

August 23<sup>rd</sup>, 2013  
Neil Kornze  
Principal Deputy Director, Bureau of Land Management  
U.S. Department of the Interior, Director (630)  
Bureau of Land Management  
Mail Stop 2134 LM  
1849 C St. NW  
Washington, DC, 20240

Attention: 1004-AE26

***Re: Comments on Proposed Rule on Oil and Gas; Hydraulic Fracturing  
on Federal and Indian Lands***

Dear Principal Deputy Director Kornze:

Please accept these comments on the Bureau of Land Management's (BLM) revised proposed rule regulating hydraulic fracturing on public land, Indian land, and private land overlying federal minerals, published on Friday, May 24, 2013 at 78 Fed. Reg. 31638. These comments address BLM's obligations and analysis under the National Environmental Policy Act, 42 U.S.C. § 4331 *et seq.* (NEPA). Sierra Club submits these comments on behalf of the following organizations: Athens County Fracking Action Network (Ohio), Buckeye Forest Council, Californians for Western Wilderness, Catskill Citizens for Safe Energy, Citizens Coalition for a Safe Community, Clean Water Action, Damascus Citizens for Sustainability, Delaware Riverkeeper Network, EARTHWORKS, Environment America, Los Padres ForestWatch, New Mexico Sportsmen and Back Country Horsemen of New Mexico, People's Oil and Gas Collaborative, Riverkeeper, Inc., San Juan Citizens Alliance, and Western Environmental Law Center. These comments are submitted in addition to the comments of Sierra Club, *et al.*, regarding the technical elements of BLM's proposed rule.

Respectfully submitted,

Nathan Matthews  
Associate Attorney  
Sierra Club  
85 2<sup>nd</sup> St., Second Floor  
San Francisco, CA 94105  
nathan.matthews@sierraclub.org

Devorah Ancel  
Associate Attorney  
Sierra Club  
85 Second St., Second floor  
San Francisco, CA 94105  
devorah.ancel@sierraclub.org

UNITED STATES BUREAU OF LAND MANAGEMENT

Oil and Gas; Hydraulic )  
Fracturing on Federal and ) Docket No. BLM-2013-0002  
Indian Lands )  
 ) Via regulations.gov  
 ) August 23, 2013  
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Thank you for accepting these comments on BLM’s revised proposed rule regulating hydraulic fracturing on public land, Indian land, and private land overlying federal minerals.<sup>1</sup> Sierra Club submits these comments on behalf of the following organizations: Athens County Fracking Action Network (Ohio), Buckeye Forest Council, Californians for Western Wilderness, Catskill Citizens for Safe Energy, Citizens Coalition for a Safe Community, Clean Water Action, Damascus Citizens for Sustainability, Delaware Riverkeeper Network, EARTHWORKS, Environment America, Los Padres ForestWatch, New Mexico Sportsmen and Back Country Horsemen of New Mexico, People’s Oil and Gas Collaborative, Riverkeeper, Inc., San Juan Citizens Alliance, and Western Environmental Law Center. These comments are in addition to Sierra Club’s two comments submitted on BLM’s May 11, 2012 proposal, and the additional comments submitted by Sierra Club *et al.* under separate cover today.

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<sup>1</sup> 78 Fed. Reg. 31,638 (May 24, 2013).

## I. Introduction

BLM proposed the rule in this docket because, as BLM recognizes, BLM's existing regulations do not adequately address the oil and gas production currently occurring on federal lands. The advent of horizontal fracturing and other well stimulation techniques used to access unconventional resources has dramatically changed U.S. oil and gas production, including production on the 759 million acres of mineral estate administered by BLM. Indeed, BLM estimates that roughly 90% of new wells on federal lands are hydraulically fractured,<sup>2</sup> a figure that does not include wells that are acidized or subject to other stimulation treatments. BLM's regulations for oil and gas production, however, were last updated in 1988—in BLM's words, “long before the latest hydraulic fracturing technologies became widely used.”<sup>3</sup> It is no surprise that these rules did not foresee the development and prevalent adoption of well stimulation techniques used today, and the environmental review of the existing rules could not consider the impact of these practices.

We agree that BLM must update its regulations to reflect new practices in well stimulation, but in so doing, BLM must analyze the full effects of such stimulation, as required by the National Environmental Policy Act, 42 U.S.C. § 4331 *et seq.* (NEPA). Although the purpose of the action is to update BLM regulations addressing hydraulic fracturing, BLM explicitly avoids analysis of the environmental effects of hydraulic fracturing.<sup>4</sup> Excluding hydraulic fracturing's effects from the NEPA analysis is particularly egregious because hydraulic fracturing is occurring on 90% of federal wells. This confined review violates the letter and intent of NEPA. In proposing regulations regarding well stimulation, BLM must review the effects of that stimulation, including the effects of additional oil and gas production enabled by well stimulation. BLM must also consider alternatives that would limit these effects, including stimulation practices and a prohibition on hydraulic fracturing in all areas not currently undergoing unconventional oil and gas production.

The unlawfully narrow scope of BLM's NEPA review is of particular importance to the climate. Development of federal oil and gas resources—which depends almost entirely on hydraulic fracturing and other forms of well stimulation—is a major emitter of greenhouse gases. BLM's regulation of well stimulation will therefore have serious impacts on climate change. Frank assessment of these impacts is particularly important here, because such assessment will inform the extent to which the Obama administration's

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<sup>2</sup> 78 Fed. Reg. at 31638/3.

<sup>3</sup> *Id.*

<sup>4</sup> Environmental Assessment (hereinafter “EA”) at 4.

stated energy goals work at cross purposes. Allowing expanded well stimulation on federal lands, and the production this would entail, is inconsistent with the greenhouse gas emission reductions needed to avert catastrophic climate change. NEPA review must reveal such consequences.

