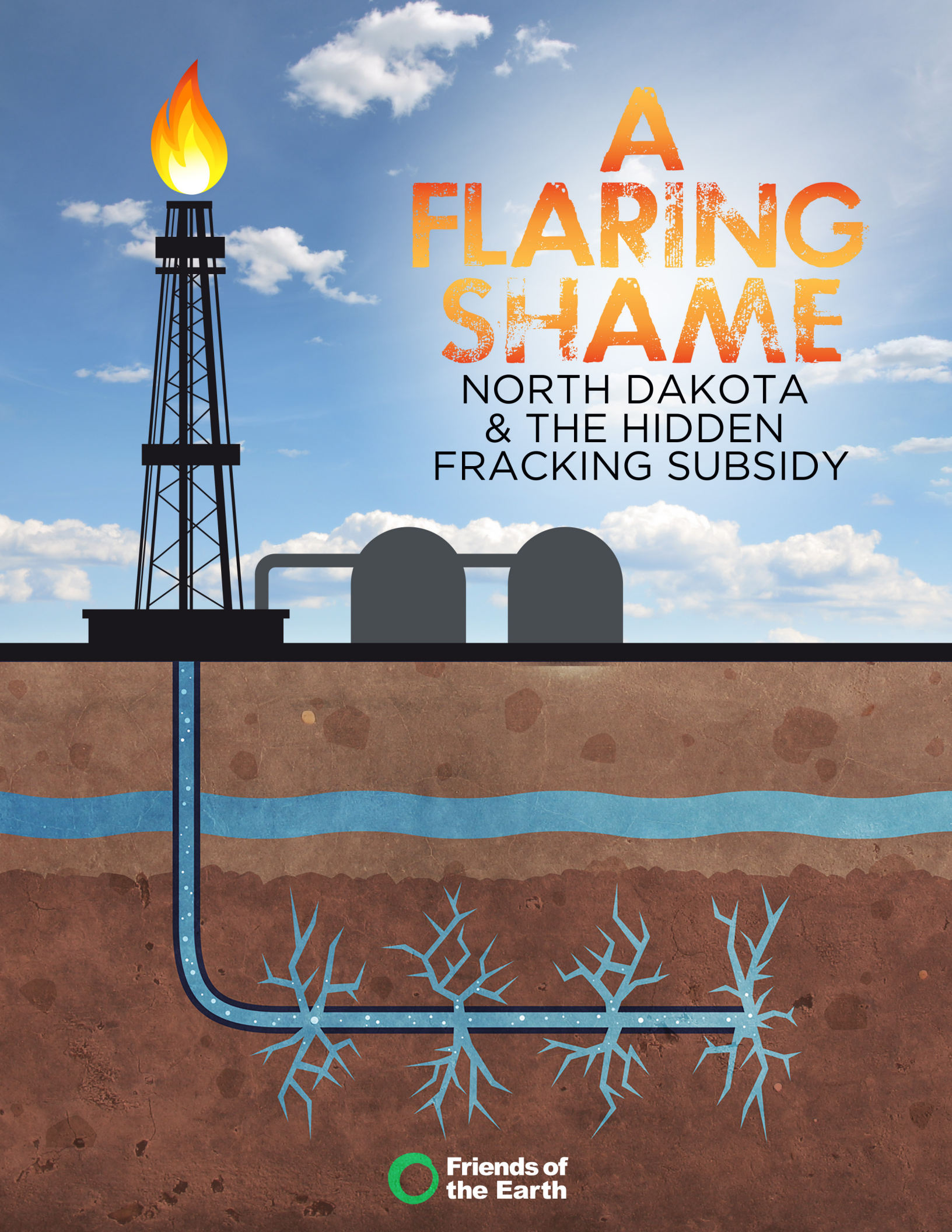

A FLARING SHAME

NORTH DAKOTA & THE HIDDEN FRACKING SUBSIDY

Friends of the Earth

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Acknowledgements

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About Friends of the Earth:

Friends of the Earth U.S., founded by David Brower in 1969, is the U.S. voice of the world's largest federation of grassroots environmental groups, with a presence in 74 countries. Friends of the Earth works to defend the environment and champion a more healthy and just world. Through our 45-year history, we have provided crucial leadership in campaigns resulting in landmark environmental laws, precedent-setting legal victories and groundbreaking reforms of domestic and international regulatory, corporate and financial institution policies. Our current campaigns focus on promoting clean energy and solutions to climate change, ensuring the food we eat and products we use are safe and sustainable, and protecting marine ecosystems and the people who live and work near them. **www.foe.org.**

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Bakken flaring gas at night. Image Credit: Joshua Doubek creative commons via Wikimedia Commons

It's polluting. It's wasteful. And you can see it from space. But the North Dakota flaring boom is also something else — a taxpayer-funded bonanza for some of the richest energy companies in the world.

In this report, Friends of the Earth uses company-specific data from the Bureau of Land Management to calculate the environmental and economic costs of natural gas flaring on federally regulated lands in North Dakota — including both public and tribal lands. The results reveal a de facto subsidy to some of Big Oil's biggest players.

As the Obama administration prepares new rules to address this problem, it is important to take a close look at the companies benefitting the most from this handout.

General Findings

- The Bureau of Land Management is making extensive use of its authority to excuse oil companies from royalties owed on flared and vented natural gas on public and tribal lands.[1]
- Company-specific data acquired directly from the BLM shows that between January 2007 and April 2013, the BLM permitted the royalty-free flaring of 107,573,228.8 thousand cubic feet — or mcfs — of natural gas in North Dakota, producing carbon dioxide equivalent to the annual emissions of over 1.3 million cars and wasting an estimated $524 million worth of resources. The lost revenue to federal taxpayers and tribes comes to a minimum of $65.5 million.[2]
- In fiscal year 2014 taxpayers netted $157.38 from the miniscule amount of flaring and venting in North Dakota that was charged royalties, demonstrating that royalty waivers are the norm and not the exception.[3]
- The BLM provided the flaring and venting data for over 50 operators, but a single company—Harold Hamm's Continental Resources—was responsible for more waste than all of the other companies combined. Continental Resources burned a grand total of 55 million mcfs of gas producing carbon emissions equivalent to over 360 million gallons of gasoline.
- Between January 2007 and April 2013 the BLM permitted the royalty-free venting of 1,443,907.5 mcfs of natural gas, emitting methane directly into the atmosphere. More potent than CO2 by 87 times over a 20 year time frame, this vented methane amounts to the warming equivalent of almost 625 million pounds of coal.
- Marathon Oil vented the most of any single company with 962,812 mcfs worth of natural gas, equivalent to the annual CO2 emissions from over 35,000 homes.[4]

1 See appendix for a further explanation of sources. The Montana BLM office responded to a data request from Friends of the Earth by providing over 23,000 company-specific monthly reports for royalty-free venting and flaring on public and tribal lands in North Dakota. The reports, officially held by the Office of Natural Resource Revenue, were provided in May 2014 and are best understood as a data "snapshot" from that particular moment. The reports, called OGOR-Bs, are regularly and often significantly amended, meaning that this data contains valuable insights while falling short of scientific precision.

2 All conversions via the EPA Emissions calculator. Flared gas produces an estimated 128.4 pounds of CO2 per mcf. See EIA. 2013. "Carbon Dioxide Emissions Coefficients." http://www.eia.gov/environment/emissions/co2_vol_mass.cfm, accessed 20 August 2015.

3 Department of the Interior. 2015. "State Totals by Product Code (does not include Counties)." http://www.doi.gov/foia/os/upload/15-00190ca.pdf, accessed 19 August 2015.

4 Vented natural gas is not entirely methane, converting to 62,055 cubic feet per metric ton. For more information, see Clean Air Task Force. 2014. "Waste Not. Technical appendix," p.A2. http://catf.us/resources/publications/files/WasteNot_Appendix.pdf, accessed 20 August 2015. Conversion via EPA emissions calculator.

