



Diversified Energy: A Business Model Built to Fail Appalachia

A new report shows Diversified Energy, the nation's largest owner of oil and gas wells, does not have enough funds to plug its entire catalog of wells. If Diversified or other companies that own low-producing wells in the region were to go out of business, states could be on the hook for billions in plugging costs.¹

Nearly all the wells owned by Diversified are low-producing stripper wells. Meanwhile, more than half of their wells are uneconomic or financially distressed, according to some regulators, and may be near the end of their useful life. While Diversified has signed consent agreements with four states requiring the company to plug & abandon (P&A) approximately 2,300 of their wells by 2034, this represents less than 4 percent of their well inventory.² According to Diversified's P&A schedule, over two-thirds of their wells will not be decommissioned until after the year 2056 and their entire well inventory will not be retired until 2095.³

Given the boom-and-bust cycles of the oil and gas industry, and the significant headwinds for fossil fuel companies as the country moves away from fossil fuel energy, the high concentration of wells in one company's portfolio presents serious fiscal and environmental risks. By pushing a vast majority of their P&A obligations so far into the future, Diversified has created a too-big-to-fail business model where if they go out of business it could lead to an avalanche of orphaned wells where states could be left holding billions in unfunded liabilities.

To ensure that states don't end up holding the bag of P&A liabilities for Diversified or other operators, policymakers will need to pursue significant reforms. These reforms should include a number of actions, including ensuring that states have enough resources to enforce P&A requirements, requiring that bond amounts reflect projected well plugging and wellsite restoration costs, increased fees for idle wells, minimum production thresholds for an "active well," and, most importantly, the creation of an Abandoned Well Fund from a fee on production that is set aside in an account to ensure the proper closure of all wells. As noted in a previous report from the Ohio River Valley Institute, a production fee ranging from \$0.03 to \$0.07 per Mcf in Pennsylvania, Ohio, and West Virginia over the next 25 years could provide enough funds to decommission most of the state's unplugged well inventory based on current production projections.⁴

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Key Findings:

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of Diversified's wells are more than 20 years old; nearly a third are more than 30 years old.⁵

~60%

of Diversified's wells produce less than 1 barrel of oil equivalent per day (BOED), considered uneconomic or "inactive."⁶

Diversified's shale wells make up 1% of well inventory, yet

35%

of production.⁹

By 2056, Diversified's projected commodity revenue could be less than the cost to decommission its wells.⁸ This could leave states with 44,000 wells to P&A, costing about

\$2.2 billion.

Diversified's 75-year plan delays P&A for

80%

of its current well inventory until 2049 or later.⁷

Diversified uses a variety of strategies to avoid accurately reporting methane leakage on 20,000 wells it acquired in PA.¹⁰ The company is likely

obscuring much higher emissions

than it is reporting.¹¹

Diversified has likely

understated P&A costs

of its wells by billions of dollars.¹²

Diversified's business strategy has been called a

legal Ponzi scheme.¹³

With so few state regulators in Appalachia, it is unlikely that most Diversified wells will be adequately monitored. WV has just

9 inspectors

for over 115,000 documented wells.¹⁵

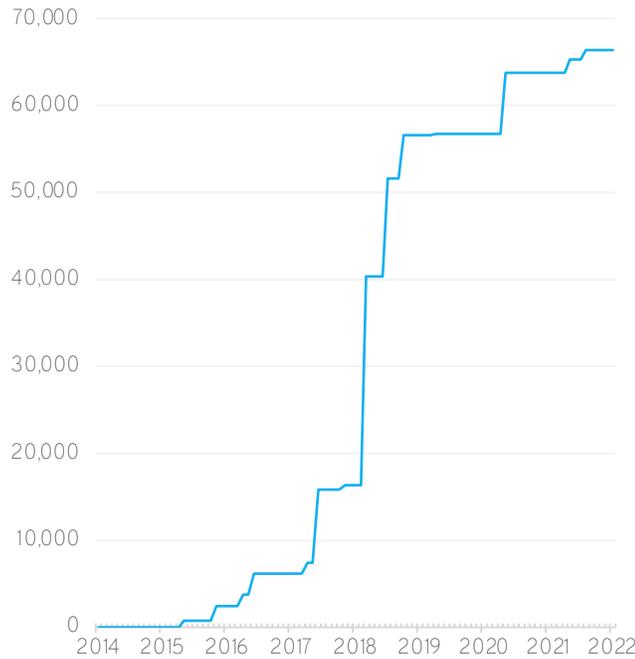
If Diversified used industry norms to calculate its Asset Retirement Obligations (AROs), its AROs would jump from