## II. BLM's NEPA Obligations

NEPA requires federal agencies to consider and disclose the “environmental impacts” of proposed agency actions.<sup>5</sup> This requirement is implemented via a set of procedures that “insure that environmental information is available to public officials and citizens *before* decisions are made and *before* actions are taken.”<sup>6</sup> Agencies must “carefully consider [ ] detailed information concerning significant environmental impacts” and NEPA “guarantees that the relevant information will be made available” to the public.<sup>7</sup> The Council on Environmental Quality (CEQ) directs agencies to “integrate the NEPA process with other planning at the earliest possible time to insure that planning and decisions reflect environmental values.”<sup>8</sup>

NEPA requires preparation of an “environmental impact statement” (EIS) where, as here, the proposed major federal action would “significantly affect[] the quality of the human environment.”<sup>9</sup> Where it is unclear whether a proposed action will have significant effects, the agency may prepare a more cursory “environmental assessment” (EA) to determine whether an EIS is necessary.<sup>10</sup> The EA is only a preliminary assessment tool, however: where the EA uncovers significant impacts, it may not serve as a substitute for the careful analysis provided by an EIS. That said, even an EA must “provide sufficient evidence and analysis” supporting its conclusions and must include consideration of alternatives to a project, including the no-action alternative.<sup>11</sup>

“The primary purpose of an environmental impact statement is to serve as an action-forcing device to insure that the policies and goals defined in [NEPA]

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<sup>5</sup> 42 U.S.C. § 4332(C)(i).

<sup>6</sup> 40 C.F.R. § 1500.1(b) (emphases added).

<sup>7</sup> *Dep't of Transp. v. Public Citizen*, 541 U.S. 752, 768 (2004) (quoting *Robertson v. Methow Valley Citizens Council*, 490 U.S. 332, 349 (1989)).

<sup>8</sup> 40 C.F.R. § 1501.2.

<sup>9</sup> 42 U.S.C. § 4332(C).

<sup>10</sup> 40 C.F.R. § 1508.9.

<sup>11</sup> *See id.*

are infused into the ongoing programs and actions of the Federal government.”<sup>12</sup> Accordingly, an EIS must describe:

- i. the environmental impact of the proposed action,
- ii. any adverse environmental effects which cannot be avoided should the proposal be implemented,
- iii. alternatives to the proposed action,
- iv. the relationship between local short-term uses of man’s environment and the maintenance and enhancement of long-term productivity, and
- v. any irreversible and irretrievable commitments of resources which would be involved in the proposed action should it be implemented.<sup>13</sup>

The alternatives analysis “is the heart of the environmental impact statement.”<sup>14</sup> An agency must take care not to define the project purpose so narrowly as to prevent the consideration of a reasonable range of alternatives.<sup>15</sup> If it did otherwise, it would lack “a clear basis for choice among options by the decisionmaker and the public.”<sup>16</sup>

An EIS must also describe the direct and indirect effects and the cumulative impacts of a proposed action.<sup>17</sup> These terms are distinct from one another: Direct effects are “caused by the action and occur at the same time and place.”<sup>18</sup> Indirect effects are also “caused by the action” but:

are later in time or farther removed in distance,  
but are still reasonably foreseeable. Indirect effects

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<sup>12</sup> 40 C.F.R. § 1502.1 (stating that an EIS “shall provide full and fair discussion of significant environmental impacts and shall inform decisionmakers and the public of the reasonable alternatives which would avoid or minimize adverse impacts or enhance the quality of the human environment”).

<sup>13</sup> 42 U.S.C. § 4332(C).

<sup>14</sup> 40 C.F.R. § 1502.14.

<sup>15</sup> *See, e.g., Simmons v. U.S. Army Corps of Eng’rs*, 120 F.3d 664, 666 (7th Cir. 1997).

<sup>16</sup> *See* 40 C.F.R. § 1502.14.

<sup>17</sup> 40 C.F.R §§ 1502.16, 1508.7, 1508.8; *N. Plains Resource Council v. Surface Transp. Bd.*, 668 F.3d 1067, 1072-73 (9th Cir. 2011).

<sup>18</sup> 40 C.F.R. § 1508.8(a).

may include growth inducing effects and other effects related to induced changes in the pattern of land use, population density or growth rate, and related effect on air and water and other natural systems, including ecosystems.<sup>19</sup>

Cumulative impacts, finally, are not causally related to the action. Instead, they are:

the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time.<sup>20</sup>

The EIS must give each of these categories of effect fair emphasis.

### **III. BLM Must Consider the Effect of Well Stimulation, and Not Only the Effects of Practices Required by the Proposed Rule**

The EA states that it “is not intended to analyze the effects that may result from actual hydraulic fracturing activities.”<sup>21</sup> Instead, BLM apparently contends that the EA need only consider the effects of the “procedures” the rule would require “prior to, during, and subsequent to hydraulically fracturing an oil and gas well,” such as performing a cement evaluation log.<sup>22</sup> This narrow scope is unlawful. Simply put, BLM cannot update its regulations to account for—and explicitly authorize—hydraulic fracturing without considering the effects of fracturing itself.<sup>23</sup>

BLM states that the purpose of the proposed action is to “improve the BLM’s regulatory framework to account for hydraulic fracturing activities on Federal and Indian lands and establish procedures that would provide

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<sup>19</sup> 40 C.F.R. § 1508.8(b).

<sup>20</sup> 40 C.F.R. § 1508.7.

<sup>21</sup> EA at 4.