Introduction

The burning away, or flaring, of natural gas during oil production is an unfortunately common practice around the world. When companies are unwilling to invest in the infrastructure to capture and sell gas, the cheapest option is often to simply burn it at the wellhead, sending planet-warming CO2 directly into the atmosphere and producing air pollutants like black carbon and volatile organic compounds.

Today developing countries make up the biggest proportion of flaring, but that could be changing. In 2012 satellite evidence showed that the five biggest flarers were Russia, Nigeria, Iran, Iraq and the U.S. Although comparatively smaller than the others, flaring between 2007 and 2012 in the U.S. grew more quickly than in any other country (see image 1).[5]

The boom in domestic drilling, driven by new technologies like hydraulic fracturing, has also triggered a boom in flaring. The Energy Information Agency reports that between 2006 and 2013, total volumes for flaring and venting more than doubled to 260,394 million cubic feet.[6] Eager to tap the more lucrative crude oil, producers are burning billions of dollars worth of gas — and nowhere in the U.S. more prolifically than in North Dakota, where as recently as August 2014 a full 28 percent of all gas produced was flared rather than captured.[7] (See image 2).

Although most of the drilling in North Dakota is happening on private lands, which fall under state regulation, public and tribal lands are a significant and growing source of crude oil, rising from a total of 6 million barrels in 2004 to 57 million barrels in 2014.[8] The Department of the Interior's BLM regulates the flaring and venting of natural gas on public and tribal trust lands in North Dakota, and a combination of both outdated rules and lax enforcement is allowing millions of dollars worth of resources to be burned away without taxpayers or tribes seeing a dime in royalties. An estimated $524 million worth of gas was flared between 2007 and 2013, totaling carbon pollution equal to the annual emissions of 1.3 million cars.

This is a serious problem. Preventing the worst of climate disruption means keeping at least 60 percent of already discovered fossil fuel reserves in the ground.[9] If public lands are to truly serve the public good, then they cannot be leased to companies that pointlessly burn through what little remains of our carbon budget.

