western values project

A Voice for the Majority in the American West

UP IN FLAMES:

Taxpayers Left Out in the Cold as Publicly Owned Natural Gas is Carelessly Wasted

May 2014

Introduction

Americans First, Energy Company Profits Second

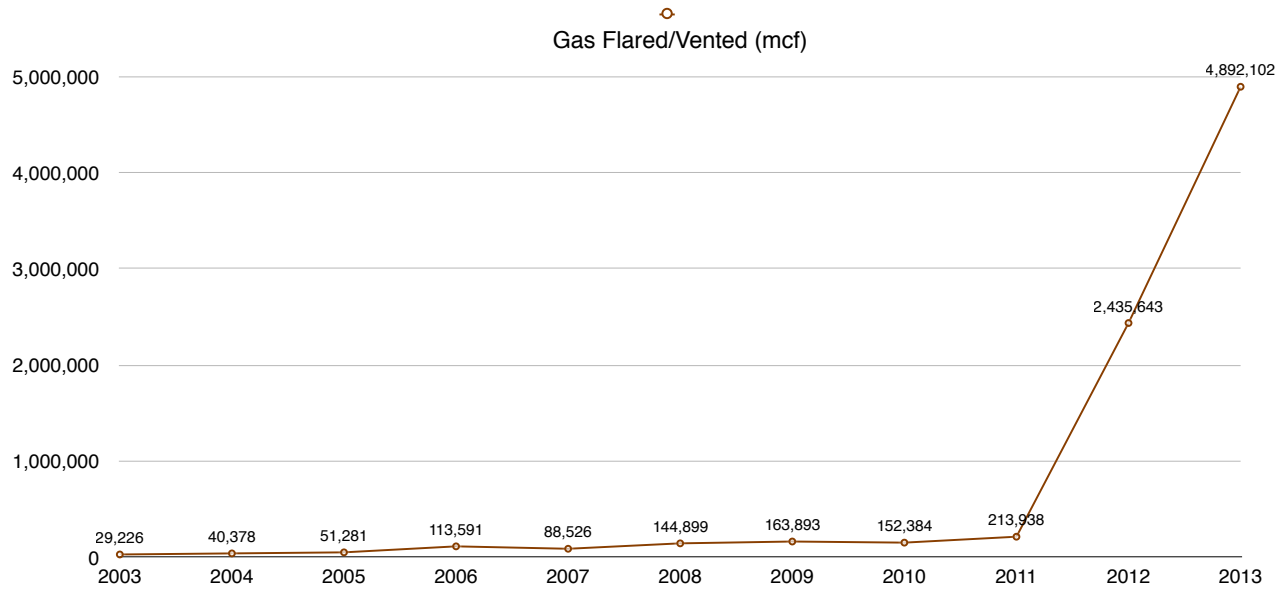
Domestic oil and gas are valuable resources not only to oil and gas companies, but to consumers and the health of our overall economy. Unfortunately, due to a combination of wasteful industry practices and lax federal policies, last year between 111.8 and 133.1 million mcf[1] of natural gas produced on federal public lands—if not more—was vented or flared off before it ever found its way into the energy market. That much wasted gas could meet the needs of enough American homes to equal the population of Los Angeles or Chicago for an entire year. And because the American public owns the gas produced on public lands, oil and gas companies avoided at least $54-$64 million in royalty payments owed to taxpayers that go to fund federal, state and local needs.

Flaring is not limited to federal lands. Because most of the current profitable oil and gas resources are located under non-federal lands, flaring and venting is a much larger problem. Some estimates place the value of natural gas flared or vented nationwide every year at over $1 billion. These estimates are most likely low, however, as recent reports suggest that in North Dakota alone, industry is wasting over $100 million in gas per month.[2] All this while families across the country experienced an unusually harsh 2013-14 winter, and paid record propane prices due to shortages that even triggered congressional hearings.[3] With natural gas an increasingly important resource for American industry and in geopolitics, the vast scale of this current waste is particularly glaring.

Despite promises from oil and gas companies that they will clean up their act, the problem is getting significantly worse each year. Unless stronger policies are developed to curb this waste, American taxpayers could conservatively lose almost $800 million over the next decade due to natural gas being flared or vented from federal lands.[4] The Department of the Interior and Bureau of Land Management (BLM) have an important opportunity to curb the wasting of these valuable public resources, and a responsibility to do so effectively and expeditiously.

