Gas Giveaways:

Methane Losses are a Bad Deal for Taxpayers

TAXPAYERS for COMMON SENSE

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Introduction

In exchange for giving resource developers the right to produce publicly owned oil and natural gas from federal lands, the Department of the Interior collects various payments and fees, including royalties on the sale value of extracted oil and gas. As oil production on federal lands significantly expanded over the last decade, numerous independent reviews identified longstanding weaknesses in the existing management systems and practices in the Interior Department's oil and gas programs. These weaknesses make them susceptible to waste, fraud, and abuse.

Background on Lost Gas

Oil and gas companies lose a significant amount of natural gas during production on federal lands each year, through venting, flaring, and leakage.

Venting is the intentional release of natural gas from operators' equipment into the atmosphere.

Flaring is the practice of burning gas that is deemed uneconomical to collect and sell. Flaring is also used to burn gases that would otherwise present a safety problem.

Leakage is the release of gases due to equipment which is improperly sealed, allowing gas to escape during extraction.

Methane is the largest component of unprocessed natural gas. Reference to methane should be taken to mean reference to whole natural gas in this report.

Taxpayers for Common Sense ("TCS") requested information about the disposition of federal gas on onshore federal leases from the Office of Natural Resource Revenue ("ONRR"), the Department of the Interior ("DOI") office that manages revenues from development of federal energy and natural resources. This report presents an analysis of the dataset ONRR released in response in the context of ongoing policy changes and proposals concerning the loss of natural gas from federal land.[1] The report adds to previous TCS work on the subject including the 2014 report, "Burning Money,"[2] and the 2016 "Gone with the Wind" report.[3]

Our own analyses since 2014 reveal that existing oil and gas management practices led to the dramatic under collection of royalties owed to federal taxpayers. Among the problems identified are the inability to accurately track natural gas that is leaked, vented, or flared during production on federal lands and the lack of clarity on when to appropriately charge royalties on that lost gas.

This report provides an overview of the best available data on the magnitude of gas lost on federal lands, and what those losses reveal about the failure of the policies guiding Interior Department agencies.

Photo: Mountrail County, North Dakota. Credit: gfpeck-Flickr

Key Findings

- In 2016, royalties were charged on just 16.3 percent of all natural gas lost by oil and gas companies operating on federal lands, down from 29.6 percent in 2015.
- Of all gas lost in the decade 2007-2016, only 11 percent was charged a royalty.
- Overall, oil and gas companies reported losing 25.4 billion cubic feet (bcf) of natural gas in 2016, bringing the total amount of gas lost over the decade 2007-2016 to 209.7 bcf.
- Gas losses from federal lands have increased in recent years. The 2016 lost gas total is more than double the amount reported in 2010, but it is down from the peak in 2015.
- The large increase in annual gas losses from 2007 to 2016 was driven by flaring from oil wells on federal lands. In 2007, oil well flaring composed just 17 percent of total lost gas, compared to 75 percent in 2016, the highest level yet recorded.[4]
- The gas lost on federal lands in 2016 was worth an estimated $75.5 million, while gas lost over the decade was worth an estimated $1.07 billion.[5] At the standard onshore royalty rate of 12.5 percent, this gas represented potential revenue of $134 million. Instead, ONRR reports collecting just $18.5 million, or 13.8 percent of potential royalties.
- The assessment of royalties on lost gas remains highly varied between the eight states from which 99 percent of the gas originates.
  - ☐ Half of all gas lost in the last five years (2012-2016) was reported in New Mexico, and the BLM charged a royalty on nearly one third of it.
  - ☐ For the half of total gas losses recorded in the seven other states, royalties were charged on just 2.3 percent.

The Bureau of Land Management (BLM) within the Department of the Interior (DOI) manages 245 million acres of public lands, located primarily in the American West. The BLM administers mineral leasing on these lands, including onshore federal oil and gas leasing.

The Office of Natural Resources Revenue (ONRR) within the Department of the Interior (DOI) is responsible for the collection of royalty income from all federal lands and waters under the jurisdiction of DOI.