Federal Policy — Ripe For A Change

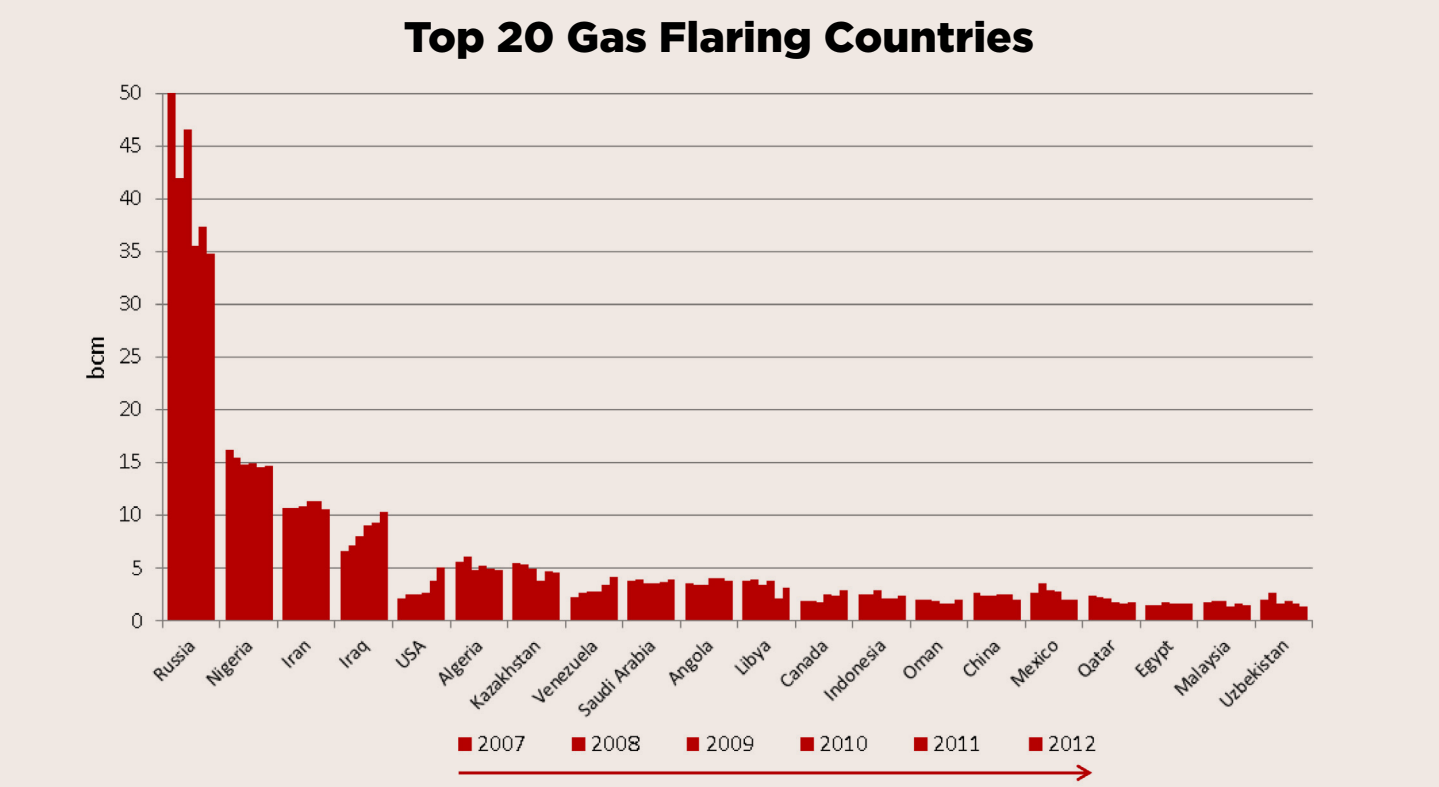
The rules governing flaring and venting are 35 years old. Last updated in 1980, these regulations spell out when and how companies can escape the 12.5 percent royalty rate for oil and gas extracted onshore from public lands.

The current policy allows for royalty exemptions under a variety of circumstances, including:

- Gas that is put to "beneficial use" on the drilling site, for purposes such as heating and powering equipment
- Gas that is flared or vented because of emergencies, equipment failure, or other circumstances when the loss is found to be "unavoidable"

5 World Bank. 2012. "Top 20 flaring countries." http://www.worldbank.org/content/dam/Worldbank/Programs/Top%2020%20gas%20flaring%20countries.pdf, accessed 19 August 2015.
6 EIA. 2015. "Natural Gas Gross Withdrawals and Production." http://www.eia.gov/dnav/ng/ng_prod_sum_a_epg0_vgv_mmcf_a.htm, accessed 8 August 2015.EIA reporting omits a number of states but remains the best available total volume data.
7 EIA. 2014. "North Dakota aims to reduce natural gas flaring." http://www.eia.gov/todayinenergy/detail.cfm?id=18451, accessed 2 September 2015.
8 EIA.2015. "Sales of Fossil Fuels Produced from Federal and Indian Lands, FY 2003 through FY 2014," p.9. http://www.eia.gov/analysis/requests/federallands/pdf/eia-federallandsales.pdf, accessed 7 August 2015.
9 Carbon Tracker. 2013. "Unburnable carbon 2013: Wasted capital and stranded assets." http://www.carbontracker.org/report/wasted-capital-and-stranded-assets/, accessed 19 August 2015.

