shall be given an opportunity to consult with the Applicant and the Director on an Application for Permit-to-Drill, Form 2, or an Oil and Gas Location Assessment, Form 2A, for the location of roads, Production Facilities and Well sites, and mitigation measures or Best Management Practices during the comment period under Rule 305.d. COGCC Rule 306.
- Rule 507 mandates that any operator requesting an order from the COGCC for a drilling and spacing unit application and any application for a state unit submit notice to the applicable Local Government, Colorado Department of Public Health and Environment, and Colorado Parks and Wildlife. COGCC Rule 507.c.
- Rule 508 allows for a Local Government to request a local public forum if an operator is seeking an increased density application from the COGCC. The provisions of this Rule 508 only apply to applications that would result in more than one (1) well site or multi-well site per forty (40) acre nominal governmental quarter- quarter section or that request approval for additional wells that would result in more than one (1) well site or multi-well site per forty (40) acre nominal governmental quarter-quarter section, within existing drilling units, not previously authorized by Commission order. A local public forum may be used to address impacts to public health, safety and welfare, including the environment and wildlife resources, which may be raised by an application for increased well density. A local

public forum shall be convened on the Commission's own motion, or upon request from the local governmental designee or the applicant. COGCC Rule 508.a.

**Appendix C**  
COGCC and CPDHE Rule References

I. Large Scale Urban Mitigation Area (Siting)

- 100-Series Rules: Defined large scale oil and gas facility in an urban mitigation area (Large UMA Facility) as any facility that proposes eight or more new wells or the cumulative new and existing on-site storage capacity for produced hydrocarbons exceeds 4,000 barrels. COGCC Rule 100 – Definition of Large Urban Mitigation Area Facility.
- Rule 305A: Any operator seeking to develop a Large UMA Facility is required to notify the local government with land use jurisdiction and offer to consult on siting and best management practices. The operator is also required to provide notice to the surface owner on which the Large UMA Facility is proposed. This notice must be provided 90 days prior to submitting a Form 2A oil and gas location assessment to the COGCC. The local government receiving the Notice of Intent to Construct a Large UMA Facility may immediately initiate a consultation and collaboration process with the operator and ensure that its concerns about the proposed facility, best management practices and mitigation measures are addressed. Consultation is not required if the local government with land use authority has opted out of the consultation process OR if the local government with land use authority and the operator seeking to develop have an existing agreement, like an existing local government permit or Memorandum of Understanding, in place to guide the siting of a proposed location. COGCC Rule 305A.
- Rule 604.c.(4): Operators are required to incorporate Required Best Management Practices in to their Form 2A Oil and Gas Location Assessment permit application. The local government has the opportunity to consult with the operator prior to initiating the Form 2A process and to comment on the Form 2A with respect to Best Management Practices and mitigation measures it believes should be applied to the final Form 2A. The Director of the COGCC may also require site specific mitigation measures as conditions of approval on an operator’s permit, including conditions regarding noise, ground and surface water protection, visual impacts, and remote stimulation operations. COGCC Rule 604.c.

II. Floodplains. COGCC Rule 603.h. specifically provides for Statewide Floodplain Requirements as follows:

(1) The following requirements apply to new Oil and Gas Locations and Wells:

A. Effective August 1, 2015, Operators must notify the Director when a new proposed Oil and Gas Location is within a defined Floodplain, via the Form 2A.

B. Effective June 1, 2015, new Wells must be equipped with remote shut-in capabilities prior to commencing production. Remote shut-in capabilities include, at a minimum, the ability to shut-in the well from outside the relevant Floodplain.

C. Effective June 1, 2015, new Oil and Gas Locations must have secondary containment areas around Tanks constructed with a synthetic or geosynthetic liner that is mechanically connected to the steel ring or another engineered technology that provides equivalent protection from floodwaters and debris.

(2) The following requirements apply to both new and existing Wells, Tanks, separation equipment, containment berms, Production Pits, Special Purpose Pits, and flowback pits:

A. Effective April 1, 2016, Operators must maintain a current inventory of all existing Wells, Tanks, and separation equipment in a defined Floodplain. Operators shall ensure that a list of all such Wells, Tanks, and separation equipment is filed with the Director. As part of this inventory, Operators must maintain a current and documented plan describing how Wells within a defined Floodplain will be timely shut-in. This plan must include what triggers will activate the plan and must be made available for inspection by the Director upon request.

B. Effective June 1, 2015 for new and April 1, 2016 for existing, tanks, including partially buried tanks, and separation equipment must be anchored to the ground. Anchors must be engineered to support the Tank and separation equipment and to resist flotation, collapse, lateral movement, or subsidence.

C. Effective June 1, 2015 for new and April 1, 2016 for existing, containment berms around all Tanks must be constructed of steel rings or another engineered technology that provides equivalent protection from floodwaters and debris.

D. Effective June 1, 2015 for new and April 1, 2016 for existing, Production Pits, Special Purpose Pits (other than Emergency Pits), and flowback pits containing E&P waste shall not be allowed within a defined Floodplain without prior Director approval, pursuant to Rule 502.b.

E. An Operator may seek a variance from the effective date for the requirements for existing facilities referenced in subparts 603.h(2)B, C or D by filing a request for an alternative compliance plan with the Director on or before February 1, 2016. COGCC Rule 603.h.

IV. Best Management Practices (BMPs). COGCC Rule 604.c. addresses Mitigation Measures and BMPs, including almost all of those addressed in the Boulder County Code as noted above.

- Rule 604.c.(2) provides for Well or Production Facility proposed to be located within a Designated Setback Location for which a Form 2, Application for Permit—to-Drill or Form 2A, Oil and Gas Location Assessment, is submitted on or after August 1, 2013 the following BMPs will apply to the location:
  - A. Noise. Operations involving pipeline or gas facility installation or maintenance, or the use of a drilling rig, are subject to the maximum permissible noise levels for Light Industrial Zones, as measured at the nearest Building Unit. Short-term increases shall be allowable as described in 802.c. Stimulation or re-stimulation operations and Production Facilities are governed by Rule 802.
  - B. Closed Loop Drilling Systems – Pit Restrictions.
    - i. Closed loop drilling systems are required within the Buffer Zone Setback.
    - ii. Pits are not allowed on Oil and Gas Locations within the Buffer Zone Setback, except fresh water storage pits, reserve pits to drill surface casing, and emergency pits as defined in the 100-Series Rules.
    - iii. Fresh water pits within the Exception Zone shall require prior approval of a Form 15, Earthen Pit Report/Permit. In the Buffer Zone, fresh water pits shall be reported within 30-days of pit construction.
    - iv. Fresh water storage pits within the Buffer Zone Setback shall be conspicuously posted with signage identifying the pit name, the operator’s name and contact information, and stating that no fluids other than fresh water are permitted in the pit. Produced water, recycled E&P waste, or flowback fluids are not allowed in fresh water storage pits.
    - v. Fresh water storage pits within the Buffer Zone Setback shall include emergency escape provisions for inadvertent human access.
  - C. Green Completions – Emission Control Systems.
    - i. Flow lines, separators, and sand traps capable of supporting green completions as described in Rule 805 shall be installed

at any Oil and Gas Location at which commercial quantities of gas are reasonably expected to be produced based on existing adjacent wells within 1 mile.

- ii. Uncontrolled venting shall be prohibited in an Urban Mitigation Area.
  - iii. Temporary flowback flaring and oxidizing equipment shall include the following:
    - aa. Adequately sized equipment to handle 1.5 times the largest flowback volume of gas experienced in a ten (10) mile radius;
    - bb. Valves and porting available to divert gas to temporary equipment or to permanent flaring and oxidizing equipment; and
    - cc. Auxiliary fuel with sufficient supply and heat to sustain combustion or oxidation of the gas mixture when the mixture includes non-combustible gases.
- D. Traffic Plan. If required by the local government, a traffic plan shall be coordinated with the local jurisdiction prior to commencement of move in and rig up. Any subsequent modification to the traffic plan must be coordinated with the local jurisdiction.
- E. Multi-well Pads.
- i. Where technologically feasible and economically practicable, operators shall consolidate wells to create multi-well pads, including shared locations with other operators. Multi-well production facilities shall be located as far as possible from Building Units.
  - ii. The pad shall be constructed in such a manner that noise mitigation may be installed and removed without disturbing the site or landscaping.
  - iii. Pads shall have all weather access roads to allow for operator and emergency response.
- F. Leak Detection Plan. The Operator shall develop a plan to monitor Production Facilities on a regular schedule to identify fluid leaks.
- G. Berm construction. Berms or other secondary containment devices in Designated Setback Locations shall be constructed around crude oil, condensate, and produced water storage tanks and shall enclose an area sufficient to contain and provide secondary containment for one-hundred fifty percent (150%) of the largest single tank. Berms or other secondary containment devices shall be sufficiently impervious to contain any spilled or released material. All berms and containment devices shall be inspected at regular intervals and maintained in good condition. No potential ignition sources shall be installed inside the secondary containment area unless the containment area encloses a fired vessel. Refer to API Bulletin D16:

Suggested Procedure for “Development of a Spill Prevention Control and Countermeasure Plan,” 5th Edition (April 2011). Only the 5th Edition of the API bulletin applies to this rule; later amendments do not apply. All material incorporated by reference in this rule is available for public inspection during normal business hours from the Public Room Administrator at the office of the Commission, 1120 Lincoln Street, Suite 801, Denver, Colorado 80203. In addition, these materials may be examined at any state publications depository library and are available from API at 1220 L Street, NW Washington, DC 20005-4070.

- H. Blowout preventer equipment (“BOPE”). Blowout prevention equipment for drilling operations in a Designated Setback Location shall consist of (at a minimum):
  - i. Rig with Kelly. Double ram with blind ram and pipe ram; annular preventer or a rotating head.
  - ii. Rig without Kelly. Double ram with blind ram and pipe ram.

Mineral Management certification or Director approved training for blowout prevention shall be required for at least one (1) person at the well site during drilling operations.
- I. BOPE testing for drilling operations. Upon initial rig-up and at least once every thirty (30) days during drilling operations thereafter, pressure testing of the casing string and each component of the blowout prevention equipment including flange connections shall be performed to seventy percent (70%) of working pressure or seventy percent (70%) of the internal yield of casing, whichever is less. Pressure testing shall be conducted and the documented results shall be retained by the operator for inspection by the Director for a period of one (1) year. Activation of the pipe rams for function testing shall be conducted on a daily basis when practicable.
- J. BOPE for well servicing operations.
  - i. Adequate blowout prevention equipment shall be used on all well servicing operations.
  - ii. Backup stabbing valves shall be required on well servicing operations during reverse circulation. Valves shall be pressure tested before each well servicing operation using both low-pressure air and high-pressure fluid.
- K. Pit level indicators. Pit level indicators shall be used.
- L. Drill stem tests. Closed chamber drill stem tests shall be allowed. All other drill stem tests shall require approval by the Director.
- M. Fencing requirements. Unless otherwise requested by the Surface Owner, well sites constructed within Designated Setback Locations, shall be adequately fenced to restrict access by unauthorized persons.

- N. Control of fire hazards. Any material not in use that might constitute a fire hazard shall be removed a minimum of twenty-five (25) feet from the wellhead, tanks and separator. Any electrical equipment installations inside the bermed area shall comply with API RP 500 classifications and comply with the current national electrical code as adopted by the State of Colorado.
- O. Loadlines. All loadlines shall be bullplugged or capped.
- P. Removal of surface trash. All surface trash, debris, scrap or discarded material connected with the operations of the property shall be removed from the premises or disposed of in a legal manner.
- Q. Guy line anchors. All guy line anchors left buried for future use shall be identified by a marker of bright color not less than four (4) feet in height and not greater than one (1) foot east of the guy line anchor.
- R. Tank specifications. All newly installed or replaced crude oil and condensate storage tanks shall be designed, constructed, and maintained in accordance with National Fire Protection Association (NFPA) Code 30 (2008 version). The operator shall maintain written records verifying proper design, construction, and maintenance, and shall make these records available for inspection by the Director. Only the 2008 version of NFPA Code 30 applies to this rule. This rule does not include later amendments to, or editions of, the NFPA Code 30. NFPA Code 30 may be examined at any state publication depository library. Upon request, the Public Room Administrator at the office of the Commission, 1120 Lincoln Street, Suite 801, Denver, Colorado 80203, will provide information about the publisher and the citation to the material.
- S. Access roads. At the time of construction, all leasehold roads shall be constructed to accommodate local emergency vehicle access requirements, and shall be maintained in a reasonable condition.
- T. Well site cleared. Within ninety (90) days after a well is plugged and abandoned, the well site shall be cleared of all non-essential equipment, trash, and debris. For good cause shown, an extension of time may be granted by the Director.
- U. Identification of plugged and abandoned wells. The operator shall identify the location of the wellbore with a permanent monument as specified in Rule 319.a.(5). The operator shall also inscribe or imbed the well number and date of plugging upon the permanent monument.
- V. Development from existing well pads. Where possible, operators shall provide for the development of multiple reservoirs by drilling on existing pads or by multiple completions or commingling in existing wellbores (see

Rule 322). If any operator asserts it is not possible to comply with, or requests relief from, this requirement, the matter shall be set for hearing by the Commission and relief granted as appropriate.

W. Site-specific measures. During Rule 306 consultation, the operator may develop a mitigation plan to address location specific considerations not otherwise addressed by specific mitigation measures identified in this subsection 604.c.

- COGCC Rule 604.c.(3) provides for additional mitigation measures within the Exception Zone Setback as follows:

A. All mitigation measures required pursuant to subsection 604.c.(2), above,  
and:

B. Berm Construction:

- i. Containment berms shall be constructed of steel rings, designed and installed to prevent leakage and resist degradation from erosion or routine operation.
- ii. Secondary containment areas for tanks shall be constructed with a synthetic or engineered liner that contains all primary containment vessels and flowlines and is mechanically connected to the steel ring to prevent leakage.
- iii. For locations within five hundred (500) feet and upgradient of a surface water body, tertiary containment, such as an earthen berm, is required around Production Facilities.
- iv. In an Urban Mitigation Area Exception Zone Setback, no more than two (2) crude oil or condensate storage tanks shall be located within a single berm.

- COGCC Rule 604.c(4) also provides BMPs and mitigation measures for Large UMA Facilities discussed above. Large UMA Facilities are to be operated using the best available technology to avoid or minimize adverse impacts to adjoining land uses. To achieve this objective, the Director will require a combination of best management practices and required mitigation measures, and may also impose site specific conditions of approval related to operational and technical aspects of a proposed Large UMA Facility.

A. All Rule 604.c.(3) Exception Zone Setback mitigation measures are required for all Large UMA Facilities, regardless of whether the Large UMA Facility is located in the Buffer Zone or the Exception Zone.

B. Required Best Management Practices. A Form 2A for a Large UMA Facility will not be approved until best management practices addressing all of the following have been incorporated into the Oil and Gas Location Assessment permit.

- i. Fire, explosion, chemical, and toxic emission hazards, including lightning strike hazards.
- ii. Fluid leak detection, repair, reporting, and record keeping for all above and below ground on-site fluid handling, storage, and transportation equipment.
- iii. Automated well shut in control measures to prevent gas venting during emission control system failures or other upset conditions.
- iv. Zero flaring or venting of gas upon completion of flowback, excepting upset or emergency conditions, or with prior written approval from the Director for necessary maintenance operations.
- v. Storage tank pressure and fluid management.
- vi. Proppant dust control.

C. Site Specific Mitigation Measures. In addition to the requirements of subsections A. and B. of this Rule 604.c.(4), the Director may impose site-specific conditions of approval to ensure that anticipated impacts are mitigated to the maximum extent achievable. The following non-exclusive list illustrates types of potential impacts the Director may evaluate, and for which site-specific conditions of approval may be required:

- i. Noise;
- ii. Ground and surface water protection;
- iii. Visual impacts associated with placement of wells or production equipment; and
- iv. Remote stimulation operations.

D. In considering the need for site-specific mitigation measures, the Director will consider and give substantial deference to mitigation measures or best management practices agreed to by the operator and local government with land use authority.

## V. Air Quality.

Colorado Department of Public Health and Environment – Air Quality Control Divisions governs air quality of oil and gas operations in Colorado. There are massive amounts of regulations that operators must comply with for almost every aspect of oil and gas development. While too many to include in this whitepaper, it is imperative that Boulder County be aware of Regulation 3, 5 and 7 when reviewing its own oil and gas regulations.

See <https://www.colorado.gov/pacific/cdphe/oil-and-gas-industry-air-permits>; <https://www.colorado.gov/pacific/cdphe/oil-and-gas-odor-and-dust-permitting>.

COGCC Rule 604.c. mandates Closed Loop Drilling Systems and Pit Restrictions, Green Completions for Emission Control Systems, and Leak Detection Plans in Buffer Zone and Exception Zone areas. The CPDHE through its Regulation 7, 5 CCR 1001-9 and Regulation 3, 5 CCR 1001-5 address various air quality issues and best management practices including detection, recordkeeping and monitoring. and reporting. COGCC Rule

805.b.(1), (2) and (3) also addresses, via BMPs or otherwise, the issues of odors and air emissions in accordance with CPDHE Regulation No. 2, 5 C.C.R. 1001-4, Regulation No. 3 (5 C.C.R. 1001-5), and Regulation No. 7 Section XVII.B.1 (a-c) and Section XII, as well as Green Completions for purposes of air quality concerns.

VII. Water Monitoring, Testing, Supply and Usage for Drilling, Completion, and Operation Phases.

COGCC Rule 609, and a similar Rule 318A.f., governs groundwater baseline sampling and monitoring associated with oil and gas operations in Colorado. Rule 609 (and 318A.f.) applies to Oil Wells, Gas Wells, Multi-Well Sites, and Dedicated Injection Wells, but do not apply to an existing Oil or Gas Well that is re-permitted for use as a Dedicated Injection Well or to Oil and Gas Wells, Multi-Well Sites, or Dedicated Injection Wells that are regulated under Rule 608.b., Rule 318A.e.(4), or Orders of the Commission with respect to the Northern San Juan Basin promulgated prior to the effective date of this Rule that provide for groundwater testing. Further, nothing in the rules preclude or limit the Director from requiring groundwater sampling or monitoring at other Production Facilities consistent with other applicable Rules, including but not limited to the Oil and Gas Location Assessment process, and other processes in place under 900-series E&P Waste Management Rules (Form 15, Form 27, Form 28).

Rule 609 is very clear on the sampling locations and timing of sampling. Rule 609.b. provides as follows:

- b. Sampling locations. Initial baseline samples and subsequent monitoring samples shall be collected from all Available Water Sources, up to a maximum of four (4), within a one-half (1/2) mile radius of a proposed Oil and Gas Well, Multi-Well Site, or Dedicated Injection Well. If more than four (4) Available Water Sources are present within a one-half (1/2) mile radius of a proposed Oil and Gas Well, Multi-Well Site, or Dedicated Injection Well, the operator shall select the four sampling locations based on the following criteria:

- (1) Proximity. Available Water Sources closest to the proposed Oil or Gas Well, a Multi-Well Site, or Dedicated Injection Well are preferred.

- (2) Type of Water Source. Well maintained domestic water wells are preferred over other Available Water Sources.

- (3) Orientation of sampling locations. To extent groundwater flow direction is known or reasonably can be inferred, sample locations from both downgradient and up-gradient are preferred over cross-gradient locations. Where groundwater flow direction is uncertain, sample locations should be chosen in a radial pattern from a proposed Oil and Gas Well, Multi-Well Site, or Dedicated Injection Well.

(4) Multiple identified aquifers available. Where multiple defined aquifers are present, sampling the deepest and shallowest identified aquifers is preferred.

(5) Condition of Water Source. An operator is not required to sample Water Sources that are determined to be improperly maintained, nonoperational, or have other physical impediments to sampling that would not allow for a representative sample to be safely collected or would require specialized sampling equipment (e.g. shut-in wells, wells with confined space issues, wells with no tap or pump, non-functioning wells, intermittent springs).

c. Inability to locate an Available Water Source. Prior to spudding, an operator may request an exception from the requirements of this Rule 609 by filing a Form 4, Sundry Notice, for the Director's review and approval if:

(1) No Available Water Sources are located within one-half (1/2) mile of a proposed Oil and Gas Well, Multi-Well Site, or Dedicated Injection Well;

(2) The only Available Water Sources are determined to be unsuitable pursuant to subpart b.5, above. An operator seeking an exception on this ground shall document the condition of the Available Water Sources it has deemed unsuitable; or

(3) The owners of all Water Sources suitable for testing under this Rule refuse to grant access despite an operator's reasonable good faith efforts to obtain consent to conduct sampling. An operator seeking an exception on this ground shall document the efforts used to obtain access from the owners of suitable Water Sources.

(4) If the Director takes no action on the Sundry Notice within ten (10) business days of receipt, the requested exception from the requirements of this Rule 609 shall be deemed approved.

d. Timing of sampling.

(1) Initial sampling shall be conducted within 12 months prior to setting conductor pipe in a Well or the first Well on a Multi-Well Site, or commencement of drilling a Dedicated Injection Well; and

(2) Subsequent monitoring: One subsequent sampling event shall be conducted at the initial sample locations between six (6) and twelve (12) months, and a second subsequent sampling event shall be conducted between sixty (60) and seventy-two (72) months following completion of the Well or Dedicated Injection Well, or the last Well on a Multi- Well Site. Wells that are drilled and abandoned without ever producing hydrocarbons are exempt from subsequent monitoring sampling under this subpart d.

(3) Previously sampled Water Sources. In lieu of conducting the initial sampling required pursuant to subsection d.(1) or the second subsequent sampling event required pursuant to subsection d.(2), an Operator may rely on water sampling analytical results obtained from an Available Water Source within the sampling area provided:

- A. The previous water sample was obtained within the 18 months preceding the initial sampling event required pursuant to subsection d.(1) or the second subsequent sampling event required pursuant to subsection d.(2); and
- B. the sampling procedures, including the constituents sampled for, and the analytical procedures used for the previous water sample were substantially similar to those required pursuant to subparts e.(1) and (2), below. An operator may not rely solely on previous water sampling analytical results obtained pursuant to the subsequent sampling requirements of subsection d.(2), above, to satisfy the initial sampling requirement of subsection d.(1); and
- C. the Director timely received the analytical data from the previous sampling event.

(4) The Director may require additional sampling if changes in water quality are identified during subsequent monitoring.

**From:** Jimilagro Vermont  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** Spam: Fracking comment  
**Date:** Tuesday, November 08, 2016 1:30:10 PM

---

Greetings,

I would like the county or continue a moratorium on the oil and gas industry use of hydraulic fracturing as I feel it important that the county get it right regarding regulations. We have enough science to show the hazards and you all know the facts. I think it will continue to take time for the county to come up with a standard that lives up to the mandate to protect public health and welfare and to also protect the environment.

As for fracking on open space, our open spaces have been purchased with tax dollars and are public property that has a value to the community in that it provides both visual enjoyment and recreational opportunities. Those things have considerable value to local businesses as well as to the quality of life in the county. Allowing fracking will adversely impact that value and is similar to the 'takings' that the oil and gas industry uses to override property owners' wishes. Allowing fracking is essentially a 'taking' from the surface owners in that it prevents use of the surface and reduces that value of the asset. I believe we could argue that we loose more value overall when we allow fracking on open space than the mineral owners would stand to lose should fracking be prohibited. It will take considerable time to determine this and therefore a moratorium is needed.

Should the county wish to avoid a moratorium the following should be put in place with particular attention to public costs. The county must require:

- A high standard of evidence that a fracking applicant has the means to fund and complete, without public assistance, post-production well-plugging, clean-up, and restoration.
- Baseline measurements of radioactive pollutants conducted by the applicant in soils at or near the well pad before, during, and after production, and a plan in place for any needed clean-up all at the expense of the applicant.
- No use of produced water or flowback on county roads or for agriculture, or disposal in any way that could impact soil, groundwater or surface water. Operators held responsible for any spills or leaks of produced water, flowback, fracking chemicals, sand/silica, or other fracking related inputs or outputs.
- The assumption of all costs and responsibility by the applicant for any damage to roads, shoulders or adjacent properties caused by fracking-associated vehicular traffic. The operator should be required to inventory the road conditions prior to conducting operations so as to be able to determine the effect of the operations on the roadways and, if damage occurs, should be required to make repairs to the standards of road maintenance required for the given roadway.
- A land use mitigation plan submitted by the applicant to reduce noise and lighting nuisances relative to surrounding residential areas, and limiting light and noise pollution to designated hours of the day not earlier than 8 am or later than 6 pm.
- No flaring of gas, to reduce resource waste and prevent air pollution.
- Pre- and post-development sampling of water wells by the applicant up to at least ½ mile from the wellhead, with readings exceeding prescribed limits cause for suspension of fracking operations and remediation at the expense of the operator. Sampling to be

performed by an independent entity and paid for by the operator.

- Applicants must adhere to all relevant Colorado Air Quality and EPA air emission regulations and be regularly inspected by those agencies.
- Applicants must also provide a study of the impact of the well on local wildlife populations including, but not limited to, wildlife trails and corridors, wildlife dens and nests, and wildlife food sources.

**The enforcement costs should be burdened by the applicant through a fee that is large enough to provide full funding of the enforcement.**

Obviously these items will take considerable time to write up in detail and to put an enforcement arm in place. Thus a moratorium is still needed.

*Jim*

<http://4-jim-wilson.pixels.com/>

**From:** Sarah A  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** Fracking  
**Date:** Wednesday, November 09, 2016 8:52:50 AM

---

Dear Boulder County commissioners, and Boulder Planning Commission,

I am writing because of my concern regarding the expiration of the moratorium on fracking. Fracking is well documented to have many negative side effects, such as water contamination, air pollution, environmental damage etc. We cannot, as a progressive health conscious city, let this happen in Boulder County! This will affect property values.... no one wants to move to a place where one cannot even drink the water! I know the companies claim that all this is untrue, but go somewhere they are fracking (those places are not hard to find) and see for yourself! And if their claims are true, and this is neither an environmental, nor a health threat, then both you and the fracking companies should be more than happy to ensure that the rough guidelines below are followed.

- 1) Please implement a new moratorium of 6 months to a year in order to finalize the following
- 2) Require the fracking companies to open their books, this will give you the assurance that they are solvent, and can take responsibility for any clean up needed (the city should not have to pay for this!!!!)
- 3) Sign a contract with these fracking companies that require them to clean up any and all hazards created by them. Again, this should not be the cities responsibility!
- 4) Require the fracking companies to outline and implement a plan for the disposal of the fracking waste that does not do environmental damage to our county! In other counties, they just dump it into agricultural fields, or use it for dust mitigation, we must ensure this does not happen here. The waste produced from fracking in Colorado is slightly radioactive... we do not need to bring all this up to the surface! Our children are at the greatest risk!!!!

Please help us stay at the forefront of health, environmental stewardship, and sound city/county planning! You give priority to organic farming, how could you consider allowing fracking in Boulder County??? And please for everyone's sake, but especially for our children, consider the above with utmost thoughtfulness!!!

Respectfully

Sarah Altglet

**From:** Tom Altgelt  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** expiration of the moratorium on fracking  
**Date:** Wednesday, November 09, 2016 12:02:02 PM

---

Dear Boulder County commissioners, and Boulder Planning Commission,

I am writing because of my concern regarding the expiration of the moratorium on fracking. Fracking is well documented to have many negative side effects, such as water contamination, air pollution, environmental damage etc. We cannot, as a progressive health conscious city, let this happen in Boulder County! This will affect property values.... no one wants to move to a place where one cannot even drink the water! I know the companies claim that all this is untrue, but go somewhere they are fracking (those places are not hard to find) and see for yourself! And if their claims are true, and this is neither an environmental, nor a health threat, then both you and the fracking companies should be more than happy to ensure that the rough guidelines below are followed.

- 1) Please implement a new moratorium of 6 months to a year in order to finalize the following
- 2) Require the fracking companies to open their books, this will give you the assurance that they are solvent, and can take responsibility for any clean up needed (the city should not have to pay for this!!!!)
- 3) Sign a contract with these fracking companies that require them to clean up any and all hazards created by them. Again, this should not be the cities responsibility!
- 4) Require the fracking companies to outline and implement a plan for the disposal of the fracking waste that does not do environmental damage to our county! In other counties, they just dump it into agricultural fields, or use it for dust mitigation, we must ensure this does not happen here. The waste produced from fracking in Colorado is slightly radioactive... we do not need to bring all this up to the surface! Our children are at the greatest risk!!!!

Please help us stay at the forefront of health, environmental stewardship, and sound city/county planning! You give priority to organic farming, how could you consider allowing fracking in Boulder County??? And please for everyone's sake, but especially for our children, consider the above with utmost thoughtfulness!!!

Respectfully, Tom Altgelt

**Altgelt & Associates, inc.**

Landscape and Garden Architects

303.516.1191 [www.altgelt.com](http://www.altgelt.com)

**From:** hall.n  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** proposed oil and gas regulations from Oct 27 PC meeting  
**Date:** Wednesday, November 09, 2016 6:13:34 PM  
**Attachments:** [BOCO OandGcomments10-27-16.rtf](#)

---

Please find the attached comments on the staff recommendations as of the Oct 27 Planning Commission meeting.

Thank you.

Nancy Hall

12892 Sheramdi St.

Longmont (unincorporated Bo Co)

Comments from Nancy Hall, 12892 Sheramdi St., Unincorporated Boulder County

Thanks to staff and planning commission and board of county commissioners for all the hard work to protect county residents from the harmful effects of O&G development.

I have comments of three natures:

1. Expansion of these regulations that requires research. If these warrant another moratorium to do the necessary research, please consider that.
2. Suggest another prong in the multi-pronged approach.
3. Deficiencies in the regulations that I think can be fixed with simple edits.

**A. A. E&P WASTES (easy edit / expansion of regulations)**

4-500: Disallow E&P Waste Management Facilities in Boulder County.

12-500 under new item Y, Waste disposal plan:

As it stands, the neighbors (who will breathe the dust on a windy day) will not be given any notice if land application of E&P wastes is being used, the location of disposal being unrelated to the location of the pad.

Ideally, we should disallow land application of E&P wastes.

If COGCC claims operational conflict because it has regulations concerning E&P wastes, then require permits for the spreading of such wastes. Requiring permits allows us to require notification of neighbors, school officials, etc.

Regulations for these permits need to be drafted from scratch, so we need to A) immediately require such permits and B) have a moratorium on issuing such permits until said regs are drafted. All the same regulations concerning community notice and engagement and air quality monitoring and water quality monitoring apply to land application of E&P wastes.

**A. B. HYDROGEN SULFIDE (minor expansion)**

12-700 New condition of approval:

While sour gas might not be prevalent in the DJ Basin, if we don't monitor for it, how will we know if control measures are needed?

Sense of smell is not reliable because it quickly destroys that sense.

Require installation of H<sub>2</sub>S monitoring equipment.

<http://www.ishn.com/articles/91070-new-tlv-exposure-limit-measuring-hydrogen-sulfide>

**A. C. OUTREACH AND EDUCATION (new prong in multi-pronged approach)**

We should engage in **active** outreach and education. This prong's goals should include:

- maximize awareness of hazards of oil and gas development
- minimize new leasing in the county
- provide a central starting place for people to self-educate - by including general information about laws, health studies, lists of attorneys who represent landowners, links to guides (e.g., Matt Sura's landowner's handbook: <http://www.oilandgasbmps.org/landowners-guide/>), and books (e.g., Oil and Gas Law in a Nutshell) and lists of attorneys who represent residents and mineral owners (including other interests such as royalty owners, working interests, surface owners)
- educate public about schemes of which to beware such as landman tactics

The county can provide general advice to those with a land man knocking, just as it provides advice regarding septic systems, safe sex, LGPTIQ harassment response, energy efficiency, noxious weed management (how to report a concern), and listing qualified industrial hygienists for testing for meth.

**A. D. FINANCIAL ASSURANCE (edits)**

12-700 Q: Letters of credit need to be backed by stand-by trusts. A trust fund in lieu of a letter of credit would be as good as a letter with a stand-by trust. Consider requiring insurance with proof of continual coverage by a financially strong insurer, with the county and the state being named insureds.

All forms of financial assurance need *inflation adjustment*.

All forms of financial assurance need to burden assigns, successors, etc.

12-701 C 3 disruption payments: all operators should be required to be insured for third-party liability (with inflation adjustment) to cover disruption payments – not just on a site-specific basis.

**A. E. FINANCIAL ASSURANCE - ABANDONED WELLS, PLUGGING & RECLAMATION (expansion of regs, requires research)**

Orphaned wells might sit for years before they are cleaned up.

COGCC staff reports from 2011-present show that bonds cover less than 11% of the expenditures for the plugging and reclaiming abandoned wells (PRAW) program. CO is picking up the tab and allowing leaking wells to sit for years, and the problem is

getting worse in this oil-and-gas bust.

Does the state claim to occupy the field of plugging and reclaiming? Regulating the standards to which plugging and reclaiming are done is one thing; claiming sole authority to clean up orphaned wells is another, and it's not clear that the county has no role here.

All interests (working or otherwise) in the chain should be required to indemnify the county and the state if the operator goes belly-up.

If the county were to perform the closure that was the responsibility of the operator, it would have the possibility of claiming a lien on the minerals and/or the estate.

Colorado does not have statutory recognition of a "mineral lien"; rather, for the purposes of liens, the statutes explicitly treat mineral estate as real estate and the extracted product as personal property or "goods", subject to Uniform Commercial Code. So liens and collateral are possible tools to recover costs or better yet, to retire leases (in cases where the estate is acquired or the leases are exclusive).

A condition of application might include agreements by the mineral owner and/or lessors that use the estate and/or minerals as collateral and engages the county, at the county's option, as a back-up operator to plug and reclaim in event the operator goes belly-up or otherwise fails to perform its obligations under the rest of the regulations.

The county would have an option to exercise rather than a requirement to be saddled with a worthless asset. If it exercised the option, it could acquire the estate or lease and retire it (at possibly considerable expense for the plugging and clean-up). If it chose not to exercise the option, the state would be left with the job, which is the status-quo.

While the county might never exercise this power, requiring that the holders of any financial interests in the minerals be prepared to cover the costs or yield possession might make them think twice about leasing. It would only be fair.

Potential problems with this:

-anachronism: leasing takes place long before application for permit under the regs. Landmen and operators don't have to inform lessors of their tax obligations; the same can be said for this: the lessor must know the law before signing.

-undue burden: if lessors or mineral owners refuse to sign, lessee will call this an undue burden. Is that defensible in light of the fact that in absence of an indemnity, the burden is on the taxpayers?

-it constitutes a taking: it doesn't deny anyone the right to extract; they just have to be willing to bear the costs.

-state claim to occupy the field of closing orphaned wells: The law says the COGCC MAY plug/replug the well and reclaim, not SHALL plug and reclaim, nor does the statute specifically say this is the sole domain of the state. Operationally, there is no conflict with both state and local governments both requiring bonds. The county could craft its language to say that if the state doesn't do the job within a given period, the county notifies the state of its foreclosure on its bond and its intent to plug the well.

-would the county be required to get an APD to do the plugging? Probably, hence the requirement for the a-priori agreement by the lessor(s).

-would it be a lose-backward if we were sued and lost? Probably not; it is so detail-dependent that other schemes could be drafted that differ sufficiently to warrant a separate court test. I doubt anyone has tried this before.

This is clearly complex. Please direct the legal department to research the possibilities here.

#### **A. F. SILICA SAND & DUST: (minor edit)**

##### 12-700 Conditions of Approval, F: Dust suppression

If the intent of the language in 12-700F is to turn those BMPs into requirements, that is not clear: "compliance" could mean voluntary participation. Adopting the BMPs should not be voluntary.

Let's also require monitoring of respiratory dust and prohibit exposed silica sand piles - they must be covered at ALL times.

#### **A. G. GATHERING LINES (expansion or minor edits)**

4-514: It looks like:

- gathering lines can be as close as 50 feet to homes and other occupied structures – *this feels far too close.*
- only those that pass within 150 of such structures are "subject to leak detection and repair", although specific requirements and enforcement mechanisms are not clear. Does this mean that 12-700 K applies? *Please have this clarified and consider increasing the distances.*
- only those associated with "new" oil and gas development are subject to the review process in article 12. *This means if a cluster of wells, which now flare gas, are to be connected to new gathering lines due to higher gas prices, the article 12 review does not apply? That suggests that all the community engagement and notification does not apply. Please fix this. All new gathering lines should be subject to article 12 requirements.*

**A. H. LEAKS (edits – minor?)**

12-1000 Enforcement: I realize that 12-1000 reserves the county's right to pursue all legal remedies, but I would like to see repeated leaks (or repeated anything else that exposes the public to toxins or dumps greenhouse gasses) treated as willful and thus as criminal neglect and called out as such in the language.

The Illicit Stormwater Discharge ordinance does so:

Criminal Prosecution.

Any person that has violated or continues to violate this ordinance shall be liable to criminal prosecution to the fullest extent of the law, and shall be subject to a criminal penalty authorized pursuant to Colorado Revised Statutes, Title 30, Article 15. BCPH may recover all attorneys' fees, court costs and other expenses associated with enforcement of this ordinance, including sampling and monitoring expenses.

Violations Deemed a Public Nuisance.

In addition to the enforcement processes and penalties provided, any condition caused or permitted to exist in violation of any of the provisions of this Ordinance is a threat to public health, safety, and welfare, and is declared and deemed a nuisance, and may be summarily abated or restored at the violator's expense, and/or a civil action to abate, enjoin, or otherwise compel the cessation of such nuisance may be taken.

**A. I. COSTS OF INSPECTION (minor edit)**

12-1000 (?) The planning commission expressed concerns about the cost of inspection, especially in light of the fact that leaks are an ongoing problem. Assess a re-inspection fee just as you do for re-inspection for building permits.

**A. J. EARTHQUAKES (minor edits)**

Definitions: oil and gas operations: Since the first moratorium was adopted, earthquakes have become a matter of increasing severity and frequency in our neighboring states. In the proposed changes to the regs I don't see any call specifically for earthquake-preparedness. Perhaps under geological hazards, there should be a requirement for an earthquake-preparedness plan.

Prohibiting injection wells is a good start.

Secondary and tertiary-recovery operations are not addressed.

The definition of oil and gas operations needs to include "injection of any substance in connection with enhanced (secondary or tertiary) recovery". Perhaps this is what is meant by "re-enter", although it could be argued that "re-enter" applies only to wells that have been plugged, and/or only to hydrofracking.

**A. K. Noticing and community engagement: (minor edit)**

12-400 H 2 Notices

School boards, school administrators, parents of all children attending the schools in the affected area, health clinics, child-care agencies, and water agencies should be

included among those notified of proposed development and included in any community engagement and notice requirements.

**A. L. Applicant neighborhood meeting (minor edit)**

12-400 E Neighborhood meeting

These meetings are important enough to have a public record. A summary prepared by the operator is not likely adequately to represent the comments and concerns. A video recording should be required - something that would be useful in event of a judicial or quasi-judicial process such COGCC complaints or hearings.

The meetings must be held at reasonable times. Perhaps two should be required: one during working hours and one after working hours.

**A. M. Definition of Operators (minor edit)**

A definition was missing as of last PC meeting. Definition must include successors and assigns. Include subcontractors and agents of the applicant everywhere that make sense; this might call for a different phrase or term.

**A. N. CONSULTANT (minor edit)**

12-400 J: allow applicant to provide input but county must retain discretion and sole power to make final decision

**A. O. LOCATING OLD WELLS (minor edit or expansion or needs research)**

12-500 I All old wells in spacing unit must be inspected, plugged, remediated before any application will be considered. Operator must survey all owners in spacing unit for any knowledge of old wells in addition to documenting anything on the COGCC web site. The reason behind using the spacing unit is that this is the area deemed drainable by the well, and thus it is the *minimum* area in which communication with old wells can reasonably be expected.

**A. P. RADII for monitoring and notices (several short edits)**

It's becoming increasingly clear that noxious and dangerous effects require 1-mile radius for notification and community engagement as well as water testing & monitoring. 1 mile is not very far in this context, and among health experts, opinion is converging on the need for **1-mile** or larger setbacks (<http://www.environmentalhealthproject.org/dl/41>).

When it comes to water testing, noise, vibration, geologic hazards, the boundaries

should be *calculated along the entire length of the bore*.

12-400 H 2 Notices: b,c,d and subsequent paragraph : change 1/2 mile to 1 mile

12-500 I Proximity of other wells: Given wellbore lengths of existing wells, this should probably be 2 miles or more.

12-500 J Site Plan Information 5,6,7,9: change 1/2 mile to 1 mile

12-500 X Surrounding land use mitigation plan: change 1/2 mile to 1 mile

12-700 P Notice of commencement: change 1/2 mile to 1 mile in 2 places

12-701 B water well testing: 1,2,3: 1/4 mile is inadequate, given that a) fractures can travel more than 1/4 mile, and b) the COGCC GWA spacing rules include in a spacing unit (the area efficiently drained by a well) areas .365 mile away from the perforated area of the bore. I suggest that using the COGCC extent of a spacing unit makes sense and is less arbitrary than the 1/4 mile distance.

Definition of "surrounding": change to "within one-half mile" to "within 1 mile".

#### **A. Q. E&P WASTES (short edit)**

[new section 4-517J:

Shouldn't the use of water transmission lines that haul E&P waste water be subject to the same scrutiny as oil and gas operations, thus be subject to article 12 review?

#### **A. R. AIR QUALITY (short edit)**

12-701A - because we are in a non-attainment area, the use of gas blankets should be mandated everywhere (not just in site-specific conditions).

#### **A. S. DISRUPTION PAYMENTS (short edits)**

12-701 C 3 : disruption payments : who chooses and pays for the qualified professional independent consultant? The county should choose the consultant with input of the residents, and the county should pay for it and recover the costs from the operator; if the operator doesn't pay, the county can claim a lien or give cease-and-desist order. We might add "clean water" to one of the items in the (non-exhaustive) list.

#### **A. T. EVIDENCE OF TITLE (expansion of regs, requires research)**

12-500 B:( "ownership"): The county requires "certification" of title. What does "certification" mean? I believe it means they sign a paper saying "I have title." How

will the county ever find out if the applicant lied or was misled? What enforcement actions can be taken if the applicant does not have title?

We are best able to avoid drilling altogether before the lease is signed. It's not just a matter of protecting the potential lessor; it's a matter of protecting the community from ill-informed decisions by mineral owners and high-pressure sales practices of landmen.

In particular, we need to address a loophole that can be devastating to property owners: many of the people affected by the drilling have no legal right to demand evidence of the right to drill. If a landman comes to me offering royalties based on a sketchy title chain, I have a financial incentive to sign, but my neighbor, who stands to suffer, has no right to see, much less challenge, the title chain.

I suggest this section 12-500 B be expanded to :

- require identification of all beneficiary interests (working interests or not) in the chain of title as well as surface owners
- require clear title - require the title chain to be documented and RECORDED prior to application. Just as I cannot get a building permit without providing a warranty deed; the same should hold for drilling permits.
- Require recording of title chain. Recording is essential, as an unrecorded deed is not reliable. This gives neighbors a means to research the ownership if unscrupulous tactics are suspected.
- require proof that all working interests and lease holders were given full documentation of the title chain prior to engaging in a lease, for all leases executed after adoption of the regs
- require documentation that all working interests and lease holders were given full documentation of the title chain prior to application, for leases executed prior to adoption of the regs
- give the county the option of suspending permits if reasonable doubt of title is provided by any party, and revoking them if title is deemed invalid judicially. "Any party" means anyone, regardless whether said party has an interest in the minerals or surface land.
- require title insurance; if no one insures mineral title, there is a reason for that, and we need to broadcast that fact loud and clear as a signal to potential lessors.

NOTE: The above would also help fill the data gap: One of the impediments to adoption of good state-wide policy is the lack of public access to data.

For example: Beneficial interests in leases are not listed anywhere publicly unless there is a pooling order, and the order's list might not be complete. Still, a casual perusal of pooling orders shows that a large percentage of the beneficiaries are not Colorado residents. One of the most oft-cited arguments against any protective policy is an economic - how the development brings \$ into the state. Having the data would help debunk such arguments. As these regulations are intended to be a model for other counties to adopt, requirements that help fill the data gap will spread beyond the county borders.

**A. U. LANDMAN LICENSING or REGISTRATION (different article  
– new prong/expansion of regs)**

Please also investigate the possibility of mandatory landman licensing in the county – if not to enforce good practices, at least to inform them of regulations that will burden the lessors (which I propose herein).

**From:** John Feeney  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** We need to extend the fracking moratorium  
**Date:** Friday, November 11, 2016 8:37:45 AM

---

I write to express my support for the extension of the moratorium on fracking in Boulder County. I'm sure we all agree fracking is not the direction we need to go. We need instead to move away from the burning of fossil fuels. Boulder County should be setting an example, taking concrete, visible action toward doing that. The extension is one of the very best ways of doing so.

Thanks,

John Feeney  
Boulder  
303-447-0973

**From:** Nanciann Feeney  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** RE: Fracking Moratorium  
**Date:** Friday, November 11, 2016 8:48:16 AM

---

I write to express my support for the extension of the moratorium on fracking in Boulder County. I'm sure we all agree fracking is not the direction we need to go. We need instead to move away from the burning of fossil fuels. Boulder County should be setting an example, taking concrete, visible action toward doing that. The extension is one of the very best ways of doing so.

Thanks,

Nanciann Hill Feeney  
Boulder  
[303-447-0973](tel:303-447-0973)

**From:** Rae Miller  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** Vote to extend the Fracking Moratorium!  
**Date:** Friday, November 11, 2016 11:40:47 AM  
**Attachments:** [BoulderWeeklyLetter.docx](#)

---

Dear County Commissioners,  
Please cast a vote to extend the moratorium on fracking in the County!

See the attached letter that specifically describes immediate concerns for neighborhoods in Lafayette. There is already strong opposition for a proposed fracking well in this area that includes well-established neighborhoods and schools within 1,000 feet of the well.

Thank you for using your position to protect the people, environment, and beauty of Boulder County.  
Rachel Miller  
City of Lafayette Resident

**From:** alison rogers  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** oil and gas drilling regulation moratorium ending  
**Date:** Saturday, November 12, 2016 1:30:40 PM

---

Dear Commissioners,

It is more important than ever for local communities to stand up to the oil and gas industry's exploitation of resources for profit. For the following reasons, I request that you continue the moratorium until there is clear evidence that regulations that protect the air, water and climate can be instituted and complied with. Nothing short of that is acceptable.

1. We need to move from Fossil fuels to renewables.
2. Studies are showing that water, and air pollution increase with both the extraction and burning of oil and gas.
3. There are no regulations currently available to protect both the environment and people's health.

Sincerely,

--

Alison Rogers Ed.D.,LPC  
Boulder, CO. 80304

**From:** Stacie Schaefer  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** extend the moratorium  
**Date:** Sunday, November 13, 2016 8:29:06 AM

---

Dear Boulder County Commissioners,  
Please extend the moratorium that ends on November 18 or convert it to a permanent fracking ban! Residents of Colorado do not want any more fracking. The long term effects of fracking are yet to be seen and we need to think beyond dollars in the moment. The future depends on us making sound and good choices for everyone. Please use your power and influence to make the choices of the people here in Colorado heard and extend the moratorium or convert it to a permanent fracking ban. We are clearly stating we do not want any more fracking operations.

Sincerely,  
Stacie Schaefer  
Niwot, Colorado

**From:** Liz Pacheco  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** Docket DC-16-0004  
**Date:** Sunday, November 13, 2016 10:25:24 AM

---

Dear Commissioners:

I would like to add my voice to all these expressing concern about fracking in Boulder County. Colorado is blessed with abundant resources for alternative energy sources through additional development of solar and wind power. Our most precious resource is water. There is no reasonable rationale for wasting water through the fracking process.

I support those commissioners who protect our resources and resist the influence of the energy company lobbyists. Local decisions should be made by local people.

Thank you,

Liz Pacheco

Boulder

**From:** fetchingdesigns@yahoo.com  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** NO FRACKING IN BOULDER!!!  
**Date:** Sunday, November 13, 2016 12:37:30 PM

---

As I concerned resident of Boulder, I beseech you to not allow fracking in Boulder County!!! There are too many reports of health concerns, week poisoning, and earthquakes to turn a blind eye to this operation!!! Keep our county health and safe. NO FRACKING!!!!

Sent from my iPhone

**From:** Kathleen Corcoran Noonan  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** Fracking  
**Date:** Sunday, November 13, 2016 1:03:06 PM

---

City Council members,

Boulder is smarter than this. Fracking is not the answer, and this has been proven again and again. I live in the Wonderland Lake area and I am appalled that this would even be considered here.

Extend the moratorium — our citizens demand it!

Your neighbor and taxpayer,  
Kathleen Noonan

**From:** Ali Zeljo  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** concern about fracking  
**Date:** Sunday, November 13, 2016 2:21:21 PM

---

Hello Committee, I am writing to urge you to decide to continue the moratorium on fracking in Boulder. I am very concerned about the effects on our earth and the wildlife that live among us. I am very concerned about our water supply. I am very concerned about fresh, clean air. PLEASE do not allow fracking in our community.

Thank you,  
Ali Zeljo  
792 Union Ave  
Boulder, CO 80304

**From:** RLM  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** Extend the moratorium on fracking in Boulder County  
**Date:** Sunday, November 13, 2016 2:31:48 PM

---

I would like to extend my support to extend the moratorium on fracking in Boulder County

Rebecca Maschka

**From:** Jim Miller  
**To:** [Boulder County Oil and Gas Comment](#)  
**Cc:** [Ingrid Miller](#)  
**Subject:** Stop Fracking in Boulder - Extend the Moratorium  
**Date:** Sunday, November 13, 2016 2:36:04 PM

---

Good Afternoon,

I am a resident of the Wonderland Lake area and am very concerned about the expiration of the moratorium on fracking. We should extend the moratorium to buy time to put in place regulations to ensure the long term safety of Boulder's residents and environment. Boulder County is a wonderful place to live with a fantastic reputation and you should support the desire of the residents to continue to fight against the permanent damage we risk from fracking.

- Fracking will decrease property values
- Fracking will endanger our children through air and water pollution
- Fracking will increase the risk of earthquakes as Oklahoma has experienced
- Fracking will use valuable water that we need to meet the needs of our growing population
- The fracking companies need to show that they have safe plans to dispose of the waste
- Fracking companies should have to disclose the chemicals that they are pumping into our environment
- We need to have measurements put in place so that we know what fracking is doing to our air and water; we need to have baseline measurements and then measurement during and after fracking so that we can hold the companies responsible for damage
- We need fracking companies to put up bonds to ensure that fracking sites can be returned to their natural state and to clean up any "accidents". As we have seen in many other cases, companies create subsidiaries so that they can go bankrupt without hurting the parent company. The fracking companies should have to put money aside so that they do not leave behind sites that then become the communities problems. Across Colorado we are already having to clean up mining sites that have long since closed, let's not create more problems and costs for future generations by allowing fracking companies to do the same.
- The infrastructure required and the heavy equipment traffic involved will put a strain on the county's and city's resources. If we can't prevent the fracking, at least we should ensure that this strain on our resources is mitigated and paid for by the fracking companies.

We should be concerned about fracking across the county and the impact it has. Think about the Wonderland Lake area, which is enjoyed by many Boulder residents, including our neighbors and people who come from across the county. With all of the growth in Boulder, the traffic on Broadway has increased dramatically. Broadway cannot handle more traffic, especially heavy trucks. This neighborhood is also densely populated. Fracking here will have a negative impact on our lives in many ways.

While extending the moratorium may result in having to defend legal fights, we think it is well worth it. The longer we can delay fracking the better chance we have to put in reasonable regulations or to change the state laws.

Thank you for protecting Boulder County.

Jim Miller  
905 Utica Ave

Boulder, CO 80304

**From:** Anna Hasenfratz  
**To:** [Boulder County Oil and Gas Comment](#)  
**Cc:** [Anna Hasenfratz](#)  
**Subject:** Moratorium on fracking  
**Date:** Sunday, November 13, 2016 2:40:07 PM

---

As a long term resident of Boulder I strongly oppose allowing fracking in our city and county. No amount of gas obtained by fracking could contract the environmental damages such operation would cause.

There are sustainable and safe ways to create energy. We cannot allow short term interest of gas companies to dictate the long-term future of our children.

---

---

Anna Hasenfratz | Professor of Physics  
Phone: [303-492-6972](tel:303-492-6972), | Fax: [303-492-5119](tel:303-492-5119)  
University of Colorado, Boulder 80309-390

**From:** Devin Hughes  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** No on fracking from boulder symphony  
**Date:** Sunday, November 13, 2016 2:58:10 PM

---

This this is Devin Patrick Hughes, music director of the boulder symphony orchestra. We resolutely oppose any attempts to frack in or around the wonderland Lake area or any other regions within Boulder city to city limits.

Devin Patrick Hughes

**From:** Bob and Julie Jenkins  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** Extend fracking moratorium!!  
**Date:** Sunday, November 13, 2016 3:07:19 PM

---

Please, this is not something to take lightly.  
The dangers of fracking have only just being to b understood.

Boulder prides itself on respecting the environment and the health of our citizens.

As both a mother and medical professional, please extend the moratorium on fracking.  
Do not give the oil and gas companies priority over Boulder's citizens.

Thank you,  
Julie Jenkins  
1405 Oak Circle  
Boulder, CO

**From:** Robin Mathews  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** Boulder County's Fracking Moratorium  
**Date:** Sunday, November 13, 2016 3:11:27 PM

---

Dear Residents of Boulder County,

I would like to encourage us all to do what we can to extend the moratorium on fracking in Boulder County. There is much evidence that fracking has released toxic chemicals into water systems, and caused gas well explosions and earthquakes in areas that typically have not seen seismic activity before. This short-sighted practice to extract limited amounts of fossil fuel from the Earth has not proven to be a wise strategy for extracting energy resources for human use, and it has not proven to be safe for the environment or the human beings occupying it.

Thank you.

Sincerely yours,

Robin Mathews  
4879 10th Street  
Boulder, CO 80304

**From:** Undine Ehrman  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** moratorium on fracking in Boulder County  
**Date:** Sunday, November 13, 2016 3:38:18 PM

---

Please extend the moratorium on fracking in Boulder County due to expire on Nov. 18th. Effects from fracking in the county and particularly within the city limits will forever destroy what we who live here cherish most.

Undine Ehrman

**From:** Lisa Wertz  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** Cannot Attend the Meeting  
**Date:** Sunday, November 13, 2016 3:42:02 PM

---

Hello,

I am a teacher and cannot attend the meeting on the moratorium on fracking. Please do not allow fracking in Boulder County (or anywhere else for that matter).

thank you  
Lisa Wertz  
759 Cottage Lane  
Boulder

**From:** herdt  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** Fracking, No!  
**Date:** Sunday, November 13, 2016 3:55:25 PM

---

Fracking is a dangerous, unnecessary method with immediate and negative long term consequences to humans, animals, the environment and the soundness of life on this Earth. It must be stopped so that safer methods can be used to power our lives.

NO TO FRACKING IN COLORADO AND IN BOULDER!

Sent via the Samsung GALAXY S® 5, an AT&T 4G LTE smartphone

**From:** herdt  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** RE: Automatic reply: Fracking, No!  
**Date:** Sunday, November 13, 2016 4:00:04 PM

---

Dad

They want to frack around Wonderland!

Neighbor Ali just told me and said we need people at this tuesday afternoon boulder courthouse meeting. I have to teach. Would u and mary be able to go?

I sent an email yo legislators

Sent via the Samsung GALAXY S® 5, an AT&T 4G LTE smartphone

----- Original message -----

From: Boulder County Oil and Gas Comment <[oilgascomment@bouldercounty.org](mailto:oilgascomment@bouldercounty.org)>

Date: 11/13/2016 3:55 PM (GMT-07:00)

To: herdt <[herdt@comcast.net](mailto:herdt@comcast.net)>

Cc:

Subject: Automatic reply: Fracking, No!

Thank you for your comment regarding oil and gas development in unincorporated Boulder County. We value your input on this issue. We are receiving a high volume of comments on this issue therefore staff may be unable to respond to individual comments. The comments will be added to the public record, reviewed by the Board of County Commissioners, and posted to the Oil & Gas Development webpage at [bit.ly/BCoilgas](http://bit.ly/BCoilgas).

Visit [bit.ly/BCoilgas](http://bit.ly/BCoilgas) for more information and to sign-up for email updates.

**From:** Larry Welsh  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** fracking in our backyard  
**Date:** Sunday, November 13, 2016 4:15:40 PM

---

Hello there,

Today I was informed that there are fracking wells proposed for the Wonderland Lake area. Four of them apparently. Is this a fact? Who owns the land? I heard about this through "Next-door Wonderland Lake" communications. I live at 546 Locust Place, Boulder.

Is this for real??

I am 100% against fracking let alone in my neighborhood. There are serious concerns about fracking and its consequences for the health of the individual, the land, our water and the stability of the earth.

Please inform me thoroughly as to what is going in with fracking in my neighborhood and the city and county altogether.

Thank you so much,

Larry Welsh

**From:** soladido@aol.com  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** Extend moratorium on fracking in Boulder County  
**Date:** Sunday, November 13, 2016 4:33:39 PM

---

As a long time Boulder County taxpayer and resident of Wonderland Hills, I implore you to extend the moratorium on fracking in Boulder County for the following reasons:

1: it is harmful to the climate; one of the biggest threats to the future of the planet. This effects all of us and our children and grandchildren!

2. Fracking is NOT part of the vital energy transition. We need to end our reliance on fossil fuels, and, especially ones that use inefficient and polluting methods of extraction AND that harm the people (residents of Boulder County, in this case) who reside near the fracking sites. Boulder County should be a model for the rest of the country/world in foregoing fracking and encouraging development of low carbon energy sources such as renewables.

3. Fracking consumes shameful amounts of precious water. We cannot waste water that way, just to support the profits of a few greedy companies, in our dry Colorado climate.

4. Fracking contaminates the environment. We live in Boulder because we want better. This is not what we do here!

5. Fracking causes earthquakes. Look what has happened in Oklahoma! And then, we, the taxpayers of Boulder County have to bare the burden of the damage caused by earthquakes. While the extraction companies take their profits and run! At our expense!!

6. Fracking puts arsenic in the ground water around the fracking sites. I don't want arsenic in my water! It is poison! This is a crazy thing to do to the citizens of our community!

7. There is no benefit to the people of Boulder County. Only the oil companies benefit. And we pay a huge price in polluted, poisoned water, damage, injury and possibly death from earthquakes, shortages of fresh water and damage to our climate.

Fracking in Boulder County is not appropriate. Please extend the moratorium; once the fracking starts, there is no going back!

Sola DiDomenico

925 Rainlily Lane  
Boulder, 80304  
303-880-1672

**From:** Lisa Stevens  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** Fracking Moratorium  
**Date:** Sunday, November 13, 2016 4:49:52 PM

---

Hello, I am unable to attend the meeting this week, however I want to make it clear that I do not support fracking in any area of Boulder. I am a resident of Boulder residing in the Newlands neighborhood, and I am very opposed to fracking here in Boulder (or anywhere in the region for that matter). I do not want our water supply poisoned, not to mention all the other terrible effects this can have. Please add my name to the list of those in support of the moratorium extension so that we can make sure this doesn't happen in Boulder. Thank you,

Lisa Stevens  
303-990-1306

**From:** Debra Hopkins  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** Please extend the moratorium on fracking  
**Date:** Sunday, November 13, 2016 5:40:53 PM

---

I see the fracking moratorium is up fo renewal. Please work to extend it, and prevent fracking in Boulder.

thank you  
Debra Hopkins  
3904 Wonderland Hill  
Boulder Co 80304

**From:** Ron Zeiler  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** Fracking  
**Date:** Sunday, November 13, 2016 5:45:35 PM

---

No. Hell no to fracking in Boulder County!!!!!!  
Ron Zeiler  
615 Northstar Court  
Boulder, CO 80304

**From:** [Wufoo](#)  
**To:** [Boulder County Board of Commissioners](#)  
**Subject:** County Commissioners Contact Us/Feedback Form. [#213]  
**Date:** Sunday, November 13, 2016 6:00:54 PM

---

Name \* aj bright

Email \* [blazingbright@yahoo.com](mailto:blazingbright@yahoo.com)

My Question or Feedback most closely relates to the following subject: (fill in the blank) \* Fracking

Comments, Question or Feedback \* I urge commissioners to extend the fracking moratorium in Boulder County, until we can evaluate the damage sustained both by the environment and the community in areas where fracking is permitted. And, even more strongly, I urge you not to allow fracking in our open spaces. On Tuesday, please vote to extend the fracking moratorium. Thank you for your consideration!

Please check box below \*  I acknowledge receipt of the Open Records Notification

**From:** Catherine Burgess  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** Support of Fracking Moratorium in Boulder County  
**Date:** Sunday, November 13, 2016 6:14:02 PM

---

Hi Boulder County,

Know that our fracking moratorium is coming to an end. We support a continued ban. There should be no fracking in Boulder.

Thank you.

Kind regards,  
Catherine Burgess, CNE

**Integrity Comes First** <sup>SM</sup>  
Burgess Group Realty, LLC  
CLR Elite Agent Award  
Broker Associate: Colorado Landmark, Realtors Luxury Portfolio, International  
Phone: 303.506.5669, [catherine@burgessgrouprealty.com](mailto:catherine@burgessgrouprealty.com) [www.burgessgrouprealty.com](http://www.burgessgrouprealty.com)

**From:** Mira Hatland  
**To:** [Boulder County Oil and Gas Comment](#)  
**Date:** Sunday, November 13, 2016 6:32:58 PM

---

Stop this fracking. Our wildeness is very important to us!!!!

**From:** Beth Karpf  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** Please don't allow fracking in Boulder County  
**Date:** Sunday, November 13, 2016 6:41:49 PM

---

I've heard that the current fracking moratorium in Boulder County is about to expire and that many fracking wells are being considered here in Boulder. We've seen the terrible results of fracking in many other locations – poisoned water, earthquakes, and the harmful impacts on people's health, lives, and property. These are things that no one would want to happen to their community. Please do not open up Boulder County to fracking!

Sincerely,

Beth Karpf

Resident, City of Boulder

**From:** Ina Robbins  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** Stop Fracking in Boulder County  
**Date:** Sunday, November 13, 2016 7:16:40 PM

---

I am a resident of Wonderland Lake neighborhood in North Boulder for 26 years. I strongly object to any fracking in Boulder County, and especially in this unique natural habitat. Fracking has been demonstrated to be a dangerous practice for the earth, the water, wildlife and humans.

Stop now.

Ina Robbins  
395 Quail Circle  
Boulder, CO 80304

Sent from my iPad

**From:** Reed Boeger  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** No more moratoriums  
**Date:** Sunday, November 13, 2016 8:02:18 PM

---

End the moratorium on oil and gas as it is illegal as proven by the Colorado state supreme Court. Instead, actually work with operators to ensure all best practices are met with regards to sound, light and water management.

Thanks,

Reed Boeger from Erie

**From:** Ryan Batch  
**To:** [Boulder County Oil and Gas Comment](#)  
**Cc:** [Kate Glover](#)  
**Subject:** Moratorium on oil and gas in Boulder County  
**Date:** Sunday, November 13, 2016 8:04:24 PM

---

Dear Boulder County Commissioners,

We are writing to encourage you to extend the moratorium on oil and gas development in Boulder County and uphold your elected duty to protect the health of the people that put you in office.

If the moratorium on oil and gas development is not extended, Boulder County will become the next Standing Rock. Not only because of the dangers to health and the environment but also because oil and gas is a dying industry. Many operators are going bankrupt and leaving behind environmental disasters they cannot afford to clean up. Oil and gas doesn't make sense from an environmental or economical stand point.

Take a stand against the state and protect the citizens of Boulder County. Do what is in the best interests of the long term picture for our economy and land. Don't let a dying industry tell you they have the right to destroy our environment and health. Tell them no. Extend the moratorium.

Best regards,  
Kate Glover and Ryan Batch

--

Ryan Batch O' Love

**From:** Susan Berman  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** Fracking moratorium extension  
**Date:** Sunday, November 13, 2016 8:18:28 PM

---

I urge the County to renew the moratorium on oil and gas leases in Boulder County. We need to support renewable clean fuel sources for our County to be sustainable and free of toxic waste that are by products of gas and oil operations. Thank you, Susan Berman 780 Poplar Ave. Boulder.

**From:** ollimaleya@aol.com  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** Extend the Moratorium!  
**Date:** Sunday, November 13, 2016 8:53:39 PM

---

With Trump about to unleash fracking with a furry it is imperative now more than ever to resist.

Recent evidence of fracking induced earthquakes:

[Earthquake felt in Weld County | 9news.com](#)

[Official: 40 to 50 buildings damaged in Oklahoma earthquake](#)

Carolyn Usher  
2210 Balsam Dr

**From:** Tricia Stahr  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** Oil and gas moratorium  
**Date:** Sunday, November 13, 2016 8:59:45 PM

---

Hello,

Please extend the moratorium on accepting new applications for oil and gas development in unincorporated Boulder County.

Best regards,

Tricia Stahr

**From:** Katarina Stahl-Schare  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** Extend moratorium on fracking!  
**Date:** Sunday, November 13, 2016 9:04:53 PM

---

Dear Sir or Madam,

I'd like to express my deepest concern about fracking in Boulder, and would like to express my support for an extension of the moratorium on fracking in Boulder.

I'm in particular concerned about potential fracking in the Wonderland Lake area and the irreversible harm this can have on our children, air, water and community.

Sincerely yours,

Katarina Schare (mother of Naomi 4 and Adelia 2)  
665 Maxwell Ave  
Boulder, CO 80304

**From:** Marc Killinger  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** No fracking!  
**Date:** Sunday, November 13, 2016 9:19:25 PM

---

Dear County Commissioners,

Please please extend the moratorium on fracking! We don't need it at Wonderland Lake or any where else in Boulder County.

Thank you, Marc

---

email: [marckillinger@gmail.com](mailto:marckillinger@gmail.com)  
web: [marckillinger.com](http://marckillinger.com)  
cell: 720-483-8757  
Hablo español

“I would ask that you love, and love hard.” – Teacher Rebecca Lee after police in Tulsa, Okla., shot and killed Terence Crutcher in September, 2016.

**From:** Andy Franklin  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** Oil and gas drilling in wonderland hill?  
**Date:** Sunday, November 13, 2016 10:20:48 PM

---

Is there a meeting to discuss fracking in the wonderland hill area? Is it really possible that wells could be drilled in our neighborhood?

Thanks,

**Andy Franklin**

Tel: 303-443-2723

Mobile: 303-810-3809

Sent from my phone. Please excuse typos.

**From:** yayacarlita@comcast.net  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** Extend moratorium to study health effects of fracking  
**Date:** Sunday, November 13, 2016 10:29:18 PM

---

Dear Esteemed County Commissioners:

I am writing to implore you to extend the moratorium on fracking in Boulder County in order to have enough time to study the new findings on the negative health effects caused in humans by fracking. I also have environmental concerns. We live in Longmont and are the most vulnerable to the return of full-scale fracking. I never had asthma before and now I do. Our air quality continues to decline...my husband has bouts of shortness of breath caused by air pollution. My young grand-children also live in Longmont and I fear for their future and their long term health. Considering the results of the election ( in favor of those who want to drill baby drill) and the fall-out that will drastically affect energy production, I beg you to extend the moratorium for 5 years to buy time for us to come up with energy policies that are not detrimental to human health and the environment.

Thank you,

Carla and John Behrens  
904 Little Leaf Court  
Longmont, CO 80503  
720 494-1463

**From:** Johannes Feddema  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** Please stop fracing in Boulder county and especially within city limits  
**Date:** Sunday, November 13, 2016 11:24:37 PM

---

To Whom it may concern,

As home owners in Boulder, we would like to voice our support for any legislation/ordinances that would disallow tertiary recovery/fracking operations within city limits or anywhere near residential neighborhoods. Reasons for this are primarily that the full impacts of fracking on the environment and health of people and other organisms are not yet understood. It is now well documented that these activities have significant impact in terms of escaped Methane/HC releases that make the greenhouse gas impacts of these operations greater compared to other extractive resources; they are causing earthquakes in Oklahoma, Texas and Kansas; and have been documented to affect health of cattle (in PA) and we know of at least one boy in Boulder county who has an emergency room visit after walking up to a fracking site in Mead. In addition, these activities are highly likely to affect the most important resource in Boulder County - water quality below and above ground in the long run.

Sincerely,

Johan, Diane, Wynn and Claire Feddema

**From:** Kyle Drumhiller  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** Fracking  
**Date:** Monday, November 14, 2016 12:32:51 AM

---

To whom it may concern,

As a proud citizen of this great community, I strongly condemn any action which would threaten the health, livelihoods, economics, or future of our home and our people. We simply cannot afford the foolish peril or risking long term sanctity for near sited gains or pressure. When the damage is done it is too late. There is no undoing the killing of our ecosystems and poisoning of our drinking supply. With Fracking, one mistake, one error, and this entire community can be at risk. Our entire way of life gone. Animas River, Flint, Michigan. Does Boulder want to be next?

No Fracking in Boulder County. Keep it prohibited.

-Kyle Drumhiller

**From:** Hal Paris  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** Moratorium on Fracking Extension  
**Date:** Monday, November 14, 2016 2:38:41 AM

---

To whom it may concern:

It is my hope that the fracking moratorium will be extended. Fracking here, at any time, would forever mar our beautiful county and poison our air, as it has done in so many other places....not to mention poisoning and over using our limited water supply in a high desert town.

Please do not abandoned the citizens you serve, who also serve you with our trust. JUST DON'T DO IT!!!!

Quality of life first.....that is what Boulder is known for. Let's keep it that way.

Thank you in advance,

Hal Paris

Hal Paris  
303-449-0773  
Certified Advanced Rolfer  
<http://www.halparis.com>  
<http://www.countryfunk.net>  
[rolfnroll@comcast.net](mailto:rolfnroll@comcast.net)

**From:** lark L  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** Moratorium on Boulder County.  
**Date:** Monday, November 14, 2016 6:55:14 AM

---

To whom it may concern,  
PLEASE continue the moratorium on fracking in beautiful Boulder County! I beg you to continue to protect we humans and our children, water, air, nature and our precious outdoors that we live here and r

Sent from my Galaxy Tab® S2

**From:** Scott Johnson  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** fracking  
**Date:** Monday, November 14, 2016 7:31:54 AM

---

Oil and gas drilling within the environs of any town, village, city, etc. carries with it serious liabilities and risks.

I should think that there would ultimately be little to gain by pursuing such activities in the City of Boulder.

SJ

**From:** CardamomSeed@aol.com  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** Fracking, water and mineral rights  
**Date:** Monday, November 14, 2016 7:44:39 AM

---

Dear Commissioners,

Please enact the most restrictive set of fracking regulations available to you by law. And please consider incremental extensions of fracking moratoria for as long as possible without triggering legal backlash.

Please explain to Boulder Country residents why condemnation of mineral rights is apparently not included in the list of options before you. If the County is not allowed by law to do condemnations, then this potential option needs to be taken up with home rule cities in Boulder County that may have this option available to them. We need to know why this option has never been adequately explored.

Also needed is restriction on the use of any municipal water (including ditch water) from within Boulder County by fracking operators. The City of Boulder passed an ordinance (B. R. C. 11-1-56) in 2013 prohibiting the use of Boulder's water for oil and gas extraction. It remains a mystery as to why other cities in Boulder County, especially those like Lafayette with more junior water rights, have yet to enact similar ordinances. To the extent that the County can help facilitate the passage and enforcement of such ordinances by other BoCo cities in addition to Boulder, that's what needs to happen.

Following is a link to B.R.C. 11-1-56  
[https://www.municode.com/.../boulder/codes/municipal\\_code...](https://www.municode.com/.../boulder/codes/municipal_code...)

Thank you for your consideration of these comments,

*Cosima*

Cosima Krueger-Cunningham  
Boulder, CO 80302

**From:** Heather Lofquist  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** Fracking in Boulder County  
**Date:** Monday, November 14, 2016 7:50:06 AM

---

Hello,

I am unable to make the meeting tomorrow afternoon, but I wanted to include my voice on the fracking issue in Boulder County. I live in Erie and I'm completely disheartened at how we are treating our environment (which ultimately affects the people living in it). If I had my druthers, I'd ban all oil and gas activity in the United States - there's no need for it. We need clean, renewable solutions, and the longer we keep raping our land and allowing O&G organizations to profit in a dying business, the longer we put off being 100% renewable. Let oil and gas die. Encourage innovation and clean energy. Please keep oil and gas interests out of Boulder County - completely. I do not understand how Erie, Boulder County, and Colorado as a whole can continue to let our land be ruined by these operations when so many in the community do NOT support it.

Thanks for listening.

Heather Lofquist  
795 Dakota Lane  
Erie, CO 80516

**From:** Susan Aposhyan  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** Really, fracking in Wonderfland lake area?  
**Date:** Monday, November 14, 2016 8:05:18 AM

---

How could that be? I am absolutely opposed and need more information. Is this a real issue?

--

Susan Aposhyan  
Body-Mind Psychotherapy  
546 Locust Place  
Boulder, CO 80304 USA  
303-440-8889  
[www.bodymindpsychotherapy.com](http://www.bodymindpsychotherapy.com)

**From:** Michelle Corazao  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** Support Moratorium Extension  
**Date:** Monday, November 14, 2016 8:06:49 AM

---

I'm writing in support of the moratorium extension. If fracking is allowed to happen here we will see poisoned water, gas well explosions and earth quakes. It is only a matter of time wherever they drill there are major problems. We cannot turn back once they dig and flush 149 toxic chemicals into our water. Please protect our children, water, air, community, and neighborhood.

Thanks,  
Michelle Corazao  
Sent from my iPhone

**From:** Eleanor Farjeon  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** Fracking in Wonderland Hills  
**Date:** Monday, November 14, 2016 8:44:42 AM

---

To whom it may concern,

This is not the time to ruin one of the most beautiful open space areas in Boulder!  
All of Boulder uses this area to hike, bike and many other recreational uses. We need to preserve this and all other open space areas for future generations!

The people of the neighborhood, Boulder and all of Colorado will come out to support protecting this area from needless, reckless harm of oil companies.

From a very concerned resident,  
Eleanor Farjeon  
Nature Lover, Yoga & Meditation Teacher, Music Teacher

**From:** Donna Casey  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** Fracking in Boulder County/Extend the moratorium!  
**Date:** Monday, November 14, 2016 8:46:08 AM

---

PLEASE don't go forward with this. In light of the election and the need for healing, we need some reassurance that our Boulder County elected officials have the health and well-being of the people in mind. Extending the moratorium is the right thing to do at this particular time.

Donna Casey  
1404 Kalmia Ave  
Boulder, CO 80304  
dcboulder1@comcast.net

**From:** Barbara Foster  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** against proposed fracking in Boulder county  
**Date:** Monday, November 14, 2016 8:54:55 AM

---

Hi

Please do NOT allow fracking in Boulder county. AND, more specifically, do not allow fracking in the Wonderland Lake neighborhood.

Hydraulic fracturing is NOT the solution we should be seeking right now. It is full of dangers and its merits are overhyped by fossil fuels companies.

I will not be able to attend the Tuesday meeting, so I am writing to you now to voice my concern. Fracking, especially in the Wonderland Lake neighborhood could really change the quality of life for Boulder and that neighborhood.

Thank you for your consideration.

Barbara Foster  
Promontory Court (in Wonderland Lake neighborhood)

**From:** Jay Nelson  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** Please continue fracking moratorium  
**Date:** Monday, November 14, 2016 9:24:46 AM

---

I understand that the Boulder County moratorium on fracking expires on November 18th.

Hydraulic fracturing is not the solution we should be seeking right now. It is full of dangers and its merits are clearly overhyped by fossil fuels companies.

Please extend the moratorium indefinitely.