Photo: Arnegard, North Dakota. Credit: Tim Evanson- Flickr

Discussion

For more than 30 years, including the period discussed in this report, a policy directive called the NTL-4A[6] provided the primary guidance to the agency overseeing energy development on federal lands, the Bureau of Land Management (BLM), on how lost natural gas should be treated and when royalties should be assessed on it.
In order to limit venting and flaring from oil and gas production, the BLM attempted to replace the NTL-4A guidance by finalizing a rule titled "Waste Prevention, Production Subject to Royalties, and Resource Conservation" in November 2016.[7]

On February 22, 2018, the BLM proposed amending the November 2016 rule by publishing a draft new rule that would be a "Rescission or Revision of Certain Requirements" of it.[8] As the process of rewriting policy for how the BLM should treat methane waste continues, the data from ONRR provide insight into what the results of the NTL-4A have been, and what parts of the regulatory system created under its guidance need to change. The data show that among other things, the NTL-4A written in 1979 has resulted in two major problems in the federal oil and gas system:

- Significant loss of natural gas during oil and gas production.
- Ambiguity and inconsistency in the assessment of royalties on that lost gas, and therefore massive under collection for US taxpayers.

The analysis of the ONRR data provided below illustrates these related problems and demonstrates why continued reliance on the NTL-4A or variations of it will likely result in the continuation of losing millions of dollars in royalties for federal taxpayers.

The Problem of Lost Gas

Over the last ten years, it became clear that the NTL-4A was ineffective at limiting the practice of venting and flaring natural gas on federal lands. In 2010, the non-partisan Government Accountability Office (GAO) estimated that 126 billion cubic feet (bcf) of natural gas was vented and flared from onshore federal leases in 2008.[9] The agency also concluded that at least some of the losses were preventable, asserting that "... about 40 percent of natural gas estimated to be vented and flared on federal onshore leases could be economically captured with currently available control technologies."[10]

This much gas...	Would meet the natural gas needs of residents in these states for 1 year:[25]
25 bcf	West Virginia, or Mississippi
50 bcf	Kentucky, or Connecticut
100 bcf	Missouri
200 bcf	Texas

Data reported by producers to ONRR– the same data used herein – capture just a fraction of the venting and flaring volumes estimated by GAO, reflecting the ongoing data challenges discussed below. Nevertheless, all sources agree that the amount of gas lost on federal lands has only increased since GAO's 2010 estimate. In the Regulatory Impact Analysis accompanying the rule proposed in February, the BLM notes, "The data show that since 2008, the reported volumes of flared gas have increased quite dramatically."[11]

More precisely, ONRR data show that by 2014, total gas losses had more than doubled from 2008 levels. This outpaced both an increase in oil production of roughly 60 percent, and natural gas production, which actually decreased in that period. For flaring from oil wells alone, reported volumes in 2014 were **nine times greater** than in 2007. Looking at data for all reported years, the total amount of lost gas *tripled* from 2006 to 2015, before declining in 2016 from the 2015 peak.

The large increase in methane waste in the last decade, which at times outpaced increases in oil production, demonstrates the ineffectiveness of the NTL-4A at limiting natural gas emissions from federal lands.

1979 Guidance: Mismanaging Lost Gas

The second major deficiency of the NTL-4A is its ambiguity regarding the assessment of royalties on lost gas. This ambiguity led to an inconsistent imposition of royalties between BLM offices in different states, between BLM field offices in the same state, and within the same BLM field office from one year to the next.
On its face, the NTL-4A guidance is straightforward:[12]

No royalties are due for lost gas if it was vented or flared with prior authorization or in accordance with BLM-accepted state rules, or if a BLM field office supervisor determines it was "**unavoidably lost**;"
Royalties are due on lost gas if it was vented or flared *without* prior approval, or if a BLM supervisor determines it was otherwise **"avoidably lost**."

