



Potential Implications of Federal Oil and Natural Gas



2016 Interstate Oil and Gas Compact
Commission



Methane Regulations



Environmentalist Agenda

- Visible shift from regulation to prohibition of fossil energy development
 - **More extreme = more contributions**
- Natural gas targeted – treated like coal
- A significant and troubling shift in the national debate on energy
 - **Issues are no longer cast in the context of how to environmentally manage production**
 - **Issue becomes whether permits allow production or whether the regulations are so restrictive or costly that they prevent production**



Methane Regulation Timeline

- 2012 – EPA finalizes Subpart OOOO – a New Source Performance Standard (NSPS) regulating Volatile Organic Compound (VOC) from hydraulically fractured natural gas wells
- March 2014 Obama issued the Climate Action Plan Strategy to Reduce Methane Emissions.
- January 2015, the Obama Administration announced plans to regulate methane in the E&P sector – using both EPA and BLM.
- September 2015, EPA proposed a package of VOC and methane regulations:
 - NSPS expansion – Subpart OOOOa
 - Issuance of Control Technique Guidelines (CTGs) for ozone non-attainment areas
 - New aggregation proposal
 - Triballands new source permitting proposal



Methane Regulation Timeline

- December 2015 Comments submitted on regulatory proposals
 - Challenged need and cost effectiveness of proposed regulations
 - Challenged new source fugitive emissions (Leak Detection and Repair – LDAR) program
 - Challenged application of technologies to existing sources in ozone nonattainment areas
 - Challenged expansion of sources subject to permitting requirements
- January 2016 BLM proposed venting and flaring regulations that would manage methane emissions on new and existing production facilities



Methane Regulation Timeline

- March 2016 Administration announced intent to develop nationwide existing source methane regulations
 - EPA initiating an Information Collection Request (ICR)
 - Reached out to EPA to educate about industry and limit scope and cost of ICR
- April 2016 EPA revises petroleum and natural gas systems emissions in Green House Gases Inventory (GHGI)
 - Calculates higher emissions of methane based on questionable methods
 - Environmentalists use revision to call for more regulation



Methane Regulation Timeline

- April 2016 Comments submitted on BLM Venting and Flaring Regulations
- Summer 2016
 - EPA Subpart OOOOa regulations finalized
 - EPA CTG completed and sent to OIRA for final review
 - BLM Venting and Flaring Regulations completed and sent to OIRA for final review
 - EPA ICR on nationwide existing source emissions released for comment



Methane Regulation Timeline

- Fall-Winter 2016
 - EPA ICR submitted to final review at OIRA/OMB
 - EPA ICR will be sent to companies for completion
 - Part 1 – general production information sent to all producers with 30 day compliance requirement
 - Part 2 – detailed questionnaire sent to about 2500 recipients with 120 day compliance requirement
 - Initial compliance with EPA Subpart OOOOa required
- 2017
 - EPA/BLM regulations implemented
 - EPA nationwide existing source regulations developed and proposed



Methane Regulation Elements

- Primary Regulatory Elements
 - Pneumatic Controllers
 - Pneumatic Pumps
 - Reduced Emissions Completions for hydraulically fractured oil and natural gas wells
 - Storage vessel vapor recovery or emissions combustion
 - Fugitive Emissions program
- Fugitive Emissions program represents the most significant challenge
 - Creates an enduring operating cost for each facility
 - Costeffectiveness drops appreciably with declining production; cost



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- Fugitive Emissions program for marginal wells is prohibitively expensive
- California example is illustrative
 - Approximately 2900 wells; average production of 3.6 B/D; 580,324 inspections, 667 leaks found
 - Using Leaker Emission Factors from Subpart W and assuming the leaks existed the entire quarter.
 - 142 leaking valves @ 13.9 MCF/qtr leaker factor = 1974 MCF.
 - 525 leaking connections @ 12.3 MCF/qtr leaker factor = 6457 MCF.
 - Total 8431 MCF
 - Annual operating cost of LDAR equipment and crews only: \$800,000
 - Low cost compared to Subpart OOOOa requirements of semi-annual estimated cost of \$1,599/well: cost=\$4,600,000/year
 - Using a very conservative estimate $\$800,000/8413\text{MCF} = \mathbf{\$95/MCF}$
 - At \$1,599/well would be \$4.6 million = $\mathbf{\$661/MCF}$