Respectfully,

- Jay Nelson  
766 Quince Circle  
Boulder, CO 80304 USA

(303) 870-8182

**From:** Loukas Koyonos  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** moratorium on fracking  
**Date:** Monday, November 14, 2016 9:25:21 AM

---

Hello,

I live at 3962 Promontory Ct and I would like to let you know that I 100% support a continued moratorium on fracking in Boulder, County. Please do everything in your power to continue this moratorium on fracking. I'm sure the county realizes how vital this is to our culture here and to the health of the environment.

Thanks,  
Loukas

312-576-0057

**From:** Eric Ponslet  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** No fracking in Boulder County  
**Date:** Monday, November 14, 2016 9:25:50 AM

---

Dear county administrators:

I am writing to express my extreme opposition to any form of fracking in our County.

Fracking is an abomination. It is beyond my understanding how this practice can even be considered. Keep it out of our area!

Eric Ponslet, PhD  
4520 Broadway St,  
Boulder, CO 80304

**From:** teri2hamilton  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** Moratorium on fracking in Boulder County  
**Date:** Monday, November 14, 2016 9:36:52 AM

---

Please extend the moratorium on fracking in Boulder County.

Teri Hamilton

Sent from my Verizon, Samsung Galaxy smartphone

**From:** Tricia Easley Martines  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** Concerns on fracking  
**Date:** Monday, November 14, 2016 9:42:38 AM

---

I am a home owner in the Newlands near the Wonderland Lake neighborhood and have serious concerns over the possibility of fracking in the area. I want to voice my opposition to this practice in our neighborhood and county. The environmental implications are disconcerting. I know there are studies saying it is fine but I don't think we are close to being 100% that it is a safe practice. Please do not move ahead with giving companies the ability to pursue fracking in our neighborhood and county.

Thank you for your consideration.

Sincerely,  
Patricia Martines  
650-215-3683

**From:** michelle behrens  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** Moratorium  
**Date:** Monday, November 14, 2016 9:46:05 AM

---

To the Boulder County Commissioners,

I am pleading with you to please extend the moratorium on oil and gas development in Boulder County. I strongly believe there are not enough conclusive studies on the long-term environmental and health effects of fracking. This is especially critical now that we could enter a time of great deregulation. This poses tremendous risk for those of us who are raising small children in Colorado. Please defend our community and our natural environment and extend the moratorium so that we may investigate its long-term consequences and explore alternative energy.

Sincerely,

Michelle Skagen

715 Snowberry St

Longmont, CO 80503

303-772-9910

**From:** Bacardi, Anton  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** No Fracking in Boulder  
**Date:** Monday, November 14, 2016 9:50:51 AM  
**Attachments:** [image001.png](#)  
[image002.png](#)  
[image003.png](#)  
[image004.png](#)

---

I support the moratorium extension on all Fracking in Boulder. Please do not allow our home and beautiful open space to be poisoned through this practice. Boulder is special, I now you know that. Do not let greed get in the way of the city we have worked so hard to foster by giving in to the oil and gas industry.

Thanks,

Anton Bacardi

999 Cedar Ave

**Anton C. Bacardi**

Director, Solution Sales  
Avnet Technology Solutions  
[anton.bacardi@avnet.com](mailto:anton.bacardi@avnet.com)



📍 360 Interlocken Blvd.  
Broomfield, CO 80021

📞 **Office:** 303-545-1202

**Cell:** 303-931-8800

🌐 <http://www.avnet.com>

Do you need escalation assistance? Contact my manager Christy Anderson at 210-247-1103 or [christy.anderson@avnet.com](mailto:christy.anderson@avnet.com)

**From:** Ramie Blatt  
**To:** [Boulder County Oil and Gas Comment](#)  
**Cc:** [Kaylin Goldstein](#)  
**Subject:** Extend the moratorium on fracking in Boulder county, and implement a permanent ban on fracking  
**Date:** Monday, November 14, 2016 9:58:31 AM

---

To whom this may concern,

I am a homeowner in North Boulder. Our children have grown up going to the open space around Wonderland Lake.

As if this last week as not traumatic enough, I've learned that the moratorium on fracking that was supposed to last into 2018 will come to an end this week, and that four wells are proposed in the Wonderland Lake area.

I am writing to let you know that I oppose any fracking on any land, never mind our own neighborhoods, and I know that I speak for almost every one of the homeowners in our area.

Ask yourself, beyond the long-term damage to our climate and public commons, how you would feel if you or your friends or family's children might play in contaminated parks, inhaling neurotoxins or drinking arsenic released by fracking? And for what? For whose profit? For what public benefit?

You must extend the moratorium on fracking in Boulder county, and implement a permanent ban on fracking in residential or open space area, if not the entire county. I provide a number of reasons below.

Regards,  
Ramie Blatt

#### 1. Hydraulic fracturing is harmful to the climate

If natural gas from fracking was not so long ago considered as a bridge from dirty coal to more climate friendly solutions, it is now being more and more regarded as a gangplank to a warmer world.

Indeed, fracking has been proved to be linked to important leaks of methane – a 23 times more potent greenhouse gas than carbon dioxide.

To be considered as a climate-wise alternative, methane leaks should have to remain as low as two percent. However to a recent study, those leaks are as high as six to twelve percent.

#### 2. Is NOT part of the vital energy transition

Fracking is just pursuing our headlong rush, or as we say in French, *une fuite en avant* as it gives us the illusion that we can keep on using polluting and inefficient means of heating our houses and moving our cars and trucks when better solutions are at our disposal.

Far better solutions like low carbon energy sources such as renewables (solar, wind, geothermal...) and energy efficiency can be part of an energy transition that is safe for our civilization and our climate. While the former are gaining traction, the former could do much

more.

An energy transition based on these two could bring thousands of local jobs and money without any risks. As a matter of facts, it has already started...

### 3. Consumes vast amounts of precious water

As more and more countries are getting drier, using energy sources that consumes vast amounts of water is just sheer madness.

Climate Progress reported that each fracking job requires several million gallons of water, of which only around a quarter is being recovered. The remainder is just lost for ever.

In water stressed areas such as the US Southern States (like Texas or New Mexico), this is not only foolish, it is downright self-destructive...

### 4. Contaminates soils, air and water

We depend on clean soils in many ways. Feeding ourselves is but one. Clean air is even simpler to comprehend as we breathe the air around us. So if hydraulic fracturing pollutes both soils and air, how can we live healthily ?

Shale gas drilling has been linked in many occasions to flammable drinking water. The Economist published an article on that earlier this year.

Injecting in our environment a cocktail of water, sand and no less than hundreds of chemicals that can cause cancers or are neurotoxins. Not the kind of stuff you want anywhere near you...

### 5. Causes earthquakes

Drilling holes in the soil and injecting massive amounts of chemicals and wastewater is not exactly what could be considered as safe regarding earthquakes. Mother Jones has a nifty animation GIF showing how and why.

A recent study from one of the world's leading seismology labs quoted by Reuters show that "powerful earthquakes thousands of miles (km) away can trigger swarms of minor quakes near wastewater-injection wells like those used in oil and gas recovery "

To Triple Pundit, the US Geological Survey (USGS) linked up to 50 earthquakes to fracking in Oklahoma. Magnitudes were ranging from 1.0 to 4.0.

### 6. Puts arsenic in groundwater tables

Arsenic is a poison of choice if you want to dispose of an Emperor or a King. Most unfortunately to people near fracking wells, it also has been found in groundwater near fracking wells.

The US Environmental Protection Agency (EPA) has found traces of it on multiple occasions as the Los Angeles Times and ProPublica both reported.

## 7. Doesn't benefit We, the People.

Because of all the negative side effects, the People can lose a lot because of fracking. The ones who benefit from it are Big Oil and so on... As I noted in my review of Promised Land, a clean energy alternative however can benefit the People at large.

Rural communities can be revived thanks to wind power's money. I have read about such occurrences in the United States and in France alike.

To exemplify my point : in April I read about a small city from Southern France that earned huge amounts of money – 2.3 million euros (more than \$3 million) -thanks to a few wind turbines.

—

## Conclusion

I think you must have understood it by now. Hydraulic fracturing is not the solution we should be seeking right now. It is full of dangers and its merits are clearly overhyped by fossil fuels companies.

**From:** angelamccormick12@gmail.com  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** No to Fracking inside County  
**Date:** Monday, November 14, 2016 10:11:53 AM

---

Dear Boulder County Commissioners:

I am writing to express my opinion that the moratorium on oil and gas activity and fracking should be EXTENDED beyond the November 18 2016 expiration date if possible. If not possible, then please adopt some other measures on an emergency basis to protect our county lands, people and habitat.

Thank you.

Angela McCormick  
2855 7th Street  
Boulder, CO 80304

**From:** Lori Cameron  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** Extend Fracking Moratorium  
**Date:** Monday, November 14, 2016 10:21:47 AM

---

Dear Boulder County Commissioners,

I am writing to urge you to extend the fracking moratorium. We cannot allow new wells to be drilled in Boulder County! Instead, as we all know, we need to replace fossil fuels with renewable energy.

Please do the right thing for Boulder County and the environment!

Thank you,

Lori Cameron  
3851 Orion Court  
Boulder

**From:** Pieter  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** No Fracking in Wonderland Lake area!  
**Date:** Monday, November 14, 2016 10:27:03 AM

---

It is inconceivable that anyone is considering fracking around Wonderland Lake.

It is part of the Boulder open space, and is used daily by many for outdoor recreation and exercise.

Pieter van der Mersch

840 Quince Ave

Boulder, CO 80304

**From:** angela mundt  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** Extend the moratorium  
**Date:** Monday, November 14, 2016 10:35:41 AM

---

I am writing to express my hope that the commissioners will be able to extend the moratorium as long as possible. It seems that the wells are now almost inevitable, which is truly atrocious, given the votes in support of a moratorium by the people of the county. I am disturbed to imagine Boulder County looking similar to Weld County in the future. I extend my gratitude to the Boulder County commissioners who have done their best to protect the desires and interests of the people.

Angela Mundt

Louisville, CO 80027

**From:** ms.seana  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** Wonderland / Boulder County  
**Date:** Monday, November 14, 2016 10:41:39 AM

---

To whom it concerns ,

Please extend the moratorium on fracking in Boulder county! I am a parent and a homeowner and

want to keep our city and county safe from the side effects of fracking. I read there are 4 possible sites in the

Wonderland Lake area where my family has lived for the past 15 years! Please let's maintain the high quality of life

we have and protect the environment.

Thank you,

Seana Katz

**From:** Lucia Rose  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** Extend Fracking Moratorium  
**Date:** Monday, November 14, 2016 10:46:50 AM

---

Hi,

I am a Boulder County resident in Louisville, CO (80027) and I would like to express my concern over oil and gas development in Boulder County. I believe we need to be especially cautious regarding the unknown effects of oil and gas development and therefore should extend the fracking moratorium in the county.

Thank you so much for your time,

Lucia Rose

**From:** Jeff Baltrush  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** Extend Moratorium on Fracking in Boulder County  
**Date:** Monday, November 14, 2016 11:32:08 AM

---

Dear County Commissioners,

Thank you for taking the time to develop new oil and gas regulations for Boulder County. I appreciate your efforts to protect the County's people, land, and water from fracking's negative impacts.

I am for a continued moratorium. As noted in Susan Secord's comment, there are continued studies showing significant negative impacts to fracking. Boulder County's desirability as a place to live and work is not based on extractive industry practices. While its roots lie in mining and the like, the future is in technology, organic food/farms, and outdoor recreation. Oil and gas development destroys the proverbial "Commons" while enriching a few and to the expense and detriment of the many.

The industry's letter to you implies that they will sue and try to force your hand. Some things are worth fighting for, and here I encourage you to take a stand with a continued moratorium, with stricter regulations as a failsafe.

Please extend the moratorium on fracking in Boulder County.

Thank you for your time and service,  
Jeff Baltrush  
4267 Redwood Ct.  
Boulder, CO 80301

Sent from my iPhone

**From:** Teresa F  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** Please extend the moratorium on unconventional oil/gas development/extraction/transport  
**Date:** Monday, November 14, 2016 11:38:58 AM  
**Attachments:** [OCI the skys limit 2016 FINAL.pdf](#)

---

Dear County Commissioners,

I'm unable to attend the public hearing. You have my full support to extend the moratorium indefinitely!

I'd like to share Bill McKibben's recent article, "Recalculating the Climate Math" at: <https://newrepublic.com/article/136987/recalculating-climate-math>. Please read it closely.

He references the Oil Change International Study attached.

The report says, "iF YOU'RE IN A HOLE, STOP DIGGING".

### **Executive Summary**

In December 2015, world governments agreed to limit global average temperature rise to well below 2°C, and to strive to limit it to 1.5°C. This report examines, for the first time, the implications of these climate boundaries for energy production and use. Our key findings are:

The potential carbon emissions from the oil, gas, and coal in the world's currently operating fields and mines would take us beyond 2°C of warming.

The reserves in currently operating oil and gas fields alone, even with no coal, would take the world beyond 1.5°C.

With the necessary decline in production over the coming decades to meet climate goals, clean energy can be scaled up at a corresponding pace, expanding the total number of energy jobs.

One of the most powerful climate policy levers is also the simplest: stop digging for more fossil fuels. We therefore recommend:

No new fossil fuel extraction or transportation infrastructure should be built, and governments should grant no new permits for them.

Some fields and mines – primarily in rich countries – should be closed before fully exploiting their resources, and financial support should be provided for non-carbon development in poorer countries.

This does not mean stopping using all fossil fuels overnight. Governments and companies should conduct a managed decline of the fossil fuel industry and ensure a just transition for the workers and communities that depend on it.

In August 2015, just months before the Paris climate talks, President Anote Tong of the Pacific island nation of Kiribati called for an end to construction of new coal mines and

coal mine expansions. This report expands his call to all fossil fuels.

-----

Take a stand against those who wish to destroy the planet in the name of short-term profits - the oil and gas industry, the COGCC, COGA and John Hickenlooper!

Do the right thing, no matter what the consequences are!

Teresa Foster  
Longmont, CO

SEPTEMBER 2016



# THE SKY'S LIMIT

WHY THE PARIS CLIMATE GOALS REQUIRE A  
MANAGED DECLINE OF FOSSIL FUEL PRODUCTION



PUBLISHED IN COLLABORATION WITH



This report was researched and written by Greg Muttitt with contributions from Hannah McKinnon, Lorne Stockman, Steve Kretzmann, Adam Scott, and David Turnbull. It was edited by Collin Rees. All are with Oil Change International.

Oil Change International is a research, communications, and advocacy organization focused on exposing the true costs of fossil fuels and facilitating the coming transition towards clean energy.

Oil Change International  
714 G Street SE  
Washington,  
DC 20003 USA  
[www.priceofoil.org](http://www.priceofoil.org)

The author is grateful for feedback from the following reviewers:

Andrew Grant and James Leaton of Carbon Tracker Initiative, Mohamed Adow of Christian Aid, Wendel Trio of Climate Action Network Europe, Fabio Sferra of Climate Analytics, Mark Fulton of Energy Transition Advisers, György Dallos of Greenpeace International, Nnimmo Bassey of the Health of Mother Earth Foundation, Joeri Rogelj of IIASA, Andrea Bassi of IISD, Red Constantino of the Institute for Climate and Sustainable Cities, Anabella Rosemberg of ITUC, Jeremy Brecher and Joe Uehlein of the Labor Network for Sustainability, Malte Meinshausen of Melbourne University, Franz Matzner of NRDC, Elizabeth Bast and Janet Redman of Oil Change International, Shelagh Whitley of the Overseas Development Institute, Alex Pfeiffer of Oxford University, Lena Moffitt of the Sierra Club, Pete Erickson and Sivan Kartha of the Stockholm Environment Institute, and Brett Fleishman and Duncan Meisel of 350.org.

Design: [paul@helloworld.com](mailto:paul@helloworld.com)

Cover Image: Looking west from Qian'an, iron and steel plant smokestacks. Hebei Province, China, 2014.  
©Lu Guang/Greenpeace.

September 2016

Published by Oil Change International ([www.priceofoil.org](http://www.priceofoil.org)), in collaboration with:

350.org	<a href="http://www.350.org">http://www.350.org</a>
Amazon Watch	<a href="http://amazonwatch.org">http://amazonwatch.org</a>
Asian Peoples' Movement on Debt and Development	<a href="http://www.apmdd.org">http://www.apmdd.org</a>
Australian Youth Climate Coalition	<a href="http://www.aycc.org.au">http://www.aycc.org.au</a>
Bold Alliance	<a href="http://boldnebraska.org/tag/bold-alliance">http://boldnebraska.org/tag/bold-alliance</a>
Christian Aid	<a href="http://www.christianaid.org.uk">http://www.christianaid.org.uk</a>
Earthworks	<a href="https://www.earthworksaction.org">https://www.earthworksaction.org</a>
Equiterre	<a href="http://www.equiterre.org">http://www.equiterre.org</a>
Global Catholic Climate Movement	<a href="https://catholicclimatemovement.global">https://catholicclimatemovement.global</a>
Health of Mother Earth Foundation	<a href="http://www.homef.org">http://www.homef.org</a>
Indigenous Environmental Network	<a href="http://www.ienearth.org">http://www.ienearth.org</a>
IndyAct	<a href="http://www.indyact.org">http://www.indyact.org</a>
Rainforest Action Network	<a href="http://www.ran.org">http://www.ran.org</a>
STAND.earth	<a href="http://www.stand.earth">http://www.stand.earth</a>

IF YOU'RE IN A HOLE,  
STOP DIGGING

# CONTENTS

Executive Summary	5
1 Climate Science and Carbon Budgets	11
2 Enough Oil, Gas, and Coal Already in Production	17
3 Trimming the Excess	26
4 Why Fossil Fuel Supply Matters	31
5 Making an Energy Transition Happen	36
6 Conclusion	45
Appendix 1: Definitions of Reserves	46
Appendix 2: Assumptions on Land Use and Cement Production	47
Appendix 3: Carbon Capture and Storage	48
Appendix 4: Oil and Gas Requirement in Clean Energy Scenarios	50
References	52

# ABBREVIATIONS USED IN THIS REPORT

AR5	Fifth Assessment Report of the IPCC
Bbl	Barrel
Bn Bbl	Billion Barrel
Bcf/d	Billion Cubic Feet Per Day
BNEF	Bloomberg New Energy Finance
°C	degrees Celsius
CCS	Carbon Capture and Storage
CO <sub>2</sub>	Carbon Dioxide
EV	Electric Vehicle
GDP	Gross Domestic Product
Gt	Billion Metric Tons
Gtce	Billion Metric Tons of Coal Equivalent
GtCO <sub>2</sub>	Billion Metric Tons of Carbon Dioxide
GW	Billion Watts (A Measure of Power)
GWh	Billion Watt-Hours (A Measure of Energy, or Power Supplied/Used Over Time)
IEA	International Energy Agency
IPCC	Intergovernmental Panel on Climate Change
LULUCF	Land Use, Land Use Change and Forestry
mbd	Million Barrels Per Day
Mt	Million Metric Tons
Mtoe	Million Tons of Oil Equivalent
OECD	Organisation for Economic Co-operation and Development
OPEC	Organization of the Petroleum Exporting Countries
SEI	Stockholm Environment Institute
Tcf	Trillion Cubic Feet
TW	Terawatts
UNFCCC	United Nations Framework Convention on Climate Change



© Jir Rezac/Greenpeace

# EXECUTIVE SUMMARY

In December 2015, world governments agreed to limit global average temperature rise to well below 2°C, and to strive to limit it to 1.5°C. This report examines, for the first time, the implications of these climate boundaries for energy production and use. Our key findings are:

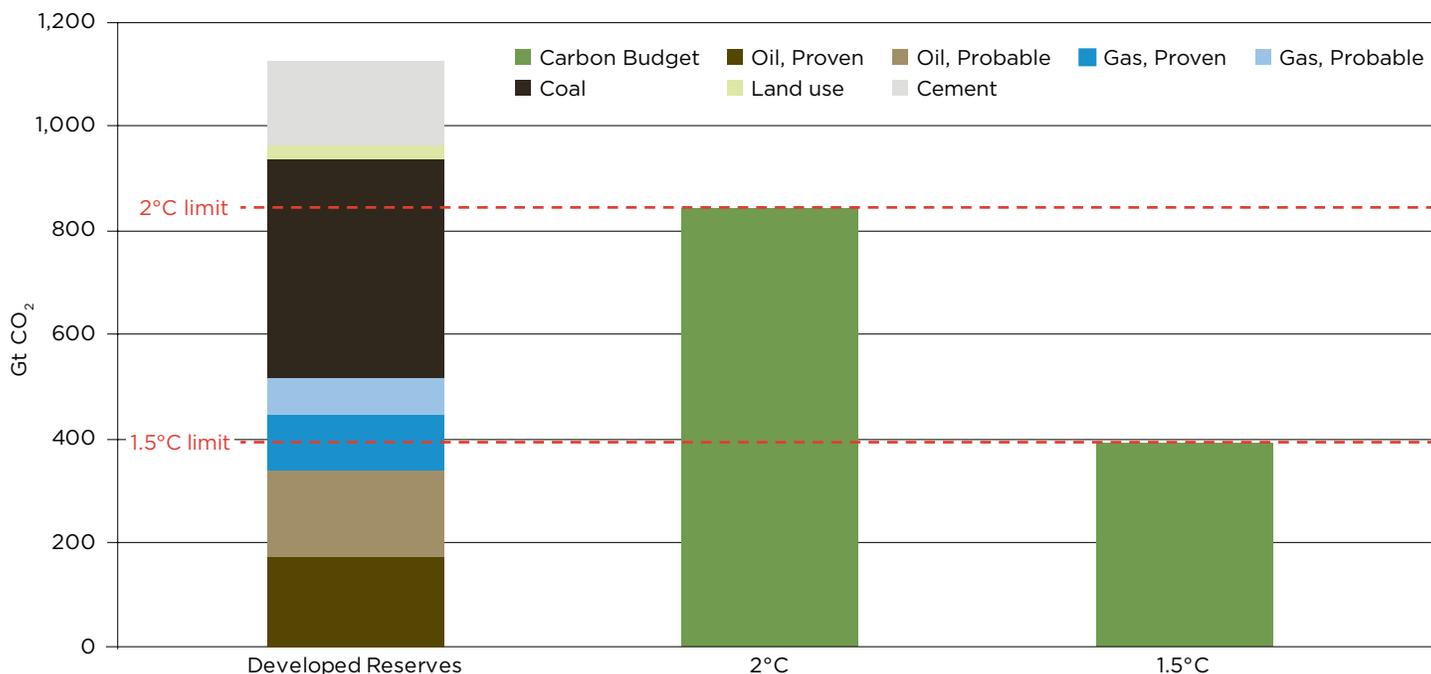
- ❖ The potential carbon emissions from the oil, gas, and coal in the world's currently operating fields and mines would take us beyond 2°C of warming.
- ❖ The reserves in currently operating oil and gas fields alone, even with no coal, would take the world beyond 1.5°C.
- ❖ With the necessary decline in production over the coming decades to meet climate goals, clean energy can be scaled up at a corresponding pace, expanding the total number of energy jobs.

One of the most powerful climate policy levers is also the simplest: stop digging for more fossil fuels. We therefore recommend:

- ❖ No new fossil fuel extraction or transportation infrastructure should be built, and governments should grant no new permits for them.
- ❖ Some fields and mines – primarily in rich countries – should be closed before fully exploiting their resources, and financial support should be provided for non-carbon development in poorer countries.
- ❖ This does not mean stopping using all fossil fuels overnight. Governments and companies should conduct a managed decline of the fossil fuel industry and ensure a just transition for the workers and communities that depend on it.

In August 2015, just months before the Paris climate talks, President Anote Tong of the Pacific island nation of Kiribati called for an end to construction of new coal mines and coal mine expansions. This report expands his call to all fossil fuels.

Figure ES-1: Emissions from Developed Fossil Fuel Reserves, Plus Projected Land Use and Cement Manufacture



Sources: Rystad Energy, International Energy Agency (IEA), World Energy Council, Intergovernmental Panel on Climate Change (IPCC)

## ENOUGH ALREADY

The Paris Agreement aims to help the world avoid the worst effects of climate change and respond to its already substantial impacts. The basic climate science involved is simple: cumulative carbon dioxide (CO<sub>2</sub>) emissions over time are the key determinant of how much global warming occurs.<sup>a</sup> This gives us a finite *carbon budget* of how much may be emitted in total without surpassing dangerous temperature limits.

We consider carbon budgets that would give a likely (66%) chance of limiting global warming below the 2°C limit beyond which severe dangers occur, or a medium (50%) chance of achieving the 1.5°C goal. Fossil fuel reserves – the known below-ground stocks of extractable fossil fuels – significantly exceed these budgets. For the 2°C or 1.5°C limits, respectively 68% or 85% of reserves must remain in the ground.

This report focuses on the roughly 30% of reserves in oil fields, gas fields, and coal mines that are already in operation or under construction. These are the sites where the necessary wells have been (or are being) drilled, the pits dug, and the pipelines, processing facilities, railways, and export terminals constructed. These *developed reserves* are detailed in Figure ES-1, along with assumed future emissions from the two major non-energy sources of emissions: land use and cement manufacture.

We see that – in the absence of a major change in the prospects of carbon capture and storage (CCS):<sup>b</sup>

- ⊗ The oil, gas, and coal in already-producing fields and mines are more than we can afford to burn while keeping likely warming below 2°C.
- ⊗ The oil and gas alone are more than we can afford for a medium chance of keeping to 1.5°C.

a The carbon budgets approach does not apply to other greenhouse gases, whose effects are factored into the calculation of carbon budgets in the form of assumptions about their future emissions.

b CCS has not been successfully deployed at scale despite major efforts, and there are doubts as to whether it will ever be affordable or environmentally safe.

## WHEN YOU'RE IN A HOLE, STOP DIGGING

Traditional climate policy has largely focused on regulating at the point of emissions, while leaving the supply of fossil fuels to the market. If it ever was, that approach is no longer supportable. Increased extraction leads directly to higher emissions, through lower prices, infrastructure lock-in, and perverse political incentives. Our analysis indicates a hard limit to how much fossil fuel can be extracted, which can be implemented only by governments:

- ⊗ No new fossil fuel extraction or transportation infrastructure should be built, and governments should grant no new permits for them.<sup>c</sup>

Continued construction would either commit the world to exceeding 2°C of warming, and/or require an abrupt end to fossil fuel production and use at a later date (with increasing severity depending on the delay). Yet right now, projected investment in new fields, mines, and transportation infrastructure over the next twenty years is \$14 trillion – either a vast waste of money or a lethal capital injection. The logic is simple: whether through climate change or stranded assets, a failure to begin a managed decline now would inevitably entail major economic and social costs.

The good news is that there is already progress toward stopping new fossil fuel development. China and Indonesia have declared moratoria on new coal mine development, and the United States has done so on federal lands. These three countries account for roughly two-thirds of the world's current coal production. In 2015, U.S. President Barack Obama rejected the proposed Keystone XL tar sands pipeline by noting that some fossil fuels should be left in the ground, and there is growing recognition of the importance of a climate test in decisions regarding new fossil fuel infrastructure.<sup>d</sup> There is an urgent need to make the coal moratoria permanent and worldwide, and to stop new oil and gas development as well.

Ending new fossil fuel construction would bring us much closer to staying within our carbon budgets, but it is still not enough to achieve the Paris goals. To meet them, some early closure of existing operations will be required. Every country should do its fair share, determined by its capacity to act, along with its historic responsibility for causing climate change. With just 18% of the world's population, industrialized countries have accounted for over 60% of emissions to date, and possess far greater financial resources to address the climate problem.

Most early closures should therefore take place in industrialized countries, beginning with (but not limited to) coal. While politically pragmatic, the approach of stopping new construction tends to favor countries with mature fossil fuel industries; therefore, part of their fair share should include supporting other countries on the path of development without fossil fuels, especially in providing universal access to energy. Therefore:

- ⊗ Some fields and mines – primarily in rich countries – should be closed before fully exploiting their reserves, and financial support should be provided for non-carbon development in poorer countries.

Additionally, production should be discontinued wherever it violates the rights of local people – including indigenous peoples – or where it seriously damages biodiversity.

<sup>c</sup> This does not mean stopping all capital investment in existing field and mines, only stopping the development of new ones (including new project phases).

<sup>d</sup> <http://ClimateTest.org>

## A MANAGED DECLINE AND A JUST TRANSITION

Stopping new construction does not mean turning off the taps overnight. Existing fields and mines contain a finite stock of extractable fossil fuels. Depleting these stocks, even including some early closures, would entail a gradual transition in which extraction rates would decline over a few decades. This is consistent with a rate of expansion of clean energy that is both technically and economically possible.

We consider a simple modelling of world energy sources under two scenarios: 50% renewable energy by 2035 and 80% by 2045, both with a complete phase-out of coal usage, except in steel production. It is compared with the projected oil and gas extraction from existing fields alone.

We conclude that:

- ⊗ While existing fields and mines are depleted over the coming decades, clean energy can be scaled up at a corresponding pace.

While this pace of renewable energy expansion will require policy support, it continues existing trends. In many countries – large and small, rich and poor – clean energy is already being deployed at scale today. Denmark now generates more than 40% of its electricity from renewable sources, Germany more than 30%, and Nicaragua 36%. China is now the largest absolute generator of renewable electricity, and expanding renewable generation quickly. In most contexts, the costs of wind and solar power are now close to those of gas and coal; in some countries renewable costs are already lower. The expansion of renewable energy will be harder where there are weak grids in developing countries, hence the importance of climate finance in supporting a non-carbon transition.

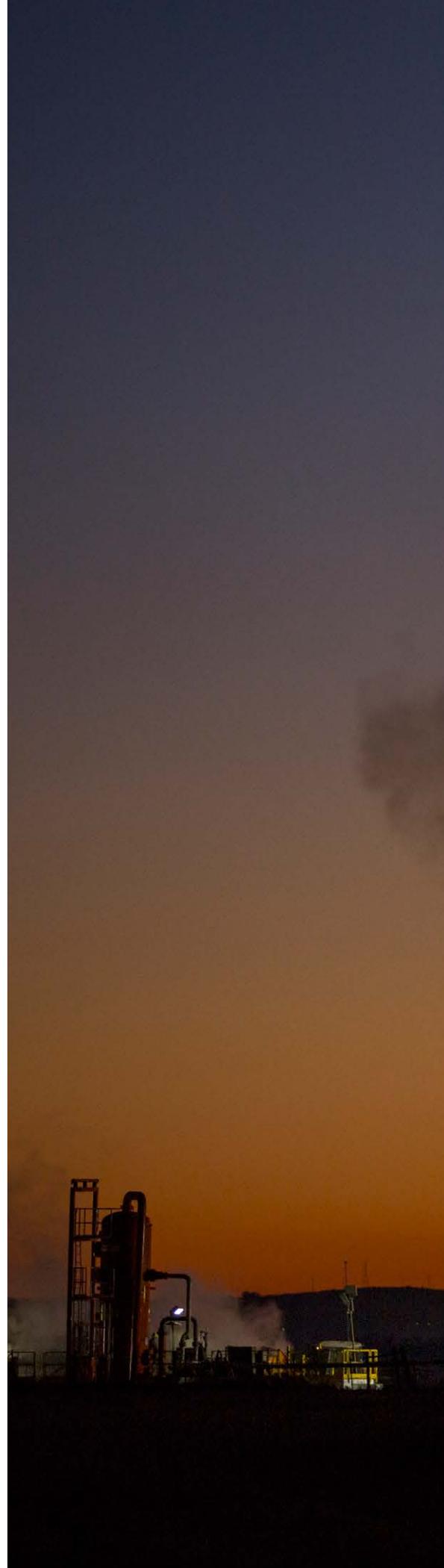
As for transportation, electric vehicles are now entering the mainstream and are on course to soon be cheaper than gasoline or diesel cars. With sufficient policy support and investment, the growth in clean energy can match the needed decline in fossil fuel extraction and use.

While there are clear advantages to clean energy – lower costs, greater employment, reduced local pollution, and ultimately greater financial returns – the transition will not be painless. Energy workers' skills and locations may not be well matched to the new energy economy. Whole communities still depend on fossil fuel industries. There is a vital need for a careful, just transition to maximize the benefits of climate action while minimizing its negative impacts.

Governments should provide training and social protection for affected energy workers and communities. Where appropriate, they should require energy companies to offer viable careers to their workers in non-carbon areas of their business. Governments should also consult with communities to kick-start investments that will enable carbon-dependent regions to find a new economic life. Waiting is not an option; planning and implementation must begin now:

- ⊗ Governments and companies should conduct a proactively managed decline of the fossil fuel industry and ensure a just transition for the workers and communities that depend on it.

A flare burns near a hydraulic fracturing drilling tower in rural Weld County in northern Colorado, the most intensively fracked area in the United States.





Aerial view of seismic lines and a tar sands mine in the Boreal forest north of Fort McMurray, northern Alberta.



# 1. CLIMATE SCIENCE AND CARBON BUDGETS

Burning of fossil fuels – oil, gas and coal – is driving one of the biggest challenges facing the world today: climate change. Extreme weather events, rising oceans, and record setting temperatures are already wreaking havoc on hundreds of millions of lives and livelihoods around the world. In the absence of strong action to reduce emissions, these impacts will get significantly worse throughout the course of the twenty-first Century:<sup>1</sup>

- ⊗ A large proportion of the earth's species faces increased risk of extinction, as many cannot adapt or migrate as fast as the climate changes. Lost species will never return.
- ⊗ Crop yields will be severely reduced, potentially causing hunger on a mass scale. The Intergovernmental Panel on Climate Change (IPCC) reports a one-in-five chance (in terms of proportion of model projections) that yields of wheat, corn, rice and soy will decrease by more than 50% by 2100, and a further one-in-five chance that they will decrease by between 25% and 50%: in either case the consequences would be catastrophic.
- ⊗ Water supplies too will become stressed, especially in dry and tropical regions.
- ⊗ Cities will increasingly be hit by storms and extreme precipitation, inland and coastal flooding, landslides, air pollution, drought, water scarcity, sea level rise and storm surges.

This report sets out the decisions and actions that can be taken now to avoid the worst of these impacts on lives and livelihoods, on economies and ecosystems.

## WELL BELOW 2°C, AND AIMING FOR 1.5°C

During the first decade of the twenty-first century, 2°C of warming above pre-industrial levels was often seen as a “guardrail” of a safe climate. Since then, new findings have indicated that view to be too optimistic. Runaway climate change – in which feedback loops drive ever-worsening climate change, regardless of human activities<sup>e</sup> – are now seen as a risk even at 2°C of warming.<sup>2</sup>

A two-year review within the United Nations Framework Convention on Climate Change (UNFCCC), based on inputs from scientists and other experts, summarized the evolving understanding: “The ‘guardrail’ concept, in which up to 2°C of warming is considered safe, is inadequate and would therefore be better seen as an upper limit, a defense line that needs to be stringently defended, while less warming would be preferable.”<sup>3</sup>

There has been limited study of specific climate impacts at 1.5°C, but some initial findings suggest significantly lower risks than at 2°C. Bruce Campbell of the Consultative Group for International Agricultural Research (CGIAR) estimates that 2°C of warming could reduce African maize yields by 50% compared to 1.5°C of warming,<sup>4</sup> while a recent assessment by Carl-Friedrich Schleussner and others identified several differential impacts between 1.5°C and 2°C of warming:<sup>5</sup>

- ⊗ Heat extremes would become both more frequent and of longer duration at 2°C than at 1.5°C.
- ⊗ Reductions in water availability for the Mediterranean region would nearly double from 9% to 17% between 1.5°C and 2°C, and the projected lengthening of regional dry spells would increase from 7% to 11%.
- ⊗ Wheat yields would be reduced by 15% at 2°C compared to 9% at 1.5°C in a best estimate; the reduction could be as bad as 42% at 2°C versus 25% at 1.5°C.
- ⊗ The difference between 1.5°C and 2°C is likely to be decisive for the survival of tropical coral reefs.

For these reasons – and due to the moral call from small island states and other vulnerable nations – governments meeting in Paris set more ambitious goals than at previous UNFCCC meetings. The Paris Agreement established the goal of “holding the increase in global average temperature to well below 2°C above preindustrial levels and pursuing efforts to limit the temperature increase to 1.5°C above preindustrial levels.”<sup>6</sup>

Still, the specific commitments that governments made in Paris were not sufficient to deliver these long-term goals. The Climate Action Tracker estimates that current global commitments (as stated in countries’ Intended Nationally Determined Contributions to the UNFCCC) would result in 2.7°C of warming by the end of the century.<sup>7</sup> In this report we explore what is necessary to actually meet the Paris goals.

<sup>e</sup> Examples include release of methane due to melting permafrost or accelerated dieback of Amazon rainforest.

## CARBON BUDGETS

Many existing analyses of the energy transition start from the current energy system, and attempt to plot what they consider pragmatic rates of change from the status quo. In some cases, such an approach fails to deliver the emissions reductions needed. In that vein, oil companies have often used their energy forecasts to claim that preventing dangerous climate change is simply impossible:

- ⊗ BP: “Emissions [will] remain well above the path recommended by scientists.”<sup>8</sup>
- ⊗ Shell: “We also do not see governments taking the steps now that are consistent with the 2°C scenario.”<sup>9</sup>
- ⊗ ExxonMobil: “It is difficult to envision governments choosing this [low carbon] path.”<sup>10</sup>

In this report we take the opposite approach: we start from climate limits and translate into what needs to happen to the energy system in order to achieve them. We find that what is necessary is also achievable.

We know from atmospheric physics that the key factor determining the extent of global warming is the cumulative amount of carbon dioxide (CO<sub>2</sub>) emissions over time.<sup>11</sup> Because CO<sub>2</sub> stays in the atmosphere

Table 1: Global Carbon Budgets for Likely Chance of 2°C and Medium Chance of 1.5°C

(GtCO <sub>2</sub> )	2°C	1.5°C
Post-2011 Budget (from IPCC) <sup>14</sup>	1,000	550
Emissions 2012 to 2015 <sup>15</sup>	157	157
Post-2015 Budget	843	393

Sources: IPCC, Global Carbon Project

for centuries, it has been accumulating for many decades and continues to do so.<sup>12</sup> To keep warming within any particular limit – all else being equal – there is a maximum cumulative amount of CO<sub>2</sub> that may be emitted. (Non-CO<sub>2</sub> greenhouse gases are treated differently – see Box 1)

In the same way that an individual, business, or government has a budget corresponding to the resources they have, how long they need them to last, and the consequences of debt or deficit, a carbon budget does the same for greenhouse gas pollution. This is an important and helpful way to understand what we can afford to burn when it comes to fossil fuels (and other sources of emissions), and to drive conversations about the most effective and fairest ways to divide the budget between regions and types of fossil fuels.

In this report we analyze the carbon budgets calculated by the IPCC, to examine

their implications for the energy system. We consider two climate limits: a likely chance (66%) of limiting global warming to below 2°C, and a medium chance (50%) of limiting it to below 1.5°C. These budgets are shown in Table 1, deducting emissions that have occurred since the IPCC compiled them.

Some scenarios and analyses, such as the International Energy Agency’s 450 Scenario, are based on a 50% chance of staying below 2°C of warming.<sup>13</sup> Since 2°C is considered an absolute limit beyond which severe dangers occur, these 50% odds may be considered imprudent; hence other analyses such as United Nations Environment Programme’s annual Emissions Gap report use the budget for delivering a 66% chance of avoiding those dangers, as do we in this report.<sup>f</sup> However, we use a 50% chance of reaching 1.5°C because it has been set as an aspirational goal in the Paris Agreement, rather than an absolute maximum.

### Box 1: Carbon Budgets and Other Greenhouse Gases

The carbon budgets concept applies to CO<sub>2</sub>, because of the way it accumulates in the atmosphere over many decades. The budgets concept cannot be used in the same way to account for other greenhouse gases, which have a more complex warming effect because they do not last for as long in the atmosphere. Methane is the most important of these other gases.

In the short term, methane is a much more potent greenhouse gas than CO<sub>2</sub>. However, because methane molecules break down after an average of twelve years, their direct warming effect occurs only during those years after they are emitted, while they are still present in the atmosphere. Methane also has indirect effects lasting beyond twelve years, due to feedback loops in the climate system.<sup>9</sup> Because these loops do not follow a linear

relationship with cumulative emissions, they cannot be described using carbon budgets.

For these reasons, carbon budgets as discussed in this report relate only to CO<sub>2</sub>. However, other greenhouse gases are factored in when the sizes of CO<sub>2</sub> budgets are calculated. Assumptions are made about what other gases’ future emissions will be, and so if those assumptions change, then the sizes of carbon budgets change. Recent studies have indicated that methane leakage rates from natural gas facilities in the United States are much higher than previously thought, especially as a result of hydraulic fracturing, or “fracking.”<sup>16</sup> Such changed assumptions may require CO<sub>2</sub> budgets to be revised downward, which would allow for less CO<sub>2</sub> to be emitted.

<sup>f</sup> There is an argument on that basis that we should require a better than 66% of staying below 2°C – a 33% chance of failure is frightening, given the severity of what failure actually means. The IPCC provides budgets only for 33%, 50%, and 66%, partly as a relic of earlier decisions on how to quantify English-language terms such as “likely” and “unlikely.” While some scientists have calculated carbon budgets that would give 80% or 90% probabilities, in this report we use the IPCC budgets, as they are the most-reviewed and most-authoritative options. However, we do so with the following proviso: to be more confident of staying below 2°C, budgets would be smaller and require more dramatic action than outlined here.

<sup>g</sup> For example, short-term warming caused by methane’s direct greenhouse effect may cause ice to melt, reducing the extent to which solar radiation is reflected, and hence leading to greater absorption of heat, even beyond the methane’s atmospheric lifetime.

## URGENT EMISSIONS CUTS

To put the carbon budget numbers in context, we can compare them with current rates of emissions.

We see from Table 2 that reducing emissions is urgent: at current rates of emissions, the carbon budget for a likely chance of limiting warming to 2°C will be fully exhausted by 2037, and by 2025 for a medium chance at 1.5°C.

For the world to stay within either of these temperature limits, rapid emissions cuts are required. Figure 1 shows a range of scenarios for emissions pathways that would lead to achieving the likely chance of 2°C or medium chance of 1.5°C outcomes. For 2°C, emissions need to reach net zero by around 2070, and for 1.5°C they must do so by 2050 – and in both cases they must fall steeply, starting immediately.

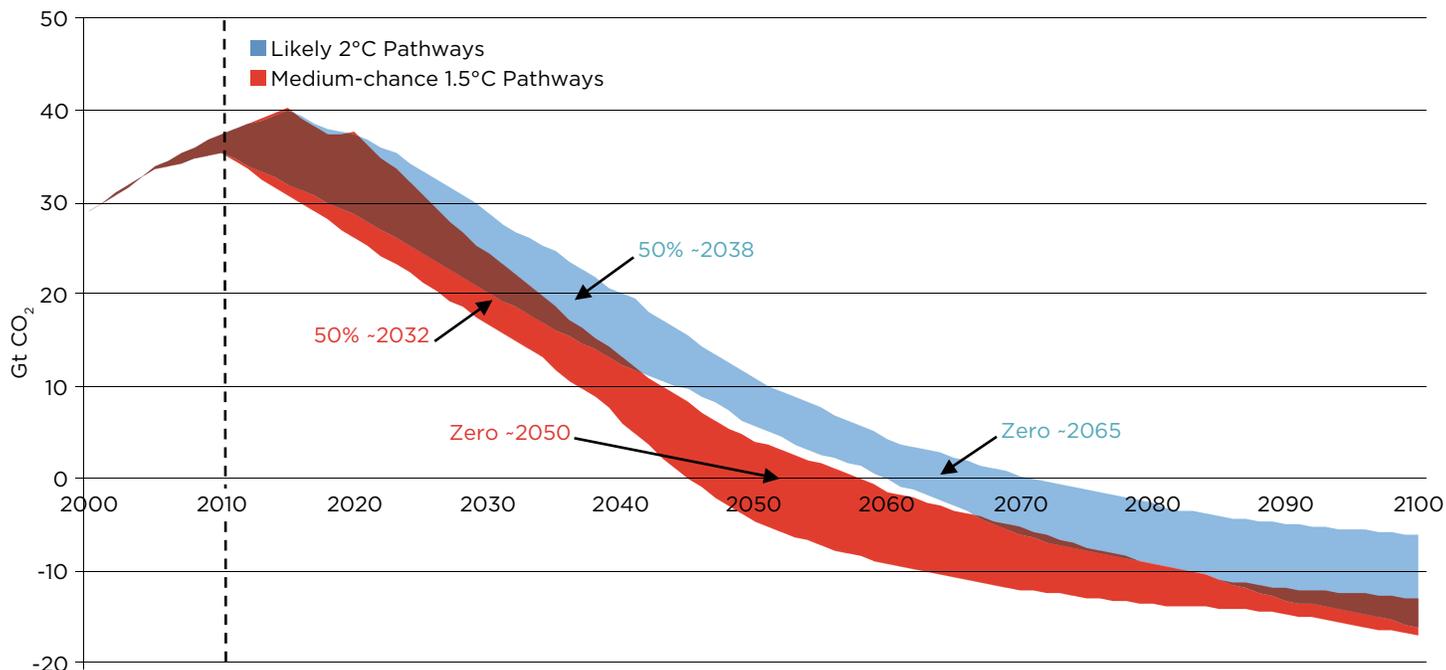
Note that these scenarios assume that “negative emissions” technology will occur in the second half of the century, through approaches such as bioenergy with carbon capture and storage or direct air capture. If we want to avoid depending on unproven technology becoming available, emissions would need to be reduced even more rapidly.

Table 2: Global Carbon Budgets for Likely Chance of 2°C and Medium Chance of 1.5°C, in context

	2°C	1.5°C
Post-2015 Budget (GtCO <sub>2</sub> )	843	393
Current Global Emissions (GtCO <sub>2</sub> ) <sup>17</sup>	39.2	39.2
Years Remaining at Current Rate	21.5	10.0
Year Exhausted at Current Rates	2037	2025

Sources: IPCC, Global Carbon Project

Figure 1: Range of Global Emissions Pathways in Scenarios Consistent with Likely Chance of 2°C or Medium Chance of 1.5°C<sup>18</sup>



Sources: Joeri Rogelj et al

## BOX 2: A History of Carbon Budget Analyses

This report continues a tradition of work by scientists and campaigners showing how global carbon budgets limit the amount of fossil fuels that can safely be extracted and burned.

It has been known for more than 20 years that cumulative emissions of CO<sub>2</sub> are a key determinant of how much the planet warms. The IPCC's Second Assessment Report in 1995 observed that in climate models all pathways leading to a particular temperature outcome had similar cumulative emissions.<sup>19</sup> Indeed, the notion of carbon budgets goes back at least to the early 1990s.<sup>20</sup> Further scientific study has developed our understanding of how this works in relation to the carbon cycle, forming a major theme in the IPCC's Fifth Assessment Report in 2013-14.

The pioneering step was taken by Bill Hare, then Climate Policy Director of Greenpeace, in what he called the 'carbon logic'. His 1997 paper, "Fossil Fuels and Climate Protection" showed that if burned, the fossil fuel reserves that were known at that time would release at least four times as much CO<sub>2</sub> as could be afforded while keeping warming below 1°C, or twice as much as the budget to keep below 2°C.<sup>21</sup> Several campaign groups (including Greenpeace, Oilwatch, Rainforest Action Network, Project Underground, and Amazon Watch) used the analysis to argue that exploration for new reserves should be stopped, but it was many more years before such calls started to gain traction.

In 2009, an influential paper was published in the journal *Nature* by Malte Meinshausen and seven co-authors (including Hare, who by then worked with Meinshausen at the Potsdam Institute for Climate Impact Research). They found that only 43% of the world's fossil fuels could be burned before 2050 if the world was to have a 50% chance of keeping warming below 2°C, or 27% of reserves for a 75% chance.<sup>22</sup>

Based on Meinshausen's research, in 2011 the Carbon Tracker Initiative published a report coining the term 'unburnable carbon' and describing its potential consequences for financial markets.<sup>23</sup> Carbon Tracker continues to examine the implications of stranded assets, which are long-term fossil fuel investments that will fail to generate returns because they were made assuming the world will not sufficiently act to address climate change.

Bill McKibben brought this analysis to a wider audience in 2012 in an article in *Rolling Stone* entitled "Global Warming's Terrifying New Math." In it, he argued that three simple numbers – the 2°C limit, the 565 Gt CO<sub>2</sub> budget for an 80% chance of staying within the limit, and the 2,795 Gt CO<sub>2</sub> of fossil fuel reserves – added up to global catastrophe.<sup>24</sup> The following year, Mike Berners-Lee and Duncan Clark published an analysis of reserves versus carbon budgets in a book, "The Burning Question".

In 2015, Christophe McGlade and Paul Ekins assessed which reserves might be left unburned if emissions were constrained within carbon budgets through an escalating carbon price. Their paper in *Nature* concluded that 88% of global coal reserves should remain unburned for a 50% chance of staying below 2°C. Even after assuming significant development of CCS, this proportion dropped to just 82% of global coal reserves. 75% of Canada's tar sands would have to remain unburned, or 74% with CCS.<sup>25</sup>

This report is inspired by that history of earlier work, and aims to build on it by turning the focus to reserves in fields and mines that are already operating.

## FOSSIL FUEL RESERVES

After a company finds and then develops a deposit of oil, gas, or coal, it will generally extract the deposit over a period of several decades (see Figure 4 on page 20). Reserves are the quantity of known oil, gas, or coal that can be extracted in the coming years, with current technology and in current economic conditions.<sup>h</sup>

In Figure 2 we compare carbon budgets with fossil fuel reserves, echoing earlier work to translate climate limits into energy limits (see Box 2). For oil and gas, both proven and probable reserves are shown, while for coal only proven reserves are shown (see Appendix 1).<sup>i</sup>

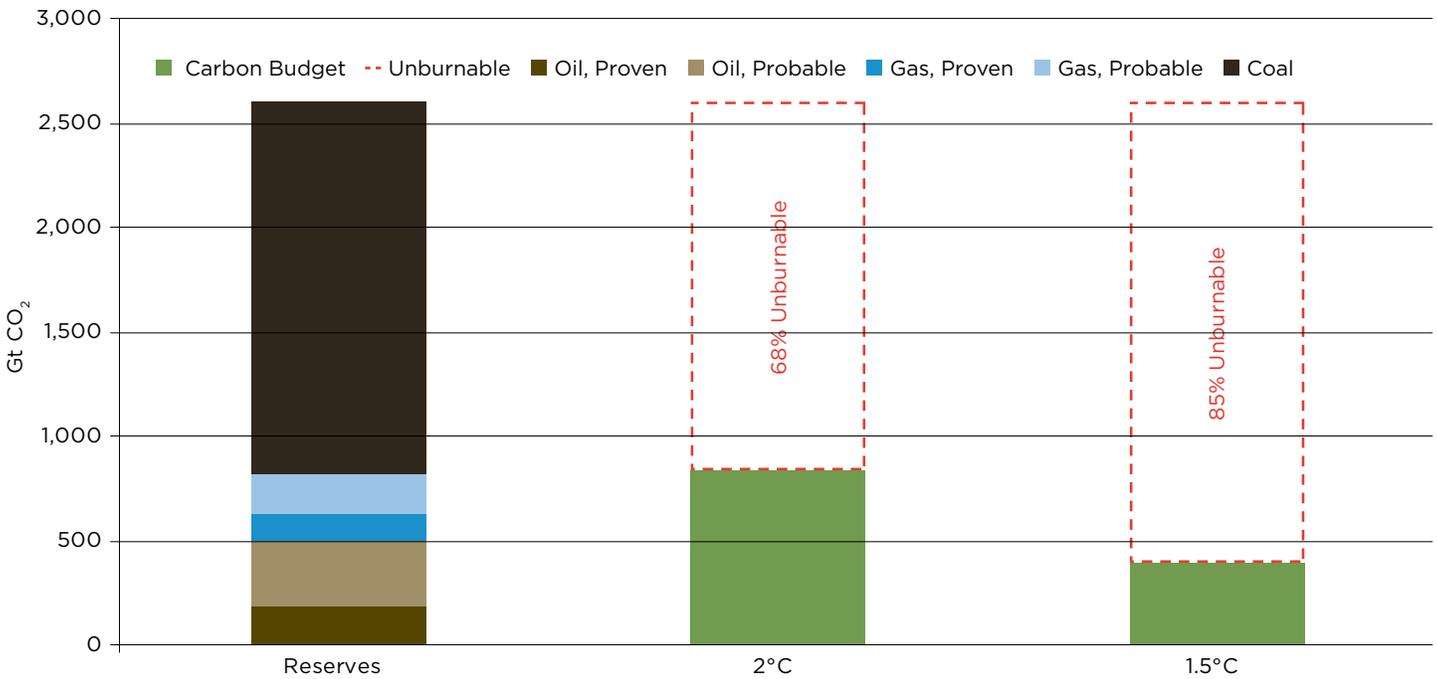
We see that for a likely chance of keeping warming below 2°C, 68% of reserves must remain in the ground. For a medium chance of limiting warming to 1.5°C, 85% of reserves must remain underground.

This conclusion is based on an assumption that carbon capture and storage (CCS) is not widely deployed. CCS is a process in which some of the CO<sub>2</sub> released from burning fossil fuels is captured, compressed, and stored underground in deep geological reservoirs – thus enabling fossil fuels to be burned without releasing all of their carbon into the atmosphere. The problem is that the technology needed is far from proven: it has been deployed only in a few pilot

settings, and without significant success (see Appendix 3); meanwhile, there are reasons to believe its costs may remain prohibitive, and questions about its environmental safety.

If CCS is eventually proven and deployed, it might provide a welcome means of further lowering emissions. However, we take the view that it would not be prudent to be dependent on an uncertain technology to avoid dangerous climate change; a much safer approach is to ensure that emissions are reduced in the first place by reducing fossil fuel use and moving the economy to clean energy. Therefore, we apply that assumption throughout this report.<sup>j</sup>

Figure 2: Global Fossil Fuel Reserves Compared to Carbon Budgets for Likely Chance of 2°C and Medium Chance of 1.5°C<sup>28</sup>



Sources: Rystad Energy, World Energy Council, IPCC

h Reserves are a subset of resources, which are an estimate of all the oil, gas, or coal that might one day be extracted. There are two criteria that define reserves:  
 (i) They have been identified – they have a specified location and grade/type (whereas resources also include those that are expected or postulated to exist, based on geological understanding)  
 (ii) They can be extracted with currently available technology and under current economic conditions (whereas resources also include those that rely on speculative future technologies or commodity prices)<sup>26</sup>  
 i An overview of government-reported data for nine countries that together account for 60% of proven coal reserves suggests additional probable reserves of around 350 Gt of coal in those countries, equivalent to 885 Gt of CO<sub>2</sub>. However, coal data is plagued by unreliability and inconsistent definitions, so this estimate should be taken with caution.<sup>27</sup>  
 j As noted, we are taking a different approach from the IEA's 450 Scenario, which assumes large-scale CCS will become available, hence requiring only modest reductions in fossil fuel usage while having a 50% chance of staying within 2°C.

Excavators pile up coal on a quay at the Port of Lianyungang in Lianyungang city, east China's Jiangsu province, 10 November 2013.



# 2. ENOUGH OIL, GAS, AND COAL ALREADY IN PRODUCTION

We have seen that existing fossil fuel reserves considerably exceed both the 2°C and 1.5°C carbon budgets. It follows that exploration for new fossil fuel reserves is at best a waste of money and at worst very dangerous. However, ceasing exploration is not enough, as that still leaves much more fossil fuel than can safely be burned.

## DEVELOPED RESERVES

We now turn to the question of how much room exists within the carbon budgets for development of new oil fields, gas fields, and coal mines.

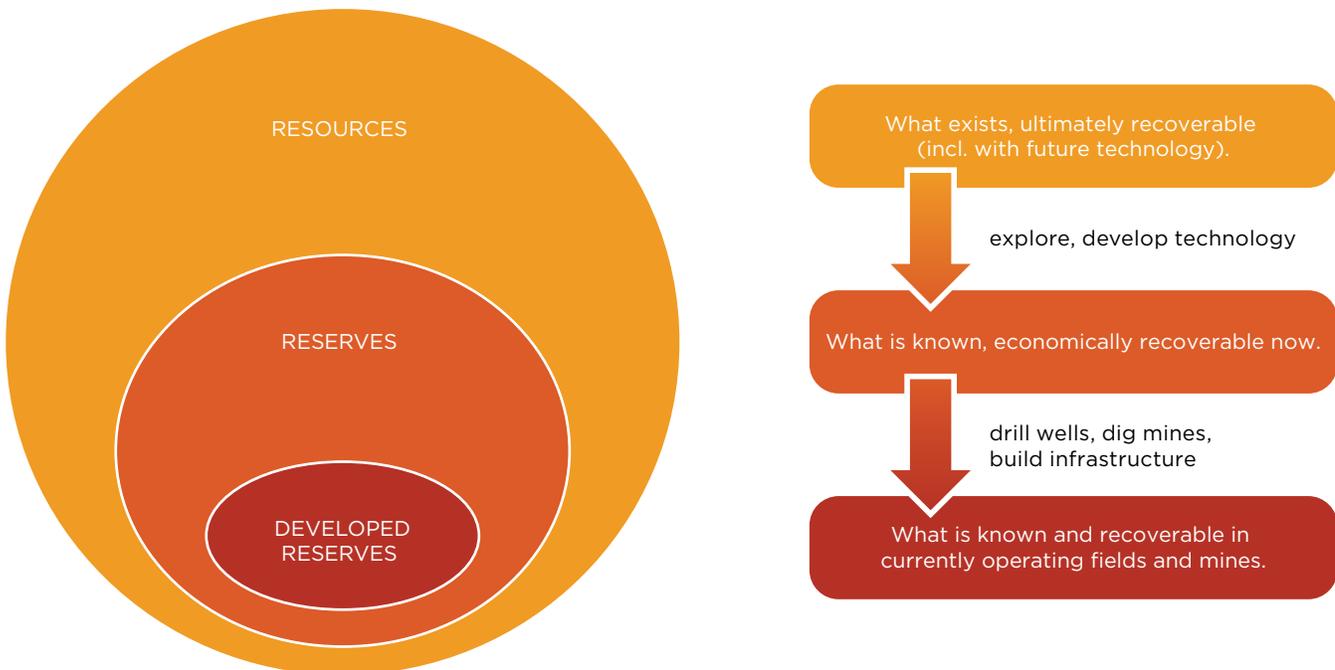
Figure 3 explains three categories of fossil fuels in the ground:

- ⊗ **Resources** that might one day be extracted, some of which are geologically “expected” but yet to be actually found.
- ⊗ **Reserves** that are known and extractable using today’s technologies and in today’s economic conditions.
- ⊗ **Developed Reserves** that can currently be extracted from oil fields, gas fields and coal mines that are already

operating – for which the wells have been drilled and the pits dug, and where the pipelines, processing facilities, railways, and export terminals have been constructed.

We focus on the smallest of these three measures: ‘developed reserves’. If no new fields or mines are developed, production of each fossil fuel will decline over time as existing fields and mines are depleted, eventually reaching zero. A finite amount of cumulative production would thus occur with no new development, which we have estimated in Table 3.

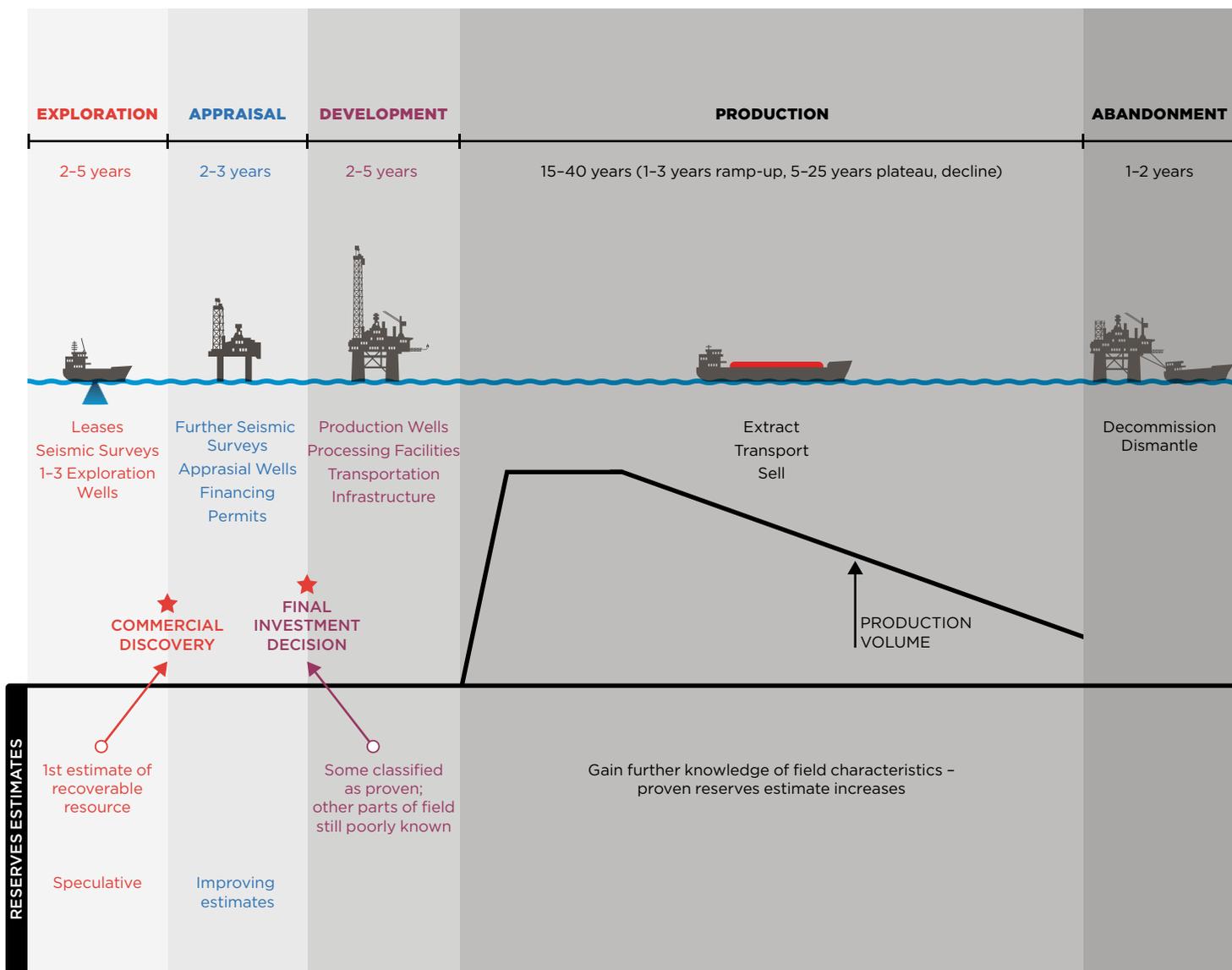
Figure 3: Three Measures of Available Fossil Fuels



Source: Oil Change International. Not to scale.

Figure 4: Lifecycle of an Oil or Gas Field

Source: Oil Change International



For oil and gas fields, we use data from Rystad Energy's UCube, a database of upstream oil and gas projects.<sup>29</sup> Rystad creates this data using a combination of company reports, regulatory information, and modeling. We have included fields that are currently being developed – for which shovels are in the ground – as well as those already producing, as the under-construction ones are “committed” in a similar sense. Because the estimates of reserves in existing fields are sensitive to oil and gas prices, we have used Rystad's base case, which projects the prices Rystad considers most likely over coming years.

Rystad provides data at the level of an “asset”, which roughly divides the oil and gas universe into units for which a separate investment decision is made, based on its assessed profitability. For this reason, we do not count the reserves that would be unlocked in future development phases of a producing field as “developed.” For example, we count the 3.6 billion barrels of oil that can be extracted with existing infrastructure on BP's Mad Dog field in the Gulf of Mexico as developed, but not the further 10.7 billion barrels that would be unlocked by its planned Mad Dog Phase 2 development, which would involve additional infrastructure investments.

For coal mines, we use estimates from the International Energy Agency (IEA), which are comprised of data from various sources combined with the IEA's own analysis.<sup>30</sup> It should be noted that available data for coal is generally of poorer quality than for oil and gas (see Appendix 1). Data is not available for coal mines under construction.

**Table 3: Developed Reserves and CO<sub>2</sub> Emissions, from Existing and Under-Construction Global Oil and Gas Fields, and Existing Coal Mines<sup>31</sup>**

	<b>Reserves</b>	<b>Emissions</b>
<b>Oil, Proven</b>	413 bn bbl	175 Gt CO <sub>2</sub>
<b>Oil, Probable</b>	400 bn bbl	169 Gt CO <sub>2</sub>
<b>Gas, Proven</b>	1,761 Tcf	105 Gt CO <sub>2</sub>
<b>Gas, Probable</b>	1,130 Tcf	68 Gt CO <sub>2</sub>
<b>Coal, Proven</b>	174 Gtce	425 Gt CO <sub>2</sub>
<b>TOTAL</b>		942 Gt CO <sub>2</sub>

Sources: Rystad Energy, IEA

## DEVELOPED RESERVES COMPARED TO CARBON BUDGETS

Figure 5 compares developed reserves with the carbon budgets. In addition to emissions from energy (the burning of the three fossil fuels), we must also consider two other sources of emissions:

- ⊗ Land use, especially changes in forest cover and agricultural uses;
- ⊗ Cement manufacture, where aside from any energy usage, CO<sub>2</sub> is released in the calcination reaction that is fundamental to cement production.<sup>k</sup>

In both cases, we use relatively optimistic projections of emissions this century, assuming climate action, while noting that these sit within a wide range of projections, from those assuming business-as-usual to those involving speculative new technologies. This range is shown in Table 4 (more details in Appendix 2). There is considerable variation in modelled land use emissions.<sup>l</sup> If emissions from these two sources are not reduced to zero by the end of this century, they could occupy a larger share of the remaining carbon budgets, leaving less for fossil fuel emissions.

It can be seen from Figure 5 that (in the absence of CCS):

- ⊗ The emissions from existing fossil fuel fields and mines exceed the 2°C carbon budget.

A recent study by Alex Pfeiffer and colleagues at Oxford University found that the “2°C capital stock” of power plants will be reached in 2017, by projecting the emissions from power plants over their full 40-year lifespans. In other words, if any more gas or coal plants are built after next year, others will have to be retired before the end of their design lives, in order for the world to have a 50% chance of staying below the 2°C limit (for a 66% chance of

2°C, that capital stock was reached in 2009, meaning early retirements are already required).<sup>32</sup> We have reached a similar conclusion for the capital stock in fossil fuel extraction.

## NO MORE FOSSIL FUELS

In 2015, President of Kiribati Anote Tong wrote to other national leaders urging an end to the development of new coal mines, “as an essential initial step in our collective global action against climate change”.<sup>33</sup> As a low-lying island in the Pacific, Kiribati is a nation whose very existence is threatened. Our analysis in this report supports his call, and extends it further.

If we are to stay within the agreed climate limits and avoid the dangers that more severe warming would cause, the fossil fuels in fields that have already been developed exceed our global carbon budget. Therefore, we conclude that:

- ⊗ No new oil fields, gas fields, or coal mines should be developed anywhere in the world, beyond those that are already in use or under construction.<sup>m</sup>
- ⊗ Similarly, no new transportation infrastructure – such as pipelines, export terminals, and rail facilities – should be built to facilitate new field and mine development (this does not preclude replacing existing infrastructure such as an old, leaky pipeline).<sup>34</sup>

Governments and companies might argue that early closure of coal could make space for new development of oil and gas. This substitution argument might have worked if the total developed reserves were equivalent to well below 2°C or 1.5°C. But instead, Figure 5 shows that developed reserves exceed the 2°C carbon budget and significantly exceed the 1.5°C budget. Furthermore:

- ⊗ Oil and gas emissions alone exceed the 1.5°C budget.

If governments are serious about keeping warming well below 2°C and aiming for 1.5°C, no new oil or gas development would be permitted, even if coal, cement, and deforestation were stopped overnight.

## LEAST-COST APPROACHES

Many analyses of emissions pathways and climate solutions assess the “least-cost” routes to achieving climate targets.<sup>n</sup> Such an analysis – with the same targets we have used in this report – might not lead to the conclusion that no new fields or mines should be developed. Although developed reserves will often be cheaper to extract than new reserves because capital has already been spent, that is not always the case. A new Saudi oil field may cost less to develop and operate than simply maintaining production from an existing Venezuelan heavy oil field, for example. In optimizing the global economics, a least-cost approach might suggest that rather than precluding new development, we should instead close the Venezuelan field early and open the Saudi one. In this report we take a different approach.

There are two rationales for using least-cost models to assess the best way of achieving a given climate target: predictively, assuming a markets-based mechanism for delivering change; or normatively, on grounds that the least total cost implies the greatest net benefit to humanity.

As it relates to this report, the predictive role will hold only if we expect that sufficiently strict market-based policies will be put in place to achieve climate goals. In the absence of these policies, the predictive role is lost. Those policies do not currently exist; and in fact, in Section 4 we will argue that market-based, demand-side policies alone may not be enough to transform the energy system to the extent climate limits require.

k Calcium carbonate (limestone) is heated to break it into carbon dioxide and calcium oxide, the largest ingredient used to make cement clinker:  $\text{CaCO}_3 \rightarrow \text{CaO} + \text{CO}_2$ . The heat may come from coal or gas, but those emissions are counted within the energy total: the additional component here is the CO<sub>2</sub> from the calcination reaction.

l Many scenarios include significant negative emissions, from bioenergy with CCS (BECCS), biochar, and afforestation. In this report, we have based our conclusions on an assumption that CCS is not deployed at scale, based on unpromising experience to date (see Appendix 3). Extending this precautionary assumption could potentially increase the assumed land use emissions, and reduce the share of carbon budgets available for fossil fuels.

m It should be noted that we have not included probable reserves of coal, due to lack of data and for the other reasons listed in Appendix 1. So more precisely, our conclusion is that coal mines should not continue producing beyond their proven reserves. Similarly, if new technology enabled greater recovery from existing oil and gas fields, further restraint would be needed.

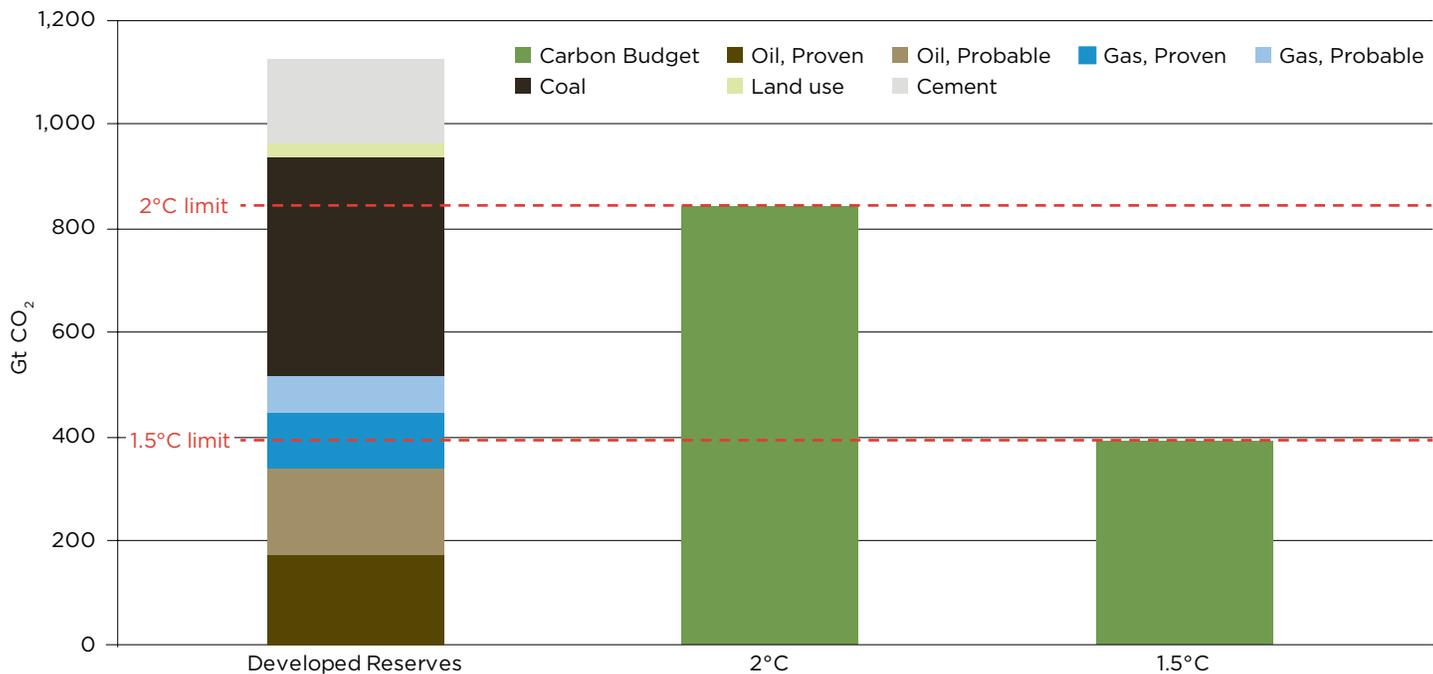
n They commonly do so using an integrated assessment model, which combines both physical effects of emissions in the climate system, and economic effects of energy in the economy. Such models are used to generate the emissions scenarios featured in IPCC reports, such as those shown in Figure 1.

Table 4: Assumed 2015 to 2100 Emissions from Land Use and Non-Energy Emissions from Cement Manufacture (see Appendix 2 for details)

Gt CO <sub>2</sub>	Assumed Base Case	Range
Land Use	21	-206 to 57
Cement Manufacture	162	150 to 241

Sources: IPCC Scenarios Database, IEA

Figure 5: Emissions from Developed Reserves, Compared to Carbon Budgets for Likely Chance of 2°C and Medium Chance of 1.5°C



Sources: Rystad Energy, IEA, World Energy Council, IPCC

Examining the normative rationale, we run into the important question of how the climate goal is to be achieved. It is a sad reflection on climate politics that leaders find it easy to make principled or pragmatic arguments for why others should take action, but much harder to see arguments for why they should do so themselves. No government seems to need much excuse to carry on extracting or burning fossil fuels: the logic leaps quickly from “someone can extract if conditions ABC are met” to “I can extract as much as I like.” This is one reason why we focus on overall global limits.

Since political action is required, we should look for solutions that are not just economically optimized, but politically optimized. Politically, it is much more difficult to demand the loss of physical capital – on which dollars have been spent, and steel and concrete installed – than to relinquish the future hope of benefits from untapped reserves. Shutting an existing asset leads to an investor losing money, and if a government shuts it by decree the investor will demand compensation. That lost money is a powerful disincentive for all parties involved. In contrast, stopping plans for the construction of unbuilt facilities mostly involves the loss of potential future income, since the amount spent on exploration is relatively small.

Similarly, existing jobs held by specific people generally carry more political weight than the promise of future jobs. This can even be the case when policy decisions may lead to more jobs than the present ones that would be lost. We will examine this in more detail in Section 4 and 5.



Mountaintop removal coal mining on Cherry Pond and Kayford mountains in West Virginia 2012.



## THE FRONT LINES OF EXPANSION

The consequence of our analysis is that no new extractive or facilitating infrastructure should be built anywhere in the world. We identify here the countries where the most expansion is proposed. If these expansions go ahead, they could be the worst culprits in tipping the world over the edge.

### (i) Coal

The world's largest and fifth-largest coal producers, China and Indonesia, have declared moratoria on new coal mine development. The second-largest producer, the United States, has implemented a limited moratorium on new coal mines on public lands. These three countries account for roughly two-thirds of the world's coal production (or 60%, if US production on non-federal lands is excluded).<sup>35</sup> The first priority must be to make these moratoria permanent, and to extend the U.S. moratorium to all coal mining in the country.