<sup>22</sup> *Id.*

<sup>23</sup> Of course, as we explain in our other comments, BLM must also consider and regulate forms of well stimulation beyond hydraulic fracturing.

adequate protection of water resources on Federal and Indian lands.”<sup>24</sup> More fully, BLM explains that it “proposes to promulgate regulations consistent with its trust responsibilities on tribal lands and with its obligations pursuant to the *Federal Land Policy and Management Act* (FLPMA) to prevent unnecessary or undue degradation of the public lands, in response to the public interest and concern, and taking into consideration the Energy Department’s recommendations.”<sup>25</sup>

BLM cannot determine whether the proposed rule will discharge BLM’s FLPMA and trust responsibilities to protect public resources from degradation without evaluating the extent to which hydraulic fracturing, as currently practiced and as would be permitted under the proposed rule, causes such degradation. Indeed, without an analysis of hydraulic fracturing impacts at this rulemaking stage, BLM cannot articulate a “rational connection between the facts found and its conclusion” that it has met its obligations under FLPMA.<sup>26</sup> Put differently, if BLM adopts the proposed rule, future hydraulic fracturing of public and trust minerals will be an effect of the rule, and this effect must be analyzed under NEPA.

In numerous other contexts courts have held that where an agency proposes to regulate an activity, including an ongoing activity, NEPA requires evaluation of that activity’s effects. For example, when the National Highway Transportation Association proposed a new and more stringent standard for vehicle fuel economy, NEPA required analysis of the greenhouse gas emissions vehicles would emit under the proposed standard.<sup>27</sup> The court explained that “[b]y *allowing* particular fuel economy levels, which NHTSA argues translate directly into particular tailpipe emissions, NHTSA’s regulations are the proximate cause of those emissions.”<sup>28</sup> Similarly, where the Forest Service proposed to officially allow vehicle travel on 94 miles of unofficial routes, the Forest Service was required to take a hard look at the effects of vehicle travel on those roads, notwithstanding the fact that such

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<sup>24</sup> EA at 6.

<sup>25</sup> EA at 5.

<sup>26</sup> *Pac. Coast Fed’n of Fishermen’s Ass’n, Inc. v. Nat’l Marine Fisheries Serv.*, 265 F.3d 1028, 1034 (9th Cir. 2001); *Natural Resources Defense Council v. United States Dep’t of the Interior*, 113 F.3d 1121, 1124 (9th Cir.1997) (quoting *Resources, Ltd. v. Robertson*, 35 F.3d 1300, 1304 (9th Cir.1993), in turn quoting *Pyramid Lake Paiute Tribe of Indians v. United States Dep’t of the Navy*, 898 F.2d 1410, 1414 (9th Cir.1990)).

<sup>27</sup> *Ctr. for Biological Diversity v. Nat’l Highway Traffic Safety Admin.*, 538 F.3d 1172, 1216-17 (9th Cir. 2008).

<sup>28</sup> *Id.* (emphasis added, modification in original).

vehicle travel was already occurring.<sup>29</sup> The fact that a rule “may be an improvement over the [existing] standard does not necessarily mean that it will not have a ‘significant effect’ on the environment” requiring analysis under NEPA.<sup>30</sup>

BLM cannot postpone consideration of hydraulic fracturing’s impacts to other actions. BLM argues that “[i]mpacts caused by hydraulic fracturing are analyzed at more appropriate levels of the BLM’s decision making process. These decision points include when the BLM prepares a land use plan for a given resource area where there is a potential for oil and gas exploration and development activity to occur, when the BLM evaluates the cumulative impacts of development within a more focused area, such as one or more oil and gas fields, or when the BLM evaluates the impacts of a proposal to drill one well or a group of wells.”<sup>31</sup> It is unclear whether BLM will in fact address these impacts at more local levels.

Moreover, the cumulative effects of the proposed rule are best considered at the national level. BLM’s deferral of its hydraulic fracturing impacts analysis, and specifically the cumulative effects of these expansive operations, to more localized decision making violates NEPA. Indeed, numerous courts have invalidated programs and rules of national scope because of an agency’s deferral of the cumulative effects analysis.<sup>32</sup> Here, BLM’s omission of such an analysis during the rulemaking stage denies the public and decision makers full understanding of the scope of these impacts and undermines the goals and intent of NEPA.

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<sup>29</sup> *Wilderness Soc. v. U.S. Forest Serv.*, 850 F. Supp. 2d 1144, 1157-58 (D. Idaho 2012).

<sup>30</sup> *Center for Bio. Diversity*, 538 F.3d at 1224; see also 40 C.F.R. 1508.27(b)(1) (“A significant effect may exist even if the Federal agency believes that on balance the effect will be beneficial.”).

<sup>31</sup> EA at 4.

<sup>32</sup> *Wyoming Outdoor Council v. U.S. Army Corps of Engineers*, 351 F. Supp. 2d 1232, 1240-43 (D. Wyo. 2005) (NEPA analysis of oil and gas development nationwide permit invalid because cumulative impacts of a general permit cannot be evaluated in the context of approval of a single project); *Defenders of Wildlife v. Ballard*, 73 F. Supp. 2d 1094 (D. Ariz. 1999)(rejecting Corps’ deferral of cumulative impacts analysis to the Corps’ regional offices at a later date, and further holding that the NEPA analysis must include sufficient analysis “to measure the impact of implementing the [ ] program under which thousands of projects will be authorized.”); *Sierra Club v. Bosworth*, 510 F.3d 1016, 1027-30 (9th Cir. 2007)(Forest Service violated NEPA by deferring its cumulative impacts analysis of a categorical exclusion to the project level); *Env’tl. Prot. Info. Ctr. v. U.S. Forest Serv.*, 451 F.3d 1005, 1014 (9th Cir. 2006) (“[i]t is not appropriate to defer consideration of cumulative impacts to a future date”).

Accordingly, BLM must “analyze the effects that may result from actual hydraulic fracturing activities” before finalizing a rule that would authorize hydraulic fracturing and regulate these effects.