The NTL-4A defines **unavoidably lost** gas as losses:

- "from storage tanks or other low-pressure production vessels unless the Supervisor determines" it should have been recovered;
- during emergencies;
- during certain well tests; or,
- due to equipment malfunction or failure, unless the Supervisor determines it was avoidable.

The NTL-4A defines **avoidably lost** as losses due to:

- negligence;
- failure "to take all reasonable measures to prevent and/or to control the loss;" or
- failure to comply with applicable lease terms, regulations, operating plan provisions, or prior written orders from the Supervisor.

Within this administrative framework, the clearest determinant of whether lost gas should bear a royalty is the existence or absence of prior approval to vent or flare from a BLM Supervisor. Accordingly, oil and gas operators on federal lands have requested venting and flaring approval with increasing frequency in recent years. The BLM reported that venting and flaring requests rose from 50 in 2005 to more than 600 in 2011, and then to roughly 1,250 in 2014.[13] Instead of providing clarity, however, reliance on these requests has created a large administrative burden for the BLM. In 2016, two BLM field offices had backlogs of more than 1,000 venting and flaring requests.[14]

The NTL-4A provides some guidance to BLM field offices on when to approve venting and flaring requests, but reports indicate it's not being followed. The GAO estimates that 90 percent of the 1,281 requests received by BLM field offices in fiscal year 2014 did not contain the appropriate documentation, such as economic and geologic evaluations.[15] This documentation is essential to justifying why a venting or flaring event is necessary, and whether it should be approved. Yet the BLM also approved 70 percent of the FY 2014 requests lacking documentation.[16] The large backlogs of requests, which are primarily for venting and flaring that has already occurred, may partially explain the high approval rate.

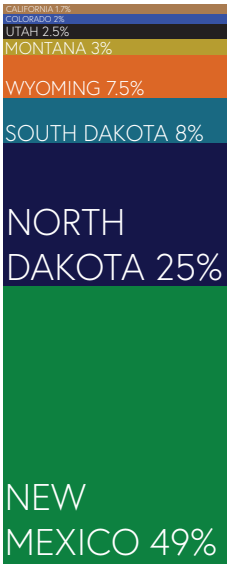
The breakdown in the process for properly adjudicating when venting and flaring should be approved is merely a consequence of the NTL-4A's fundamental problem. This is its reliance on the judgment of a BLM Supervisor or Authorized Officer for whether the individual circumstance of each instance of venting or flaring justifies the loss of gas. The unsurprising result, as the BLM noted in its 2016 rule-making, has been "substantial variation in how the BLM has interpreted and applied [the] standard" for approving flaring requests.[17]

The net result of the NTL-4A's ambiguity, apparent in the ONRR data, is inconsistent administration for natural gas losses on federal land both over time and between states. The BLM generally determined lost gas was royalty-free until very recently. According to the ONRR data, evidently none of the gas lost before 2011 was deemed avoidably lost and incurred a royalty.

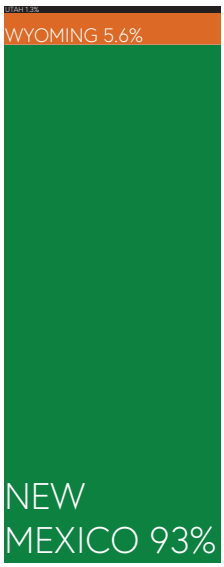
The situation changed rapidly, however, as gas losses on federal lands proliferated in recent years (see above). The amount of lost gas considered avoidably lost, and thereby charged a royalty, consistently increased from one percent in 2011 to 10 percent in 2013, and then to 30 percent in 2015. According to the updated ONRR data, though, the trend reversed course in 2016, and the amount of lost gas charged a royalty dropped to just 16 percent.