The two countries that are currently proceeding with major coal mining development are Australia and India:

⊗ **Australia:** Nine coal mines are proposed in the Galilee Basin in Queensland. They would have combined peak production of 330 Mt of coal per year, amounting to 705 Mt CO<sub>2</sub> of emissions per year – if this were a country, it would be the world's 7<sup>th</sup> largest emitter.<sup>36</sup> Table 5 shows the six mines that have filed applications for regulatory approval, with estimated recovery of 9.6 billion metric tons of coal over their lifetimes, leading to 24 Gt of CO<sub>2</sub> emissions. This would total 6% of the global carbon budget for 1.5°C. Three further mines – Watarah's Alpha North, GVK/Hancock's Alpha West, and Vale's Degulla – have not yet started the approvals process.

⊗ **India:** In 2015, the government of India set a target of tripling national coal extraction to 1.5 billion metric tons per year by 2020, with majority-state-owned Coal India Limited increasing its extraction to 1 billion metric tons per year, and other companies increasing from 120 Mt per year to 500 Mt per year.<sup>38</sup> Most commentators expect production growth to fall well short of these goals; the IEA's projection

of production from existing and new mines is shown in Figure 6. Data are not available on the reserves in new mines.

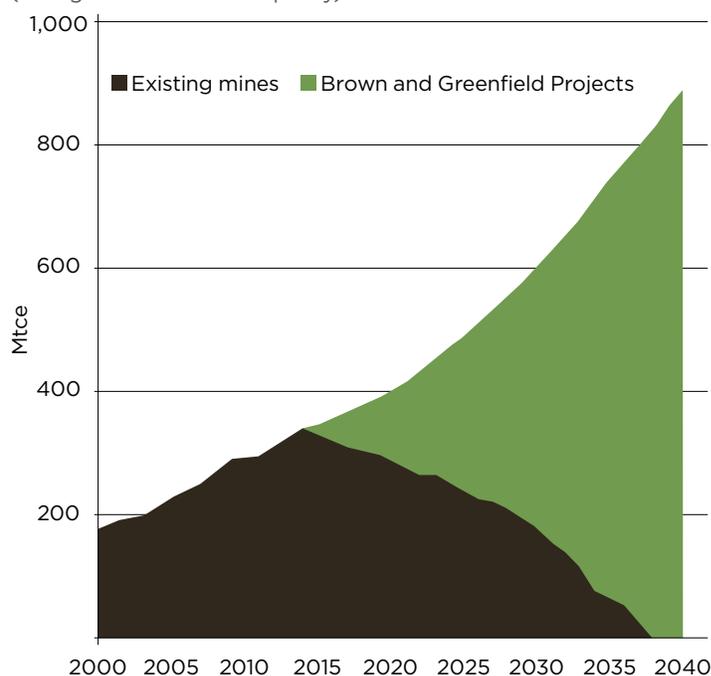
It should be noted that India has done less than most countries to cause the climate problem: despite having 18% of the world's population, it has accounted for just 3% of historical global CO<sub>2</sub> emissions.<sup>40</sup> And with per capita GDP of just \$1,600, the country has an urgent need for economic development. Therefore, many argue with good justification that it is unreasonable to expect a country like India to bear an equal burden of addressing climate change to those with far greater historic responsibility. At the same time, it is difficult to see how the world can avoid dangerous climate change if this coal expansion goes ahead. The solution could be a generous support package, primarily provided by the wealthy countries that are most responsible for climate change, including climate finance and technology transfer, to help India pursue a low-carbon development path.

Table 5: Proposed Coal Mines in Australia's Galilee Basin<sup>37</sup>

Mine	Company	Expected recovery / Mt coal
Carmichael	Adani	5,000
China Stone	MacMines	1,800
China First	Watarah Coal	1,000
Alpha	GVK / Hancock	840
Kevin's Corner	GVK	470
South Galilee	Bandanna/AMCI	450
<b>TOTAL</b>		<b>9,560</b>

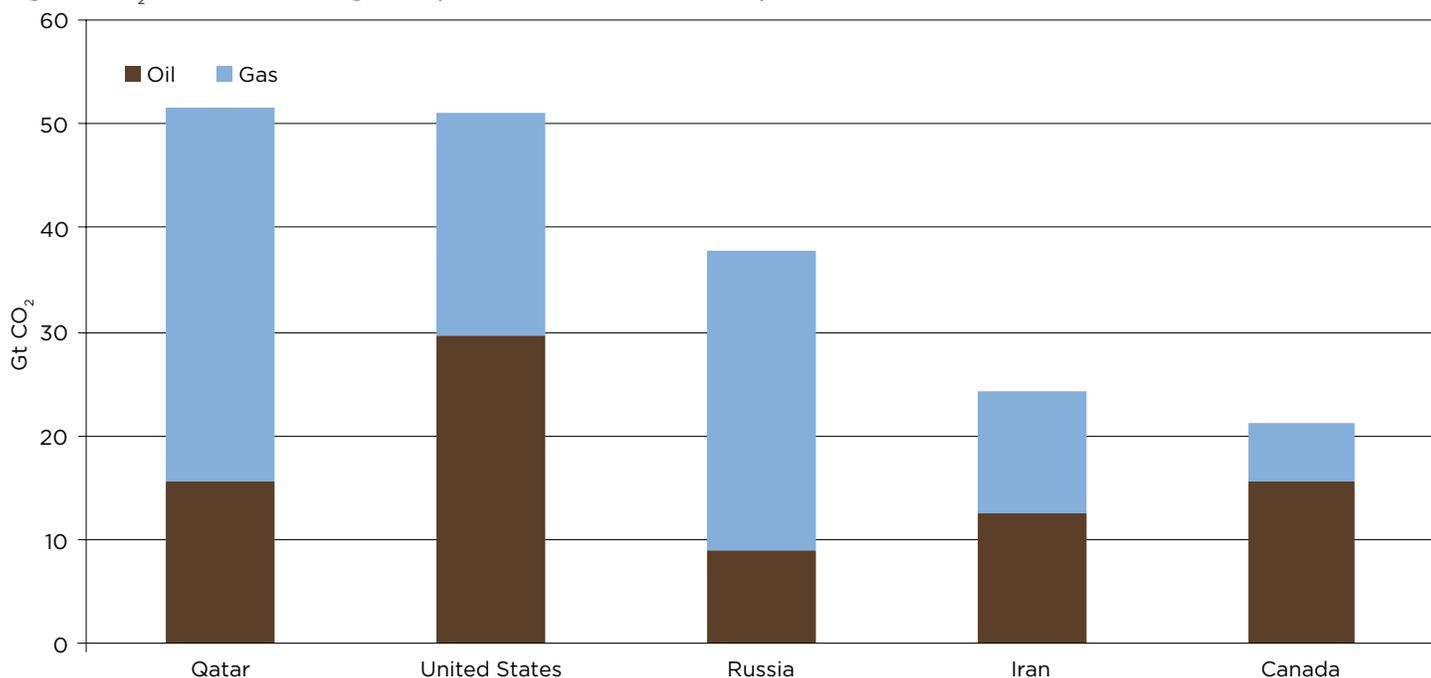
Sources: Individual Project Environmental Impact Statements

Figure 6: Projected Indian Coal Production from Existing and Proposed Mines, in Million Metric Tons of Coal Equivalent (taking into account low quality)<sup>39</sup>



Source: International Energy Agency

Figure 7: CO<sub>2</sub> Emissions from Largest Proposed New Oil and Gas Developments



Source: Rystad Energy

## (ii) Oil and Gas

The largest proposed oil and gas developments, as projected by Rystad, are shown in Figure 7.

They comprise:

- ⊗ **Qatar:** Along with partner ExxonMobil, state-owned Qatar Petroleum plans to expand gas and oil production on the massive North field in several new phases, although this is not expected until prices increase. The projected 52 Gt of lifetime CO<sub>2</sub> emissions would on their own exhaust 13% of the 1.5°C budget.
- ⊗ **United States:** Major ongoing fracking developments, particularly for oil in North Dakota's Bakken, and Texas' Permian and Eagle Ford shales, and for gas in the Appalachian Basin's Marcellus-Utica shale. These are all proceeding in spite of low prices, and would add another 51 Gt of CO<sub>2</sub> emissions.
- ⊗ **Russia:** Gazprom proposes several major gas and oil developments in the Yamal Peninsula in Arctic northwest Siberia, though this is not expected until prices increase. They would add 38 Gt of CO<sub>2</sub> emissions.
- ⊗ **Iran:** The Iranian government is currently preparing an auction of several fields and exploration blocks to foreign companies, with initial offerings expected in late 2016 or early 2017. The emissions would amount to 24 Gt CO<sub>2</sub>.
- ⊗ **Canada:** Proposed expansion of tar sands extraction in Alberta depends on the construction of new pipelines, which have been stalled due to public opposition. Two major new pipelines are currently proposed, one by Kinder Morgan to the west coast and another by TransCanada to the east coast. Projected emissions are 21 Gt CO<sub>2</sub>.

It can be seen from the chart that new gas development is as much of a threat as new oil development.

Proceeding with any of the above oil, gas, or coal expansions – the world's largest new sources of new carbon proposed for development – could commit us to far more than 2°C warming.

# 3. TRIMMING THE EXCESS

We saw in the previous section that stopping new fossil fuel construction can get the world closer to staying below 2°C of warming, but still is not enough (see Figure 5). Some closure of existing operations will be required to limit warming to 2°C. To have a chance of staying below 1.5°C, significant closures will be needed.

We have noted that closing existing facilities is more politically difficult than not building new ones. Stopping new fossil fuel construction minimizes the number of existing operations that need to be closed early. In this section we will consider where the necessary early shut-downs could or should take place.

Environmental justice is a priority principle for considering where to stop fossil fuel extraction. Extraction should not continue where it violates the rights of local people – including indigenous peoples – nor should it continue where resulting pollution would cause intolerable health impacts or seriously damage biodiversity. Fossil fuels have a long and violent history of being associated with such violations, stopping which is important in its own right.

## COAL MINES

An obvious candidate for early closure is the coal sector. Coal accounts for the largest share of resources, the largest CO<sub>2</sub> emissions intensity, and the largest emissions per unit of power generated. Furthermore, coal's use in power generation is readily substitutable by renewable energy,<sup>40</sup> at least in countries and regions with mature electrical grids. Coal mining is also less capital-intensive than oil or gas extraction, so it is less costly to retire a coal asset early (although coal mining is also more labor-intensive, raising issues of its closure's impact on workers – see Section 5).

This does not mean that all coal should be phased out before any action to restrict existing oil and gas extraction. Poorer countries rely disproportionately on coal for their energy, compared to oil and gas: coal accounts for 19% of primary energy in industrialized countries in the Organisation for Economic Co-operation and Development (OECD), but 37% of primary energy in non-OECD countries.<sup>42</sup> There is danger that placing too much emphasis on coal may put an unfair share of the burden

on the very countries who did least to cause the climate problem and who have the least financial and technological capacity to transform their economies. We will examine these issues in more detail shortly.

As a starting point, there is little justification for continued mining or burning of thermal coal in industrialized countries. Figure 8 shows that the OECD countries extracting the most coal are the United States, Australia, Germany, and Poland.

China has already adopted a policy of closing some existing coal mines, which will cut its annual production capacity by between one to two billion metric tons of coal, depending on implementation. For comparison, China currently extracts 3.7 billion metric tons, (though these capacity reductions will not translate to a 25% to 50% cut in output because of current overcapacity, but they will reduce China's developed reserves.)<sup>43</sup>

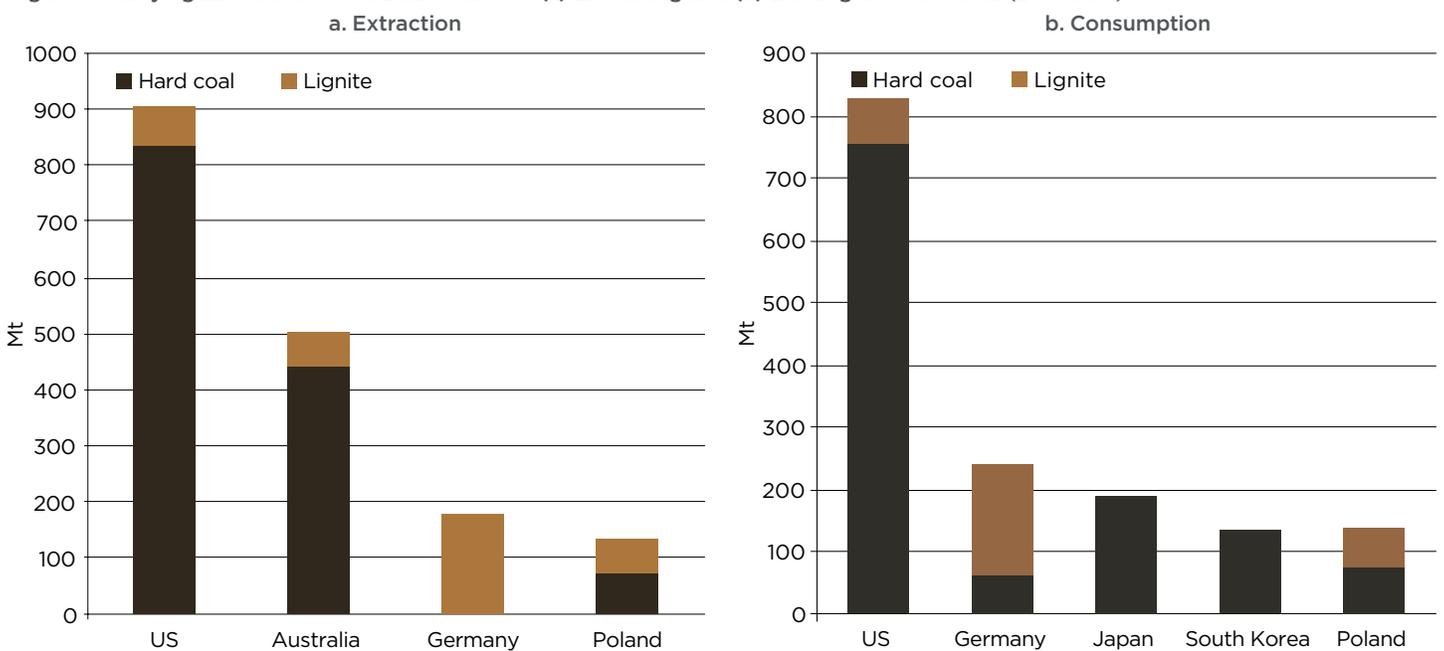
o Around 17% of coal demand is used in steel production. Research and development is under way to seek to make steel without coal; some projects have instead used forestry-derived charcoal, and earlier-stage technologies include polymers or natural gas. Steel is also highly recyclable, boosting recycling levels from the current 30% could help reduce the level of demand.<sup>41</sup>



© Lu Guang / Greenpeace.

The Shengli open-cast coal mine in Xilinhot, Inner Mongolia, China, 2012.

Figure 8: Partying Like it's 1899:<sup>44</sup> OECD Countries (a) Extracting and (b) Burning the Most Coal (2014 data)



Source: German Federal Institute for Geosciences & Natural Resources (BGR)

## EQUITY: ALLOCATING FAIR SHARES

Some poorer countries see extraction and use of fossil fuels as a means to achieve economic empowerment, by providing either domestic energy or revenue from exports. At the same time, the greatest impacts of climate change will fall on poorer countries which have done the least to cause the climate problem. A study commissioned by the Climate Vulnerable Forum estimates that climate change already causes 400,000 deaths per year, 98% of which occur in developing countries as a result of increases in hunger and in communicable diseases. The current estimated 1.7% reduction in global gross domestic product (GDP) due to climate change is disproportionately felt by the world's poorest nations, the Least Developed Countries, whose GDP is being reduced by 7%.<sup>45</sup>

In contrast to the least-cost approaches discussed in the previous section, the appropriate question is not only which solution incurs the least cost to humanity as a whole: we must also consider a just distribution of who incurs the cost, such that each country contributes its fair share to address the global problem of climate change.

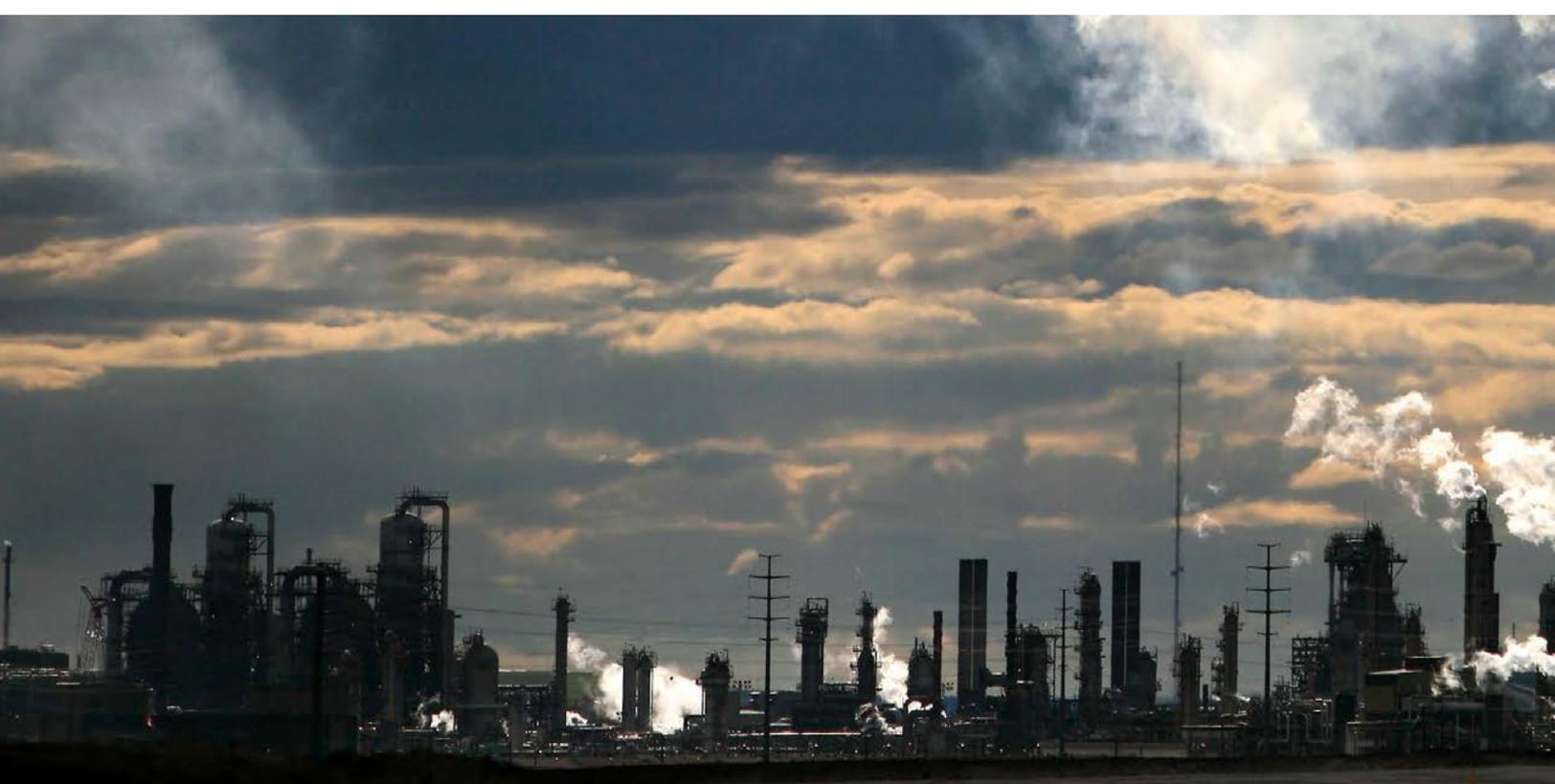
We have argued that ending the construction of new fossil fuel infrastructure is a politically pragmatic approach to avoiding dangerous climate change. The problem is that much of current fossil fuel extraction is located where it may not be most needed or justified in terms of fairness; examples include oil, gas, and coal in the United States and Russia, oil in Canada, oil in Saudi Arabia, and coal in Australia.

A forthcoming paper by Sivan Kartha and colleagues at the Stockholm Environment Institute argues that climate politics contain an unresolved tension between two different views of fossil fuel extraction: one of “extraction as pollution,” and another of “extraction as [economic] development.”<sup>46</sup> The authors point out that this tension goes right back to the 1992 UNFCCC treaty, whose preamble says: “States have [...] the sovereign right to exploit their own resources pursuant to their own environmental and developmental policies, and the responsibility to ensure that activities within their jurisdiction or control do not cause damage to the environment of other States or of areas beyond the limits of national jurisdiction.”

At the level of emissions, where most climate policy has historically focused, this tension has been addressed through the principles of equity. Most importantly, the duty to cut emissions rests more with countries that carry greater responsibility for causing the problem (those with greater historic emissions), and with those that have most capacity to act (the wealthiest countries).<sup>47</sup> Industrialized countries, which account for just 18% of the world's population, are responsible for 60% of all historical CO<sub>2</sub> emissions.<sup>48</sup>

Already, important questions arise. How do these principles of responsibility and capacity translate to the fossil fuel supply side? How does the “resource curse” – the paradox that those countries with the most natural resources sometimes have less economic development success – diminish the developmental value of fossil fuels, or the historic responsibility for their extraction? How do demand-side equity and supply-side equity interrelate?

Oil Change International is working with the Stockholm Environment Institute on a paper that more fully explores these questions and makes concrete proposals for an equity framework on fossil fuel



Syncrude upgrader plant north of Fort McMurray, Alberta, Canada

supply. For now, it is clear that whatever the details, the onus of climate action remains on wealthier countries both to take action themselves, and to help finance and facilitate further action in countries that do not have the resources to do so themselves.

Countries with low levels of fossil fuel infrastructure have an opportunity to seek sustainable development along a low-carbon pathway, leapfrogging to clean energy without the risk and cost of investing in assets that may become stranded when climate action makes them obsolete. In this regard, it should be noted that some of the greatest ambition for energy transition comes from small, poor, and vulnerable countries, such as Costa Rica, Nicaragua, Djibouti, and Vanuatu (see Box 3 in Section 5).

However, in return such countries can and should rightly demand financial support from industrialized countries, given the advantages these nations have drawn from fossil fuels, and conversely the challenges for poorer countries of integrating variable renewables in weaker grids. This may include investment and transfer of technologies in renewable energy, as well as in other industries that can provide alternatives to revenue from fossil fuel extraction.

Other developing countries that have relied more on fossil fuel extraction or combustion will similarly require finance to facilitate a transition, in a manner that protects the livelihoods of those working in the energy industry and diversifies their revenue bases and broader economies. Some fossil fuel exporters have grappled with the challenge of how to lift their people out of poverty while addressing climate change. Ecuador, for instance, has proposed charging a tax on oil exports to wealthy countries, to increase revenue while also incentivizing lower oil use.

We conclude:

- ⊗ To achieve the Paris goals, no new fossil fuel extraction infrastructure should be built in any country, rich or poor, except in extreme cases where there is clearly no other viable option for providing energy access.
- ⊗ Since rich countries have a greater responsibility to act, they should provide finance to poorer countries to help expand non-carbon energy and drive economic development, as part of their fair share of global action. Particularly important will be financial support to

meet the urgent priority of providing universal access to energy. Around the world, over a billion people have no electricity in their home. Nearly three billion rely on wood or other biomass for cooking or heating. Lack of access to energy in households and communities threatens the achievement of nearly every one of the Sustainable Development Goals that the international community has set to fight poverty, hunger, and disease.

- ⊗ To stay within our carbon budgets, we must go further than stopping new construction: some fossil fuel extraction assets must be closed before they are exploited fully. These early shut-downs should occur predominantly in rich countries.
- ⊗ Extraction should not continue where it violates the rights of local people – including indigenous peoples – nor should it continue where resulting pollution would cause intolerable health impacts or seriously damage biodiversity.





© AP Photo/Nabil al-Jurani

# 4. WHY FOSSIL FUEL SUPPLY MATTERS

Over the last three decades, climate policy has focused almost exclusively on limiting the combustion rather than the extraction of fossil fuels. While there is a certain intuitive sense to that, because it is combustion that physically releases CO<sub>2</sub> into the atmosphere, this is far from the only way to address the problem. By contrast, ozone protection was achieved by regulating the production of chlorofluorocarbons (CFCs) and other chemicals, rather than trying to influence their usage and release (for example by a deodorant tax or quota).

Around 95% of the carbon extracted in oil, gas, or coal is subsequently burned and released into the atmosphere as CO<sub>2</sub>. As such, the amount of carbon extracted is roughly equal to the amount that will be emitted.

There are two routes by which extracted carbon may not end up in the atmosphere:

- ⊗ Small amounts of oil and gas are used in industrial manufacturing of plastics, chemicals, fertilizer, and other products. In 2011, non-combustion uses accounted for 14% of U.S. oil consumption, 2% of gas consumption, and 0.1% of coal consumption – combined, these total just 6% of the carbon in U.S. fossil fuel consumption.<sup>49</sup> Even in some of these cases, the carbon still ends up in the atmosphere as the finished products decompose.
- ⊗ In theory, CO<sub>2</sub> emissions could be captured. However, CCS has barely been deployed to date, despite strong advocacy since the 1990s by the fossil fuel industry. Due to slow development of the technology, even

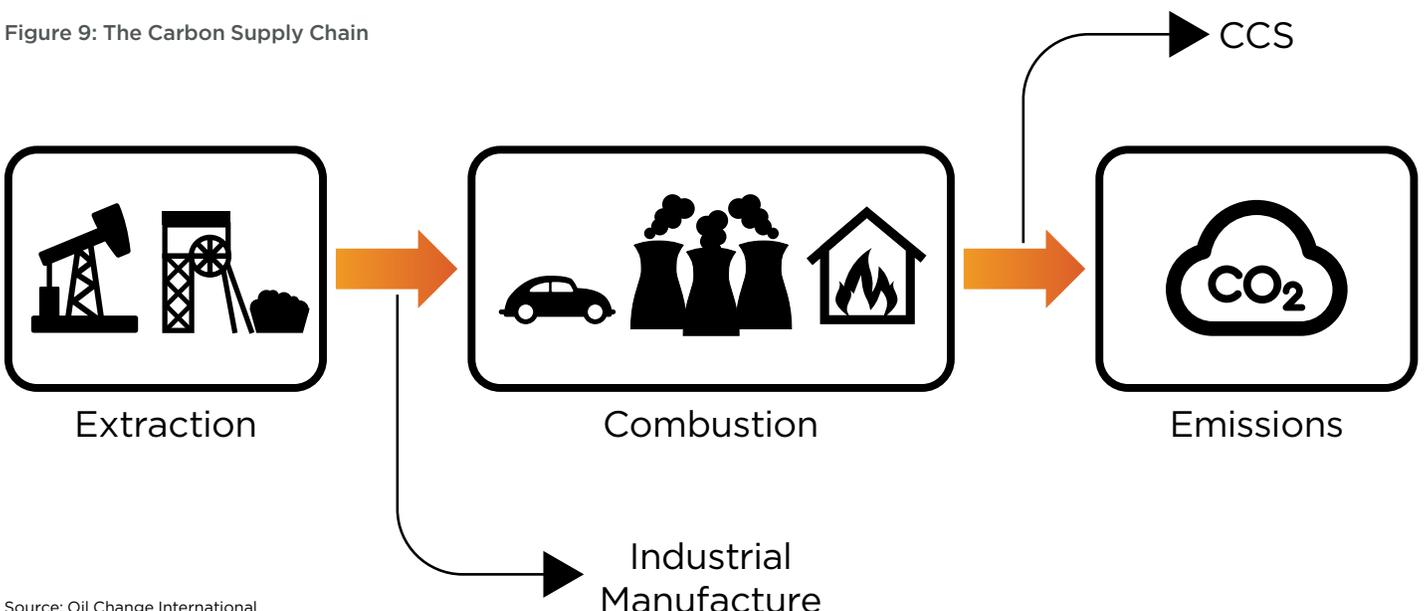
if CCS were developed at scale – and it is questionable whether it could be at affordable cost – the carbon budget would only be extended by an estimated 12-14% by 2050 (see Appendix 3).<sup>50</sup>

Apart from these exceptions – one of them minor, and the other currently tiny with uncertain prospects – any carbon that is extracted in fossil fuels ends up in the atmosphere as CO<sub>2</sub>, as shown in Figure 9.

## THREE POSSIBLE FUTURES

We have seen that the reserves in developed fields and mines exceed the carbon budget for a likely chance of staying below 2°C. As a result of this arithmetic, adding any new resource can logically do only one of two things (in the absence of CCS): either add to the excess of emissions above 2°C, or cause an asset to be stranded elsewhere.

Figure 9: The Carbon Supply Chain



Source: Oil Change International

To illustrate what this means, we extend this basic logic to all new sources of fossil fuel. There are three scenarios:

- ⊗ **Managed Decline:** No further extraction infrastructure is developed, existing fields and mines are depleted over time, and declining fossil fuel supplies are replaced with clean alternatives to which energy workers are redeployed, thus preventing dangerous climate change.
- ⊗ **Stranded Assets:** Companies continue to develop new fields and mines, governments are eventually successful in restricting emissions, and the resulting reduction in demand causes many extraction assets to become uneconomic and shut down, causing destruction of capital and large job losses.
- ⊗ **Climate Chaos:** Companies continue to develop new fields and mines, none are stranded, and the resulting emissions take us well beyond 2°C of warming, with resulting economic and human catastrophe.

In reality, the scenarios are not mutually exclusive – the future will be some combination of all three. However, we know that each new field or mine must contribute to one of the following outcomes;

if developed it will either cause stranded assets and/or dangerous climate change. Figure 10 illustrates the situation: the aggregate effect of many such decisions will be to cause considerable warming above 2°C, and/or considerable stranding of assets.

The “managed decline” scenario is explored in more detail in Section 5. This scenario requires deliberate policy decisions to cease development of new fields, mines, and infrastructure.

If that decision is not made, economic and political factors will determine the ratio of “climate chaos” (see Section 1) to “stranded assets,” which we outline below. We will then consider how fossil fuel supply relates to emissions, in order to better identify the economic and political factors that arbitrate between the two scenarios.

### STRANDED ASSETS

The concept of stranded assets has entered the climate debate in the last few years, especially through the work of Carbon Tracker Initiative.<sup>51</sup> It has been taken up by many in the financial sector, including banks such as HSBC<sup>52</sup> and Citi,<sup>53</sup> and Bank of England Governor Mark Carney.<sup>54</sup>

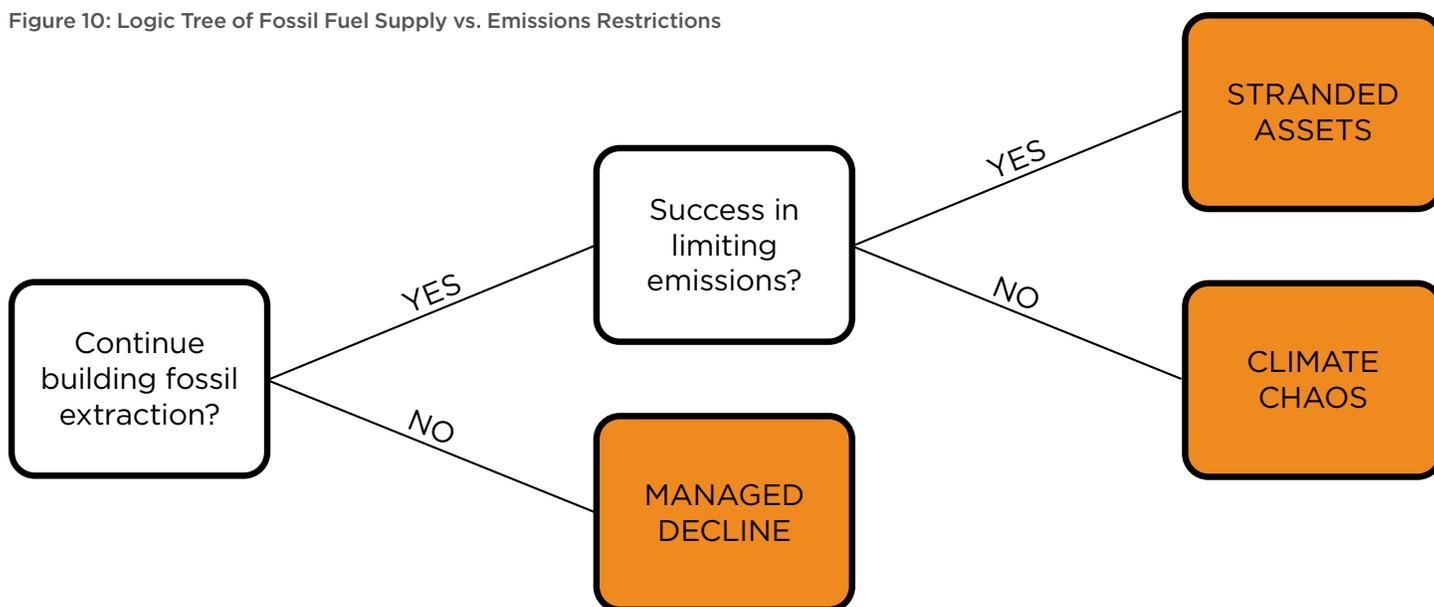
If we assume that a combination of government policy and technological change is successful in limiting warming to below 2°C or to 1.5°C (and that CCS prospects do not radically improve), demand for fossil fuels will fall rapidly, resulting in a significant decrease in fossil fuel commodity prices. This in turn will make many extraction projects unprofitable, leading to significant losses for investors.

To estimate the scale of stranding, Table 6 gives estimates of projected capital expenditure over the next 20 years that will potentially be wasted: over \$10 trillion in new oil fields, gas fields, and coal mines, and up to \$4 trillion in transportation infrastructure such as pipelines, railways, and port terminals. (For comparison, projected ongoing and maintenance capital expenditure on existing fields and mines is just over \$6 trillion).<sup>p</sup>

On top of this, there would be stranding of downstream assets such as power plants and refineries, the estimation of which is beyond the scope of this report.

The “stranded assets” scenario is not something we can regard as a problem only for financial institutions. It would be bad news for pension-holders, for those employed by the fossil fuel industry, and for

Figure 10: Logic Tree of Fossil Fuel Supply vs. Emissions Restrictions



Source: Oil Change International

p Comprising \$4.4 trillion on oil, \$1.5 trillion on gas and \$0.35 trillion on coal

Table 6: Potential for Asset Stranding: Projected (Public and Private) Capital Expenditures on New Fields and Mines, 2014-35 (2012 Dollars)

	Extraction Projects <sup>55</sup>	Transportation Projects <sup>56</sup>
Oil	\$6,270 bn	\$990 bn
Gas	\$3,990 bn	\$2,630 bn
Coal	\$380 bn	\$300 bn
<b>TOTAL</b>	<b>\$10,640 bn</b>	<b>\$3,920 bn</b>

Sources: International Energy Agency, Rystad UCube

the wider population dependent on a stable economy. Inevitably, if fossil fuel extraction is maintained or increased, then staying within climate limits would require a much faster pace of reductions than if a managed decline begins now. This means much more disruption, more expenditure on faster development of alternative infrastructure, and the loss of more jobs at a quicker rate.

“Stranded assets” is not the only scenario that causes economic loss. On top of the severe human costs of greater disease, starvation, and lost homes, the economic costs of climate change are vast, encompassing infrastructure damage and the decline of sectors such as agriculture and insurance. Estimates since the Stern Review of 2006 have commonly put the impact at several percent of global GDP by the late twenty-first century, and a more recent study of historic correlations between temperature and economic activity suggested that unmitigated climate change could cause as much as a 20% reduction in 2100 output.<sup>57</sup> Another study on the impact on financial investments estimated that \$2.5 trillion of financial assets could be at risk.<sup>58</sup> The economic disruption of climate change would also cause major job losses across numerous sectors, and would do so in a chaotic way that would make transitional support even more difficult.

In contrast to the combination of these two costly scenarios, managed decline of fossil fuel extraction offers a more reasonable path forward.

### SUPPLY AND DEMAND

In recent years, many governments have adopted the apparently contradictory goals of reducing emissions while encouraging increased fossil fuel extraction. In the absence of CCS, these two goals cannot both be achieved at a global level: if emissions are to be reduced, total fossil fuel consumption must be reduced, which in turn means that total fossil fuel extraction must be reduced as well.

When pressed, governments and companies tend to square the circle by assuming that it is someone else’s production that will get constrained and some other investor’s bet that will go sour. However, they never specify which other country or company’s production they anticipate will be stopped, or why, or how.

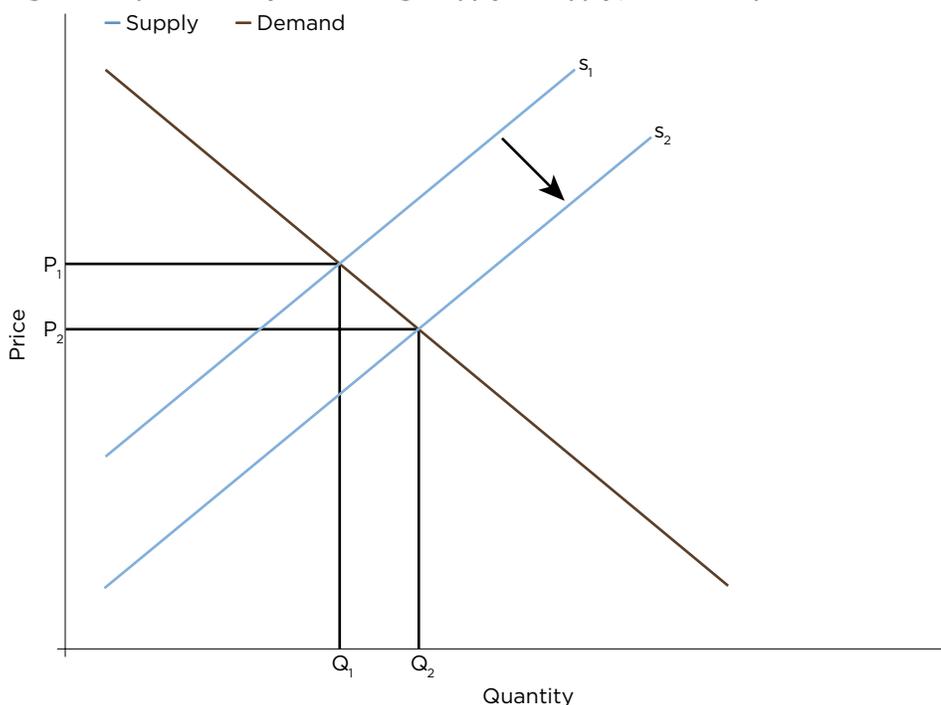
Some commentators insist that climate change should only be addressed on the demand side.<sup>59</sup> But the trouble with this view is that the act of increasing supply makes it harder to cut emissions.

### (i) More Supply = Lower Price = Higher Demand

While climate policy has addressed fossil fuels almost entirely on the demand side, there has been an implicit assumption that markets will then simply allocate the aggregate demand between suppliers. However, this is not how energy markets work.<sup>60</sup>

Over the history of the modern energy industry, there have been times when demand has led events, and times when supply has done so. For an illustration of supply leading the way, consider the present-day situation. U.S. oil extraction expanded from 6.8 million barrels per day (mbd) in 2010 to 11.7 mbd in 2014,<sup>61</sup> stimulating a fall in price, which was exacerbated when the Organization of the Petroleum Exporting Countries (OPEC) decided in November 2014 not to cut its production to compensate. The resulting low oil prices led to global oil demand growing at the fastest pace in five years,<sup>62</sup> and to the fastest increase in U.S. gasoline consumption since 1978.<sup>63</sup>

Figure 11: Impact of Policy to Encourage Supply on Supply / Demand Equilibrium



This should not be surprising, as it is what basic economic theory tells us: supply does not simply passively match demand, but interacts with it in dynamic equilibrium.<sup>q</sup> Figure 11 shows how supply and demand interact: the actual quantity consumed and produced is determined by the point where the two lines cross. A policy designed to increase extraction or lower its costs – in this example, weak environmental regulation of hydraulic fracturing in the United States – will move the supply curve to the right and/or downward. The resulting new equilibrium has a lower price and a higher quantity. In short, the increase of supply has also increased consumption, and thereby emissions.

### (ii) Lock-In of Production

Once a field or mine has been developed, it will generally keep producing. In other words, the act of developing it locks in future production. This is because once capital has been expended, an investor has strong incentives to avoid letting the

asset become stranded. This is illustrated in Figure 12, where cash flow is negative in the early phase as capital is invested. The project only receives income once oil production begins, after three years. In the higher-price scenario, it takes a further nine years to pay back the invested capital, and the project finally begins making a profit around Year Twelve. In the lower-price scenario, the project never breaks even.

If the company knew beforehand – in Year Zero – that the price would follow the lower path, it would not move ahead with the project. But once the project has been developed, the economic incentives push for continued production even if it means a long-term loss on the capital invested, since closing down would lead to an even greater loss. As long as the red curve is rising in Figure 12, continued production reduces the ultimate loss. It is only if the price received is less than the marginal operating cost (the curve bends downward) that it is better to stop before losses increase.

In sum, a company will not proceed with a new project if commodity prices are less than the total operating and capital costs, but will close down an-already developed project only if prices hit the much lower threshold of marginal operating costs. In other words, any given action to reduce demand becomes less effective as soon as extraction projects have been developed and operation is ongoing.

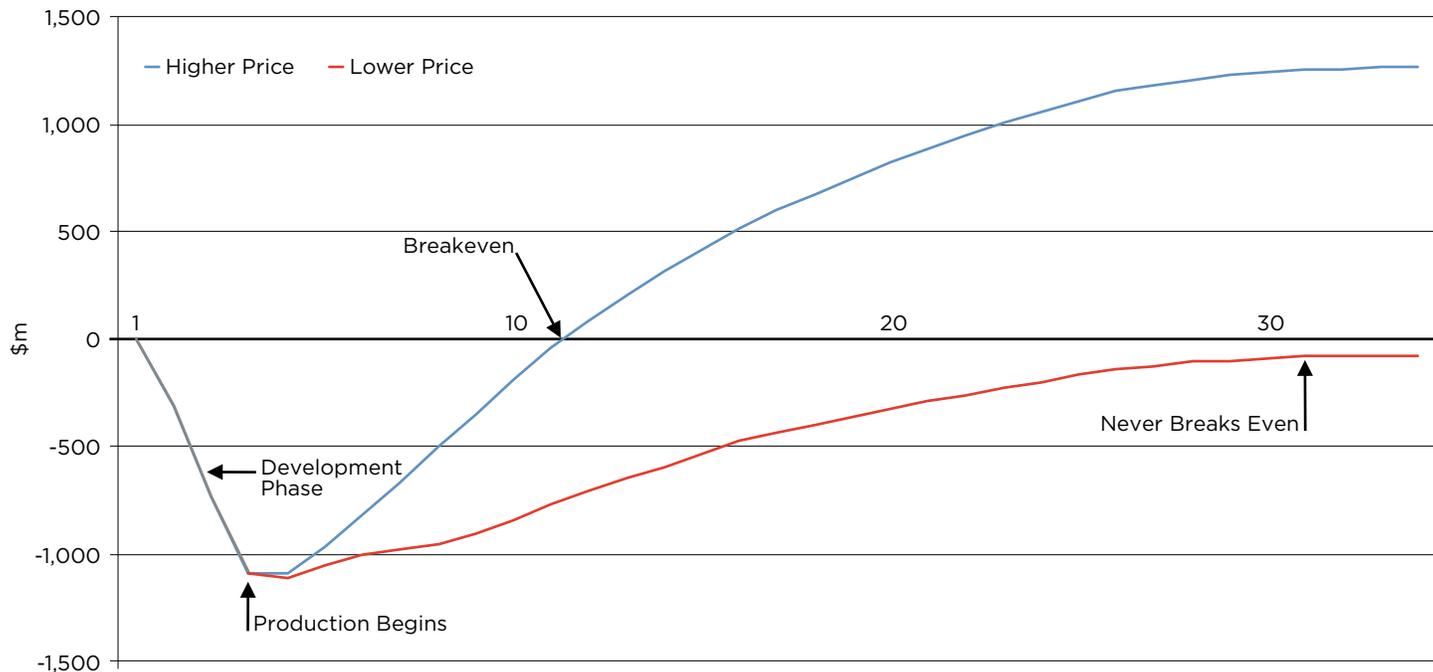
### (iii) Perverse Political Effects

As well as the perverse economic impacts of increasing fossil fuel supply, there are also perverse political impacts. Governments tend to act more strongly to protect existing industries than to stimulate future ones, because of the political clout of real jobs held by identifiable people (as opposed to abstract numbers), and because of the lobbying power of dominant industries.

When fossil fuel prices are low, governments often feel political pressure to reduce taxes on fossil fuel production or provide other subsidies to keep companies producing. For example, the United Kingdom cut the highest tax rate on North Sea oil production from 80% to 68% in 2015 and again to 40% in 2016.<sup>64</sup> Noting declining profitability since 2011 (when coal prices began their slide), the Indonesian Coal Mining Association is calling for the government to guarantee cost-based prices in order to enable continued expansion.<sup>65</sup> The effect of subsidies expanding or maintaining supply translates through the price mechanism again into increasing demand and increased emissions.

<sup>q</sup> This mechanism breaks down if there is a perfect swing producer, which adjusts its own supply to maintain equilibrium at a certain level. Even before 2014, OPEC's ability to act was in reality limited by physical, political and economic factors (if it had been a perfect swing producer, the price would not have fluctuated). Now that Saudi Arabia and OPEC have decided not to fulfil that role even partially, and instead to maximize their production, the market reflects this model.

Figure 12: Cumulative Discounted Cash Flow for a Typical Fossil Fuel Project\*



Source: Oil Change International

\* Cash flow is the total income minus total (undepreciated) expenditure in any year. Discounting adjusts this to account for the time value of money, reflecting both the cost of capital and the opportunity cost of not investing it elsewhere.

# 5. MAKING AN ENERGY TRANSITION HAPPEN

Twenty-five years of climate politics has thoroughly embedded the notion that climate change should be addressed at the point of emissions, while the supply of fossil fuels should be left to the market. That view is now no longer supportable (if in fact it ever was). Our analysis indicates a hard limit on the amount of fossil fuels that can be extracted, pointing to an intervention that can only be implemented by governments. We conclude that:

- ⊗ Governments should issue no further leases or permits for new oil, gas, or coal extraction projects or transportation infrastructure.

While this would mark a significant change in the direction of climate policy, it is also the least disruptive and least painful option. As we saw in the previous section, in the absence of a dramatic turnaround for CCS, further building of fossil fuel extraction infrastructure will lead us only to two possible futures, both of which entail vast economic and social costs.

What we propose in this report is the easiest global approach to restraint: when in a hole, stop digging.

## A GRADUAL TRANSITION

Existing fields and mines contain a large amount of oil, gas, and coal, which will be extracted over time. Rates of extraction will decline without development of new resources and infrastructure, but the decline is far from precipitous. The fastest decline will be in fracked shale, where wells produce for only a few years. Other fields often last much longer.

Figures 13 and 14 show Rystad's projection of oil and gas extraction from existing fields and those under construction, in its oil price base case<sup>s</sup>: extraction (and hence global supply) would fall by 50% by the early 2030s. Data is not available for coal.

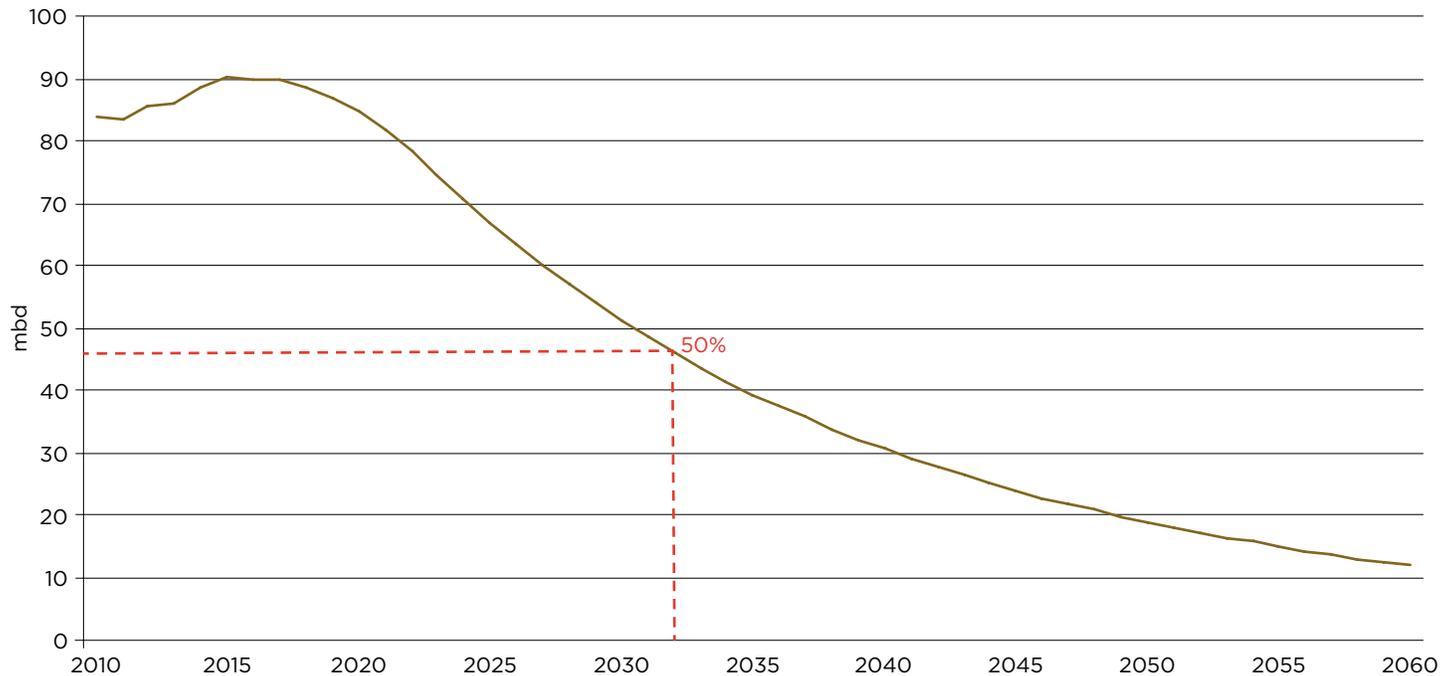
This projection should not be alarming. Remember that emissions must decline rapidly, to net zero by 2070, for a likely chance of staying below 2°C, or by 2050 for a medium chance of staying below 1.5°C (see Figure 1 on page 13). For emissions to decline, fossil fuel use (and consequently extraction) must decline at the same overall rate.

Simply restricting supply alone would lead to increased prices, potentially making

marginal production in existing fields and mines viable. The amount ultimately extracted and emitted would still be lower (see Figure 11 on page 34), but may not be as low as carbon budgets allow. A more powerful policy approach would be to pursue reductions in supply and demand simultaneously. As long as the two remain roughly in sync, prices will remain more stable, and “leakage” – where reductions in one country's extraction are offset by increased extraction in another country – will be minimized. The two policy approaches can also be mutually reinforcing, as declining supply of fossil fuels stimulates more private investment in alternatives, and vice versa.

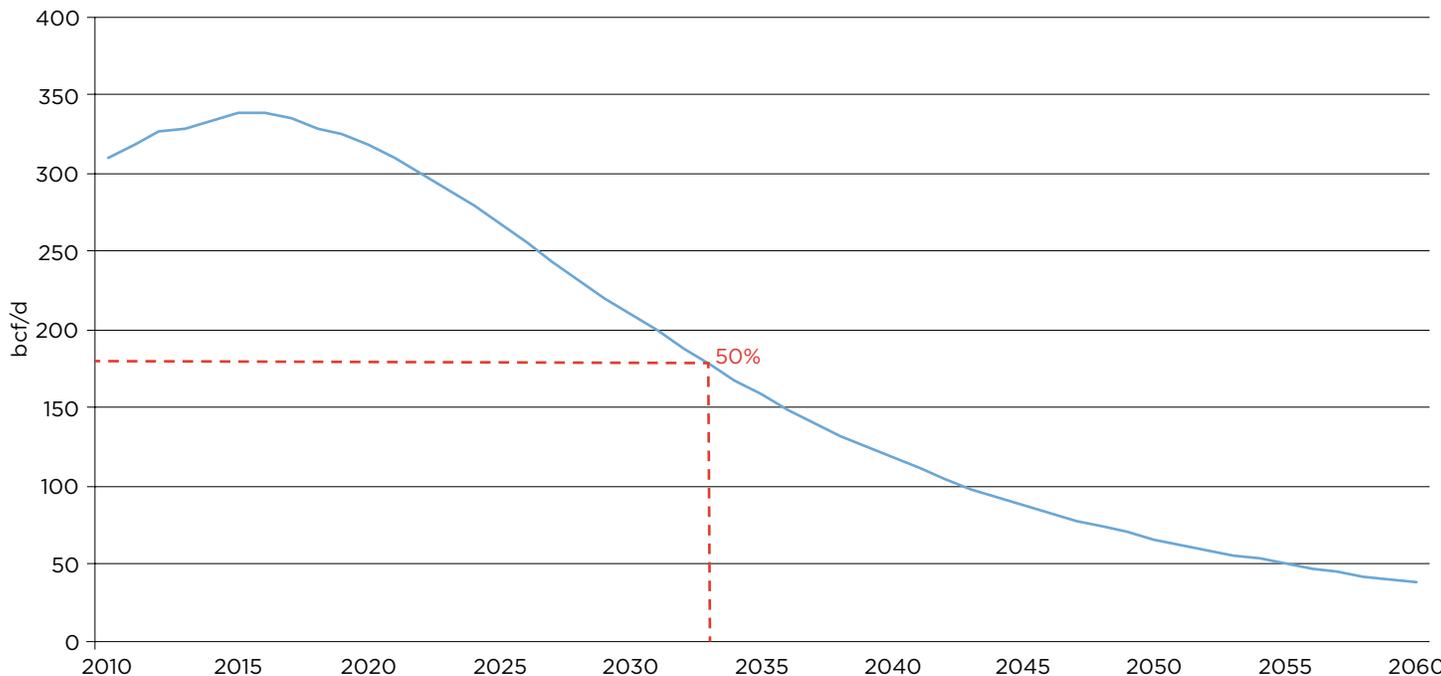
<sup>s</sup> A higher price would lead to slower decline, as companies would invest more capital expenditures even in existing fields. Conversely, a lower price would lead to faster decline.

Figure 13: Projected Global Oil Production from Existing and Under-Construction Fields<sup>66</sup>



Source: Rystad Energy

Figure 14: Projected Global Gas Production from Existing and Under-Construction Fields<sup>67</sup>



Source: Rystad Energy

### BOX 3: The Remarkable Growth in Renewable Energy

Renewable power generation is growing exponentially: wind at around 20% per year globally, and solar at around 35% per year.<sup>68</sup> Wind generation has more than doubled since 2010, while solar has doubled nearly three times in that period. Compounded over many years, these growth rates add up rapidly: if wind and solar sustained their current global growth rates, they would exceed current coal and gas power generation in 2029.<sup>69</sup> At some point, growth rates will slow down, but there is no indication that it is happening yet.

Denmark, a relatively small country, generates 40% of its electricity from renewables (mainly wind), and is aiming for 100% renewable generation by 2035.<sup>70</sup> In 2015, Germany – the world's fourth largest economy – generated nearly one-third of its power from renewables, primarily wind and solar.<sup>71</sup>

Small and large developing countries are moving to renewables too. Costa Rica produces 99% of its electricity from renewable sources, including hydro, wind, and geothermal.<sup>72</sup> Neighbouring Nicaragua generates up to 20% of its electricity from wind, and 16% from geothermal.<sup>73</sup> Djibouti is aiming for 100% of its energy to be renewable by 2020, much of it off-grid solar.<sup>74</sup> Vanuatu currently generates 43% of its electricity from renewables, and aims for 65% by 2020 and 100% by 2030, with much of the growth coming from grid-connected wind and solar, and off-grid solar.<sup>75</sup> In absolute terms, China is set to overtake the United States in 2016 as the largest generator of wind and solar power.<sup>76</sup> China is also showing the fastest growth in wind and solar installations: 2015 was a record year in which its wind capacity grew by 33.5% and grid connected solar capacity by 73.7%.<sup>77</sup>

India has a target of a twenty-fold increase in solar power to 100 GW by 2022, which would take it to more than twice China's current level.<sup>78</sup>

In many countries, wind and solar are already cost-competitive with fossil fuel and nuclear power generation. A recent Deutsche Bank survey of sixty countries found that solar has reached grid parity in fully half of the countries already.<sup>79</sup> And costs are falling fast. The International Renewable Energy Agency reports that the levelized cost of electricity from utility-scale solar fell by 58% between 2010 and 2015, and could fall by a further 59% between 2015 and 2025.<sup>80</sup>

New transportation technologies, specifically electric vehicles (EVs), are also developing fast. Battery costs – a major element of the price of an EV – are falling quickly, as lithium-ion battery costs fell 65% from 2010 to 2015.<sup>81</sup> Further cost declines and performance improvements are widely expected, with some projecting a further 60% cost decline by 2020.<sup>82</sup> Financier UBS predicts that by the early 2020s, the purchase price of an EV will be only very slightly higher than a petroleum-fueled car, with only small a fraction of the fuel and maintenance costs.<sup>83</sup>

In 2016 and 2017, three different mass-market, long-range electric car models are being launched in the United States, with dozens more expected by 2020. China aims to have five million EVs on the road by 2020, while several European countries (including Norway, France and Germany) have recently announced that they to no longer allow sales of petroleum-fueled cars after either 2025 or 2030.<sup>84</sup>

An oil storage facility in Linden, New Jersey USA.



© AP Photo/Mark Lennihan

## CLEAN ENERGY REPLACES FOSSIL FUELS

Renewable power technologies are not only possible; they are already in use at scale in many countries, growing rapidly, and often cost less than gas or coal generation (see Box 3). Electric vehicles are at an earlier stage of development than renewable power, but may be able to penetrate the market more rapidly: whereas a power plant has a typical lifetime of 40 years, cars generally last for around ten years.

A common objection to renewable energy relates to the challenges of intermittency. However, this problem is often overstated. For example, the chief executive officer of the northeast Germany electrical grid says the country can get up to 70% to 80% wind and solar even without “additional flexibility options” such as storage.<sup>85</sup> A 2012 report by the National Renewable Energy

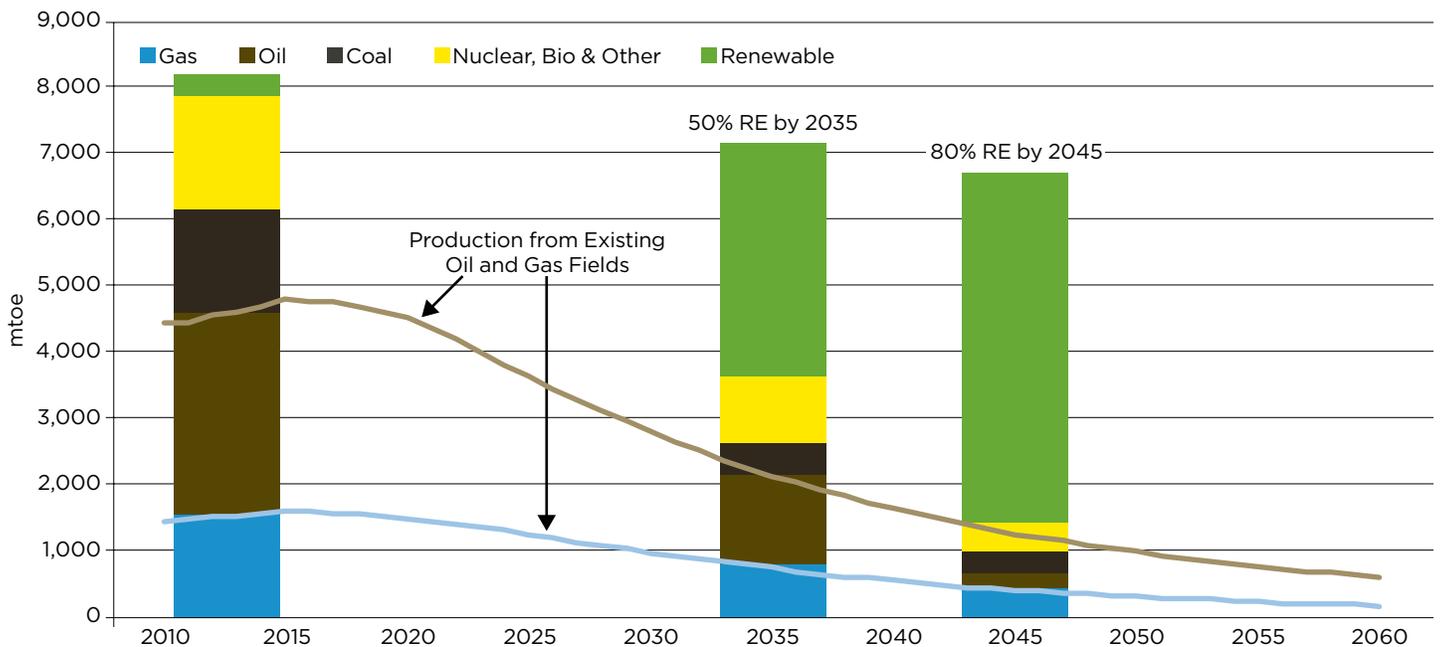
Laboratory found that with existing storage capacity, the U.S. grid can handle as much as 50% wind and solar penetration.<sup>86</sup> To go further, affordable storage solutions are now emerging, from lithium ion batteries to compressed air and others. Residential battery storage systems entered the mainstream market in the US and Australia in 2015, and the coming years are also expected to see increasing deployment of grid-scale storage.<sup>87</sup> The bigger challenges will be expanding renewable energy in weaker grids in developing countries, emphasizing again the importance of climate finance to facilitate the transition.

We now examine what is needed to replace depleting fossil fuel extraction, by comparing the residual oil and gas demand that will remain while aggressively moving to clean energy, with natural depletion of existing oil and gas fields

(as shown in Figures 13 and 14, on page 37). Using a simple model of progressive electrification of energy-consuming sectors and progressive conversion of electricity generation to renewables, we convert the final energy consumption projected in the IEA’s 450 Scenario in two scenarios: 50% renewable energy by 2035 and 80% by 2045. In both we assume a complete phase-out of coal usage, except in steel production. The results are shown in Figure 15 (see detailed calculation and assumptions in Appendix 4).<sup>88</sup>

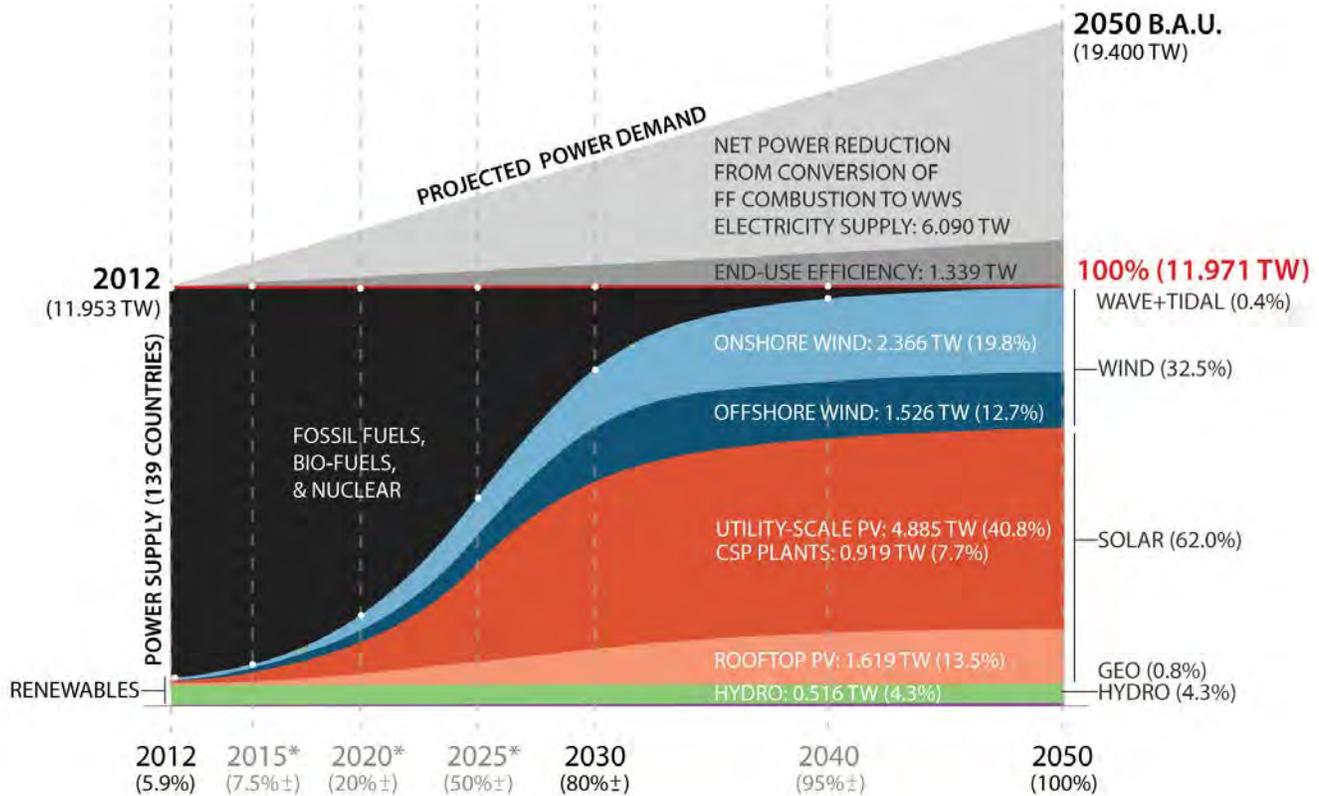
We see in the Figure that in 2035, expected oil and gas production from existing fields roughly matches the requirement with a 50% renewable energy penetration. Further depletion to 2045 leaves greater production than would be required while moving to 80% renewable energy.

Figure 15: Final Energy Consumption by Source With 50% Renewable Penetration in 2035 and 80% in 2045, Compared to Depletion of Existing Oil and Gas Fields (See Appendix 4)



Sources: IEA, Mark Jacobson et al, Rystad Energy, Oil Change International analysis

Figure 16: Projected Power Demand and Fuel Source, in Jacobson et al's Roadmap for 139 Countries



Source: Mark Jacobson et al

Mark Jacobson of Stanford University and colleagues have developed detailed roadmaps for how 139 countries could achieve 80% renewable energy by 2030, and 100% by 2050, as shown in Figure 16.<sup>89</sup> These are much faster rates of conversion than we have outlined above. For each country's projected energy demand - including electricity, transportation, heating/cooling, and industry - Jacobson's team considers what level of each renewable energy source would be required, using only technologies that are available today. They take into account the wind, solar and water resource, land area and infrastructure for each country, and allow for intermittency. A small proportion of transportation and industrial energy uses hydrogen as a fuel carrier.

What Jacobson and his colleagues have shown is the *technical* feasibility of

obtaining 100% of energy from wind, water and solar by 2050, and 80% of it by 2030. The technology can deliver, and there is sufficient available resource, while taking up just 0.25% of the 139-country land area, mostly in deserts and barren land (plus a further 0.7% for spacing between wind turbines, which can be used at the same time for farmland, ranchland, grazing land, or open space). They have also shown that the transformation will create a major net addition to the number of energy jobs, compared to continuing with fossil fuels.

Jacobson's calculations are not just a theoretical possibility. In a global survey of 1,600 energy professionals by consultancy DNV GL, nearly half of respondents said they believed the electricity system they work in could achieve 70% renewable generation by 2030, if there were sufficient political will.<sup>90</sup>

How much does all this cost? Over recent years, estimates of clean energy costs have been consistently revised downward, while estimates of the cost of climate change have been revised upwards. In many parts of the world, wind and solar are cost-competitive with gas and coal power generation, and with fast-falling costs they soon will be elsewhere as well (see Box 3).

Bloomberg New Energy Finance (BNEF) estimates that by 2027, it will be as cheap to build a *new* wind or solar plant as to run an *existing* coal or gas plant. BNEF projects that to have a 50% chance of keeping warming to 2°C, \$14 trillion of clean energy investments would be needed over the next 25 years; however, \$9 trillion would occur even in the absence of policy intervention.<sup>91</sup> While in this report we focus on achieving a greater probability of staying below 2°C, and aiming for 1.5°C, which

Table 7: Case Studies of Rapid Energy Transitions

Country	Technology / Fuel	Market or Sector	Period of Transition	No. of Years from 1% to 25% Market Share	Population Affected (millions)
<b>End Use Energy Technology</b>					
Sweden	Energy Efficient Ballasts	Commercial Buildings	1991-2000	7	2.3
China	Improved Cookstoves	Rural Households	1983-1998	8	592
Indonesia	Liquefied Petroleum Gas Stoves	Urban and Rural Households	2007-2010	3	216
Brazil	Flex-Fuel Vehicles	New Automobile Sales	2004-2009	1	2
United States	Air Conditioning	Urban and Rural Households	1947-1970	16	52.8
<b>Energy Supply</b>					
Kuwait	Crude Oil and Electricity	National Energy Supply	1946-1955	2	0.28
Netherlands	Natural Gas	National Energy Supply	1959-1971	10	11.5
France	Nuclear Electricity	Electricity	1974-1982	11	72.8
Denmark	Combined Heat and Power	Electricity and Heating	1976-1981	3	5.1
Ontario, Canada	Coal	Electricity	2003-2014	11*	13

Source: Benjamin Sovacool

\* The Ontario case study is the inverse, showing how quickly the province went from 25% coal supply to zero.

would require a greater proportion of clean energy, the BNEF estimate gives a useful ballpark figure. It should be compared with the projected \$14 trillion in new fossil fuel extraction and transportation (Section 4), not to mention investment in power plants and refineries.

As a result of increasing cost-competitiveness, much new energy investment is now indeed going into clean energy. However, the rates of renewable penetration in Figure 15 – sufficient to replace fossil fuel decline – are greater than would occur due to market forces alone. The point is that policy intervention is needed to drive investment decisions solely into clean energy, to build sufficient institutional capacity to carry out the

investments, and to stop expansion of fossil fuels. The cost competitiveness shows that the net cost of those interventions will be modest, or even negative. We would further note that one of the biggest barriers to the transition is the estimated \$452 billion G20 countries currently provide in subsidies every year to fossil fuel extraction.<sup>92</sup>

Is such a large-scale transformation possible, at such a speed? Benjamin Sovacool of Aarhus University has pointed to several energy transformations at the national-level – in both end-use and supply technologies – that took place on these kind of timescales, shown in Table 7.<sup>93</sup> In several cases, a concerted and coordinated effort by government was vital to facilitating the transition, through subsidies, establishing

pilot programs, retraining workers, and regulation. A worldwide transition away from fossil fuels is of course a larger and more complex undertaking than these examples, but as Sovacool notes, “previous transitions may have been accidental or circumstantial, whereas future transitions could become more planned and coordinated, or backed by aggressive social movements or progressive government targets.”

We conclude that:

- ⊗ Gradual decline of fossil fuel extraction by depleting existing oil and gas fields and phasing out coal is replaceable with existing clean energy technologies, without major extra cost.

## JUST TRANSITION

The implications of limiting global warming to below either 2°C or 1.5°C are significant. It will require a fundamental transformation of the energy industry, beginning immediately and taking place over the next three to four decades. There are many advantages to this transition, even aside from its necessity to prevent dangerous climate change:

- ⊗ Renewable energy sources generate power more cheaply than coal or gas in many parts of the world, and soon will do so nearly everywhere (see Box 3).
- ⊗ Electric vehicles commonly offer higher performance than internal combustion engines, and are also expected to be cheaper within the next five years.
- ⊗ Clean energy industries employ many more people per dollar invested and per GWh generated than fossil fuel industries. A study by the United Nations Industrial Development Organization found that \$1 million creates twice as many jobs if invested in renewable energy and energy efficiency as it would if invested in fossil fuels.<sup>94</sup> Meanwhile, the United Kingdom Energy Research Centre finds that a GWh of electricity from wind and solar creates five times as many jobs on average as a GWh of electricity generated from gas and coal.<sup>95</sup>
- ⊗ Reduced fossil fuel pollution will have massive benefits for health: coal burning alone is estimated to cause 366,000 deaths per year in China and 100,000 per year in India.<sup>96</sup>
- ⊗ Some analysts argue that given diminishing returns from developing oil and gas at the frontiers, investors in oil companies would obtain higher returns from a phased wind-down of the companies than by their high-cost continuation.<sup>97</sup>

However, the process of transition will not necessarily be painless for individuals, companies, regions, and countries. It will affect fossil fuel energy workers, many of whom may not have the right skills or be in the right location to smoothly transition into clean energy jobs. It will also affect people working to service fossil-based utilities and worksites, whose positions are

often more precarious than jobs directly in energy companies. Many energy jobs lie in construction rather than operations, and so in the short term, an end to fossil fuel construction may lead to a more rapid decline in job numbers than in volumes of fossil fuels. Communities may be hit by a loss of revenue or local economic activity, and cultural impacts in places where a community has been long associated with a particular employer or industry.

Action by governments is therefore needed to conduct the energy transition in a way that maximizes the benefits of climate action while minimizing hardships for workers and their communities. Trade unions and others have developed a framework for a just transition in relation to climate change, the importance of which is recognized in the preamble of the Paris Agreement.<sup>98</sup> In 2015 the International Labour Organization adopted guidelines on just transition.<sup>99</sup> Key elements of a just transition include:<sup>100</sup>

- ⊗ **Sound investments** in low-emission and job-rich sectors and technologies.
- ⊗ **Social dialogue and democratic consultation** of social partners (trade unions and employers) and other stakeholders (such as communities).
- ⊗ **Research and early assessment** of the social and employment impacts of climate policies.
- ⊗ **Training and skills development** to support the deployment of new technologies and foster industrial change.
- ⊗ **Social protection** alongside active labor markets policies.
- ⊗ **Local economic diversification** plans that support decent work and provide community stability in the transition.

As Jeremy Brecher of Labor Network for Sustainability points out, all of this is achievable and has several relevant precedents in the United States.<sup>101</sup> At the end of World War II, the G.I. Bill of Rights provided education and training, loan guarantees for homes, farms, and businesses, and unemployment pay for returning veterans. It was vital to their

reintegration into American society and to the transition to peace. Another military example was the 2005 Base Realignment and Closing Commission (BRAC), which provided communities around closing bases with planning and economic assistance, environmental cleanup, community development grants, and funding for community services, as well as counselling and preferential hiring for affected workers.

In the energy sector, the current Obama Administration Power+ Plan, which offers support for communities previously dependent on coal, has many of the features of a just transition, including funding for job training, job creation, and economic diversification.

The job and skill profiles of workers who could potentially be affected vary widely, and therefore require different strategies. For workers currently employed in fossil fuel extraction or use, incumbent companies must support workers and either offer career progress in non-fossil fuel parts of the company or provide them with transferable skills to navigate the labor market with better chances for success. For communities and workers that depend indirectly on fossil fuel economic activity, public authorities must anticipate the need for new sources of revenue and support investments to transform their economies.

The most critical questions lie in how industry and policymakers will conduct an orderly and managed decline of fossil fuel extraction, with robust planning for economic and energy diversification. As Anabella Rosemberg of the International Trade Union Confederation writes, “Job losses are not an automatic consequence of climate policies, but the consequence of a lack of investment, social policies, and anticipation.”<sup>102</sup>

National governments should seek to stimulate new economic growth in regions previously dependent on fossil fuel industries, and in new industries to take their place. Most importantly, leaving things until carbon budgets are mostly exhausted would result in disruptive change that would be sudden, costly, and painful. By starting now, the transition can be managed efficiently and fairly, to the maximum benefit of everyone involved.