#### **IV. BLM Failed to Take a Hard Look at the Effects of Hydraulic Fracturing and Other Well Stimulation**

Notwithstanding BLM’s statement that its EA is not intended to consider the effects of hydraulic fracturing, the EA contains some discussion of these effects. This limited (and implicitly incidental) discussion falls far short of the NEPA requirement to take a hard look at these effects. Further analysis is required.

BLM’s discussion of the environmental effects of hydraulic fracturing focuses on the risk of groundwater contamination, and in particular, the risk of fracturing fluid contaminating groundwater as a result of activities below the surface.<sup>33</sup> This narrow view fails to take a hard look at the risks hydraulic fracturing poses to groundwater. While BLM acknowledges the possibility of fracturing fluid and methane contaminating shallow freshwater formations,<sup>34</sup> BLM appears not to acknowledge the risk that hydraulic fracturing will mobilize other contaminants already present in the earth and allow these substances to contaminate groundwater. Hydraulic fracturing can mobilize brine, trace metals, naturally occurring radioactive elements (e.g. radium, uranium) and organic compounds.<sup>35</sup> A recent peer reviewed study explained that hydraulic fracturing can force naturally occurring fluids containing these contaminants out of shale and to shallow aquifers within “tens of years.”<sup>36</sup>

BLM also fails to take a hard look at the risk of water contamination as a result of surface activities. BLM acknowledges that storage and management

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<sup>33</sup> EA at 17-18.

<sup>34</sup> EA at 17-18

<sup>35</sup> DOE, Shale Gas Production Subcommittee First 90-Day Report, at 20, attached as Exhibit 1.

<sup>36</sup> Myers, T. (2012), Potential Contaminant Pathways from Hydraulically Fractured Shale to Aquifers. *Ground Water*, 50: 872–882. doi: 10.1111/j.1745-6584.2012.00933.x (“Fracking can release fluids and contaminants from the shale either by changing the shale and overburden hydrogeology or simply by the injected fluid forcing other fluids out of the shale. The complexities of contaminant transport from hydraulically fractured shale to near surface aquifers render estimates uncertain, but a range of interpretative simulations suggest that transport times could be decreased from geologic time scales to as few as tens of years.”), attached as Exhibit 2.

of flowback and produced water present risks to surface and ground water, primarily because of potential wastewater spills. BLM explains that closed loop systems such as covered tanks substantially reduce the risk of wastewater spills, whereas lined pits risk spills in the event of liner puncture.<sup>37</sup> BLM does not discuss other ways in which lined pits can lead to water contamination, such as berm failure or overflow caused by rainfall, or the risk of spills resulting in waste transfer to and from pits or tanks. BLM has also failed to either quantify the rates of failure associated with pits and tanks or explain why such quantitative information is unavailable. This information would assist BLM in choosing between alternatives that allow pits and alternatives that mandate tanks. Accordingly, BLM has failed to take a hard look at the risk of water contamination resulting from waste storage and on-site management.

Nor has BLM considered how water withdrawals and wastewater disposal associated with hydraulic fracturing will affect water resources. Although the proposed rule requires operators to submit information regarding the “source and location of water supply” and the “proposed disposal method of the recovered fluids,” proposed 43 C.F.R. § 3612.3-3(d)(3), (d)(5)(iii), the EA does not discuss the effects of these activities.

Finally, the EA is largely silent as to the effects of hydraulic fracturing on environmental resources other than water. Hydraulic fracturing significantly impacts air, landscapes, habitat, wildlife, visual resources, and other aspects of the environment. BLM briefly discusses the extent to which the measures that would be required by the proposed rule would impact some of these resources, acknowledging, for example, that requiring cement evaluation logs may extend the period of time equipment remains onsite, prolonging visual and wildlife impacts. This discussion does not acknowledge impacts of the hydraulic fracturing process itself. For example, methane and volatile organic compound air emissions from well completion of hydraulically fractured oil and gas wells are significantly higher than emissions from conventional wells.<sup>38</sup> Thus, hydraulic fracturing harms both local air quality and the climate.

BLM cannot avoid analysis of these other effects by arguing that the proposed rule concerns water quality rather than other environmental resources. Even if BLM wrongly limits its actions to those intended to

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<sup>37</sup> EA at 32.

<sup>38</sup> 76 Fed. Reg. at 52,757; USEPA, *Oil and Natural Gas Sector: Standards of Performance for Crude Oil and Natural Gas Production, Transmission, and Distribution, Background Technical Support Document for the Proposed Rules* at §§ 4.1.1 – 4.1.2 (July 2011), attached hereto as Exhibit 3.

address water quality, this narrow intent does not excuse BLM's obligation to consider the effects of those actions on other resources.

For these reasons, BLM has failed to take a hard look at the effects of hydraulic fracturing. BLM must analyze these effects before adopting a final rule.

## **V. BLM Entirely Failed to Consider the Effects of Oil and Gas Production Enabled by Well Stimulation, Including Effects on Climate**

Hydraulic fracturing enables profitable oil and gas production from shale and other resources where production could not profitably occur otherwise. This expanded production is an effect of hydraulic fracturing. As such, BLM's obligation to consider the effects of hydraulic fracturing includes an obligation to consider the effects of this additional production. In particular, BLM must take a hard look at the greenhouse gas emissions that would result from allowing extraction of unconventional resources on public lands, including consideration of whether such emissions are consistent with the steps needed to avert disastrous climate change.

As BLM recognizes, advances in hydraulic fracturing technology has led to a massive increase in drilling activity by making it profitable to exploit formations that were previously, as a practical matter, inaccessible.<sup>39</sup> Because hydraulic fracturing targets resources that could not be profitably produced otherwise, if hydraulic fracturing was not available, the majority of the resources targeted by these wells would not be extracted.