IMAGE 1



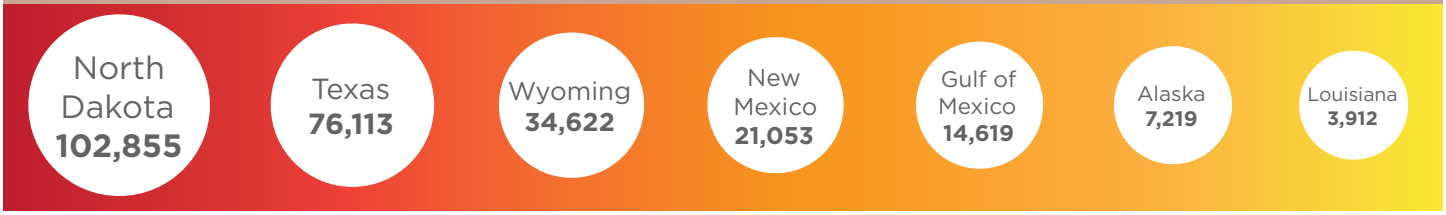
World Bank data shows that the US is the quickest growing source of flaring in the world between 2007 and 2012.

- Gas that is flared or vented from wells that predominantly produce oil, in situations where "...the expenditures necessary to market or beneficially use such gas are not economically justified and that conservation of the gas, if required, would lead to the premature abandonment of recoverable oil reserves"[10]

Arguably, the biggest single feature of these regulations is their latitude. BLM field offices have the discretion to decide when a loss is "avoidable" or "unavoidable," and even though companies need to request permission, the BLM has the discretion to determine when flaring is or is not economically justified.

Using this discretion, the BLM has approved the flaring of millions of cubic feet — and millions of dollars-worth — of taxpayer-owned resources. One estimate suggests that as much as 65 billion cubic feet was flared, vented or otherwise lost on public and tribal lands in 2013 alone.[11] Only considering public lands, an estimated $800 million in revenue could be lost by taxpayers from venting and flaring over the next decade if nothing is done.[12]

IMAGE 2: TOP FLARING STATES



2013 flaring and venting volumes in million cubic feet reported by the Energy Information Agency

10 Department of the Interior. 1980. "Notice to Lessees-4a." http://www.blm.gov/wy/st/en/programs/energy/Oil_and_Gas/docs/ntl_4a.html, accessed 8 August 2015.
11 EDF. 2015. "Study finds substantial loss of natural gas on U.S. federal and tribal lands." https://www.edf.org/energy/study-finds-substantial-loss-natural-gas-us-federal-and-tribal-lands, accessed 19 August 2015.
12 Western Values Project. 2014. "Up in Flames." http://westernvaluesproject.org/report-taxpayers-are-losing-millions-each-year-as-venting-and-flaring-of-natural-gas-increases-on-public-lands/, accessed 24 August 2015.

The good news is this could be changing soon. The Obama administration is preparing to propose updated standards for venting and flaring, which are expected to include new criteria for "determining avoidable versus unavoidable losses."[13]

Looking at the practices of individual companies, the cost of flaring to taxpayers and the environment makes the prospect of reform seem timely indeed.

The Flarers

In North Dakota between January 2007 and April 2013, data from the BLM shows the approved flaring of over 107.5 million mcfs of gas. This is roughly equivalent to the annual CO2 emissions of 1.3 million cars and has a market value of $524.1 million. The lost revenue to federal taxpayers and tribes comes to a minimum of $65.5 million.[14] (See image 3).

Interestingly, these numbers only tell a partial story. Looking at the data at the level of individual companies, it becomes clear that most of the waste comes from a handful of operators. In fact, more than half of all wasted gas is down to a single company.