© AP Photo/Mark Schiefelbein

# 6. CONCLUSION

In the Paris Agreement, 195 governments agreed to limit global warming to “well below 2°C” above pre-industrial levels, and to aim for a temperature increase of not more than 1.5°C. In this report, we have used the concept of carbon budgets, drawn from the Fifth Assessment Report of the IPCC, to explore what this would mean in practice.

We find that the oil, gas, and coal in already-developed fields and mines (that is, where the infrastructure has been built) exceeds the amount that can be burned while likely staying below 2°C, and significantly exceeds the amount that can be burned while staying below 1.5°C. Any new fossil fuel infrastructure that is built would require a corresponding early retirement of existing infrastructure. Given the political and economic difficulties of closing down existing facilities, we recommend that:

- ⊗ No new fossil fuel extraction or transportation infrastructure should be built worldwide.

Instead, we should allow for the gradual decline of existing operations, over the coming decades, and invest strongly in clean energy to make up the difference. We have seen that there is no economic or technical barrier to making this transition over this time frame: the only requirement is political will.

To minimize the costs of the transition, governments should conduct robust planning for economic and energy diversification. The principles of just transition should be applied, to ensure workers and communities benefit from the shift to a clean energy economy, rather than be harmed by it.

The conclusions in this report will take some by surprise, and cause alarm with others. They imply serious alterations to the global economy, will be resisted by some of the most profitable companies ever known, and will necessitate bold and decisive action by governments on a scale not seen thus far.

But the conclusions are also remarkably straightforward at their core. To keep from burning more fossil fuels than our atmosphere can withstand, we must stop digging them out of the ground. With this report, we put forward recommendations on how to go about doing just that in a sufficient, equitable, economically efficient, and just fashion.

Vehicles work at an open-pit coal mine near Ordos in northern China's Inner Mongolia Autonomous Region, 2015.

# APPENDIX 1: DEFINITIONS OF RESERVES

Since fossil fuel reserves are located beneath the earth's surface, estimating their quantity is based on inherently limited information drawing on interpretation and judgment of geological data, as well as assumptions about economics and operations. Quantities of reserves are therefore distinguished by the degree of confidence in them: proven, probable, and possible.

The most commonly cited estimates for reserves in fact refer only to proven reserves, a quantity defined (where probabilistic methods are used) as having a 90% likelihood that the amount actually recovered will exceed the estimated amount.<sup>103</sup> This is because the principal use of the concept of reserves is to help investors assess the value of a company by providing an indicator of its future potential production. For this purpose, the most relevant estimate is the more certain one, as it carries less risk.

Since it requires such a high degree of confidence, the proven reserves figure understates what can be expected to in

fact be extracted, even based on current knowledge. For anticipating the future impact on the climate (or indeed on energy markets), it is more relevant to consider a realistic estimate of what will be extracted. In this report, we therefore also state probable reserves of oil and gas, taking proven plus probable to refer to the best estimate of the quantity that will ultimately be extracted in the absence of climate constraints. We interpret this as the mean (expected) value.<sup>t</sup>

Contrary to what might then have been expected, the proven-plus-probable reserves figures we use in this report are actually lower than those in the BP Statistical Review of World Energy, which claims to give proven reserves. The reason is that BP takes at face value the amounts claimed by countries such as Venezuela, Saudi Arabia, and Canada, whose measurements lack transparency, are widely suspected to be inflated, and/or rely on broader-than-usual definitions of proven reserves. Rystad Energy – our source of reserves data – instead makes judgments of what reserves are realistically extractable.<sup>104</sup>

Estimates of probable reserves are harder to obtain than of proven. In particular, there are no reliable data available for probable reserves of coal, and definitions vary significantly between countries. Even data on proven coal reserves is of much poorer quality<sup>u</sup> than data on oil and gas, for which there have been efforts to align definitions and compile global reserves data from company and government reports.<sup>v</sup> The IEA notes that due to the sheer scale of coal reserves and substitution by gas, there has been little interest in coal surveys since the start of the twenty-first century.<sup>107</sup>

The implication is that the quantity of reserves is a less important determinant of future production for coal than for oil and gas (another important underlying factor is air pollution regulations).<sup>108</sup> For these reasons, in this report we use only proven reserves for coal.

<sup>t</sup> While definitions vary, it should be noted that we differ from the more common usage of “proven + probable” to refer to the median estimate. Our reason is that whereas the median is a useful quantity for considering a single field, median values cannot be arithmetically added due to the mathematics of probability, whereas mean values can be.

<sup>u</sup> For example, the BP Statistical Review takes its coal reserves data from the World Energy Council's World Energy Resources, which is only published every three years: thus the 2016 BP publication contains data relating to 2011. Availability of reliable coal data is especially limited for China, by far the world's largest coal producer. The World Energy Council has not updated its China data since 1992.<sup>105</sup>

<sup>v</sup> Estimates of reserves held by listed companies are relatively reliable and easily available. This is because listed companies are required by financial regulators to report their reserves, and the definitions and rules are quite strict. But the majority of the world's oil, gas and coal reserves are held by public sector companies, for which reporting is much less standardised and so there is less certainty in the numbers. This uncertainty is reflected for instance in debates on the actual level of Saudi Arabia's oil reserves.<sup>106</sup>

# APPENDIX 2: ASSUMPTIONS ON LAND USE AND CEMENT PRODUCTION

This appendix explains the basis for the estimates of future emissions from land use change and cement production, used in Figure 5.

## LAND USE

For emission projections from land use, we use IPCC AR5 scenario database found at <https://tntcat.iiasa.ac.at/AR5DB/><sup>109</sup>

There is considerable variation among the scenarios. For the base case assumption, we use the median; for the range calculations we use the interquartile range. All are shown in Table A2-1.

## CEMENT MANUFACTURE

Of all CO<sub>2</sub> emissions, the emissions from the calcination reaction in cement manufacture are among the most difficult to reduce, particularly given that cement is such a fundamental material for construction that there are no foreseeable prospects for its widespread substitution. There are four possible routes to reducing these emissions:<sup>110</sup>

- ⊗ Blending other materials such as fly ash, blast furnace slag, or natural volcanic materials, to reduce the clinker content of cement.

- ⊗ Using high-performance cement to reduce the cement content in concrete.
- ⊗ Making clinker from substances other than calcium oxide, such as magnesium oxides derived from magnesium silicates.
- ⊗ Carbon capture and storage (CCS).

Neither novel clinker ingredients nor CCS are proven technologies, with both existing only in a few pilot settings (see Appendix 3). And in much of the world, the cement content of concrete is already minimized; no estimates are available for potential further optimization.

Blending, the final potential option, is commonly used. The IEA estimates that the average clinker content of cement could be reduced from 79% in 2006 to 71% in 2050.<sup>111</sup> In a subsequent publication, the IEA adjusted this to an improvement from 80% in 2009 to 67% in 2050.<sup>112</sup> In our base case, we assume that CO<sub>2</sub> emissions per metric ton of cement produced are reduced in proportion to the reduced clinker content on a straight-line basis up to 2050 (and that the increased amount of blended substitutes does not cause new emissions), but that no further improvements occur

after 2050. In the worst case, we assume no change in emissions intensity from 2015.

The IEA projects an increase in global cement production from 3,800 Mt in 2012 to between 4,475 Mt (low-demand scenario) and 5,549 Mt (high-demand scenario) in 2050.<sup>113</sup> We assume the volume of cement production grows until 2050 according to the IEA's low-demand scenario, and then remains at the 2050 level for the rest of the century.<sup>w</sup> In the worst-case element of the range, we assume the high-demand scenario until 2050, and then continued growth at the same rate for the rest of the century, up to 6,944 Mt in 2100.

If the technologies of novel clinker ingredients and CCS turn out to be successful, emissions from cement manufacture could be reduced to close to zero at some point in the second half of this century. Drawing on the same studies by the IEA and discussions with cement industry experts, climate scientist Kevin Anderson suggests that in this scenario total cement emissions could be limited to 150 Gt of CO<sub>2</sub> from 2011 till eventual phase-out later this century.<sup>115</sup>

Table A2-1: Cumulative CO<sub>2</sub> Emissions from Land Use, 2015 to 2100

Median	21 Gt CO <sub>2</sub>
1 <sup>st</sup> Quartile	-206 Gt CO <sub>2</sub>
3 <sup>rd</sup> Quartile	57 Gt CO <sub>2</sub>

Source: IPCC Scenarios Database

Table A2-2: Range of Cement Emissions, 2015 to 2100

	Best Case	Base Case	Worst Case
Cumulative Cement Production, 2015-2100 / Gt	N/K	377	487
Calcination Emissions (t CO <sub>2</sub> ) per Tonne of Production, 2100 (Declining from 0.49t/t in 2012)	0	0.41	0.49
Total Emissions / Gt CO <sub>2</sub>	150	162	241

Sources: IEA, Kevin Anderson

w Once urbanisation and development reach a certain level, a country's cement consumption declines to a lower level as major infrastructure has already been built, and construction is reduced to maintenance and replacement. When this happens in enough countries, the world will reach "peak cement."<sup>114</sup>

## APPENDIX 3: CARBON CAPTURE AND STORAGE

Carbon capture and storage (CCS) is a process in which the CO<sub>2</sub> released from burning fossil fuels is captured, compressed, and stored underground in deep geological reservoirs. Although CCS has been strongly advocated since the 1990s by the fossil fuel industry and others, it has barely been deployed to date, a record the Financial Times describes as “woeful.”<sup>116</sup> Due to slow development of the technology, even if CCS were developed at scale it is estimated that the carbon budget would only be extended by 12% to 14% by 2050.<sup>117</sup>

While CCS technology is well understood in theory, many actual projects have been beset with problems. The only operating joined-up CCS power project, Boundary Dam, came on line in Canada in 2014. The plant has struggled to operate as planned, suffered considerable cost-overruns, and been forced to pay out for missing contracted obligations.<sup>118</sup> The leading U.S. project, Kemper, is already over two years late and \$4.3 billion over budget.<sup>119</sup>

A fundamental question about CCS is whether stored CO<sub>2</sub> might be at risk of leaking from underground reservoirs. If it did, it could add large quantities of CO<sub>2</sub> to the atmosphere, at a time when it is too late to stop emissions. While the reservoir integrity question has been modeled, there is a shortage of empirical evidence, especially over extended periods of time. Part of the problem is that of the twenty-two CCS projects built to date, sixteen have been used in enhanced oil recovery.<sup>120</sup> In these cases, studies have focused largely

on the objective of increasing short-term reservoir pressures in order to force more oil out, and not so much on long-term storage integrity.<sup>121</sup> The IPCC believes that the risks are low, for “well-selected, designed, and managed geological storage sites.”<sup>122</sup> In that light, it is troubling that the world’s first industrial scale CCS project, the Sleipner project in Norway, started in 1996 and assumed to be safe until it was discovered to have fractures in its caprock in 2013.<sup>123</sup> The other major problem facing CCS is its cost. Even CCS advocates recognize the “outstanding commercial challenges” that projects around the world face.<sup>124</sup> It is estimated that CCS could increase the cost of coal-fired electricity plants by 40% to 63% in the 2020s.<sup>125</sup> In 2015, Shell Chief Executive Officer Ben van Beurden conceded that CCS is too expensive without government subsidies.<sup>126</sup>

Faced with these many challenges, CCS now appears to be experiencing a cooling of government and industry interest. Last year, the United Kingdom cancelled its competition for commercial-scale CCS projects<sup>127</sup> and the United States terminated funding for the FutureGen CCS retrofitting demonstration project.<sup>128</sup> Earlier in 2015, four leading European utilities pulled out of the European Union’s Zero Emission Platform, a long-term project to study and develop CCS technology, jointly stating, “We currently do not have the necessary economic framework conditions in Europe to make CCS an attractive technology to invest in.”<sup>129</sup>

A tailings pond at the Suncor Steepbank/Millennium Mine in the Canadian tar sands. Alberta, Canada, 2014.





# APPENDIX 4: OIL AND GAS REQUIREMENT IN CLEAN ENERGY SCENARIOS

This appendix explains the basis for our calculations of renewable energy required to replace depleting fossil fuels, in Figure 15. We use the model of 139 countries developed by Mark Jacobson of Stanford University,<sup>130</sup> to consider two scenarios: 50% average renewable energy in 2035, and 80% in 2045. In both scenarios, steam coal is entirely phased out; we examine therefore the remaining oil and gas requirement.

## APPROACH AND ASSUMPTIONS

In the model, all energy-using sectors are progressively electrified, and electricity generated using wind, concentrated solar power, geothermal, solar photovoltaic, tidal, wave, and hydropower. No new hydro dams are built, but existing ones are maintained. A small amount of the electricity is used to produce hydrogen for some transportation and industrial applications.

The estimates are all based on final energy consumption.

We use projections of 2035 and 2045 energy demand by extrapolating on a straight line from the International Energy Agency's 450 Scenario,<sup>131</sup> broken down by sector (industry, transportation and buildings) and fuel. We adjust these demand estimates using Jacobson's conversion factors, to account for the higher energy-to-work conversion efficiency of electricity compared to combustion of fossil fuels.

In the 50%-by-2035 scenario, we use the IEA 450 Scenario's estimates of coking coal use, with zero steam coal. In the 80%-by-2045 scenario, we assign 10% of industrial final energy to coking coal.

To simplify, we further assume:

- ⊗ 50% renewable energy is achieved by electrifying 90% of energy for buildings, 60% for industry, and 30% for transport; and then generating 84% of electricity with renewables.
- ⊗ 80% renewable energy is achieved by electrifying 95% of energy for buildings, 85% for industry, and 80% for transport, and generating 90% of electricity with renewables.

Table A4-1: Global Final Energy Consumption by Source With 50% Renewable Penetration in 2035 and 80% in 2045 (Using Jacobson Model)

mtoe	50% by 2035	80% by 2045
<b>Industry</b>		
Coal	473	332
Oil	69	0
Gas	298	0
Electricity	1,565	2,057
Heat	56	0
Bioenergy	128	0
Other RE	19	31
<b>SUB-TOTAL</b>	<b>2,608</b>	<b>2,420</b>
<b>Transport</b>		
Oil	1,180	149
Electricity	703	1,392
Biofuels	271	123
Other	191	76
<b>SUB-TOTAL</b>	<b>2,345</b>	<b>1,739</b>
<b>Buildings</b>		
Coal	0	0
Oil	17	0
Gas	22	0
Electricity	1,995	2,428
Heat	17	0
Bioenergy	70	0
Other RE	96	161
<b>SUB-TOTAL</b>	<b>2,217</b>	<b>2,589</b>
<b>TOTAL</b>	<b>7,168</b>	<b>6,748</b>
<b>Power</b>		
Coal	0	0
Oil	95	90
Gas	463	437
Nuclear	226	213
Bioenergy	42	40
Renewable	3,436	5,097
<b>SUB-TOTAL</b>	<b>4,263</b>	<b>5,876</b>
<b>Totals by fuel</b>		
Oil	1,360	239
Gas	783	437
Coal	473	332
Nuclear	226	213
Bioenergy	511	163
Other	264	76
Renewable	3,551	5,289
<b>TOTAL</b>	<b>7,169</b>	<b>6,748</b>

Sources: IEA, Mark Jacobson et al, Oil Change International analysis

# REFERENCES

- 1 IPCC, Climate Change 2014, Synthesis Report, section 2.3, pp.13-16, [http://ipcc.ch/pdf/assessment-report/ar5/syr/AR5\\_SYR\\_FINAL\\_SPM.pdf](http://ipcc.ch/pdf/assessment-report/ar5/syr/AR5_SYR_FINAL_SPM.pdf)
- 2 Fred Pearce, "Paris COP21: An Unexpected Move Toward Global Target of 1.5 Degrees," Yale Environment 360, 10 December 2015, [https://e360.yale.edu/digest/paris\\_cop21\\_an\\_unexpected\\_move\\_toward\\_global\\_target\\_of\\_15\\_degrees/4607/](https://e360.yale.edu/digest/paris_cop21_an_unexpected_move_toward_global_target_of_15_degrees/4607/)
- 3 UNFCCC Subsidiary Body for Scientific and Technological Advice, Forty-second session, Bonn, 1-11 June 2015, Report on the structured expert dialogue on the 2013-2015 review, <http://unfccc.int/resource/docs/2015/sb/eng/inf01.pdf>, p.18
- 4 Bruce Campbell, "Half a Degree Will Make a World of Difference for the Food We Eat," Huffington Post, 9 December 2015, [http://www.huffingtonpost.com/bruce-campbell-phd/climate-change-half-a-deg\\_b\\_8756428.html](http://www.huffingtonpost.com/bruce-campbell-phd/climate-change-half-a-deg_b_8756428.html)
- 5 Carl-Friedrich Schleussner et al, "Differential climate impacts for policy-relevant limits to global warming: the case of 1.5°C and 2°C," Earth System Dynamics #7, 2016, pp.327-351, <http://www.earth-syst-dynam.net/7/327/2016/esd-7-327-2016.pdf>
- 6 UNFCCC, Adoption of the Paris Agreement, pg. 2 <https://unfccc.int/resource/docs/2015/cop21/eng/l09r01.pdf>
- 7 Climate Action Tracker, INDCs lower projected warming to 2.7°C: significant progress but still above 2C, 1 October 2015, <http://climateactiontracker.org/news/224/INDCs-lower-projected-warming-to-2.7C-significant-progress-but-still-above-2C.html>  
Also Joeri Rogelj et al, "Paris Agreement climate proposals need a boost to keep warming well below 2°C," Nature 534(7609): pp.631-639, 30 June, 2016
- 8 BP, Energy Outlook 2035, February 2015, p.85
- 9 Shell, letter on climate change and stranded assets, 16 May 2014, p.6, <http://s02.static-shell.com/content/dam/shell-new/local/corporate/corporate/downloads/pdf/investor/presentations/2014/sri-web-response-climate-change-may14.pdf>
- 10 ExxonMobil, "Energy and Carbon - Managing the Risks", 2014, p.11, <http://cdn.exxonmobil.com/-/media/global/files/energy-and-environment/report---energy-and-carbon---managing-the-risks.pdf>
- 11 Temperature change is roughly proportional to total cumulative CO<sub>2</sub> emissions (until emissions peak, and assuming smooth variations in emissions). IPCC Climate Change 2013, Working Group 1 report, sec.12.5.4, pp.1108ff, [http://ipcc.ch/pdf/assessment-report/ar5/wg1/WG1AR5\\_Chapter12\\_FINAL.pdf](http://ipcc.ch/pdf/assessment-report/ar5/wg1/WG1AR5_Chapter12_FINAL.pdf) See also Reto Knutti presentation to UNFCCC Structured Expert Dialogue 2013-15 Review, 13 November 2013, 'Relationship between global emissions and global temperature rise', at [https://unfccc.int/files/science/workstreams/the\\_2013-2015\\_review/application/pdf/7\\_knutti.reto.3sed2.pdf](https://unfccc.int/files/science/workstreams/the_2013-2015_review/application/pdf/7_knutti.reto.3sed2.pdf)
- 12 Mason Inman, "Carbon is Forever", Nature, 20 November 2008, <http://www.nature.com/climate/2008/0812/full/climate.2008.122.html>
- 13 They do this partly because 2°C is the most likely temperature increase arising from these scenarios: in that 50% of simulations deliver a lower temperature rise and 50% a higher one. While this might be useful as a projection, it is not useful as a policy guide.
- 14 IPCC, Climate Change 2014, Synthesis Report, table 2.2, p.68, [http://ipcc.ch/pdf/assessment-report/ar5/syr/AR5\\_SYR\\_FINAL\\_All\\_Topics.pdf](http://ipcc.ch/pdf/assessment-report/ar5/syr/AR5_SYR_FINAL_All_Topics.pdf)
- 15 2012-14: 32.09 GtC = 117.6 GtCO<sub>2</sub>. Carbon Dioxide Information Analysis Center / Global Carbon Project, 2015 Budget v1.1, [http://cdiac.ornl.gov/GCP/2015 projection: 10.7 GtC = 39.2 GtCO<sub>2</sub>](http://cdiac.ornl.gov/GCP/2015%20projection%2010.7%20GtC%2039.2%20GtCO2). Corinne Le Quéré et al, "Global Carbon Budget 2015," Earth Syst. Sci. Data, 7, 2015, Pp.371, 374, <http://www.earth-syst-sci-data.net/7/349/2015/essd-7-349-2015.pdf>.
- 16 Robert Howarth, "Methane emissions and climatic warming risk from hydraulic fracturing and shale gas development: implications for policy", Energy and Emission Control Technologies, 2015:3 45-54; Ramón A. Alvarez et al, "Greater focus needed on methane leakage from natural gas infrastructure", PNAS, vol. 109, no. 17, 24 April 2012, pp.6435-6440
- 17 2015 projection: 10.7 GtC = 39.2 GtCO<sub>2</sub>. Corinne Le Quéré et al, "Global Carbon Budget 2015," Earth Syst. Sci. Data, 7, 2015, Pp.371, 374, <http://www.earth-syst-sci-data.net/7/349/2015/essd-7-349-2015.pdf>
- 18 Joeri Rogelj et al, "Energy system transformations for limiting end-of-century warming to below 1.5°C," Nature Climate Change, Vol.5, June 2015, p.520
- 19 IPCC, Climate Change 1995, Working Group 1 Report, p.98, [http://ipcc.ch/ipccreports/sar/wg1/ipcc\\_sar\\_wg1\\_full\\_report.pdf](http://ipcc.ch/ipccreports/sar/wg1/ipcc_sar_wg1_full_report.pdf)
- 20 Florentin Krause et al, Energy Policy in the Greenhouse: From Warming Fate to Warming Limit, Earthscan, 1990
- 21 Bill Hare, Fossil Fuels and Climate Protection: The Carbon Logic, Greenpeace International, September 1997, <http://www.greenpeace.org/international/Global/international/planet-2/report/2006/3/fossil-fuels-and-climate-prote.pdf>
- 22 Malte Meinshausen, "Greenhouse-gas emission targets for limiting global warming to 2°C", Nature, Vol 458, 30 April 2009
- 23 Carbon Tracker Initiative, Unburnable Carbon - Are the world's financial markets carrying a carbon bubble?, November 2011, <http://www.carbontracker.org/report/carbon-bubble/>
- 24 Bill McKibben, "Global Warming's Terrifying New Math," Rolling Stone, 19 July 2012, <http://www.rollingstone.com/politics/news/global-warmings-terrifying-new-math-20120719>
- 25 McGlade & Ekins, "The geographical distribution of fossil fuels unused when limiting global warming to 2°C," Nature, 8 Jan 2015.
- 26 For an explanation of the difference between reserves and resources, see International Institute for Applied Systems Analysis (IIASA), Global Energy Assessment, 2012, pp.433-435 (pp.461-463 of pdf), <http://www.globalenergyassessment.org/>; and IEA, Resources to Reserves 2013, pp.28-35 (pp.30-37 of pdf), <https://www.iea.org/publications/freepublications/publication/Resources2013.pdf> For a more detailed technical discussion, see Christophe McGlade, "Uncertainties in estimating remaining recoverable resources of conventional oil", 7 July 2010, [http://www.iaee.org/en/students/best\\_papers/mcGlade.pdf](http://www.iaee.org/en/students/best_papers/mcGlade.pdf); and Erica Thompson et al, Definition and interpretation of reserve estimates, UK Energy Research Centre, July 2009, <http://www.ukerc.ac.uk/publications/ukerc-review-of-evidence-on-global-oil-depletion-technical-report-2-definition-and-interpretation-of-reserve-estimates.html>
- 27 The World Energy Council gives probable or indicated reserves for six countries, based on (unverified) government reports: India = 124 Gt; Indonesia = 27 Gt; Colombia = 5 Gt; Brazil = 11 Gt; Canada = 51 Gt; Poland = 48 Gt. (WEC, World Energy Resources 2013, Chapter 1, [https://www.worldenergy.org/wp-content/uploads/2013/09/Complete\\_WER\\_2013\\_Survey.pdf](https://www.worldenergy.org/wp-content/uploads/2013/09/Complete_WER_2013_Survey.pdf)) The U.S. Energy Information Administration cites estimated 2014 recoverable reserves of 256 Gt (EIA, Annual Coal Report, March 2016, Table 15, <http://www.eia.gov/coal/annual/>), which is roughly equivalent to the definition of 2P reserves. From this we deduct proven reserves, estimated in the WEC's World Energy Resources 2013 as 237 Gt, to leave 18 Gt. As for China, a detailed study led by Jianliang Wang estimated 2010 ultimately recoverable reserves at 224 Gt, including cumulative production to date of 54 Gt (Jianliang Wang et al, "An analysis of China's coal supply and its impact on China's future economic growth", Energy Policy #57, 2013 542-551). The BP Statistical review of World Energy 2016 estimates 2011-15 production as 19.3 Gt. Deducting these two elements of cumulative production and also WEC's estimated proven reserves of 115 Gt leaves 36 Gt of 2016 probable reserves. (See also the larger estimate in IEA, Cleaner Coal in China, p.35 (p.37 of pdf), [https://www.iea.org/publications/freepublications/publication/coal\\_china2009.pdf](https://www.iea.org/publications/freepublications/publication/coal_china2009.pdf); and the more sceptical view in Energy Watch Group, Coal: Resources And Future Production, March 2007, pp.21-29, [http://energywatchgroup.org/wp-content/uploads/2014/02/EWG\\_Report\\_Coal\\_10-07-2007ms1.pdf](http://energywatchgroup.org/wp-content/uploads/2014/02/EWG_Report_Coal_10-07-2007ms1.pdf)) Geoscience Australia estimates demonstrated, economic reserves as 107 Gt at end 2014. (GA, Australia's Identified Mineral Resources Table 1, <http://www.ga.gov.au/scientific-topics/minerals/table1>). Deducting WEC's proven estimate of 76 Gt leaves 30 Gt of probable reserves.

- 28 Oil and gas reserves from Rystad UCube, July 2016 update: P90 (proven) and P50+Pmean (probable) resources, 2016. Coal reserves from WEC, World Energy Resources 2013, Table 1.1, p.109 (p.34 of pdf), [https://www.worldenergy.org/wp-content/uploads/2013/09/Complete\\_WER\\_2013\\_Survey.pdf](https://www.worldenergy.org/wp-content/uploads/2013/09/Complete_WER_2013_Survey.pdf) Note that WER is the original data source used by the BP Statistical Review of World Energy and (along with BGR's Energy Study) the IEA World Energy Outlook. We use emissions factors of 0.42 tCO<sub>2</sub>/bbl for crude oil, 59.7 tCO<sub>2</sub>/mcf for natural gas, 2.53 tCO<sub>2</sub>/t for hard coal, 1.81 tCO<sub>2</sub>/t for sub-bituminous coal and 1.20 tCO<sub>2</sub>/t for lignite. IPCC, Guidelines for National Greenhouse Gas Inventories, 2006, Vol.2, Chapter 1, Tables 1.2 and 1.3, [http://www.ipcc-nggip.iges.or.jp/public/2006gl/pdf/2\\_Volume2/V2\\_1\\_Ch1\\_Introduction.pdf](http://www.ipcc-nggip.iges.or.jp/public/2006gl/pdf/2_Volume2/V2_1_Ch1_Introduction.pdf)
- 29 Rystad UCube, July 2016 update: P90 + P50 resources, producing + under-construction assets, 2016. In "oil" we include field condensate and natural gas liquid. Note that a new phase of a field is counted as a separate asset; hence "producing" here does not include future project phases.
- 30 IEA World Energy Outlook 2013, Figure 4.4 (p.148); IEA, World Energy Outlook 2015, Box 7.2 (p.275) and data tables (p.583). We assume linear trend between data points in the tables.
- 31 Average emissions factors from IPCC: 0.42 tCO<sub>2</sub>/bbl for crude oil, 59.7 tCO<sub>2</sub>/mcf for natural gas, 2.53 tCO<sub>2</sub>/t for hard coal, 1.81 tCO<sub>2</sub>/t for sub-bituminous coal and 1.20 tCO<sub>2</sub>/t for lignite. See note 23 Gtce = giga tonnes of coal equivalent. 1 t anthracite/bituminous = 1 tce. 1 t sub-bituminous = 0.75 tce. 1 t lignite = 0.67 tce. Since data on developed reserves of coal are not divided by coal rank, we assume the proportions of hard coal, sub-bituminous and lignite are proportional to their rates of production in 2011, as stated in WEC, World Energy Resources 2013, Table 1.2, p.111 (p.36 of pdf), [https://www.worldenergy.org/wp-content/uploads/2013/09/Complete\\_WER\\_2013\\_Survey.pdf](https://www.worldenergy.org/wp-content/uploads/2013/09/Complete_WER_2013_Survey.pdf) To try to corroborate the coal data: Reuben Finighan of Melbourne University uses two estimation methods, to obtain 140 and 150 Mt. op cit. National data for the US and South Africa cited in his paper are also consistent with IEA estimates; Australia data is higher due to the inclusion of probable reserves as well as proven. Reuben Finighan, The Case for a Coal Mine Moratorium: Reserves within existing mines versus the carbon Budget, 11 April 2016, <http://www.greenpeace.org/international/Global/international/briefings/climate/2016/Coal-Mine-Moratorium-Briefing-Paper-Ruben-Finighan.pdf>
- 32 Alexander Pfeiffer et al, "The '2°C capital stock' for electricity generation: Committed cumulative carbon emissions from the electricity generation sector and the transition to a green economy," Applied Energy, 2016, <http://dx.doi.org/10.1016/j.apenergy.2016.02.093>
- 33 His Excellency Anote Tong, letter to world leaders, August 2015, at <http://www.climatechangenews.com/2015/08/13/kiribati-president-calls-for-moratorium-on-coal-mines/>
- 34 By definition, as the existing fields and mines already have their transport infrastructure, to carry the resources that they are producing now.
- 35 BP Statistical Review of World Energy 2016, <http://www.bp.com/en/global/corporate/energy-economics/statistical-review-of-world-energy.html>; Energy Information Administration (EIA), Sales of Fossil Fuels Produced from Federal and Indian Lands, FY 2003 through FY 2014, 17 July 2015, <https://www.eia.gov/analysis/requests/federalands/>
- 36 Georgina Woods, Cooking the Climate, Wrecking the Reef, Greenpeace, September 2012, [http://www.greenpeace.org/australia/Global/australia/images/2012/Climate/Galilee%20Report\(4.2MB\).pdf](http://www.greenpeace.org/australia/Global/australia/images/2012/Climate/Galilee%20Report(4.2MB).pdf)
- 37 From project environmental impact statements: Carmichael: Vol.2 Sec.2, p.2-18, <http://eisdocs.dsdlip.qld.gov.au/Carmichael%20Coal%20Mine%20and%20Rail/EIS/EIS/Mine%20Chapters/02-project-description-mine.pdf> China Stone: p.4-1, <http://eisdocs.dsdlip.qld.gov.au/China%20Stone%20Coal/DEIS/Draft%20EIS%20-%20Volume%201A/china-stone-chapter-4-project-description.pdf> China First: Vol.2, Chap.1, p.5, [http://eisdocs.dsdlip.qld.gov.au/Galilee%20Coal%20Project%20\(Northern%20Export%20Facility\)%20\(aka%20China%20First\)/EIS/EIS%2022%20Sep%202011/Vol%202%20-%20Mine/01-project-description.pdf](http://eisdocs.dsdlip.qld.gov.au/Galilee%20Coal%20Project%20(Northern%20Export%20Facility)%20(aka%20China%20First)/EIS/EIS%2022%20Sep%202011/Vol%202%20-%20Mine/01-project-description.pdf) Alpha: Vol.2 Sec.2, Table 2.2, p.2-16, <http://gvkhancockcoal.com/documents/Publications/EIS/ACPEIS2010/Vol2/Section%2002%20Project%20Description.pdf> Kevin's Corner: Vol.1, p.2-31, <http://gvkhancockcoal.com/documents/Publications/EIS/ACPEIS2010/Vol2/Section%2002%20Project%20Description.pdf> South Galilee: Sec.4, p.4-29, [http://www.southgalilee.com.au/files/EIS/SGCP\\_EIS\\_04\\_Project\\_Description.pdf](http://www.southgalilee.com.au/files/EIS/SGCP_EIS_04_Project_Description.pdf)
- 38 Sylvie Cornot-Gandolphe, Indian Steam Coal Imports: The Great Equation, Oxford Institute for Energy Studies, March 2016, p.51, <https://www.oxfordenergy.org/wpcms/wp-content/uploads/2016/03/Indian-Steam-Coal-Imports-The-Great-Equation-CL-3.pdf>
- 39 IEA, World Energy Outlook 2015, Figure 13.4, p.512
- 40 Share of world CO<sub>2</sub> emissions excluding land use, land use change and forestry (LULUCF), 1850-2012. World Resources Institute, CAIT Climate Data Explorer, 2015, <http://cait.wri.org>
- 41 IEA, World Energy Outlook 2015, Table 7.1, p.273; Jeanette Fitzsimons, "Can We Make Steel Without Coal?," 24 April 2013, <https://coalactionnetworkkaotea.org.wordpress.com/2013/04/24/can-we-make-steel-without-coal/>
- 42 IEA, World Energy Outlook 2015 data tables
- 43 Lauri Myllyvirta, "China's coal mine moratorium is more ambitious than anyone expected," Energy Desk, 12 February 2016, <http://energydesk.greenpeace.org/2016/02/12/china-coal-plan-genuinely-impressive/>
- 44 BGR, Energy Study 2015: Reserves, Resources and Availability of Energy Resources, Tables 33, 34, 40 & 41, [https://www.bgr.bund.de/EN/Themen/Energie/Produkte/energy\\_study\\_2015\\_summary\\_en.html](https://www.bgr.bund.de/EN/Themen/Energie/Produkte/energy_study_2015_summary_en.html)
- 45 DARA International / Climate Vulnerable Forum, Climate Vulnerability Monitor 2: A Guide to the Cold Calculus of a Hot Planet, 2012, Pp.17-18 (pp.22-23 of pdf), <http://daraint.org/wp-content/uploads/2012/10/CVM2-Low.pdf>
- 46 Sivan Kartha, Michael Lazarus, and Kevin Tempest, "Equity and the Future of Fossil Fuel Production: Can We 'Leave it in the Ground' Without Compromising Development?," SEI Working Paper, 2016 (forthcoming).
- 47 ActionAid et al, Fair Shares: A Civil Society Equity Review of INDCs, November 2015, [https://www.oxfam.org/sites/www.oxfam.org/files/file\\_attachments/ib-civil-society-review-climate-indcs-191015-en\\_2.pdf](https://www.oxfam.org/sites/www.oxfam.org/files/file_attachments/ib-civil-society-review-climate-indcs-191015-en_2.pdf)
- 48 OECD members as share of world CO<sub>2</sub> emissions excluding land use, land use change and forestry (LULUCF), 1850-2012. World Resources Institute, CAIT Climate Data Explorer, 2015, <http://cait.wri.org>
- 49 EIA, Annual Energy Review, September 2012, Tables 1.15, 5.1a, 6.5 and 7.1, <https://www.eia.gov/totalenergy/data/annual/>
- 50 Carbon Tracker Initiative, Unburnable carbon 2013: Wasted capital and stranded assets, 2013, [www.carbontracker.org/wp-content/uploads/2014/09/Unburnable-Carbon-2-Web-Version.pdf](http://www.carbontracker.org/wp-content/uploads/2014/09/Unburnable-Carbon-2-Web-Version.pdf)
- 51 <http://www.carbontracker.org/>
- 52 Ashim Paun et al, Stranded Assets: What Next?, HSBC Global Research, 16 April 2015
- 53 Jason Channell et al, Energy Darwinism II: Why a Low Carbon Future Doesn't Have to Cost the Earth, August 2015, <https://www.citivelocity.com/citigps/ReportSeries.action?recordId=41>
- 54 Jessica Shankleman, "Mark Carney: most fossil fuel reserves can't be burned", Guardian, 13 October 2014, <http://www.theguardian.com/environment/2014/oct/13/mark-carney-fossil-fuel-reserves-burned-carbon-bubble>
- 55 Oil and gas: Rystad UCube, capex + exploration capex, life cycle = discovery + undiscovered. Coal: IEA, World Energy Investment Outlook 2014, p.81
- 56 IEA, World Energy Investment Outlook 2014, p.162
- 57 Marshall Burke et al, "Global non-linear effect of temperature on economic production," Nature, 2015, <http://web.stanford.edu/~mburke/climate/BurkeHsiangMiguel2015.pdf>
- 58 Simon Dietz et al, "Climate value at risk" of global financial assets," Nature Climate Change, Vol.6, July 2016, p.676ff

- 59 Eg Washington Post Editorial Board, "Keystone XL's continued delay is absurd", 23 April 2014, [https://www.washingtonpost.com/opinions/keystone-xls-continued-delay-is-absurd/2014/04/23/81dab79c-c98c-11e3-95f7-7ecdde72d2ea\\_story.html?utm\\_term=.25481dff0d16](https://www.washingtonpost.com/opinions/keystone-xls-continued-delay-is-absurd/2014/04/23/81dab79c-c98c-11e3-95f7-7ecdde72d2ea_story.html?utm_term=.25481dff0d16)
- 60 For further discussion of tackling climate change on the fossil fuel supply side, see Michael Lazarus et al, Supply-side climate policy: the road less taken, Stockholm Environment Institute, [http://sei-us.org/Publications\\_PDF/SEI-WP-2015-13-Supply-side-climate-policy.pdf](http://sei-us.org/Publications_PDF/SEI-WP-2015-13-Supply-side-climate-policy.pdf)
- 61 BP Statistical Review of World Energy 2016, <http://www.bp.com/en/global/corporate/world-energy-economics/statistical-review-of-world-energy.html>
- 62 John Kemp, "Global oil demand growing at fastest pace for five years," Reuters, 30 September 2015, <http://www.reuters.com/article/oil-demand-kemp-idUSL5N12031A20150930>
- 63 Javier Blas, "Gasoline Consumption in U.S. Rises Most in Nearly Four Decades," Bloomberg, 2 May 2016, <http://www.bloomberg.com/news/articles/2016-05-02/gasoline-consumption-in-u-s-rises-most-in-nearly-four-decades>
- 64 Oil Change International, "UK BUDGET 2016: Oil tax breaks are the wrong course", 16 March 2016, <http://priceofoil.org/2016/03/16/uk-budget-2016-oil-tax-breaks-are-the-wrong-course/>
- 65 PwC for Asosiasi Pertambangan Batubara Indonesia (ABPI), Securing Indonesian Coal Supply for Coal-Fired Power Plants in the 35 GW Programme, Presentation to Minister of Energy and Mineral Resources, March 2016, <http://www.apbi-icma.org/wp-content/uploads/2016/03/03-03-2016-APBI-Report-Summary-FINAL-1.pdf>
- 66 Rystad UCube, July 2016 update, oil + condensate + NGL production, producing + under-construction assets
- 67 Rystad UCube, July 2016 update, gas production, producing + under-construction assets
- 68 BP Statistical Review of World Energy 2016. Average annual growth (CAGR) of wind consumption 2010-15 and solar consumption 2013-15. We use a shorter timeframe for solar because it grew at much higher rates the previous four years: 33% appears to reflect the longer-term average.
- 69 Assuming combined CAGR of 25% (ibid). According to the IEA, power generation in 2013 by "other renewables" (excluding hydro and biomass) was 127 mtoe; by coal was 2,404 mtoe; and by gas was 1,172 mtoe. World Energy Outlook 2015, p.584
- 70 Laurie Guevara-Stone, "A Small Country Goes Big with Renewables: Denmark's goal to be fossil fuel free," RMI Outlet, 2 March 2016, [http://blog.rmi.org/blog\\_2016\\_03\\_02\\_a\\_small\\_country\\_goes\\_big\\_with\\_renewables](http://blog.rmi.org/blog_2016_03_02_a_small_country_goes_big_with_renewables)
- 71 Bruno Burger, "Power generation from renewable energy in Germany - assessment of 2015," FRAUNHOFER INSTITUTE, 13 January 2016, p.3, <https://www.ise.fraunhofer.de/en/downloads-englisch/pdf-files-englisch/power-generation-from-renewable-energy-in-germany-assessment-of-2015.pdf>
- 72 REN21, Renewables 2016: Global Status Report, Table R17, p.165, <http://www.ren21.net/status-of-renewables/global-status-report/>
- 73 Cole Mellino, "Nicaragua Joins Clean Energy Revolution, Vows 90% Renewables by 2020", EcoWatch, 8 January 2016, <http://www.ecowatch.com/nicaragua-joins-clean-energy-revolution-vows-90-renewables-by-2020-1882145790.html>
- 74 IRENA, Djibouti - Renewables Readiness Assessment, 2015, [http://www.irena.org/DocumentDownloads/Publications/IRENA\\_RRA\\_Djibouti\\_2015\\_EN.pdf](http://www.irena.org/DocumentDownloads/Publications/IRENA_RRA_Djibouti_2015_EN.pdf)
- 75 IRENA, Vanuatu Renewables Readiness Assessment, June 2015, [http://www.irena.org/DocumentDownloads/Publications/IRENA\\_RRA\\_Vanuatu\\_2015.pdf](http://www.irena.org/DocumentDownloads/Publications/IRENA_RRA_Vanuatu_2015.pdf)
- 76 BP Statistical Review of World Energy 2016, <http://www.bp.com/en/global/corporate/world-energy.html>
- 77 National Bureau of Statistics of China. "Statistical Communiqué of the People's Republic of China on the 2015 National Economic and Social Development." February 29, 2016. [http://www.stats.gov.cn/english/PressRelease/201602/t20160229\\_1324019.html](http://www.stats.gov.cn/english/PressRelease/201602/t20160229_1324019.html)
- 78 REN21, Renewables 2016: Global Status Report, Table R19, p.172, <http://www.ren21.net/status-of-renewables/global-status-report/>
- 79 Vishal Shah, F.I.T.T. for investors - Crossing the Chasm, Deutsche Bank Markets Research, 27 February 2015, p.9 (p.11 of pdf), [https://www.db.com/cr/en/docs/solar\\_report\\_full\\_length.pdf](https://www.db.com/cr/en/docs/solar_report_full_length.pdf)
- 80 IRENA, The Power to Change: Solar and Wind Cost Reduction Potential to 2025, June 2016, pp.10, 37 [http://www.irena.org/DocumentDownloads/Publications/IRENA\\_Power\\_to\\_Change\\_2016.pdf](http://www.irena.org/DocumentDownloads/Publications/IRENA_Power_to_Change_2016.pdf)
- 81 Bloomberg New Energy Finance (BNEF), New Energy Outlook 2016, Global overview p.13
- 82 Moores, S. "The battery megafactories are coming." Benchmark Minerals Intelligence, March 2015.
- 83 Patrick Hummel et al, Will solar, batteries and electric cars re-shape the electricity system? UBS Global Research, 20 August 2014, p.4
- 84 Pedestrian Observations, "Several European Countries to Follow Norway's Lead, Ban Fuel-Powered Cars," 1 April 2016, <https://pedestrianobservations.wordpress.com/2016/04/01/several-european-countries-to-follow-norways-lead-ban-fuel-powered-cars/>
- 85 Tagesspiegel interview, clipping summarized in Clean Energy Wire, "Grid operator says 80% renewables no problem," 6 June 2016, <https://www.cleanenergywire.org/news/grid-operator-says-80-renewables-no-problem-environment-ministry-turns-30>; Giles Parkinson, "German grid operator sees 70% wind + solar before storage needed," RenewEconomy, 7 December 2015, <http://reneweconomy.com.au/2015/german-grid-operator-sees-70-wind-solar-storage-needed-35731>
- 86 NREL, Renewable Electricity Futures Study, June 2012 <http://www.nrel.gov/docs/fy12osti/52409-1.pdf>
- 87 Bloomberg New Energy Finance (BNEF), New Energy Outlook 2016, Global overview p.3; Andy Colthorpe, "Energy storage in 2016: Where do we go now?", Energy Storage News, 29 March 2016, <http://www.energy-storage.news/analysis/energy-storage-in-2016-where-do-we-go-now>. Also Robert Fares, "Renewable Energy Intermittency Explained: Challenges, Solutions, and Opportunities," Scientific American, 11 March 2015, <http://blogs.scientificamerican.com/plugged-in/renewable-energy-intermittency-explained-challenges-solutions-and-opportunities/>
- 88 IEA, World Energy Outlook 2015, pp. 584-586. Conversion factors from Mark Jacobson et al, spreadsheet at <http://web.stanford.edu/group/efmh/jacobson/Articles/l/AllCountries.xlsx>; and pers.comm with Mark Jacobson. Oil and gas depletion from Rystad Energy, as in Figures 13 and 14
- 89 Mark Jacobson et al, "100% Clean and Renewable Wind, Water, and Sunlight (WWS) AllSector Energy Roadmaps for 139 Countries of the World," draft paper, 24 April 2016, <http://web.stanford.edu/group/efmh/jacobson/Articles/l/CountriesWWS.pdf> and spreadsheet at <http://web.stanford.edu/group/efmh/jacobson/Articles/l/AllCountries.xlsx>; and pers.comm with Mark Jacobson
- 90 DNV GL, Beyond Integration: Three dynamics reshaping renewables and the grid, March 2015, p.9
- 91 Seb Henbest et al, New Energy Outlook 2016, Bloomberg New Energy Finance, June 2016, Global Overview, pp.2, 49
- 92 Elizabeth Bast et al, Empty promises: G20 subsidies to oil, gas and coal production, ODI & Oil Change International, November 2015, p.11, <http://priceofoil.org/2015/11/11/empty-promises-g20-subsidies-to-oil-gas-and-coal-production/>
- 93 Benjamin Sovacool, "How long will it take? Conceptualizing the temporal dynamics of energy transitions," Energy Research & Social Science 13 (2016), pp.202-215

94 On (unweighted) average across Brazil, Germany, Korea and South Africa, \$1 million invested in renewable energy and energy efficiency creates 46 jobs, whereas in fossil fuels \$1 million creates 20 jobs. Direct + indirect employment with stable domestic content, 2005

	Clean energy	Fossil fuels
Brazil	37.1	21.2
Germany	9.7	7.6
Indonesia	99.1	22
Korea	14.6	13.6
South Africa	70.6	33.1

UNIDO, Global Green Growth: Clean Energy Industrial Investments and Expanding Job Opportunities, April 2015, Tables 7.2, 7.6, 7.10, 7.14 & 7.18, [http://www.unido.org/fileadmin/user\\_media\\_upgrade/Resources/Policy\\_advice/GLOBAL\\_GREEN\\_GROWTH\\_REPORT\\_vol1\\_final.pdf](http://www.unido.org/fileadmin/user_media_upgrade/Resources/Policy_advice/GLOBAL_GREEN_GROWTH_REPORT_vol1_final.pdf)

95 UKERC, Low carbon jobs: The evidence for net job creation from policy support for energy efficiency and renewable energy, November 2014, p.33 (p.35 of pdf), <http://www.ukerc.ac.uk/publications/low-carbon-jobs-the-evidence-for-net-job-creation-from-policy-support-for-energy-efficiency-and-renewable-energy.html>

96 Research my Qiao Ma, cited in Michael Brauer, "Poor air quality kills 5.5 million worldwide annually," 12 February 2016, <http://www.healthdata.org/news-release/poor-air-quality-kills-55-million-worldwide-annually>; and Lisa Friedman, "Coal-Fired Power in India May Cause More Than 100,000 Premature Deaths Annually," Scientific American, 11 March 2013, <http://www.scientificamerican.com/article/coal-fired-power-in-india-may-cause-more-than-100000-premature-deaths-annually/>

97 Eg Anatole Kaletsky, "Why Big Oil Should Kill Itself," Project Syndicate, 23 December 2015, <https://www.project-syndicate.org/commentary/marginal-pricing-end-of-western-oil-producers-by-anatole-kaletsky-2015-12>

98 "Taking into account the imperatives of a just transition of the workforce and the creation of decent work and quality jobs in accordance with nationally defined development priorities." UNFCCC, Adoption of the Paris Agreement, p.21 <https://unfccc.int/resource/docs/2015/cop21/eng/109r01.pdf>

99 INTERNATIONAL LABOUR OFFICE Governing Body, Outcome of the Tripartite Meeting of Experts on Sustainable Development, Decent Work and Green Jobs, 325th Session, Geneva, 5-9 October 2015, [http://www.ilo.org/wcmsp5/groups/public/---ed\\_norm/---relconf/documents/meetingdocument/wcms\\_420286.pdf](http://www.ilo.org/wcmsp5/groups/public/---ed_norm/---relconf/documents/meetingdocument/wcms_420286.pdf)

100 International Trade Union Confederation, Climate Justice: There Are No Jobs on a Dead Planet, March 2015, [http://www.ituc-csi.org/IMG/pdf/ituc\\_frontlines\\_climate\\_change\\_report\\_en.pdf](http://www.ituc-csi.org/IMG/pdf/ituc_frontlines_climate_change_report_en.pdf)

101 Jeremy Brecher, "A superfund for workers," Dollars & Sense, November/December 2015, pp.20ff, <http://www.labor4sustainability.org/wp-content/uploads/2015/10/1115brecher.pdf>

102 Anabella Roseberg, "Building a Just Transition: The linkages between climate change and employment," International Journal of Labour Research, Vol.2 #2, 2010, p.134

103 Society of Petroleum Engineers et al, Petroleum Resources Management System, 2007, pp.9-11 (pp.11-13 of pdf), [http://www.spe.org/industry/docs/Petroleum\\_Resources\\_Management\\_System\\_2007.pdf](http://www.spe.org/industry/docs/Petroleum_Resources_Management_System_2007.pdf) This document provides the accepted, standardised definitions for petroleum resources.

104 Comparison of BP "proven" reserves with Rystad proven + probable reserves used in this report:

Bn bbl	Rystad 2P reserves	BP Statistical Review "proven" reserves
Saudi Arabia	182	267
United States	128	55
Russia	109	102
Iran	100	158
Canada	92	172
Iraq	90	143
Qatar	52	26
Venezuela	44	301
UAE	43	98
China	42	19
Kuwait	41	102
Brazil	40	13
Kazakhstan	29	30
Nigeria	19	37
Norway	16	8
Libya	15	48

105 World Energy Council, World Energy Resources 2013 Survey, p.117, [https://www.worldenergy.org/wp-content/uploads/2013/09/Complete\\_WER\\_2013\\_Survey.pdf](https://www.worldenergy.org/wp-content/uploads/2013/09/Complete_WER_2013_Survey.pdf) (The other primary coal data source is the German Federal Institute for Geosciences & Natural Resources' (BGR's) annual Energy Study: Reserves, Resources and Availability of Resources, which does not comment on China data reliability)

106 eg Matthew Simmons, Twilight in the Desert: The Coming Saudi Oil Shock and the World Economy, Wiley, 2005

107 IEA, Resources to Reserves 2013, p.206 (p.208 of pdf), <https://www.iea.org/publications/freepublications/publication/Resources2013.pdf>

108 Or, as Christophe McGlade and Paul Ekins note, the proved reserve estimates of coal are so large that the unproven estimates are less important than is the case for oil and gas. McGlade & Ekins, "The geographical distribution of fossil fuels unused when limiting global warming to 2°C," Nature, 8 Jan 2015.

109 We use the 80 scenarios in Climate Category 1 (resulting in 430-480 ppm CO<sub>2</sub>e in 2100) whose geographical coverage is the whole world. The database gives modeled emissions at five-year and ten-year intervals; we use the mean for each interval and assume that emissions vary on a straight line between the values given.

110 IEA, Cement Technology Roadmap, 2009, pp.5,12-15 (pp.7,14-17 of pdf), <https://www.iea.org/publications/freepublications/publication/Cement.pdf> and European Cement Research Academy / World Business Council for Sustainable Development, Development of State of the Art Techniques in Cement Manufacturing: Trying to Look Ahead, 2009, pp.41-41, 66-86, 89-97, <http://www.wbcscement.org/pdf/technology/Technology%20papers.pdf> Note that these papers deal with energy-related emissions in cement manufacture as well as those related to the calcination reaction; in this report we focus only on the latter, as energy emissions have been counted under coal, oil or gas.

111 IEA, Cement Technology Roadmap, 2009, Annex II, p.28 (p.30 of pdf), <https://www.iea.org/publications/freepublications/publication/Cement.pdf>

112 IEA, Energy Technology Pathways, 2012, Table 12.4 (p.404)

113 IEA, Energy Technology Pathways, 2014, Table 1.2 (p.48); and IEA, Energy Technology Pathways, 2015, Fig.6.2 (p.254)

114 See Emma Davidson, "Defining the Trend: Cement consumption versus GDP," Global Cement, June 2014, p.8, <http://www.globalcement.com/magazine/articles/858-defining-the-trend-cement-consumption-vs-gdp>; and Peter Edwards, "The Rise and Potential Peak of Cement Demand in the Urbanized World," Cornerstone, June 2015, <http://cornerstonemag.net/the-rise-and-potential-peak-of-cement-demand-in-the-urbanized-world/>

115 Kevin Anderson, "Duality in Climate Science," Nature Geoscience 8, 2015, pp. 898-900, <http://www.nature.com/ngeo/journal/v8/n12/full/ngeo2559.html>

116 Pillita Clark, "Carbon capture: Miracle machine or white elephant?," Financial Times, 9 September 2015, <http://www.ft.com/cms/s/2/88c187b4-5619-11e5-a28b-50226830d644.html#axzz4FgpsDeHY>

117 Carbon Tracker Initiative, Unburnable carbon 2013: Wasted capital and stranded assets, 2013, [www.carbontracker.org/wp-content/uploads/2014/09/Unburnable-Carbon-2-Web-Version.pdf](http://www.carbontracker.org/wp-content/uploads/2014/09/Unburnable-Carbon-2-Web-Version.pdf)

- 118 MIT, Boundary Dam Fact Sheet: Carbon Dioxide Capture and Storage Project, [http://sequestration.mit.edu/tools/projects/boundary\\_dam.html](http://sequestration.mit.edu/tools/projects/boundary_dam.html); and Ian Austen, "Technology to Make Clean Energy From Coal Is Stumbling in Practice," New York Times, 29 March 2016, <http://www.nytimes.com/2016/03/30/business/energy-environment/technology-to-make-clean-energy-from-coal-is-stumbling-in-practice.html>
- 119 Ian Urbina, "Piles of Dirty Secrets Behind a Model 'Clean Coal' Project," New York Times, 5 July 2016, [http://www.nytimes.com/2016/07/05/science/kemper-coal-mississippi.html?\\_r=1](http://www.nytimes.com/2016/07/05/science/kemper-coal-mississippi.html?_r=1)
- 120 Carbon Brief, "Around the world in 22 carbon capture projects," <https://www.carbonbrief.org/around-the-world-in-22-carbon-capture-projects>
- 121 IEA, A Policy Strategy for Carbon Capture and Storage, January 2012, Box 4, p.33, [http://www.iea.org/publications/freepublications/publication/policy\\_strategy\\_for\\_ccs.pdf](http://www.iea.org/publications/freepublications/publication/policy_strategy_for_ccs.pdf)
- 122 IPCC, Carbon Dioxide Capture and Storage, 2005, p.14, [https://www.ipcc.ch/pdf/special-reports/srccs/srccs\\_wholereport.pdf](https://www.ipcc.ch/pdf/special-reports/srccs/srccs_wholereport.pdf)
- 123 Richard Monastersky, "Seabed scars raise questions over carbon-storage plan," Nature, 17 December 2013, <http://www.nature.com/news/seabed-scars-raise-questions-over-carbon-storage-plan-1.14386>
- 124 The Carbon Capture and Storage Association, "Report Launch: Lessons Learned from UK CCS Programmes," 29 June 2016, [http://www.ccsassociation.org/index.php/download\\_file/view/1024/1/](http://www.ccsassociation.org/index.php/download_file/view/1024/1/)
- 125 OECD Companion to the Inventory of Support Measures for Fossil Fuels 2015, Box 2.1, p.28, <http://www.oecd.org/environment/oecd-companion-to-the-inventory-of-support-measures-for-fossil-fuels-2015-9789264239616-en.htm>
- 126 Jeremy van Loon, "Shell Sees Carbon Price of \$60 to \$80 Needed to Justify CCS," Bloomberg, 6 November 2015, <http://www.bloomberg.com/news/articles/2015-11-06/shell-sees-carbon-price-of-60-to-80-needed-to-justify-ccs>
- 127 Emily Gosden, "UK scraps £1bn carbon capture and storage competition," Telegraph, 25 November 2015, <http://www.telegraph.co.uk/finance/newsbysector/energy/12016882/autumn-statement-2015-UK-scraps-1bn-carbon-capture-and-storage-competition.html>
- 128 Steve Daniels, "FutureGen 'clean-coal' plant is dead," Crain's Chicago Business, 3 February 2015, <http://www.chicagobusiness.com/article/20150203/NEWS11/150209921/futuregen-clean-coal-plant-is-dead>
- 129 Alister Doyle, "Four European utilities drop EU CCS technology project," Reuters, 19 January 2015, <http://af.reuters.com/article/commoditiesNews/idAFL6NOUV3H320150119?pageNumber=2&virtualBrandChannel=0&p=true>
- 130 Mark Jacobson et al, "100% Clean and Renewable Wind, Water, and Sunlight (WWS) AllSector Energy Roadmaps for 139 Countries of the World," draft paper, 24 April 2016, <http://web.stanford.edu/group/efmh/jacobson/Articles/1/CountriesWWS.pdf> and spreadsheet at <http://web.stanford.edu/group/efmh/jacobson/Articles/1/AllCountries.xlsx>; and pers.comm with Mark Jacobson
- 131 IEA, World Energy Outlook 2015, pp. 584-586





**From:** Christina Carlson  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** Extend fracking moratorium  
**Date:** Monday, November 14, 2016 11:43:47 AM

---

Hello,

I am against fracking in Boulder County. I'm not able to make it to the meeting on November 15th in Boulder, but would like to voice my advocacy for extending the fracking ban indefinitely.

I'm struggling to find information about this meeting online but saw this email address.

Thank you for addressing the concerns of the community.

-Christina

**From:** Ree O'Winds Mitchell  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** fracking  
**Date:** Monday, November 14, 2016 11:54:14 AM

---

THE SHORT TERM GAINS IN JOBS, OR PROFITS FOR BIG CORPORATIONS, ARE CLEARLY NOT WORTH THE LONG TERM DEVASTATING EFFECTS OF

FRACKING ON THE ENVIRONMENT! IT HAS BEEN PROVEN TIME AND TIME AGAIN THAT FRACKING DOES UNREPAIRABLE DAMAGE TO WATER, SOIL,

AIR, PEOPLE, ANIMALS, AND PROPERTY VALUES.

IT IS HARD TO FATHOM THAT SO CALLED INTELLIGENT PEOPLE WHO CALL THEMSELVES LEADERS WOULD EVEN CONSIDER FRACKING BOULDER COUNTY,

OR ANYWHERE ON THIS PRECIOUS PLANET..... WE HAVE A HUGE NEED AND OPPORTUNITY TO IMPLEMENT ALTERNATIVE ENERGY NOW!!!

PLEASE WAKE UP, SPEAK FOR ALL LIFE ON THE PLANET AND SAY  
**kNOw!!!!!!!!!!!!!!**

**From:** Kirsten Rae Erkfritz  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** NO FRACKING in Boulder County.  
**Date:** Monday, November 14, 2016 12:21:31 PM

---

I strongly support the moratorium extension for NO FRACKING in Boulder County. This whole country is being poisoned by oil and gas interests and our beautiful oasis will be a refuge for thousands to come. We need to keep our water clean and drinkable for as long as possible.

The fate of our and our children's health is in your hands. Please choose people over profits.

Sincerely,

Kirsten Erkfritz  
4095 19th St  
Boulder, CO 80304

**From:** Deborahann S-C  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** Fracking Moratorium Extension  
**Date:** Monday, November 14, 2016 12:39:02 PM

---

As a concerned North Boulder citizen, I support the Fracking Moratorium Extension in Boulder County.

Deborah Smith-Cleveland  
1245 Riverside Avenue  
Boulder, CO 80304

**From:** Nance Warner  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** Extend moratorium on fracking  
**Date:** Monday, November 14, 2016 1:06:26 PM

---

To whom it may concern:

I'm writing to extend the moratorium on fracking in Boulder County. Too many unknown's make fracking unsafe for the environment and human health and safety.

Nancy Warner, homeowner: 385 Quail Circle, Boulder, 80304

**From:** Paulette Middleton  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** Please Extend the Fracking Moratorium  
**Date:** Monday, November 14, 2016 1:07:18 PM

---

Dear Commissioners,

I support a total “forever” ban on fracking. We as a community, nation and world need to focus on accelerating the transformation to a 100% safe, clean, economically strong renewable energy world. Please extend the moratorium.

Thank you  
Paulette Middleton

\*\*\*\*\*

**Paulette Middleton, PhD** <http://panoramapathways.net/>

**Panorama Pathways-Aspen Hill Films-Positive Pace-GEIA-ISES-ASES**

**Cell: 1-303-517-8291 Mail: 2385 Panorama Ave., Boulder CO 80304 USA**

**From:** dakota-rae westveer  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** Boulder County"s moratorium on fracking  
**Date:** Monday, November 14, 2016 1:17:30 PM

---

Dear County Commissioners,

I urge you now to not allow the oil and gas industry to subject our community to the proven environmental and public health hazards of fracking. I beg you in these times of uncertainty to stay strong and stand with the people of this community against outside interests. We are relying on you to fight with us to protect and preserve our home and health. Together we're stronger. Vote for a new Fracking moratorium, better yet a ban.

Thank you for your time, your energy, and your service to the people of Boulder County.

Best wishes,  
Dakota-Rae

**From:** Keeley Stokes  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** No Fracking in Boulder!!  
**Date:** Monday, November 14, 2016 1:32:30 PM

---

Dear Boulder County Commissioners and Boulder Planning Commission;

As a concerned citizen and constituent of Boulder City and County, I am writing today to express my concern about the expiration of the moratorium on fracking. Fracking is a well-documented environmental hazard that has negative side effects, including air pollution, well contamination, environmental destruction, water pollution as well as negative economic impacts. We cannot allow fracking in Boulder County! Fracking will negatively affect our health and safety, our property values, and our way of life. While fracking companies offer assurances and claim that their operations are safe, these claims are untrue! Observe the many accidents and incidents around the country, and even here in nearby Erie, where pollution levels are presenting harmful threats to the people and the environment. Moreover, fracking companies are unwilling to work with local communities to ensure safety measures, or to even follow the suggested guidelines outlined below. Please implement a new moratorium of at least six months to a year in order to finalize the following:

- 1) Require the fracking companies to open their books, this will give you the assurance that they are solvent and can take responsibility for any clean up needed (the city should not have to pay for this!!!!)
- 2) Sign a contract with these fracking companies that require them to clean up any and all hazards created by them. Again, this should not be the cities responsibility!
- 3) Require fracking companies to be open and transparent about the chemicals they are using for their work. We should not have toxic solutions injected into our soil – we need to know the chemical recipes!
- 4) Require the fracking companies to outline and implement a plan for the disposal of the fracking waste that does not do environmental damage to our county! In other counties, they just dump it into agricultural fields, or use it for dust mitigation; we must ensure this does not happen here. The waste produced from fracking in Colorado is slightly radioactive... we do not need to bring all this up to the surface! Our children are at the greatest risk!!!

Please support Boulder in staying at the forefront of health, environmental stewardship, and sound city/county planning! You give priority to organic farming, how could you consider allowing fracking in Boulder County? For everyone's sake, but especially for our children, consider the above with utmost thoughtfulness.

Respectfully yours,

Keeley Stokes

**From:** [Wufoo](#)  
**To:** [Boulder County Board of Commissioners](#)  
**Subject:** County Commissioners Contact Us/Feedback Form. [#214]  
**Date:** Monday, November 14, 2016 1:48:04 PM

---

Name \* Robert Hopper

Email \* [the-hoppers@comcast.net](mailto:the-hoppers@comcast.net)

My Question or Feedback most closely relates to the following subject: (fill in the blank) \* Oil and gas regulations

Comments, Question or Feedback \* Please ban or extend the moratorium for the full five years on hydraulic fracturing. New public health information indicates the deleterious effects of fracking, and more information is coming out all the time (despite the efforts of the oil and gas industry and the state of Colorado to suppress them). Thank you for all you have done in the past to set limits on this dangerous industry and to convert our county to clean renewable energy!

Please check box below \*  I acknowledge receipt of the Open Records Notification

**From:** Hollie Rogin  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** Please extend the fracking moratorium  
**Date:** Monday, November 14, 2016 1:59:19 PM

---

Commissioners,

Thank you for taking public comment regarding fracking impact in Boulder County.

Please enact at the very least a 6 month additional moratorium to consider new scientific data regarding the health effects of fracking-related air pollution. And please support the following specifics. Our children and grandchildren will thank you, as I do.

- A high standard of evidence that the applicant has the means to fund and perform, without public assistance, post-production well-plugging, clean-up, and restoration.
- Baseline measurements of radioactive pollutants by the applicant in soils on or near the well pad before, during, and after production, and a plan in place for any needed clean-up.
- No use by the applicant of produced water for any crops or for dust suppression.
- A transportation plan submitted by the applicant stating explicitly that it is responsible for any road damage caused by drilling-associated road traffic.
- A land use mitigation plan submitted by the applicant to reduce excess noise and lighting nuisances relative to surrounding residential areas.
- No flaring of gas, to reduce resource waste and prevent air pollution.
- Pre- and post-development sampling of water wells by the applicant up to at least ½ mile from the gas wellhead.
- Applicants must adhere to all relevant Colorado Air Quality and EPA air emission regulations and be inspected, minimally at 6 month intervals, by those agencies.
- Deep injection wells for disposal of produced water should not be permitted within the County.

Best,

Hollie Rogin

2841 21st Street

Boulder CO 80304

**From:** Kay Bingham  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** Stand up to Colorado Supreme Court Ruling!  
**Date:** Monday, November 14, 2016 2:13:35 PM

---

Dear County Commisioners,

I am writing to ask you to continue the moratorium on fracking in Boulder County. further study about regulaations is needed. Get ready to stand up to the Colorado Supreme Court. Gather the science and true cost data.

Fracking sites should not be within 2,500 feet around every home, hospital and school, playground and drinking water sources.

Fracking companies should be required to prove that they can take responsibility for any cleanup needed.

There needs to be a plan for disposal of the fracking waste.

Boulder County should be leading the natiion with clean energy .

Kay Bingham  
Boulder, CO

**From:** Friends of Open Space Access  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** No Fracking in Boulder County!  
**Date:** Monday, November 14, 2016 2:41:36 PM

---

**From:** Alexis Neely  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** Fwd: Please extend fracking moratorium in Boulder County  
**Date:** Monday, November 14, 2016 2:47:08 PM

---

To whom it may concern,

I am writing to request that you extend the moratorium on fracking here in Boulder County.

Fracking is dangerous to our water supply. We cannot afford to risk the most valuable resource that supports all of life in this way when there are other energy sources we can turn to short of fracking.

Thank you,  
Alexis Neely

--

--

Visit my main home on the web:

<http://www.alexisneely.com>

**From:** Sharon Procopio  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** A letter of Opposition, from a Natural Resource Engineer  
**Date:** Monday, November 14, 2016 3:04:25 PM

---

Hello council members and others at the county:

First of all, let me say that **I am VERY opposed to allowing drilling companies or corporations access to our community's land, water, or resources here in Boulder, as I do not see this aspect of the oil and gas industry's growth as serving any long term public benefit.**

I could rattle off the same facts and figures you hear from lots of people, but instead I offer you this: In the summer of 2000, I worked as a Field Engineer Intern doing Natural Gas Well Testing and Monitoring in Rock Springs, WY. I was in the field during a time when natural gas companies were just beginning to explore a broader use of fracking technology along with horizontal drilling to maximize their well outputs. My work included learning about and completing all the stages of this early process while on site at various wells throughout the state of Wyoming.

I've attached a photo of me assembling a perforating gun, an explosive tool that sends a charge through the casing and cement in a wellbore prior to hydraulic fracturing (photo of the full process also attached). I was also responsible for collecting drilling and post-fracturing mud samples to send off for various company analyses. I can personally attest as someone who had to collect, store, and transport those samples that the fuel and chemical odor was extremely potent, and we knew never to handle the samples with bare hands. That drilling mud/water mix is typically pumped back down into the ground. **I would not want to see that fluid, filled with a mix of often unknown proprietary chemicals enter into our water supply.**

People I worked with during my time on that job were well paid but miserable. Some things may have changed in 16 years, but at the time in addition to the environmental impacts, I saw corporate culture that bred low-moral, accidents, and a hostile work environment for many. **I entered into that job looking forward to working as an engineer outdoors away from a cubicle, and I left with no interest in returning and greater appreciation of environmental policy that shaped my whole career.**

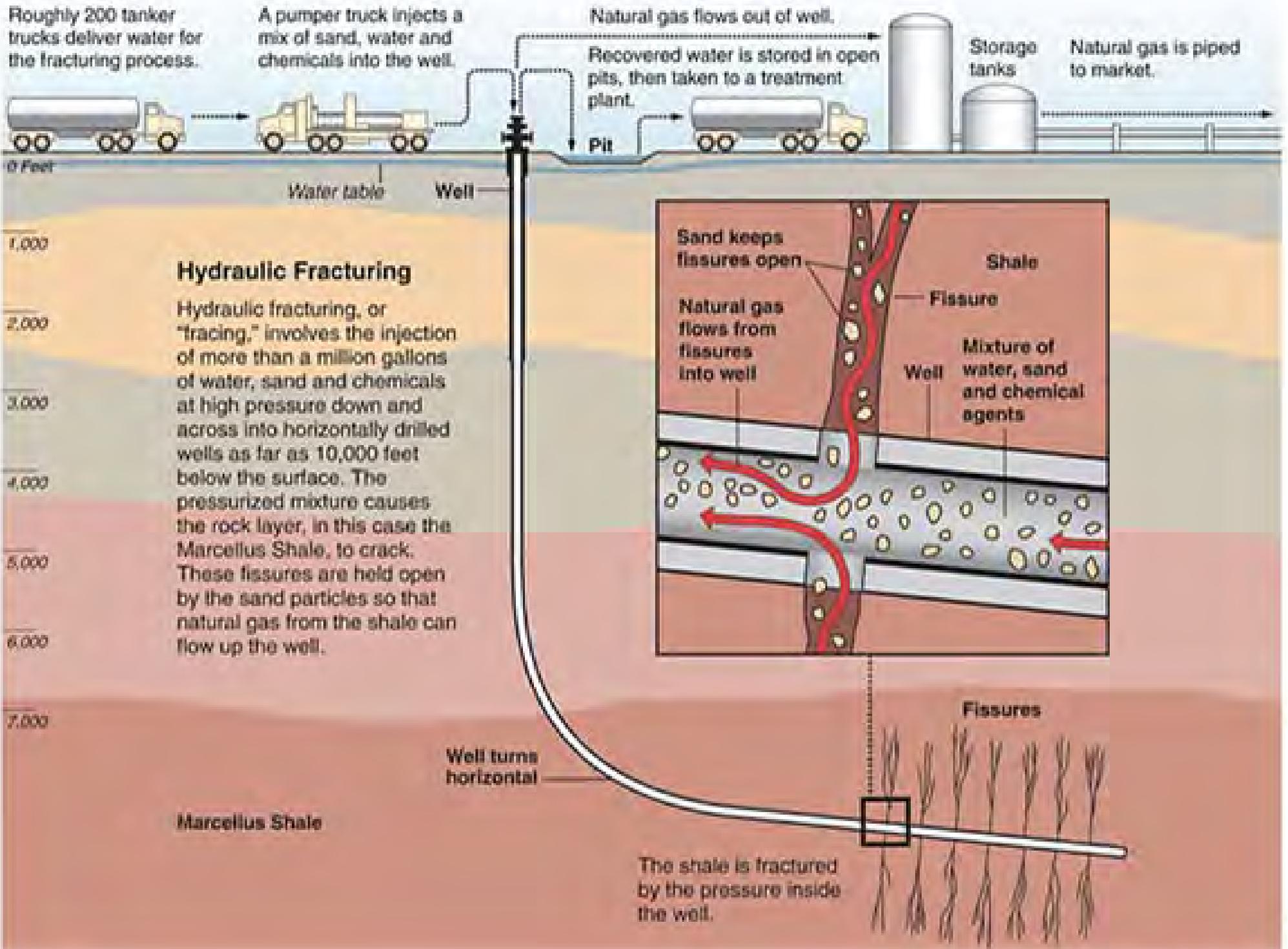
**No matter how much shiny PR they put out to the public talking of their good intentions, speaking as someone who took part in the real (literal) dirty work of this industry, I urge the county to do what it can to deflect the use of hydraulic fracturing here to serve the public interest and protection of our environment, above and below ground.**

Best,

Sharon Procopio  
Resident  
City of Boulder



Top: This is a photo of me building an explosive charge for a perforating gun  
Bottom: These are what open hole tools look like.



**From:** Susan Edelman  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** Please renew moratorium on accepting applications for oil and gas development  
**Date:** Monday, November 14, 2016 3:11:16 PM

---

As a Boulder County resident, I would like to ask that you continue the moratorium on any new applications for oil and gas development in Boulder County. I do not believe enough is known about the dangers of oil and gas removal, particularly by fracking, to justify the taking of applications to potentially have new oil and gas ventures in the county. Please continue the moratorium.

Sincerely,  
Susan Edelman  
2857 Shadow Lake Road  
Lafayette, CO. 80026

Sent from my iPad  
Sent from my iPad

**From:** Sarah Pritchard  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** Extend the moratorium  
**Date:** Monday, November 14, 2016 3:31:29 PM

---

Considering the evolving nature of our knowledge of impact, there is good reason to extend the moratorium. In addition to direct atmospheric impacts, the nation learned just this month we have learned about earthquakes in Oklahoma reaching 5 on the scale. This impact is not trivial!  
Thank you

Sarah Forsythe Pritchard  
Sent via mobile device.

**From:** Cedar Barstow  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** Extend Fracking Moratorium in Boulder County  
**Date:** Monday, November 14, 2016 3:35:24 PM

---

Please extend the fracking moratorium in Boulder County. There are way too many safety unknowns (or suspicions) to proceed. Fracking also uses an inordinate amount of our precious water.

Cedar Barstow

--

Cedar Barstow, M.Ed., C.H.T.  
Boulder, Colorado  
303-444-6835  
[www.rightuseofpower.org](http://www.rightuseofpower.org)  
[www.cedarbarstow.com](http://www.cedarbarstow.com)

**From:** John D Wiener  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** Public Comment  
**Date:** Monday, November 14, 2016 3:40:03 PM

---

Dear Boulder County Commissioners and Staff:

I write to urge extension of the moratorium on oil and gas development, because of the inability to evaluate the environmental impacts of that activity under the very recent changes in the COGC regulations. We have one set of measures from before the air pollution and methane leakage regulations were changed, gradually emerging from processing in the large study by CSU/CU etc. But we do not have measurements of the effectiveness of the changes.

In addition, there is new evidence to which I call your attention, in the U.S. Department of Agriculture's regional climate vulnerability assessments for agriculture, forestry and range management. These excellent assessments are available at:

<https://www.climatehubs.oce.usda.gov/>.

I have recently reviewed several for examination of their treatments of increasing fire and subsequent flood hazards, and I assure you they are quite ominous.

More directly relevant for the oil and gas development issues, the very high probability of additional wildfire increasing in area, intensity, frequency and duration of the season suggests that very substantial health impacts may result from the interaction of air quality degradation from increased smoke and combustion products as well as leakage and releases from oil and gas development.

There is particular uncertainty for Boulder County due to the prevailing west winds and the inversion of colder westerlies above warm smog; our unloved "brown cloud".