Although BLM has not provided statistics for the volume of oil and gas produced specifically by hydraulically fractured wells, informed estimates demonstrate the scale of this production. BLM explains that total 2012 onshore federal production was 147 million barrels of oil, 3,066 billion cubic feet of natural gas, and 3 million gallons of natural gas liquids.<sup>40</sup> Assuming that 90% of this production results from hydraulically fractured wells, hydraulic fracturing allowed the extraction of roughly 130 million barrels of oil and 2800 billion cubic feet of gas in 2012. This amounts to 6% and 10%, respectively, of all domestically produced oil and gas in 2012.<sup>41</sup> BLM estimates that the rate of hydraulic fracturing on minerals within BLM's

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<sup>39</sup> *See, e.g.*, 77 Fed. Reg. 27,693.

<sup>40</sup> Economic Analysis at 12.

<sup>41</sup> The Energy Information Administration states that 2012 US production was 2,376 million barrels of oil and 29,791.9 billion cubic feet of gas, attached as Exhibit 4 and Exhibit 5.

jurisdiction will slowly but steadily increase over the next decade,<sup>42</sup> so the volume of production enabled by hydraulic fracturing is likely to increase as well.

Production and eventual combustion of this oil and gas emits extremely large quantities of greenhouse gases. One way to estimate these emissions is with a top-down approach. EPA's greenhouse gas inventory estimates total annual greenhouse gas emissions for the "natural gas systems" and "petroleum systems" sectors, which include gas and oil production.<sup>43</sup> Although this inventory has not been updated to include 2012 statistics, EPA estimates that in 2011, natural gas systems emitted 195 million tons of carbon dioxide equivalent (CO<sub>2</sub>e), and that petroleum systems emitted 3.5 million tons of CO<sub>2</sub>e.<sup>44</sup>

BLM must consider the impacts of this additional oil and gas production in its NEPA analysis. BLM must also consider the impacts of the *combustion* of these resources. Courts have held that where agency actions will make additional resources available to consumers, the effects of consumption of that resource must be considered.<sup>45</sup> Indeed, because BLM administers production of a significant share of domestic oil and gas, allowing this production to continue will likely have a significant effect on domestic fossil fuel consumption patterns.<sup>46</sup>

Evaluation of the climate impacts of federal hydraulically fractured oil and gas is particularly important in light of the Obama administration's climate action plan.<sup>47</sup> Indeed, numerous courts have underscored the importance of evaluating the impacts of greenhouse gas emissions on climate change, especially when the proposed action is national in scope, as is the case for the

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<sup>42</sup> Economic Analysis at 41.

<sup>43</sup> EPA, *Inventory of U.S. Greenhouse Gas Emissions and Sinks 1990-2011*, attached as Exhibit 6.

<sup>44</sup> EPA, *Inventory of U.S. Greenhouse Gas Emissions and Sinks 1990-2011*, Table ES-2 (2013).

<sup>45</sup> *Mid States Coalition for Progress v. Surface Transportation Board*, 345 F.3d 520 (8th Cir. 2003).

<sup>46</sup> The Energy Information Administration's National Energy Modeling System, including the "Oil and Gas Supply" module thereto, provides one tool for estimating how domestic energy use is affected by production from BLM-administered resources. EIA, *The National Energy Modeling System: An Overview*, 1-2 (2009), attached as Exhibit 7, EIA, *Documentation of the Oil and Gas Supply Module*, 2-2 (2011), attached as Exhibit 8.

<sup>47</sup> President's Climate Action Plan, attached as Exhibit 9.

proposed rule.<sup>48</sup> Although the Obama plan proposes an expanded role for natural gas production in particular,<sup>49</sup> extensive scientific evidence demonstrates that additional natural gas production and combustion is incompatible with the greenhouse gas emission reductions necessary to avert truly devastating climate change.<sup>50</sup> As author Bill McKibben has explained, to avoid devastating global warming of over 2° Celsius, identified fossil fuels need to remain in the ground.<sup>51</sup> A core purpose of NEPA is to require agencies to take a hard look at the full environmental consequences of proposed actions. Here, BLM must examine the climate consequences of continued hydraulic fracturing on lands it administers. This hard look will reveal the extent to which continued hydraulic fracturing is consistent with the greenhouse gas emission targets identified by this administration, and it will inform the broader debate about whether those goals are themselves adequate.

## VI. A Full Environmental Impact Statement Is Required

BLM's decision not to prepare an EIS for the proposed hydraulic fracturing rule is contrary to NEPA and NEPA regulations, and is arbitrary and capricious. BLM must prepare a full EIS rather than an EA where the

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<sup>48</sup> *Center for Biological Diversity v. National Highway Traffic Safety Administration*, 508 F.3d 508, 550 (9th Cir. 2007) (“The impact of greenhouse gas emissions on climate change is precisely the kind of cumulative impacts analysis that NEPA requires agencies to conduct.”); *Mid States Coalition for Progress v. Surface Transportation Board*, 345 F.3d 508 (9th Cir. 2008); *Border Power Plant Working Group v. DOE*, 260 F.Supp 2d 997 (S.D. Cal. 2003).

Moreover, NEPA calls for a quantification of the “incremental impact[s] that [the proposed project’s] emissions will have on climate change ... in light of other past, present, and reasonably foreseeable actions.” *Ctr. for Biological Diversity v. Nat’l Highway Traffic Safety Admin.*, 538 F.3d 1172, 1216 (9th Cir. 2008). *City of Los Angeles v. NHTSA*, 912 F.2d 478, 501 (D.C.Cir.1990) (Wald, C.J., dissenting) (“[W]e cannot afford to ignore even modest contributions to global warming. If global warming is the result of the cumulative contributions of myriad sources, any one modest in itself, is there not a danger of losing the forest by closing our eyes to the felling of the individual trees?”), *overruled on other grounds by Fla. Audubon Soc. v. Bentsen*, 94 F.3d 658 (D.C.Cir.1996).