Given the portion of avoidably lost gas reported in New Mexico, the drop in the proportion of gas lost on federal lands that was charged a royalty in 2016 was largely due to a change in royalty determinations made by BLM offices in New Mexico. The total amount of lost gas reported in New Mexico dropped by 31 percent, from 19.8 bcf in 2015 to 13.7 bcf in 2016. But the subset of gas charged a royalty dropped twice as quickly, by 62 percent. Put another way, while more than half of all gas lost in New Mexico was charged a royalty in 2015, only 28 percent was charged a royalty in 2016. No further details were available from New Mexico BLM staff on the reversal of this trend at the time of report publication.

Percent of Total Reported Lost Gas
(2012-2016)



Percent of Avoidably Lost Gas*
(2012-2016)



*Avoidably lost gas incurs a royalty under the NTL-4A

Conclusion

Experience has demonstrated that administering a "waste" standard on a subjective, case-by-case basis has led to dramatic taxpayer losses. The inconsistent application of "waste'' standards is one of the principal failures of existing rules that the BLM's 2016 rule was meant to fix. As the BLM moves forward to amend that rule, it must change course and address the underlying problems with the process of approving and recording lost gas. Enshrining old policies or further incentivizing wasteful practices will only cost taxpayers for years to come.

Appendix: Concerns with Data

In conjunction with the problems created by the NTL-4A discussed above, the BLM's oil and gas program is hampered by material deficiencies in the production data it collects. These deficiencies make it difficult to quantify the full extent of gas losses from federal lands. Acknowledging those deficiencies, such as inconsistent reporting guidance and insufficient data verification, is important to properly understanding the findings presented in this report and their limitations. While the data challenges taken together impair our ability to discern details about the problem of lost gas, their primary consequence is that the problem is significantly understated.

Self-reporting and lack of verification

The first major issue with the available venting and flaring data is the fundamental inaccuracy introduced by the lack of guidance from the BLM on how operators should estimate or measure gas losses. To this day, data on how much gas is vented, flared, or otherwise lost are generated entirely from operators' self-reported estimates. There is little or no incentive for operators to estimate the volume of lost gas accurately, and little ability for the BLM to check if they have.

This fundamental problem, and DOI's general inability to verify production volumes, have been noted in report[18] after report[19] going back at least to 2004. In that year, GAO found that venting and flaring reporting would be greatly enhanced by having meters at production sites, and that the weakness of relying on self-reported volumes was compounded by the lack of a verification process: "...no oversight mechanism currently exists for routinely monitoring the amount of flaring and venting that actually takes place."[20]

In response to that finding, ONRR's precursor acknowledged that, "... recent incidents have shown that reliance on the accuracy of the operators' calculations and record-keeping may not sufficiently or accurately capture actual flaring and venting volumes."[21]

In addition to not specifying how to measure or estimate gas losses, the BLM also does not have clear guidance on which sources of lost gas need to be included in reported venting and flaring volumes. The 2010 GAO report concluded that underreporting of gas losses from certain equipment such as storage tanks, pneumatic valves, and glycol dehydrators was a significant contributor to the discrepancy between volumes reported to ONRR and GAO's much higher estimate of lost gas on federal lands.[22]

Problematic Reporting Categories

The second major issue with the venting and flaring data results from inconsistency in how operators report their estimated volumes and the imprecision of reporting categories for lost gas. As noted above, the data used in this report are aggregated from disposition volumes reported by operators to ONRR via Oil and Gas Operations Reports (OGOR), specifically from the OGOR-B.[23] On that form, there are six different categories used by operators to record lost gas. From four of those, it's possible to discern how much gas is being vented and how much is being flared from both oil and gas wells. However, those categories, or disposition codes, are only used to report royalty-free, unavoidably lost gas.[24]

In contrast, royalty-bearing emissions are generally all lumped together in a separate disposition code for avoidably lost gas. From volumes reported there, it's impossible to discern how much gas was lost via venting as opposed to flaring, or from oil wells as opposed to gas wells. This severely limits any assessment of the trends and sources of lost gas on federal lands.

