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WATER

Why We Need to Ban Fracking on U.S. Public Lands

Fact Sheet • May 2015

Fracking is a dangerous method of extracting oil and gas that will bring more climate change and more pollution that has no place on our public lands. These lands were preserved for the use and enjoyment of all Americans, but increasingly, the oil and gas industry is looking to develop our public lands for their profit. These lands are our natural heritage, not profit centers for the fossil fuel industry. We must ban fracking on public lands to protect our climate, public health and national parks for the benefit and enjoyment of all Americans.

What Is Fracking?

Fracking means more than just the process of injecting large volumes of water, sand and chemicals deep underground, at extreme pressure, to create fractures in rock formations so that tightly held oil and gas can begin to flow.

Fracking is what has the oil and gas industry:

- fragmenting forests and marring landscapes[1];
- competing with farmers for sometimes scarce water supplies[2];
- causing thousands of accidents, leaks, fires and spills each year[3];
- killing people working at well sites[4];
- producing large volumes of toxic and even radioactive waste[5];
- pumping hazardous pollutants into the air[6];
- risking vital underground sources of drinking water[7];
- derailing explosive, mile-long oil trains near cities and along great rivers[8];
- inducing swarms of earthquakes[9];
- destabilizing the climate on which we all depend[10]; and
- disrupting communities across the country.[11]

Fracked communities face health problems, clogged and damaged public roads from heavy-truck traffic, increased crime and other demands on emergency and other social services, reduced property values, and an unavoidable legacy of industrial pollution. Long after local fracking booms turn bust, and the industry has left town, established sectors of local economies, such as agriculture and tourism, will struggle to recover.[12]

For all of the above reasons, jurisdictions across the country are passing bans and other measures to protect their communities from fracking.[13] The state of New York and the city where modern fracking began, Denton, Texas, have banned the practice.[14]

Fracking on U.S. Public Lands Exacerbates Climate Change

Cumulative emissions of greenhouse gases — primarily carbon dioxide and methane — that come from extracting and burning oil and gas are a primary cause of global warming.[15] Global warming threatens to ruin entire coastal economies with sea-level rise and to cause some regional food and water systems to fail. These and other utterly fundamental disruptions to our society — and to the well-being of many millions of people — will ensue if we do not change course.[16]

Collectively, greenhouse gas emissions from extracting and burning oil and gas make up about two-thirds of net U.S. climate pollution.[17] In 2013, production from federal lands accounted for about 16 percent of U.S. oil and gas production.[18] About 20 percent of U.S. oil and gas reserves and resources are located beneath federal public lands.[19] Today, climate science is clear that almost all of the world's proven oil and gas reserves, and all of the additional "unproven" resources being targeted with fracking, must stay underground, unburned.[20]

It is time for U.S. federal policy to recognize and accept the urgency of climate science, and to ban fracking on federal lands for climate reasons alone.

Fracking's Footprint on U.S. Public Lands

Fracking on public lands does more than exacerbate climate change. In 2014, companies drilled 2,544 new onshore oil and gas wells on federal land, led by 702 in New Mexico, 665 in Wyoming, 457 in Utah, 229 in Colorado, 210 in California and 174 in North Dakota.[21] According to the Bureau of Land Management (BLM), almost 90 percent of wells on federal lands are fracked.[22] Regulators are inspecting less than half of the wells that they identify as having a high risk of environmental impacts.[23]

For perspective on the resulting pollution, the drilling and fracking of 2,000 new wells each year means that:

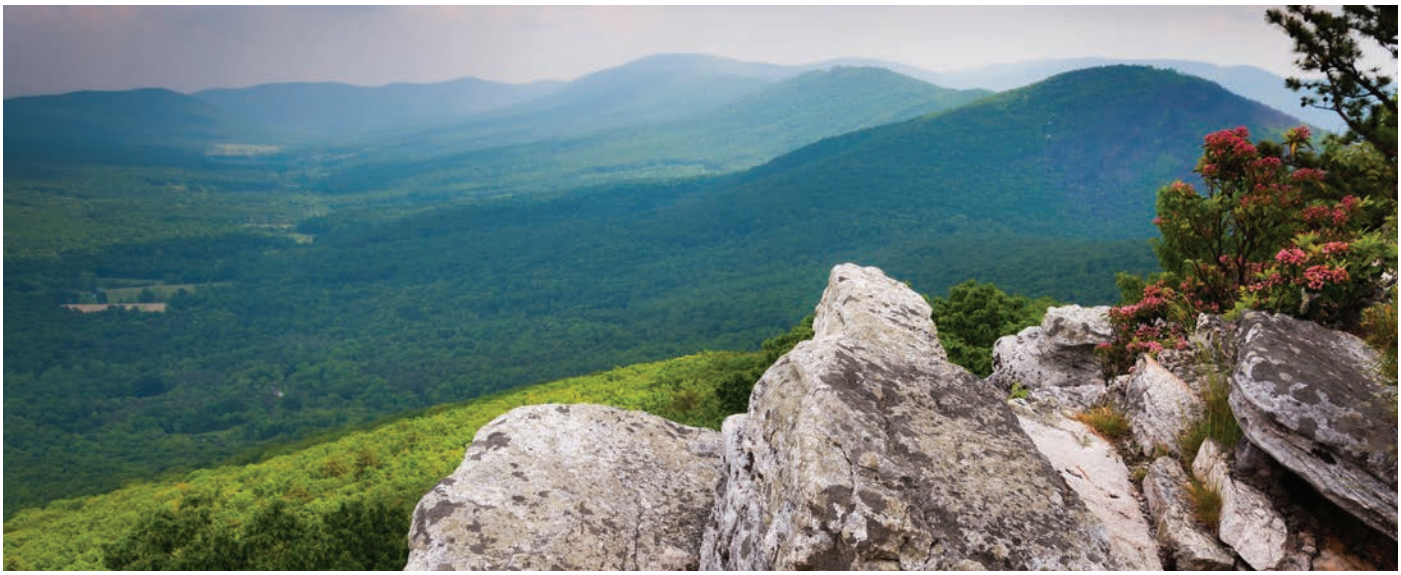
- more than 2 billion gallons of water — about 3,000 Olympic-sized swimming pools worth[24] — is mixed with chemicals and injected beneath public lands each year[25];
- more than 200 million gallons of liquid wastes — or over 36,000 truckloads full, assuming 130-barrel tanks[26] — are brought to the surface on public lands each year, with no safe disposal options[27];
- about 100,000 gallons of liquid wastes — or over 18 truckloads full, assuming 130-barrel tanks[28] — are likely spilled onto public lands each year[29]; and
- more than 40 new wells each year likely have initial well integrity problems, due to flawed cementing and casing,[30] and an additional 200 wells each year could, within a decade, develop signs of potential leaks.[31]

Further, the production of oil, natural gas and natural gas liquids (propane, butane, etc.) from federal public lands in 2013:

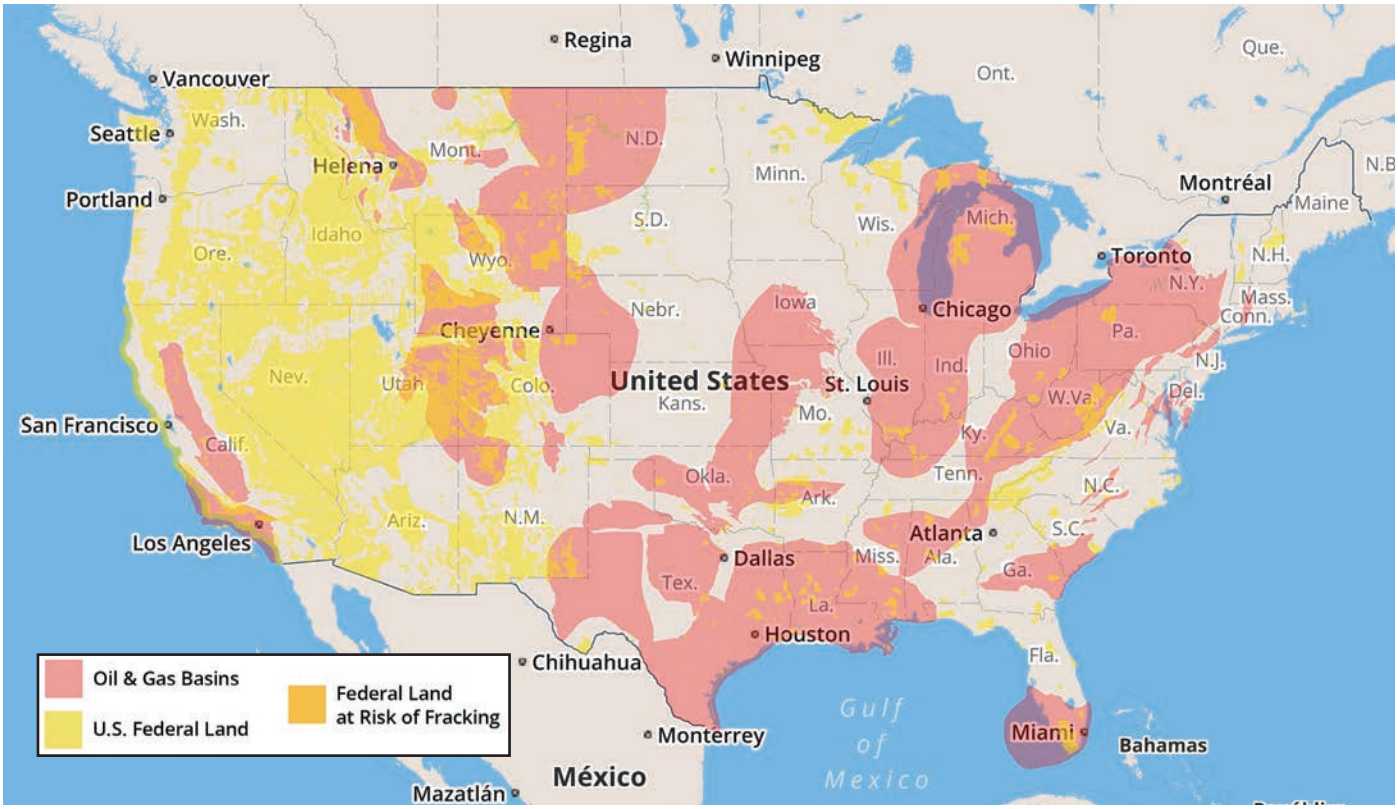
- brought to the surface about 60,000 tons of highly carcinogenic and volatile benzene, and similarly large amounts of toxic toluene, ethylbenzene and xylenes[32];
- released at least 57,000 pounds of this benzene, and 70,000 pounds of toluene, ethylbenzene and xylenes combined, into the air[33]; and
- led to more than 292 million tons of carbon-dioxide equivalent greenhouse gas emissions — roughly the amount that 61 million cars emit in a year.[34]

Keep Iconic Places in American History and Culture Frack-free

By the end of 2014, oil and gas companies had leases on over 34 million acres of public land, an area over seven times the size of New Jersey.[35] The industry has formally targeted an



GEORGE WASHINGTON NATIONAL FOREST



additional 12 million more acres of public land.[36] Overall, according to a study commissioned upon passage of the Energy Policy Act of 2005 (ushered into law by former Halliburton CEO and then-Vice President Dick Cheney), there are more than 200 million additional acres beneath federal public lands that hold oil and gas potential and that thus also may be targeted with fracking in the future.[37]

Federal public lands that are already impacted or are under threat include[38]:

- **Allegheny National Forest,** Pennsylvania;
- **Arches and Canyonlands National Parks**, Utah;
- **Big Cypress National Reserve and Everglades National Park**, Florida;
- **Chaco Culture National Historic Park,** New Mexico;
- **Delaware Water Gap National Recreation Area**, Pennsylvania;
- **Finger Lakes National Forest**, New York;
- **George Washington and Jefferson National Forests,** Virginia;
- **Glacier National Park,** Montana;
- **Los Padres and Angeles National Forests**, California;
- **Manistee and Huron National Forests**, Michigan;
- **Ouachita and Ozark National Forests**, Arkansas;
- **Rocky Mountain National Park and Never Summer Wilderness**, Colorado;
- **Shawnee National Forest**, Illinois; and
- **Theodore Roosevelt National Park,** North Dakota.