\$525 million to \$2+ billion.¹⁴

I. Diversified's Inventory: Large, Financially Distressed, and Old

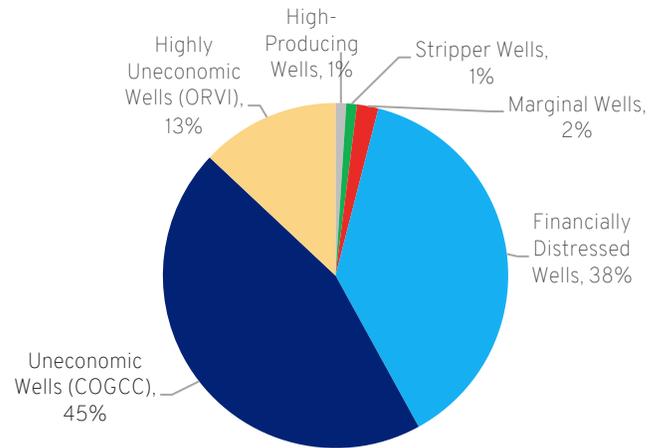
Diversified is the largest well owner in the United States and in Appalachia. The company, which has made a business of acquiring low-cost, long-life, low-decline oil and gas wells that previous owners found uneconomic, has acquired 43% of all low-producing wells in the Ohio River Valley states of Kentucky, Ohio, Pennsylvania, and West Virginia (Fig. 1). Nearly all of Diversified's producing wells are financially distressed or uneconomic (Fig. 2). More than half of the company's wells are more than 20 years old; more than one-third are more than 30 years old.¹⁶

Fig. 1: Diversified's Rapid Acquisition of Aging Wells



Source: ORVI analysis of TCF Upstream database

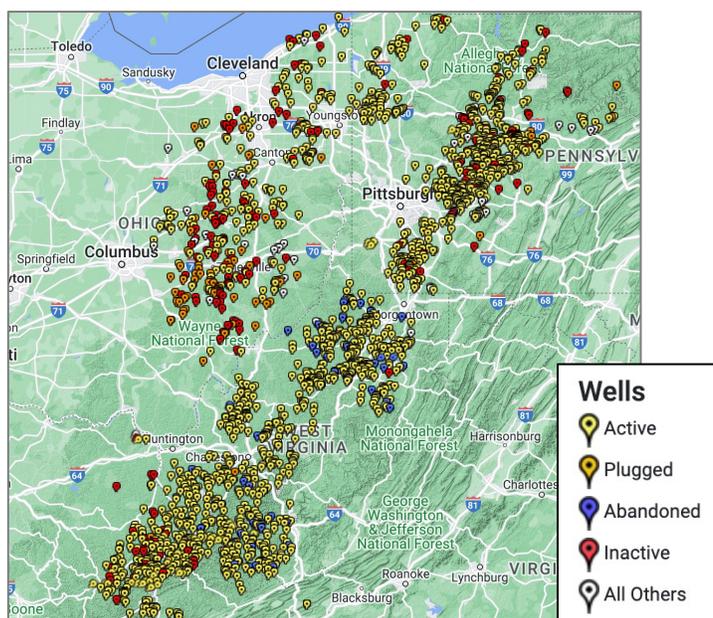
Fig. 2: 96% of Diversified's Wells in OH, WV, PA, and KY Are Financially Distressed or Uneconomic



Source: US Energy Information Administration (EIA), Internal Revenue Service (IRS), Colorado Oil and Gas Conservation Commission (COGCC), and Ohio River Valley Institute (ORVI)

Note: For purposes of this graph, well categories are exclusive of other categories (e.g., stripper wells include 99% of all wells, marginal wells include 98% of all wells, etc.).