The largest issue, of course, is the cumulative impact of fossil fuel combustion, which adversely affects almost all of the ecology, but I wanted to write about particularly-localized impacts for Boulder and the health of our people and environment.

Thank you,

John D. Wiener

**From:** Janice  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** oil & gas moratorium  
**Date:** Monday, November 14, 2016 3:48:00 PM

---

County commissioners,

I urge you to continue the moratorium on oil and gas drilling in our county. Daily we are hearing about the environmental hazards caused by extractions from the earth.

Thank you,

Janice Zelazo

**From:** Kirk Cunningham  
**To:** [Boulder County Board of Commissioners](#)  
**Cc:** [RMC-IPG-EXCOMM@LISTS.SIERRACLUB.ORG](mailto:RMC-IPG-EXCOMM@LISTS.SIERRACLUB.ORG)  
**Subject:** Comments for Tuesday's hearing on fracking regulations  
**Date:** Monday, November 14, 2016 4:03:36 PM

---

Dear Commissioners;

The following comments are made for the Indian Peaks Group of the Sierra Club, whose 3000+ members live in Boulder County:

1. The Club is grateful to the Commissioners for instituting the recent moratorium that expires on 11/18 and that has given the County some time to devise additional regulations on fracking operations that will hopefully reduce the off-site impacts of this aggressive and bothersome industry. We certainly support all the County's proposed regs as far as they go, but are requesting some tougher standards in our comments below.
2. A recent study by Yale researchers supports the claim that off-site health impacts of fracking operations from air emissions cannot be ignored. For this reason, we believe that an additional half-year or longer moratorium would be beneficial in using this new information to beef up proposed regs on air pollution (see below).
3. The County must be able to obtain a high standard of evidence that the applicant has the means to fund and perform, without public assistance, post-production well-plugging, clean-up, and restoration. This is one aspect of the "fracking revolution" that may leave a plethora of unmitigated messes throughout Colorado. For example, baseline measurements of radioactive pollutants (especially radium and radon, which occur in produced water) by the applicant in soils on or near the well pad before, during, and after production are needed and a plan should be recorded with the County describing any needed clean-up.
4. No use by the applicant of produced water should be allowed on any crops or for dust suppression. This water is highly saline and has other contaminants.
5. A transportation plan should be submitted by the applicant stating explicitly that it is responsible for any road damage caused by drilling-associated road traffic.
6. A land use mitigation plan should be submitted by the applicant to reduce excess noise and lighting nuisances relative to surrounding residential areas. A major nuisance, gas flaring, should be banned to reduce resource waste and prevent air pollution.
7. Pre- and post-development sampling of water wells by the applicant must be carried out up to at least ½ mile from the gas wellhead.
8. Applicants must adhere to all relevant Colorado Air Quality and EPA air emission regulations and be inspected, minimally at 6 month intervals, by those agencies, and a report made to the County.
9. Deep injection wells for disposal of produced water should not be permitted within the County, to prevent the earthquakes that have occurred in other states and other parts of Colorado from this practice.
10. The County should work with County municipalities to prevent the sale of municipal water for fracking, similar to the City of Boulder's ban on this practice.

Thank you for your consideration of these comments.

Kirk Cunningham, Conservation Chair  
Sierra Club, Indian Peaks Group  
Boulder CO 80302

303-939-8519 / [kmcunnin@juno.com](mailto:kmcunnin@juno.com)

**From:** [Wufoo](#)  
**To:** [Boulder County Board of Commissioners](#)  
**Subject:** County Commissioners Contact Us/Feedback Form. [#215]  
**Date:** Monday, November 14, 2016 4:05:13 PM

---

Name \* Nina Friedman

Email \* [nina@nfcareers.com](mailto:nina@nfcareers.com)

My Question or Feedback most closely relates to the following subject: (fill in the blank) \* Fracking in Boulder County

Comments, Question or Feedback \* I am very much against fracking in Boulder County. I believe it is very harmful in many ways to the environment. I also want us to begin using more sustainable forms of energy and to contribute to the solution of the problem of climate change and not increase the problem. I am particularly concerned, if it is true, that there are 4 sites proposed for fracking in the Wonderland hills area since I live there and do not want that passed. Thanks for listening and taking my thoughts into consideration.

Please check box below \*  I acknowledge receipt of the Open Records Notification

**From:** susan nofziger  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** Stop fracking  
**Date:** Monday, November 14, 2016 4:18:28 PM

---

I would like to continue to breathe clean and and drink fresh water which is so precious in our very arid climate.

Sent from my iPhone

**From:** Brian Sundberg  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** No fracking in Boulder County please!  
**Date:** Monday, November 14, 2016 4:30:48 PM

---

Driving through Weld County and seeing the massive fracking tarps always makes me shudder to think about the air quality, soil quality and negative health consequences that stem from these sites. Boulder County has a strong history of protecting the quality of life of its citizens through open space, bike paths, controlled growth and more. I encourage you to extend the moratorium on fracking in the County to continue that commitment.

Thanks for your time.

Brian Sundberg  
303-931-5483

**From:** Millicent Kang  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** No fracking in Boulder!!  
**Date:** Monday, November 14, 2016 4:32:00 PM

---

I am 100% against fracking and definitely do not want it in Boulder. I cannot make the meeting and wanted my opposition on record.

Millicent Kang

Sent from my iPhone

**From:** Kathleen urbanic  
**To:** [Boulder County Oil and Gas Comment](#)  
**Cc:** [Ted Barber](#)  
**Subject:** Boulder County Oil and Gas hearing comments  
**Date:** Monday, November 14, 2016 4:38:41 PM

---

We are residents of Louisville, and we do not support any oil or gas exploration or extraction. Please extend the moratorium on fracking and/or disallow all oil and gas exploration and extraction. This is critical for the well being of our environment - especially water quality.

Kind Regards,

Kathleen Urbanic and Ted Barber  
431 W. Spruce Lane  
Louisville, CO  
720.239.3530

**From:** Ariana Saraha  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** Fracking in Boulder County?  
**Date:** Monday, November 14, 2016 4:46:51 PM

---

Please consider reinstating the moratorium on fracking in Boulder, Colorado that is slated to end on November 18th. There are better energy alternatives that are much safer and don't harm our land or endanger our people's water supply.

Thank you kindly for your consideration,

Ariana S Marks  
Registered Voter, Boulder, CO

*In service to the beautiful and the wild...*

[www.arianasaraha.com](http://www.arianasaraha.com) | [facebook](#) | [bandcamp](#) | [youtube](#) | [spotify](#) | [soundcloud](#)

**From:** Rick Lucash  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** Fracking in Wonderland Hills area  
**Date:** Monday, November 14, 2016 4:51:58 PM

---

I just found out about tomorrow's meeting, and may not be able to take time off from work, but fracking is just a terrible idea for the area considering the population density and the delicate open areas and lake shore nearby

Sent from my iPhone  
Please excuse typos

**From:** Stacy Clark  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** No Fracking in Boulder County  
**Date:** Monday, November 14, 2016 4:54:01 PM

---

BOULDER COUNTY'S DRAFT REGULATIONS WILL BE THE SUBJECT OF A COUNTY COMMISSIONERS' PUBLIC HEARING TUESDAY, NOVEMBER 15TH, 12:00 NOON, BOULDER COUNTY COURTHOUSE, PEARL STREET MALL.

YOUR INPUT IN PERSON AND/OR BY EMAIL IS CRUCIAL!

To email your comments:

[oilgascomment@bouldercounty.org](mailto:oilgascomment@bouldercounty.org)

To register to speak at the 11/15 hearing:

<http://www.bouldercounty.org/dept/landuse/pages/oilgas.aspx>

Sierra Club contacts: Kirk Cunningham ([kmcunnin@juno.com](mailto:kmcunnin@juno.com)) and Karen

1. Most important: Support the county's efforts to reduce the impacts of fracking operations on residents and the environment by demanding the county enact an additional half-year or longer moratorium to consider new scientific research on the health effects of fracking, including effects from fracking-related air pollution.

2. If the county refuses to enact a new moratorium, support the following regulatory goals and/or provisions:

- A high standard of evidence that a fracking applicant has the means to fund and complete, without public assistance, post-production well-plugging, clean-up, and restoration.
- Baseline measurements of radioactive pollutants conducted by the applicant in soils at or near the well pad before, during, and after production, and a plan in place for any needed clean-up.
- No use of produced water or flowback on county roads or for agriculture, or disposal in any way that could impact soil, groundwater or surface water. Operators held responsible for any spills or leaks of produced water, flowback, fracking chemicals, sand/silica, or other fracking related inputs or outputs.
- The assumption of all costs and responsibility by the applicant for any damage to roads, shoulders or adjacent properties caused by fracking-associated vehicular traffic.
- A land use mitigation plan submitted by the applicant to reduce noise and lighting nuisances relative to surrounding residential areas, and limiting light and noise pollution to designated hours of the day.
- No flaring of gas, to reduce resource waste and prevent air pollution.
- Pre- and post-development sampling of water wells by the applicant up to at least ½ mile from the wellhead, with readings exceeding prescribed limits cause for suspension of fracking

operations and remediation at the expense of the operator.

- Applicants must adhere to all relevant Colorado Air Quality and EPA air emission regulations and be regularly inspected by those agencies.

Thank you for helping ensure Boulder County has the best possible regulatory program for fracking operations that present state law will allow.

**From:** Erin McHugh  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** No Fracking in Boulder  
**Date:** Monday, November 14, 2016 5:01:39 PM

---

Please know that as a concerned citizen I am vehemently opposed to fracking in general and especially in Boulder County. Citizens have the human right to clean air and water. Your community says "no!"

Sincerely,  
Erin McHugh  
80304

Erin McHugh  
Project Coordinator  
Spark Community Foundation  
303-884-8712  
[erin@SparkCommunityFoundation.org](mailto:erin@SparkCommunityFoundation.org)

**From:** Wendy Nelson  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** Please extend the moratorium on fracking!  
**Date:** Monday, November 14, 2016 5:20:26 PM

---

I am very concerned about fracking in Boulder County. Fracking uses precious water resources. Fracking has been shown to contaminate water, soil and air, cause earthquakes. Fracking should not occur near residential neighborhoods. Please extend the moratorium.

Thank-you,

Wendy Nelson

424 Utica Ave, Boulder, CO, 80204

**From:** J Smith  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** Support for extending Moratorium  
**Date:** Monday, November 14, 2016 5:36:43 PM

---

To whom it may concern,

I am 100% in support of extending the moratorium in Boulder County on fracking, drilling or any other type of method for removing gas, oil, or other minerals from the ground. Obviously, no one wants this kind of activity in their neighborhoods. But additionally, the point of open space is to preserve the environment and to provide recreational space for people who want to use it. I don't need to delineate how those activities would destroy the environment in Boulder County, it is obvious, but do want to add my name and my husband's and children's names to the list of those opposed to this type of activity. We moved in the last 2 years to Boulder and chose the location for our house based on the beauty around the Wonderland Hills neighborhood and the environment in which we wanted to live as well as feeling this is a good investment. Please do whatever is necessary to prohibit any type of assault on our environment and on our personal lives.

Thanks,

Joan Smith

Quince Avenue, Boulder

**From:** Margaret Evans  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** Moratorium on fracking in Boulder County  
**Date:** Monday, November 14, 2016 6:01:18 PM

---

This is absolutely insane. We know that fracking is unsafe. We are concerned that the chemicals used are likely to pollute ground water. Also there is a grave concern about earthquakes.  
Please extend the moratorium and don't rush into this.

Thank you, Margaret Evans and Roger Thompson

**From:** Linda Rosales  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** Fracking in BOCO  
**Date:** Monday, November 14, 2016 6:43:14 PM

---

PLEASE don't let them in BOCO!  
They must pay for loss of property values, earthquake damages, health impacts to community.

Bentonite in my neighborhood means soil shifting and leaks. They should not be allowed in any area with bentonite soil.

Sent from my T-Mobile 4G LTE Device

**From:** Sarah Townes  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** Wonderland Lake  
**Date:** Monday, November 14, 2016 6:56:44 PM

---

Please don't even consider fracking in Wonderland Lake, it is a nature preserve and the jewel of our neighborhood for wildlife and enjoying the outdoors. The kids from Crestview study ecology there, the Jr. Ranger crews meet there, people fish and skate and run and walk their babies in strollers there. Please come and see how many people are using our beautiful Wonderland Lake open space every single day, and please don't put fracking wells and their chemicals anywhere near.

Thank you,  
Sincerely,  
Sarah Townes  
4627 18th St  
Boulder CO 80304  
303-440-8448

**From:** Vance Howard  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** Time to wake up to our own authority to say no to polluting our air and water  
**Date:** Monday, November 14, 2016 7:28:43 PM

---

Dear commissioners,

Please vote to extend the ban on fracking in Boulder County indefinitely tomorrow.

My partner and I are under contract to buy a home in Lyons. It's a dream come true. A chance for us to sink (and synch) deep roots.

Our criteria for selecting a spot to home are simple: clean water, clean air, dark nights, connection with great Nature.

Our BIGGEST concern, our BIGGEST challenge with moving forward with this purchase is FRACKING. I'm 55. I grew up in Colorado. Never before have I experienced air quality issues like those raised by fracking in Weld county now.

Our new home is on a well. We've done extensive water quality testing. And FRACKING is one of the biggest threats to water quality and hence life, both human and non-human.

NOW IS THE TIME to send a clear signal that we need to wake up and encourage innovation in new ways to gather the energy we need. You, in your role as Boulder County commissioners, are in the perfect position at this moment in history to send a beacon to the world: NO MORE POLLUTING OUR WATER AND AIR. Let's use our intelligence to met our needs, not poison.

Best regards,

Vance Howard  
970-704-1086

**From:** Joy Spring  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** fracking in Boulder  
**Date:** Monday, November 14, 2016 7:34:13 PM

---

I have just been made aware that there is a possibility of fracking in Boulder, specifically Wonderland Hills. This cannot be allowed to occur. While published studies by the industry indicate no negative effects of fracking, articles on the recent earthquakes in the US state that fracking has been conducted in the many of the areas. The noise and light pollution has effected every neighborhood near a site. Ground water problems occur in many of the areas. This is not a coincidence. Fracking should not be allowed within the county. Please consider the quality of our city and maintain the tranquility and natural beauty of our environment.

***Joy Spring***

3816 Cloverleaf Dr.

Boulder, CO 80204

H/O: 303-443-2048

C: 720-979-5942

**From:** Michael Gallagher  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** Moratorium  
**Date:** Monday, November 14, 2016 7:37:10 PM

---

To Whom It May Concern,

I am deeply concerned about the possibility of fracking in North Boulder. I am a wonderland lake resident along with my wife and two children. We would like to express our deep opposition to any oil or gas well development in our neighborhood or the surrounding area. There is simply no good argument for it. While I cannot be at the meeting available for public comment I hope that this email is considered carefully. We live in Boulder because of its beauty and it's proximity to nature. We treasure the open space throughout boulder county and the easy access to the mountains. Currently our air quality is under threat from increasing auto traffic due to rapidly increasing population density. Adding threats to our drinking water in addition to our quality is terrifying. We have seen incredible change in Boulder over the past decade a lot of which has begun to rob Boulder of its greatest qualities. Allowing corporate profits based on fossil fuel development to threaten the health and safety of us and our children is unthinkable. Please make the right choice to keep Boulder green and beautiful and a safe and healthy place to raise families.

Michael D. Gallagher, M.D.

Sent from my iPhone

**From:** Lynne Dannenhold  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** No Fracking in Boulder Co.  
**Date:** Monday, November 14, 2016 7:38:05 PM

---

That's my opinion!  
Lynne Dannenhold 4000 Wonderland Hill Ave. Boulder, CO 80304

**From:** Avalon Gulley  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** Please extend moratorium on fracking  
**Date:** Monday, November 14, 2016 7:39:32 PM

---

Dear Boulder County,

It is so important to me that we continue the moratorium on fracking in Boulder County. I just heard that there are 4 proposed fracking wells in the Wonderland Lake neighborhood, where I live! As a resident here for 3 years, the state of our water, air and land is of vital importance to the well-being of myself, my family, and my community. There are always issues that come up where the land is being fracked-- from earthquakes to groundwater pollution. As you know, the waters are all connected. If we poison one area of groundwater, it seeps into the rest. Fracking also uses an incredible amount of water and wastes 3/4 of it-- we are already facing water scarcity issues and don't need to add another one!

This is really simple. Please look to the many alternative forms of energy instead of the poisonous practice of fracking. We will not stand for this.

Sincerely,  
Avalon Gulley  
720 560 5938

1550 Orchard Ave  
Boulder, CO 80304

**From:** Gloria.Auer@gmail.com  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** Oil and Gas Development  
**Date:** Monday, November 14, 2016 7:40:34 PM

---

Dear County Commissioners:

Please do not allow any more fracking in Boulder County.

Thank you,

Gloria Auer  
1426 Whitehall Dr Unit D  
Longmont CO 80504  
(303) 746-0233 mobile  
(303) 772-5368 home  
[Gloria.Auer@gmail.com](mailto:Gloria.Auer@gmail.com)

**From:** Dan Edwards  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** Continuing the moratorium  
**Date:** Monday, November 14, 2016 7:48:43 PM

---

As a resident of Boulder County, I am strongly against allowing the moratorium on fracking to expire and feel it should be extended indefinitely. The moratorium protects the environment in Boulder County, and this beautiful natural environment has been a contributing factor to the appeal and prosperity of Boulder County. While I understand the need for economic stimulation and job creation, arguments in favor of doing so through environmentally harmful practices such as fracking is socially and morally irresponsible. There are far better ways to generate energy than the extraction of fossil fuels, and there are far more effective means of stimulating the economy. Please continue the moratorium and do not allow fracking in Boulder County.  
Daniel Edwards

**From:** Mary Hostetter  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** AGAINST FRACKING  
**Date:** Monday, November 14, 2016 7:49:44 PM

---

Dear Boulder County administrator-

I am against fracking. With the moratorium coming up for a decision I feel the County owes its citizens honesty. Look at what is happening in states where fracking has been going on- Oklahoma, Pennsylvania and elsewhere. Earthquakes, waters getting poisoned, gas well explosions. There is enough evidence that it causes more harm than good. Let's put our smart minds to a better solution that will preserve the land for future generations, and not create serious environmental damage that will take centuries to reverse.

Sincerely,  
Mary  
1590 Quince Ave.  
Boulder, CO

Mary Hostetter

O: 303-442-3180 C: 303-854-7751

[mary.hostetter@gmail.com](mailto:mary.hostetter@gmail.com)

[www.homesincolorado.com/mary-hostetter/](http://www.homesincolorado.com/mary-hostetter/)

**From:** Tricia Grable  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** fracking  
**Date:** Monday, November 14, 2016 7:52:54 PM

---

I support extending the moratorium on fracking.  
Tricia Grable  
544 Utica Ct. Boulder

**From:** Lucia Busch  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** Please be bold visionaries + extend Fracking Ban indefinitely in Boulder  
**Date:** Monday, November 14, 2016 8:05:39 PM

---

Dear Commissioners,

I encourage – Please vote to extend the ban on fracking in Boulder County indefinitely tomorrow!

I moved to Boulder in 1990. It was place I have thrived running at night alone, and have been able do good work I love – I spent years in the natural foods industry, growing a company, helping people go natural to heal and invigorate their lives. Feeding Boulder's reputation for being visionary and a happy and life-giving place on this blue planet. The world knows Boulder as a special place. And they are watching.

Boulder visionaries committed a rare act in 1967, nearly 50 years ago: Boulder voters then made history by approving a 0.40 of a cent sales tax specifically to buy, manage, and maintain open space, the first time citizens in any U.S. city had voted to tax themselves specifically for open space. The sales tax measure passed by a 57 percent majority.

Now, I trust you are hearing from many our brethren who wish to continue protect this amazing place. I join my voice with them to say please continue this legacy. Do not throw Boulder away.

**Please protect Boulder County air, land and water from the toxins of oil + gas fracking. Extend the moratorium indefinitely.**

**Please stand on the shoulders of those who gave us open space. Be bold visionaries for the lively air. Boulder is better than Fracking. Don't go down in history for ruining a great thing.**

Sincerely,  
Lucia (Lisa) Busch

**From:** Gabriel Perry  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** Public statement regarding oil and gas development in Boulder County.  
**Date:** Monday, November 14, 2016 8:06:43 PM  
**Attachments:** [15-Nov-2016\\_GabrielPerry\\_PublicStatement\\_ToBoulderCountyCommissioners.pdf](#)

---

See attached PDF for my public statement for tomorrow's meeting.

*~Gabriel Perry*  
Boulder, Colorado  
[www.flupe.com](http://www.flupe.com)  
[soundcloud.com/gabrielperry](https://soundcloud.com/gabrielperry)

## Statement Issued to the Boulder County Commissioners on 15-Nov-2016

First, let me say that it is cowardice to hold such an important meeting in the middle of the workday. This time slot makes it almost impossible for ordinary working folks to attend.

**With that said, here is my statement:** You have made it abundantly clear that you are going to allow fracking within Boulder County against the People's will and that you intend to regulate this activity in the safest way possible. This action and decision is patently egregious for the following reasons:

**ONE:** You have formally stated your support for the Standing Rock Sioux Tribe's North Dakota opposition to the DAPL pipeline.

*"Boulder County commissioners oppose the construction of the Dakota Access Pipeline as a destructive and unnecessary project that continues our dependence on fossil fuels, will negatively impact natural resources and the environment, and is being forced upon people of the Standing Rock Reservation, North Dakota, South Dakota, Iowa and Illinois without the ability for local communities to provide meaningful input on this project."*

---

The hypocrisy of such a resolution could not be more apparent as we can easily say the exact same statement but insert the words "fracking" for pipeline and "Boulder County" for North Dakota.

You also state that your proclamation is derived from the County's:

*"...commitment to providing the strongest possible protections for public health and the environment."*

---

This statement couldn't be further from the truth. Why? Because the strongest possible protections for public health and the environment would be to institute an **immediate ban** on all fossil fuel development within the county, not just regulate it.

The sad truth is that we live under an oil oligarchy which has control over our local and state governments. The People's will and rights are being suppressed by not letting us vote on the real issues like fracking in any meaningful way. But it doesn't have to be this way.

You, the commissioners, have the power to **hold a special referendum election** and let us vote for a **Community Rights-based Home Rule form of government** instead of our current statutory or "child of the state" system which allows only the State to determine what activities can or cannot transpire within our community: things like fracking and other industrial nasties.

**SECONDLY:** I am asking the commissioners to **legalize civil disobedience** in the county similar to what Grant Township in Indiana County, in Pennsylvania did this past May. According to their new law:

...anyone who commits a nonviolent act of civil disobedience in order to protect the community's rights under its Home Rule Charter has the legal right to do so – but not only that – the law also prohibits “any private or public actor from bringing criminal charges or filing any civil or other criminal action against those participating in nonviolent direct action.” <sup>i</sup>

---

At this point the State has left us with no recourse but to defend our land and water with our bodies just like what is happening in North Dakota at Standing Rock right now.

If your proclamation about the Standing Rock Protectors has any meaning at all, you have to stand with the People of Boulder County now. You cannot say that you stand for the People of Standing Rock while simultaneously backing the State's mandated fracking activities. It doesn't work that way. You either stand for the People or you stand for corporate interests and an industry hell-bent on the destruction of our planet for profit despite mountains of scientific evidence that we are destroying our atmosphere with our archaic energy systems and mining and drilling activities.

**You cannot regulate climate change.** You cannot regulate fracking – that's like trying to hand out speeding tickets at the Indy 500. I implore you to do the right thing, to be courageous and to stand with us, the People. I implore you to help us change the structure of our county government. We can do this together. Help us initiate state constitutional change through collective municipal legislative civil disobedience – in other words, we need a new kind of lawmaking, a rights-based Home Rule Charter.

Stand with Boulder County because we are all Standing Rock.

**Addendum:**

Here is a portion of the “Chambersburg Declaration” which is a document put together by municipal representatives in the state of Pennsylvania back in 2010, when they created the Pennsylvania Community Rights Network. Boulder County could put similar language into their rights-based Home charter.

***We declare:***

***That the political, legal, and economic systems of the United States allow, in each generation, an elite few to impose policy and governing decisions that threaten the very survival of human and natural communities;***

***That the goal of those decisions is to concentrate wealth and greater governing power through the exploitation of human and natural communities, while promoting the belief that such exploitation is necessary for the common good;***

***That the survival of our communities depends on replacing this system of governance by the privileged with new community-based democratic decision-making systems;***

---

*That environmental and economic sustainability can be achieved only when the people affected by governing decisions are the ones who make them;*

*That, for the past two centuries, people have been unable to secure economic and environmental sustainability primarily through the existing minority-rule system, laboring under the myth that we live in a democracy;*

*That most reformers and activists have not focused on replacing the current system of elite decision-making with a democratic one, but have concentrated merely on lobbying the factions in power to make better decisions; and*

*That reformers and activists have not halted the destruction of our human or natural communities because they have viewed economic and environmental ills as isolated problems, rather than as symptoms produced by the absence of democracy. <sup>ii</sup>*

---

<sup>i</sup> From the web article published May 4, 2016, **“Pennsylvania Township First To Legalize Civil Disobedience & ‘Bad Boy’ Tim DeChristopher Has Their Back”**. Source: <http://publicherald.org/pennsylvania-township-legalizes-civil-disobedience-bad-boy-tim-dechristopher-back/>

<sup>ii</sup> **“On Community Civil Disobedience in the Name of Sustainability”**. The Community Rights Movement in the United States. By the CELDF – the Community Environmental Legal Defense Fund. Page 32-33.

**From:** Amy Leetz  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** support of moratorium  
**Date:** Monday, November 14, 2016 8:10:08 PM

---

To Whom It May Concern,

I am writing as a concerned resident of Boulder County and request that our moratorium be extended. I live in north boulder near wonderland lake with my husband and two small children. Please consider extending this and know that so many residents are opposed to this idea of fracking in Boulder County. I will do whatever it takes to stop this from happening.

Sincerely,

Amy Leetz  
1860 Redwood Ave  
Boulder, CO 80304  
303-442-4942

**From:** Lin  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** no fracking in my neighborhood  
**Date:** Monday, November 14, 2016 8:29:44 PM

---

How could you even consider this?

3625 Catalpa  
80304

**From:** Virginia Winter  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** Comments for Tuesday's BCC Hearing on Fracking Regulations, Tuesday, NOVEMBER 15TH  
**Date:** Monday, November 14, 2016 8:30:46 PM

---

**Dear Commissioners,**

**I whole-heartedly support our County's CONTINUED efforts to reduce the impacts of fracking operations on residents and the environment by demanding that you, please enact an additional half-year or longer moratorium to consider new scientific research on the health effects of fracking, including effects from fracking-related air pollution.**

**I cannot attend the hearing on Tues. 11/15 I wish I could. I want you to help ensure Boulder County has the best possible regulatory program for fracking operations that State law presently allows.**

**Thank you,**

**Virginia Winter**

**[gwinter@equinoxconsultancy.com](mailto:gwinter@equinoxconsultancy.com)**

**303.355.4924**

**2930 Bluff Street, #312  
Boulder, CO 80301**

**From:** Scott Papich  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** Comments from a concerned citizen, regarding oil & gas in Boulder County  
**Date:** Monday, November 14, 2016 8:30:58 PM

---

Boulder County Commissioners,

Due to my regular work schedule, I am unable to attend the Nov 15 public hearing on the draft oil and gas regulations. Please accept my written comments.

I, along with many other citizens of this county, am 100% against fracking in Boulder County, now and at any point in the future.

Many of us attended more Boulder County Commissioner meetings in recent years than I am able to count, all in order to prevent fracking in our home county. Our reasons have not changed, and I am sure you've heard them all again very recently. We elected you to conduct affairs in our interests -- as in, we the people -- not in the interests of the Oil & Gas industry. Who are we kidding? By now we all know the reasons we don't want tracking in our neighborhoods.

Have a conscience, dear Commissioners. It may be one thing to frack in a community that welcomes it; but not here. It's not ok here, so do not contribute to the environmental and community problems that fracking brings with it. Boulder County is still a special place to live, and if you allow it to become more like Weld County, or Oklahoma, or Texas, etc... then we will have all lost a large part of what makes living here really worth it. Don't be the ones to cave in -- you don't want that as your personal political legacy.

It's time to stand for something. And it's down to you now to look out for your county and your citizens. Don't cave in to the Governor and to big Oil & Gas.

Scott Papich

324 Jasper Peak Ct.

Lafayette, CO 80026

**From:** Judith Ansara  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** moratorium extension  
**Date:** Monday, November 14, 2016 8:57:43 PM

---

I am writing in support of an extension of Boulder's fracking moratorium.. There is already ample evidence from the scientific community about the risks of fracking. Please - what will it take? I do understand there are very challenging legal issues to deal with, but Boulder has to be willing to stand up when the health of our children and community is at risk. If we can't do this - then poor communities certainly will not stand a chance.

I live on Wonderland lake and I will be Winter camping with a lot of other folks if there is any attempt to drill anywhere near us. Our home would make a very cozy protest headquarters.

You'd be welcome to stop in.

Respectfully and with a strong request of your support.

Judith Ansara Gass  
895 Rain Lilly Lane  
Boulder Co 80304

Judith Ansara  
[judith.ansara@gmail.com](mailto:judith.ansara@gmail.com)  
[www.sacredunion.com](http://www.sacredunion.com)

**From:** Amanda Wetzel  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** Extend the Fracking Moratorium!!!!  
**Date:** Monday, November 14, 2016 9:03:59 PM

---

Dear Boulder County Commissioners,

I am pleading with you to take a stand for our water and air quality over money and bottom lines. Fracking sites are not maintained but every 5 years. Hydraulic Fracturing is a major industrial process that does not belong near backyards, playgrounds and schools. It requires thousands of gallons of water and we do not have that kind of water to spare.

Please protect the citizens of this great county and if you are worried about money, just imagine the brown smog that covers weld county, hovering over Boulder valley repelling tourism and growth. Instead lets continue with Solar farms and lead the country towards renewable energy sources.

Thank you for representing the people,  
Amanda Wetzel  
303-485-7177

Thank youSent from my iPad

**From:** brunolovesyou@gmail.com  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** Moratorium Extension  
**Date:** Monday, November 14, 2016 9:07:21 PM

---

Dear Ma'ams & Sirs,

Do not bring fracking to Boulder. Please, never allow this. Please extend the moratorium forever.

If fracking is allowed to happen here, we will see poisoned water, gas well explosions, earth quakes. It is only a matter of time - wherever they drill there are major problems. We can not ever turn back.

Thank you in advance for making a wise choice.

Sincerely,  
Audrey Elisabeth Gunn  
4560 Beachcomber Court  
80301

--

Once the seeker has experienced the fullness of creation, he treats the two impostors - triumph & disaster - with equanimity.

B.K.S. Iyengar

**From:** Gayatridevi  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** Moratorium on Fracking  
**Date:** Monday, November 14, 2016 9:09:10 PM

---

Dear Representatives,

I am a resident of Boulder and I am writing to express my deepest concern of the possibility of fracking in Boulder County and the surrounding areas. I wholeheartedly support the moratorium extension as I am totally opposed to fracking and would be horrified if it were allowed in the proposed areas.

Thank you for hearing my plea!

Sincerely,  
Stacey McCulloch  
2129 24th St.  
Boulder, CO 80302

**From:** Hannah Kinderlehrer  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** No fracking in Boulder County!  
**Date:** Monday, November 14, 2016 9:21:43 PM

---

Please do not ruin our pristine, gorgeous, healthy and holy landscape by fracking!

1. Hydraulic fracturing is harmful to the climate
2. Is NOT part of the vital energy transition
3. Consumes vast amounts of precious water
4. Contaminates soils, air and water
5. Causes earthquakes
6. Puts arsenic in groundwater tables
7. Doesn't benefit We, the People.

Please don't let the moratorium end!

Sincerely,  
Hannah Kinderlehrer  
Boulder Resident

--

---

Visit [awakenthedance.com](http://awakenthedance.com)  
for dance events, recipes, and other spontaneous offerings

**From:** Zoe Kircos  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** Fracking regulations in Boulder County  
**Date:** Monday, November 14, 2016 9:24:28 PM

---

To whom it may concern:

Neighbors in north Boulder have alerted many of us to the ending of the moratorium on fracking in Boulder County. I understand that the Colorado Supreme Court ruling limits the city or county's ability to permanently ban fracking, or potentially extend a long-term moratorium.

That said, I urge you to place the highest barriers available on oil and gas companies seeking to frack in Boulder County. The neighborhood and environmental consequences of fracking in this area could be severe. If any avenues exist to curtail the potential for fracking in Boulder County, please take them.

Regards,  
Zoe Kircos  
3620 Catalpa Way  
Boulder, CO 80304

**From:** Dave A  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** Ban it  
**Date:** Monday, November 14, 2016 9:31:39 PM

---

Some time ago you and your fellow commissioners “strengthened” the rules that oil and gas is supposed to abide by here when the moratorium ends in June. Setbacks were increased for new wells. Tell me, what scientific study was this based on? Have you read the study by Lisa McKenzie, a research associate at the Colorado School of Public Health? Her research concludes that people living within a half mile of oil- and gas-well fracking were exposed to air pollutants five times above a federal hazard standard. That is **2,640** feet. The analysis found volatile organic chemicals at five times the level below which the emissions are considered unlikely to cause health problems, according to the federal Environmental Protection Agency's Hazard Index. Now tell me how the new rules the Boulder Country Commissioners should make us feel safe? Five hundred feet or 1,000 feet will do NOTHING. Air travels far. Not to mention the loophole that allows inactive wells to be re-fracked no matter their setback from housing. These new rules are toothless.

Also, please look at Google Maps aerial view of Parachute. Tell me if this is what you want Boulder County to look like. After November 18th when you and the 2 other County Commissioners have set the end of the moratorium to expire, this is what our country will look like – a wasteland where the land and citizens are only collateral damage. If you think this will not affect you and your family, think again.

I'm sure you're also aware of how much water is used in the fracking process. I'm sure you're also aware of the drought Colorado is in and that wildfire season is around the corner. Fracking destroys water and takes it out of the cycle so it can never be used again. If this water is basically gone from existence, how can we expect we will ever emerge from this drought and have “normal” precipitation levels again? I once heard years ago that the next great battle will be over water. It is here now.

The citizens of Boulder County whom you represent deserve better. Any kind of new rules mean nothing. Regulations are nothing more than a measure of an acceptable level of damage that is allowed to be done to regular citizens so a few oil and gas execs, as well as governor Hickenlooper, can make obscene amounts of profit. Who do you represent? The citizens of Boulder County are not dumb and are becoming increasingly aware of the dangers of fracking and oil and gas development. We will not sit quietly as our leaders allow us to be poisoned and our land to be r@ped. Do not think that if you allow fracking to begin that we will accept this. Make the right decision now and BAN FRACKING. Do not tell us your hands are tied. You represent us so do not be afraid of Hickenlooper's scare tactics – We are not! Stand up for us and represent us. It is time for bold action. You take it or the citizens are prepared for civil disobedience on the same level as the Dakota Access Pipeline.

Thank you,  
David Auerbach  
7675 Berwick Ct  
Gunbarrel, CO 80301

**From:** Kathleen Sullivan  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** Fracking Moratorium  
**Date:** Monday, November 14, 2016 9:36:21 PM

---

Please do not ruin our pristine, gorgeous, healthy and holy landscape by fracking!

1. Hydraulic fracturing is harmful to the climate
2. Is NOT part of the vital energy transition
3. Consumes vast amounts of precious water
4. Contaminates soils, air and water
5. Causes earthquakes
6. Puts arsenic in groundwater tables
7. Doesn't benefit We, the People.

Please don't let the moratorium end!

Sincerely,

Kat Sullivan, Boulder Resident

Boulder Resident

**From:** Lindsey Solano  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** Support to extend moratorium against fracking  
**Date:** Monday, November 14, 2016 9:39:08 PM

---

To whom this may concern,

My family and I are Boulder residents and are strongly against any type of fracking in Boulder proper and/or Boulder County. I am writing in support to extend the moratorium against fracking in Boulder, because of the health and environmental concerns. Boulder is a leading environmental town, setting the bar high for other progressive cities, and fracking has no place here. I hope to make the meeting tomorrow about this subject, my husband plans to be there as well.

Regards,  
Lindsey Solano

**From:** Nicole  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** Please hold the moratorium  
**Date:** Monday, November 14, 2016 9:42:54 PM

---

On fracking -

We do not accept the innate health risks that fracking has-

How can wells be allowed knowing that there is evidence that people have a much higher Chance of getting cancer-

Please think long term for the community, the state and the country ,

In gratitude,

Nicole Setty

**From:** Jeanne Winer  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** Moratorium on Fracking  
**Date:** Monday, November 14, 2016 9:47:55 PM

---

Please consider this an urgent plea to continue the moratorium on Fracking in Boulder County. There is substantial evidence that Fracking causes so many problems that can't later be fixed, from poisoning the water and air to earthquakes etc. Until there is more information re how to do it safely and without contaminating the local water and air, please continue the moratorium. Once the damage is done, it can't be undone. Please don't let Fracking into our community.

Jeanne Winer  
2373 Point of Pines Drive  
Boulder CO 80302

Winer@winerandrumsay.com

**From:** Libby Berry  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** Fracking  
**Date:** Monday, November 14, 2016 10:01:31 PM

---

We live in North Boulder and are extremely opposed to fracking in our area. Please do not let this happen. Elizabeth Berry

Sent from my iPhone

**From:** Emily Kallio  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** comments for Nov. 15th hearing  
**Date:** Monday, November 14, 2016 10:05:33 PM

---

To the Boulder County Board of County Commissioners,

I urge you to do everything in your power to prevent hydraulic fracking in Boulder County. In reading docket DC-16-0004, I recognize that the legalities of the situation are quite complex. So, I will keep this message simple in saying that, as a homeowner, parent, and active member of the Boulder County community, I strongly ask that you take whatever means necessary to prevent fracking activities from coming to this area.

Thank you in advance for your efforts in this regard!

Sincerely,

Emily Kallio

Boulder, CO

**From:** Dennis Berry  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** Fracking in North Boulder  
**Date:** Monday, November 14, 2016 10:10:17 PM

---

PLEASE keep fracking out of north Boulder. There is plenty of gas to be found away from aquifers and away from populated areas. Frack there if you have to, but DO NOT FRACK IN MY BACKYARD OR ANYONE ELSE'S BACKYARD! It's not worth the risk to our water or our children, or us, for that matter! If it's that important, drill in your neighborhood first, then we'll talk.

Thanks.

Dennis Berry  
3675 Catalpa Way  
Boulder, CO 80304

Sent from my iPhone

**From:** Kieuly Dang  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** Please extend the moratorium  
**Date:** Monday, November 14, 2016 10:14:23 PM

---

Hello Commissioners,

I commend you for having extended the moratorium several times & standing with the people of your community. I ask you to please do it again by listening to what the majority of the community wants.

I know it's not easy being in your position right now but you did choose this political path. The Oil & Gas Industry have enough excess production as it is. Why do they need to exploit the resources & export them? How much richer do they need to get at the expense of communities? Shouldn't they wait until there is a shortage & then ask for the community's permission?

There is a lack of love & commonwealth for all in this society. Please show me we can do better.

I urge you to please stand with the communities you were voted in to protect.

Peace & love,  
Kieuly Dang  
4560 Arapahoe Ave, #A  
Boulder, CO 80303

Sent from my iPhone

**From:** Kimberly Lytle  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** fracking in Boulder County  
**Date:** Monday, November 14, 2016 10:15:04 PM

---

Dear County Commissioners,

We the Boulder County Community are paying attention and are invested in keeping fracking out of Boulder County. We believe based on the evidence we have seen nationwide as well as in this very state, that fracking is very dangerous contrary to claims that it is a safe practice. The horrors of poisoned drinking water, exploding wells, earthquakes, toxic air quality are something the citizens of Boulder County are not willing to risk by allowing fracking here. We want you to consider the will of the people and our health and welfare over the profit of a few. Extend the moratorium on fracking.

Thank you for recognizing and respecting the wishes of Boulder's citizens,  
Kimberly Lytle

**From:** Jocelyn VoVillia  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** Ban Boulder Fracking  
**Date:** Monday, November 14, 2016 10:24:43 PM

---

Hello,

Please consider my comments as a Boulder county resident that unfortunately cannot attend the public hearing in person.

I'm very much against allowing fracking to take place in Boulder county. This is one of the most beautiful places on earth and the residents have spoken in the past about the hazards of fracking. Both Fort Collins and my town of Longmont have voted against fracking and been snubbed by the Colorado supreme Court who ruled in favor of big oil companies that simply want to turn a profit without any respect or consideration of the long term effects. It is evident that pumping a cocktail of unpronounceable chemicals into our earth will have long term harmful effects for the land, wildlife, water and ultimately humans.

Please listen to the people, take back our government. We no longer need to enable oil dependence when a renewable revolution is evident and logical.

Ban Fracking in Boulder County.  
-Jocelyn VoVillia  
Longmont resident

**From:** Emily Wingeier  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** fracking in north boulder  
**Date:** Monday, November 14, 2016 10:25:40 PM

---

If this is allowed to happen here we will see poisoned water, gas well explosions and earth quakes. It is only a matter of time wherever they drill there are major problems. We cannot turn back, so please do NOT even start fracking in North Boulder!!! Don't destroy our park, turning relaxation into a nightmare haunt, threatening our health and our environment!

Martha Wingeier  
North Boulder resident

**From:** Jeff VoVillia  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** Ban Fracking  
**Date:** Monday, November 14, 2016 10:26:50 PM

---

Hello,

Please consider my comments as a Boulder county resident that unfortunately cannot attend the public hearing in person.

I'm very much against allowing fracking to take place in Boulder county. This is one of the most beautiful places on earth and the residents have spoken in the past about the hazards of fracking. Both Fort Collins and my town of Longmont have voted against fracking and been snubbed by the Colorado supreme Court who ruled in favor of big oil companies that simply want to turn a profit without any respect or consideration of the long term effects. It is evident that pumping a cocktail of unpronounceable chemicals into our earth will have long term harmful effects for the land, wildlife, water and ultimately humans.

Please listen to the people, take back our government. We no longer need to enable oil dependence when a renewable revolution is evident and logical.

Ban Fracking in Boulder County.

-Jeff VoVillia

Longmont resident

**From:** Paolo Mario Bonetti  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** moratorium  
**Date:** Monday, November 14, 2016 10:56:17 PM

---

I support the extension 100%. Please consider.  
Paolo  
Bonetti

1880 Redwood Ave.

**From:** rdbiker48245@aol.com  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** Fracking  
**Date:** Monday, November 14, 2016 11:00:22 PM

---

Simply: No!

**From:** Melinda Kassen  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** Protect Wonderland Lake  
**Date:** Monday, November 14, 2016 11:06:11 PM

---

Please take appropriate regulatory action to protect Wonderland Lake from having multiple fracking wells. Even though the county's blanket moratorium must end, it is important to safeguard public health and safety. Allowing four fracking wells in this family neighborhood is not in the community's best interest.

Melinda Kassen

Sent from my Verizon, Samsung Galaxy smartphone

**From:** Marilyn Schmitt  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** Concerns of Boulder County Fracking  
**Date:** Monday, November 14, 2016 11:47:34 PM

---

To: Boulder County Commissioners

We've lived in unincorporated Boulder County for 24+ years. We love the open space with our beautiful views. Our concerns for the commissioners are as follows:

- We live close to County Rd 1 and are within 3 miles or less of 4 Weld County sites that have recently used hydraulic fracking. If Boulder County does not extend the moratorium, we would ask that for health concerns, consideration be taken into closeness of sites.
- Disposal of fracking material should not be allowed in Boulder County (injections sites have been linked to earthquakes). Never use as dust mitigation - we walk our dogs on the county roads
- Limit drilling on open space
- Obstruction of mountain views should not be allowed. Our taxes have increased substantially over the years and we've accepted it knowing we have beautiful views and that Boulder County has strict building guidelines.
- Limit # of storage tanks or above ground tanks which are an eye sore and will decrease the value of Boulder County homes
- Require maintenance of County Rd 1 for any sites in Boulder County that are directly off of the highway. When it snows, the highway is poorly maintained
- Most of our other concerns have already been noted in other submissions

Thank you for your time!

Marilyn Schmitt

**From:** KAYE FISSINGER  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** Comment for Public Hearing on proposed oil and gas regulations  
**Date:** Tuesday, November 15, 2016 12:21:21 AM

---

I am Kaye Fissinger, President and COB of Our Health, Our Future, Our Longmont. It was our organization that organized (and delivered by voter mandate) the city charter amendment to ban fracking and the disposal of its waste products within city limits. I was the campaign manager for that ballot measure. Unfortunately, the Colorado Supreme Court unanimously struck the ban down, essentially saying that health, safety and welfare issues are irrelevant.

We in Longmont are now facing "re-negotiations" of the TOP Operating Master and Operating agreements. We have no idea what that means because it's all in executive sessions. There is ample indication that the City is considering leasing more of its mineral rights as well as allowing pipeline infrastructure for oil and gas.

The people of Longmont now look to you to take whatever steps necessary to especially protect our air. With Weld County on the east and lots of Boulder County Open Space around Longmont, it will make no difference which way the wind blows -- literally. We will be drowned by toxic trespass. The oil and gas industry is drooling over the opportunity to invade unincorporated Boulder County -- and any other place where there is ample space for drilling pads with all of their hazardous infrastructure.

I understand that you, too, are faced with state Supreme Court rulings, especially the Fort Collins ruling. You don't want an action that invites a lawsuit on the grounds that were presented to the Court. If there is to be a lawsuit of some kind, it should be one where Boulder County is the plaintiff and sets the platform on which the issues are argued.

I strongly encourage you to adopt regulations that are soundly based on constitutional rights of the people to health, safety and welfare. A fourth compendium by Concerned Scientists of New York is due shortly. It was this organization's work in compiling the compendium that was the basis of New York's ban on high-volume unconventional hydraulic fracking. If you haven't reviewed the third version of the compendium, I urge you to do so. Perhaps a "short" moratorium will enable that review and the review of the fourth compendium as well.

There is more than ample evidence that this industry represents hazards of many kinds and especially to young, elderly and vulnerable people. That the State of Colorado offers up the director (a pediatrician, no less) of the CDPHE as the final word on public health and oil and gas is outrageous! The man is a political appointee of Governor Hickenlooper, who will bend over at any request or demand from the oil and gas industry.

Enough is enough. Play hardball wherever and whenever you can.

Thank you for the opportunity to comment. And Our Longmont thanks you for your amicus brief in support of our ban.

Kaye Fissinger  
2199 Creekside Drive  
Longmont, CO 80504-7337

**From:** Alex Peterffy  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** No Fracking PLEASE!!  
**Date:** Tuesday, November 15, 2016 12:58:27 AM

---

Please do not ruin our pristine, gorgeous, healthy and holy landscape by fracking!

1. Hydraulic fracturing is harmful to the climate
2. Is NOT part of the vital energy transition
3. Consumes vast amounts of precious water
4. Contaminates soils, air and water
5. Causes earthquakes
6. Puts arsenic in groundwater tables
7. Doesn't benefit We, the People.

Please don't let the moratorium end!

Sincerely,  
Alex Peterffy  
Boulder Resident

**From:** Joshua GB  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** BOULDER COUNTY'S DRAFT REGULATIONS  
**Date:** Tuesday, November 15, 2016 2:40:54 AM

---

From Joshua Gribschaw-Beck, Boulder County Resident at 4435 Driftwood Pl, Boulder 80301

Hello,

Please enact an additional half-year or longer moratorium to consider new scientific research on the health effects of fracking, including effects from fracking-related air pollution.

If the county refuses to enact a new moratorium, please implement the following regulatory goals and/or provisions:

- A high standard of evidence that a fracking applicant has the means to fund and complete, without public assistance, post-production well-plugging, clean-up, and restoration.
- Baseline measurements of radioactive pollutants conducted by the applicant in soils at or near the well pad before, during, and after production, and a plan in place for any needed clean-up.
- No use of produced water or flowback on county roads or for agriculture, or disposal in any way that could impact soil, groundwater or surface water. Operators held responsible for any spills or leaks of produced water, flowback, fracking chemicals, sand/silica, or other fracking related inputs or outputs.
- The assumption of all costs and responsibility by the applicant for any damage to roads, shoulders or adjacent properties caused by fracking-associated vehicular traffic.
- A land use mitigation plan submitted by the applicant to reduce noise and lighting nuisances relative to surrounding residential areas, and limiting light and noise pollution to designated hours of the day.
- No flaring of gas, to reduce resource waste and prevent air pollution.
- Pre- and post-development sampling of water wells by the applicant up to at least ½ mile from the wellhead, with readings exceeding prescribed limits cause for suspension of fracking operations and remediation at the expense of the operator.

- Applicants must adhere to all relevant Colorado Air Quality and EPA air emission regulations and be regularly inspected by those agencies.

Joshua

Call

Send SMS

Add to Skype

You'll need Skype CreditFree via Skype

**From:** Daisy Gmail  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** Please extend the moratorium on fracking  
**Date:** Tuesday, November 15, 2016 5:48:25 AM

---

Dear Boulder County Commissioners. We the Boulder County Community are paying attention and are invested in keeping fracking out of Boulder County and the city of Boulder. We are concerned for the health and safety of our citizens and our water. We have seen far too many accidents around the country and in our state that prove fracking is dangerous. We believe it should be banned entirely, and do not want it in our community. Please follow the will of the citizens of Boulder County and extend the moratorium on fracking.

Thank you for listening and respecting the wishes of the people.

Sincerely,

Daisy Pettem  
80304

**From:** andrew oconnor  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** Fw: Oil and Gas Industry Declares War on People of Colorado  
**Date:** Tuesday, November 15, 2016 6:12:11 AM

---

Hydraulic fracking companies in Colorado inject into the ground solutions containing known carcinogens endangering the health of the people and the environment.

Fracking wastes massive amounts of water which is a problem in arid Colorado as well as producing large amounts of polluted water and mud. Fracking endangers local aquifers, our drinking water and our health. In March of 2012, Physicians for Social Responsibility called for a moratorium on fracking in order to protect human health and the environment. In June, 2015, New York State banned fracking because of threats to the environment and significant public health risks. On May 2, 2016, the Colorado Supreme Court ruled that profits from fracking trumped the health, safety and welfare of the people of Colorado. Colorado has become a leading oil and gas producer with over 50,000 active wells. The oil and gas industry has declared war on Coloradans and the Colorado Supreme Court will not protect the people from this significant risk to our health and environment. Coloradans must confront this threat to our health and environment and fight back in self-defense. Weibo Ludwig of Calgary, Canada fought back by pouring cement down wellhead shafts and blew up other wells. Malcolm X said: "I don't even call it violence when it's in self defense; I call it intelligence."

Andrew J. O'Connor

1220 W. Devonshire Court

Lafayette, CO 80026

(303) 499-4585

**From:** gayle  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** Fracking  
**Date:** Tuesday, November 15, 2016 6:46:04 AM

---

I strongly support a continued moratorium on fracking in Boulder County and throughout the state. As a citizen of Boulder, I feel we have an obligation to nature and our children to preserve our natural resources and pursue clean energy. Please do the right thing and ban destructive fracking.

Gayle M Frommelt  
1730 Redwood Ave  
Boulder CO

**From:** Seth  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** No fracking in North Boulder  
**Date:** Tuesday, November 15, 2016 6:57:35 AM

---

I am a 40 year resident of North Boulder. In fact, this area was not even considered north Boulder when I moved here. I adamantly oppose any fracking or other excavation in North Boulder but particularly in the Wonderland Lake area. I have walked this area virtually everyday since long before there was housing ringing the lake and development to the northern edge of the now city limits. This pristine are is a home for wildlife and wild flora within the city. This is also an area that is heavily and lovingly used by a vast number of citizens everyday. As I write this I hear Canadian geese flying glass into the lake for a respite from their travels. Fracking anywhere near this lake would be an unimaginable and irreversible tragedy.

Sincerely,  
Seth Temin  
1730 Redwood Avenue

**From:** Amy Melissa  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** Fracking in Boulder County  
**Date:** Tuesday, November 15, 2016 7:07:14 AM

---

Dear Commissioners,

Please extend the ban on Fracking in Boulder County! Living in Boulder county currently, I can count on fresh, non toxic air, beautiful scenery, clean water, and my stable home value. If you open the flood gates to fracking operations, all of that goes into the toilet, and I can count on cancer and chemotherapy in my future from all the toxic chemicals that will be in the air and water. It would be a travesty to do that to the county that I live in. Please consider this when making that decision. Thank you.

Amy Auerbach  
Heatherwood, Boulder County

**From:** Andre  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** Fracking  
**Date:** Tuesday, November 15, 2016 7:16:13 AM

---

It's unacceptable to drill and frack in residential areas. It should be permanently banned in Boulder County!

André Carvalhaes, Ph.D.

www.naturavigilia.com  
andre@naturavigilia.com  
303-482-5125 c  
303-440-8904 f  
572 Union Ave  
Boulder CO 80304

**From:** Scarlet  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** So concerned  
**Date:** Tuesday, November 15, 2016 7:24:07 AM

---

As a mother, health care professional and citizen of Boulder County I am deeply concerned about the practice of fracking. Please extend the Boulder County moratorium for another five years. It is urgent.  
Thank you,  
Scarlet Larkin

**From:** danaminnsundberg@gmail.com  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** Fracking  
**Date:** Tuesday, November 15, 2016 7:26:23 AM

---

For the health of all who would be affected, I oppose any fracking not just where I live but everywhere.

Please do not allow this to happen.

DS  
11/14/16

**From:** lark L  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** Moratorium on fracking  
**Date:** Tuesday, November 15, 2016 7:30:34 AM

---

Dear Boulder County Commissioners,

We the Boulder County Community are paying attention and are invested in keeping cracking out of Boulder County. We are concerned for the health and safety of our citizens, our pets, our water, air and our natural world. We have seen far too many accidents around the country and in our state that prove the cracking is dangerous. We believe it should be banned entirely, and do not want it in our community.

Thank you for listening and respecting the wishes of the people.

Sincerely,  
Lark Latch  
6650 Fairview Drive  
Boulder, CO  
80303

Sent from my Verizon 4G LTE Smartphone

**From:** Kimberly Gibbs  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** Urging you to extend the fracking moratorium  
**Date:** Tuesday, November 15, 2016 7:35:20 AM

---

Dear Boulder County Commissioners,

For all of the reasons that have been presented over the years, I urge you to extend the fracking moratorium once again at today's meeting. Citizens of Boulder County are counting on you.

### Fracking

Make your voice heard

The land adjacent to single-family and townhouse developments south and east of Centaurus High School in Lafayette is currently under consideration for a nearby oil and gas fracking well.

Preliminary siting of the facility in question appears to strategically locate the well just beyond the required 500 feet of nearby homes. Just outside the 500-foot radius of the well site and within an approximately 1,000-foot radius there are over 35 single-family residences, over 40 townhouses, the Coal Creek trail system, Coal Creek and its floodplains, Centaurus High School, Ryan Elementary School, the Louisville wastewater and biosolids treatment plant, and the Laskota Open Space. Just outside of this area lie Louisville recreational ball fields, an organic garden, and Main Street Old Town Louisville within 0.7 mile to the west. The proposed well site is also located immediately adjacent to an abandoned underground room and pillar mine.

The county commissioners will be advised by the county attorney that the state could sue the county if they vote to extend the moratorium. Commissioners— make the call for our communities, our children, and this beautiful place called Boulder County. This is the fight worth fighting!

The Boulder County commissioners are holding a public hearing on whether to extend the moratorium on oil and gas fracking operations in the county at the county courthouse (1325 Pearl St. in Boulder) today (Nov. 15) from 12 p.m. to 2 p.m. Citizens can sign up to speak at the meeting online or sign-up at the courthouse. Comments can also be submitted via email: [oilgascomment@bouldercounty.org](mailto:oilgascomment@bouldercounty.org)  
RACHEL MILLER

**From:** Paula and Chris Blum  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** Please extend fracking Moratorium  
**Date:** Tuesday, November 15, 2016 7:40:30 AM

---

I am a homeowner in Heatherwood, Boulder County. I am against fracking because of the health risks it would impose. It would also lower our house prices.

Please extend the moratorium on Fracking  
Paula Blum  
4700 Kirkwood St  
Boulder, CO 80301

**From:** Shannon Scholtes  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** extending oil and gas moratorium  
**Date:** Tuesday, November 15, 2016 7:54:03 AM

---

Hello,

I am writing today to show my support for extending the moratorium that is currently in place for accepting new applications for oil and gas development. As a Boulder County resident I am concerned about oil and gas development within the county.

Sincerely,  
Shannon Scholtes

**From:** Liz Fisher  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** Extend the Moratorium  
**Date:** Tuesday, November 15, 2016 7:57:19 AM

---

Commissioners,

Boulder County is near and dear to my heart and I know it is to yours as well.

As you deliberate, please take a moment to review this article. It caught my eye because it's highly relevant to the situation we face now.

"Obviously, there is money to be made but I think it's more like fool's gold," said State Senator Bobby Zirkin, who plans to introduce a bill to permanently ban fracking in Maryland. "The public health and environmental costs are just significant. And for that reason and that reason alone, we need to put the brakes on this."

The article links to two recent studies out of Johns Hopkins regarding fracking, premature births and asthma.

Please put the brakes on fracking in Boulder County by extending the moratorium.

Respectfully,

Elisabeth Fisher

[www.wypr.org/post/md-s-fracking-moratorium-expires-lawmakers-plan-ban](http://www.wypr.org/post/md-s-fracking-moratorium-expires-lawmakers-plan-ban)

**From:** Dick Cole  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** Extend Moratorium  
**Date:** Tuesday, November 15, 2016 8:03:12 AM

---

I am against any future oil and gas development in Boulder County. The time is now to keep fossil fuels in the ground and to promote the use of renewable energy sources. Thank you for your consideration-Dick Cole

**From:** Rob and Mauda  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** Please extend moratorium  
**Date:** Tuesday, November 15, 2016 8:03:15 AM

---

As the recent earthquakes around the country demonstrate, we don't know enough about fracking to continue it unfettered. Please extend the moratorium until we know better the consequences of these actions. Thank you.

Mauda Moran  
Longmont resident

**From:** Christine Moore  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** Fracking in Boulder  
**Date:** Tuesday, November 15, 2016 8:22:01 AM

---

I have been a Boulder resident for 50 years. I moved here in 1967 and until recently loved my home and community.

The news that we are considering fracking here is devastating as is the onslaught of traffic and buildings blocking the view of the mountains.

I feel like I may have to run for my life.

I would like to be able to continue living here but these things affect the ability for us all to retain a quality of health and safety.

Please consider extending the moratorium for fracking. Our livelihood and home depend on drinking water that is not poisoned.

Thank you,

Christine Moore  
3630 Iris Ave  
Boulder

“There are only two ways to live your life. One is as though nothing is a miracle. The other is as though everything is a miracle.”

— [Albert Einstein](#)

**From:** Mary Collette Rogers  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** Support for Independent Regulation and Tax to Account for True Costs of Fracked O & G  
**Date:** Tuesday, November 15, 2016 8:30:05 AM

---

I am very concerned about lifting Boulder County's moratorium on oil and gas wells. While it is true that we may need oil & natural gas as transition fuels, the current regulatory apparatus is not adequately safeguarding our future, likely because there is not a truly independent regulatory body.

As I read the newspapers, I get concerned about the amount of farm land that is getting destroyed as a dumping ground for fracking "mud," by the water getting diverted from human use to industrial use with no chance of recovery, by the failure to require adequate bonding for capping, clean-up and restoration, in addition to all of the other water pollution, air pollution, etc. concerns. I volunteer at a farm in Weld County and over the past 5 years, that beautiful, productive land has been turned into an industrial moonscape. How can we do so much to regulate agricultural zoning and then allow industrial uses in both these areas and residential areas. We are ransoming food, water and the future for an immediate quick fix of energy.

If oil and gas are truly transition fuels, they should 1) be adequately regulated and 2) TAXED so we all start paying to transition ourselves to a fossil-free future. There is no reason that we should not NOW be paying the full costs of fossil fuels so we and our children have a decent FUTURE. I think we would treat fossil fuels much more preciously and with care if we were charged their true cost.

Thank you for doing what you can to truly protect us.  
Mary Rogers  
Boulder

--

Mary Collette Rogers  
CookHappyLiveHealthy.org  
303.443.0353

**From:** Corey Kirschner  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** Look to the future, Boulder!  
**Date:** Tuesday, November 15, 2016 8:32:30 AM

---

Hello Boulder County Commissioners:

Thank you for receiving and reading my comments regarding oil and gas development in Boulder County.

I firmly believe that through a dark history of unbridled development of oil and gas production, driven by blinding greed for insane profit margins, lawmakers and industry insiders colluded to create an unstoppable chimera that has forged a total worldwide exploitation and dependence upon these non-renewable and highly-polluting "resources", leading to the global environmental collapse of climate and species we're now witnessing (and pretending isn't happening) around us.

I'm calling on the lawmakers of Boulder County to do the right thing for the future of our planet and the generations of great artists and thinkers to come! I insist that you act upon the will of the majority of the people by abandoning and banning all further oil and gas development in Boulder County. (And ban GMO crops too while you're at it!) Boulder County and City officials must stand strong against the demands of one of the most heinous industries to ever foul our planet, and a complacent Governor and representatives who have apparently been bought by industry lobbyists! What the heck happened in Longmont and where were the Boulder County Commissioners when it came to protecting its own constituents!?!

With what we now know to be fact about the lasting effects to our environment from oil and gas extraction, refinement and usage, caving-in to industry and adding more oil and gas development to Boulder County is a reckless notion and will statistically, inevitably foul Boulder County eco-systems! Adding more oil and gas production in Boulder County will serve to make bigger profits for the industry and a bigger mess for our children's children to try and clean up. That would be short-sighted and ignorant in the name of greed, and totally out-of-step with the Boulder ethos!

And then there's the human atrocity situation currently taking place in Standing Rock, North Dakota: a direct result of an industry that's used to bullying peaceful citizens and municipalities into getting its way! These human atrocities speak volumes about the character of the people behind the oil and gas industry and those who support them. People who will readily wipe-out an indigenous culture or an entire ecosystem for a paycheck!

Boulder County Commissioners must cut all ties to the oil and gas industry altogether and invest in sustainable energy if they care to be on the right side of history. Elon Musk and the Tesla corporation seem to be on a path to sustainability in renewable electric collection and storage, and should be considered as an energy partner for Boulder County instead of "Fracknlooper's big oil"! (And the City of Boulder better get on that traffic mitigation plan fast or there will be a lot more idling cars stuck in the City of Boulder's gridlock, adding greatly to Boulder's carbon emissions footprint!)

Please look to the future, using the past as a learning tool, and don't be influenced by the greed of this industry or threats of legal action from our complacent governor! Do the right thing Boulder County Commissioners, I believe you know what's ethical and what's not!

Thank you again for receiving and reading my opinions on this issue.

Sincerely,

Corey Kirschner

(Boulder County 21+ year property owner and full-time resident, feeling extremely misrepresented by my elected officials right now!)

**From:** Susan Rafii  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** Request to extend fracking moratorium for fracking in Boulder County  
**Date:** Tuesday, November 15, 2016 8:38:03 AM

---

TWMC,

I am writing to share my interest for extending the the moratorium on fracking in Boulder County that is up on Nov. 18th.

I live in North Boulder and am especially concerned about the wells proposed in the Wonderland Hills area. This is an area that is densely populated and would expose those living there to dangerous chemicals and compromised water supplies.

Thank you,

Susan & Cyrus Rafii

115 Meadowlook Way

**From:** Rachel Bender Brenna  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** Extend Fracking Ban  
**Date:** Tuesday, November 15, 2016 8:38:53 AM

---

As a mother and citizen of Boulder County, I urge you to extend the ban on fracking in Boulder County for another five years. Until there is more certainty about the effects of fracking it is imperative for the well being of our community to prevent long term damage to our land and people. Thank you for considering my voice.

Rachel Brenna

516 Collyer St

Longmont, CO 80501

**From:** arnie47f@comcast.net  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** Moritorium  
**Date:** Tuesday, November 15, 2016 8:40:02 AM

---

To: Boulder County Commissioners

I am writing in support of the extension on the moratorium on oil and gas fracking in Boulder County. This activity is an extreme risk to the residents of the affected area and is totally unnecessary to the oil reserve situation in the US and poses a great danger of contaminating water sources. It does, however, benefit one thing; Unbridled greed.

Please put the citizens before the profits.

Arnold Follendorf  
328 S. Jefferson Ave.  
Louisville, CO 80027

**From:** LAURA  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** Oil and Gas comments - new regulations  
**Date:** Tuesday, November 15, 2016 8:41:52 AM

---

I am a resident of Boulder County and concerned about upcoming fossil fuel projects taking place in Colorado. I believe the state needs to balance land use rights of the companies against the bigger picture as it relates to water use and air quality. We are in the midst of climate change that is detrimentally affecting our population. Short term economic gains from Fracking do not outweigh the long-term impacts of using fossil fuels.

We live in a state where we can power all of its homes and businesses from solar energy. We also live in a state where the snow sport/ski industry will eventually dwindle because of rising temperatures. Science and nature need to be at the forefront, not the short-term gains from these projects.

Given that we have stringent permit processes that are proposed, it is vital that the public have an opportunity to reject new projects. If projects are approved, as we suspect they will be, they need to be watched for any violations or environmental impacts.

The majority of the residents in Boulder county do not approve of any new fossil fuel projects. However, it is prudent that any loopholes be closed in upcoming regulations as to prevent any future abuses of the likely approval of permits.

Sincerely,  
Laura Zukosky  
Louisville, CO  
Boulder County resident

**From:** Mircalla Wozniak  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** Support extended moratorium  
**Date:** Tuesday, November 15, 2016 8:54:02 AM

---

I support an extension of the oil & gas moratorium.

Thanks,

Mircalla Wozniak  
Louisville, CO 80027

**From:** mark@ollinfarms.com  
**To:** [Boulder County Oil and Gas Comment](#)  
**Cc:** [Gardner, Deb](#); [Jones, Elise](#); [Domenico, Cindy](#)  
**Subject:** Docket-16-00004 Feedback  
**Date:** Tuesday, November 15, 2016 8:55:33 AM  
**Attachments:** [Docket-16-0004-Feedback.pdf](#)

---

My public comment is attached. I have conducted a literature review to see what new papers and research have come out in the last two years that are relevant to the fracking discussion. There is a list of articles in the attached document and I have digital copies of all of these and am happy to provide them upon request.

-Mark Guttridge

## Docket DC-16-0004: Amendments to Oil and Gas Development Regulations

Written Feedback provided by Mark Guttridge (8627 North 95<sup>th</sup> St Longmont CO)

I feel Boulder County is in a difficult situation. Based upon my experience at past public hearings where greater than 90% of comments encouraged moratoriums or bans on fracking, and given votes by City of Longmont and Lafayette, it is obvious that the majority of citizens don't want fracking here. The Colorado constitution states:

*"All political power is vested in and derived from the people; all government, of right, originates from the people, is founded upon their will only, and is instituted solely for the good of the whole"*

Given this test, it is obvious that the correct course of action is some sort of fracking moratorium or ban. Unfortunately, the case is not that easy in light of the court's ruling that local moratoriums or bans are not valid. My understanding is that the court's decision was based on the fact that oil and gas is regulated in partnership between local and state government and by cities or counties enacting moratoriums or bans they are essentially violating the terms of that partnership. In other words, the State does have a voice in oil and gas development regardless of the will of the local people.

At the time the 2018 moratorium was enacted, the reasoning behind it was to allow for further research to be conducted on the on the environmental and health risks of fracking. I decided to do a literature review to see what the new studies have been showing and was surprised to see that the vast majority of the journal articles, technical papers, and peer reviewed research verified Boulder County citizen's concerns. Unlike the GMO debate earlier this year where there was a lot of science from both sides, the case with fracking is that the vast majority of papers show the dangers of this extractive industry. The following page has a list of papers published in the last couple years. I will be happy to provide pdfs of these papers or full citations as requested.

Category	Source	Title
Earthquakes	Barlow et al(2015)	Fracking and Earthquakes: What's Covered?
Legal	Cook et al (2015)	Who's Pulling the Fracking Strings? Power, collaboration and Colorado fracking policy
Waterless Technology	Crawford (2015)	Taking the hydro our of hydraulic fracturing
Water	EPA (2015)	Assessment of the Potential Impacts of Hydraulic Fracturing for Oil and Gas on Drinking Water Resources
Health Risk	EPA (2015b)	Analysis of Hydraulic Fracturing Fluid Data from the FracFocus Chemical Disclosure Registry 1.0
Water	Fischer et al (2016)	ARE THE WEST'S WATER RESOURCES FRACKED? A STUDY ON THE EFFECTS OF FRACKING AND HOW STATES AND LOCALITIES ARE RESPONDING

Water	Freyman et al (2014)	HYDRAULIC FRACTURING & WATER STRESS: Water Demand by the Numbers
Health Risk	Haley et al (2016)	Adequacy of Current State Setbacks for Directional High-Volume Hydraulic Fracturing in the Marcellus, Barnett, and Niobrara Shale Plays
Legal	Hilson et al (2016)	LITIGATION AGAINST FRACKING BANS AND MORATORIUMS IN THE UNITED STATES: EXIT, VOICE AND LOYALTY
Health Risk	Jemielita et al (2015)	Unconventional Gas and Oil Drilling Is Associated with Increased Hospital Utilization Rates
Health Risk	Kahrilas et al (2015)	Biocides in Hydraulic Fracturing Fluids: A Critical Review of Their Usage, Mobility, Degradation, and Toxicity
Legal	Knight (2015)	The Power of State Interest: Preemption of Local Fracking Ordinances in Home-Rule Cities
Roads	Lindstrom et al (2016)	The impact of natural gas extraction and fracking on state and local roadways
Legal	Loh (2016)	Local Land Use Planning Responses to Hydraulic Fracturing
Health Risk	Mash et al (2014)	Health and fracking: Should the medical profession be concerned?
Health Risk	Ridlington et al (2016)	Dangerous and Close Fracking Puts the Nation's Most Vulnerable People at Risk
Water/Health Risk	Ridlington et al (2016b)	Fracking by the Numbers The Damage to Our Water, Land and Climate from a Decade of Dirty Drilling
Water/Waterless Technology	Rodriguez et al (2015)	Evolving water management practices in shale oil & gas development
Legal	SCHAMBER et al (2015)	Utilizing Home Rule: The Case for Restricting Hydraulic Fracturing at the Local Level
Health Risk	Tustin et al (2016)	Associations between Unconventional Natural Gas Development and Nasal and Sinus, Migraine Headache, and Fatigue Symptoms in Pennsylvania
Legal	Twomey et al (2016)	FRACKING: BLASTING THE BEDROCK OF BUSINESS
Legal	Verschuuren et al (2015)	Hydraulic Fracturing and Environmental Concerns: The Role of Local Government
Water	Oikonomou et al (2016)	Water acquisition and use during unconventional oil and gas development and the existing data challenges: Weld and Garfield counties, CO

Using land-use code to prevent the dangers of fracking is a valid approach (Loh, 2016) and I applaud the County for taking steps toward this. I can tell that much effort and thought has been put into this process. The only edits I would have is to this document are:

*12-500 Application Submittal Requirements Q. Water Supply. Section 5 states:  
An estimate of the amount of water that will be used at the site, where and how the water will be consumed, the amount of wastewater produced, and disposal plans for wastewater.*

I feel that it is important to also define the characteristics (hazardous, non-hazardous) of the wastewater as well as list the potential contaminants that will require this wastewater to be treated or disposed of in an injection well. There is in fact waterless fracking technology (Crawford (2015) and Rodriguez et al (2015)). I personally feel that NONE of our precious water resources should be going to an industry that permanently removes so much of it from the natural hydrologic cycle. There should be mention in the rules that waterless technologies should be evaluated.

*12-400 Application Procedure for Special Review J. Consultant Review.*

I like this option but wonder if a single consultant will be able to provide expertise on air quality, water, health impacts, etc. Perhaps it would be good to allow multiple consultants to be used so expertise in all of these fields can be tapped into. Another option is to allow for a citizens advisory board to review the applications, there are plenty of technical experts right here in Boulder County that could help with the review procedure in order to ensure the safety of our citizens and environment are protected.

---

I am unable to determine whether these codes by themselves will be enough to protect our land, water, and public health or to prevent fracking from entering Boulder County lands. Given the strong sentiment of our citizens against this industry the path forward must do everything possible to prevent fracking from coming here. The alternative is a situation like Standing Rock where citizens put themselves on the front-lines of this battle, by performing acts of non-violent civil disobedience. We must do EVERYTHING in our power to prevent a situation like this from occurring.

My suggestion is to accept the proposed regulations with edits received from public comment by Boulder County citizens. At the same time I think the County should pursue one of the following:

- 1) Extend the moratorium on fracking due to (note references are only from last two years, the county did previous literature reviews that also support this action):
  - Health concerns** (Jemielita et al (2015), Mash et al (2014), Tustin et al (2016), Ridlington et al (2016))
  - **Ecological Concerns** (Ridlington et al (2016b), Freyman et al (2014), EPA (2015), Fischer et al (2016), Barlow et al (2015), Kahrilas et al (2015))
- 2) Enact moratoriums not on fracking but instead on the resources that the industry depends on but that the county has control over, such as:
  - a) Given that our county roads are in a state of emergency, and that an effort to fund their repair through ballot measure 1A has failed, there could justifiably be a moratorium on new industrial activity that will result in excessive large vehicle traffic on our county roads. Oil and

gas development will have a negative impact on county roads (Lindstrom et al, 2016) and it would be irresponsible to allow that to happen without a funding source for road repair identified.

b) Given that we are in the middle of drought and that our water resources are in a state of emergency it is justifiable to place a moratorium on any activity that involves removing large amounts of water from the natural hydrological cycle. The median volume of water required per well in Weld County is 2,740.62 m<sup>3</sup> for the COGCC dataset, and the water needed for new well starts is mainly coming from fresh water sources (Oikonomou et al, 2016). Given the scarcity of water it would be irresponsible to allow for oil and gas development to permanently remove water from natural hydrologic cycles by injecting it into the earth for fracking purposes (not all water is recovered) or disposing of large amounts of water in injection wells.

There are likely similar justifiable "state of emergency" moratoriums that can be made based around climate change and public health.

- 3) I personally feel the County should take one of the first two steps, if these paths are not chosen then I would recommend that the County legalizes non-violent civil disobedience (with training) on public land so that when fracking does come to our county that citizens and our sheriff's department are not pitted against each other in an effort to protect our land and water.

**From:** trisha47b@comcast.net  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** Fracking Comment  
**Date:** Tuesday, November 15, 2016 8:59:08 AM

---

To the Boulder County Commissioners:

Please add my voice to the many Boulder County residents who DO NOT want Fracking operations in Boulder County. I am a Louisville property owner and do not see the validity of the fracking operation being considered in the Lafayette/Louisville area. I hope you will vote for NO FRACKING in Boulder County, anywhere!!!!

Patricia A. Follendorf  
328 S. Jefferson Ave.  
Louisville, CO 80027  
303 926 5501

**From:** Diane Shepard  
**To:** [#LandUsePlanner; Boulder County Oil and Gas Comment](#)  
**Subject:** Public Hearing: Docket DC-16-0004 Amendments to Oil and Gas Development Regulations  
**Date:** Tuesday, November 15, 2016 9:03:14 AM

---

Hello,

I am writing to relay my opinion on fracking in Boulder County. This is a dangerous process causing health issues to humans and the environment. I encourage the decision makers to continue the moratorium on fracking in our county. Also, I have just heard that a fracking site is planned on property next to the Monarch K-12 schools. If this is true, how awful to expose kids to this on a daily basis!

Please, don't allow our beautiful county to be polluted!