<sup>49</sup> *Id.* at 6, 18-19.

<sup>50</sup> See, e.g., Myhrvold, N.P., and K. Caldeira, 2012. *Greenhouse gases, climate change, and the transition from coal to low-carbon electricity*. Environmental Research Letters, Vol. 7, 014019 doi:10.1088/1748-9326/7/1/014019. 2012, attached as Exhibit 10.

<sup>51</sup> Bill McKibben, *Global Warming’s Terrifying New Math*, Rolling Stone (July 19, 2012), attached as Exhibit 11; see also The World Bank, *Turn Down the Heat: Why a 4°C World Must Be Avoided* (2012), attached as Exhibit 12.

proposed major federal action would “significantly affect[] the quality of the human environment.”<sup>52</sup> Under NEPA regulations, the significance of an action is determined by evaluating both the context of the action and the intensity of the impact.<sup>53</sup> The applicable regulation provides ten factors to be considered in evaluating significance.<sup>54</sup> If any one or more of these factors are present, an EIS is required.<sup>55</sup> “If *any* ‘significant’ environmental impacts might result from the proposed agency action then an EIS must be prepared *before* agency action is taken.”<sup>56</sup>

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<sup>52</sup> 42 U.S.C. § 4332(C).

<sup>53</sup> 40 C.F.R. § 1508.27.

<sup>54</sup> 40 C.F.R. § 1508.27(b) requires and agency in making a significance determination for a proposed action to look at context, meaning the proposed action must be analyzed in several contexts such as society as a whole, the affected region, the affected interests, and the locality ... both short and long-term effects are relevant. 40 C.F.R. § 1508.27. In evaluating the intensity of a proposed action, the responsible agency must consider: “(1) Impacts that may be both beneficial and adverse. A significant effect may exist even if the Federal agency believes that on balance the effect will be beneficial. (2) The degree to which the proposed action affects public health or safety. (3) Unique characteristics of the geographic area such as proximity to historic or cultural resources, park lands, prime farmlands, wetlands, wild and scenic rivers, or ecologically critical areas. (4) The degree to which the effects on the quality of the human environment are likely to be highly controversial. (5) The degree to which the possible effects on the human environment are highly uncertain or involve unique or unknown risks. (6) The degree to which the action may establish a precedent for future actions with significant effects or represents a decision in principle about a future consideration. (7) Whether the action is related to other actions with individually insignificant but cumulatively significant impacts. Significance exists if it is reasonable to anticipate a cumulatively significant impact on the environment. Significance cannot be avoided by terming an action temporary or by breaking it down into small component parts. (8) The degree to which the action may adversely affect districts, sites, highways, structures, or objects listed in or eligible for listing in the National Register of Historic Places or may cause loss or destruction of significant scientific, cultural, or historical resources. (9) The degree to which the action may adversely affect an endangered or threatened species or its habitat that has been determined to be critical under the Endangered Species Act of 1973. (10) Whether the action threatens a violation of Federal, State, or local law or requirements imposed for the protection of the environment.” *Id.*

<sup>55</sup> *See, Public Citizen v. Department of Transportation*, 316 F.3d 1002, 1023 (9th Cir. 2003) (“If [the agency’s] action is environmentally ‘significant’ according to any of these criteria, then [the agency] erred in failing to prepare an EIS.”); *Ocean Advocates v. U.S. Army Corps of Eng’rs*, 402 F.3d 846, 865 (9th Cir. 2004).

<sup>56</sup> *Grand Canyon Trust v. Federal Aviation Administration*, 290 F.3d 339, 340 (D.C.Cir. 2002) (emphasis in original).

Multiple significance factors are present under the proposed regulations which would govern widespread hydraulic fracturing on public lands throughout the country. These significance factors include adverse environmental effects, significant impacts to public health and safety, unique characteristics of the geographic area, controversial effects, uncertain risks, cumulatively significant impacts, adverse effects to threatened and endangered species, and potential violations of environmental laws.<sup>57</sup> A substantial body of scientific evidence documents these significant impacts as well as the uncertainty of the full extent of these impacts.<sup>58</sup> Further evidence demonstrates that hydraulic fracturing poses significant risks to human health.<sup>59</sup> Significant public controversy also exists over the expansion of

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<sup>57</sup> See 40 C.F.R. § 1508.27(b)(1), (2), (3), (4), (5), (7), (9), (10).

<sup>58</sup> Because unconventional production using hydraulic fracturing is a relatively recent phenomenon, wells completed in the past few years may have set in motion contamination that has not yet manifested or been detected. See, e.g., Tom Myers, *Potential Contaminant Pathways from Hydraulically Fractured Shale to Aquifers* (Apr. 17, 2012). In cases where contamination of private water is alleged, the oil and gas production company frequently settles the claim in exchange for a confidentiality and/or nondisclosure agreement, preventing the public and the scientific community from learning of the potential contamination. See, e.g., *Hallowich v. Range Resources Corp.*, Brief of Amici Curiae Philadelphia Physicians for Social Responsibility *et al.*, Appx. B (Apr. 27, 2012) (enumerating 27 such cases which settled with confidentiality and/or nondisclosure agreements), attached as Exhibit 13. See also American Public Health Association. [Policy Statement]. “The Environmental and Occupational Health Impacts of High-Volume Hydraulic Fracturing of Unconventional Gas Reserves.” October 30, 2012; U.S. Government Accountability Office. “Oil and Gas: Information on Shale Resources, Development, and Environmental and Public Health Risks.” September 5, 2012; “CDC scientist: tests needed on drilling impact.” *Associated Press*. January 4, 2012; and Witter, Roxanne *et al.* [For the Garfield County Board of County Commissioners]. “Health Impacts Assessment for Battlement Mesa, Garfield County Colorado.” September 2010.