Fig. 3: Diversified's Wells in Ohio River Valley States



Source: TCF Upstream database

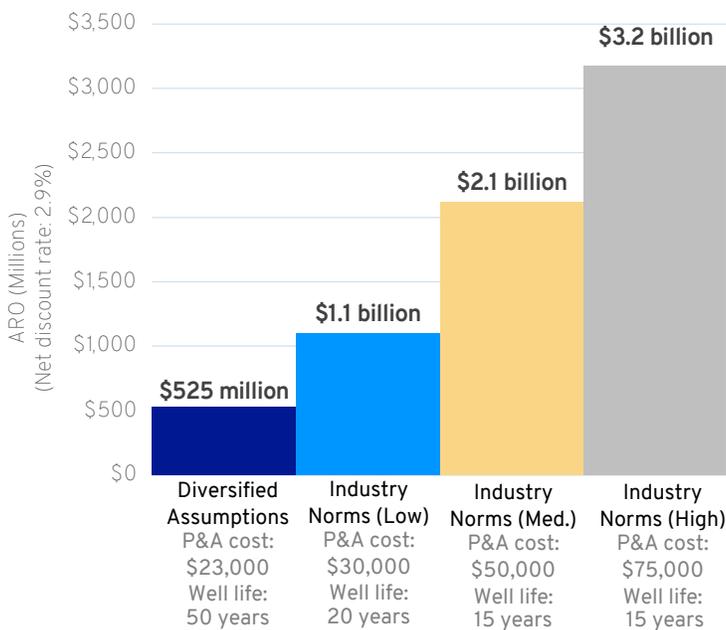
Number of Wells by State	
Kentucky	8,345 (7,115)
Ohio	8,747 (5,536)
Pennsylvania	22,507 (19,609)
West Virginia	23,306 (20,734)
Total Wells:	62,905
Total Producing:	(52,994)
Source: TCF Upstream (Feb 22)	

II. Diversified's Business Model is Built to Fail Appalachia

For Diversified, a company built around end-of-life conventional oil & gas wells, the question of how it accounts for the cost of plugging & abandoning (P&A) its roughly 70,000 wells looms large. P&A costs are categorized as Asset Retirement Obligations (AROs) in financial statements, an amount the company calculates it will need to spend, in today's dollars, to decommission its wells.

Diversified's accounting for clean-up obligations of its wells is rife with questionable and unusual assumptions, including assumed plugging costs billions of dollars lower than industry norms and categorical extensions of the economic lives of its wells. These assumptions reduce the amount of the company's ARO liabilities, significantly understating the actual costs to decommission the assets. **If Diversified used assumptions based on industry norms, the increase in its ARO liabilities would make the company technically insolvent.**¹⁷

Fig. 4: Diversified's P&A Assumptions Fall Billions of Dollars Short of Industry Norms



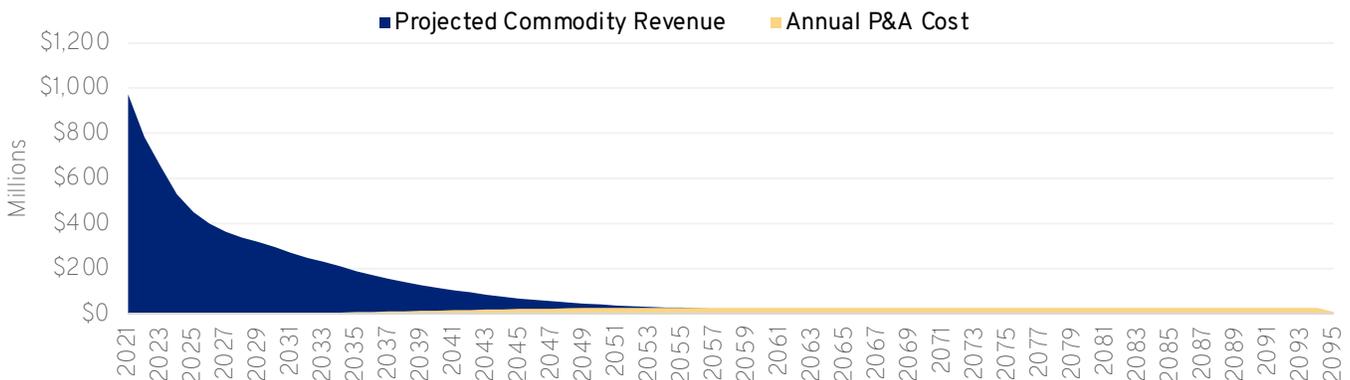
Source: ORVI analysis of Diversified Energy data