For example, it was reported above that 75 percent of all lost gas recorded in 2016 was attributable to flaring from oil wells, a new high. But that does not include whatever portion of the avoidably lost gas was also oil-well flaring. The proportion of total natural gas losses that is due to oil-well flaring could indeed be substantially higher than 75 percent. The net result of this imprecise reporting is that the source of the most egregious losses of gas – that which is avoidably lost and charged a royalty – is less understood than what's being unavoidably lost.

Endnotes

[1] The dataset used in this report can be found here: https://www.taxpayer.net/energy-natural-resources/gas-giveaways-methane-losses-and-lost-royalties/

[2] Taxpayers for Common Sense, "Burning Money: Updating Rules for Oil and Gas Loss on Federal Lands." Nov. 19, 2014. Available at: https://www.taxpayer.net/energy-natural-resources/taxpayers-are-losing-millions-on-natural-gas-extracted-from-federal-land/

[3] Taxpayers for Common Sense, "Gone with the Wind: How Taxpayers are Losing from Wasted Gas." Aug. 10, 2016. Available at: https://www.taxpayer.net/energy-natural-resources/gone-with-the-wind-how-taxpayers-are-losing-from-wasted-gas/

[4] See Appendix for why this could be an underestimate.

[5] Estimates for the value of lost gas were found using average sale prices for lost gas by state and year calculated from sales volumes and sales values reported by ONRR, where available. Where state-specific values were not available, the average national sale price for the year was used. Amounts are reported in nominal U.S. dollars (i.e. not adjusted for inflation).

[6] U.S. Geological Survey, "Notice to Lessees and Operators of Onshore Federal and Indian Oil and Gas Leases, Royalty or Compensation for Oil and Gas Lost." Dec. 27, 1979, published in 44 FR 76600

[7] 81 FR 83008; RIN: 1004-AE14. Available at: https://www.regulations.gov/document?D=BLM-2016-0001-9126

[8] 83 FR 7924; RIN: 1004-AE53. Available at: https://www.regulations.gov/document?D=BLM-2018-0001-0001

[9] Government Accountability Office (GAO), GAO-11-34: "Opportunities Exist to Capture Vented and Flared Natural Gas, Which Would Increase Royalty Payments and Reduce Greenhouse Gases." Oct. 29, 2010

[10] Id. p. 20

[11] Regulations.gov Document ID: BLM-2018-0001-0002, p. 21; [See also: BLM-2016-0001-0002, p. 19 (footnote) and 21; BLM-2016-0001-9127, p. 19]

[12] Supra, note 6.

[13] GAO, GAO-16-607: "Interior Could Do More to Account for and Manage Natural Gas Emissions." July 7, 2016, p. 19. It's unclear from the GAO report whether the figures are for calendar years or fiscal years.

[14] Ibid.

[15] Id, p. 22

[16] Id. p. 23

[17] 81 F.R. 6640 (Feb. 8, 2016)

[18] Report to the Royalty Policy Committee: "Mineral Revenue Collection from Federal and Indian Lands and the Outer Continental Shelf" Dec. 17, 2007;GAO-08-893R; GAO-09-549,

[19] DOI OIG report No. CR-IS-MOA-0004-2009 – "Inspection Report: BLM and MMS Beneficial Use Deductions." March 2010; GAO-10-313; GAO-15-39

[20] GAO, GAO-04-809: "Natural Gas Flaring and Venting: Opportunities to Improve Data and Reduce Emissions." July 14, 20014, p. 22

[21] Id. p. 24

[22] GAO-11-34

[23] Available at: https://www.onrr.gov/ReportPay/production-reporting.htm

[24] GAO-16-607, p. 12

[25] State amounts generated from the average residential natural gas consumption for the last five available years using data from the U.S. Energy Information Administration.

About Taxpayers for Common Sense

Taxpayers for Common Sense is a national budget watchdog and independent taxpayer advocate dedicated to increasing transparency and exposing wasteful and corrupt government spending. Founded in 1995 as a 501(c)(3) organization, Taxpayers believes the federal government should operate efficiently and live within its means.

Taxpayers promotes government spending decisions that reflect national priorities and encourages common sense solutions to complex policy problems.

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