<sup>59</sup> Gilman, J.B., *et al.*, “Source Signature of volatile organic compounds from oil and natural gas operations in Northeastern Colorado,” *Environmental Science & Technology*, vol. 47, iss. 3, January 2013; Witter, Roxanne, *et al.*, “Health Impacts Assessment for Battlement Mesa, Garfield County Colorado,” University of Colorado, Colorado School of Public Health, For the Garfield County Board of County Commissioners, September 2010, attached as Exhibit 14; Petron, Gabrielle, *et al.*, “Hydrocarbon emissions characterization in the Colorado Front Range: A pilot study,” *Journal of Geophysical Research, Atmospheres*, vol. 117, February 21, 2012, attached as Exhibit 15; State of Wyoming, Department of Health, “Associations of Short-Term Exposure to Ozone and Respiratory Outpatient Clinic Visits – Sublette County, Wyoming, 2008-2011,” March 1, 2013, attached as Exhibit 16; McKenzie, L. M., *et al.*, “Human health risk assessment of air emissions from development of unconventional natural gas resources.” *Science of the Total Environment*, vol. 424,

hydraulic fracturing because of the threats to public health and the environment, and as a result of claims by the oil and gas industry that the practice of hydraulic fracturing is clean and safe.<sup>60</sup> This controversy is further exemplified by the more than 900,000 comments submitted in response to BLM's proposed rule.

Moreover, the proposed rule covers approximately 710 million acres of federal lands of which 38 million acres already are leased and many millions more are expected to be leased for hydraulic fracturing and other extraction related activities. Indeed, this expanse is comparable to the 58 million acres covered by the Clinton Administration's Roadless Area Conservation Policy directive ("the Roadless Rule") which protected roadless national forest lands from logging, roadbuilding, coal, gas, oil and other mineral leasing. In promulgating the Roadless Rule, the U.S. Forest Service prepared an EIS to evaluate the rules environmental impacts.<sup>61</sup> BLM should follow suit and prepare a full EIS for the hundreds of millions of acres at stake under the proposed regulations.

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May 1, 2012 attached as Exhibit 17; Colborn, T., *et al.*, "An Exploratory Study of Air Quality near Natural Gas Operations," *Human and Ecology Risk Assessment*, November 2012, attached as Exhibit 18; U.S. Government Accountability Office, "Energy-Water Nexus: Information on the Quantity, Quality, and Management of Water Produced During Oil and Gas Production," January 9, 2012, attached as Exhibit 19; U.S. House of Representatives, Committee on Energy and Commerce [Minority Staff Report], "Chemicals Used in Hydraulic Fracturing," April 2011, attached as Exhibit 20; American Public Health Association, Policy Statement, "The Environmental and Occupational Health Impacts of High-Volume Hydraulic Fracturing of Unconventional Gas Reserves, attached as Exhibit 21; Colborn, T., *et al.*, "Natural gas operations from a public health perspective," *Human and Ecological Risk Assessment: An International Journal*, October 2011, attached as Exhibit 22; Entekin, Sally, *et al.*, "Rapid expansion of natural gas development poses a threat to surface waters," *Frontiers in Ecology*, vol. 9, iss. 9, October 2011, attached as Exhibit 23; Oswald, R. and Bamberger, M., "Special Issue: Scientific, Economic, Social, Environmental, and Health Policy Concerns Related to Shale Gas Extraction," *New Solutions, A Journal of Environmental and Occupational Health Policy*, vol. 23, no. 1, 2013, attached as Exhibit 24; Williams, David O., "Drilling, fracking cause concern: Medical workers urged to recognize exposure," *Colorado Public News*, July 20, 2013, attached as Exhibit 25.

<sup>60</sup> This controversy is depicted in the films "Gasland" and "Gasland II" directed by Josh Fox, attached as Exhibit 26; *see also* Exhibit 27 (President Obama to be Greeted by Anti-Fracking Protestors); Exhibit 28 ("Fracking" in California, a New Target of Protest); and Exhibit 29 (Activists protest fracking as BLM auctions off oil and gas leases on public land).

<sup>61</sup> "Forest Service Roadless Area Conservation Final Environmental Impact Statement," (Nov. 2000), attached as Exhibit 30.

The significant impacts of widespread hydraulic fracturing on public lands that would take place under the proposed regulations contradict BLM's ultimate conclusion in the EA that the proposed regulations would have no significant impacts on the environment.<sup>62</sup> Accordingly, BLM's failure to prepare an EIS is arbitrary and capricious.

## VII. BLM's Alternatives Analysis Is Inadequate

BLM failed to explore the range of reasonable alternatives to the proposed rule.<sup>63</sup> Such an evaluation must be at the heart of the EIS BLM must prepare here, but even if BLM wrongly prepares solely an EA, NEPA nonetheless requires "that alternatives ... be given full and meaningful consideration."<sup>64</sup>

There are numerous reasonable alternatives that the BLM has failed to consider that would serve the BLM's stated purpose of "improv[ing] the BLM's regulatory framework to account for hydraulic fracturing activities on Federal and Indian lands and establish[ing] procedures that would provide adequate protection of water resources on Federal and Indian lands."

BLM must consider alternatives that would prohibit hydraulic fracturing in certain areas, rather than merely considering alternatives that would regulate the manner in which hydraulic fracturing is conducted. This should include an alternative that would prohibit hydraulic fracturing in all areas not currently undergoing unconventional oil and gas production. This alternative is reasonably related to BLM's stated purpose of protecting Federal and Indian lands and water resources from the potential harmful impacts of hydraulic fracturing. BLM acknowledges, as it must, that hydraulic fracturing presents heightened risk to the environment, and a reasonable alternative would be one that prohibits this risky activity. In a similar case, where the National Marine Fisheries Service was evaluating proposed regulations to reduce fishing bycatch, the agency was required to consider alternatives such as fishing fleet size reductions or setting some areas off limits to fishing entirely.<sup>65</sup> The court rejected the agency's

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<sup>62</sup> "Environmental Assessment U.S. Department of the Interior Bureau of Land Management Proposed Hydraulic Fracturing Rule." Docket ID: BLM-2013-0002-0011 at 43 (May 24, 2013); 78 FR 31636-01.