The ecosystems and natural landscapes of these and other federal public lands are the true sources of local and sustainable wealth for surrounding communities.

From 1990 to 2010, just looking at non-metropolitan regions in the western United States, counties with larger amounts of federal lands protected from oil and gas extraction had significantly higher per capita incomes, with about $1,000 extra in each person's pocket for every 25,000 acres protected.[39]

In contrast, while drilling and fracking can bring a temporary economic stimulus to local economies — albeit at the expense of established sectors of the economy, such as agriculture and tourism — oil and gas booms tend to extract rather than build local wealth.[40] And when the boom in drilling and fracking goes bust, left behind are marred landscapes and a legacy of pollution. The scars that remain tell the story of the despoiling of our public lands for oil and gas industry profit.

Conclusion

Fracking must be banned on U.S. public land to protect it for current and future generations. Fracking has enabled oil and gas companies to greatly increase the amount of oil and gas they can bring to the surface, to be burned, but building local and sustainable energy systems and addressing climate change requires doing the opposite: we must maximize the volume of oil and gas left in the ground. It is time for federal policy to recognize this and to ban fracking on federal land.

Endnotes

1 Food & Water Watch (FWW). [Report]. "The Urgent Case to Ban Fracking." March 3, 2015 at 6 to 7.

2 *Ibid*. at 5 to 6.

3 FWW. [Issue brief]. "The Urgent Case to Ban Fracking." March 3, 2015 at 7.

4 FWW. [Report]. "Toxic Workplace: Fracking Hazards on the Job." August 28, 2014 at 2.

5 FWW. [Report]. March 3, 2015 at 7 to 8.

6 *Ibid*. at 4 and 15 to 18.

7 *Ibid*. at 8 to 13.

8 *Ibid*. at 14.

9 *Ibid*. at 13 to 14.

10 *Ibid*. at 17 to 21.

11 *Ibid*. at 21 to 23.

12 *See* FWW. [Report]. "The Social Costs of Fracking. A Pennsylvania Case Study." September 2013; *see* Jacquet, Jeffrey. The Northeast Regional Center for Rural Development, Pennsylvania State University. "Energy Boomtowns & Natural Gas: Implications for Marcellus Shale Local Governments & Rural Communities." NERCRD Rural Development Paper No. 43. January 2009; Jacquet, Jeffrey B. "Review of risks to communities from shale energy development." *Environmental Science & Technology.* Vol. 48, Iss. 15. August 5, 2014 at 8322.

13 *See* FWW. "Fracking Action Center, Local Actions Against Fracking," Available at http://www.foodandwaterwatch.org/water/fracking/fracking-action-center/local-action-documents/. Accessed April 16, 2015.

14 Koch, Wendy. "Could New York's fracking ban have a domino effect." *National Geographic*. December 18, 2014; Richter, Marice. "Texas city bans fracking in its birthplace, court battles loom." *Reuters.* November 5, 2014.

15 Stocker, T. F. et al. "Technical Summary." In Stocker, T. F. et al. (2013). *Climate Change 2013: The Physical Science Basis. Contribution of Working Group I to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change.* Cambridge and New York: Cambridge University Press at 50 to 53.

16 Field, Christopher et al. "Technical Summary for Policymakers." In Field, Christopher et al. (2014). *Climate Change 2014: Impacts, Adaptation, and Vulnerability. Contribution of Working Group II to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change: Summary for Policymakers.* New York: Cambridge University Press at 11 to 20.

17 FWW calculation based on U.S. Environmental Protection Agency (EPA). "Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2013." EPA 430-R-15-004. April 15, 2015 at 3–5 and ES–5 to ES–7.

18 FWW calculation based on U.S. Energy Information Administration (EIA). "Sales of Fossil Fuels Produced from Federal and Indian Lands FY 2003 through FY 2013." June 2014 at 16 and 17; EIA. "Natural Gas Gross Withdrawals and Production." Available at http://www.eia.gov/dnav/pet/pet_crd_cplc_dcu_NUS_a.htm. Accessed April 14, 2015; and on EIA. "Crude Oil plus Lease Condensate Proved Reserves, Reserves Changes, and Production." Available at http://www.eia.gov/dnav/pet/pet_crd_cplc_dcu_NUS_a.htm. Accessed April 14, 2015.