Company	Total Volume Lost in mcfs (including venting)
Continental Resources	55,080,678
Petro-Hunt	7,160,959
Marathon Oil Co.	6,522,535
EOG Resources	5,776,625
Kodiak Oil & Gas (USA)	4,406,963
XTO Energy	3,877,107
WPX Energy Williston	3,796,242
Newfield Exploration	3,067,459
Whiting Oil & Gas	2,454,378

IMAGE 3: TOTAL FLARING EMISSIONS AND COSTS

YEAR	FLARING VOLUME (mcfs)	CO2 Emissions (lbs)	COST ($/mcfs)	VALUE OF LOST GAS
2007	8,872,765.47	1,139,263,086.35	7.19	$63,795,183.73
2008	16,474,775.97	2,115,361,234.55	9.13	$150,414,704.61
2009	12,228,005.31	1,570,075,881.80	4.07	$49,767,981.61
2010	15,932,842.09	2,045,776,924.36	4.52	$72,016,446.25
2011	21,333,758.12	2,739,254,542.61	4.12	$87,895,083.45
2012	25,141,992.18	3,228,231,795.91	2.83	$71,151,837.87
2013 (thru April)	7,589,089.65	974,439,111.06	3.84	$29,142,104.26
TOTAL	**107,573,228.79**	**13,812,402,576.64**		**$524,183,341.78**

13 Federal Register. 2015. "Venting and Flaring: Waste Prevention and Use of Produced Oil and Gas for Beneficial Purposes." https://www.federalregister.gov/regulations/1004-AE14/venting-and-flaring-waste-prevention-and-use-of-produced-oil-and-gas-for-beneficial-purposes, accessed 19 August 2015.

14 Royalty rates on tribal land tend to be slightly higher than the 12.5 percent royalty rate on public lands, making this number an underestimate.

Here's a closer look at some of the biggest of the big flarers.

#1: Continental Resources

CEO: Harold Hamm

2014 profits: $977.3 million[15]

Executive compensation: $32,366,869[16]

Royalty-free gas: 55,080,678.00 mcfs

Campaign contributions since 1994: $1,755,167

Lobbying expenses since 2005: $60,000[17]

Total value of free gas: $328,859,819.9

Continental Resources is the largest leaseholder in the Bakken Shale and its second-largest oil producer, extracting over 115,000 barrels of oil equivalent from North Dakota shale in the fourth quarter of 2014.[18] But even its flaring volume far exceeds other producers of its size. At a reported 55 million mcfs, worth an estimated $328 million, it is the biggest single waster of public resources in North Dakota — accounting for more than half of all BLM-approved flaring.

CEO Harold Hamm is a political giant both in his home state of Oklahoma and on the national stage. He was an energy advisor to Mitt Romney's 2012 campaign and personally contributed nearly $1 million to Restore Our Future, a Romney-aligned super-PAC.[19] Closer to home, a 2015 freedom of information request revealed that Hamm unsuccessfully sought the firing of scientists working for the Oklahoma Geological Survey for publishing work connecting earthquakes and fracking injection wells.[20]

YEAR	TOTAL VOLUME LOST (mcfs)	ESTIMATED VALUE
2007	8,357,734.97	$60,092,114.42
2008	15,307,662.97	$139,758,962.92
2009	10,355,244.31	$42,145,844.34
2010	10,618,634.09	$47,996,226.09
2011	7,036,532.10	$28,990,512.25
2012	3,166,869.68	$8,962,241.19
2013 (thru April)	237,999.65	$913,918.66
TOTAL	**55,080,677.78**	**$328,859,819.90**

15 Continental Resources. 2015. "Continental Resources Reports Fourth Quarter 2014 and Full-Year 2014 Results." http://nocache-phx.corporate-ir.net/phoenix.zhtml?c=197380&p=irol-newsArticle&ID=2019668, accessed 25 August 2015.
16 Moriningstar. 2015. "Continental Resources, inc." http://insiders.morningstar.com/trading/executive-compensation.action?t=CLR, accessed 2 September 2015.
17 Open Secrets. 2015. "Continental Resources." https://www.opensecrets.org/orgs/summary.php?id=D000032848&cycle=A, accessed 19 August 2015. http://www.prnewswire.com/news-releases/continental-resources-reports-fourth-quarter-2014-and-full-year-2014-results-300040692.html, accessed 22 August 2015.
18 Continental Resources. 2015. "Continental Resources Reports Fourth Quarter 2014 and Full-Year 2014 Results."
19 Braun, Stephen. 2012. "Romney oil adviser also a big super PAC donor." Associated Press. http://bigstory.ap.org/content/romney-oil-adviser-also-big-super-pac-donor, accessed 24 August 2015.
20 Elgin. Benjamin. 2015. "Oil CEO Wanted University Quake Scientists Dismissed: Dean's E-Mail." Bloomberg Business. http://www.bloomberg.com/news/articles/2015-05-15/oil-tycoon-harold-hamm-wanted-scientists-dismissed-dean-s-e-mail-says, accessed 24 August 2015.