<sup>63</sup> 40 C.F.R. § 1502.14(a).

<sup>64</sup> *Ctr. for Biological Diversity v. Nat'l Highway Traffic Safety Admin.*, 538 F.3d 1172, 1217-18 (9th Cir. 2008) (quoting *Native Ecosystems Council v. U.S. Forest Serv.*, 428 F.3d 1233, 1245 (9th Cir. 2005)).

<sup>65</sup> *Pac. Marine Conservation Council, Inc. v. Evans*, 200 F. Supp. 2d 1194, 1202 (N.D. Cal. 2002).

contention that these alternatives were beyond the scope of the contemplated action.<sup>66</sup>

BLM must also consider forbidding hydraulic fracturing and other well stimulation in certain areas where risks to public health, the environment, and water resources are particularly prevalent. BLM must consider placing these sensitive areas off limits, even where hydraulic fracturing and other well stimulation is already occurring.<sup>67</sup>

BLM has authority to enact such restrictions. For example, FLPMA allows BLM to restrict the practices used on federal leases, and allows BLM to withhold land from leasing entirely.<sup>68</sup>

BLM also must consider alternatives that lessen the impacts of whatever hydraulic fracturing and other well stimulation BLM does authorize. These include:

- An alternative that would regulate the air impacts of hydraulic fracturing. Although some of these impacts are addressed by EPA's New Source Performance Standard for Oil and Gas Production, as BLM recognizes, EPA, unlike BLM, "does not focus on the management of public lands and resources subject to Federal lands law."<sup>69</sup>
- An alternative that would protect groundwater by banning use of diesel and other particularly harmful stimulation fluid. BLM proposes to limit the risk of groundwater contamination by making it unlikely for contamination to occur (for example, by confirming well integrity). We agree that this must be the primary emphasis of any approach, and that BLM should assume that all stimulation fluids present a contamination hazard. However, a secondary method of addressing this risk would be to prohibit the most harmful chemicals from use in stimulation fluid, so that, if a release does occur, the worst potential consequences of contamination are avoided. The reasonableness of this alternative is demonstrated by the Secretary of Energy Advisory

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<sup>66</sup> *Id.*

<sup>67</sup> For more information on sensitive areas, see technical comments submitted by Sierra Club *et. al.* to the First Draft of the Proposed Rules, released by BLM in May 2012, at pp. 4-6.

<sup>68</sup> George G. Witter, 129 IBLA 359, 359, 1994 WL 687078, 1 (June 6, 1994) ("The Secretary of the Interior has the discretion to choose not to lease lands for oil and gas purposes, in favor of considerations such as wildlife, endangered species preservation, recreational use, and aesthetic or scenic values."); *Bob Marshall Alliance v. Hodel*, 852 F.2d 1223, 1229-30 (9th Cir. 1988).

<sup>69</sup> 78 Fed. Reg. at 31,644.

Board's recommendation to ban diesel. Other chemicals that BLM should consider banning under such an alternative include 2-Butoxyethanol (2-BE) and BTEX (benzene, toluene, ethylbenzene, and xylene).

- An alternative that would prohibit wastewater pits (requiring tanks) in conjunction with BLM's preferred alternative.
- An alternative that would adopt amendments to the rules proposed by Sierra Club *et. al.* in the separate technical comments.

### VIII. Conclusion

Significant advances in hydraulic fracturing and well stimulation techniques used to access unconventional resources justify regulation by the BLM that rigorously protects the environment and public health. In promulgating the Oil and Gas, Hydraulic Fracturing on Federal and Indian Lands regulations, BLM must prepare an EIS and take a hard look at the effects of hydraulic fracturing, including the effects of the additional oil and gas production enabled by well stimulation, and the full scope of direct, indirect and cumulative impacts on groundwater, air quality, climate change and other natural resources. BLM must also consider alternatives that would limit these effects, including stimulation practices and a prohibition on hydraulic fracturing in all areas not currently undergoing unconventional oil and gas production.

Thank you for your consideration.

Deborah J. Nardone, Beyond Natural Gas Campaign Director  
Nathan Matthews, Attorney  
Devorah Ancel, Attorney  
Sierra Club

On behalf of:

Heather Cantino, steering committee member  
Athens County Fracking Action Network (Ohio)

Nathan G. Johnson, Staff Attorney  
Buckeye Forest Council

Michael J. Painter, Coordinator  
Californians for Western Wilderness

Jill Weiner  
Catskill Citizens for Safe Energy

Paul Ferrazzi, Executive Director  
Citizens Coalition for a Safe Community

Lynn Thorp, National Campaign Director  
Clean Water Action

Barb Arrindell, Director  
Damascus Citizens for Sustainability

Maya Van Rossum, Delaware Riverkeeper  
Delaware Riverkeeper Network

Lauren Pagel, Policy Director  
EARTHWORKS

John Rumpler, Senior Attorney  
Environment America

Jeff Kuyper, Executive Director  
Los Padres ForestWatch

Oscar Simpson  
New Mexico Sportsmen and Back Country Horsemen of New Mexico

Kari Matsko, Director  
People's Oil and Gas Collaborative, Ohio

Kate Hudson, Watershed Program Director  
Riverkeeper, Inc.

Dan Randolph  
San Juan Citizens Alliance

Erik Schlenker-Goodrich, Executive Director  
Western Environmental Law Center