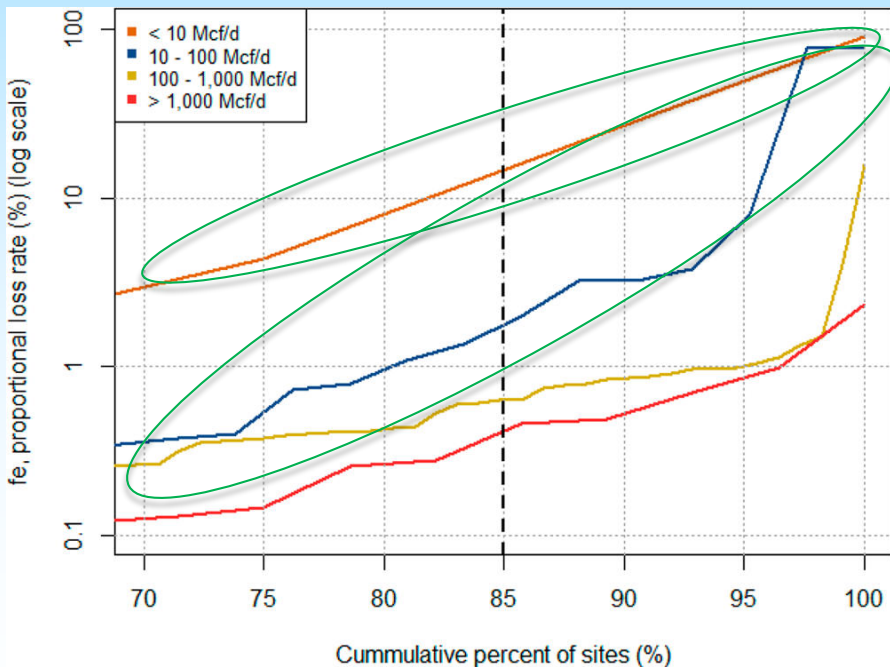
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- Targeting marginal wells is a primary initiative of the “Keep It in the Ground” environmental activists
 - Demanded that Obama Administration remove a proposed exclusion for marginal wells in Subpart OOOOa regulations – It was done
- EPA revisions to GHGI implies small source emissions have a larger share of national emissions
 - EPA countered its own basis for defining which sources were required to report
- Using specious studies to justify action on marginal wells

EPA used Environmental Defense Fund study to justify its action to remove



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- EDF uses data analysis tricks to create appearance that marginal wells are high emitters
- Uses a percentage of emissions to production rather than emissions
- Only shows data from the 70th percentile of sites
- Uses a logarithmic scale rather than a straightforward graph
- **Using the EDF methods the smallest wells would be viewed as the worst emitters**