--

Diane Shepard  
Nutrition Therapist  
Board Certified in Holistic Nutrition®  
Louisville, Colorado

**From:** Carol  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** Extend fracking ban  
**Date:** Tuesday, November 15, 2016 9:08:43 AM

---

As a mother and citizen of Boulder County, I urge you to please extend the ban on fracking in Boulder County for another five years. It is imperative for the well being of our community, which is such a special place to live and raise our families. Let's be good stewards of this land. Thank you for considering my voice.  
Carol K. Hughes

Sent from my iPhone

**From:** katharine kaufman  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** no fracking  
**Date:** Tuesday, November 15, 2016 9:08:53 AM

---

Please, protect our neighborhoods in Boudler County where we live, work and play.  
Fracking hurts! Extend the ban on fracking for another five years.  
Please!

*Katharine Kaufman*

*KatharineKaufman.com*

*303.702.1106*

*Adjunct Professor, Naropa University*

*MFA dance : choreography/performance*

*MFA writing/poetics : poetry*

**From:** Judypf  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** Support for indefinite moratorium or total ban on new wells and clean up old ones  
**Date:** Tuesday, November 15, 2016 9:09:22 AM

---

Dear County Commissioners Deb, Elise, and Cindy,

While I cannot attend the hearing today, I want to give my written request that you represent the people for health and sustainability. No matter what courts, the governor or any other business interests say or do, I ask you to please, please be more concerned about our health, environment, clean water and air and climate.

You will have huge numbers of us voters and families to support you. Let us be proactive for alternative forms of energy in the face of profit-driven misery for citizens. I just read that there is a proposal to put an oil/gas drill near Centaurus High School and many homes. I am appalled! I lived in Boulder for 40 years before my condo was flooded in 2013. I now live in Boulder County Housing in Louisville and consider Lafayette a sister community.

I am counting on you to protect and honor Boulder County residents.

Very sincerely and with appreciation,  
Judy Feland  
1450 Lincoln Ave #213  
Louisville, CO 80027

**From:** Monica Korber  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** Fracking  
**Date:** Tuesday, November 15, 2016 9:16:27 AM

---

I am opposed to fracking in and around our state. Please count my vote as a NO for fracking.  
I am unable to attend the meeting on November 15th.

Monica Korber  
1559 Hickory Dr.  
Erie, CO 80516  
303-898-0303

**From:** Eric Tussey  
**To:** [Boulder County Oil and Gas Comment](#)  
**Cc:** [openforum@dailycamera.com](mailto:openforum@dailycamera.com)  
**Subject:** Mayhoffer oil and gas development - public health  
**Date:** Tuesday, November 15, 2016 9:17:48 AM

---

Good morning,

I want to add my name to the long list of citizens that want to make the moratorium on oil and gas development **permanent** in Boulder County.

Despite claims from the oil and gas industry - Fracking is not proven safe.

Cement fails, toxic materials leak, and public health suffers causing suffering and substantially higher healthcare costs.

Fracking uses millions of gallons of water (which is polluted with chemicals and then pumped back into the earth). The danger to our aquifers is huge and once they are breached there is no way to fix the issue. Water scarcity is going to be a big issue in the future.

The toxic gases released during the drilling process (and when breaches occur) also causes health problems for people living nearby – and farther away.

The actual concept of drilling for more fossil fuel when need to stop adding Carbon to our atmosphere goes directly against the action we need to take to slow climate change.

This fracking process (cracking the surface of the earth) is causing earthquakes across the Midwest and other parts of our country. We all end up paying for this in higher insurance premiums. How do we hold the industry accountable?

750 feet from residential homes is not an adequate buffer for public health when drilling goes at all angles under the surface.

I cannot believe that there is much logic in allowing fracking to continue - except that people and corporations want to profit at the expense of our collective future.

Please continue to protect the men, women and children of Boulder county by not allowing fracking in our county.

We cannot afford the consequences of this industry – we need to keep our children safe.

Thank you for taking your responsibility seriously. Please take a stand to protect your constituents!

Cordially,

Eric

Eric R. Tussey

5075 51<sup>st</sup> St

Boulder CO 80301

(303) 604 2440

[eric@tussey.com](mailto:eric@tussey.com)



This communication, including attachments, is for the exclusive use of the addressee and may contain proprietary, confidential or privileged information. If you are not the intended recipient, any use, copying, disclosure, dissemination or distribution is strictly prohibited. If you are not the intended recipient, please notify the sender immediately by return e-mail, delete this communication and destroy all copies.

**From:** Maxie Silkes  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** Pls extend fracking moratorium  
**Date:** Tuesday, November 15, 2016 9:19:02 AM

---

Fracking does not belong anywhere near our community! Please extend the moratorium (indefinitely, if possible!).

Best,  
Maxie Silkes  
Boulder, CO

**From:** Kremena Platikanova-Gross  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** moratorium support  
**Date:** Tuesday, November 15, 2016 9:20:55 AM

---

Hello,

As a mother and citizen of Boulder County, I urge you to extend the ban on fracking in Boulder County for another five years. It is imperative for the well being of our community. Thank you for considering my voice.

Kremena Gross

**From:** Gayle Frommelt  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** Re: Automatic reply: Fracking  
**Date:** Tuesday, November 15, 2016 9:21:04 AM

---

6th and Canyon

Sent from my iPhone

On Nov 15, 2016, at 6:46 AM, Boulder County Oil and Gas Comment  
<[oilgascomment@bouldercounty.org](mailto:oilgascomment@bouldercounty.org)> wrote:

Thank you for your comment regarding oil and gas development in unincorporated Boulder County. We value your input on this issue. We are receiving a high volume of comments on this issue therefore staff may be unable to respond to individual comments. The comments will be added to the public record, reviewed by the Board of County Commissioners, and posted to the Oil & Gas Development webpage at [bit.ly/BCoilgas](http://bit.ly/BCoilgas).

Visit [bit.ly/BCoilgas](http://bit.ly/BCoilgas) for more information and to sign-up for email updates.

**From:** Kristin Savory  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** Extend the moratorium on fracking  
**Date:** Tuesday, November 15, 2016 9:21:24 AM

---

I am writing to extend my support and encouragement for moratorium extension on fracking in Boulder.

Please do not allow fracking to occur within city limits or on our open spaces.

Personally- I would love it if that extension could go County wide. Thank you-

--

Kristin Savory, L.Ac.  
Balance Your Hormones~Better Your Life  
303-517-7651  
[www.KristinSavory.com](http://www.KristinSavory.com)

**From:** steve.rasor@comcast.net  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** no fracking  
**Date:** Tuesday, November 15, 2016 9:21:42 AM

---

Dear County Commissioners,

Please do whatever is necessary to delay fracking in any part of Boulder County or its towns until further study PROVES it to be harmless. Empirical evidence indicates it is far from safe. The Denver basin is now in the top 10 areas for unhealthy air quality, at least partly from fracking activities. Oklahoma is becoming a center for earthquakes due to fracking wastewater injection. Millions of gallons of ever more scarce and precious water are being contaminated by fracking activities while we are in the midst of widespread drought.

I know recent court cases have supported the frackers, but we must continue the effort to save the environment. We need to lessen our reliance on oil and gas as soon as possible. Fracking is just enabling a dependency that is suicidal for future generations and the planet as a whole. Please don't let it happen in Boulder County.

Thank you for your efforts to do the right thing.

Steve Rasor

**From:** John Penberthy  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** fracking in Boulder  
**Date:** Tuesday, November 15, 2016 9:23:28 AM

---

To whom it may concern;

I am a resident of north Boulder and recently became aware that the moratorium on fracking in the city expires November 18. I strongly feel that no fracking should take place anywhere in Boulder and support the permanent prohibition of such.

Sincerely,  
John Penberthy  
993 Poplar Pl.  
Boulder, CO 80304

**From:** Alana Eve Burman  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** Please Vote for a New Moratorium on Fracking in Boulder County  
**Date:** Tuesday, November 15, 2016 9:23:55 AM

---

Dear Commissioners,

As a proud, long-time resident of Boulder, I am writing to urge you to vote for a new moratorium on fracking in Boulder County. The threat to our water quality and the long-term affects it will have on our environment and the health of the community make this worth fighting for. In communities where fracking is prevalent, they have seen a shocking increase in groundwater contamination, air and ground pollution, health issues, fracking-induced earthquakes, infrastructure degradation and more. Additionally, fracking uses and contaminates a large amount of our precious low resources of water.

Our quality of life depends on doing everything we can to prevent these threats. I understand that setting a new moratorium sets us up for a continued fight with the Oil and Gas Association and against current rulings on the matter. But, this is a worthy fight that deserves our resolve to push our state to overturn those rulings.

The community is counting on you.

Thank you,

Alana Eve Burman  
Resident, City of Boulder

**From:** Marc Hughes  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** Please Extend Boulder County Fracking Ban  
**Date:** Tuesday, November 15, 2016 9:24:18 AM

---

Dear Boulder County,

I am a resident of Louisville, CO and have a deep love for the beauty and health of my community. I also make my living in part from the oil and gas industry by selling equipment to producers and processors of oil and natural gas.

There is an overwhelming abundance of resources in our County, State, Country, and world. I believe we must have the will to resist developing every location oil and gas exists. I strongly believe we should not develop Boulder County for now due to the needs of healthy population and preservation of the natural beauty that exists.

I support an extension of the hydraulic fracturing ban in Boulder County.

Kind regards,

Marc Hughes  
Louisville, CO

**From:** Dominick Saia  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** Extend Moratorium on Hydraulic Fracturing in Unincorporated Boulder County  
**Date:** Tuesday, November 15, 2016 9:26:30 AM

---

Dear County Commissioners,

I respectfully request that the County Commissioners adopt the recommendation of the Planning Commission to extend the moratorium on hydraulic fracturing in unincorporated Boulder County. I would request that the moratorium be extended until further studies can be performed to confirm and expand those findings in the the recent study from the Yale School of Public Health by Denise L. Meyer dated October 24, 2016 demonstrating that hydraulic fracturing is linked to cancer causing chemicals <http://publichealth.yale.edu/news/article.aspx?id=13714> and cited by the Planning Commission in its recent recommendation to extend the moratorium.

Thanks in advance for your consideration.

Nick

Dominick M. Saia

263 Hoover Avenue

Louisville, Colorado 80027

303-249-6970

[Fracking Linked to Cancer-Causing Chemicals, New YSPH...](#)

publichealth.yale.edu

Search . About; Admissions; Academics; Research; Practice; Faculty ... Who We Are; Information For (Gateways) News & Media

**From:** Karen Dike  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** Regulations for oil and gas  
**Date:** Tuesday, November 15, 2016 9:32:07 AM

---

My first preference, as I am sure is yours as well, is to not have drilling in Boulder County or anywhere near people. We need to take a firm stand against fossil fuels, against pollution of our land, air and water, and against wanton disregard for human and animal life. I hope that this commission will do that.

I hope for at least a further one year moratorium based on new studies that show even more evidence of human health impacts from fracking. We already live in an area with very high ozone, primarily caused by the air pollution related to fossil fuel production. A physician recently compared breathing ozone to using sandpaper inside your lungs. I, like you I am sure, am especially concerned about children. Children breathe more toxins because they have a higher respiratory rate, are closer to the ground where many of the toxins linger, and are more likely to be outside. Their little bodies are unable to detoxify these pollutants making them more susceptible to cancers, and other health effects.

If you decide you are unable to enact a new moratorium, please consider the following provisions:

- Prior to approval of any wells, the applicant must be screened and be able to provide a high bond to cover any spills, and post-production well-plugging, clean-up, and restoration.
- Baseline measurements of radioactive pollutants and other toxins conducted by the applicant in soils at or near the well pad before, during, and after production, and a plan in place for any needed clean-up.
- Baseline air sample measurement of VOC's, followed by random sampling at least every 3 months and with any activity such as at time of fracking, with any flaring, any spill and any citizen complaint of odors.
- No use of produced water or flowback on county roads or for agriculture, or disposal in any way that could impact soil, groundwater or surface water. Operators held responsible for any spills or leaks of produced water, flowback, fracking chemicals, sand/silica, or other fracking related inputs or outputs.
- The assumption of all costs and responsibility by the applicant for any damage to roads, shoulders or adjacent properties caused by fracking-associated vehicular traffic.
- A land use mitigation plan submitted by the applicant to reduce noise and lighting nuisances relative to surrounding residential areas, and limiting light and noise pollution to designated hours of the day.
- No flaring of gas, to reduce resource waste and prevent air pollution.
- Pre- and post-development sampling of water wells by the applicant up to at least ½ mile from the wellhead, with readings exceeding prescribed limits cause for suspension of fracking operations and remediation at the expense of the operator.

Thank you for consideration of a further moratorium.

--

***Karen Dike***

[karendike@gmail.com](mailto:karendike@gmail.com)

720-363-7119

303-834-8252

**From:** Meera Doranna LeVine  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** comment on oil and gas moratorium  
**Date:** Tuesday, November 15, 2016 9:44:51 AM

---

To the committee,

I am another Boulder city citizen, property owner and tax payer, adding my voice to ask that we be forethinking and pursue Boulder's commitment to renewable energy and energy sustainability through continuing the moratorium on fracking.

It is a most invasive way to extract oil and gas and is not necessary as other energy sources exist. Given the shifting weather patterns water needs to be thought of as our most precious resource not oil and gas. Without water we die, without oil and gas we are inconvenienced.

Kindly consider the consequences for generations to come not just current profit for large corporations.

Thanking You,

Doranna Levine

1151 Utica Circle, Boulder 80304.

**From:** [Wufoo](#)  
**To:** [Boulder County Board of Commissioners](#)  
**Subject:** County Commissioners Contact Us/Feedback Form. [#216]  
**Date:** Tuesday, November 15, 2016 9:45:49 AM

---

Name *	Scott Sala
Email *	<a href="mailto:ssalaefowl@yahoo.com">ssalaefowl@yahoo.com</a>
Phone Number (optional)	(303) 915-8016
My Question or Feedback most closely relates to the following subject: (fill in the blank) *	Fracking Moratorium
Comments, Question or Feedback *	<p>Dear County Commissioners,</p> <p>I, along with many other concerned citizens respectfully request that the County Commissioners extend the moratorium on hydraulic fracturing in unincorporated Boulder County. Scientific evidence continues to show the variety of dangers caused by fracking, let alone the wasteful use of water.</p> <p>Thank you so much for the work that you do.</p> <p>Sincerely and Cheers, Scott Sala</p>
Please check box below *	<ul style="list-style-type: none"><li><input type="checkbox"/> I acknowledge receipt of the Open Records Notification</li></ul>

---

**From:** Melissa Yang  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** Fracking Moratorium  
**Date:** Tuesday, November 15, 2016 9:47:39 AM

---

Dear County Commissioners,

I work full time and have 3 kids, if I could be there in person today I would. In lieu of being there in person, I wanted to write to respectfully request that the County Commissioners adopt the recommendation of the Planning Commission to extend the moratorium on hydraulic fracturing in unincorporated Boulder County. I would request that the moratorium be extended until further studies can be performed to confirm and expand those findings in the the recent study from the Yale School of Public Health by Denise L. Meyer dated October 24, 2016 <http://publichealth.yale.edu/news/article.aspx?id=13714> demonstrating that hydraulic fracturing is linked to cancer causing chemicals and cited by the Planning Commission in its recent recommendation to extend the moratorium.

Thanks you for your consideration.

Melissa Yang  
717 Starkey Ct  
Erie, CO 80516  
303-664-1315

**From:** Eli Akerstein  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** Strongly oppose fracking in Boulder County  
**Date:** Tuesday, November 15, 2016 10:02:27 AM

---

I am a homeowner in Gunbarrel and I strongly oppose any Fracking in Boulder County. Please take the people's preferences seriously to keep fracking out of Boulder County.

Eli  
4881 White Rock Circle Unit E Boulder CO 80301

**Eli Akerstein**

617 821 0969

[Photography Portfolio](#)

LIKE THE WORK? Leave a review!

**YELP**

<http://www.yelp.com/biz/eli-akerstein-photography-boulder>

**GOOGLE**

<https://plus.google.com/116154815294488477236/about?hl=en>

**From:** Laurent Meillon  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** Please extend the Memoratorium  
**Date:** Tuesday, November 15, 2016 10:02:33 AM

---

As a citizen of the US, Colorado, a small business owner who regularly works in Boulder County and entertains many friendships there, in the face of our state and national energy policies and elections, i would like to ask you to renew the fracking moratorium.

It is very important, and currently a last line of defense for the health and living environment of Boulder County residents but also the whole state population. It's pretty clear that not renewing this protection in one of the most progressive county in the nation, in the face of the rise to power of an administration which denies climate science, this would lead to a big problem of unpopularity of Boulder Commissioners.

Best regards,

**Laurent Meillon**  
**Tel (303) 623 2542**

"A human being is part of the whole called by us 'universe', a part limited in time and space. We experience ourselves, our thoughts and feelings as something separate from the rest. A kind of optical delusion of consciousness. This delusion is a kind of prison for us, restricting us to our personal desires and to affection for a few persons nearest to us. Our task must be to free ourselves from the prison by widening our circle of compassion to embrace all living creatures and the whole of nature in its beauty."  
Albert Einstein, 1954

**From:** mklump  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** Oil gas Moratorium  
**Date:** Tuesday, November 15, 2016 10:03:40 AM

---

It is imperative that you hold the course on a Moratorium! How did it even get to this point?  
The well proposed for the land between Louiseville and Lafayette was supposed to be open space under the intergovernmental agreement!! GET YOUR STUFF TOGETHER AND BUY THIS LAND.... IT'S TIME YOU TOOK CARE OF THOSE OF US IN THE TOWNS AND NOT JUST BUY OPEN SPACE OUTSIDE THE CITY!!!!

Sent from my Galaxy Tab® A

**From:** suellyn jackson  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** Oil and Gas  
**Date:** Tuesday, November 15, 2016 10:07:04 AM

---

Please protect Boulder County from Fracking...big money wants to drill anywhere they please. They may be able to do this with our new president. We must eventually give citizens the right to govern their county...their home and their health. You were elected by the voters to protect our rights.

Thank you, Sue Jackson...resident of Boulder

**From:** Tamara Anderson  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** Moratorium extension  
**Date:** Tuesday, November 15, 2016 10:13:22 AM

---

Please extend the moratorium on oil and gas fracking operations in Boulder county.

Tamara Anderson  
107 S. Tanager Court  
Louisville, CO 80027  
303.665.8434

**From:** Patty Sunfield  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** No Fracking BOULDER  
**Date:** Tuesday, November 15, 2016 10:15:50 AM

---

Native Boulderite Patria Sunfield

*Sent from my Verizon Wireless 4G LTE Droid*

**From:** Jim Robinson  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** Fracking at Mayhoffer  
**Date:** Tuesday, November 15, 2016 10:21:00 AM

---

Please do whatever is necessary to restrict fracking at this or any site in Boulder County.

I support any and all methods to do so.

**From:** Paula Oransky  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** Moratorium on Fracking  
**Date:** Tuesday, November 15, 2016 10:22:04 AM

---

Dear County Commissioners,

I write to you as a Boulder County homeowner, voter, and working mother of two children. I respectfully request that the County Commissioners adopt the recommendation of the Planning Commission to extend the moratorium on hydraulic fracturing in unincorporated Boulder County. I would request that the moratorium be extended until further studies can be performed to confirm and expand those findings in the the recent study from the Yale School of Public Health by Denise L. Meyer dated October 24, 2016 <http://publichealth.yale.edu/news/article.aspx?id=13714> demonstrating that hydraulic fracturing is linked to cancer causing chemicals and cited by the Planning Commission in its recent recommendation to extend the moratorium. I'm sure you can understand how a study like this raises concerns for families with young children like mine.

Thanks in advance for your consideration.

Sincerely,  
Paula Oransky  
Erie, CO

**From:** Nina Asnes  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** No Fracking in Boulder please!!  
**Date:** Tuesday, November 15, 2016 10:24:00 AM

---

Hi,

I am at work today so will not be attending the meeting but I would like to say that we want to have the ban on Fracking continued in Boulder County.

No Fracking please!!!

Thank you!

Regards,  
Nina

Nina Asnes  
[ninaasnes@comcast.net](mailto:ninaasnes@comcast.net)

**From:** Kimberly J Redublado  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** I support NO Fracking in Boulder County  
**Date:** Tuesday, November 15, 2016 10:24:46 AM

---

Please put our resources into renewable energy, not disruptive, and dangerous ground fracking of natural gas. Thank you.

Kimberly Redublado  
Louisville, CO

**From:** Susan McEachern  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** Fracking moratorium--I support  
**Date:** Tuesday, November 15, 2016 10:27:55 AM

---

I hope you'll vote to continue the fracking moratorium in Boulder County. I am especially concerned about the use of scarce water resources the potential for groundwater contamination.

Regards,  
Susan McEachern  
799 Aspen Way  
Louisville, CO 80027

**From:** Sandra Hockenbury  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** Additions to Proposed Regulations: Protect and Empower Our Community  
**Date:** Tuesday, November 15, 2016 10:39:18 AM

---

Dear Commissioners,

First, I urge you to extend the moratorium. According to media reports, the number of wells per pad could be five times the current rate. Five times the wells per pad means five times the measured AND unmeasured emissions, leaks, contamination, and toxic exposure and effects.

I would urge you to consider the following additions/revisions to the proposed regulations:

- 1) REQUIRE comprehensive BASELINE measurements of air, water, and soil quality BEFORE work begins so that gas/oil companies cannot evade responsibility for declines subsequent to well development by claiming that the problems predate the wells, or that contaminants (such as methane in well water) are due to “natural causes.”
- 2) REQUIRE ongoing, on-site monitoring of air, water, and soil quality so that spills and other problems can be quickly detected and remediated. There are too few inspectors to monitor the well sites.
- 3) EMPOWER landowners and concerned citizens to monitor the well sites themselves rather than relying on industry or COGCC to self-police. For example, portable infrared cameras can detect and record fugitive emissions. Just as the city and county train volunteers to monitor bat populations and raptor nests, create a citizen science program that trains and equips volunteers to monitor well sites.
- 4) REQUIRE oil/gas companies to fully fund escrow accounts for remediation BEFORE work begins so that there are adequate funds available if they declare bankruptcy and walk away after they’ve taken their profits.
- 5) REQUIRE additional safeguards (such as setback distance from well sites) to protect sensitive populations, such as schools, day care centers, hospitals, nursing homes, and historically disenfranchised communities.
- 6) REQUIRE on-site toxicity tests of groundwater samples, given that we do not know the makeup of the proprietary mix of chemicals that will be injected into the ground.
- 7) CONSULT staff from Rocky Mountain National Park — the park is already showing adverse effects from ambient air quality. How will hundreds of additional wells affect the health of this national treasure? The number of wells may need to be capped to protect RMNP.
- 8) REQUIRE oil/gas companies to fund a local “Superfund” so that we do not have to rely on federal help to clean up the inevitable spills. The incoming administration has promised to eliminate the EPA. Even if they don’t succeed in abolishing the Agency, you should assume that EPA resources will be severely cut.

Finally, enforcement needs to be improved. Look at the numbers in Appendix C. According to the Commission's own data, almost half of wells had uncontrolled emissions, and it took an average of 20 days to fix the problem. This is unacceptable.

Widespread fracking in our county will amount to an uncontrolled experiment on our children and valued common resources from proprietary and undisclosed contaminants. We need to make the regulations as comprehensive as possible.

Thank you for your consideration!

Sandy Hockenbury  
3840 Lakebriar Drive  
Boulder, CO 80304

**From:** Susan Guegan  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** moratorium on fracking  
**Date:** Tuesday, November 15, 2016 10:40:43 AM

---

Dear Boulder County Commissioners,

I will be in attendance for the November 15 meeting and know my feelings about extending the moratorium will be adequately expressed by others already signed up to speak, but I did want to express my concerns with the fracking process by requesting the moratorium be extended. It is an important message to send to other jurisdictions that are dealing with similar concerns, as well as the President-elect, that fracking is not welcome here or anywhere else as it causes more harm to the planet than any possible good that may be extolled.

Many thanks for the opportunity to comment and take part in the process,

Susan Schiliro Guegan

.....

Susan Schiliro Guegan, CHN, NC

Board Certified in Holistic Nutrition®(Candidate)

MBS Functional Nutrition ([www.mbsfn.net](http://www.mbsfn.net))

720.480.4266     [susan.guegan@comcast.net](mailto:susan.guegan@comcast.net)

Nutrition With a Mission!

**From:** kc waters guarascio  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** fracking moratorium extension!  
**Date:** Tuesday, November 15, 2016 10:57:05 AM

---

Please extend the fracking moratorium for boulder county. it is unhealthy for our people and environment....better yet, make it illegal!!  
thank you - Osha Waters

--

## Sat Katar: Truth is the doer of all things

### The Holy Longing

Tell a wise person, or else keep silent,  
because the mass man will mock it right away.  
I praise what is truly alive,  
what longs to be burned to death.

In the calm water of the love-nights,  
where you were begotten, where you have begotten,  
a strange feeling comes over you,  
when you see the silent candle burning.

Now you are no longer caught in the obsession with darkness,  
and a desire for higher love-making sweeps you upward.

Distance does not make you falter.  
Now, arriving in magic, flying,  
and finally, insane for the light,  
you are the butterfly and you are gone.  
And so long as you haven't experienced this: to die and so to grow,  
you are only a troubled guest on the dark earth

Johann Wolfgang von Goethe *Translated from the German by Robert Bly*

**From:** Bonnie Helmar  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** No Fracking in Boulder County  
**Date:** Tuesday, November 15, 2016 11:00:45 AM  
**Attachments:** [No Fracking Way - Boulder County.docx](#)

---

Dear Boulder County Commissioners and Boulder Planning Commission;

As a concerned citizen and constituent of Boulder City and County, I am writing today to express my concern about the expiration of the moratorium on fracking. Fracking is a well-documented environmental hazard that has negative side effects, including air pollution, well contamination, environmental destruction, water pollution as well as negative economic impacts. We cannot allow fracking in Boulder County! Fracking will negatively affect our health and safety, our property values, and our way of life. While fracking companies offer assurances and claim that their operations are safe, these claims are untrue! Observe the many accidents and incidents around the country, and even here in nearby Erie, where pollution levels are presenting harmful threats to the people and the environment. Moreover, fracking companies are unwilling to work with local communities to ensure safety measures, or to even follow the suggested guidelines outlined below. Please implement a new moratorium of at least six months to a year in order to finalize the following:

- 1) Require the fracking companies to open their books, this will give you the assurance that they are solvent and can take responsibility for any clean up needed (the city should not have to pay for this!!!!)
- 2) Sign a contract with these fracking companies that require them to clean up any and all hazards created by them. Again, this should not be the cities responsibility!
- 3) Require fracking companies to be open and transparent about the chemicals they are using for their work. We should not have toxic solutions injected into our soil – we need to know the chemical recipes!
- 4) Require the fracking companies to outline and implement a plan for the disposal of the fracking waste that does not do environmental damage to our county! In other counties, they just dump it into agricultural fields, or use it for dust mitigation; we must ensure this does not happen here. The waste produced from fracking in Colorado is slightly radioactive... we do not need to bring all this up to the surface! Our children are at the greatest risk!!!

Please support Boulder in staying at the forefront of health, environmental stewardship, and sound city/county planning! You give priority to organic farming, how could you consider allowing fracking in Boulder County? For everyone's sake, but especially for our children, consider the above with utmost thoughtfulness.

Respectfully yours,

Keeley Stokes

**From:** Eileen Rojas  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** Boulder County Moratorium  
**Date:** Tuesday, November 15, 2016 11:02:02 AM

---

Dear County Commissioners,

I would like to follow up on my previous email. I wholly support a moratorium on further fracking development in Boulder County.

More time is needed to review the increasing number of studies showing the human health risks associated with fracking, as well as the overt environmental concerns.

Please uphold this moratorium so that thoroughly researched regulations can be developed to keep all of us residents of Boulder County safe.

Thank you,  
Eileen Krenzel Rojas, Ph.D.  
Erie, Boulder County, CO

Sent from my iPhone

**From:** Kathleen Johns  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** No Fracking  
**Date:** Tuesday, November 15, 2016 11:02:10 AM

---

I strongly believe we should not allow Fracking. Please extend the moratorium and let's find safer ways to meet our needs so we and the earth can survive.

Thank you,  
Kathleen

**From:** Emily Eley  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** Fracking Regulations  
**Date:** Tuesday, November 15, 2016 11:02:30 AM

---

Dear Boulder County Commissioners and Boulder Planning Commission;

As a concerned citizen and constituent of Boulder City and County, I am writing today to express my concern about the expiration of the moratorium on fracking. Fracking is a well-documented environmental hazard that has negative side effects, including air pollution, well contamination, environmental destruction, water pollution as well as negative economic impacts. We cannot allow fracking in Boulder County! Fracking will negatively affect our health and safety, our property values, and our way of life. While fracking companies offer assurances and claim that their operations are safe, these claims are untrue! Observe the many accidents and incidents around the country, and even here in nearby Erie, where pollution levels are presenting harmful threats to the people and the environment. Moreover, fracking companies are unwilling to work with local communities to ensure safety measures, or to even follow the suggested guidelines outlined below. Please implement a new moratorium of at least six months to a year in order to finalize the following:

- 1) Require the fracking companies to open their books, this will give you the assurance that they are solvent and can take responsibility for any clean up needed (the city should not have to pay for this!!!!)
- 2) Sign a contract with these fracking companies that require them to clean up any and all hazards created by them. Again, this should not be the cities responsibility!
- 3) Require fracking companies to be open and transparent about the chemicals they are using for their work. We should not have toxic solutions injected into our soil – we need to know the chemical recipes!
- 4) Require the fracking companies to outline and implement a plan for the disposal of the fracking waste that does not do environmental damage to our county! In other counties, they just dump it into agricultural fields, or use it for dust mitigation; we must ensure this does not happen here. The waste produced from fracking in Colorado is slightly radioactive... we do not need to bring all this up to the surface! Our children are at the greatest risk!!!

Please support Boulder in staying at the forefront of health, environmental stewardship, and sound city/county planning! You give priority to organic farming, how could you consider allowing fracking in Boulder County? For everyone's sake, but especially for our children, consider the above with utmost thoughtfulness.

Respectfully yours,

Emily Eley

**From:** juniperstokes@gmail.com  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** No Fracking in Boulder County  
**Date:** Tuesday, November 15, 2016 11:06:27 AM

---

Dear Boulder County Commissioners and Boulder Planning Commission;

As a citizen and constituent of Boulder City and County, I am writing today to express my concern about the expiration of the moratorium on fracking. Fracking is a well-documented environmental hazard that has negative side effects, including air pollution, well contamination, environmental destruction, water pollution as well as negative economic impacts. We cannot allow fracking in Boulder County. Fracking will negatively affect our health and safety, our property values, and our way of life.

While fracking companies offer assurances and claim that their operations are safe, these claims are untrue. Observe the many accidents and incidents around the country, and even here in nearby Erie, where pollution levels are presenting harmful threats to the people and the environment. Moreover, fracking companies are unwilling to work with local communities to ensure safety measures. We've seen how fracking destroys communities throughout the country. Do not allow fracking to destroy ours.

Please support Boulder in staying at the forefront of health, environmental stewardship, and sound city/county planning. You give priority to organic farming, how could you consider allowing fracking in Boulder County? For everyone's sake, but especially for our children, consider the above with utmost thoughtfulness.

Respectfully yours,

Juniper Stokes

--  
--

<http://juniperstokes.com/>  
<http://www.elaromatherapy.com/>

**From:** Daria Schaffnit  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** Please Extend Fracking Moratorium  
**Date:** Tuesday, November 15, 2016 11:07:38 AM

---

To Whom It May Concern:

I am writing today to urge you to extend the moratorium on fracking in Boulder County. Our family moved to Colorado in August. We were shocked to see the massive extent of gas drilling. We were forced to reject two wonderful houses in the \$350,000-\$450,000 range because we didn't want a gas well behind our house or next to our son's playground. The known health and environmental effects are entirely too serious to ignore in order to live in our dream house.

Thanks for your time.

Sincerely,  
Rev. Daria Schaffnit

**From:** Jake Takiff  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** Concerned farmer  
**Date:** Tuesday, November 15, 2016 11:08:58 AM

---

As a farmer in Lyons, I am greatly concerned about the effects that fracking will have on my business. It's been proven that fracking pollutes the soil and the water table. If you can't stop them from drilling here then I will be moving my organic farm elsewhere. Clean water is a priority for my family and my business.

Jake Takiff  
Eagle Canyon Farm

**From:** Laurie Amodeo  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** Please Listen: No Fracking in Boulder  
**Date:** Tuesday, November 15, 2016 11:09:57 AM

---

Dear Boulder County Commissioners and Boulder Planning Commission;

As a concerned citizen and constituent of Boulder City and County, I am writing today to express my concern about the expiration of the moratorium on fracking. Fracking is a well-documented environmental hazard that has negative side effects, including air pollution, well contamination, environmental destruction, water pollution as well as negative economic impacts. We cannot allow fracking in Boulder County! Fracking will negatively affect our health and safety, our property values, and our way of life. While fracking companies offer assurances and claim that their operations are safe, these claims are untrue! Observe the many accidents and incidents around the country, and even here in nearby Erie, where pollution levels are presenting harmful threats to the people and the environment. Moreover, fracking companies are unwilling to work with local communities to ensure safety measures, or to even follow the suggested guidelines outlined below. Please implement a new moratorium of at least six months to a year in order to finalize the following:

- 1) Require the fracking companies to open their books, this will give you the assurance that they are solvent and can take responsibility for any clean up needed (the city should not have to pay for this!!!!)
- 2) Sign a contract with these fracking companies that require them to clean up any and all hazards created by them. Again, this should not be the cities responsibility!
- 3) Require fracking companies to be open and transparent about the chemicals they are using for their work. We should not have toxic solutions injected into our soil – we need to know the chemical recipes!
- 4) Require the fracking companies to outline and implement a plan for the disposal of the fracking waste that does not do environmental damage to our county! In other counties, they just dump it into agricultural fields, or use it for dust mitigation; we must ensure this does not happen here. The waste produced from fracking in Colorado is slightly radioactive... we do not need to bring all this up to the surface! Our children are at the greatest risk!!!

Please support Boulder in staying at the forefront of health, environmental stewardship, and sound city/county planning! You give priority to organic farming, how could you consider allowing fracking in Boulder County? For everyone's sake, but especially for our children, consider the above with utmost thoughtfulness.

Respectfully yours,

Laurie Amodeo  
(Resident of Louisville, CO - Boulder County)

**From:** Laura Koschade  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** FW: Scan from Branch 61 tellers  
**Date:** Tuesday, November 15, 2016 11:12:15 AM  
**Attachments:** [document2016-11-13-221508.pdf](#)

---

This message was sent securely using ZixCorp.

Attached is my signature in support of an extended moratorium on fracking in Boulder County.  
Thank you.

**Laura Koschade**

**From:**  
**Sent:** Tuesday, November 15, 2016 11:10 AM  
**To:** Laura Koschade  
**Subject:** Scan from Branch 61 tellers

EMAIL DISCLAIMER This transmission, including any attachments, is for the sole use of the intended recipients and contains information from Citywide Banks that may be privileged and confidential. If you are not the intended recipient, you are hereby notified that any disclosure, copying, printing, distribution or use of any of the information contained in or attached to this transmission is strictly prohibited. If you have received this transmission in error, please notify the sender by email or telephone immediately and delete the original transmission.

---

This message was secured by [ZixCorp](#)<sup>(R)</sup>.

Dear Boulder County Commissioners and Boulder Planning Commission;

As a concerned citizen and constituent of Boulder City and County, I am writing today to express my concern about the expiration of the moratorium on fracking. Fracking is a well-documented environmental hazard that has negative side effects, including air pollution, well contamination, environmental destruction, water pollution as well as negative economic impacts. We cannot allow fracking in Boulder County! Fracking will negatively affect our health and safety, our property values, and our way of life. While fracking companies offer assurances and claim that their operations are safe, these claims are untrue! Observe the many accidents and incidents around the country, and even here in nearby Erie, where pollution levels are presenting harmful threats to the people and the environment. Moreover, fracking companies are unwilling to work with local communities to ensure safety measures, or to even follow the suggested guidelines outlined below. Please implement a new moratorium of at least six months to a year in order to finalize the following:

- 1) Require the fracking companies to open their books, this will give you the assurance that they are solvent and can take responsibility for any clean up needed (the city should not have to pay for this!!!!)
- 2) Sign a contract with these fracking companies that require them to clean up any and all hazards created by them. Again, this should not be the cities responsibility!
- 3) Require fracking companies to be open and transparent about the chemicals they are using for their work. We should not have toxic solutions injected into our soil – we need to know the chemical recipes!
- 4) Require the fracking companies to outline and implement a plan for the disposal of the fracking waste that does not do environmental damage to our county! In other counties, they just dump it into agricultural fields, or use it for dust mitigation; we must ensure this does not happen here. The waste produced from fracking in Colorado is slightly radioactive... we do not need to bring all this up to the surface! Our children are at the greatest risk!!!

Please support Boulder in staying at the forefront of health, environmental stewardship, and sound city/county planning! You give priority to organic farming, how could you consider allowing fracking in Boulder County? For everyone's sake, but especially for our children, consider the above with utmost thoughtfulness.

Respectfully yours,



Laura Koschade

**From:** Mark Barckholtz  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** No on fracking  
**Date:** Tuesday, November 15, 2016 11:14:56 AM  
**Attachments:** [NoBoulderCountyFracking161115.docx](#)

---

Please consider this letter.  
Mark Barckholtz

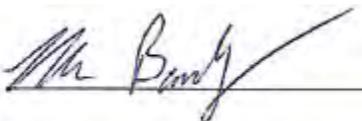
Dear Boulder County Commissioners and Boulder Planning Commission;

As a concerned citizen and constituent of Boulder City and County, I am writing today to express my concern about the expiration of the moratorium on fracking. Fracking is a well-documented environmental hazard that has negative side effects, including air pollution, well contamination, environmental destruction, water pollution as well as negative economic impacts. We cannot allow fracking in Boulder County! Fracking will negatively affect our health and safety, our property values, and our way of life. While fracking companies offer assurances and claim that their operations are safe, these claims are untrue! Observe the many accidents and incidents around the country, and even here in nearby Erie, where pollution levels are presenting harmful threats to the people and the environment. Moreover, fracking companies are unwilling to work with local communities to ensure safety measures, or to even follow the suggested guidelines outlined below. Please implement a new moratorium of at least six months to a year in order to finalize the following:

- 1) Require the fracking companies to open their books, this will give you the assurance that they are solvent and can take responsibility for any clean up needed (the city should not have to pay for this!!!!)
- 2) Sign a contract with these fracking companies that require them to clean up any and all hazards created by them. Again, this should not be the cities responsibility!
- 3) Require fracking companies to be open and transparent about the chemicals they are using for their work. We should not have toxic solutions injected into our soil – we need to know the chemical recipes!
- 4) Require the fracking companies to outline and implement a plan for the disposal of the fracking waste that does not do environmental damage to our county! In other counties, they just dump it into agricultural fields, or use it for dust mitigation; we must ensure this does not happen here. The waste produced from fracking in Colorado is slightly radioactive... we do not need to bring all this up to the surface! Our children are at the greatest risk!!!

Please support Boulder in staying at the forefront of health, environmental stewardship, and sound city/county planning! You give priority to organic farming, how could you consider allowing fracking in Boulder County? For everyone's sake, but especially for our children, consider the above with utmost thoughtfulness.

Respectfully yours,

A handwritten signature in black ink, appearing to read "Mark Barckholtz", written over a horizontal line.

Mark Barckholtz

11-15-2016

**From:** Kirsten Boyer  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** new moratorium on fracking  
**Date:** Tuesday, November 15, 2016 11:15:15 AM

---

Dear Boulder County Commissioners and Boulder Planning Commission;

As a concerned citizen and constituent of Boulder City and County, I am writing today to express my concern about the expiration of the moratorium on fracking. Fracking is a well-documented environmental hazard that has negative side effects, including air pollution, well contamination, environmental destruction, water pollution as well as negative economic impacts. We cannot allow fracking in Boulder County! Fracking will negatively affect our health and safety, our property values, and our way of life. While fracking companies offer assurances and claim that their operations are safe, these claims are untrue! Observe the many accidents and incidents around the country, and even here in nearby Erie, where pollution levels are presenting harmful threats to the people and the environment. Moreover, fracking companies are unwilling to work with local communities to ensure safety measures, or to even follow the suggested guidelines outlined below. Please implement a new moratorium of at least six months to a year in order to finalize the following:

- 1) Require the fracking companies to open their books, this will give you the assurance that they are solvent and can take responsibility for any clean up needed (the city should not have to pay for this!!!!)
- 2) Sign a contract with these fracking companies that require them to clean up any and all hazards created by them. Again, this should not be the cities responsibility!
- 3) Require fracking companies to be open and transparent about the chemicals they are using for their work. We should not have toxic solutions injected into our soil – we need to know the chemical recipes!
- 4) Require the fracking companies to outline and implement a plan for the disposal of the fracking waste that does not do environmental damage to our county! In other counties, they just dump it into agricultural fields, or use it for dust mitigation; we must ensure this does not happen here. The waste produced from fracking in Colorado is slightly radioactive... we do not need to bring all this up to the surface! Our children are at the greatest risk!!!

Please support Boulder in staying at the forefront of health, environmental stewardship, and sound city/county planning! You give priority to organic farming, how could you consider allowing fracking in Boulder County? For everyone's sake, but especially for our children, consider the above with utmost thoughtfulness.

Respectfully yours,

Kirsten Boyer

**From:** Allan M  
**To:** [Boulder County Oil and Gas Comment](#)  
**Date:** Tuesday, November 15, 2016 11:15:19 AM

---

Dear Commisioners,

I would like to address the issue of a continued moratorium on fracking within the county. The merits of the argument against fracking are not in question. But the issue of local control is important and continues to beg for a reasonable resolution. Neither the State Supreme Courts' ruling, the panel put together by the Govenor nor the failed attempt to put the issue on the ballot gave any resolution. The Govenors panel is derided by most people as ineffectual at best and loaded towards the benefit of extractors. The ballot measure would have put the issue to rest and hopefully will get on the ballot in the near term. But it is the State law which gives the supervision of oil and gas extraction it's mission needs to change. Until that mission is re-stated to reflect the safety and health of local communities -and ultimately affirming local control- we are within our rights to continue the moratorium.

I very strongly support the continuance of the moratorium. I think that your legal counsel -as heard in previous instances at least- should be much more assertive, confident in the cause of protecting our county's citizens from abuse by an essentially unregulated industry. I would hope that a way can be found to further the work that Fort Collins has done with optimism that the cause is just.

Allan Mueller  
Jamestown, Colorado

**From:** Tiffanie Kung  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** No to fracking  
**Date:** Tuesday, November 15, 2016 11:15:54 AM  
**Attachments:** [image001.png](#)  
[No Fracking Way - Boulder County.docx](#)

---

Hi there,

Please see attached letter. Thank you.

--

**Tiffanie Kung**

Customer and Community Services Coordinator



**Via Mobility Services**

2855 N. 63rd St | Boulder, Colorado 80301

**TEL** 303.447. 2848 x 1037 | **FAX** 303.444.5960

[www.viacolorado.org](http://www.viacolorado.org)



Dear Boulder County Commissioners and Boulder Planning Commission;

As a concerned citizen and constituent of Boulder City and County, I am writing today to express my concern about the expiration of the moratorium on fracking. Fracking is a well-documented environmental hazard that has negative side effects, including air pollution, well contamination, environmental destruction, water pollution as well as negative economic impacts. We cannot allow fracking in Boulder County! Fracking will negatively affect our health and safety, our property values, and our way of life. While fracking companies offer assurances and claim that their operations are safe, these claims are untrue! Observe the many accidents and incidents around the country, and even here in nearby Erie, where pollution levels are presenting harmful threats to the people and the environment. Moreover, fracking companies are unwilling to work with local communities to ensure safety measures, or to even follow the suggested guidelines outlined below. Please implement a new moratorium of at least six months to a year in order to finalize the following:

- 1) Require the fracking companies to open their books, this will give you the assurance that they are solvent and can take responsibility for any clean up needed (the city should not have to pay for this!!!!)
- 2) Sign a contract with these fracking companies that require them to clean up any and all hazards created by them. Again, this should not be the cities responsibility!
- 3) Require fracking companies to be open and transparent about the chemicals they are using for their work. We should not have toxic solutions injected into our soil – we need to know the chemical recipes!
- 4) Require the fracking companies to outline and implement a plan for the disposal of the fracking waste that does not do environmental damage to our county! In other counties, they just dump it into agricultural fields, or use it for dust mitigation; we must ensure this does not happen here. The waste produced from fracking in Colorado is slightly radioactive... we do not need to bring all this up to the surface! Our children are at the greatest risk!!!

Please support Boulder in staying at the forefront of health, environmental stewardship, and sound city/county planning! You give priority to organic farming, how could you consider allowing fracking in Boulder County? For everyone's sake, but especially for our children, consider the above with utmost thoughtfulness.

Respectfully yours,

Tiffanie Kung

**From:** Megan Wemmer  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** fracking moratorium  
**Date:** Tuesday, November 15, 2016 11:17:10 AM

---

Dear Boulder County Commissioners and Boulder Planning Commission;

As a concerned citizen and constituent of Boulder City and County, I am writing today to express my concern about the expiration of the moratorium on fracking. Fracking is a well-documented environmental hazard that has negative side effects, including air pollution, well contamination, environmental destruction, water pollution as well as negative economic impacts. We cannot allow fracking in Boulder County! Fracking will negatively affect our health and safety, our property values, and our way of life. While fracking companies offer assurances and claim that their operations are safe, these claims are untrue! Observe the many accidents and incidents around the country, and even here in nearby Erie, where pollution levels are presenting harmful threats to the people and the environment. Moreover, fracking companies are unwilling to work with local communities to ensure safety measures, or to even follow the suggested guidelines outlined below. Please implement a new moratorium of at least six months to a year in order to finalize the following:

- 1) Require the fracking companies to open their books, this will give you the assurance that they are solvent and can take responsibility for any clean up needed (the city should not have to pay for this!!!!)
- 2) Sign a contract with these fracking companies that require them to clean up any and all hazards created by them. Again, this should not be the cities responsibility!
- 3) Require fracking companies to be open and transparent about the chemicals they are using for their work. We should not have toxic solutions injected into our soil – we need to know the chemical recipes!
- 4) Require the fracking companies to outline and implement a plan for the disposal of the fracking waste that does not do environmental damage to our county! In other counties, they just dump it into agricultural fields, or use it for dust mitigation; we must ensure this does not happen here. The waste produced from fracking in Colorado is slightly radioactive... we do not need to bring all this up to the surface! Our children are at the greatest risk!!!

Please support Boulder in staying at the forefront of health, environmental stewardship, and sound city/county planning! You give priority to organic farming, how could you consider allowing fracking in Boulder County? For everyone's sake, but especially for our children, consider the above with utmost thoughtfulness.

Respectfully yours,

Megan Wemmer  
410 4th Ave Longmont, CO 80501

**From:** Kristin Bjornsen  
**To:** [#LandUsePlanner](#)  
**Subject:** Letter to Planning Commission on oil & gas moratorium  
**Date:** Tuesday, November 15, 2016 11:21:45 AM

---

Dear Planning Commission members,

I wanted to thank you very much for your recommendation to put in place another moratorium on accepting applications for oil and gas drilling in Boulder County.

While I was a science writer at NOAA, every other week, a new study came out on the atmospheric, geologic, and ecological impacts of hydraulic fracturing, including nonexhaustively the leaked methane, benzene, and other volatile organic compounds; the link to earthquakes; and the fragmentation of habitat with roads.

Thank you for encouraging the commissioners to take the time to study the emerging research further, so we can protect people's health and the environment.

Warm wishes,

Kristin Bjornsen

**From:** Laura Fronckiewicz  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** We Need You To Protect Us  
**Date:** Tuesday, November 15, 2016 11:23:37 AM

---

County Commissioners,

Please heed the call of the folks who were able to show up in person today - we are relying on you as our local representatives to protect us from fracking. Extend the moratorium. Please.

Thanks,  
Laura Fronckiewicz

**From:** Kristen Talley  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** No to fracking in Boulder County  
**Date:** Tuesday, November 15, 2016 11:23:56 AM

---

Dear Boulder County Commissioners and Boulder Planning Commission:

As a concerned citizen and constituent of Boulder City and County, I am writing today to express my concern about the expiration of the moratorium on fracking. Fracking is a well-documented environmental hazard that has negative side effects, including air pollution, well contamination, environmental destruction, water pollution as well as negative economic impacts. We cannot allow fracking in Boulder County! Fracking will negatively affect our health and safety, our property values, and our way of life. While fracking companies offer assurances and claim that their operations are safe, these claims are untrue! Observe the many accidents and incidents around the country, and even here in nearby Erie, where pollution levels are presenting harmful threats to the people and the environment. Moreover, fracking companies are unwilling to work with local communities to ensure safety measures, or to even follow the suggested guidelines outlined below. Please implement a new moratorium of at least six months to a year in order to finalize the following:

- 1) Require the fracking companies to open their books, this will give you the assurance that they are solvent and can take responsibility for any clean up needed (the city should not have to pay for this!!!!)
- 2) Sign a contract with these fracking companies that require them to clean up any and all hazards created by them. Again, this should not be the cities' responsibility!
- 3) Require fracking companies to be open and transparent about the chemicals they are using for their work. We should not have toxic solutions injected into our soil – we need to know the chemical recipes!
- 4) Require the fracking companies to outline and implement a plan for the disposal of the fracking waste that does not do environmental damage to our county! In other counties, they just dump it into agricultural fields, or use it for dust mitigation; we must ensure this does not happen here. The waste produced from fracking in Colorado is slightly radioactive... we do not need to bring all this up to the surface! Our children are at the greatest risk!!!

Please support Boulder in staying at the forefront of health, environmental stewardship, and sound city/county planning! You give priority to organic farming, how could you consider allowing fracking in Boulder County? For everyone's sake, but especially for our children, consider the above with utmost thoughtfulness.

Respectfully yours,

Kristen Talley

Boulder, Colorado

**From:** Emily Shaw  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** NO to Fracking in Boulder County  
**Date:** Tuesday, November 15, 2016 11:25:39 AM  
**Attachments:** [No fracking.pdf](#)

---

Thank you for your time and consideration in reading the attached letter.

Best,  
Emily

Dear Boulder County Commissioners and Boulder Planning Commission;

As a concerned citizen and constituent of Boulder City and County, I am writing today to express my concern about the expiration of the moratorium on fracking. Fracking is a well-documented environmental hazard that has negative side effects, including air pollution, well contamination, environmental destruction, water pollution as well as negative economic impacts. We cannot allow fracking in Boulder County! Fracking will negatively affect our health and safety, our property values, and our way of life. While fracking companies offer assurances and claim that their operations are safe, these claims are untrue! Observe the many accidents and incidents around the country, and even here in nearby Erie, where pollution levels are presenting harmful threats to the people and the environment. Moreover, fracking companies are unwilling to work with local communities to ensure safety measures, or to even follow the suggested guidelines outlined below. Please implement a new moratorium of at least six months to a year in order to finalize the following:

1. Require the fracking companies to open their books, this will give you the assurance that they are solvent and can take responsibility for any clean up needed (the city should not have to pay for this!!!!)
2. Sign a contract with these fracking companies that require them to clean up any and all hazards created by them. Again, this should not be the cities responsibility!
3. Require fracking companies to be open and transparent about the chemicals they are using for their work. We should not have toxic solutions injected into our soil – we need to know the chemical recipes!
4. Require the fracking companies to outline and implement a plan for the disposal of the fracking waste that does not do environmental damage to our county! In other counties, they just dump it into agricultural fields, or use it for dust mitigation; we must ensure this does not happen here. The waste produced from fracking in Colorado is slightly radioactive... we do not need to bring all this up to the surface! Our children are at the greatest risk!!!

Please support Boulder in staying at the forefront of health, environmental stewardship, and sound city/county planning! You give priority to organic farming, how could you consider allowing fracking in Boulder County? For everyone's sake, but especially for our children, consider the above with utmost thoughtfulness.

Respectfully yours,

Emily Shaw

**From:** Phaedra C. Pezzullo  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** Please extend fracking ban in Boulder County  
**Date:** Tuesday, November 15, 2016 11:25:48 AM

---

Dear County Commissioners and Staff,

Please, add my name to those who strongly hope you will extend the fracking ban in Boulder County. You are correct in your assessment of the risks and the lack of proper impact assessment by state and federal agencies.

I know you have been placed in a difficult position by recent rulings and affirm your use of legal counsel to protect our local right to stand up against fracking for our health, water, and climate.

Please, do not rollback our local values in anticipation of the worst and instead lead by finding ways to uphold our health and planet.

Sincerely,  
Phaedra C. Pezzullo  
Resident  
Boulder, Colorado

**From:** Sean Gannon  
**To:** [Boulder County Oil and Gas Comment](#)  
**Cc:** [Joanne Shipman](#)  
**Subject:** Extend the ban on fracking in Boulder County  
**Date:** Tuesday, November 15, 2016 11:26:40 AM

---

I am a boulder resident residing at 7159 Olde Stage Rd Boulder CO 80302. I am opposed to any fracking in Boulder County because of the public health dangers posed by the fracking chemicals pumped into the ground. They can easily leach into groundwater as they have done in other parts of the country. We are on a shared well managed by the Olde Stage Settlement and we would be directly affected by fracking and the health dangers it poses. I implore the council to extend the ban on fracking.

Thank you,  
Sean

--

Sean P. Gannon  
m: 610.457.6642  
e: [seanpgannon@gmail.com](mailto:seanpgannon@gmail.com)

**From:** Matt Kobzik  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** Please, do not allow fracking to continue  
**Date:** Tuesday, November 15, 2016 11:28:38 AM  
**Attachments:** [No Fracking Way - Boulder County.docx](#)

---

To Whom It May Concern,

Please find my letter concerning the impending expiration of the moratorium on fracking.

Thank you for your time and consideration.

Best regards,

Matt

**Matt Kobzik** |Ecommerce Sales Analyst

Eco-Products, Inc.

4755 Walnut St., Boulder CO 80301 USA

[www.ecoproducts.com](http://www.ecoproducts.com)

[mkobzik@ecoproducts.com](mailto:mkobzik@ecoproducts.com) |Direct: 1.720.542.6379

Dear Boulder County Commissioners and Boulder Planning Commission,

As a concerned citizen of Boulder City and County, I am writing you to express my concern about the expiration of the moratorium on fracking. Fracking is a well-documented environmental hazard that has negative side effects, including air pollution, well contamination, environmental destruction, water pollution as well as negative economic impacts. We cannot allow fracking in Boulder County as it will negatively affect our health and safety, our property values, and our way of life.

Fracking companies offer assurances and claim that their operations are safe. This is a blatantly dubious claim, backed in evidence by the many accidents and incidents around the country, and even here in nearby Erie, where pollution levels are presenting harmful threats to the people and the environment. Moreover, fracking companies are unwilling to work with local communities to ensure safety measures, or to even follow the suggested guidelines outlined below.

Please implement a new moratorium of at least six months to a year in order to finalize the following:

- 1) Require the fracking companies to open their books; this will give you the assurance that they are solvent and can take responsibility for any clean up needed.
- 2) Sign a contract with these fracking companies that require them to clean up any and all hazards created by them. Again, this should not be the cities responsibility!
- 3) Require fracking companies to be open and transparent about the chemicals they are using for their work. We should not have toxic solutions injected into our soil – we need to know the chemical recipes!
- 4) Require the fracking companies to outline and implement a plan for the disposal of the fracking waste that does not do environmental damage to our county! In other counties, they just dump it into agricultural fields, or use it for dust mitigation; we must ensure this does not happen here.

Please support Boulder in staying at the forefront of health, environmental stewardship, and sound city/county planning. Given your support for organic farming, how could you consider allowing fracking in Boulder County?

Thank you for your time and consideration on this serious matter.

Best regards,

Matt Kobzik

**From:** Patrick Bujold  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** In Support of Continued Fracking Moratorium Docket DC-16-0004  
**Date:** Tuesday, November 15, 2016 11:28:49 AM

---

I am writing to extend my support for the continued moratorium on hydraulic fracturing (fracking) in Boulder County. We must not proliferate fossil fuel extraction given the overwhelming evidence of climate change and our moral imperative to address growing carbon dioxide, methane, and other greenhouse gas emissions. Boulder County is a place of great wealth and great environmental consciousness, as such Boulder County is uniquely positioned to act righteously and responsibly on climate change by limiting fossil fuel extraction within county limits. Leaving fossil fuels in the ground is one necessary component of providing a just transition to a new economic paradigm not tied to the destructive power of fossil fuels. Our land, our water, our wildlife, our climate, and our people depend on this continued moratorium.

Patrick Bujold  
Boulder, CO 80303

**From:** Jason Brownstein  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** No Fracking In Boulder County!  
**Date:** Tuesday, November 15, 2016 11:29:35 AM  
**Attachments:** [No Fracking - Boulder County.pdf](#)

---

To whom it may concern,

Please take note of these comments for no fracking in Boulder county.

Thank you,

Jason

Dear Boulder County Commissioners and Boulder Planning Commission;

As a concerned citizen and constituent of Boulder City and County, I am writing today to express my concern about the expiration of the moratorium on fracking. Fracking is a well-documented environmental hazard that has negative side effects, including air pollution, well contamination, environmental destruction, water pollution as well as negative economic impacts. We cannot allow fracking in Boulder County! Fracking will negatively affect our health and safety, our property values, and our way of life. While fracking companies offer assurances and claim that their operations are safe, these claims are untrue! Observe the many accidents and incidents around the country, and even here in nearby Erie, where pollution levels are presenting harmful threats to the people and the environment. Moreover, fracking companies are unwilling to work with local communities to ensure safety measures, or to even follow the suggested guidelines outlined below. Please implement a new moratorium of at least six months to a year in order to finalize the following:

- 1) Require the fracking companies to open their books, this will give you the assurance that they are solvent and can take responsibility for any clean up needed (the city should not have to pay for this!!!!)
- 2) Sign a contract with these fracking companies that require them to clean up any and all hazards created by them. Again, this should not be the cities responsibility!
- 3) Require fracking companies to be open and transparent about the chemicals they are using for their work. We should not have toxic solutions injected into our soil – we need to know the chemical recipes!
- 4) Require the fracking companies to outline and implement a plan for the disposal of the fracking waste that does not do environmental damage to our county! In other counties, they just dump it into agricultural fields, or use it for dust mitigation; we must ensure this does not happen here. The waste produced from fracking in Colorado is slightly radioactive... we do not need to bring all this up to the surface! Our children are at the greatest risk!!!

Please support Boulder in staying at the forefront of health, environmental stewardship, and sound city/county planning! You give priority to organic farming, how could you consider allowing fracking in Boulder County? For everyone's sake, but especially for our children, consider the above with utmost thoughtfulness.

Respectfully yours,

Jason Brownstein

**From:** Marcus Perman  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** Fracking in Boulder  
**Date:** Tuesday, November 15, 2016 11:35:08 AM

---

Dear Boulder County Commissioners and Boulder Planning Commission:

As a concerned citizen and constituent of Boulder City and County, I am writing today to express my concern about the expiration of the moratorium on fracking. Fracking is a well-documented environmental hazard that has negative side effects, including air pollution, well contamination, environmental destruction, water pollution as well as negative economic impacts. We cannot allow fracking in Boulder County! Fracking will negatively affect our health and safety, our property values, and our way of life. While fracking companies offer assurances and claim that their operations are safe, these claims are untrue! Observe the many accidents and incidents around the country, and even here in nearby Erie, where pollution levels are presenting harmful threats to the people and the environment. Moreover, fracking companies are unwilling to work with local communities to ensure safety measures, or to even follow the suggested guidelines outlined below. Please implement a new moratorium of at least six months to a year in order to finalize the following:

- 1) Require the fracking companies to open their books, this will give you the assurance that they are solvent and can take responsibility for any clean up needed (the city should not have to pay for this!!!!)
- 2) Sign a contract with these fracking companies that require them to clean up any and all hazards created by them. Again, this should not be the cities responsibility!
- 3) Require fracking companies to be open and transparent about the chemicals they are using for their work. We should not have toxic solutions injected into our soil – we need to know the chemical recipes!
- 4) Require the fracking companies to outline and implement a plan for the disposal of the fracking waste that does not do environmental damage to our county! In other counties, they just dump it into agricultural fields, or use it for dust mitigation; we must ensure this does not happen here. The waste produced from fracking in Colorado is slightly radioactive... we do not need to bring all this up to the surface! Our children are at the greatest risk!!!

Please support Boulder in staying at the forefront of health, environmental stewardship, and sound city/county planning! You give priority to organic farming, how could you consider allowing fracking in Boulder County? For everyone's sake, but especially for our children, consider the above with utmost thoughtfulness.

Respectfully yours,

Marcus Perman

2930 Island Drive  
Boulder, CO 80301

**From:** Annie Henry  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** No to fracking in Boulder County  
**Date:** Tuesday, November 15, 2016 11:37:38 AM

---

Dear Boulder County Commissioners and Boulder Planning Commission;

As a concerned citizen and constituent of Boulder City and County, I am writing today to express my concern about the expiration of the moratorium on fracking. Fracking is a well-documented environmental hazard that has negative side effects, including air pollution, well contamination, environmental destruction, water pollution as well as negative economic impacts. We cannot allow fracking in Boulder County! Fracking will negatively affect our health and safety, our property values, and our way of life. While fracking companies offer assurances and claim that their operations are safe, these claims are untrue! Observe the many accidents and incidents around the country, and even here in nearby Erie, where pollution levels are presenting harmful threats to the people and the environment. Moreover, fracking companies are unwilling to work with local communities to ensure safety measures, or to even follow the suggested guidelines outlined below. Please implement a new moratorium of at least six months to a year in order to finalize the following:

- 1) Require the fracking companies to open their books, this will give you the assurance that they are solvent and can take responsibility for any clean up needed (the city should not have to pay for this!!!!)
- 2) Sign a contract with these fracking companies that require them to clean up any and all hazards created by them. Again, this should not be the cities responsibility!
- 3) Require fracking companies to be open and transparent about the chemicals they are using for their work. We should not have toxic solutions injected into our soil – we need to know the chemical recipes!
- 4) Require the fracking companies to outline and implement a plan for the disposal of the fracking waste that does not do environmental damage to our county! In other counties, they just dump it into agricultural fields, or use it for dust mitigation; we must ensure this does not happen here. The waste produced from fracking in Colorado is slightly radioactive... we do not need to bring all this up to the surface! Our children are at the greatest risk!!!

Please support Boulder in staying at the forefront of health, environmental stewardship, and sound city/county planning! You give priority to organic farming, how could you consider allowing fracking in Boulder County? For everyone's sake, but especially for our children, consider the above with utmost thoughtfulness.

Respectfully yours,

Annie Henry

**From:** Zackarey Lea Thoutt  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** No Fracking  
**Date:** Tuesday, November 15, 2016 11:41:18 AM

---

Dear Boulder County Commissioners,

As a seventh generation Colorado citizen, a lifetime resident of the Boulder area, and a graduate of CU Boulder I am deeply concerned about the possibility of fracking in Boulder county.

- Among the unbiased research on the environmental impact of fracking there is an almost unanimous agreement that fracking is detrimental to the environment.
- The health concerns of fracking are unknown and the situation feels eerily similar to the adoption of DDT. Why will fracking companies not release the chemicals they use if they insist that there are no health concerns? While watching morons drink the fracking fluid might persuade some people that there are no health risks, I am far from convinced.
- Property valuations in Boulder will be negatively impacted, which will directly impact property taxes, and by extension, the wellbeing of Boulder. In addition, I would personally not hesitate to move to another county nearby that does not allow fracking if Boulder County does legalize it. I know that I am not alone and that there will be a significant "brain drain" from people fleeing Boulder, a place that many people moved to because of our community's focus on healthy living and environmental sustainability.

Please never allow fracking in Boulder County. It goes against so much of what we stand for as a community. I love my home and I don't want to be forced to leave because of my moral obligation to preserve the environment and personal concern for my health.

- Zack Thoutt

--

Zackarey Lea Thoutt  
Full-Stack Developer at Auto Sales Velocity  
President and Founder of Feet for Fillings  
(m) 303-503-3404 | [zackarey.thoutt@colorado.edu](mailto:zackarey.thoutt@colorado.edu) | [feetforfillings@gmail.com](mailto:feetforfillings@gmail.com)

**From:** Dr. Gina S. Honeyman  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** Moratorium on Fracking  
**Date:** Tuesday, November 15, 2016 11:50:12 AM

---

Dear Boulder County Commissioners:

Please either extend the moratorium or better yet, permanently ban fracking in Boulder County. The multitude of problems that have been reported due the fracking industry are becoming well-documented in peer-reviewed scientific research. While we do not yet know everything, we know quite enough to stop willfully harming our people and planet. Here's a link to some of the research: <http://journals.plos.org/plosone/article?id=10.1371/journal.pone.0154164>

Boulder's promotion of a healthy environment is the main reason I moved here fifteen years ago from my native Oklahoma. Along with pollution of the air, water, and farmland, fracking-related earthquakes are threatening the safety of my family and friends. The USGS is shutting down more and more wells in response to the seismic instability from deep injection wells where the contaminated water is disposed. Let's keep Boulder County from going down this path.

The emphasis on renewable energy rather than more petroleum extraction is the best way to promote health for the citizens of Boulder County and our planet. Let's continue to be leaders and ban fracking in Boulder County.

Respectfully,

Dr. Gina S. Honeyman

--

Dr. Gina S. Honeyman  
Fundamental Physiology  
[www.funphysio.com](http://www.funphysio.com) 303.413.9100  
Health Solutions for the 21st Century

**From:** Jean L  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** Please extend the moratorium on fracking in Boulder County  
**Date:** Tuesday, November 15, 2016 11:53:23 AM

---

I am not able to attend the meeting being held today November 15, 12-2 pm, as I am working. But as a resident of Boulder County, I want to express my strong concern about fracking in Colorado. I am urging you to protect the quality and health of our environment by extending the Boulder County moratorium on fracking which expires on November 18th. One of the things that makes Boulder County a great place to live is the beauty and health of our environment. Fracking has been increasingly shown to be connected with poisoned water, methane leaks, gas well explosions, earthquakes and health risks. Please protect the physical, economic and environmental health and vitality of our community. Extend the moratorium.

Respectfully,  
Jean Leonard, Ph.D.  
Lafayette, CO

**From:** adaline jyurovat  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** Renew the fracking ban  
**Date:** Tuesday, November 15, 2016 11:55:28 AM

---

Boulder County has a duty to its real life citizens, to make wise decisions. It is not right to give voice to corporate interests which cause harm to people and the planet. We have a state and federal government that is controlled by corporate interests. (The county has also been controlled by corporate interests which falsely claim roundup and gmos are safe.)

If and when you sit in council for the welfare of the people, think not of yourself, nor of your family, nor even of your generation. Make your decisions on behalf of the 7 generations coming after you. If you take care of the future generations, you yourself will have peace, equity, justice and a healthy planet. I recommend you try it for a change.

The fracking ban must continue for the planet to continue. Corporations are instructed to make profits on a quarterly basis. They care not for the future, or even the present outcomes of their behavior. They control the Council on Foreign Relations, which controls the selection of our presidential candidates and their appointees. We cannot depend on politicians to do what is in our best interest.

The Fracking Ban must continue. Our mountains and valleys are being destroyed by mining companies. Our finite water resources are being permanently destroyed. This is unacceptable. Listen to the Elders.

M Adaline Jyurovat  
550 Marine St  
Boulder, CO

**From:** Jamie Feola  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** No Fracking in Boulder County  
**Date:** Tuesday, November 15, 2016 11:56:30 AM  
**Attachments:** [No Fracking Way - Boulder County-jamie.pdf](#)

---

Hello,

Attached is a letter asking for a new moratorium of fracking in Boulder County.

Best,  
Jamie Feola

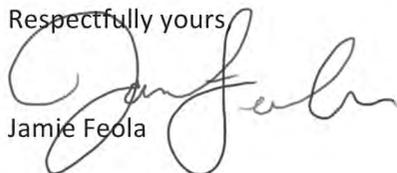
Dear Boulder County Commissioners and Boulder Planning Commission;

As a concerned citizen and constituent of Boulder City and County, I am writing today to express my concern about the expiration of the moratorium on fracking. Fracking is a well-documented environmental hazard that has negative side effects, including air pollution, well contamination, environmental destruction, water pollution as well as negative economic impacts. We cannot allow fracking in Boulder County! Fracking will negatively affect our health and safety, our property values, and our way of life. While fracking companies offer assurances and claim that their operations are safe, these claims are untrue! Observe the many accidents and incidents around the country, and even here in nearby Erie, where pollution levels are presenting harmful threats to the people and the environment. Moreover, fracking companies are unwilling to work with local communities to ensure safety measures, or to even follow the suggested guidelines outlined below. Please implement a new moratorium of at least six months to a year in order to finalize the following:

- 1) Require the fracking companies to open their books, this will give you the assurance that they are solvent and can take responsibility for any clean up needed (the city should not have to pay for this!!!!)
- 2) Sign a contract with these fracking companies that require them to clean up any and all hazards created by them. Again, this should not be the cities responsibility!
- 3) Require fracking companies to be open and transparent about the chemicals they are using for their work. We should not have toxic solutions injected into our soil – we need to know the chemical recipes!
- 4) Require the fracking companies to outline and implement a plan for the disposal of the fracking waste that does not do environmental damage to our county! In other counties, they just dump it into agricultural fields, or use it for dust mitigation; we must ensure this does not happen here. The waste produced from fracking in Colorado is slightly radioactive... we do not need to bring all this up to the surface! Our children are at the greatest risk!!!

Please support Boulder in staying at the forefront of health, environmental stewardship, and sound city/county planning! You give priority to organic farming, how could you consider allowing fracking in Boulder County? For everyone's sake, but especially for our children, consider the above with utmost thoughtfulness.

Respectfully yours



Jamie Feola

**From:** Scott Johnson  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** Consider the negative side effects of fracking  
**Date:** Tuesday, November 15, 2016 11:59:16 AM

---

**Dear Boulder County Commissioners and Boulder Planning Commission;**

As a concerned citizen and constituent of Boulder City and County, I am writing today to express my concern about the expiration of the moratorium on fracking.

Though I can appreciate the desire for energy independence and energy developed within Colorado and the US, I'm concerned that fracking may have negative environmental side effects, including air pollution, well contamination, environmental destruction, water pollution as well as negative economic impacts.

Please implement a new moratorium of at least six months to a year in order to finalize the following:

- Require the fracking companies to open their books, this will give you the assurance that they are solvent and can take responsibility for any clean up needed (the city should not have to pay for this).
- Sign a contract with the fracking companies that require them to clean up any and all hazards created by them. Again, this should not be the city's responsibility.
- Require fracking companies to be open and transparent about the chemicals they are using for their work. We should not have toxic solutions injected into our soil – we need to know the chemical recipes!
- Require the fracking companies to outline and implement a plan for the disposal of the fracking waste that does not do environmental damage to our county.

In other counties, they just dump it into agricultural fields, or use it for dust mitigation; we must ensure this does not happen here. The waste produced from fracking in Colorado is slightly radioactive... we do not need to bring all this up to the surface! Our children are at the greatest risk.

Please support Boulder in staying at the forefront of health, environmental stewardship, and sound city/county planning! You give priority to organic farming, how could you consider allowing fracking in Boulder County? For everyone's sake, but especially for our children, please consider the above.

Sincerely,

**Scott Johnson**  
4593 Maple Court, Boulder, CO 80301

**From:** Nathalie Pratt  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** Plea for fracking measures to be put in place  
**Date:** Tuesday, November 15, 2016 11:59:41 AM

---

Dear Boulder County Commissioners and Boulder Planning Commission;

As a concerned citizen and constituent of Boulder City and County, I am writing today to express my concern about the expiration of the moratorium on fracking. Fracking is a well-documented environmental hazard that has negative side effects, including air pollution, well contamination, environmental destruction, water pollution as well as negative economic impacts. We cannot allow fracking in Boulder County! Fracking will negatively affect our health and safety, our property values, and our way of life. While fracking companies offer assurances and claim that their operations are safe, these claims are untrue! Observe the many accidents and incidents around the country, and even here in nearby Erie, where pollution levels are presenting harmful threats to the people and the environment. Moreover, fracking companies are unwilling to work with local communities to ensure safety measures, or to even follow the suggested guidelines outlined below. Please implement a new moratorium of at least six months to a year in order to finalize the following:

- 1) Require the fracking companies to open their books, this will give you the assurance that they are solvent and can take responsibility for any clean up needed (the city should not have to pay for this!!!!)
- 2) Sign a contract with these fracking companies that require them to clean up any and all hazards created by them. Again, this should not be the cities responsibility!
- 3) Require fracking companies to be open and transparent about the chemicals they are using for their work. We should not have toxic solutions injected into our soil – we need to know the chemical recipes!
- 4) Require the fracking companies to outline and implement a plan for the disposal of the fracking waste that does not do environmental damage to our county! In other counties, they just dump it into agricultural fields, or use it for dust mitigation; we must ensure this does not happen here. The waste produced from fracking in Colorado is slightly radioactive... we do not need to bring all this up to the surface! Our children are at the greatest risk!!!

Please support Boulder in staying at the forefront of health, environmental stewardship, and sound city/county planning! You give priority to organic farming, how could you consider allowing fracking in Boulder County? For everyone's sake, but especially for our children, consider the above with utmost thoughtfulness.

Respectfully yours,  
Nathalie Pratt

---

*Nathalie Pratt*  
303-870-3955  
[nathaliepratt@yahoo.com](mailto:nathaliepratt@yahoo.com)

**From:** Laurel Rasplica Rodd  
**To:** [Boulder County Oil and Gas Comment](#)  
**Cc:** [Laurel Rasplica Rodd](#)  
**Subject:** Fracking in Boulder County  
**Date:** Tuesday, November 15, 2016 12:00:03 PM

---

November 15, 2016

Dear Boulder County Commissioners and Boulder Planning Commission;

As a concerned citizen and constituent of Boulder County, I am writing today to express my grave concern about the expiration of the moratorium on fracking. Fracking is a well-documented environmental hazard that has negative side effects including air pollution, well contamination, environmental destruction, and water pollution, as well as negative economic impacts. We simply cannot allow fracking in Boulder County. Fracking will negatively affect our health and safety, our property values, and our way of life. While fracking companies offer assurances and claim that their operations are safe, these claims are untrue: Observe the many accidents and incidents around the country and even here in nearby Erie, where pollution levels are presenting harmful threats to the people and the environment. Moreover, fracking companies are unwilling to work with local communities to ensure safety measures, and they have refused even to follow the suggested guidelines outlined below.

Please implement a new moratorium of at least six months to a year in order to finalize the following:

1. Require the fracking companies to open their books, as this will give you the assurance that they are solvent and can take responsibility for any clean up needed (the city and county should not have to pay for this!)
2. Sign a contract with these fracking companies that requires them to clean up any and all hazards created by them. Again, this should not be the responsibility of the communities in which fracking takes place!
3. Require fracking companies to be open and transparent about all chemicals they are using for their work. We should not have toxic solutions injected into our soil – we need to know the chemical recipes!
4. Require the fracking companies to outline and implement a plan for the disposal of the fracking waste that does not do environmental damage to our county. In other places, they just dump waste into agricultural fields or use it for dust mitigation; we must ensure this does not happen here. The waste produced from fracking in Colorado is slightly radioactive; we do not need to bring all this up to the surface. Our children are at the greatest risk, but we all are endangered.

Please maintain Boulder at the forefront of health, environmental stewardship, and sound city/county planning. For everyone's sake, but especially for our children, consider this matter

with utmost care.