New Data Confirms that Taxpayers are Losing Millions of Dollars Each Year Due to Wasteful Drilling and Production Practices on Federal Lands

Recently released Office of Natural Resources Revenue (ONRR) data for 2013 shows that oil and gas companies flared or vented 4.9 million mcf of natural gas without permission. These unauthorized releases require operators to pay royalties to the federal government; in 2013, the ONRR estimated that industry paid over $20.8 million in royalties due to unauthorized flaring or venting activity on federal lands. This represents an exponential increase in the amount of known natural gas flared or vented over the past several years, as shown in the graph below.



Source: http://statistics.onrr.gov/ReportTool.aspx

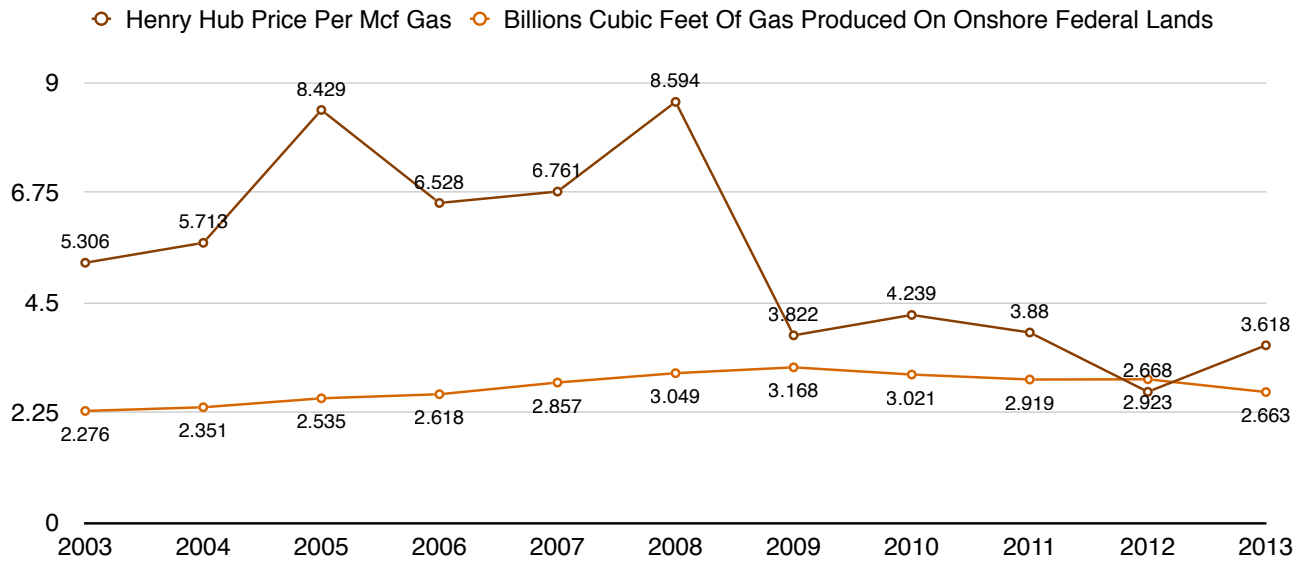
That's just the tip of the iceberg, however, as the Government Accountability Office (GAO), recently reported that federal agencies, including the BLM, are likely underestimating—by as much as 30 or more times in magnitude—the amount of natural gas that is lost to flaring or venting on onshore federal lands.[5] To gain a more accurate picture, in 2008, the Environmental Protection Agency (EPA) estimated that 4.2% of all natural gas produced through onshore federal leases was vented or flared, while a GAO analysis of data on five production basins in the mountain west in 2006 indicated as much as 5% of all natural gas produced was vented or flared.[6] According to the ONRR, a total of 2.7 billion mcf of natural gas was produced on onshore federal lands in 2013. Thus, based on the EPA and GAO's findings, between 111.8 million mcf and 133.1 mcf of natural gas may have been wasted to flaring or venting during that time.