Fig. 5: Diversified's Repeated Extensions of the Economic Lives of Producing Wells Defer P&A Costs



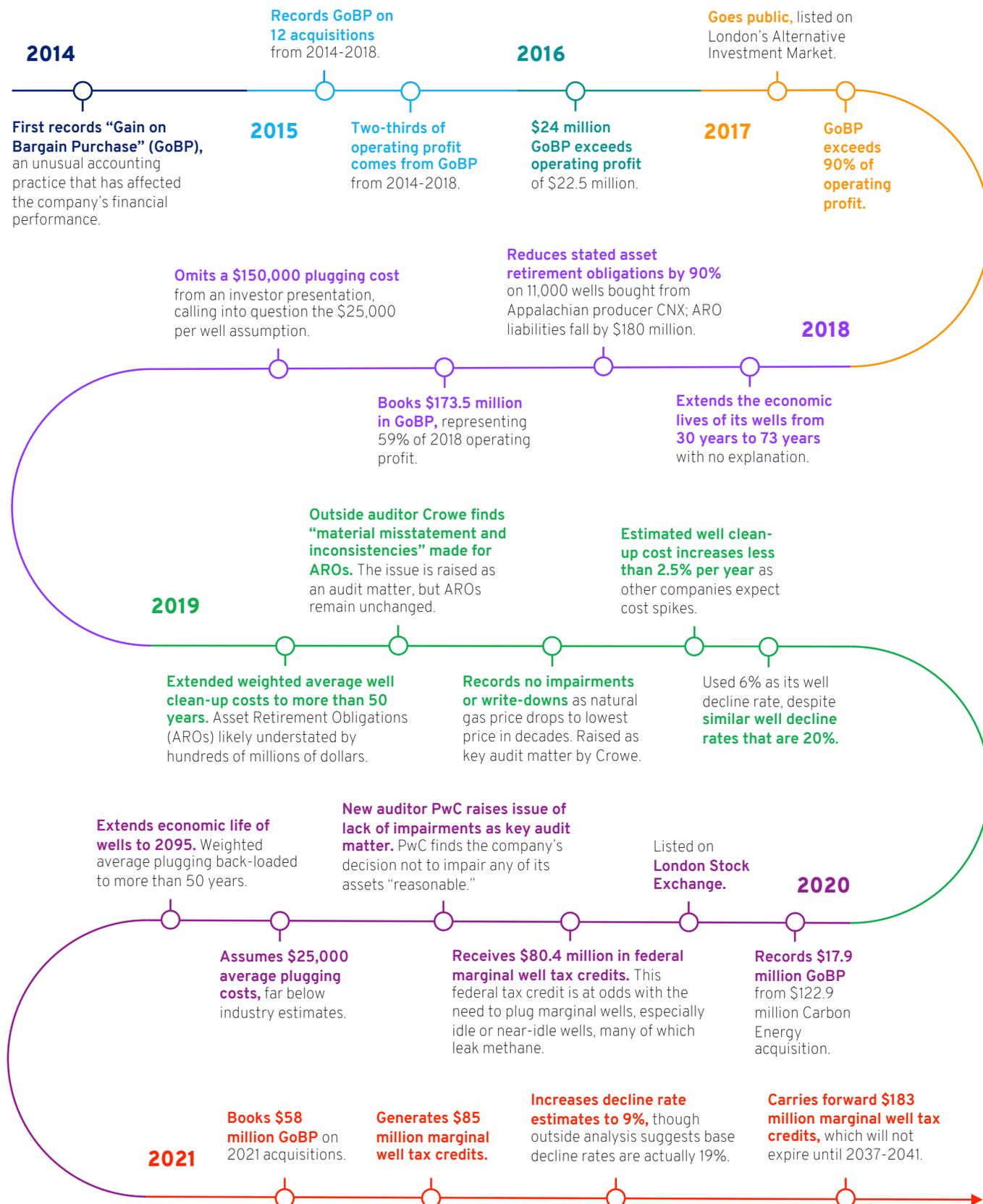
Source: ORVI analysis of Diversified Energy data