Respectfully yours,

Laurel Rasplica Rodd

7344 Yucca Court

Boulder, CO 80301

**From:** Rebecca Velthoen  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** Fracking  
**Date:** Tuesday, November 15, 2016 12:03:37 PM

---

Dear County Commissioners,

I respectfully request that the County Commissioners adopt the recommendation of the Planning Commission ... to extend the moratorium on hydraulic fracturing in unincorporated Boulder County.

Too many Fracking safety issues exist. The proposed facility is too close to homes, the Coal Creek trail, the Coal Creek floodplains, the Laskota Open Space, etc.

While researching on Live Science I found that along with dangers to the water supply researchers from the [Colorado School of Public Health](#) released a study showing that air pollution caused by fracking could contribute to immediate and long-term health problems for people living near fracking sites.

Please protect Boulder County from this invasion.

Thank you for your consideration.

Becky Velthoen  
Louisville Resident

**From:** Katie Malzbender  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** Extend the Boulder County Fracking Moratorium  
**Date:** Tuesday, November 15, 2016 12:04:28 PM

---

Dear Commissioners,

Now is not the time to open the door to more disastrous fossil fuel production in Boulder County. We must double down on climate action, not reverse course. Please extend and make permanent the Boulder County Fracking moratorium.

Best,

Katie Malzbender

**From:** Beth Erlander  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** Please extend the ban on fracking for another 5 years  
**Date:** Tuesday, November 15, 2016 12:05:56 PM

---

Please extend the ban on fracking in Boulder County for another 5 years.

Thank you,

Beth

--

Beth Erlander, LPC, ATR  
Yes Tree Counseling  
825 E Speer Blvd., Suite 304  
Denver, CO 80218  
&  
5412 Idylwild Trail, Suite 102  
Boulder, CO 80301  
720-470-3513

Notice of Confidentiality: This e-mail, and any attachments, is intended only for use by the addressee(s) and may contain privileged, private or confidential information. Any distribution, reading, copying, or use of this communication and any attachments, by anyone other than the addressee is strictly prohibited and may be unlawful. If you have received this e-mail in error, please immediately notify me and permanently destroy or delete the original and any copy or printout of this e-mail and any attachments.

**From:** Caroline Goosman  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** Support for moratorium  
**Date:** Tuesday, November 15, 2016 12:17:20 PM

---

I want to express my full support for the moratorium! Please hold firm to protect us.  
Thank you,  
Caroline Goosman

Sent from my iPhone

**From:** CATHERINE LEE JOHNSTON  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** Extend moratorium on Frack Ing.  
**Date:** Tuesday, November 15, 2016 12:34:23 PM

---

Given the problems in other areas that are being fractured, such as earthquakes and pollution of groundwater, this should not be allowed in our residential area.

Catherine Johnston  
Sent from my iPhone

**From:** Karl Hanzel  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** No fracking, please...  
**Date:** Tuesday, November 15, 2016 12:40:56 PM

---

There are immediate, localized negative impacts (noise, air pollution, etc.), longer-term localized impacts (groundwater pollution), as well as the greater impact on the world climate. No more fracking, please!

\*----->

**From:** Claudia Murphy  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** fracking moratorium  
**Date:** Tuesday, November 15, 2016 12:49:11 PM

---

I will not be able to be at the meeting today in person, but I petition you all to extend the Boulder County fracking moratorium.

thank you for your consideration,

Claudia Murphy  
530 Concord ave.  
Boulder co 80304

**From:** Vicki Matthews  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** Extension on moratorium  
**Date:** Tuesday, November 15, 2016 12:54:32 PM

---

This is a request to extend the moratorium on fracking in Boulder County. I have been a resident of Boulder County for almost 20 years, and I strongly oppose any future fracking in this county. We need to unite in the support of clean energy now and moving forward. There is enough solar and thermal energy in the US to supply ALL of the energy needs of this country.

Please push to pass an extension!

Sincerely,

Vicki Matthews  
Louisville, CO

**From:** Lyndsy Morse  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** NO Fracking!  
**Date:** Tuesday, November 15, 2016 12:55:32 PM

---

Dear Boulder County Commissioners and Boulder Planning Commission;

As a concerned citizen and constituent of Boulder City and County, I am writing today to express my concern about the expiration of the moratorium on fracking. Fracking is a well-documented environmental hazard that has negative side effects, including air pollution, well contamination, environmental destruction, water pollution as well as negative economic impacts. We cannot allow fracking in Boulder County! Fracking will negatively affect our health and safety, our property values, and our way of life. While fracking companies offer assurances and claim that their operations are safe, these claims are untrue! Observe the many accidents and incidents around the country, and even here in nearby Erie, where pollution levels are presenting harmful threats to the people and the environment. Moreover, fracking companies are unwilling to work with local communities to ensure safety measures, or to even follow the suggested guidelines outlined below. Please implement a new moratorium of at least six months to a year in order to finalize the following:

1. Require the fracking companies to open their books, this will give you the assurance that they are solvent and can take responsibility for any clean up needed (the city should not have to pay for this!!!!)
2. Sign a contract with these fracking companies that require them to clean up any and all hazards created by them. Again, this should not be the cities responsibility!
3. Require fracking companies to be open and transparent about the chemicals they are using for their work. We should not have toxic solutions injected into our soil – we need to know the chemical recipes!
4. Require the fracking companies to outline and implement a plan for the disposal of the fracking waste that does not do environmental damage to our county! In other counties, they just dump it into agricultural fields, or use it for dust mitigation; we must ensure this does not happen here. The waste produced from fracking in Colorado is slightly radioactive... we do not need to bring all this up to the surface! Our children are at the greatest risk!!!

Please support Boulder in staying at the forefront of health, environmental stewardship, and sound city/county planning! You give priority to organic farming, how could you consider allowing fracking in Boulder County? For everyone's sake, but especially for our children, consider the above with utmost thoughtfulness.

Respectfully yours,

**Lyndsy Morse**  
**Executive Assistant**

Via Mobility Services  
2855 N. 63rd St | Boulder, Colorado 80301  
TEL 303.447.2848 x1064 | FAX 303.444.3107  
[www.viacolorado.org](http://www.viacolorado.org)



**From:** Julie Zahniser  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** Keep Fracking out of Boulder County lands!  
**Date:** Tuesday, November 15, 2016 1:00:51 PM

---

Dear Commissioners,  
I am not able to attend the oil and gas regulations hearing that is going on right now, but I want you to know that I do care and am paying attention.

Put simply, I do not believe that Boulder County should allow fracking on Boulder County lands. Period. The immediate and long-term risks are known and have been spelled out before in front of you and elsewhere. Boulder County officials are charged first and foremost with protecting Boulder County and its residents. Even if climate change weren't an issue, fracking would not be a good idea because of the many possible adverse affects on our precious and dwindling water, our air at atmosphere, and on people and all species' health and safety. Further, Oklahoma and other states have had significant increases in earthquakes which have been linked with fracking. We don't need to experience that to learn from their experiences.

Importantly, climate change IS real and we need to move off fossil fuels as soon as possible. Let's put some more solar on our county lands instead!

I am glad you were re-elected by big numbers, Deb and Elise. Those literal votes of support should give you confidence to stand your (and our) ground in the face of pressure from the oil and gas industry.

Thank you for your hard work and for keeping the Moratorium going.

With appreciation and respect,  
Julie Z

--

[Julie Zahniser](#)  
[3782 Telluride Lane](#)  
[Boulder, CO 80305](#)

[720 320 4294](#)

**From:** Alaina  
**To:** [Boulder County Oil and Gas Comment: Sanchez, Kimberly](#)  
**Subject:** Important: No Fracking  
**Date:** Tuesday, November 15, 2016 1:32:54 PM  
**Attachments:** [No Fracking Way - Boulder County.docx](#)

---

Hi there,

Please accept my letter (attached) as a statement against allowing fracking in Boulder County!!

Thanks for your consideration,

Alaina Beaver  
Boulder County resident

Dear Boulder County Commissioners and Boulder Planning Commission;

I am a mom of a 2 year old boy, with another child on the way. As a concerned citizen and constituent of Boulder City and County, I am writing today to express my concern about the expiration of the moratorium on fracking. Fracking is a well-documented environmental hazard that has negative side effects, including air pollution, well contamination, environmental destruction, water pollution as well as negative economic impacts. We cannot allow fracking in Boulder County!

Fracking will negatively affect our health and safety, our property values, and our way of life. While fracking companies offer assurances and claim that their operations are safe, these claims are untrue! Observe the many accidents and incidents around the country, and even here in nearby Erie, where pollution levels are presenting harmful threats to the people and the environment. Moreover, fracking companies are unwilling to work with local communities to ensure safety measures, or to even follow the suggested guidelines outlined below. Please implement a new moratorium of at least six months to a year in order to finalize the following:

- 1) Require the fracking companies to open their books, this will give you the assurance that they are solvent and can take responsibility for any clean up needed (the city should not have to pay for this!!!!)
- 2) Sign a contract with these fracking companies that require them to clean up any and all hazards created by them. Again, this should not be the cities responsibility!
- 3) Require fracking companies to be open and transparent about the chemicals they are using for their work. We should not have toxic solutions injected into our soil – we need to know the chemical recipes!
- 4) Require the fracking companies to outline and implement a plan for the disposal of the fracking waste that does not do environmental damage to our county! In other counties, they just dump it into agricultural fields, or use it for dust mitigation; we must ensure this does not happen here. The waste produced from fracking in Colorado is slightly radioactive... we do not need to bring all this up to the surface! Our children are at the greatest risk!!!

I support a local CSA and take pride in eating organic and local; I believe in what I choose to nourish my children with. Please support Boulder in staying at the forefront of health, environmental stewardship, and sound city/county planning! You give priority to organic farming, how could you consider allowing fracking in Boulder County? For everyone's sake, but especially for our children, consider the above with utmost thoughtfulness.

Respectfully yours,

Alaina Beaver

**From:** Jennifer Winokur  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** Comments from Jennifer Biegen in lieu of speaking  
**Date:** Tuesday, November 15, 2016 1:41:52 PM

---

Hello,

My apologies for having to leave the hearing at the last minute and miss my allotted speaking time; I had secured a babysitter for my son, and because the hearing was running longer than I expected, I had to leave at 1p, when public testimony was just beginning.

I'm choosing to leave my comments that I had written out here instead because I do want my voice heard.

I am a fairly new resident of Boulder County--since July 2013. My husband and I moved our family here because of two reasons--the work the schools are doing and the history of Boulder County to make hard decisions for the sake of preservation and well being of residents, with such decisions involving the limiting growth in areas, the nonuse of pesticides/Round Up in parks and playgrounds and overall, looking at the bigger, greater, long-term picture instead of the short-term.

This situation is another test of that vision and those values: Money over health, jobs in an industry of depleting a resource instead of cultivating it, and frankly, jobs in an industry that has a dead end instead of jobs in a renewable industry. I'm here (or I was...) to plead with you to be the Boulder County that brought my family here, brings so many more, and keeps so many here.

In terms of experience with fracking, I taught high school English in the public schools for 19 years, the last seven taking place here in Colorado, and the final two at Erie High School. Before Erie, I had never witnessed the effects of fracking, nor had I ever witnessed--in the 17 years prior--so many kids absent repeatedly for such nebulous conditions as repeated headaches and stomachaches without a known cause. I had one student--a senior--who couldn't come to school for weeks because of debilitating headaches, and every known test had been performed on her to discover the cause. She told me this had been ongoing since she started EHS as a freshman in 2012, ironically, the same time as Encana breaking ground in the area.

Moreover, students would complain to me that their families had to spend enormous amounts of money to buy bottled water because they didn't trust their own and/or it tasted odd. If you're looking for additional regulations to add, I would support this one: Water vouchers for residents within a certain mile radius and/or residents' whose wells can at any point come in contact with water seeping from the drill site. Having to buy bottled water puts a significant financial burden on families already dealing with medical issues from fracking or even just trying to make ends meet.

The only reason to frack is money. And the people who make the money don't even live in the areas where the fracking occurs. Again, looking at regulations, I'd require employees from these oil and gas companies, attorneys for them, executives for them, to live in the area for at least five years from drill date to experience what we here in Boulder County will experience: Sure, it's easy for others to make decisions about others' land and water when they don't live on that land or drink that water. But this is ours. And we must protect it.

THank you,  
Jennifer GW Biegen

**From:** Helen Nychka  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** fracking in Boulder County  
**Date:** Tuesday, November 15, 2016 1:43:36 PM

---

I am writing to urge you to extend the ban on fracking in Boulder County for another five years. I am a health care professional and resident of Boulder County.

It is imperative for the well being of our community.

Thank you for considering my voice.

Helen Nychka, M.S. CCC-SLP  
THRIVE AUTISM COLLABORATIVE

**From:** keng4java@netscape.net  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** Fracking Moratorium Extension  
**Date:** Tuesday, November 15, 2016 1:51:22 PM

---

Please extend Boulder County's moratorium on fracking. Contrary to industry claims, there is no safe way to frack oil and gas and it definitely should not be done where people live, work or go to school. In addition, fracking accelerates Climate Change. After last week's election results, it's now up to the states and local governments to assume a leadership role to slow down global warming. Thank you for reading my comments.

Ken Gamauf

**From:** Brooke Null  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** No fracking in Boulder  
**Date:** Tuesday, November 15, 2016 2:00:31 PM

---

Please do not allow fracking in Boulder! For the love of all things beautiful, pure, thriving, and healthy! For the sake of my young son and all the children in the area. For the sake of the natural beauty Boulder offers. Please do not allow fracking in Boulder for the safety of our health and for the environment.

Brooke Null  
303-881-0356

Sent from my iPhone

**From:** Josh Holleb  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** Spam: No fracking in Boulder  
**Date:** Tuesday, November 15, 2016 2:06:59 PM

---

Please do not allow any fracking in Boulder city limits or Boulder county. I was just up at Standing Rock, and if I can't do anything to help stop fracking in my own home town, then we are in big trouble.

Thank you

--

Josh Holleb  
totem INDUSTRIES  
2635 Mapleton Ave. #68  
Boulder, CO 80304  
720-841-3672 (mobile)

[www.totemindustries.com](http://www.totemindustries.com)

**From:** Daniel Levine  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** No Fracking in Boulder  
**Date:** Tuesday, November 15, 2016 2:08:11 PM  
**Attachments:** [No Fracking Way - Boulder County.docx](#)

---

Dear Boulder County Commissioners and Boulder Planning Commission;

As a concerned citizen and constituent of Boulder City and County, I am writing today to express my concern about the expiration of the moratorium on fracking. Fracking is a well-documented environmental hazard that has negative side effects, including air pollution, well contamination, environmental destruction, water pollution as well as negative economic impacts. We cannot allow fracking in Boulder County. Fracking will negatively affect our health and safety, our property values, and our way of life. While fracking companies offer assurances and claim that their operations are safe, these claims are untrue. Observe the many accidents and incidents around the country, and even here in nearby Erie, where pollution levels are presenting harmful threats to the people and the environment. Moreover, fracking companies are unwilling to work with local communities to ensure safety measures, or to even follow the suggested guidelines outlined below. Please implement a new moratorium of at least six months to a year in order to finalize the following:

- 1) Require the fracking companies to open their books, this will give you the assurance that they are solvent and can take responsibility for any clean up needed (the city should not have to pay for this).
- 2) Sign a contract with these fracking companies that require them to clean up any and all hazards created by them. Again, this should not be the cities responsibility.
- 3) Require fracking companies to be open and transparent about the chemicals they are using for their work. We should not have toxic solutions injected into our soil – we need to know the chemical recipes.
- 4) Require the fracking companies to outline and implement a plan for the disposal of the fracking waste that does not do environmental damage to our county. In other counties, they just dump it into agricultural fields, or use it for dust mitigation; we must ensure this does not happen here. The waste produced from fracking in Colorado is slightly radioactive; we do not need to bring all this up to the surface. Our children are at the greatest risk.

Please support Boulder in staying at the forefront of health, environmental stewardship, and sound city/county planning. You give priority to organic farming, how could you consider allowing fracking in Boulder County? For everyone's sake, but especially for our children, consider the above with utmost thoughtfulness.

Respectfully yours,

Daniel Levine

**From:** mhouseweart@yahoo.com  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** Don't be bullied by Cogcc and their henchmen  
**Date:** Tuesday, November 15, 2016 2:08:36 PM

---

Please continue to stand strong and stand up for BoCo citizen's health and environment. Make the regulations as strong and as onerous as possible. Make the permitting process take so long that the permits are essentially never granted and the oil/gas companies give up. Do NOT ever allow injection wells here, stay firm.

The environmental effects of fracking are permanent and devastating. Drilling our amazing county is incredibly short sighted and unconscionably greedy. So much of this debate has been about the effects of fracking on people, but people are transitory- we humans are a mere blip in time. Our landscape and wildlife can not speak up for their own rights. Let's get over these human-centric arguments. We are to blame for unleashing fracking on the world, the least we can do is stop doing it now.

Take a stand and re-institute a 1 year fracking ban, then keep renewing the ban year after year. Oil and gas plays dirty, we can too. I did my part by collecting signatures on the two anti-fracking ballot measures this summer. Our state legislature has failed us by not passing a statewide ban or at least allowing counties to pass their own bans. Please listen to your loyal constituents who put you in office: protect us and protect our environment.

Sent from my Verizon HTC Smartphone

**From:** kennett Peterson  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** Prolong Boulder Fracking Ban Please  
**Date:** Tuesday, November 15, 2016 2:10:35 PM

---

To whom it may concern,

I am extremely opposed to fracking in Boulder County. Please do not even consider allowing fracking to occur in this area. It needs to be banned permanently or for as long as possible. It is bad enough that fracking is allowed to happen anywhere at all in this state, or the world.

--

Kennett Peterson  
[www.bethebeastcoaching.com](http://www.bethebeastcoaching.com)

**From:** Lindalee Lawrence  
**To:** [Boulder County Board of Commissioners](#)  
**Subject:** No to Fracking!  
**Date:** Tuesday, November 15, 2016 2:13:47 PM

---

Dear Commissioners,

Thank you for the opportunity to comment. I attended the hearing this morning 11/15/16.

Having recently moved to the Wonderland area from Boston, we have a sincere appreciation for the beauty of this area, its wildlife, and the commitment of citizens to protect it. We applaud your efforts to do everything in your power to restrict fracking, and to protect us and our future. Having visited the Breckenridge area, and looked at the mining industry's historic lack of interest in the land, resulting damage and disregard for all but profit, it is clear that history has not always supported protective efforts.

Please let us know if we can be of assistance.

Lindalee A. Lawrence

1630 30<sup>th</sup> Street, Suite A, #284, Boulder, CO 80301

Tel: 720-343-8449

**From:** Andrea Sanders  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** Support for the moratorium extension  
**Date:** Tuesday, November 15, 2016 2:21:10 PM

---

This absolutely needs to be extended. Fracking should not be allowed in Boulder County.

--

Andrea Sanders

Director & Founder, Be Zero

[www.bezero.org](http://www.bezero.org)

Boulder, Colorado

**From:** Ryan Dewell  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** GMO vs Fracking on open space  
**Date:** Tuesday, November 15, 2016 2:28:49 PM

---

Hello,

I live in Boulder city limits, have listened to the comments, and support a continuation of a fracking moratorium.

No amount of regulations can protect us from these dangers.

I find it hypocritical that we would take the trouble to not allow GMO's on open space agriculture, but then turn right around and have these wonderful non-GMO crops being fed by fracking waste air and water.

So not only do we get to do breathe the waste and drink the waste, we get to eat it too.

There is nothing about this which makes ethical sense.

Thank you for your time and efforts.

Ryan

**From:** Marysue Huckabee  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** No fracking in Boulder county  
**Date:** Tuesday, November 15, 2016 2:29:38 PM

---

The fracking has gotten totally out of control in Colorado. Boulder needs to stand up and say NO to our land and neighborhoods. Everywhere I go east, south or north there are fracking sites.

I am vehemently OPPOSED to fracking in Boulder County. I can't believe you would MOVE prairie dogs to safety but OK fracking. We are not that stupid.

Put it on the County ballot and let the voters decide.

--

~marysue  
[mawbook@gmail.com](mailto:mawbook@gmail.com)

**From:** Matt Null  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** Fracking in Boulder  
**Date:** Tuesday, November 15, 2016 2:33:34 PM

---

I heard that there are talked of fracking in Boulder. This cannot happen. This will negatively impact one of the top tech cities in America (probably the world) environmentally, culturally, and financially. I am saying **no** to fracking in Boulder, CO. Thanks

--

---

Matt Null / Human Design  
CTO / Co-Founder

[www.humandesign.agency](http://www.humandesign.agency)  
[@iammattnull](mailto:@iammattnull)

**From:** Emily Spielman  
**To:** [Boulder County Board of Commissioners](#)  
**Subject:** Moratorium on Fracking  
**Date:** Tuesday, November 15, 2016 2:36:02 PM

---

Dear Commissioners,

I strongly support the moratorium on fracking. Fracking is environmentally unsound and destructive.

Thank you.  
Emily Spielman  
690 Quince Circle  
Boulder 80304

**From:** Donna Marino  
**To:** [Boulder County Oil and Gas Comment](#); [Boulder County Board of Commissioners](#)  
**Subject:** Keep the fracking moratorium in place  
**Date:** Tuesday, November 15, 2016 2:48:30 PM

---

As a concerned Boulder citizen I am asking that you keep the moratorium on fracking in place. I do not want to have fracking operations in my neighborhood because of the danger as well as the impact to the environment. Please keep the ban in place.

Thank you, Donna Marino

**From:** Malia Martinez  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** Letter regarding Fracking from a concerned citizen  
**Date:** Tuesday, November 15, 2016 2:48:42 PM  
**Attachments:** [Regarding Fracking.pdf](#)

---

Please find attached letter.

Dear Boulder County Commissioners and Boulder Planning Commission;

As a concerned citizen and constituent of Boulder City and County, I am writing today to express my concern about the expiration of the moratorium on fracking. Fracking is a well-documented environmental hazard that has negative side effects, including air pollution, well contamination, environmental destruction, water pollution as well as negative economic impacts. We cannot allow fracking in Boulder County! Fracking will negatively affect our health and safety, our property values, and our way of life. While fracking companies offer assurances and claim that their operations are safe, these claims are untrue! Observe the many accidents and incidents around the country, and even here in nearby Erie, where pollution levels are presenting harmful threats to the people and the environment. Moreover, fracking companies are unwilling to work with local communities to ensure safety measures, or to even follow the suggested guidelines outlined below. Please implement a new moratorium of at least six months to a year in order to finalize the following:

- 1) Require the fracking companies to open their books, this will give you the assurance that they are solvent and can take responsibility for any clean up needed (the city should not have to pay for this!!!!)
- 2) Sign a contract with these fracking companies that require them to clean up any and all hazards created by them. Again, this should not be the cities responsibility!
- 3) Require fracking companies to be open and transparent about the chemicals they are using for their work. We should not have toxic solutions injected into our soil – we need to know the chemical recipes!
- 4) Require the fracking companies to outline and implement a plan for the disposal of the fracking waste that does not do environmental damage to our county! In other counties, they just dump it into agricultural fields, or use it for dust mitigation; we must ensure this does not happen here. The waste produced from fracking in Colorado is slightly radioactive... we do not need to bring all this up to the surface! Our children are at the greatest risk!!!

Please support Boulder in staying at the forefront of health, environmental stewardship, and sound city/county planning! You give priority to organic farming, how could you consider allowing fracking in Boulder County? For everyone's sake, but especially for our children, consider the above with utmost thoughtfulness.

Respectfully yours,

  
Malia Martinez

**From:** Joscelyn Blumenthal  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** No fracking in Boulder County  
**Date:** Tuesday, November 15, 2016 2:53:21 PM

---

To the Board of County Commissioners:

Please protect taxpayers, residents and future generations from contaminated air and water by extending the moratorium on fracking. Go further! Announce a state of emergency with the understanding that our public health and our environment is under siege by the oil and gas industry and the politicians who protect corporate interests, not their constituents. At the very least, protect our property values; no one will buy a house next to a fracking well and drill pad. No polluting industry next to population centers, bottom line.

Thank you.

Joscelyn Blumenthal

**From:** Juliana Forbes  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** Your leadership is needed  
**Date:** Tuesday, November 15, 2016 3:00:02 PM

---

Dear Boulder County Commissioners and Boulder Planning Commission;

As a concerned citizen and constituent of Boulder City and County, I am writing today to express my concern about the expiration of the moratorium on fracking. Fracking is a well-documented environmental hazard that has negative side effects, including air pollution, well contamination, environmental destruction, water pollution as well as negative economic impacts. We cannot allow fracking in Boulder County! Fracking will negatively affect our health and safety, our property values, and our way of life. While fracking companies offer assurances and claim that their operations are safe, these claims are untrue! Observe the many accidents and incidents around the country, and even here in nearby Erie, where pollution levels are presenting harmful threats to the people and the environment. Moreover, fracking companies are unwilling to work with local communities to ensure safety measures, or to even follow the suggested guidelines outlined below. Please implement a new moratorium of at least six months to a year in order to finalize the following:

- 1) Require the fracking companies to open their books, this will give you the assurance that they are solvent and can take responsibility for any clean up needed (the city should not have to pay for this!!!!)
- 2) Sign a contract with these fracking companies that require them to clean up any and all hazards created by them. Again, this should not be the cities responsibility!
- 3) Require fracking companies to be open and transparent about the chemicals they are using for their work. We should not have toxic solutions injected into our soil – we need to know the chemical recipes!
- 4) Require the fracking companies to outline and implement a plan for the disposal of the fracking waste that does not do environmental damage to our county! In other counties, they just dump it into agricultural fields, or use it for dust mitigation; we must ensure this does not happen here. The waste produced from fracking in Colorado is slightly radioactive... we do not need to bring all this up to the surface! Our children are at the greatest risk!!!

Please support Boulder in staying at the forefront of health, environmental stewardship, and sound city/county planning! You give priority to organic farming, how could you consider allowing fracking in Boulder County? For everyone's sake, but especially for our children, consider the above with utmost thoughtfulness.

Respectfully yours,

Juliana Forbes

**From:** Ora Goldman  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** second message from 3007 10th St after attending today's meeeting  
**Date:** Tuesday, November 15, 2016 3:00:08 PM

---

Hello Commissioners,

After attending the planning meeting today, I felt compelled to write to you to expand on my prior email against fracking as I now understand the issues in more depth.

After hearing from the staff team as well and the oil and gas reps that spoke at the meeting, I understand that you are in a difficult position and that this is a time for courageous action. I agree with the speakers that spoke about this being a state of emergency. The fellow that mentioned about taking jurisdiction over what we can, such as restricting traffic on roads and rights to water, makes sense to me. It is so much that is at stake, much more than just the fracking in our "backyard" but fracking everywhere as well as our liberties as citizens of this country.

I personally will be one of the citizens that would stand with you should you choose to take such courageous action and would help convince others to do likewise. We are not just standing up against this one issue.

I appreciated the irony of the situation as I entered my car to drive home. I understand that it takes lifestyle changes to overcome the incessant hunger for the underground resources that are being tapped. I for one am up for the challenge, because, basically, the direction we are heading, there is little choice.

This is not just for the spaces near homes. This is for the spaces that will be needed for homes in the future. This is for the spaces that are needed to grow food. This is for the whole county and country.

I appreciate that your staff did the best they could within the system. However, the system is f'd. How could regulations do any good? Regulations have to be managed and depend on the good will of those being regulated, i.e. compliance. It is a sham to think that regulations have a positive impact. Especially when what is regulated is shown to be so damaging. It is the wrong course of action to put energy in that direction (pun intended).

Ora Goldman

310-489-0580

**From:** Gina Caputo  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** extend moratorium on fracking  
**Date:** Tuesday, November 15, 2016 3:02:41 PM

---

Please extend the moratorium on fracking in Boulder County. This is not a time to take the “easy road” and simply find more ways to get fossil fuels and do irreparable damage to our communities but to take moratorium time and figure out ways that are taking the future into consideration. This is not a good time for a quick solution but something long term for all.

Thank you from a Boulder resident, homeowner and business owner  
Gina Caputo



**[Gina Caputo](#)**,  
Director & Founder  
[www.coloradoschoolofyoga.org](http://www.coloradoschoolofyoga.org)  
720.515.9030  
[Facebook](#)

**From:** Lynn Sanford  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** No Fracking  
**Date:** Tuesday, November 15, 2016 3:05:50 PM

---

Dear Boulder County Commissioners and Boulder Planning Commission;

As a concerned citizen and constituent of Boulder City and County, I am writing today to express my concern about the expiration of the moratorium on fracking. Fracking is a well-documented environmental hazard that has negative side effects, including air pollution, well contamination, environmental destruction, and water pollution. We cannot allow fracking in Boulder County! Fracking will negatively affect our health and safety, our property values, and our way of life. While fracking companies offer assurances and claim that their operations are safe, these claims are untrue! Observe the many accidents and incidents around the country, and even here in nearby Erie, where pollution levels are presenting harmful threats to the people and the environment. Moreover, fracking companies are unwilling to work with local communities to ensure safety measures, or to even follow the suggested guidelines outlined below. Please implement a new moratorium of at least six months to a year in order to finalize the following:

- 1) Require the fracking companies to open their books, this will give you the assurance that they are solvent and can take responsibility for any clean up needed (the city should not have to pay for this!!!!)
- 2) Sign a contract with these fracking companies that require them to clean up any and all hazards created by them. Again, this should not be the city's responsibility!
- 3) Require fracking companies to be open and transparent about the chemicals they are using for their work. We should not have toxic solutions injected into our soil – we need to know the chemical recipes!
- 4) Require the fracking companies to outline and implement a plan for the disposal of the fracking waste that does not do environmental damage to our county! In other counties, they just dump it into agricultural fields, or use it for dust mitigation; we must ensure this does not happen here.

Please support Boulder in staying at the forefront of health, environmental stewardship, and sound city/county planning! You give priority to organic farming, how could you consider allowing fracking in Boulder County? For everyone's sake, but especially for our children, consider the above with utmost thoughtfulness.

Respectfully yours,

Lynn Sanford

**From:** David Lipton  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** Letter opposing fracking  
**Date:** Tuesday, November 15, 2016 3:17:39 PM  
**Attachments:** [No Fracking.pdf](#)

---

Hello,

Please see the attached letter opposing fracking in Boulder County.

thank you

David Lipton

--

=====  
David Lipton  
720.470.1916

Dear Boulder County Commissioners and Boulder Planning Commission;

As a concerned citizen and constituent of Boulder City and County, I am writing today to express my concern about the expiration of the moratorium on fracking. Fracking is a well-documented environmental hazard that has negative side effects, including air pollution, well contamination, environmental destruction, water pollution as well as negative economic impacts. We cannot allow fracking in Boulder County! Fracking will negatively affect our health and safety, our property values, and our way of life. While fracking companies offer assurances and claim that their operations are safe, these claims are untrue! Observe the many accidents and incidents around the country, and even here in nearby Erie, where pollution levels are presenting harmful threats to the people and the environment. Moreover, fracking companies are unwilling to work with local communities to ensure safety measures, or to even follow the suggested guidelines outlined below. Please implement a new moratorium of at least six months to a year in order to finalize the following:

- 1) Require the fracking companies to open their books, this will give you the assurance that they are solvent and can take responsibility for any clean up needed (the city should not have to pay for this!!!!)
- 2) Sign a contract with these fracking companies that require them to clean up any and all hazards created by them. Again, this should not be the cities responsibility!
- 3) Require fracking companies to be open and transparent about the chemicals they are using for their work. We should not have toxic solutions injected into our soil – we need to know the chemical recipes!
- 4) Require the fracking companies to outline and implement a plan for the disposal of the fracking waste that does not do environmental damage to our county! In other counties, they just dump it into agricultural fields, or use it for dust mitigation; we must ensure this does not happen here. The waste produced from fracking in Colorado is slightly radioactive... we do not need to bring all this up to the surface! Our children are at the greatest risk!!!

Please support Boulder in staying at the forefront of health, environmental stewardship, and sound city/county planning! You give priority to organic farming, how could you consider allowing fracking in Boulder County? For everyone's sake, but especially for our children, consider the above with utmost thoughtfulness.

Respectfully yours,



David A. Lipton

**From:** Camri McAvoy  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** Do NOT support fracking in North Boulder  
**Date:** Tuesday, November 15, 2016 3:26:22 PM

---

To whom it may concern -

I do not support fracking in North Boulder.

Sincerely,

Camri McAvoy

**From:** Lori  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** Fracking  
**Date:** Tuesday, November 15, 2016 3:32:28 PM

---

Stop the madness!  
We all have to live here on this planet!!!

Sent from my iPhone

**From:** Natasha  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** No Fracking, Please  
**Date:** Tuesday, November 15, 2016 3:48:39 PM  
**Attachments:** [No Fracking Way - Boulder County-1.docx](#)

---

Please consider the health and safety of our community when making decisions about fracking.

Thank you,

Natasha Grunden

Dear Boulder County Commissioners and Boulder Planning Commission;

As a concerned citizen and constituent of Boulder City and County, I am writing today to express my concern about the expiration of the moratorium on fracking. Fracking is a well-documented environmental hazard that has negative side effects, including air pollution, well contamination, environmental destruction, water pollution as well as negative economic impacts.

Fracking will negatively affect our health and safety, our property values and our way of life. While fracking companies offer assurances and claim that their operations are safe, these claims are untrue! Observe the many accidents and incidents around the country and even here in nearby Erie, where pollution levels are presenting harmful threats to the people and the environment. Moreover, fracking companies are unwilling to work with local communities to ensure safety measures, or to even follow the suggested guidelines outlined below. Please implement a new moratorium of at least six months to a year in order to finalize the following:

- 1) Require the fracking companies to open their books, this will give you the assurance that they are solvent and can take responsibility for any clean up needed and not at the city's expense.
- 2) Sign a contract with these fracking companies that require them to clean up any and all hazards created by them. Again, this should not be the city's responsibility.
- 3) Require fracking companies to be open and transparent about the chemicals they are using for their work. We should not have toxic solutions injected into our soil – we need to know the chemical recipes.
- 4) Require the fracking companies to outline and implement a plan for the disposal of the fracking waste that does not do environmental damage to our county. In other counties, they just dump it into agricultural fields, or use it for dust mitigation; we must ensure this does not happen here.

Please support Boulder in staying at the forefront of health, environmental stewardship, and sound city/county planning. For everyone's sake, consider the above with utmost thoughtfulness.

Respectfully yours,

Natasha Grunden

**From:** Seth  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** Hold the Line; Protect our Natural Resources  
**Date:** Tuesday, November 15, 2016 3:55:10 PM

---

I support the sting regulations of fracking or other oil and gas exploitation of Boulder County. I suggest that the regulations be made more robust in any way possible. I would like to focus on the section that relates to our natural resources:

9. Natural Resources. The installation and operation of any oil and gas operation shall, to the maximum extent practicable, avoid causing degradation to mapped significant natural communities, natural landmarks and natural areas, rare plant areas, significant riparian corridors, prominent natural features such as distinctive rock and land forms, rivers and streams and other landmarks or other identified visual or scenic resources, wildlife, or critical wildlife habitat as defined in the Comprehensive Plan or identified on the site.

The language, "to the extent practicable", is far too weak for the importance of this proposition. I believe that the regulations should state that there is a presumption that the protection of our natural resources outweighs the value of any oil and gas extraction and should require that the applicant prove that this is not the case in the particular application.

Our open spaces are integral to the identity of Boulder County. Most people would say that access to, and our relationship to, our environment are the main reasons they chose to come and to live in Boulder.

Also, at today's public hearing the attorneys from the oil and gas industry and the assistant from the Attorney General's Office misstated the holding (the legal meaning) of the Supreme Court's decision on the moratoriums. The only meaning of that decision is to say that we cannot prohibit fracking by a long term or indeterminate moratorium. The case does not say that we cannot regulate the industry as you see fit.

Hold the line.

Thank you,

Seth Temin

**From:** Nicole Olalla  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** no Fracking in Boulder  
**Date:** Tuesday, November 15, 2016 4:06:08 PM

---

Please don't allow fracking in Boulder. Keep Boulder special as it is.

Regards,

Nicole Olalla  
720-273-8703

**From:** margaret wise  
**To:** [Boulder County Board of Commissioners](#)  
**Subject:** NO fracking  
**Date:** Tuesday, November 15, 2016 4:23:20 PM

---

thank you for your work. Please continue the moratorium on fracking here in our county.  
Or decide to never allow fracking in our beautiful home!  
thanks  
margaret wise

**From:** Kay Allison  
**To:** [Boulder County Board of Commissioners](#)  
**Subject:** Fracking in Boulder County  
**Date:** Tuesday, November 15, 2016 4:29:56 PM

---

Please vote no to represent my opinions.

Kay Allison  
New Growth, LLC  
312.613.2614

To: [Public Affairs](#)  
From: [Public Affairs](#)  
Subject: [Public Affairs](#)  
Date: [Public Affairs](#)

Honorable Boulder County Commissioners,

I strongly support Boulder County [opposing](#) the Colorado Supreme Court ruling which overturned our moratorium and neighboring city bans on fracking, in [the](#) [best](#) manner possible. The decision by our Supreme Court is NOT in our citizens best interest.

Declare a state of emergency - if North Dakota can do that in protection of its pipeline interests, then Boulder County can do the same thing in protection of our citizens health and wellness interests and in light of the ongoing and increasing pollution and environmental destruction caused by an out of control oil and gas industry.

Thank you for hearing all of us today.

Heather Hagan  
4109 Public Drive  
Longmont, CO 80501



Shot from my iPhone

**From:** Susan Guegan  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** Moratorium  
**Date:** Tuesday, November 15, 2016 4:44:30 PM

---

Dear Boulder County Commissioners,

Thank you for the informative public hearing this afternoon. Although I sent an email earlier today asking for a moratorium extension, I now understand that your hands may be tied on that matter thanks to preemptive state law. However there were some interesting comments from the public viewpoint and one was to declare a state of emergency if that is actually plausible based on the definition provided by Homeland Security. I truly believe that Boulder County can find a way to work around the preemptive clauses if we dig deep enough and tap into the expertise available in this great community. Our pledge of allegiance closes with some very important words: "...with liberty and JUSTICE for all." I think one thing that we can all agree on is that "Justice" will not be served to all in our county (in our country) if fracking is allowed to continue.

Once again, thank you for allowing me this space to share my concerns and comments.

Best of luck during this difficult process,

Susan Guegan

.....

Susan Schiliro Guegan, CHN, NC

Board Certified in Holistic Nutrition®(Candidate)

MBS Functional Nutrition ([www.mbsfn.net](http://www.mbsfn.net))

720.480.4266 [susan.guegan@comcast.net](mailto:susan.guegan@comcast.net)

Nutrition With a Mission!

**From:** satsangetc@gmail.com  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** re: Fracking Moratorium in Boulder County  
**Date:** Tuesday, November 15, 2016 4:50:11 PM

---

Hello,

I am extremely concerned about the potential for new hydraulic fracturing wells being developed in Boulder County.

One of the primary reasons so many people want to live and visit here is because of our beautiful natural surroundings. It has been proven in countless other communities in Colorado and nationwide that fracking actively destroys the purity and serenity of just such environments.

The argument for fracking is an economic one, but if we destroy that which makes Boulder a desirable place to live, the economic consequences will be disastrous for all concerned.

Let's invest in sustainable, renewable energy instead of continuing to keep this antiquated, environmental-disaster of a fuel source on life support.

Thank you for your time and attention. Your sensitivity to this issue is greatly appreciated by the citizens of Boulder County, who, I may remind you, have repeatedly voted against fracking, only to be undermined by certain elected officials and agents of the oil/gas industry.

The people demand clean air and water. It is not too much to ask.

Thank you,

--

David McConaghay  
[Veda Dave](#)

**From:** Gretel Follingstad  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** Vote No on FRACKING  
**Date:** Tuesday, November 15, 2016 4:56:22 PM  
**Attachments:** [No Fracking Way - Boulder County.docx](#)

---

November 15, 2016

Gretel Follingstad  
4670 Kirkwood Steet  
Boulder, CO 80301

Dear Boulder County Commissioners and Boulder Planning Commission;

As a concerned citizen and constituent of Boulder City and County, I am writing today to express my concern about the expiration of the moratorium on fracking. Fracking is a well-documented environmental hazard that has negative side effects, including air pollution, well contamination, environmental destruction, water pollution as well as negative economic impacts. We cannot allow fracking in Boulder County! Fracking will negatively affect our health and safety, our property values, and our way of life. While fracking companies offer assurances and claim that their operations are safe, these claims are untrue! Observe the many accidents and incidents around the country, and even here in nearby Erie, where pollution levels are presenting harmful threats to the people and the environment. Moreover, fracking companies are unwilling to work with local communities to ensure safety measures, or to even follow the suggested guidelines outlined below. Please implement a new moratorium of at least six months to a year in order to finalize the following:

- Require the fracking companies to open their books, this will give you the assurance that they are solvent and can take responsibility for any clean up needed (the city should not have to pay for this!!!!)
- Sign a contract with these fracking companies that require them to clean up any and all hazards created by them. Again, this should not be the cities responsibility!
- Require fracking companies to be open and transparent about the chemicals they are using for their work. We should not have toxic solutions injected into our soil – we need to know the chemical recipes!
- Require the fracking companies to outline and implement a plan for the disposal of the fracking waste that does not do environmental damage to our county! In other counties, they just dump it into agricultural fields, or use it for dust mitigation; we must ensure this does not happen here. The waste produced from fracking in Colorado is slightly radioactive... we do not need to bring all this up to the surface! Our children are at the greatest risk!!!
- Require air quality studies of the fracking process to determine the environmental and health impacts.

Please don't compromise Boulder's national status as a leader in community health, environmental stewardship, and sound city/county planning! You give priority to organic farming, how could you consider allowing fracking in Boulder County? For everyone's sake, but especially for our children, consider the above with utmost thoughtfulness.

Sincerely,

Gretel Follingstad

**From:** David A. Minaya  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** Fracking Ban opinion  
**Date:** Tuesday, November 15, 2016 5:00:43 PM

---

To Whom May It Concerns

As a resident of Boulder County, I ask you to extend the ban on fracking in Boulder County for another five years. This ban is imperative and necessary for the well being of our community and our children. Thank you for your consideration.

David A. Espiritu

**From:** Joshua Lytle  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** Fracking in Boulder County  
**Date:** Tuesday, November 15, 2016 5:16:18 PM

---

Dear County Commissioners,

We, the Boulder County Community, are paying attention and are invested in keeping fracking out of Boulder County. We believe, based on the evidence we have seen nationwide as well as in this very state, that fracking is very dangerous, contrary to claims that it is a safe practice. The horrors of poisoned drinking water, exploding wells, earthquakes, toxic air quality are something the citizens of Boulder County are not willing to risk by allowing fracking here. We want you to consider the will of the people and our health and welfare over the profit of a few. Extend the moratorium on fracking.

Thank you for recognizing and respecting the wishes of Boulder's citizens,

Joshua Lytle

**From:** STEWART GUTHRIE  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** Extension of Boulder County's moratorium on fracking applications  
**Date:** Tuesday, November 15, 2016 6:51:47 PM

---

November 16, 2016

Dear Commissioners Domenico, Gardner and Jones,

Thank you once more for your fracking moratoria so far. The time has come to protect us again by extending the moratorium—or by declaring a state of emergency. Like most county residents, my wife and I trust that you will do one of these until fracking can be made safe. “Regulation” of fracking, as the fracking engineer Angela Grace testified before you a few years ago, is an oxymoron. As Ms. Grace noted, once the fracking fluids are underground and on the move, where they go cannot even be predicted, much less “regulated.”

Reasons for an extended moratorium range from local to global. These reasons, some noted by your land-use planning commission in a 9 – 0 vote, support more than a moratorium: they support a ban—which a number of our cities have, of course, tried to institute. Unfortunately, that remedy isn't on the docket today, but should be.

Locally, Boulder County this summer has again been under ozone alerts, and has been shrouded in smoke. The same is true regionally. Before fracking, Front Range air quality was federally designated “good” but now is in “non-attainment.” Of that difference, fracking is considered to have contributed half.

Some of this last summer's smoke was from forest fires across the Southwest, not directly from fracking. However, the fire season now begins earlier and ends later because of higher temperatures and lower humidity, both reflections of climate change. And as you know, volumes of methane, which are one cause of this change, leak like miscellaneous fracking pollutants from numerous points in the system.

Locally, regionally, and globally, one result of methane and of smoke and carbon

dioxide from the longer fire season is that temperatures are climbing even faster than predicted. Today (November 15), for example, the Front Range may again hit record temperatures, around 80.' Globally, in addition to warming, the oceans are acidifying.

In a democracy, change is meant to come from the bottom up. Now that we have a president-elect for whom climate change is a “hoax”, it's even more important that localities such as Boulder County take a stand.

Your own Resolution 2013-55 cited many effects of fracking on our population. These included harm to residents' health from multiple toxins (including the carcinogens benzene, radon and formaldehyde) as well as from noise, light and dust; economic loss from devalued homes and loss of tourism; damage to, and obstruction of, roads by heavy-truck traffic; and—less tangibly, yet visibly—loss of that clarity of the air that permits us to see the mountains. Will tourists continue to come, and world-class athletes to live and train here, when we cannot see those mountains?

The three and one-half year moratorium that was to have ended in 2018 was pegged in part to the projected completion of a major study on health effects of fracking. If you end the moratorium early, as now planned, that study will not have contributed to the discourse among citizens, their representatives, and oil-and-gas companies, before further harm is done. Moreover, epidemiological studies of fracking, such as the recent one from Yale University cited by staff, continue to show harm to humans and ecosystems. Meanwhile, citizens are not guinea pigs, and property rights do not trump human rights.

We therefore urge that you protect us by reinstating the moratorium—or declaring a state of emergency—and preparing to defend it in court. If we are sued and lose, we will at least have fought, not rolled over, and oil-and-gas will have another black mark. We further urge that if sued, we counter with suits against COGA, COGCC, and the State of Colorado for endangering public health and for nonfeasance.

If we do lose in court, you will still have the gratitude and respect of your constituents, most of whom understand that short-term profit for a few does not justify permanent injury to many.

Meanwhile, fracking is economically fragile because of its high costs and the increasing power of wind and solar. Thus we have the prospect that, with a little delay, it may die of its own accord. With this prospect, the medical advice of Hippocrates, “first of all, do no harm,” applies here too.

Oil and gas *are* doing harm, and we all are downwind. As an anthropologist, I can attest that numbers of civilizations have destroyed their own environments and thus themselves. Let us not join them.

Thank you,

Stewart Guthrie and Phyllis Kaplan

7898 Devonshire Way

Boulder 80301

**From:** Melanie  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** No Fracking in Boulder County!  
**Date:** Tuesday, November 15, 2016 6:53:35 PM

---

Dear Boulder County Commissioners and Boulder Planning Commission;

As a concerned citizen and constituent of Boulder City and County, I am writing today to express my concern about the expiration of the moratorium on fracking. Fracking is a well-documented environmental hazard that has negative side effects, including air pollution, well contamination, environmental destruction, water pollution as well as negative economic impacts. We cannot allow fracking in Boulder County! Fracking will negatively affect our health and safety, our property values, and our way of life. While fracking companies offer assurances and claim that their operations are safe, these claims are untrue! Observe the many accidents and incidents around the country, and even here in nearby Erie, where pollution levels are presenting harmful threats to the people and the environment. Moreover, fracking companies are unwilling to work with local communities to ensure safety measures, or to even follow the suggested guidelines outlined below. Please implement a new moratorium of at least six months to a year in order to finalize the following:

- 1) Require the fracking companies to open their books, this will give you the assurance that they are solvent and can take responsibility for any clean up needed (the city should not have to pay for this!!!!)
- 2) Sign a contract with these fracking companies that require them to clean up any and all hazards created by them. Again, this should not be the cities responsibility!
- 3) Require fracking companies to be open and transparent about the chemicals they are using for their work. We should not have toxic solutions injected into our soil – we need to know the chemical recipes!
- 4) Require the fracking companies to outline and implement a plan for the disposal of the fracking waste that does not do environmental damage to our county! In other counties, they just dump it into agricultural fields, or use it for dust mitigation; we must ensure this does not happen here. The waste produced from fracking in Colorado is slightly radioactive... we do not need to bring all this up to the surface! Our children are at the greatest risk!!!

Please support Boulder in staying at the forefront of health, environmental stewardship, and sound city/county planning! You give priority to organic farming, how could you consider allowing fracking in Boulder County? For everyone's sake, but especially for our children, consider the above with utmost thoughtfulness.

Respectfully yours,

Melanie Whitehead

--

"Nature does not hurry, yet everything is accomplished." ~Lao Tzu

**If you have a moment consider supporting Twin Lakes in protecting our beloved Owls and other abundant wildlife in their natural habitat.**

<http://boulderowlpreserve.org>

[http://www.ipetitions.com/petition/no-leap-frog-annexation-and-densification-in  
www.tlag.org](http://www.ipetitions.com/petition/no-leap-frog-annexation-and-densification-in-www.tlag.org)

**From:** mk@speakeasy.net  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** No Fracking Way!!  
**Date:** Tuesday, November 15, 2016 7:15:06 PM

---

Dear Boulder County Commissioners and Boulder Planning Commission;

As a concerned citizen and constituent of Boulder City and County, I am writing today to express my concern about the expiration of the moratorium on fracking. Fracking is a well-documented environmental hazard that has negative side effects, including air pollution, well contamination, environmental destruction, water pollution as well as negative economic impacts. We cannot allow fracking in Boulder County! Fracking will negatively affect our health and safety, our property values, and our way of life. While fracking companies offer assurances and claim that their operations are safe, these claims are untrue! Observe the many accidents and incidents around the country, and even here in nearby Erie, where pollution levels are presenting harmful threats to the people and the environment. Moreover, fracking companies are unwilling to work with local communities to ensure safety measures, or to even follow the suggested guidelines outlined below. Please implement a new moratorium of at least six months to a year in order to finalize the following:

- \* Require the fracking companies to open their books, this will give you the assurance that they are solvent and can take responsibility for any clean up needed (the city should not have to pay for this!!!!)
- \* Sign a contract with these fracking companies that require them to clean up any and all hazards created by them. Again, this should not be the cities responsibility!
- \* Require fracking companies to be open and transparent about the chemicals they are using for their work. We should not have toxic solutions injected into our soil – we need to know the chemical recipes!
- \* Require the fracking companies to outline and implement a plan for the disposal of the fracking waste that does not do environmental damage to our county! In other counties, they just dump it into agricultural fields, or use it for dust mitigation; we must ensure this does not happen here. The waste produced from fracking in Colorado is slightly radioactive... we do not need to bring all this up to the surface! Our children are at the greatest risk!!!

Please support Boulder in staying at the forefront of health, environmental stewardship, and sound city/county planning! You give priority to organic farming, how could you consider allowing fracking in Boulder County? For everyone's sake, but especially for our children, consider the above with utmost thoughtfulness.

Respectfully yours,

Mary Kate Willett

**From:** Linda Du  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** No Fracking in Boulder County  
**Date:** Tuesday, November 15, 2016 7:36:39 PM

---

I am a resident of Louisville. I hold strong NO Fracking in our town and our county.

Any thing that I can do for this?

Thanks.

Linda

**From:** BETH BENNETT  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** fracking  
**Date:** Tuesday, November 15, 2016 7:40:06 PM

---

dear county commissioners

i voted as always, D, b/c the R platform is repulsive to me. but on the GMO issue, the Ds are off the mark. now that Trump is in office, we have to do everything in our power to minimize effects of climate change and GM crops can do that by reducing the amount of tilling, and herbicide application, both of which use heavy equipment and thus release GH gases.

if nothing else, table the motion for further study, don't jump into trump's camp!!

thank you

beth bennett PHD

**From:** kdvd25  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** Moratorium  
**Date:** Tuesday, November 15, 2016 7:46:46 PM

---

To whom this may concern

I am a resident in the city of Thornton. Continuing your moratorium on drilling in Boulder will maintain the integrity of green values your city holds highly. I would hope that this would set a precedence for other cities to follow. As you know there are many neighboring cities that are challenged with oil and gas invasion. Neighboring cities will look up to you and hopefully follow your lead.

Thank you for your time  
Kim David

Sent from my Verizon, Samsung Galaxy smartphone

**From:** Jane Enterline  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** Frack free extension  
**Date:** Tuesday, November 15, 2016 7:50:31 PM

---

I am emailing to voice my support of extending the ban on fracking in Boulder county. I do not support fracking at all. We shouldn't be exposing ourselves to the toxic chemicals that fracking injects - by the process itself and also through leaks - into the earth and our ground waters nor to the methane and carbon that is released into our atmosphere.

We should not frack for fossil fuels in Boulder county, or anywhere!

Jane Enterline  
Boulder CO

**From:** Hilary Boslet  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** No fracking in Boulder County  
**Date:** Tuesday, November 15, 2016 7:53:27 PM

---

Hello,

I am writing to express my wishes that all 3 Boulder County commissioners vote to KEEP the moratorium on fracking in Boulder County.

Better yet, ban it all together.

Thank you,

Your constituent,

Hilary Boslet

**From:** Hilary Boslet  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** Ban fracking in Boulder County  
**Date:** Tuesday, November 15, 2016 7:54:36 PM

---

Dear Boulder County Commissioners and Boulder Planning Commission;

As a concerned citizen and constituent of Boulder City and County, I am writing today to express my concern about the expiration of the moratorium on fracking. Fracking is a well-documented environmental hazard that has negative side effects, including air pollution, well contamination, environmental destruction, water pollution as well as negative economic impacts. We cannot allow fracking in Boulder County! Fracking will negatively affect our health and safety, our property values, and our way of life. While fracking companies offer assurances and claim that their operations are safe, these claims are untrue! Observe the many accidents and incidents around the country, and even here in nearby Erie, where pollution levels are presenting harmful threats to the people and the environment. Moreover, fracking companies are unwilling to work with local communities to ensure safety measures, or to even follow the suggested guidelines outlined below. Please implement a new moratorium of at least six months to a year in order to finalize the following:

- 1) Require the fracking companies to open their books, this will give you the assurance that they are solvent and can take responsibility for any clean up needed (the city should not have to pay for this!!!!)
- 2) Sign a contract with these fracking companies that require them to clean up any and all hazards created by them. Again, this should not be the cities responsibility!
- 3) Require fracking companies to be open and transparent about the chemicals they are using for their work. We should not have toxic solutions injected into our soil – we need to know the chemical recipes!
- 4) Require the fracking companies to outline and implement a plan for the disposal of the fracking waste that does not do environmental damage to our county! In other counties, they just dump it into agricultural fields, or use it for dust mitigation; we must ensure this does not happen here. The waste produced from fracking in Colorado is slightly radioactive... we do not need to bring all this up to the surface! Our children are at the greatest risk!!!

Please support Boulder in staying at the forefront of health, environmental stewardship, and sound city/county planning! You give priority to organic farming, how could you consider allowing fracking in Boulder County? For everyone's sake, but especially for our children, consider the above with utmost thoughtfulness.

Sincerely,

Hilary Boslet

**From:** Alexandra Cameron Karpilow  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** moratorium extension  
**Date:** Tuesday, November 15, 2016 8:02:38 PM

---

Hello,

I am a 22 year old college student aiming for a career in the development of renewable energy. The reason why I chose this path is because at a very young age I learned about climate change and it has occupied my thoughts ever since. I confess, even after all of this time I can't understand why people aren't more terrified by the fact that our world is on the path towards being uninhabitable as the result of our own selfish actions. I can't understand why short term economic gain is somehow more important than preserving the air we breath and water we drink. I can't understand how the health and happiness of the population our government supposedly serves is not a "viable" argument in court. I can't understand how we justify public health concerns and environmental destruction with "economic growth". Please, explain this to me. Because I am a 22 year old college student and I do not understand. I am supposed to be bright-eyed and hopeful but right now my future and the future of my generation and every generation after is looking bleak. You have the chance to make it a little bit brighter. You have the chance to stand on the right side of history and to help make the world a better place. Will you take that chance?

Thank you for your time.

Alex

**From:** Molly Anne Hirsch Kobus  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** NO Fracking  
**Date:** Tuesday, November 15, 2016 8:15:58 PM

---

I am writing to speak out AGAINST fracking in Boulder County. There are too many unknowns and risks involved in allowing for fracking to occur. Many of us have moved our families to Boulder County because we viewed it as a safe place to raise our children. If this is passed, we will be focused to leave. Do NOT let money rule this decision. This impacts lives. NO to fracking.

Thank you,  
Molly Kobus  
Boulder, CO 80301  
703-772-7103

--

Molly Anne Hirsch Kobus

**From:** JOAN ORIGER  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** Fracking Ban  
**Date:** Tuesday, November 15, 2016 8:24:02 PM

---

I am a mother and native of Boulder, CO. I currently live in Longmont. I urge you to extend the ban on fracking in Boulder County for another five years. It is imperative for the well being of our community.  
Thank You,

Joanie Origer

**From:** John Valusek  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** fracking moratorium  
**Date:** Tuesday, November 15, 2016 8:25:03 PM

---

I'd just like to briefly add my voice to the chorus of opposition to prospective fracking in Boulder County.

Heartfelt rhetoric aside, we all understand this is fundamentally destructive. And, yes, we've also heard the propaganda from sources with blatant conflicts of interest. Beneath the misinformation and petty rationalization, however, we do know that this is morally reprehensible.

Let's leave beauty intact and environs hospitable for ourselves and future generations.

Regards,  
John Valusek

**From:** Joseph Brenna  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** Spam: fracking in boulder county  
**Date:** Tuesday, November 15, 2016 8:33:42 PM  
**Attachments:** [JBM LOGO TAG.png](#)

---

As a citizen and parent I believe that the ban on fracking is essential to protect our health and safety. I urge you in the strongest way possible to extend the ban.

Sincerely, Joseph Brenna  
516 Collyer Street  
Longmont, CO

--

Joseph Brenna

720-564-1767

[Brenna Method Guitar Studio](#)

recent posts:

- [7 tips to Buying a Guitar for Your Child](#)
- [The Easy Way to Perfect Guitar Chord Changes](#)



**From:** alicia  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** No Fracking Please  
**Date:** Tuesday, November 15, 2016 8:48:47 PM  
**Attachments:** [No Fracking Way - Boulder County.docx](#)

---

Please see attached.

--

Cheers,  
Alicia Gibb  
CEO, [Lunchbox Electronics](#)  
Executive Director, [Open Source Hardware Association](#)  
Director, [Blow Things Up Lab](#)  
Author, [Building Open Source Hardware](#)

Please note: I tend to check my email once a day during the hours of 9-5 and refrain from checking it outside of work hours and weekends. Thank you for your patience.

Dear Boulder County Commissioners and Boulder Planning Commission;

As a concerned citizen and constituent of Boulder City and County, I am writing today to express my concern about the expiration of the moratorium on fracking. Fracking is a well-documented environmental hazard that has negative side effects, including air pollution, well contamination, environmental destruction, water pollution as well as negative economic impacts. We cannot allow fracking in Boulder County! Fracking will negatively affect our health and safety, our property values, and our way of life. While fracking companies offer assurances and claim that their operations are safe, these claims are untrue! Observe the many accidents and incidents around the country, and even here in nearby Erie, where pollution levels are presenting harmful threats to the people and the environment. Moreover, fracking companies are unwilling to work with local communities to ensure safety measures, or to even follow the suggested guidelines outlined below. Please implement a new moratorium of at least six months to a year in order to finalize the following:

- 1) Require the fracking companies to open their books, this will give you the assurance that they are solvent and can take responsibility for any clean up needed (the city should not have to pay for this!)
- 2) Sign a contract with these fracking companies that require them to clean up any and all hazards created by them. Again, this should not be the cities responsibility!
- 3) Require fracking companies to be open and transparent about the chemicals they are using for their work. We should not have toxic solutions injected into our soil – we need to know the chemical recipes!
- 4) Require the fracking companies to outline and implement a plan for the disposal of the fracking waste that does not do environmental damage to our county! In other counties, they just dump it into agricultural fields, or use it for dust mitigation; we must ensure this does not happen here. The waste produced from fracking in Colorado is slightly radioactive... we do not need to bring all this up to the surface! Our children are at the greatest risk!

Please support Boulder in staying at the forefront of health, environmental stewardship, and sound city/county planning! You give priority to organic farming, how could you consider allowing fracking in Boulder County? For everyone's sake, but especially for our children, consider the above with utmost thoughtfulness.

Respectfully yours,

Alicia Gibb

**From:** Bridget Law  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** A concerned citizen  
**Date:** Tuesday, November 15, 2016 8:51:23 PM  
**Attachments:** [No Fracking Way - Boulder County.docx](#)

---

Dear Boulder County Commissioners and Boulder Planning Commission;

As a concerned citizen and constituent of Boulder City and County, I am writing today to express my concern about the expiration of the moratorium on fracking. Fracking is a well-documented environmental hazard that has negative side effects, including air pollution, well contamination, environmental destruction, water pollution as well as negative economic impacts. We cannot allow fracking in Boulder County! Fracking will negatively affect our health and safety, our property values, and our way of life. While fracking companies offer assurances and claim that their operations are safe, these claims are untrue! Observe the many accidents and incidents around the country, and even here in nearby Erie, where pollution levels are presenting harmful threats to the people and the environment. Moreover, fracking companies are unwilling to work with local communities to ensure safety measures, or to even follow the suggested guidelines outlined below. Please implement a new moratorium of at least six months to a year in order to finalize the following:

- 1) Require the fracking companies to open their books, this will give you the assurance that they are solvent and can take responsibility for any clean up needed (the city should not have to pay for this!!!!)
- 2) Sign a contract with these fracking companies that require them to clean up any and all hazards created by them. Again, this should not be the cities responsibility!
- 3) Require fracking companies to be open and transparent about the chemicals they are using for their work. We should not have toxic solutions injected into our soil – we need to know the chemical recipes!
- 4) Require the fracking companies to outline and implement a plan for the disposal of the fracking waste that does not do environmental damage to our county! In other counties, they just dump it into agricultural fields, or use it for dust mitigation; we must ensure this does not happen here. The waste produced from fracking in Colorado is slightly radioactive... we do not need to bring all this up to the surface! Our children are at the greatest risk!!!

Please support Boulder in staying at the forefront of health, environmental stewardship, and sound city/county planning! You give priority to organic farming, how could you consider allowing fracking in Boulder County? For everyone's sake, but especially for our children, consider the above with utmost thoughtfulness.

Respectfully yours,

Bridget Law

**From:** Tiphaine Bonetti  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** Fracking in North Boulder  
**Date:** Tuesday, November 15, 2016 9:05:47 PM

---

I would like to express my support of extending the moratorium on fracking in Boulder City and Boulder County. There is not enough research or time passed to assess the impact of fracking on the environment and the health of both wildlife and humans. It is critical to our human rights. Thank you,

Tiphaine Bonetti  
1880 Redwood Ave.  
Boulder, CO 80304  
303-709-0525

**From:** miki@harlequinsgardens.com  
**To:** [Boulder County Board of Commissioners](#)  
**Subject:** fracking moratorium  
**Date:** Tuesday, November 15, 2016 9:13:32 PM

---

Dear Commissioners,

Please extend the moratorium on fracking. If our state government will not protect us from poisoning our water and air and neighborhoods, then the individual cities must assume the responsibility.

Boulder is a leader in sustainability and protection of the environment both for Colorado and for the United States. Please be brave and stand up for the human rights to clean water and a safe environment.

The rights to business profits must be valid only if they do not supercede human rights.

We are also attempting to validate a change to renewable energy that will help to reverse climate change, which is a highest priority.

Sincerely,

Miki Brawner

**From:** Danika  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** Extension of the Fracking ban  
**Date:** Tuesday, November 15, 2016 9:15:58 PM

---

Hello,

As a CU Boulder faculty member, and a concerned citizen of Boulder County, I urge you to extend the ban on fracking in Boulder County for another five years. It is imperative for the well being of our community. Thank you for considering my voice.

All best,

Danika Medak-Saltzman

Sent from my iPhone (please excuse brevity & typos)

**From:** bennadler  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** Notice!  
**Date:** Tuesday, November 15, 2016 9:21:38 PM

---

Dear Boulder County Commissioners and Boulder Planning Commission;

As a concerned citizen and constituent of Boulder City and County, I am writing today to express my concern about the expiration of the moratorium on fracking. Fracking is a well-documented environmental hazard that has negative side effects, including air pollution, well contamination, environmental destruction, water pollution as well as negative economic impacts. We cannot allow fracking in Boulder County! Fracking will negatively affect our health and safety, our property values, and our way of life. While fracking companies offer assurances and claim that their operations are safe, these claims are untrue! Observe the many accidents and incidents around the country, and even here in nearby Erie, where pollution levels are presenting harmful threats to the people and the environment. Moreover, fracking companies are unwilling to work with local communities to ensure safety measures, or to even follow the suggested guidelines outlined below. Please implement a new moratorium of at least six months to a year in order to finalize the following:

Require the fracking companies to open their books, this will give you the assurance that they are solvent and can take responsibility for any clean up needed (the city should not have to pay for this!!!!)

Sign a contract with these fracking companies that require them to clean up any and all hazards created by them. Again, this should not be the cities responsibility!

Require fracking companies to be open and transparent about the chemicals they are using for their work. We should not have toxic solutions injected into our soil – we need to know the chemical recipes!

Require the fracking companies to outline and implement a plan for the disposal of the fracking waste that does not do environmental damage to our county! In other counties, they just dump it into agricultural fields, or use it for dust mitigation; we must ensure this does not happen here. The waste produced from fracking in Colorado is slightly radioactive... we do not need to bring all this up to the surface! Our children are at the greatest risk!!!

Please support Boulder in staying at the forefront of health, environmental stewardship, and sound city/county planning! You give priority to organic farming, how could you consider allowing fracking in Boulder County? For everyone's sake, but especially for our children, consider the above with utmost thoughtfulness.

Ben Nadler

Sent via the Samsung Galaxy S® 6, an AT&T 4G LTE smartphone

**From:** Joellen Raderstorf  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** Find a way to say NO to drilling in Boulder, CO  
**Date:** Tuesday, November 15, 2016 9:29:43 PM  
**Attachments:** [uc.png](#)

---

Dear Commissioners,

I know by now that you have read thousands of letters filled with very articulate arguments, so I will keep my comments brief. There are numerous scientists that can show you the data on the impact on air quality. This is one of many reasons. More revenue is not a reason to drill and frankly if one county can stand up to the state and the oil and gas industry on behalf of others, it is Boulder.

# Please find a way to ban fracking in Boulder County.

With deep gratitude for your service to Boulder County and generations to come!

**Joellen Raderstorf**

Add your event to a community calendar at [Boulder.Earth](#)

Senior explorer @ [C3 Boulder: A Climate Culture Collaborative](#)  
303.717.4760 | [collaborate@c3boulder.co](mailto:collaborate@c3boulder.co) | @C3Boulder @actingupmama

You do not have to be good.  
You do not have to walk on your knees  
for a hundred miles through the desert repenting. You only have to let the soft animal of your body love what it loves.

– Excerpted from ‘Wild Geese’ by Mary Oliver

**IMPACT  
HUB Member**  
*Where change goes to work*

**From:** linn wilder  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** Opposed to fracking  
**Date:** Tuesday, November 15, 2016 9:36:29 PM

---

Dear Boulder County Commissioners,

We the Boulder County Community are paying attention and are invested in keeping fracking out of Boulder County. We are concerned for the health and safety of our citizens and our water. We have seen far too many accidents around the country and in our state that prove fracking is dangerous. We believe it should be banned entirely, and do not want it in our community. Please follow the will of the citizens of Boulder County and extend the moratorium on fracking.

Thank you for listening and respecting the wishes of the people.

Sincerely,  
Linn Wilder Muir

**From:** Caroline Colt  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** Fracking moratorium  
**Date:** Tuesday, November 15, 2016 9:37:58 PM

---

Hi Boulder county-

I grew up in Boulder and have watched the city evolve and grow for years. I am passionate about protecting what we hold dear which is our environment, water, and clean air. I would like to request that the city extends the moratorium on fracking by at least 3 years, if not indefinitely.

I am extremely concerned about the potential for new hydraulic fracturing wells being developed in Boulder County.

One of the primary reasons so many people want to live and visit here is because of our beautiful natural surroundings. It has been proven in countless other communities in Colorado and nationwide that fracking actively destroys the purity and serenity of just such environments.

The argument for fracking is an economic one, but if we destroy that which makes Boulder a desirable place to live, the economic consequences will be disastrous for all concerned.

Let's invest in sustainable, renewable energy instead of continuing to keep this antiquated, environmental-disaster of a fuel source on life support.

Thank you for your time and attention. Your sensitivity to this issue is greatly appreciated by the citizens of Boulder County, who, I may remind you, have repeatedly voted against fracking, only to be undermined by certain elected officials and agents of the oil/gas industry.

The people demand clean air and water. It is not too much to ask.

Caroline Colt

yoga.kale.sleep.repeat

**From:** Linda Angiono (via Google Docs)  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** No Fracking Way - Boulder County  
**Date:** Tuesday, November 15, 2016 10:45:17 PM  
**Attachments:** [No Fracking Way - Boulder County.pdf](#)

---

[Linda Angiono](#) has attached the following document:



No Fracking Way - Boulder County



Google Docs: Create and edit documents online.

Google Inc. 1600 Amphitheatre Parkway, Mountain View, CA 94043, USA

You have received this email because someone shared a document with you from Google Docs.



Dear Boulder County Commissioners and Boulder Planning Commission;

As a concerned citizen and constituent of Boulder City and County, I am writing today to express my concern about the expiration of the moratorium on fracking. Fracking is a well-documented environmental hazard that has negative side effects, including air pollution, well contamination, environmental destruction, water pollution as well as negative economic impacts. We cannot allow fracking in Boulder County! Fracking will negatively affect our health and safety, our property values, and our way of life. While fracking companies offer assurances and claim that their operations are safe, these claims are untrue! Observe the many accidents and incidents around the country, and even here in nearby Erie, where pollution levels are presenting harmful threats to the people and the environment. Moreover, fracking companies are unwilling to work with local communities to ensure safety measures, or to even follow the suggested guidelines outlined below. Please implement a new moratorium of at least six months to a year in order to finalize the following:

- 1) Require the fracking companies to open their books, this will give you the assurance that they are solvent and can take responsibility for any clean up needed (the city should not have to pay for this!!!!)
- 2) Sign a contract with these fracking companies that require them to clean up any and all hazards created by them. Again, this should not be the cities responsibility!
- 3) Require fracking companies to be open and transparent about the chemicals they are using for their work. We should not have toxic solutions injected into our soil – we need to know the chemical recipes!
- 4) Require the fracking companies to outline and implement a plan for the disposal of the fracking waste that does not do environmental damage to our county! In other counties, they just dump it into agricultural fields, or use it for dust mitigation; we must ensure this does not happen here. The waste produced from fracking in Colorado is slightly radioactive... we do not need to bring all this up to the surface! Our children are at the greatest risk!!!

Please support Boulder in staying at the forefront of health, environmental stewardship, and sound city/county planning! You give priority to organic farming, how could you consider allowing fracking in Boulder County? For everyone's sake, but especially for our children, consider the above with utmost thoughtfulness.

Respectfully yours,

Linda Hayes-Angiono

**From:** [Wufoo](#)  
**To:** [Boulder County Board of Commissioners](#)  
**Subject:** County Commissioners Contact Us/Feedback Form. [#217]  
**Date:** Tuesday, November 15, 2016 10:45:34 PM

---

Name \* Paula Kelly

Email \* [pasgkelly@yahoo.com](mailto:pasgkelly@yahoo.com)

My Question or Feedback most closely relates to the following subject: (fill in the blank) \* Oil/gas drilling and production moratorium

Comments, Question or Feedback \*

I would like to express my opinion to extend the moratorium in Boulder County for up to five years in order to take the time to analyze what can be done on a state and local level to protect the environment and the public's health, safety and welfare. In light of the new studies that have been released documenting threats to health, if and when oil and gas drilling and production, including fracking, is allowed to proceed, I would like to see very strict regulations to monitor operations. I would also like to see included in the regulations financial proof that the oil companies are prepared to pay for all repairs and clean up for spills and leaks in a timely manner.

Please check box below \*

- I acknowledge receipt of the Open Records Notification

**From:** Cedar Barstow  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** Voice against fracking  
**Date:** Tuesday, November 15, 2016 11:29:08 PM

---

A re-send since I think my earlier sending didn't go through.

I support you in saying no to fracking in Boulder County!

Cedar Barstow

--

Cedar Barstow, M.Ed., C.H.T.  
Boulder, Colorado  
303-444-6835  
[www.rightuseofpower.org](http://www.rightuseofpower.org)  
[www.cedarbarstow.com](http://www.cedarbarstow.com)

**From:** Jon Karpilow  
**To:** [Boulder County Board of Commissioners](#)  
**Subject:** Please... no fracking  
**Date:** Wednesday, November 16, 2016 3:16:12 AM

---

Dear Commissioners,  
I attended yesterday's meeting and found out that something like 43% of all the current gas and oil wells leak. At the same time, I learned that the State Supreme Court has informed communities that health issues are not a justification for a moratorium. Seriously? What is happening to America if health concerns are not a good enough reason to pause and research a technology in greater detail? I ask you to please rub a couple more neurons together to find a solution that addresses the publics concerns and preserves our beautiful city.

Thank you,  
Jon Karpilow  
3851 Orion Court  
Boulder, CO 80304

--

Please note new email address: [jon.karpilow@proventusbio.com](mailto:jon.karpilow@proventusbio.com)

**From:** Sue McCue  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** No fracking please  
**Date:** Wednesday, November 16, 2016 6:11:06 AM

---

Please extend the ban on fracking in Boulder County for another five years. I am a community organizer, and I know that my neighbors and I voted to ban fracking in our town because we are concerned about the impact it will have on the environment.

Why can't we dedicate ourselves to expanding clean energy sources? Maybe Boulder could be innovative and lead that charge instead of playing up to the greed surrounding the oil and gas industry?

This issue is important to us. We know about the fracking waste pipeline our city council approved at a late night meeting and we are watching this decision too. I would hope you represent the wishes of the people who elected you. If not, we will be supporting this community in making different decisions when we vote.

Suzanne Mccue

**From:** Jon Price  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** No Fracking  
**Date:** Wednesday, November 16, 2016 7:33:22 AM  
**Attachments:** [PCM263.pdf](#)

---

Dear Boulder County Commissioners and Boulder Planning Commission;

As a concerned citizen and constituent of Boulder City and County, I am writing today to express my concern about the expiration of the moratorium on fracking. Fracking is a well-documented environmental hazard that has negative side effects, including air pollution, well contamination, environmental destruction, water pollution as well as negative economic impacts. We cannot allow fracking in Boulder County! Fracking will negatively affect our health and safety, our property values, and our way of life. While fracking companies offer assurances and claim that their operations are safe, these claims are untrue! Observe the many accidents and incidents around the country, and even here in nearby Erie, where pollution levels are presenting harmful threats to the people and the environment. Moreover, fracking companies are unwilling to work with local communities to ensure safety measures, or to even follow the suggested guidelines outlined below. Please implement a new moratorium of at least six months to a year in order to finalize the following:

- 1) Require the fracking companies to open their books, this will give you the assurance that they are solvent and can take responsibility for any clean up needed (the city should not have to pay for this!!!!)
- 2) Sign a contract with these fracking companies that require them to clean up any and all hazards created by them. Again, this should not be the cities responsibility!
- 3) Require fracking companies to be open and transparent about the chemicals they are using for their work. We should not have toxic solutions injected into our soil – we need to know the chemical recipes!
- 4) Require the fracking companies to outline and implement a plan for the disposal of the fracking waste that does not do environmental damage to our county! In other counties, they just dump it into agricultural fields, or use it for dust mitigation; we must ensure this does not happen here. The waste produced from fracking in Colorado is slightly radioactive... we do not need to bring all this up to the surface! Our children are at the greatest risk!!!