Given that the average Henry Hub Spot price per mcf natural gas was $3.82 in 2013,[7] we can project that the sale of this gas would have generated between $427.2 million and $508.6 million in sales and between $53.4 million and $63.6 million in federal royalties. And even this estimate may be low, as the above chart clearly shows an exponential increase in flaring and venting in recent years compared to 2006 and 2008 when EPA and GAO calculated that 4.2% and 5% estimate. To put this in context, the most recent estimates in places like North Dakota put flaring and venting losses at roughly 10% and 35%. So, the values calculated here may yet be magnitudes smaller than the waste that's actually occurring.[8]

The BLM is now considering a new step to address the waste of natural gas from venting and flaring on public lands, having begun its process to develop new rules regarding "Waste Prevention and Use of Produced Oil and Gas for Beneficial Purposes." Those rules are "expected to focus on limiting waste from the venting and flaring of gas in the process of producing oil and gas on federal and Indian lands."[9] Such rules are sorely needed as profitable oil plays continue to draw energy companies to areas that lack the proper infrastructure to capture and transport natural gas and without a high enough price to incentivize such infrastructure investments.

One reason for this rapid increase in venting and flaring is that natural gas prices are near historic lows, driven by strong growth in the total amount of natural gas produced in the U.S. over the last decade. The Wall Street Journal reported in January 2014 that "[h]igh production is still casting a shadow on the U.S. market, and the days of near-record-low gas prices are not over," with prices having fallen almost to $2 per mcf in 2012.[10] According to the Bureau of Labor Statistics, "[t]he Producer Price Index (PPI) for natural gas, measured on an annual average basis, fell 56.8 percent between 2007 and 2012, in response to strong growth in domestic energy production."[11] As the Energy Information Administration (EIA) has noted, "increased natural gas supply tends to dampen prices. In turn, lower prices can erode incentive for drilling, which eventually results in decreased production.[12] As a result, natural gas prices remain low, and, relative to oil, the production of natural gas has become less attractive to industry.

The following chart, based on EIA[13] and ONRR data,[14] illustrates the connection between low natural gas prices and decreasing natural gas production on federal lands. The chart shows that although production steadily increased while gas prices were high, it has stagnated and fallen since prices collapsed in 2009.



Venting And Flaring Of Gas Has Dramatically Increased On Federal Lands, And No National Policy Yet Exists To Reduce It

When companies do attempt to increase their production of natural gas, it is imperative that such production, especially when it takes place on federal lands, be as productive and efficient as is possible. To this end, companies that engage in oil and gas production on federal lands are legally required to prevent the waste of oil and gas developed on federal land. As stated in 30 U.S.C. § 225, "[a]ll leases of lands containing oil or gas, made or issued under the provisions of this chapter, shall be subject to the condition that the lessee will, in conducting his explorations and mining operations, **use all reasonable precautions to prevent waste of oil or gas developed in the land**, or the entrance of water through wells drilled by him to the oil sands or oil-bearing strata, to the destruction or injury of the oil deposits."[15] Yet regulations for venting and flaring have not been updated for 34 years,[16] allowing millions (if not billions) mcf of natural gas to be wasted in flaring and venting.

While these regulations have languished for decades, the loss of natural gas to flaring and venting has increased rapidly in recent years. This has likely cost taxpayers tens of millions of dollars every year since 2009. Based on the EPA and GAO's conservative estimate that between 4.2% and 5% of natural gas produced on onshore federal lands is flared or vented, we calculated the likely volumes of natural gas that have been flared or vented and the likely cost of this waste to taxpayers nationwide and in several Western states, as laid out in the tables below.[17]

Likely Volumes Of And Royalties Lost From Venting And Flaring Of Natural Gas On Onshore Federal Lands: Nationwide				
Sales Year	Likely Volume Of Natural Gas Flared Or Vented (Mcf) using EPA (4.2%) estimate	Lost Royalty From 4.2% Wasted Natural Gas	Likely Volume Of Natural Gas Flared Or Vented (Mcf) using GAO (5%) estimate	Lost Royalty From 5% Wasted Natural Gas
2013	111,828,244 Sales value: $450,667,826	$53,397,986 State share: $26,165,013	133,128,862 Sales value: $508,552,255	$63,569,031 State share: $31,148,825
2009-2013 Total	617,101,580 Sales value: $2,400,297,312	$297,101,672 State share: $145,579,819	734,644,738 Sales value: $2,829,539,739	$353,692,467 State share: $173,309,309

Likely Volumes Of And Royalties Lost From Venting And Flaring Of Natural Gas On Onshore Federal Lands: Colorado				
Sales Year	Likely Volume Of Natural Gas Flared Or Vented (Mcf) using EPA (4.2%) estimate	Lost Royalty From 4.2% Wasted Natural Gas	Likely Volume Of Natural Gas Flared Or Vented (Mcf) using GAO (5%) estimate	Lost Royalty From 5% Wasted Natural Gas
2013	23,699,028 Sales value: $90,530,288	$11,316,286 State share: $5,544,980	28,213,129 Sales value: $107,774,153	$13,471,769 State share: $6,601,166
2009-2013 Total	128,383,985 Sales value: $484,191,907	$60,523,988 State share: $29,656,754	152,838,078 Sales Value: $576,418,937	$72,052,367 State share: $35,305,659