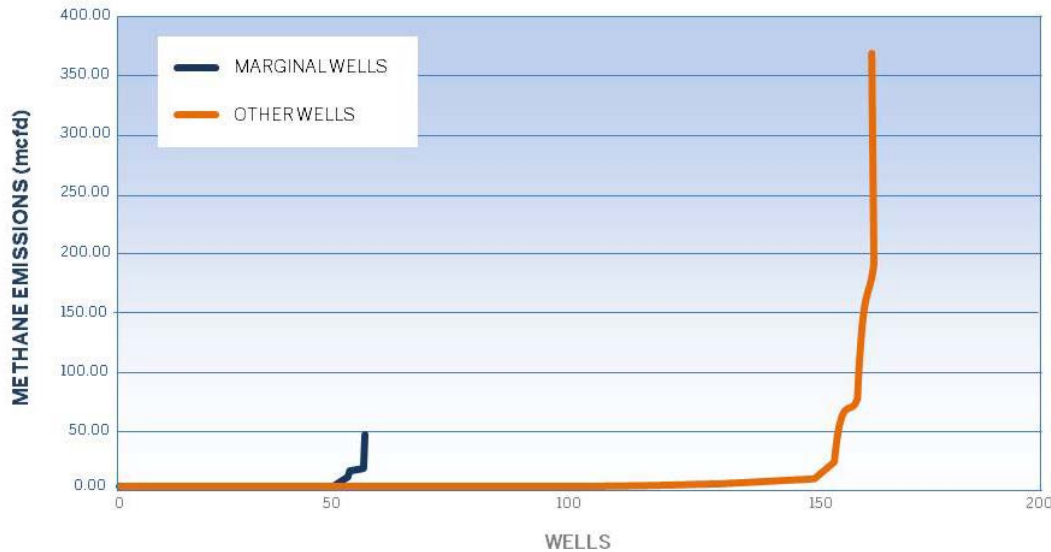


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ENERGY IN DEPTH®

IPAA A project of the INDEPENDENT PETROLEUM ASSOCIATION OF AMERICA



- Looking at the same data using a direct graph of emission shows a very different picture
- Smaller wells = smaller emissions
- Even this data may overstate emissions since the data is taken over a few hours not a



Methane Regulations

- Next regulatory steps will be critical for the future of America's oil and natural gas marginal wells
 - Subpart OOOOa imposes a permanent cost burden on new and modified hydraulically fractured wells that will make them uneconomic far earlier in their productive life
 - BLM venting and flaring rule proposes costly fugitive emissions requirements on existing wells – including marginal wells – on federal lands
 - EPA developing a nationwide existing source regulation where Keep It in the Ground environmentalists demand the application of a cost ineffective fugitive emissions requirement to marginal wells (as they have for the pending CTGs)
- Taken together these requirements threaten the shut down of America's marginal wells



Methane Regulation Response

- Industry must respond to these initiatives aggressively
 - **Petitioning EPA to reconsider its decision to apply its Subpart OOOOa fugitive emissions requirements to marginal wells**
 - Key issues will include EPA's use of faulty EDF study as a basis for its action and the cost burden and ineffectiveness of its fugitive emissions program
 - **Preparing to respond to the BLM venting and flaring regulations**
 - **Preparing to participate in the development of EPA's**



Methane Regulation Response

- Understanding marginal well emissions will be essential
 - Generic emissions factors overstate emissions
 - Studies of emissions have incidentally included marginal wells but have not fully assessed them
- EPA does not understand that marginal wells will not have the capability to generate the same emissions as larger ones
 - Emissions are driven by internal pressures forcing gas to leak
 - An average marginal natural gas well of 22 mcf/d will not generate the same internal pressures as a 5000 mcf/d well
 - Industry must demonstrate the distinctions between difference sized wells



Methane Regulation Response

- IPAA connecting with RPSEA to develop a protocol for sampling and analyzing marginal well emissions
 - Protocol would develop methodologies that EPA supports to determine fugitive emissions from marginal well operations
 - Industry will need to provide facilities to allow testing
- Fugitive emissions program costs need further definition
 - EPA's analysis of its fugitive emissions program is well below industry experience
 - EPA's actions are based on both limited experience and highly suspect expectations of emissions reductions
 - Industry experience with state fugitive emissions programs:
 - Once leaks are corrected, they do not reoccur quickly
 - Impact is not measurable as a production increase



Methane Regulation Response

- It will be an intense confrontation

- Keep It in the Ground environmentalists will use any exaggerated claim to target existing oil and natural gas production – marginal wells represent about 70 percent of American wells

- Failure will be a tragic national energy consequence

- The burden imposed on marginal wells by a Subpart OOOOa fugitive emissions program – and possibly by imposing retrofitting of pneumatic controllers and pumps – can make these wells uneconomic – and subject to plugging – within a few years after the nationwide regulations are imposed
- A loss of 10-15 percent of US oil production and 12-15 percent of US natural gas production – IOGCC estimates a loss of \$20 billion annually to the US economy