Please support Boulder in staying at the forefront of health, environmental stewardship, and sound city/county planning! You give priority to organic farming, how could you consider allowing fracking in Boulder County? For everyone's sake, but especially for our children, consider the above with utmost thoughtfulness.

Respectfully yours,



Jon Price

**From:** Nicole Trick  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** NO to Fracking  
**Date:** Wednesday, November 16, 2016 7:59:03 AM

---

Hello,

I am unable to attend the in-person session due to my job. As a mother of two children, I am raising my voice:

NO to see poisoned water.  
NO to methane leaks.  
NO to gas well explosions.  
NO to earthquakes.  
NO to fracking.

Today, tomorrow.

Regards,  
Nicole

**From:** Bob Carmichael  
**To:** [Boulder County Board of Commissioners](#)  
**Subject:** No to fracking  
**Date:** Wednesday, November 16, 2016 8:01:51 AM

---

Absolutely firm in my resolve to keep Fracking out of Boulder.

3232 11th Street

Sent from my iPhone



**director/photographer**  
**carmichael productions, inc.**  
**bob carmichael |**  
**cell: [310 739.0650](tel:3107390650) off: [303 955.7065](tel:3039557065)**  
**email: [bc@bobcarmichael.com](mailto:bc@bobcarmichael.com) | web:[www.bobcarmichael.com](http://www.bobcarmichael.com)**  
**[3231 11th Street](#) | Studio One | Boulder, CO 80304 USA**

**From:** Megan White  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** FW: No fracking - signed  
**Date:** Wednesday, November 16, 2016 8:34:02 AM  
**Attachments:** [image001.png](#)  
[SMINOLTA\\_C216111609220.pdf](#)

---

## **Megan White**

HR Coordinator



5775 Flatiron Parkway

Boulder, CO 80301

+ 1-303-541-2944 **Office**

+ 1-303-417-9999 **Main**

+ 1-720-235-9395 **Cell**

[megan.white@IHSMarkit.com](mailto:megan.white@IHSMarkit.com)

[www.ihsmarkit.com](http://www.ihsmarkit.com)

**From:** Megan White  
**Sent:** Wednesday, November 16, 2016 8:33 AM  
**To:** 'oilgascomment@bouldercounty.org.'  
**Subject:** No fracking - signed

**Megan White**

HR Coordinator



5775 Flatiron Parkway

Boulder, CO 80301

+ 1-303-541-2944 **Office**

+ 1-303-417-9999 **Main**

+ 1-720-235-9395 **Cell**

[megan.white@IHSMarkit.com](mailto:megan.white@IHSMarkit.com)

[www.ihsmarkit.com](http://www.ihsmarkit.com)

**From:** [MINOLTA\\_C224E\\_Flatirons\\_SE@markit.com](mailto:MINOLTA_C224E_Flatirons_SE@markit.com)  
[[mailto:MINOLTA\\_C224E\\_Flatirons\\_SE@markit.com](mailto:MINOLTA_C224E_Flatirons_SE@markit.com)]

**Sent:** Wednesday, November 16, 2016 8:22 AM

**To:** Megan White

**Subject:** Message from MINOLTA\_C224E\_Flatirons\_SE

---

This e-mail, including accompanying communications and attachments, is strictly confidential and only for the intended recipient. Any retention, use or disclosure not expressly authorised by Markit is prohibited. This email is subject to all waivers and other terms at the following link: <http://www.markit.com/en/about/legal/email-disclaimer.page>

Please visit <http://www.markit.com/en/about/contact/contact-us.page> for contact information on our offices worldwide.

11/16/2016

Dear Boulder County Commissioners and Boulder Planning Commission;

As a concerned citizen and constituent of Boulder City and County, I am writing today to express my concern about the expiration of the moratorium on fracking. Fracking is a well-documented environmental hazard that has negative side effects, including air pollution, well contamination, environmental destruction, water pollution as well as negative economic impacts. We cannot allow fracking in Boulder County! Fracking will negatively affect our health and safety, our property values, and our way of life. While fracking companies offer assurances and claim that their operations are safe, these claims are untrue! Observe the many accidents and incidents around the country, and even here in nearby Erie, where pollution levels are presenting harmful threats to the people and the environment. Moreover, fracking companies are unwilling to work with local communities to ensure safety measures, or to even follow the suggested guidelines outlined below. Please implement a new moratorium of at least six months to a year in order to finalize the following:

- 1) Require the fracking companies to open their books, this will give you the assurance that they are solvent and can take responsibility for any clean up needed (the city should not have to pay for this!!!!)
- 2) Sign a contract with these fracking companies that require them to clean up any and all hazards created by them. Again, this should not be the cities responsibility!
- 3) Require fracking companies to be open and transparent about the chemicals they are using for their work. We should not have toxic solutions injected into our soil – we need to know the chemical recipes!
- 4) Require the fracking companies to outline and implement a plan for the disposal of the fracking waste that does not do environmental damage to our county! In other counties, they just dump it into agricultural fields, or use it for dust mitigation; we must ensure this does not happen here. The waste produced from fracking in Colorado is slightly radioactive... we do not need to bring all this up to the surface! Our children are at the greatest risk!!!

Please support Boulder in staying at the forefront of health, environmental stewardship, and sound city/county planning! You give priority to organic farming, how could you consider allowing fracking in Boulder County? For everyone's sake, but especially for our children, consider the above with utmost thoughtfulness.

Respectfully yours,



Megan A. White

**From:** Janelle Shane  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** Comment on proposed Boulder County fracking  
**Date:** Wednesday, November 16, 2016 8:59:07 AM

---

To the Boulder County Land Use Department, and to anyone else whom it may concern,

I am a Louisville resident writing in opposition to the proposed fracking between Louisville and Lafayette. This is far too close to residential areas, open space, and farmland. Groundwater contamination and earthquakes are major concerns for me and my neighbors. Boulder County is known for its commitment to the environment and to open space - fracking here would go against these values.

Best regards,

Janelle Shane  
Louisville, CO

**From:** Christel Markevich  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** moratorium extension  
**Date:** Wednesday, November 16, 2016 9:20:01 AM

---

Hi,

I strongly support the moratorium extension.

Yesterday, I went to the courthouse to sign up but I have been told it was not an option. I have been invited to go on the Boulder County Website. But as I previously experienced, yesterday night, I could not open the website.

It would be wonderful to fix this issue as we really need to be able to communicate with you all, more than ever.

Thank you for everything you are doing.

Christel Markevich  
phone 303 442 4475

**From:** Christel Markevich  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** moratorium on fracking  
**Date:** Wednesday, November 16, 2016 9:22:07 AM

---

Hi,  
I strongly support you to extend the moratorium on fracking.  
Thank you for what you are doing.  
Christel

**From:** Brandon Thomas  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** No To Fracking! Do Not Let This Happen  
**Date:** Wednesday, November 16, 2016 9:31:05 AM

---

Esteemed Commissioners,

Please fight vigorously with all of your resources to defend our beautiful county. Too many places around the U.S.A. have been ruined by greedy interests extracting minerals at too high a cost. This will be a travesty in Boulder County and will destroy far more wealth and value than it creates.

I heavily favor continuing a moratorium and fighting court battles, at any cost.

Thank you for your time, attention and continuing difficult work on this issue.

Best,  
Brandon

--

Brandon Thomas  
Real Estate Broker  
Modern Real Estate  
Getting You theRE

Direct Phone: 720-663-9537  
o: 303-433-3158 x365  
CO RE License#: FA.100051438

**From:** faith.halverson.ramos@gmail.com  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** Support an Extension of the Moratorium  
**Date:** Wednesday, November 16, 2016 9:31:32 AM

---

To Whom It May Concern,

As a resident of Boulder County, I wish to express my support of extending the moratorium against oil and gas development in the county.

Thank you.

Sincerely,  
Faith Halverson-Ramos

Sent from my iPhone

**From:** Rene Whitney  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** Fracking issue  
**Date:** Wednesday, November 16, 2016 9:40:14 AM

---

Good morning -

I would like to add my voice to ban on fracking in Boulder County.

I heard recently that after 21 studies, the government in Oklahoma has finally agreed that the increased frequency and size of earthquakes in that area is due to the disposal of the wastewater associated with fracking. We CAN NOT do hydraulic fracturing of our earth's crust without doing major damage!!! This seems like a no brainer to me. If the oil and gas companies were required to pay the costs associated with the earthquakes in Oklahoma, the costs of fracking would easily be more than the value of the oil. Why should the local communities bear such TERRIBLE costs, both financial and social, for the profit of the oil and gas companies.

Also, the amount of water on this planet IS finite. Especially in the western half of the US. We can not permanently take large amounts of water out of the our environment without causing a different kind of havoc. Record draughts are already an issue in Colorado and California.

Fracking may be energy efficient and meet a current desire (yes, desire, not need), but in the long term it is absolutely irresponsible.

Just because something CAN be done, doesn't mean it SHOULD be done. Boulder County has led so many important trends, such as open space, and marijuana reform. PLEASE take the lead on this critical issue!!!

Thank you,

Maureen Whitney  
720.339.0356  
[maureenmmd@gmail.com](mailto:maureenmmd@gmail.com)

**From:** Christopher Allred  
**To:** [Boulder County Board of Commissioners](#)  
**Subject:** State of Emergency to Prevent Hydraulic Fracturing in Boulder County  
**Date:** Wednesday, November 16, 2016 9:44:39 AM  
**Attachments:** [high\\_volume\\_hydraulic\\_fracturing.pdf](#)

---

Dear County Commissioners,

This email is in follow up to a public comment yesterday regarding the moratorium on oil and gas development in Boulder County. Please extend the moratorium or pas a ban on hydraulic fracturing. Please declare a state of emergency to back up this important decision.

COGA and the COGCC continue to site the supreme court decision to overturn the Longmont ban and For Collins moratorium. However, I maintain the stance that the supreme court decision was an injustice against the citizens of Colorado. I believe we need to stand up against that injustice and set a new legal precedent that declares we can stand up to protect our health and environment against oil and gas development. To prevent hydraulic fracturing in Boulder County is not only essential to protect us locally, it is an essential step to help turn the tides on corporate greed nationally and globally.

Please see the attachment of the pubic health review that New York referenced in their ban on hydraulic fracturing. This is a relevant legal precedent that we may reference to support a ban on hydraulic fracturing.

Sincerely,

Chris Allred

**From:** Scott VanArsdale  
**To:** [Boulder County Oil and Gas Comment](#)  
**Date:** Wednesday, November 16, 2016 10:26:44 AM

---

Dear Boulder County Commissioners and Boulder Planning Commission;

Please implement a new moratorium of at least six months to a year in order to finalize the following:

- 1) Require the fracking companies to open their books, this will give you the assurance that they are solvent and can take responsibility for any clean up needed (the city should not have to pay for this!!!!)
- 2) Sign a contract with these fracking companies that require them to clean up any and all hazards created by them. Again, this should not be the cities responsibility!
- 3) Require fracking companies to be open and transparent about the chemicals they are using for their work. We should not have toxic solutions injected into our soil – we need to know the chemical recipes!
- 4) Require the fracking companies to outline and implement a plan for the disposal of the fracking waste that does not do environmental damage to our county! In other counties, they just dump it into agricultural fields, or use it for dust mitigation; we must ensure this does not happen here. The waste produced from fracking in Colorado is slightly radioactive... we do not need to bring all this up to the surface! Our children are at the greatest risk!!!

Please support Boulder in staying at the forefront of health, environmental stewardship, and sound city/county planning! You give priority to organic farming, how could you consider allowing fracking in Boulder County? For everyone's sake, but especially for our children, consider the above with utmost thoughtfulness.

Respectfully yours,

-Scott VanArsdale  
719-659-2443

**From:** Laila Murfin  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** Please keep our county safe!  
**Date:** Wednesday, November 16, 2016 10:31:32 AM

---

Good morning,

I cannot make the meeting today at noon, but want to add my voice.

Please keep fracking and oil/gas projects out of Boulder County. Looking around the country at the troubles caused to the land and humans along with fracking paints a clear picture. Fracking is dangerous, terrible for the land, terrible for the people and animals, and uses excessive water - a limited and necessary resource.

Please stay committed to increasing available alternative/eco-friendly energy in our home state. Please choose projects that benefit many, rather than the few who make money off of them.

The risks are too high.

Laila Murfin

**From:** Christina Osullivan  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** Fracking  
**Date:** Wednesday, November 16, 2016 10:46:50 AM

---

To whom it may concern:-  
I oppose fracking in unincorporated areas of North Boulder.  
Thank you.  
Christina O'Sullivan.

Christina O'Sullivan  
Christina.osullivan4@gmail.com  
303 443-2711 H  
720 272-7287 C

**From:** Emily Bowe  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** Opposition to fracking in boulder county  
**Date:** Wednesday, November 16, 2016 11:15:44 AM

---

Dear sir or madam-

I am writing to express great concern over the end of the moratorium on fracking in boulder county. I am concerned about my health, my child's health and safety as well as the health of our planet. I will do anything to stop fracking in our area. It is a top priority in my life.

Thank you,  
Emily Blank

Sent from my iPhone

**From:** Michael Dribnak  
**To:** [Hackett, Richard](#)  
**Subject:** Financial Assurance Guarantees For Oil & Gas Drillers  
**Date:** Wednesday, November 16, 2016 11:34:12 AM

---

Hi Rick, after reading this mornings Daily Camara's article regarding the potential of stricter financial standards for oil & gas drillers in BoulderCounty, I called the main number and the lovely women answering the phone was kind enough to give me your email. I hope you don't mind, but have you considered the benefits of requiring the drillers to post a "performance & completion bond"? It appears that some of the County's concerns may be addressed through the drillers General Liability & Pollution Liability insurance policies, but the financial aspect is more appropriately addressed via a bond. Let me know if you would like to discuss further.

Michael Dribnak  
8224 Willow LN  
Niwot Colorado

303-859-2070 M

**From:** Laurie Stephenson  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** For heaven"s sake please stop this madness!  
**Date:** Wednesday, November 16, 2016 11:44:26 AM

---

Don't we have enough poisonous chemicals in our air and water and soil and food without adding this insult to injury? Why did New York have to be the leader, banning fracking--why not Colorado? The citizens in and around Boulder County have spoken over and over and over. Listen!

Emphatically,  
Boulder County citizen Laurie Stephenson

**From:** ANDY  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** Fracking on Open Space  
**Date:** Wednesday, November 16, 2016 12:38:18 PM

---

Deart Boulder County Commissioners:

Why "fracking" is even considered by anyone is quite beyond me, but it really needs to stop spreading.

Two main reasons, #1) pumping toxic waste water into the ground and possibly tainting the aquifers is truly bad for all of our health, and it has been proven over and over that this is happening. Is this going to turn into another "Erin Brockovich" incident, with the County being held responsible for what happens to the families and their children? I certainly hope not. #2) Fracking causing earthquakes: Again, this is happening adjacent to all fracking sites. Just read the newspapers and listen to the news.

Our fear, especially here in Lafayette, is that in "old town" Lafayette, this whole area is built over an abandoned coal mine. If the earth starts shaking, can you prove that the mine shafts won't collapse and swallow our homes or cars and people?

Officially, our family is opposed to any fracking in Boulder County. Weld County is having their own issues now because of fracking. Must we too?

Sincerely,

Mark Andrew Titus  
809 Robin Cove  
Lafayette, CO

**From:** Alex Markevich  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** Fracking moratorium extension  
**Date:** Wednesday, November 16, 2016 2:20:52 PM

---

Please extend the fracking moratorium in Boulder County.

Regards,  
Alex Markevich

**Alex Markevich**

5570 Magnolia Drive  
Nederland, CO 80466

phone: 303.800.6450  
[ajmarkevich@gmail.com](mailto:ajmarkevich@gmail.com)

Dear Boulder County Commissioners and Boulder Planning Commission;

As a concerned citizen and constituent of Boulder City and County, I am writing today to express my concern about the expiration of the moratorium on fracking. Fracking is a well-documented environmental hazard that has negative side effects, including air pollution, well contamination, environmental destruction, water pollution as well as negative economic impacts. We cannot allow fracking in Boulder County! Fracking will negatively affect our health and safety, our property values, and our way of life. While fracking companies offer assurances and claim that their operations are safe, these claims are untrue! Observe the many accidents and incidents around the country, and even here in nearby Erie, where pollution levels are presenting harmful threats to the people and the environment. Moreover, fracking companies are unwilling to work with local communities to ensure safety measures, or to even follow the suggested guidelines outlined below. Please implement a new moratorium of at least six months to a year in order to finalize the following:

- 1) Require the fracking companies to open their books, this will give you the assurance that they are solvent and can take responsibility for any clean up needed (the city should not have to pay for this!!!!)
- 2) Sign a contract with these fracking companies that require them to clean up any and all hazards created by them. Again, this should not be the cities responsibility!
- 3) Require fracking companies to be open and transparent about the chemicals they are using for their work. We should not have toxic solutions injected into our soil – we need to know the chemical recipes!
- 4) Require the fracking companies to outline and implement a plan for the disposal of the fracking waste that does not do environmental damage to our county! In other counties, they just dump it into agricultural fields, or use it for dust mitigation; we must ensure this does not happen here. The waste produced from fracking in Colorado is slightly radioactive... we do not need to bring all this up to the surface! Our children are at the greatest risk!!!

Please support Boulder in staying at the forefront of health, environmental stewardship, and sound city/county planning! You give priority to organic farming, how could you consider allowing fracking in Boulder County? For everyone's sake, but especially for our children, consider the above with utmost thoughtfulness.

Respectfully yours,

Lamya Deeb

**From:** Lamy Deeb  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** NO Fracking - Boulder County  
**Date:** Wednesday, November 16, 2016 2:33:56 PM  
**Attachments:** [No Fracking Boulder County.pdf](#)

---

Dear Boulder county Commissioners and Planning Commission,

A friend sent the following letter to me regarding Fracking in Boulder County, to which I've added my name in agreement with its concerns.

Thank you for your consideration,

Lamy L. Deeb  
7489 Mt. Meeker Rd.  
Longmont, CO 80503  
303-581-9882

[www.lamyadeebfineart.com](http://www.lamyadeebfineart.com)  
[lamya@lamyadeebfineart.com](mailto:lamya@lamyadeebfineart.com)

**From:** Ruby  
**To:** [Boulder County Board of Commissioners](#)  
**Subject:** Thanks for extending gas/oil moratorium  
**Date:** Wednesday, November 16, 2016 3:36:56 PM

---

Commissioners Jones, Domenico and Gardner,

Thank you for extending the oil and gas development moratorium. I haven't read the updated county oil and gas regulations but I'm wondering if there are regulations prohibiting underground wastewater disposal sites in the county. I believe these sites have been linked to earthquake activity in Oklahoma.

My sister lives in Glenpool, Oklahoma near Tulsa and has experienced earthquakes originating 64 miles away in the Cushing, Oklahoma area where wastewater disposal sites are located. She has bought earthquake insurance because of increased earthquake activity in Glenpool. I'm not sure how much fracking activity will take place in Boulder County once the moratorium has expired, but I don't want to deal with fracking earthquakes and have to take out an earthquake insurance policy to cover damage to my house.

Thanks again for extending the moratorium.

Ruby Bowman

1512 Lefthand Drive

Longmont, CO 80501

**From:** Erica Ligon  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** Fracking Moratorium  
**Date:** Wednesday, November 16, 2016 3:53:53 PM

---

Dear Commissioners,

Please extend the moratorium on fracking! I care deeply about our lands and personal health.

Thank you for your service in public office.

Sincerely,  
Concerned Boulder Citizen, Erica Ligon

**From:** giftwarelb@aol.com  
**To:** [Boulder County Board of Commissioners](#)  
**Subject:** ENERGY POLICY  
**Date:** Wednesday, November 16, 2016 4:16:34 PM

---

I am not a lawyer, scientist or activist. I am an entrepreneur/business person who built a Boulder business that, at its peak employed over 100 people. The thought of wells in this beloved county, where I have lived for more than 40 years, fills me with sadness, pain and anger.

I urge you to continue this ban or moratorium indefinitely and, at the same time to proceed with the most stringent regulations that will make it extremely difficult, if not impossible for oil and gas developers to frack our county. Yes, it violates the State Supreme Court. But, the Court is violating common sense. This energy is not needed in the USA. We can be self-sufficient via renewables. AND we do not need to produce more for export to third world countries and pollute our magnificent planet. I will back you all the way on such an action and, if this results in the loss of your position know that you will be judged by far higher powers than the Colorado Supreme Court. We have your back. Do you have the courage?

Thank you for your service.

Lester B. Ronick  
734 Locust Avenue  
Boulder, CO 80304

**From:** Alan Z  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** No Fracking please  
**Date:** Wednesday, November 16, 2016 4:26:42 PM

---

Hi -

I do not live in Boulder County. I do visit from California frequently. I stay a few days on my way up to Estes Park to see the Elk. Or for a few days after time on slopes. Or sometimes just for fun in the summer to dine in your awesome restaurants.

I would stop coming if there was fracking in Boulder. Period. Full Stop.

Alan Zucker  
[alan.zucker@gmail.com](mailto:alan.zucker@gmail.com)  
cell 510.333.7143

**From:** Sabrina  
**To:** [Boulder County Board of Commissioners](#)  
**Subject:** Fracking in N Boulder  
**Date:** Wednesday, November 16, 2016 4:56:15 PM

---

To Whom It May Concern,

I am writing to express my support for a continued moratorium on fracking in the City of Boulder and horror at the idea that fracking could occur at old wells in the Wonderland Lake area in North Boulder. This is a disastrous idea and should be resisted in any way possible.

Regards,  
Sabrina Neu  
4617 17th St  
Boulder

Sent from Sabrina's iPhone

**From:** C Bordes  
**To:** [Boulder County Board of Commissioners](#)  
**Subject:** Fracking Moratorium  
**Date:** Wednesday, November 16, 2016 5:32:04 PM

---

Dear Boulder County Commissioners,

As a concerned citizen I attended the public meeting on the fracking moratorium in Boulder county.

First I want to thank you for your service. I admire how graciously and thoughtfully you guided the meeting. It is a more complex issue than I realized. I wasn't aware of the laws in place that so heavily favor the Gas and Oil industry.

You have a choice at hand that means a lot to any people, and I don't envy you. I could give all the reasons in detail why I would like to see fracking banned in Boulder county but I know that you know them well. From the health concerns, to the massive use of water a dwindling resource, to the potential contamination of our water, soil and air, climate change and so many more.

I urge you to extend the moratorium and to work to ban fracking in Boulder county. We just don't get second chances with climate change and with the environmental destruction of the beautiful place we live.

Please know if you move in this direction many, many, citizens will stand behind you. Challenging as it may seem please take a hard stand against Fracking in Boulder County.

Respectfully,  
Cristina Bordes

1423 Zamia Ave.  
Boulder, Co. 80304  
(303)521-1428

**From:** Jen  
**To:** [Boulder County Board of Commissioners](#)  
**Subject:** Fracking Moratorium  
**Date:** Wednesday, November 16, 2016 6:47:16 PM

---

To Whom It May Concern:

I am writing to request that you extend Boulder County's moratorium on fracking. We cannot have the potential environmental and health impacts brought into our county! We do not want contaminated drinking water, seismic activity, or to contribute any further to climate change.

Please extend our moratorium!

Thank you,

Jennifer Silacci, Homeowner  
423 Marine St, Boulder, CO  
646-270-4614

**From:** Christine M. Hurley  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** Against Fracking in Boulder  
**Date:** Wednesday, November 16, 2016 9:07:53 PM

---

Dear Commissioners,

I ask that you vote against fracking in Boulder!!!

I decided to move to Boulder from Boston, MA. nearly three years ago. Two major factors of relocating here were, the stance against fracking and GMOs here. Working in medicine, it is clear to me, that the health affects of fracking are not at all worth the initial monetary benefit provided. Fracking is a despicable practice that does not belong in Boulder, CO.

As a Boulder, CO homeowner, I am insistent that you vote AGAINST FRACKING in Boulder!

Best,  
C.M.

Christine M. Hurley  
Environmental Sustainability, Master's Candidate  
Harvard University

**From:** Ken Goodhew  
**To:** [Boulder County Board of Commissioners](#)  
**Subject:** Stop fracking  
**Date:** Wednesday, November 16, 2016 11:22:55 PM

---

As a very, very concerned citizen and voting resident of boulder for more than 40 years, I strongly recommend you do everything in your power to stop the environmental destruction of the extraction industry. I strongly oppose any cracking on boulder county land.

Ken Goodhew  
2810 7th st  
Boulder

**From:** sara.sara.marie@gmail.com  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** You must ban fracking in Boulder County. This is a historic moment and your decision will go down in history. Please stand on the side of the planet and its children-all of us. Thank you!  
**Date:** Thursday, November 17, 2016 12:38:01 AM

---

Dear Commisioners,

I applaud your efforts and all the work you do to keep Boulder beautiful. I moved here from New York because of the quality of life and to reconnect with nature and work as an herbalist to better understand how plants and nature can heal people. I have also spent part of my life in North Dakota where fracking is rampant and the thought of drinking water from the faucet is unthinkable to everyone in the communities there. Yet people bathe in the water and the air and land are polluted. When I have gone back to visit I have noticed that everyone is dealing with major health issues-asthma, cancer, diabetes, Alzheimer's, autism, etc. Family that lives in other parts of the country do not seem plagued by the same issues. Some of my family members have worked for gas companies and been employed for a few years with good pay but several have also been injured from dangerous work environments and the costs far outweigh the benefits. Fracking is basically taping the earth and poisoning our water. Water that had been used for fracking contains so many continua to that van never fully be restored to a safe condition. 90% of pipelines fail and leak within the first year and monitoring systems are faulty and ineffective. No oil and gas company had ever restored land to its previous condition before a spill. Animals, people, air, water and land will be forever affected by your decision on this matter. Each action ripples out and will have many unforeseen me outcomes. We know in our heart the right thing to do. Please vow to protect Boulder County and do not allow fracking. Demand an extension of the moratorium. Declare a state of emergency. Call a meeting to brainstorm creative solutions. I want to help you and work with you to keep the earth and the people here safe. Please let me know if there is anything I can do. Thank you for your consideration.

Best wishes and blessings,  
Sara Miller  
503-819-2071

**From:** Jeanne Walsh  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** Fracking at Wonderland  
**Date:** Thursday, November 17, 2016 7:18:41 AM

---

I live in North Boulder near Wonderland lake and just found out they are thinking of fracking there. Are you out of your mind, the schools, homes are all too close. Don't bother because we will protest very hard to keep this out. You need to extend the moratorium against fracking in Boulder.

Sent from my iPhone

**From:** Sandra Long  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** Fracking  
**Date:** Thursday, November 17, 2016 9:44:19 AM

---

Please, please, please do NOT allow a fracking operation proposed for an area south and east of Centaurus High School. Although tainted water supplies must be the biggest concern, there is absolutely no doubt and it has been proven that the extremely dangerous and destructive seismic activity occurring in Oklahoma is the **DIRECT RESULT** of waste water being pumped back into the fracking well site. We have friends living on Baker Street in Erie, about a mile from a new fracking well. They are preparing their home to get it on the market as soon as possible. Their home is roughly a mile from the fracking site, but nearly everyone in their neighborhood is scrambling to unload their homes and get out of the area.

I am also concerned about the abandoned coal mines located throughout Lafayette and the possibility that any disturbance created by a fracking well could destabilize the area and potentially cause a catastrophic event.

We are obviously supportive of the proposed 5 year moratorium on any and all requests by oil companies to establish more fracking sites in Boulder County. I understand the need for oil independence, but at what cost?

Thank you,

Kirk and Sandra Long

1504 Corinth Circle

Lafayette, CO 80026

**From:** TJ  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** Public Comment - Opposed to lifting the ban on fracking in Boulder County  
**Date:** Thursday, November 17, 2016 11:39:24 AM

---

Hello,

I am a resident of Boulder County and I am strongly opposed to allowing fracking within the County. First, we have to leave hydrocarbons in the ground and any efforts that increase current supply only exacerbates the ability to have a coherent Climate Change strategy. Then there is the quality of life issues around allowing the increased traffic, noise and potential impacts to ground water (and water supply).

Please continue to support a ban on fracking in Boulder Country.

**T.J. Slocum**

**403 Indian Peaks Trail W.**

**Lafayette, CO 80026**

(530) 760-9607

**From:** Jeff Schatz  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** Fracking Moratorium Extension  
**Date:** Thursday, November 17, 2016 12:10:46 PM

---

Please extend the moratorium on fracking in Boulder County. There is mounting evidence and many examples of the dangers of fracking. Please do not bring these risks to Boulder County.

Thank you,  
Jeff Schatz  
Boulder, CO 80304

**From:** Amanda Scott  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** No Fracking WAY!  
**Date:** Thursday, November 17, 2016 12:11:52 PM  
**Attachments:** [No Fracking Way - Boulder County.pdf](#)

---

Please review my letter attached and take into consideration by opinion as a farmer, a mother and a tax paying citizen of Boulder County.

Thank you.

--

Amanda & Brian Scott  
63rd St. Farm  
Boulder, CO 80301  
720-938-3059  
[63rdstfarm@gmail.com](mailto:63rdstfarm@gmail.com)  
[www.63rdstfarm.com](http://www.63rdstfarm.com)

Dear Boulder County Commissioners and Boulder Planning Commission;

As a concerned citizen and constituent of Boulder City and County, I am writing today to express my concern about the expiration of the moratorium on fracking. Fracking is a well-documented environmental hazard that has negative side effects, including air pollution, well contamination, environmental destruction, water pollution as well as negative economic impacts. We cannot allow fracking in Boulder County! Fracking will negatively affect our health and safety, our property values, and our way of life. While fracking companies offer assurances and claim that their operations are safe, these claims are untrue! Observe the many accidents and incidents around the country, and even here in nearby Erie, where pollution levels are presenting harmful threats to the people and the environment. Moreover, fracking companies are unwilling to work with local communities to ensure safety measures, or to even follow the suggested guidelines outlined below. Please implement a new moratorium of at least six months to a year in order to finalize the following:

- 1) Require the fracking companies to open their books, this will give you the assurance that they are solvent and can take responsibility for any clean up needed (the city should not have to pay for this!!!!)
- 2) Sign a contract with these fracking companies that require them to clean up any and all hazards created by them. Again, this should not be the cities responsibility!
- 3) Require fracking companies to be open and transparent about the chemicals they are using for their work. We should not have toxic solutions injected into our soil - we need to know the chemical recipes!
- 4) Require the fracking companies to outline and implement a plan for the disposal of the fracking waste that does not do environmental damage to our county! In other counties, they just dump it into agricultural fields, or use it for dust mitigation; we must ensure this does not happen here. The waste produced from fracking in Colorado is slightly radioactive... we do not need to bring all this up to the surface! Our children are at the greatest risk!!!

Please support Boulder in staying at the forefront of health, environmental stewardship, and sound city/county planning! You give priority to organic farming, how could you consider allowing fracking in Boulder County? For everyone's sake, but especially for our children, consider the above with utmost thoughtfulness.

Respectfully yours,

Amanda Scott

Owner, Farmer

63rd St. Farm; Boulder, CO

**From:** Nick  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** Oil and Gas Development  
**Date:** Thursday, November 17, 2016 12:30:02 PM

---

Dear Commissioners,

This should be the community's decision, as we will be immediately impacted by development. Our health and safety is paramount to all impacts on industry and economics. Extend the moratorium at the very least. Please listen to the people and we will support you, every step of the way, in whatever direction this moves.

Thank you,

**From:** [Wufoo](#)  
**To:** [Boulder County Board of Commissioners](#)  
**Subject:** County Commissioners Contact Us/Feedback Form. [#220]  
**Date:** Thursday, November 17, 2016 12:33:57 PM

---

Name *	Sophia Pelecanos
Organization (optional)	BCC
Email *	<a href="mailto:peacefulpelecanos@gmail.com">peacefulpelecanos@gmail.com</a>
Phone Number (optional)	(720) 899-8312
My Question or Feedback most closely relates to the following subject: (fill in the blank) *	Fracking in Boulder County
Comments, Question or Feedback *	<p>Please note that Boulder Creek Community, an intentional community within Boulder, stands against Fracking. We are 35 strong and want to let you know our position. We are so happy to hear about the extension on the moratorium. We are allies and want to know how we can permanently ban fracking in Boulder. We do not want gas and oil in our neighborhoods. We heard about what happened in longmont and fort collins in the courts. Please stand against Fracking for our childrens sake!</p> <p>warmly and with love, Sophia and Boulder Creek Community. PS Please let us know how we can best support you!</p>
Please check box below *	<ul style="list-style-type: none"><li><input type="checkbox"/> I acknowledge receipt of the Open Records Notification</li></ul>

**From:** [Wufoo](#)  
**To:** [Boulder County Board of Commissioners](#)  
**Subject:** County Commissioners Contact Us/Feedback Form. [#222]  
**Date:** Thursday, November 17, 2016 2:31:43 PM

---

Name \* Linda Abrams

Email \* [lindadba@msn.com](mailto:lindadba@msn.com)

My Question or Feedback most closely relates to the following subject: (fill in the blank) \*

Comments, Question or Feedback \*

I am absolutely opposed to allowing any fracking in Boulder County. I have read several articles about how fracking can have serious health consequences for people exposed to fracking. Also, if you consider oil extraction in Oklahoma there has been a dramatic increase in tremors due to fracking activity.

Fracking should be prohibited in all of Boulder County. I live in Louisville and do not want to be exposed to fracking on Kerr Estates or property near Monarch.

Fracking should be prohibited. Let's invest in clean energy rather than using a process that has negative health and environmental impacts.

Linda Abrams

Please check box below \*

- I acknowledge receipt of the Open Records Notification

**From:** Mari  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** Oil and gas moratorium  
**Date:** Thursday, November 17, 2016 4:36:22 PM

---

Dear Commissioners,

I deeply appreciate the thoroughness with which You are approaching this very important issue.

There are many reasons for us to oppose oil and gas expansion in Boulder County. I am sure that many other citizens have voiced concerns similar to mine.

- 1) Property values are likely to go down thereby adversely affecting the community tax base. This will also create problems with insurance coverage.
- 2) There is a risk of exposure to extremely toxic and hazardous materials that can cause health problems, environmental problems, and there is a potential for explosions and spills that may lead to the illness, injury, and/or deaths of citizens and workers as we have seen in Pennsylvania and elsewhere.
- 3) As we are seeing in Oklahoma there is an increased risk in seismic activity with the long-term impact unknowable.
- 4) Who carries the liability for damages, illnesses, injuries, and deaths should they occur if oil and gas development is allowed to expand? We have seen elsewhere that it is the taxpayers who have had to assume the burden for the industries. This is wrong! Those who stand to profit from such activities must bear the full and complete responsibility for what ever ensues.

I feel our community must stand together to demand complete responsibility on the part of any industry that intends to do business here.

Again, thanks for creating such a complete inquiry.

Sincerely,  
Mari Heart

Sent from my iPad

**From:** Neshama Abraham  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** For staff, Commissioners: Legal path for Boulder County against O&G dev., plus INSTAAR research on VOC sourced ozone  
**Date:** Thursday, November 17, 2016 11:27:44 PM  
**Attachments:** [Neshama Abraham Remarks Boulder County Commissioners.11.14.16.docx](#)  
[poelgpcphocflhb.png](#)  
[ncladapacibnplmc.png](#)  
[mmhohdboddmcdfac.png](#)  
[ahbocciobormekol.png](#)

---

Hi Boulder County Staff,

I email the Commissioners directly but wanted to make sure you received this email too with a proposed legal strategy that Longmont did not use in its law suit against COGA. Also atmospheric research findings from INSTAAR soon to be published. My remarks from the public testimony attached.

Thank you for your good work.  
Neshama

Begin forwarded message:

**From:** Neshama Abraham <[neshama@abrahampaiss.com](mailto:neshama@abrahampaiss.com)>  
**Subject:** Commissioners: Legal path for Boulder County against fracking; plus INSTAAR research on VOC sourced ozone  
**Date:** November 16, 2016 3:16:48 PM MST  
**To:** Elise Jones <[ejones@bouldercounty.org](mailto:ejones@bouldercounty.org)>, Deb Gardner <[dgardner@bouldercounty.org](mailto:dgardner@bouldercounty.org)>, Cindy Domenico <[cdomenico@bouldercounty.org](mailto:cdomenico@bouldercounty.org)>  
**Bcc:** Neshama Abraham <[neshamaabraham@gmail.com](mailto:neshamaabraham@gmail.com)>

Dear Elise, Deb and Cindy,

Thank you very much for making the time to hear Boulder County citizen's views about the moratorium on O&G development on County land. I apologize that some citizens spoke more assertively than necessary; they don't know you are committed stewards of our natural resources, and you also don't want the negative effects of fracking in Boulder County.

Thank you for instituting the temporary emergency moratorium till January 31, 2017. Thank you for giving staff time to investigate further the requirement of financial disclosure and solvency of a O&G company re their ability to clean up after a leak or spill, plus the possibility of industry paying for ongoing remote monitoring. Please support making that real-time emissions data available for public review.

I write to offer a way forward that will protect our environment and public safety and we believe give Boulder County a winnable legal strategy - if we come to a legal battle against the industry. **First, adopt the strongest strictest regulations possible for O&G development.** Please include the additions proposed by Nancy Hall, Tricia Olsen, Wes Wilson and organic farmer Mark Guthridge. These may include:

- Getting a damage deposit in advance as a security payment (like a rental deposit for a venue) to ensure money is held - perhaps in escrow - to cover the cost of leak repair, clean up, etc.
- Using a provision similar to what the City of Boulder instituted which prevents municipal water from being used for O&G development and protects this precious environmental resource for more sustainable activities, such as agriculture or recreational activities.

**Second, after Jan. 31, extend the moratorium on any new drilling or fracking for a minimum of two years.** May I suggest December 2018, to give you time to receive the results of the 2016 North Front Range Oil & Gas Emission Study due in June 2018 with time for staff to analyze the findings. Hopefully, the two years won't trigger legal action from the industry. However, if Boulder County is faced with a COGA lawsuit, here's a proposed response which Dan Leftwich - (720) 470-7831 - articulated. Dan is a civil rights attorney with 20 years in class action litigation against Fortune 100 corporations.

- **Immediately extend the moratorium indefinitely.**
- **Make COGA get an injunction to lift the moratorium.**

The strategy is to make COGA have to pay legal fees; let them sue to lift the moratorium. Dan explained the injunction gives the County the advantage of maintaining the status quo of no new O&G development while legal proceedings are under way.

Is there any reason you can't use funds from the recently passed Boulder County Sustainability Tax and the Open Space Tax? The citizens would say you have every reason as trustees of those funds to use them to defend the Boulder County Environmental Sustainability Plan. Any trustee has the authority to use trust funds to protect the interests of the beneficiaries, which are the residents of Boulder County, including using funds for legal actions and hiring outside counsel. There's plenty of evidence that drilling and fracking diminishes the sustainability of our community. To put up a legal defense against fracking would be an appropriate use of the funds. In fact, citizens would expect you to use your fiduciary duty to employ those funds for legal defense to fight for Boulder County's right to say no to fracking on our land.

Could we win a legal battle?

The Longmont case is different than Boulder County's situation. Longmont took a passive position in relation to its citizen body. We have a legal weapon that Longmont did not use - **a class action suit filled by the citizens.** As you know, in the Longmont case the suit was the City against the state where the judge ruled in favor of the preemption argument. Preemption involving a municipality against the state does not apply to a suit brought forth by the people against the state. Preemption based on the Oil and Gas Conservation Act relies on the superior relationship of the State legislature over the County. In a suit brought by the citizens for protection of their fundamental rights, the relationship is reversed. The people created the State legislature, and we are superior to it, not the other way around.

Dan wrote a blog about this titled: "Seizing the Initiative Against Preemption: the Rediscovery of Fundamental Rights"

- <http://minddrivelegal.com/blog/>

Citizens have the fundamental right to protect our public open space against the hazards and degradation of fracking operations. Article II, Sec. 3 includes the inalienable right to protect our property. Inalienable rights are natural rights that cannot be preempted. A citizen class action lawsuit where private citizen groups in Boulder County sue the state for our fundamental rights for safety and happiness is a legal strategy that was not used in Longmont. There is precedent for this approach in cases where citizens won against the BLM and the EPA using an injunction to protect the status quo and stop the state or federal government from pursuing actions that would cause irreparable harm to their quality of life and the environment.

A citizen class action lawsuit could happen in parallel with and in support of Boulder County's legal defense thereby placing the industry up against two legal suits simultaneously. Buy us time and make Boulder County not be an easy target for fracking. Unconventional O&G development is not making money and the combination of the toughest regulations in the state plus the backbone to pursue legal action can become it prohibitively expensive for the industry to frack in Boulder County.

Thank you for wearing the mantle of public service. I know it's weighty at times like these. Know I and many others are grateful to you.

Attached are my remarks during the public testimony with specifics on public safety research. Below please find data from atmospheric research done by the University of Colorado Institute of Arctic and Alpine Research (INSTAAR).

With appreciation,  
Neshama

*Neshama Abraham*

**President & CEO,  
Abraham Paiss & Associates, Inc.**

**Strategic Communications to Support Sustainable Solutions since 1996**

**1460 Quince Ave. #102 • Boulder, CO USA 80304**

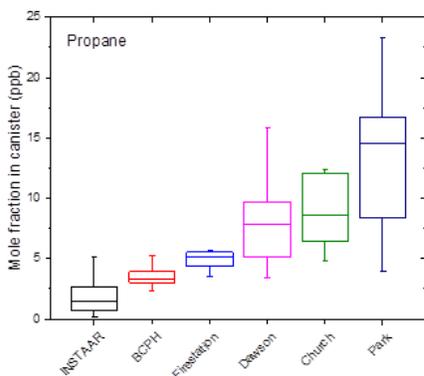
**720.925.5161 (O) 303.596.9905 (M) • [neshama@abrahampaiss.com](mailto:neshama@abrahampaiss.com)**

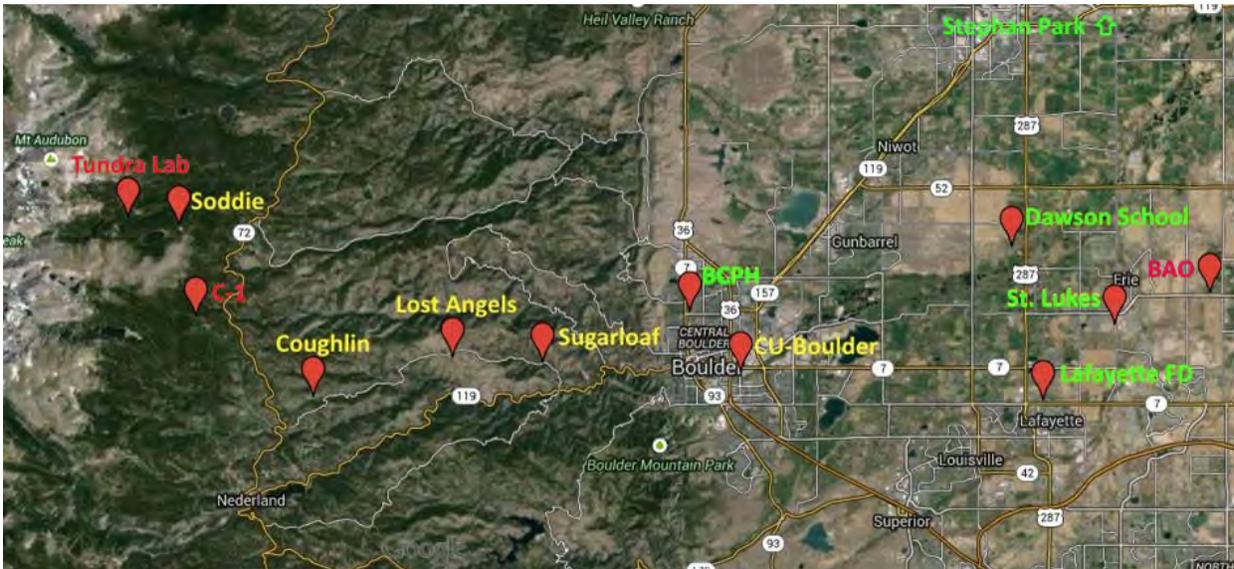
**[www.abrahampaiss.com](http://www.abrahampaiss.com)**



### Atmospheric Research from the Frappe Study

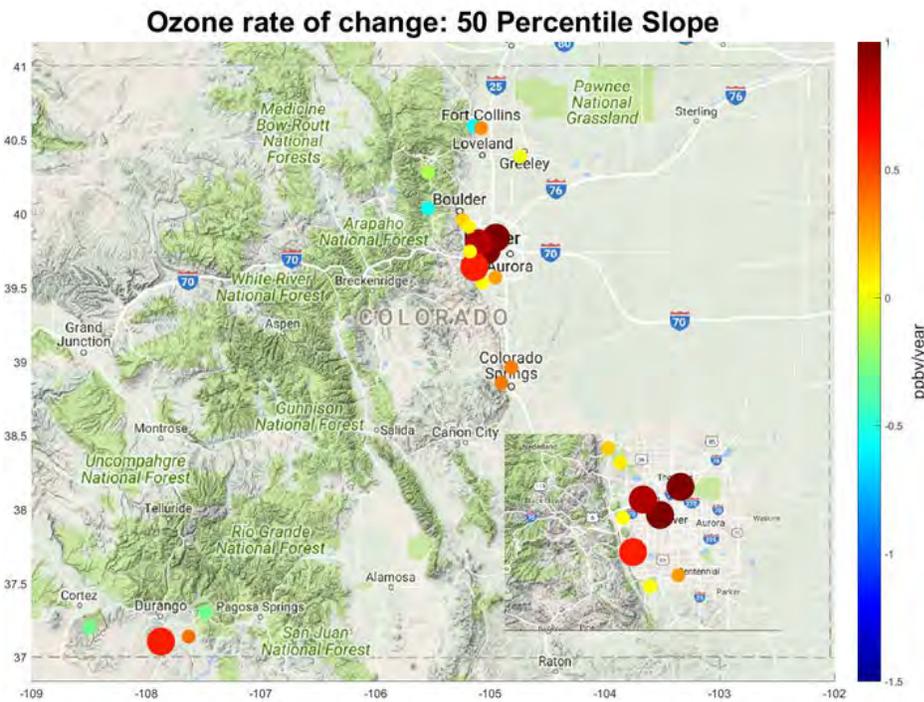
The data (soon to be published) shows how levels of volatile organic compounds increase along a west-east transect from Boulder towards Erie (green sites on the map). Below is just one example, here propane, a compound that is one of the species released by oil and gas production. These VOC produce ozone in the atmosphere.





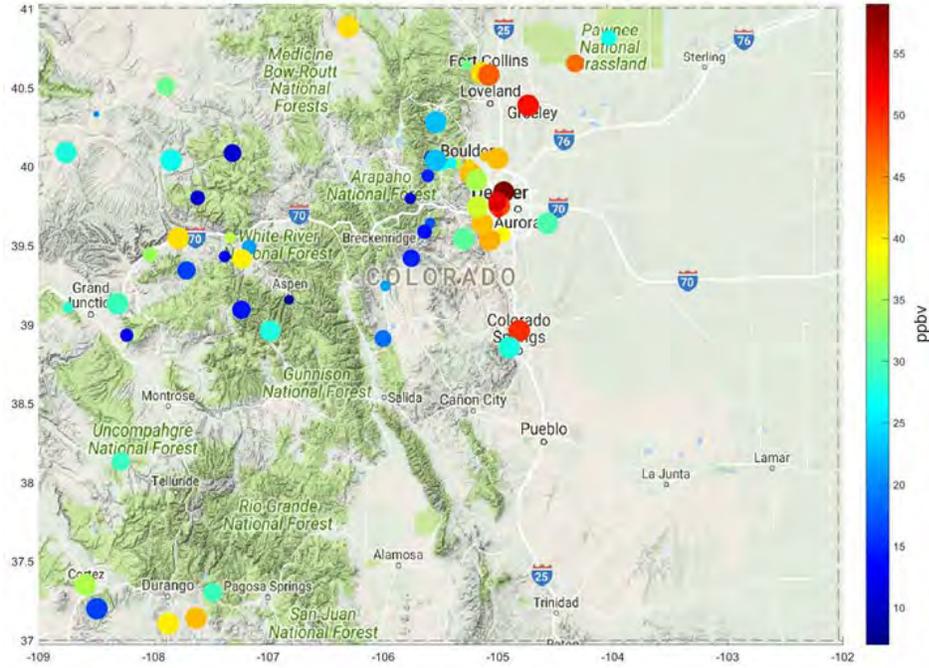
A paper in press in the *Journal of Air and Waste Management Association* also reports on VOC sourced ozone. Most of the high ozone events in Boulder are tied to air transport from the northeast, which is where most of the oil and gas industries are. The paper can be accessed online at: <http://tandfonline.com/doi/full/10.1080/10962247.2016.1226989>

INSTAAR has another study in the works that shows how ozone in the front range really hasn't improved, much in contrast to many other regions in the U.S. and Colorado. This is probably due to the increasing emissions from oil and gas. Below is a plot showing the trends (changes over time) of median summer ozone at sites in Colorado.



The map below shows the median summer ozone in Colorado, showing how the Front Range is the region where ozone is the highest:

### Median Summer Ozone 2011 - 2015



There also was just a paper published by NOAA emphasizing the role of oil and gas emissions to the regional ozone problem. See

<http://research.noaa.gov/News/NewsArchive/LatestNews/TabId/684/ArtMID/1768/ArticleID/11834/Accounting-for-Denver%E2%80%99s-Ozone.aspx>

Neshama Abraham Remarks to Boulder County Commissioners 11.14.16  
720-925-5161; NeshamaAbraham@gmail.com

Hello County Commissioners and thank you for making the time for public testimony on whether to extend the moratorium on Oil & Gas Development in Boulder County. I say YES – please extend the moratorium for a minimum of two more years. Here’s why.

I remember back to when I first learned about fracking 5 years ago in this very room after hearing a staff presentation on O&G development. At that time I was horrified that we would consider allowing a process on our public lands with so many known environmental and public safety impacts that we needed to mitigate.

I then became an engaged citizen and mother, and founded Frack Free Boulder, Frack Free Boulder County and joined the Board for Free Free Colorado.

Thankfully you, too, saw the negative impacts of unconventional O&G development, and gave us a 5-year moratorium. I and others are deeply grateful for the past five years with no new drilling or fracking on Boulder County land.

Now five years later, the risks have not gone away. Staff again presented a PPT showing 16 areas where we need to mitigate against fracking, including air quality, water, land, agriculture, flood plains, etc.

We have hundreds of new research studies – including one published only a month ago (Oct. 24, 2016) in the journal *Science of the Total Environment* by Yale University School of Public Health on childhood leukemia and fracking.

### [Fracking Linked to Cancer-Causing Chemicals](#)

The researchers found 44 percent of the water pollutants and 60 percent of air pollutants were either confirmed or possible carcinogens. The study cited 170 peer-reviewed published research papers with links to public health risks from the chemicals used in unconventional O&G development,

in addition to scientific research on the pollution to the air, water, soil and environment.

We say to our children: don't play with matches. We don't let children use matches to light candles or a stove until they are old enough to use matches safely. I believe fracking can be seen in a similar light.

The technology is not yet safe and it's still not safe for us to allow O&G companies to play with fracking on our County land.

In Kim Sanchez's staff report she cited leaks at 43% of wells between 2003 – 2012. With toxic chemicals leaking at 4 out of 10 wells, the O&G companies have not yet been able to make the drilling and extraction process safe for the environment or the public safety.

Fracking is still polluting the water table, filling our air with toxic chemicals, still causing asthma and birth defects in wells near homes and schools, still poisoning the soil that makes it unusable for organic agriculture, still increasing the ozone, still causing environmental pollution and putting our citizens at risk.

Until fracking can be done without significant risk to citizens, our air and water, it cannot be allowed on Boulder County land.

The only moral choice, the only ethical choice, the only prudent choice is to extend the moratorium for a minimum of two years, till December 2018. This gives you the 18 months to receive the results of the Front Range Oil & Gas Emission Study plus six months to analyze findings.

In the meantime, I support allocating public funds for public safety studies such as those described by Pam Milmoie.

Let Boulder County continue to shine as a leader in the nation whose elected officials put the public safety and the environment first.

Thank you for making time to hear from citizens that support you in saying not to fracking. Thank you for your service to our community.

**From:** Jennifer Hopkins  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** Keep the moratorium  
**Date:** Friday, November 18, 2016 9:23:05 AM

---

Please, keep the moratorium for good. We do not NEED drilling in Boulder County. Have you not seen all the earthquakes that have been happening in so many places where drilling is now done?

Please, put people before money in Boulder for ONCE!!

Jen McCaleb, CMT CCMT

**From:** John Feeney  
**To:** [Boulder County Board of Commissioners; Boulder County Oil and Gas Comment](#)  
**Subject:** Fracking moratorium  
**Date:** Friday, November 18, 2016 10:46:07 AM

---

Dear commissioners,

This concerns the Boulder County fracking moratorium. Add me to the long list of citizens hoping the county will find a way to work toward an outright ban. I'm aware of the legal obstacles, but I'm sure we all agree they pale in comparison to the projected impacts of climate change on life on our planet. So it seems imperative that, regardless of short term decisions, we persist in working toward an end to fracking, an end, indeed, to our reliance on fossil fuels. Boulder County would seem an ideal place to set an example of movement in that direction.

A few days ago, when the Interior department cancelled some oil and gas leases in Montana, Sally Jewell referred to the "irreparable impacts that oil and gas development would have" on those lands.

<https://www.washingtonpost.com/news/energy-environment/wp/2016/11/16/obama-administration-reaches-deal-to-cancel-oil-leases-on-lands-tied-to-tribe/>

*Irreparable impacts!* We should heed that warning and realize how damaging fracking is to our land and our planet's life support systems. An unwavering push toward a full ban seems our obligation.

Sincerely,  
John Feeney  
515 Concord Ave  
Boulder  
303-447-0973

**From:** Nushin  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** No more new sites in Colorado please!  
**Date:** Friday, November 18, 2016 6:07:32 PM

---

Hello,

Couple of days ago at the Thornton Oil and Gas Meetup with the community, we the concerned citizens asked how much water is drilled into a Frack site each time and the response was 130000 Barrels of water!!

Even without any health and environmental considerations that fact alone should make any more Fracking sites in Colorado illogical!

Thank you  
Nushin Farjadi

Sent from my iPhone

**From:** Mara Rose  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** Concerns about Fracking  
**Date:** Saturday, November 19, 2016 1:07:14 PM

---

Dear Boulder County Commissioners and Boulder Planning Commission;

As a concerned citizen of Boulder City and County, I am writing today to express my concern about the expiration of the moratorium on fracking. Fracking is a well-documented environmental hazard that has negative side effects, including air pollution, well contamination, environmental destruction, water pollution as well as negative economic impacts. We cannot allow fracking in Boulder County!

Fracking will negatively affect our health and safety, our property values, and our way of life. While fracking companies offer assurances and claim that their operations are safe, these claims are untrue! Observe the many accidents and incidents around the country, and even here in nearby Erie, where pollution levels are presenting harmful threats to the people and the environment.

Moreover, fracking companies are unwilling to work with local communities to ensure safety measures, or to even follow the suggested guidelines outlined below. Please implement a new moratorium of at least six months to a year in order to finalize the following:

- 1) Require the fracking companies to open their books, this will give you the assurance that they are solvent and can take responsibility for any clean up needed (the city should not have to pay for this.).
- 2) Sign a contract with these fracking companies that require them to clean up any and all hazards created by them. Again, this should not be the cities responsibility!
- 3) Require fracking companies to be open and transparent about the chemicals they are using for their work. We should not have toxic solutions injected into our soil – we need to know the chemical recipes.
- 4) Require the fracking companies to outline and implement a plan for the disposal of the fracking waste that does not do environmental damage to our county. In other counties, they just dump it into agricultural fields, or use it for dust mitigation; we must ensure this does not happen here. The waste produced from fracking in Colorado is slightly radioactive... we do not need to bring all this up to the surface. Our children are at the greatest risk.

Please support Boulder in staying at the forefront of health, environmental stewardship, and sound city/county planning! You give priority to organic farming, so how could you consider allowing fracking in Boulder County? For everyone's sake, but especially for our children, please consider the above with utmost thoughtfulness.

Respectfully yours,  
Mara Rose  
--  
Mara Rose

917-685-8433

**From:** David Simon  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** Oil and Gas Comment  
**Date:** Saturday, November 19, 2016 5:06:07 PM

---

To Whom It May Concern:

I highly encourage you to extend the moratorium on fracking in our beautiful neighborhoods. Quality of life should take priority in Boulder. We have a history of protecting our environment and we must continue that robust tradition!

- David Simon  
503 Northstar Court, Boulder

Sent from my iPad

**From:** Rachel Dugas  
**To:** [Boulder County Oil and Gas Comment: Oilandgascomments@bouldercounty.org](mailto:Oilandgascomments@bouldercounty.org)  
**Subject:** Oil and Gas Moratorium for Unincorp Boulder  
**Date:** Monday, November 21, 2016 12:54:02 PM

---

Dear Boulder County Commissioners, associates, and public servants,

Please consider extending the moratorium on accepting and processing new applications for oil and gas drilling and production in unincorporated parts of Boulder County for the long-term future, or possibly indefinitely.

As a resident of Lafayette, I live in close proximity to a large area of unincorporated land, and do not want oil and gas drilling or hydraulic fracturing anywhere near Boulder County for a number of specific and potentially life-threatening or environmental concerns.

As you are aware, your Commission recently responded to the CO Supreme Court's Colorado Oil and Gas Conservation Commission's Staff Proposal, and as a result concluded that "State draft rules fail to protect neighborhoods from oil and gas development."

Your own criticism was the lack of public involvement in O&G development, especially in inported areas, which is why I am uncertain in your Commission's decision on this measure is to take place without allowing public input. Furthermore, I question whether my concerns as a citizen are even taken into consideration in this matter.

Fracking, as you know, is an extremely volatile practice with unlimited potential catastrophic after effects, including the raising rates of still births, which is happening right now in Weld County, which is uphill from my home in Lafayette. If you've read the news lately, you would also see that more than 100 earthquakes have hit the midwest and Oklahoma - a place where the only explanation is hydraulic fracturing, or fracking. Oh, and have you heard that climate change is exacerbated by the extraction of fossil fuels? The public is kept in the dark from the O&G companies, and it is time our public service men and women Stand up for the People of Boulder County and elsewhere, and say once and for all - No FRACKING IN BOULDER COUNTY.

As a counterpoint I would like you to require O&G companies PROVE to us why they Need to drill on our land, at all. If we don't need the oil then why ruin our precious open space for others to profit from? This is not at all acceptable and I know that I do not stand alone.

Respectfully,

Rachel Dugas

**From:** Vinny J  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** Moratorium  
**Date:** Monday, November 21, 2016 1:04:50 PM

---

Dear County Commissioners:

I recently relocated here from New York State because I very much like the climate Colorado offers especially here in Boulder County. When I left NY there was presently a moratorium on “Fracking” in the state. Especially in the Marcellus and Utica shale formations! Presently NYS now has banned Hydraulic Fracturing. Kindly review: <http://www.dec.ny.gov/press/100055.html>

If you read nothing else regard this comment from the DOH commissioner Dr. Zucker:

"I have considered all of the data and find significant questions and risks to public health which as of yet are unanswered," said Dr. Zucker. "I think it would be reckless to proceed in New York until more authoritative research is done. I asked myself, 'would I let my family live in a community with fracking?' The answer is no. I therefore cannot recommend anyone else's family to live in such a community either."

I urge you to continue beyond Dec. 13, 2016 this moratorium, in the hopes that our county can eventually ban all “Fracking” as NYS did!

Although I could not read all of the comments here, those I’ve read I do support and agree with. I did read the letter from Mr. Tracee Bentley, Executive Director of the Colorado Petroleum Council (pages 15-19 of 570 / 2016-11-18). His comments on oil and gas development regulation as a comparison to local regulation like Wind Energy, Craft brewing, or lawn care I find wholly inadequate. Language in his letter is also weighted heavily about litigation and possible costs to our county. I find this as a veiled threat! Perhaps in our future if we wish to prevail we should also be looking at what further expenses this may incur. It goes to an economic impact mostly, and I for one would support such monies, when I truly don’t want such a horrible impact that “Fracking” could have on my family, and our environment!

Please help keep clean what I liked about our Boulder County climate and continue this moratorium!

Thank you,

Vincent Juliano  
Boulder, Colorado  
80301

**From:** Lisa Witter  
**To:** [Boulder County Oil and Gas Comment: Brooks Witter](#)  
**Subject:** No fracking near Centaurus High School  
**Date:** Monday, November 21, 2016 7:31:19 PM

---

Hi,

I strongly urge you to do everything you can to stop the possible fracking to the south and east of Centaurus High School in Lafayette. Our home is near there and so is Ryan elementary school, the high school, Coal Creek. It's potentially damaging to so many children as well as the creek and the wildlife.

Please, please do everything you can so that the health of everyone in the area, especially the children, isn't compromised with the fracking.

Please let me know what else I can do to speak out on this issue.

Thank you!  
Lisa Witter  
1502 Centaur Cir  
Lafayette, CO 80026

**From:** Mike Soda  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** Realist's Comments on Fracking and Drilling in Boulder County  
**Date:** Monday, November 21, 2016 8:01:36 PM

---

Hello,

I attended the first half of the fracking meeting on Thursday, November 18th. It was all I had time to attend, but luckily I think it was the most important and valuable part. You, the city council, gave an excellent presentation on fracking and the legal history of its implementation and the battle against it here in Colorado. For that I thank you.

I would hide the way I feel about fracking. I feel that it is potentially dangerous and puts all of our groundwater and reservoirs at risk. I was so proud of Longmont for banning it, and then the CO supreme court ruled that a State's profit supersedes a county's right to look out for the health and well being of it's people. I was so proud of Fort Collins 5 year moratorium, but then that too was shot down for the same reason, resulting in a ban on "extended moratoriums", as if 5 years was an "extended" amount of time.

I greatly appreciate the presentation you had put together, and the decision to extend the existing moratorium while you gather information and comments to make a decision. Thank you.

I am afraid we can only dance this dance of evasion for so long. We might get another 3 month extension of the moratorium. 3 month extensions are short enough that they would expire by the time a legal fight could really be taken to a court and examined in depth. But how many extensions can we really win?

I believe we must eventually put together a plan that requires safe and "clean" fracking, as well as creates financial safe guards for if, or when, something goes wrong. In 2012 alone there were over 6,000 leaks in oil and gas wells, and over 400 spills and/or cases of fracking contaminating drinking water. That is absolutely unacceptable. Additionally, the mining puts additional costs to the jurisdiction where it occurs. Road and pipe damage and construction being among them.

If we cannot stop fracking and drilling in Boulder county indefinitely, we should make sure that Boulder city and boulder county are protected. And if so doing makes it financially burdensome and unreasonable, then so be it. My suggested requirements would look something like this:

1. A holding deposit for each well. This deposit would cover the entire cost of sealing and closing a well if the owner becomes financially insolvent and cannot afford to close it. This would have to be paid upfront before any drilling could occur. This deposit would be refunded if a well is correctly and soundly sealed to a standard chosen by the city, and met by a city designated inspector.
2. A resealing deposit for each well. The average expected lifetime of well sealing procedures is 100 years. The average ground water table is expected to last on the order of 1,000,000 years. There's an issue here. Even if the company seals their well perfectly and correctly, we are still looking at ground water contamination after an average of 100 years. A process should be established for opening a sealed well, and

resealing it, and the cost of that procedure should be established. The drilling company should be required to pay a deposit that will appreciate to the cost of resealing the well after 100 years assuming a 1.5% inflation rate, and a 2-5% return on investment for the life of the deposit.

3. A disaster relief deposit, or proof of disaster insurance. Leaks happen. Spills happen. Any well owner or occupier should be required to either
  1. Place a deposit into a secure city-held account for the life of the well that is enough to cover the consequences of a spill or of ground water contamination. (This number is likely in the tens or hundreds of millions of dollars. The city has the rights to any interest earned on these deposits.) 90-95% of these deposits will be returned upon the successful closing of the well(s) in question.
  2. Required to have valid insurance to cover the aforementioned cost. (On the order of \$100 million.) Proof of this insurance should be verified periodically (bi-annually? Quarterly? Monthly?) and if this insurance ever lapses, the insurance company should notify the city, and the well should be stopped, shut down, and sealed immediately. The proposed coverage should cover water contamination, air contamination, property damage, property devaluation, repair costs, and public health service costs, as well as health coverage for every single person potentially affected by the event for at least 5 years after the clean up and resolution of the event.
    - I would argue that the insurance has to be maintained for each well while a single drilling company can maintain one deposit for all of its wells.
4. A No-Leak agreement. One of the things I liked during your presentation is that you discussed that leaks happen. Over 40% of wells have leaks, according to your presentation, and the average leak-resolution timeframe is over 20 days. I find this unacceptable. I would establish a No-Leak requirement. Any well with an identified leak must be stopped immediately. Any product produced while leaks are occurring should be the property of the city, and can be sold back to the violating company at some discount to the market production price. 10%? 20%? This offers a very strong incentive to not have leaks, but also makes it reasonable for the company to buy back the product in question so the city does not have to create an infrastructure to deal with it.
  - There are other ways of dealing with this as well, such as escalating fines for every day (or hour) that production continues while a leak is occurring. Maybe \$100 the first day, doubling every day thereafter.
  - The aforementioned "No-Leak" rule requires the city have some infrastructure in place to randomly inspect all sites. I would argue that these FTEs should be paid for by a monthly / annual "operating fee" on each well to operate in the city/county. I think every well should be inspected several times per year, but also randomly.
  - I would also have different fines for self-reported leaks vs inspector identified leaks. Inspector identified leaks should carry a much stiffer penalty (double? triple? quadruple?) as there is no telling how long it has been leaking, and the company should have been maintaining it's own "No-Leak" status.
5. A monthly "operating fee" to cover the aforementioned inspectors, legal fees, permitting, lawyers to handle all of the above, wear-and-tear to roads and plumbing, etc...
6. A ban on operating in open-space, green-space, parks, and property that may be purchased by the city/county to join these categories in the foreseeable future.

I'm sure you can think of more requirements. The key here is to be both reasonable and stringent. We want to make sure that a member of the Supreme Court cannot rule that we are banning fracking, but that we are being reasonable and prudent in the defense and well being of our city, county, and neighbors.

Thank you for your time, and for your continued effort to do what is best for Boulder and our neighbors.

-Michael Soda, a concerned Boulder resident

**From:** [Wufoo](#)  
**To:** [Boulder County Board of Commissioners](#)  
**Subject:** County Commissioners Contact Us/Feedback Form. [#226]  
**Date:** Tuesday, November 22, 2016 6:43:28 AM

---

Name *	Michelle Smith
Organization (optional)	Mineral Owner & Past President of Colorado Chapter for National Association of Royalty Owners
Email *	<a href="mailto:michelle@quiatcompanies.com">michelle@quiatcompanies.com</a>
Phone Number (optional)	(720) 318-2763
My Question or Feedback most closely relates to the following subject: (fill in the blank) *	Oil and Gas Moratorium

Comments, Question or Feedback \*

Dear Commissioners,

As you make your decision about the Oil and Gas Moratorium going forward, I am wondering if you would consider meeting with me.

My intent is not to argue with you but simply share with you my perspective as a mineral rights owner. I just finished my position as Chapter President of Colorado for the National Association of Royalty Owners, and am a mineral owner myself. I work for a family that owns significant minerals all over the state and have so for the last 25 years and I manage their oil and gas assets.

Dialogue is where we can all gain greater understand of the issues and come to a positive resolution.

With respect and I hope to hear from you,

Michelle Smith  
msmith@quiatcompanies.com  
720 318 2763

Please check box below \*

- I acknowledge receipt of the Open Records Notification

**From:** Katy Haverstick  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** Please extend the moratorium  
**Date:** Tuesday, November 22, 2016 11:20:27 AM

---

Hello,

My name is Katy Haverstick. I am proud to say I was born and raised in Boulder and now raise my three children in Lafayette. I will keep this brief, when my middle daughter was a baby we lived in The Vista Ridge community in Erie. A fracking station popped up behind our house in the middle of the night, we didn't have a clue what it was, as the weeks and months progressed my daughter's health declined rapidly. She wouldn't eat, she seemed sick all the time and she was constantly fussy or lethargic. My older daughter was chronically complaining of a stomach aches, my husband started to lose clumps of hair and his gums were bleeding. My gums began bleeding regularly and I began feeling sicker and sicker, even our black lab, Lola was losing huge chunks of hair and getting a rash all over her body. We had no idea what was going on until one of my daughter's doctors mentioned she was seeing a lot of kids and families in Erie with strange symptoms. The new fracking tower popped in my mind, we moved within two months and all of us began to feel better. My baby at the time is now six and has chronic health issues and developmental delays. I'll never know for sure what caused it but in my heart Fracking played a part of not the entire cause. I moved back to Boulder County because I hoped Boulder would have the wisdom to keep fracking away from our land and away from our families.

Please extend the ban on fracking, the risks are way too high.

Sincerely,  
Katy Haverstick  
1920 Lydia Dr  
Lafayette, co  
80026

**From:** Sandra Hockenbury  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** Regulations are worthless when they are not enforced -- and they are not enforced now!  
**Date:** Tuesday, November 22, 2016 11:59:08 AM

---

Dear Commissioners:

I will keep this short because I can only imagine the demands being made on your time and energy right now.

The oil and gas industry has an abysmal record of complying with air quality regulations. From Monday's *Denver Post* article, "State officials seek EPA sign-off on plan for dirty air..."

"Colorado officials say it will be 2021 before the state meets the current federal health standard for ozone air pollution — for which metro Denver and the northern Front Range have been out of compliance for more than four years."

How can anyone justify permitting hundreds of NEW gas wells when the industry cannot — or will not — comply with airborne emissions regulations for the oil and gas wells that are already in production!

Apparently the oil and gas industry is allowed to ignore state-mandated regulations with impunity. NO OTHER INDUSTRY GETS AWAY WITH THIS. Instead of "voluntary" inspections and compliance, why aren't owners of wells given hefty fines for violations?

I do think that the industry's record of lax-to-nonexistent enforcement needs to be taken into account in your decision-making. What is the point of writing strict regulations when 1) inspections do not take place, 2) industry does not comply with regulations, and/or 3) violations are not penalized?

Thank you for your time and consideration.

Sandy Hockenbury  
3840 Lakebriar Drive  
Boulder 80304

Link: <http://www.denverpost.com/2016/11/20/ozone-air-pollution-colorado-fails-federal-standards/>

**From:** Penny  
**To:** [Boulder County Oil and Gas Comment](#)  
**Cc:** [Dumas Penny Cell](#)  
**Subject:** Our fracked public lands  
**Date:** Wednesday, November 23, 2016 4:49:26 PM  
**Attachments:** [ATT00001.txt](#)  
[ATT00002.txt](#)  
[ATT00003.txt](#)

---

Dear County commissioners,

Attached please find some pictures that I took while flying over western Colorado this fall. These fracking operations went on for miles and miles. Evidence of the scarred landscape is in these pictures.

I can think of no better use of our county funds than to challenge the oil and gas industry one more time in courts. Thank you for doing all that you can to protect the health, safety, and beauty of our county.

Sincerely,

Penny Dumas  
1297 Blackbird Ct.  
Boulder, CO. 80303







**From:** Karen King  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** REGARDING FRACKING IN LAFAYETTE  
**Date:** Thursday, November 24, 2016 9:34:03 AM

---

My friends and clients from around the country can not believe we are fracking in this beautiful raw gem of a state. In regards to putting an installation at the field in Lafayette close to schools, homes and farms is ridiculous and needs to be reconsidered.

I am a 3 year member now of the Society for Scientific Exploration in Boulder and over and over again, when I speak with career scientists there, they are concerned what the chemicals used in the fracking process is doing to our pristine water table for generations to come.

Let's get a little smarter and not just be thinking about the almighty dollar! Let's be a leader in alternative sources of energy like wind and solar and not keep knocking on an old rotten door that will collapse and leave remains that may be poisonous to our wildlife and ourselves.

There are other areas more appropriate to this type of industrial installation where it isn't so populated and would not ruin our ground water.

My friends in Erie and Weld county say that as these operations dry up, the companies abandon them with no proper clean up or inspections for cleanup as well. This view of our environment is outdated and not good at all for our lives and our tourist industry. Have you considered this?

Thank you, Karen

Karen Rice King, BA, CHAP, Registered  
Psychotherapist  
Master Dowser Energy Worker  
Shamanic Teacher  
Ordained Minister  
PO Box 785, Louisville, CO 80027  
[Karen@karenriceking.com](mailto:Karen@karenriceking.com)  
[303.665.0175](tel:303.665.0175)

**From:** Michaela Mujica-Steiner  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** Please extend the oil and gas moratorium!  
**Date:** Thursday, November 24, 2016 11:20:50 AM

---

Dear Boulder County Commissioners,

I ask that you please extend the moratorium regarding oil and gas development in Boulder County. Now that Trump has been elected, the people need even more power at a local level to be protected. I have lived in Boulder County for 16 years and urge you to please extend this moratorium. I want to continue to live in Boulder but cannot imagine living in a fracked area. We can see the impacts of fracking and how out of control it can get when we go right out to Weld Country.

Thank You,  
Michaela

**From:** Ginger Riversong  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** Extend Moratorium  
**Date:** Tuesday, November 29, 2016 2:26:22 PM

---

Thank you so very much for extending the moratorium. Thank you and Staff for working hard to address citizens' concerns about the devastating effects fracking will have on our beautiful, relatively "clean" county.

If I could, I would ban fracking entirely. That is the goal to keep in mind as we establish protective regulations that are as thorough and robust as the law will permit. Better yet, we need to change the law to better protect the health, safety and well being of our citizens.

Thank you for taking my comment.

--

Ginger Ikeda  
3320 15th St  
Boulder 80304

SHARE THE ROAD :)

Riders: Be Bright and Be Seen; Rules of the Road

Drivers: Put down the @%\$ cell phone and Save a Life; 3 Feet Between; Pass <15 mph above bike's speed. THANKS!

"Unless someone like you cares a whole awful lot, nothing is going to get better. It's not!"  
-Dr. Seuss

"It takes courage to grow up and become who you really are."  
-ee cummings

**From:** Andrea Johnson  
**To:** [Boulder County Oil and Gas Comment](#)  
**Subject:** Please extend oil & gas development moratorium!  
**Date:** Tuesday, November 29, 2016 7:12:22 PM

---

I am writing to voice my strong opposition to fracking in Boulder County and to ask that you \*please\* extend the moratorium on oil and gas development, or, even better, put something more permanent in place.

Thank You!  
Andrea Johnson  
241 S Cleveland Ave  
Louisville, CO

**From:** Carolyn Bninski  
**To:** [Boulder County Board of Commissioners](#)  
**Subject:** Thank you for fracking moratorium extension  
**Date:** Wednesday, November 30, 2016 11:45:08 AM

---

Dear Commissioners:

Thank you very much for extending the moratorium on fracking to January. The citizenry is behind you on this decision and clearly wants you to do everything you can to protect our county from becoming the wasteland that has resulted in Weld County from its embrace of fracking.

First and foremost your decisions on this issue must be based on the health, safety and preservation of the environment for present and future generations. We urge you to stand up to the corruption of our state government and its subservience to the oil and gas industry. If not Boulder County, then where? Lawsuits are minimal in comparison to the devastation on all levels caused by fracking- air and soil pollution, climate chaos, earthquakes, water depletion and contamination, and health problems and death.

The people are behind you and have shown their consistent support of your actions to stop fracking. We will continue you to do so.

Thank you.

Carolyn Bninski  
Rocky Mountain Peace and Justice Center  
720-509-3378