Likely Volumes Of And Royalties Lost From Venting And Flaring Of Natural Gas On Onshore Federal Lands: Montana				
Sales Year	Likely Volume Of Natural Gas Flared Or Vented (Mcf) using EPA (4.2%) estimate	Lost Royalty From 4.2% Wasted Natural Gas	Likely Volume Of Natural Gas Flared Or Vented (Mcf) using GAO (5%) estimate	Lost Royalty From 5% Wasted Natural Gas
2013	536,414 Sales value: $2,049,104	$256,138 State share: $125,507	638,588 Sales value: $2,439,410	$304,926 State share: $149,413
2009-2013 Total	4,503,852 Sales value: $17,701,218	$2,212,652 State share: $1,084,199	$2,212,652 State share: $1,084,199.59	$2,329,183 State share: $1,141,299

Likely Volumes Of And Royalties Lost From Venting And Flaring Of Natural Gas On Onshore Federal Lands: New Mexico				
Sales Year	Likely Volume Of Natural Gas Flared Or Vented (Mcf) using EPA (4.2%) estimate	Lost Royalty From 4.2% Wasted Natural Gas	Likely Volume Of Natural Gas Flared Or Vented (Mcf) using GAO (5%) estimate	Lost Royalty From 5% Wasted Natural Gas
2013	27,639,593 Sales value: $105,583,248	$13,197,906 State share: $6,466,973	32,904,278 Sales value: $125,694,343	$15,711,792 State share: $7,698,778
2009-2013 Total	151,936,930 Sales value: $585,997,017	$73,249,627 State share: $35,892,317	180,877,298 Sales value: $697,615,497	$87,201,937 State share: $42,728,949

Likely Volumes Of And Royalties Lost From Venting And Flaring Of Natural Gas On Onshore Federal Lands: Utah				
Sales Year	Likely Volume Of Natural Gas Flared Or Vented (Mcf) using EPA (4.2%) estimate	Lost Royalty From 4.2% Wasted Natural Gas	Likely Volume Of Natural Gas Flared Or Vented (Mcf) using GAO (5%) estimate	Lost Royalty From 5% Wasted Natural Gas
2013	11,389,529 Sales value: $43,508,001	$5,438,500 State share: $2,664,865	13,558,963 Sales value: $51,795,239	$6,474,404 States Value: $3,172,458
2009-2013 Total	58,433,329 Sales value: $223,505,703	$27,938,212 State share: $13,689,724	69,563,487 Sales value: $266,078,218	$33,259,777 State share: $16,297,290

Likely Volumes Of And Royalties Lost From Venting And Flaring Of Natural Gas On Onshore Federal Lands: Wyoming				
Sales Year	Likely Volume Of Natural Gas Flared Or Vented (Mcf) using EPA (4.2%) estimate	Lost Royalty From 4.2% Wasted Natural Gas	Likely Volume Of Natural Gas Flared Or Vented (Mcf) using GAO (5%) estimate	Lost Royalty From 5% Wasted Natural Gas
2013	53,253,417 Sales value: $203,428,054	$25,428,506 State share: $12,459,968	63,396,925 Sales value: $242,176,255	$30,272,031 State share: $14,833,295
2009-2013 Total	312,248,474 Sales value: $1,207,340,797	$150,917,599 State share: $73,949,623	371,724,374 Sales value: $1,437,310,472	$179,663,809 State share: $88,035,266

Likely Number of Homes That Could Have Had Household Needs Met Based on Volume of Gas Flared in 2013 by State	
State	Number of Homes*
Colorado	296,238
Montana	6,705
New Mexico	345,495
Utah	142,369
Wyoming	665,668

*Home needs estimate is based on volumes from GAO 5% estimate, and was calculated using the American Gas Association's estimate that 1 million mcf could meet the household needs of 10,000-11,000 homes annually. Our calculations are based on a 10,500 homes/1 million mcf estimate.

One place has been at the epicenter of the problem, and is emblematic of the nationwide increase in flaring and venting: the Bakken oil field in North Dakota.