#4 EOG Resources

CEO: William R. Thomas

2014 profits: $2.9 billion[21]

Executive compensation: $28,556,687[22]

Royalty-free gas: 5,776,625 mcfs

Total cost of free gas: $21,758,015.06

Federal campaign contributions since 2000: $274,275

Lobbying expenses since 2001: $460,000[23]

The initials EOG stand for Enron Oil and Gas, the company's original parent and a connection it understandably no longer wishes to stress. The largest producer of onshore oil in the lower 48 states, EOG remains one of the biggest fracking companies is the US, with drilling in many of the most prominent fracking states across the country, including North Dakota, Colorado, Pennsylvania, Oklahoma and Texas.[24]

YEAR	TOTAL VOLUME LOST (mcfs)	ESTIMATED VALUE
2007	64,483	$463,632.77
2008	137,626	$1,256,525.38
2009	153,605	$625,172.35
2010	613,337	$2,772,283.24
2011	1,600,445	$6,593,833.40
2012	2,246,344	$6,357,153.52
2013 (thru April)	960,785	$3,689,414.40
TOTAL	**5,776,625**	**$21,758,015.06**

21 Enron Oil and Gas. 2015. "2014 Annual Report." http://www.eogresources.com/investors/reports/2014/EOGR_2014_Annual_Report.pdf, accessed 19 August 2015.
22 Morningstar. 2015. "EOG: Key Executive Compensation." http://insiders.morningstar.com/trading/executive-compensation.action?t=EOG, accessed 25 August 2015.
23 Open Secrets. 2015. "EOG Resources." https://www.opensecrets.org/orgs/summary.php?id=D000043943&cycle=A, accessed 19 August 2015.
24 EOG Resources. 2015. "Fact Sheet—Overview." http://www.eogresources.com/about/factsheet.html, accessed 19 August 2015.

#6 XTO (ExxonMobil)

CEO: Rex Tillerson

2014 profits: $32.5 billion[25]

Executive compensation: $93,118,563[26]

Royalty-free gas: 3,877,107 mcfs

Total cost of free gas: $13,251,999.57

Federal campaign contributions since 1990: $16,873,581

Lobbying expenses since 1998: $219,876,942[27]

XTO became a wholly-owned subsidiary of ExxonMobil in 2010. The $31 billion acquisition established the world's largest publicly-traded oil company as a major player in unconventional shale drilling. The merger resulted in ExxonMobil becoming the largest producer of natural gas in the U.S.[28]

YEAR	TOTAL VOLUME LOST (mcfs)	ESTIMATED VALUE
2007	29,917	$215,103.23
2008	5,027	$45,896.51
2009	17,102	$69,605.14
2010	27,233	$123,093.16
2011	1,030,625	$4,246,175.00
2012	2,053,399	$5,811,119.17
2013 (thru April)	713,804	$2,741,007.36
TOTAL	**3,877,107.00**	**$13,251,999.57**