19 Humphries, Mark. U.S. Congressional Research Service. "U.S. Crude Oil and Natural Gas Production in Federal and Non-Federal Areas." April 10, 2014 at 1 to 3; U.S. Government. [Interagency report in compliance with the Energy Policy Act of 2005]. "Inventory of Onshore Federal Oil and Natural Gas Resources and Restrictions to Their Development: Phase III Inventory — Onshore United States." 2008 at xxx.

20 McGlade, Christopher and Paul Ekins. "The geographical distribution of fossil fuels unused when limiting global warming to 2 °C." *Nature.* Vol. 517. January 8, 2015 at 187; FWW. [Report]. March 3, 2015 at 20.

21 U.S. Bureau of Land Management (BLM). "Number of well bores started (spud) during the fiscal year on federal lands. Summary of onshore oil and gas statistics." Table 9. Available at http://www.blm.gov/wo/st/en/prog/energy/oil_and_gas/statistics.html. Accessed April 13, 2015.

22 BLM. [Press release]. "Interior Department Releases Final Rule to Support Safe, Responsible Hydraulic Fracturing Activities on Public and Tribal Lands." March 30, 2015.

23 U.S. Government Accountability Office. "Updated Guidance, Increased Coordination, and Comprehensive Data Could Improve BLM's Management and Oversight." GAO-14-238. May 2014 at 33.

24 EPA. "Water trivia facts." Available at http://water.epa.gov/learn/kids/drinkingwater/water_trivia_facts.cfm. Accessed April 21, 2015.

25 *See* FWW. [Report]. March 3, 2015 at 6; Freyman, Monika. Ceres. "Hydraulic Fracturing & Water Stress: Water Demand By the Numbers." February 2014 at 19 and 21.

26 PCI Manufacturing, LLC. "Product catalog." 2014 at 16 and 19.

27 FWW calculation assuming a low estimate of 10 percent "flowback." *See* FWW. [Report]. March 3, 2015 at 6; Linn, Anne. [Rapporteur]. (2014). "Development of Unconventional Hydrocarbon Resources in the Appalachian Basin: Workshop Summary." Washington, DC: National Academy of Sciences at 16.

28 PCI Manufacturing, LLC. 2014 at 16 and 19.

29 FWW calculation assuming 0.005 percent spills, based on Colorado data, the only source of data available (BLM does not make spill information available). *See* Colorado Oil and Gas Conservation Commission. "Spill analysis by year 1999 – 3rd quarter 2014." Available at http://cogcc.state.co.us/. Accessed April 13, 2015; and Natural Resources Defense Council. "Fracking's Most Wanted: Lifting the Veil on Oil and Gas Company Spills and Violations." April 2015 at 5 to 6.

30 FWW calculation assuming a low estimate of 2 percent. *See* FWW. [Report]. March 3, 2015 at 9; Ingraffea, Anthony R. et al. "Assessment and risk analysis of casing and cement impairment in oil and gas wells in Pennsylvania, 2000–2012." *Proceedings of the National Academy of Sciences*. Vol. 111, Iss. 30. July 29, 2014 at 10956; Davies, Richard J. et al. "Oil and gas wells and their integrity: Implications for shale and unconventional resource exploitation." *Marine and Petroleum Geology.* Vol. 56. September 2014 at 243.

31 FWW calculation assuming a low estimate of 12 percent. See FWW. [Report]. March 3, 2015 at 10; Bruffato, Claudio et al. "From mud to cement – building gas wells." *Oilfield Review*. Autumn 2003 at 63; Ingraffea et al. 2014 at 10956.