In November 2011, the EIA reported that while natural gas production has "more than doubled" in North Dakota since 2005, "due to insufficient natural gas pipeline capacity and processing facilities in the Bakken shale region, over 35% of North Dakota's natural gas production so far in 2011 has been flared or otherwise not marketed."[18] According to the EIA, although natural gas production in the Bakken has increased rapidly, "[t]he necessary natural gas infrastructure—gathering pipelines, processing plants, transportation pipelines—surrounding the Bakken shale play has not expanded at the same pace, effectively stranding the natural gas that is produced during oil production."[19] Chris Elvidge, a National Oceanic and Atmospheric Administration researcher, argued that this increase in flaring and neglect for investment in natural gas infrastructure is a result of the low price of natural gas, saying in July 2012, "[i]t's possible that current low prices for natural gas may be contributing to the decision of the companies operating in North Dakota to flare the gas off rather than invest in the infrastructure to capture it and bring it to market."

North Dakota's experience points to the policy problem behind venting and flaring. Without a national policy to regulate these activities, venting and flaring in the Bakken is handled largely by state regulators, and as a result of North Dakota's state laws "producers can flare natural gas for one year without paying taxes or royalties on it - and ask for an extension due to economic hardship associated with connecting the well to a natural gas pipeline."[20] A strong national policy would help curb this waste and capture a greater amount of lost royalties for taxpayers.

The Billions Of Cubic Feet Of Natural Gas Lost To Venting And Flaring Is Damaging To Consumers And Taxpayers

The natural gas lost to venting and flaring in 2013 alone was a great loss to American consumers and taxpayers. According to the American Gas Association, 1 million mcf of natural gas is enough to fully meet the needs of between 10,000 and 11,000 American homes for an entire year.[21] Based on the EPA and GAO's finding that 4.2% to 5% of natural gas produced from federal lands is flared or vented, the total amount of natural gas lost from venting and flaring in 2013 is between 111.8 and 133.1 million mcf and could meet the needs of between 1.1 and 1.5 million American homes for an entire year.

To put this in perspective, we used U.S. Census Bureau data[22] to calculate the nationwide ratio of householders to total household residents, and used this to calculate that 1.1 million homes represents a likely population of 2.9 million, while 1.5 million homes represents a likely population of 3.8 million, cities about the size of Los Angeles (3.8 million people) or Chicago (2.7 million people).[23] The natural gas that has been flared or vented on federal lands could have powered these cities for an entire year, but now that fuel is lost forever.

In addition to the impact of this loss to consumers, the venting and flaring of natural gas forfeits millions of dollars of possible revenues to federal and state governments, increasing the burden on American taxpayers. As explained earlier in this report, EPA and GAO analysis suggests that in 2013 alone taxpayers lost between $53.4 million and $63.6 million in royalties to venting and flaring. However, the price of natural gas is at a near-record low, and so this valuation is also low relative to historic natural gas prices. According to the EIA, the wellhead price for each mcf of natural gas reached its peak in July 2008 at $10.79.[24] At that price, natural gas lost in 2013 would have sold for as much as $1.4 billion and generated as much as $179.6 million in royalties for the federal government (using the federal onshore royalty rate of 12.5%).

According to the EIA, natural gas prices are expected to rebound over the next decade, which would result in even greater royalty losses for American taxpayers.[25] This is shown in the chart below, which uses the average amount of natural gas that was vented and flared from federal lands per year over the past decade (2004 through 2013).[26]

Projected Lost Royalties On Federal Lands Based On Gas Prices Projected In Future Years			
Year	Henry Hub Spot Price (Per Mcf)	Lost Royalty from 4.2% Wasted Natural Gas	Lost Royalty from 5% Wasted Natural Gas
2014	$3.82	$56,358,864.59	$67,093,886.42
2015	$3.82	$56,358,864.59	$67,093,886.42
2016	$4.24	$62,555,388.97	$74,470,701.16
2017	$4.50	$66,391,332.64	$79,037,300.76
2018	$4.91	$72,440,320.72	$86,238,477.05
2019	$4.78	$70,522,348.89	$83,955,177.25
2020	$4.48	$66,096,260.05	$78,686,023.86
2021	$4.78	$70,522,348.89	$83,955,177.25
2022	$4.93	$72,735,393.31	$86,589,753.94
2023	$5.07	$74,800,901.44	$89,048,692.19
10 Year Total		**$668,782,024.09**	**$796,169,076.30**

The Bureau Of Land Management Must Adopt A Strong Policy To Reduce Future Waste Of Natural Gas And Ensure A Fair Return For Taxpayers

The waste of a public resource – natural gas – on public lands is costing American taxpayers millions of dollars every year. If the oil and gas production and estimated levels of venting and flaring for the past decade continue for the next ten years, and the Henry Hub Spot Prices for natural gas currently projected by the EIA prove accurate, American taxpayers would lose close to $800 million in royalties—if not more—from oil and gas production on federal lands alone.