Fig. 6: Diversified's P&A Costs Set to Exceed Revenue by 2056



Source: ORVI analysis of Diversified Energy data

III. A Timeline of Financial Practices¹⁸



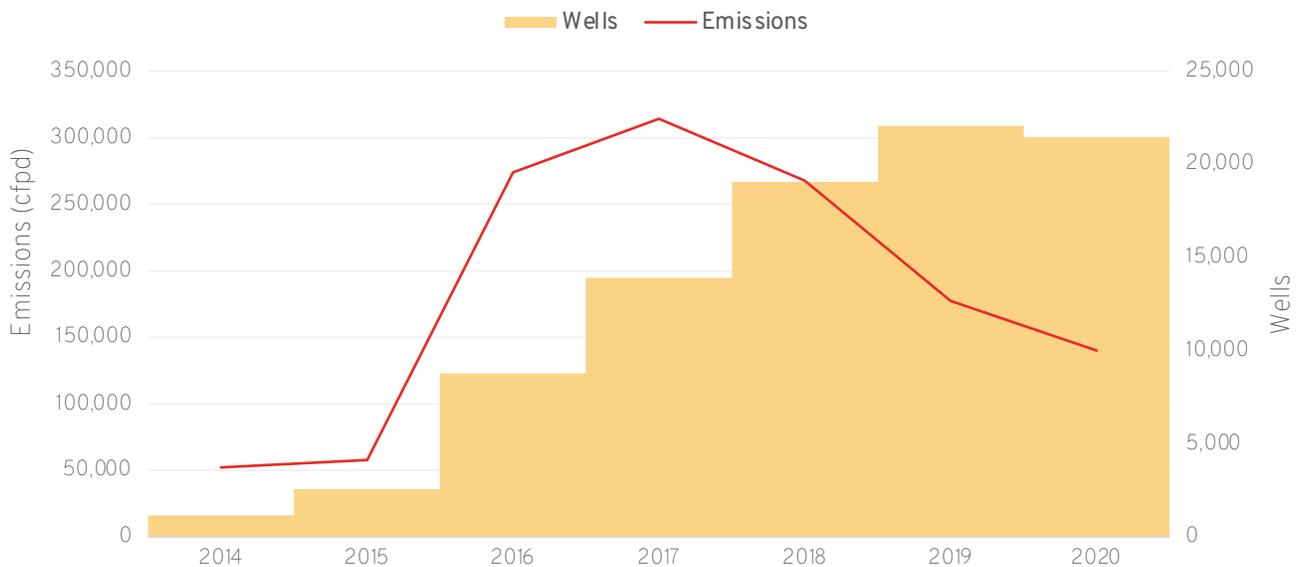
Source: Diversified Energy Annual Reports, 2014-2021

IV. Methane Emissions Reporting

Methane (CH₄) is the primary component of natural gas. Oil and gas well integrity failures might lead to leakage of methane into the atmosphere, as a greenhouse gas (GHG) driving global climate change, and as a pollutant. Methane is a powerful GHG that has 86 times the warming power of carbon dioxide over a 20-year time span and that makes reducing its emission crucial in the near-term. Methane is also a precursor for ozone formation and thus contributes directly to air quality degradation and resultant human morbidity.¹⁹

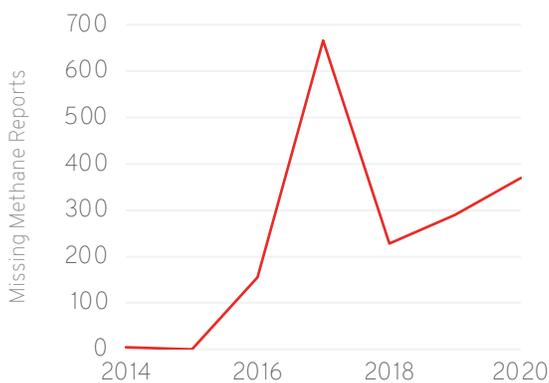
Diversified’s self-reported methane emissions raise red flags. Total reported natural gas emissions for Diversified’s Pennsylvania wells in 2014 was about 3 million cubic feet per day (cfpd) when 90% of these wells were owned by previous operators. When 96% of those wells were owned by Diversified in 2020, reported emissions were just 140,000 cfpd, a 93% reduction (Fig. 7). The company appears to have used regulatory loopholes to reduce its reported gas leakage from wells where higher values had been previously reported, and to avoid measurements on thousands of wells in which additional “super emitters” might be hiding.²⁰