32 FWW calculation based on data on the composition of natural gas, natural gas liquids and light crude oil, and data on production of each of these respective classes of hydrocarbons from federal lands. *See* Brown, Heather. EC/R, Incorporated. [Memorandum to Bruce Moore, U.S. EPA]. "Composition of natural gas for use in the oil and natural gas sector rulemaking." June 29, 2011; EP Energy. "Safety data sheet: natural gas condensates." August 1, 2012; Hess. "Safety data sheet: natural gas condensate sweet." August 30, 2012; JP Morgan Ventures Energy Corp. "Safety data sheet: natural gas condensate, sweet or sour." February 2, 2013; ConocoPhillips. "Safety data sheet: natural gas liquids." April 2, 2012; Transportation Safety Board of Canada (TSB). "TSB Laboratory Report LP148/2013." March 6, 2014 at 8; U.S. Department of State. "Final Supplemental Environmental Impact Statement for the Keystone XL Project." January 2014 at 3.13-11; EIA. June 2014 at 16 and 17.

33 FWW calculation based on data on the composition of natural gas, production of natural gas from federal lands, and a conservative leakage rate of just 1 percent of production. *See* Brown, 2011; EIA. June 2014 at 16 and 17; FWW. [Report]. March 3, 2015 at 17 to 18.

34 FWW calculation based on: data on production of natural gas, natural gas liquids and crude oil from federal lands; a conservative total life-cycle leakage rate of produced natural gas of 2 percent; natural gas with a methane content of just 80 percent; a 20-year global warming potential of methane of 87; carbon dioxide emissions derived from burning 97 percent of produced natural gas and natural gas liquids; and carbon dioxide emissions per barrel of tight oil. *See* EIA. June

2014 at 16 and 17; FWW. [Report]. March 3, 2015 at 17 to 18; Brown, 2011; U.S. Department of Energy, Oak Ridge National Laboratory, Carbon Dioxide Information Analysis Center. "Frequently asked global change questions: How much carbon dioxide is produced from the combustion of 1000 cubic feet of natural gas?" Available at http://cdiac.ornl.gov/pns/faq.html. Accessed April 21, 2015; EIA. "Frequently asked questions: how much oil is used to make plastic?" Available at http://www.eia.gov/tools/faqs/faq.cfm?id=34&t=6. Accessed April 21, 2015; EIA. "Carbon dioxide emission coefficients by fuel." Available at http://www.eia.gov/environment/emissions/co2_vol_mass.cfm. Accessed April 21, 2015; EPA. "Clean energy, calculations and references: barrels of oil consumed and passenger vehicles per year." Available at http://www.epa.gov/cleanenergy/energy-resources/refs.htmlreleased. Accessed April 21, 2015.

35 BLM. "Summary of onshore oil and gas statistics." Table 1. Available at http://www.blm.gov/wo/st/en/prog/energy/oil_and_gas/statistics.html. Accessed April 13. 2015; U.S. Census Bureau. "State and county quick facts: New Jersey." Available at http://quickfacts.census.gov/qfd/states/34000.html. Accessed April 21, 2015.

36 BLM. "Industry Expressions of Interest (in acres): CY2006 – CY2013." Table 14. Available at http://www.blm.gov/wo/st/en/prog/energy/oil_and_gas/statistics.html. Accessed April 13. 2015.

37 U.S. Government. "Phase III Inventory — Onshore United States." 2008 at xxv and xxx; Warner, Barbara and Jennifer Shapiro. "Fractured, fragmented federalism: A study in fracking regulatory policy." *Publius: The Journal of Federalism*. Vol. 43, Iss. 3. Summer 2013 at 480; Dannenmaier, Eric. "Executive exclusion and the cloistering of the Cheney Energy Task Force." *New York University Environmental Law Journal.* Vol. 16, Iss. 2. April 2008 at 331.

38 FWW analysis of: FracFocus. "Find a well: map search." Available at http://www.fracfocusdata.org/DisclosureSearch/MapSearch.aspx. Accessed April 2015; FracTracker Alliance. "Oil and gas activity in the U.S." Available at http://www.fractracker.org/map/national/us-oil-gas/. Accessed April 2015; Pollastro, Richard M. et al. U.S. Geological Survey. "Petroleum Systems Assessment of the South Florida Basin." 2000 at 6.

39 Rasker, Ray et al. "The effect of protected federal lands on economic prosperity in the non-metropolitan West." *Journal of Regional Analysis & Policy.* Vol. 43, Iss. 2. June 2013 at 119.

40 Jacquet. 2014 at 8322.

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