According to a 2010 report by the GAO, "[d]ata from EPA, supported by information obtained from technology vendors and GAO analysis, suggest that around 40 percent of natural gas estimated to be vented and flared on onshore federal leases could be economically captured with currently available control technologies."[27] The same report underscored that simple industry inertia, or the "business as usual" model, was a significant hurdle to companies adopting more of these current technologies on their own. And many estimates, including by the EPA and GAO, suggest that companies stand to gain financially by adopting technologies that will reduce flaring and venting. The EPA estimated that in 2009, the industry lost out on potentially $1 billion in profits due to venting, flaring and fugitive emissions. These lost revenues have led investors to begin to question the wasteful practice,[28] and in North Dakota, where estimates suggest that companies are losing $100 million per month to flaring, private landowners with drilling on their property have even turned to lawsuits to end the wasteful practice and recoup their lost revenues.[29]

A strong rule, leveling the playing field and rewarding those companies already undertaking progressive measures to curtail the waste of resources, would not only ensure bad actors aren't given an advantage in the marketplace, but would spur innovation and continued cost-cutting in emission control technology. Industry must step up and move forward with the adoption of these technologies to reduce the waste of natural gas and the cost of that waste to American consumers and taxpayers. The BLM, by adopting a strong policy under existing law to cut down the venting and flaring of gas from federal lands, can take a strong step forward to ensure that American taxpayers receive the best possible return for publicly-owned oil and natural gas resources.

References

[1] Reuters 7/30/13

[2] MiBloomberg 5/2/14

[3] MCF equals one thousand cubic feet of natural gas.

[4] Office of Natural Resources Revenue, "Reported Revenues Federal Onshore In All States For FY 2013 By Sales Year," 2/5/14.

[5] Government Accountability Office, "Federal Oil and Gas Leases," October 2010, pg. 10

[6] Government Accountability Office, "Federal Oil and Gas Leases," October 2010, Pg. 12-13.

[7] Energy Information Administration, accessed 5/1/14. For price conversion factors, see: http://www.eia.gov/tools/faqs/faq.cfm?id=45&t=8.

[8] Reuters 7/30/13

[9] Brownstein Hyatt Farber Schreck, 3/19/14.

[10] Wall Street Journal, 1/16/14.

[11] Bureau of Labor Statistics, May 2013, Pg. 1.

[12] Bureau of Labor Statistics, May 2013, Pg. 2.

[13] Energy Information Administration, "Henry Hub Natural Gas Spot Price," accessed 5/1/14.

[14] Office of Natural Resources Revenue, "Statistical Information," accessed 4/28/14.

[15] Cornell University Law School, Legal Information Institute, accessed 4/28/14 (emphasis added).

[16] Greenwire, 3/20/14.

[17] Data in the table was calculated using data from: Office of Natural Resources Revenue, "Reported Revenues Federal Onshore In All States For [FY 2008-FY 2013]," 2/5/14; Energy Information Administration,

[18] Energy Information Administration, 11/23/11.

[19] Energy Information Administration, 11/23/11.

[20] Christian Science Monitor, 7/13/12.

[21] American Gas Association, accessed 4/28/14.

[22] Census Bureau, "Households and Families: 2010," April 2012, Pg. 2.

[23] Census Bureau, "Table 27," 2012.

[24] Energy Information Administration, "U.S. Natural Gas Wellhead Price," accessed 4/28/14.

[25] Energy Information Administration, "Annual Energy Outlook 2014," accessed 5/1/14.

[26] The "minimum" amount, based on 4.2% of total production, is 118 mcf of natural gas. The "maximum" amount, based on 5% of total production, is 140.5 million mcf of natural. As explained in the GAO report, these estimates are conservative.

[27] Government Accountability Office, "Opportunities Exist to Capture Vented and Flared Natural Gas, Which Would Increase Royalty Payments and Reduce Greenhouse Gases," 10/29/10, "Highlights Page."

[28] http://www.ceres.org/files/oil-gas/investor-flaring-letter

[29] The New York Times 10/17/2013