Fig. 7: Diversified Wells and Self-Reported Fossil Gas Emissions in Pennsylvania, 2014-2020



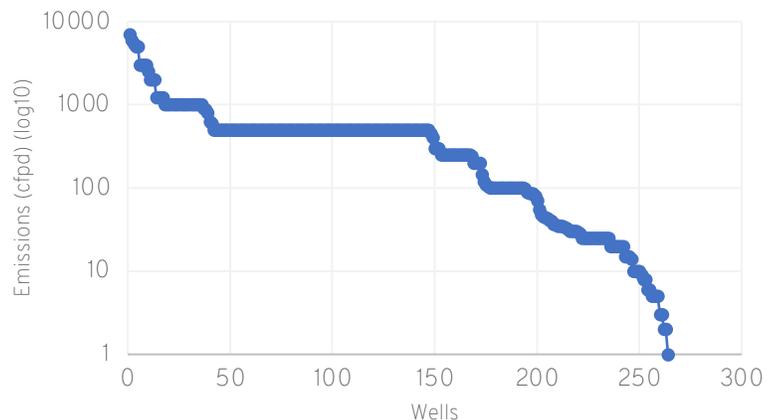
Source: Pennsylvania Department of Environmental Protection Mechanical Integrity Assessment Program

Fig. 8: Diversified Has Failed to Report Methane Emissions on Hundreds of Wells



Source: Pennsylvania Department of Environmental Protection Mechanical Integrity Assessment Program

Fig. 9: Distribution of Reported Emissions, 2020



Source: Pennsylvania Department of Environmental Protection Mechanical Integrity Assessment Program

V. Endnotes

1. Boettner, Ted, Kathy Hipple, and Anthony Ingraffea. "Diversified Energy: A Business Model Built to Fail Appalachia." Ohio River Valley Institute, April 2022. <https://ohiorivervalleyinstitute.org/diversified-energy-a-business-model-built-to-fail-appalachia/>
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9. The Capitol Forum Upstream Database. "Diversified Energy Co., PLC." *The Capitol Forum*. Accessed March 2022. <https://upstream.thecapitolforum.com/operators/73140>
10. Greg Rogers, Senior Advisor at Carbon Tracker, has called Diversified's acquisition strategy, a "legal Ponzi scheme." Diversified Energy. "Transcript of Diversified Gas and Oil Decline Rates & Asset Retirement Conference Call with Greg Rogers." *Diversified Energy*, Sep 18, 2020. Vol 8, No 320, Pp. 6.
11. See Section 2.7. Boettner, Ted, Kathy Hipple, and Anthony Ingraffea. "Diversified Energy: A Business Model Built to Fail Appalachia." Ohio River Valley Institute, April 2022. <https://ohiorivervalleyinstitute.org/diversified-energy-a-business-model-built-to-fail-appalachia/>
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13. See Section 3.1. Boettner, Ted, Kathy Hipple, and Anthony Ingraffea. "Diversified Energy: A Business Model Built to Fail Appalachia." Ohio River Valley Institute, April 2022. <https://ohiorivervalleyinstitute.org/diversified-energy-a-business-model-built-to-fail-appalachia/> Pennsylvania Department of Environmental Protection. "Mechanical Integrity Assessments." *Pennsylvania Department of Environmental Protection*, Accessed February 24, 2018.
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19. The EPA's [National Greenhouse Gas Inventory](#) reports a default gas composition of 83.5% CH₄ for general sources in the Northeast oil and gas production sector, although compositions of 90% or higher are common in Pennsylvania's unconventional dry gas wells. Indeed, other studies have used compositions ranging as high as 90 to 100% (Kang et al. 2016; Weisen et al. 2020). However, unconventional wells make up only about 1% of DEC wells and only a portion of those is likely to be dry gas wells. Therefore, in estimating methane emissions herein from DEC wells one should use the regional default composition reported by EPA, 83.5% CH₄.
20. See Section 3, Appendix 8. Boettner, Ted, Kathy Hipple, and Anthony Ingraffea. "Diversified Energy: A Business Model Built to Fail Appalachia." Ohio River Valley Institute, April 2022. <https://ohiorivervalleyinstitute.org/diversified-energy-a-business-model-built-to-fail-appalachia/>