25 ExxonMobil. 2015. "ExxonMobil Earns $32.5 Billion in 2014; $6.6 Billion During Fourth Quarter." http://news.exxonmobil.com/press-release/exxonmobil-earns-325-billion-2014-66-billion-during-fourth-quarter, accessed 25 August 2015.
26 Morningstar. 2015. "XOM total executive compensation." http://insiders.morningstar.com/trading/executive-compensation.action?t=XOM, accessed 25 August 2015.
27 Open Secrets. 2015. "ExxonMobil." https://www.opensecrets.org/orgs/summary.php?id=D000000129&cycle=A, accessed 2 September 2015.
28 Oil and Gas 360. 2014. "ExxonMobil Opens at Lifetime High, Holding onto Gas Opportunities from 2010 XTO Merger." http://www.oiland-gas360.com/exxonmobil-opens-lifetime-high-holding-onto-gas-opportunities-2009-xto-merger/, accessed 19 August 2015. 29 Associated Press. 2015. "ND gas flaring goals jeopardized by low oil prices." http://bakken.com/news/id/241902/nd-gas-flaring-goals-jeopardized-by-low-oil-prices/, accessed 19 August 2015.

Conclusion

Flaring for free on federally-regulated lands has to stop. This practice not only exacerbates climate disruption, but amounts to a de facto subsidy as Big Oil receives — and subsequently wastes — billions of dollars of resources free of charge. Flaring at no cost with federal approval is a subsidy, a subsidy that is aggravating the climate crisis.

The price of oil, half of what it was a year ago, could make this problem even worse. Although lower prices are theoretically a disincentive to drill, especially in more expensive regions like the North Dakota, many companies must continue drilling even at lower prices in order to maintain cash flow. In fact, the pressure to continue drilling while cutting costs could mean even more flaring as cash-strapped companies burn away gas in the rush to reach more profitable crude. North Dakota state officials are already admitting that low prices could make it harder to reach hoped-for flaring reduction targets by 2020.[29]

The oil industry is not going to stop flaring on its own. Policy solutions are required.

- **The BLM** should more vigorously apply exisiting regulations. Although the agency has the authority to deem all venting and flaring royalty-bearing, the BLM should exercise this discretion more aggressively and consistently across field offices.
- **The Obama administration** should move forward with its planned rule to limit flaring and venting on public and tribal lands. It should include standardized and transparent standards that permanently end economic expedience as an excuse for royalty-free flaring. The venting of methane, an especially potent greenhouse gas, should be targeted for elimination completely.
- **The Obama administration** should suspend new leasing on public lands. If companies cannot responsibly manage resources that have already been leased, then allowing them even further access to public lands should be out of the question.
- **Congress** should amend the Mineral Leasing Act to require that royalties be paid on all publicly-owned resources — not only those that are sold.

Bernice 1 and 2 moisture flare — Arnegard North Dakota. Image credit: Tim Evanson [creative commons via Wikimedia Commons]

29 Associated Press. 2015. "ND gas flaring goals jeopardized by low oil prices." http://bakken.com/news/id/241902/nd-gas-flaring-goals-jeopardized-by-low-oil-prices/, accessed 19 August 2015.

Appendix

In May 2014 Friends of the Earth made an inquiry about flaring and venting on public lands to the Montana office of the BLM, which holds jurisdiction over North Dakota. In response the office provided over 23,000 entries worth of company-specific data from monthly Oil and Gas Operation Reports, purporting to cover all flaring and venting on federal and tribal lands in North Dakota.

Part B of these filings — the so-called OGOR-Bs — require drillers to record total volumes for royalty-free venting and flaring. To calculate venting and flaring totals, these volumes were simply added together. To calculate the lost value of those reserves, these volumes were multiplied by the annual average Henry Hub price of natural gas in the year in which they were flared or vented. The tribal and federal data could not be separated, so a general estimate for lost revenue was calculated using yearly flaring totals and the minimum 12.5 percent public lands royalty rate. Because tribal lands tend to have slightly higher royalty rates, this number is almost certainly an underestimate. All numbers were rounded to the nearest two decimal places. The full data from the Oil And Gas Operations Reports is available online in the form it was originally provided to Friends of the Earth.

Flaring in North Dakota is visible from space. Image: NASA Earth Observatory image by Jesse Allen and Robert Simmon, using VIIRS Day-Night Band data from the Suomi National Polar-orbiting Partnership.