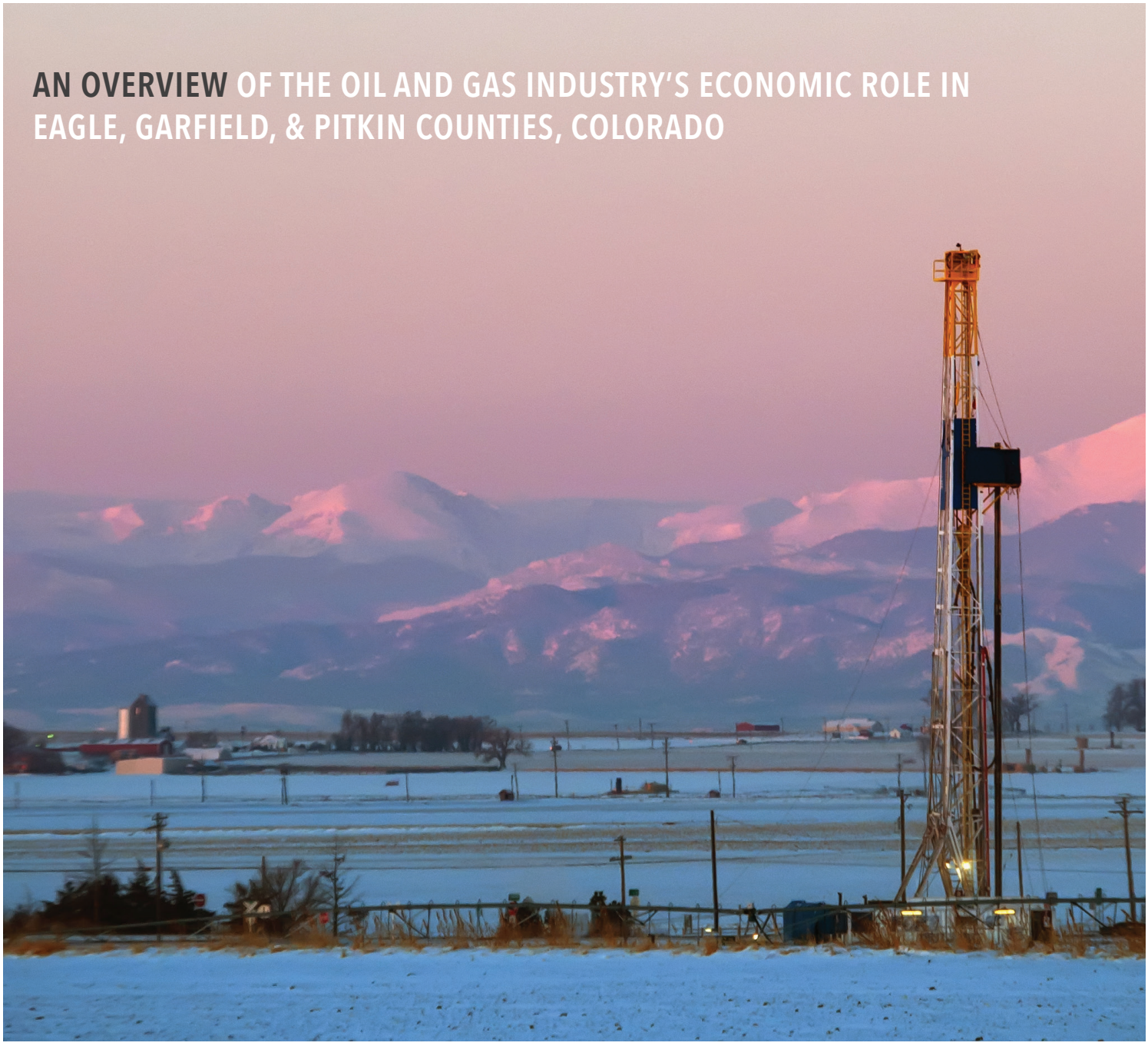
DRAFT 3.2.22

ECONOMIC TRANSITION ASSESSMENT BRIEF

AN OVERVIEW OF THE OIL AND GAS INDUSTRY'S ECONOMIC ROLE IN EAGLE, GARFIELD, & PITKIN COUNTIES, COLORADO



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CLEAN ENERGY ECONOMY FOR THE REGION

GARFIELD CLEAN ENERGY

BACKGROUND

This draft economic transition assessment was completed as part of a 3-County Solar and Storage Study, a project funded by the Colorado Department of Local Affairs Renewable Energy Challenge Grant awarded to Garfield Clean Energy with collaboration from Eagle and Pitkin Counties.

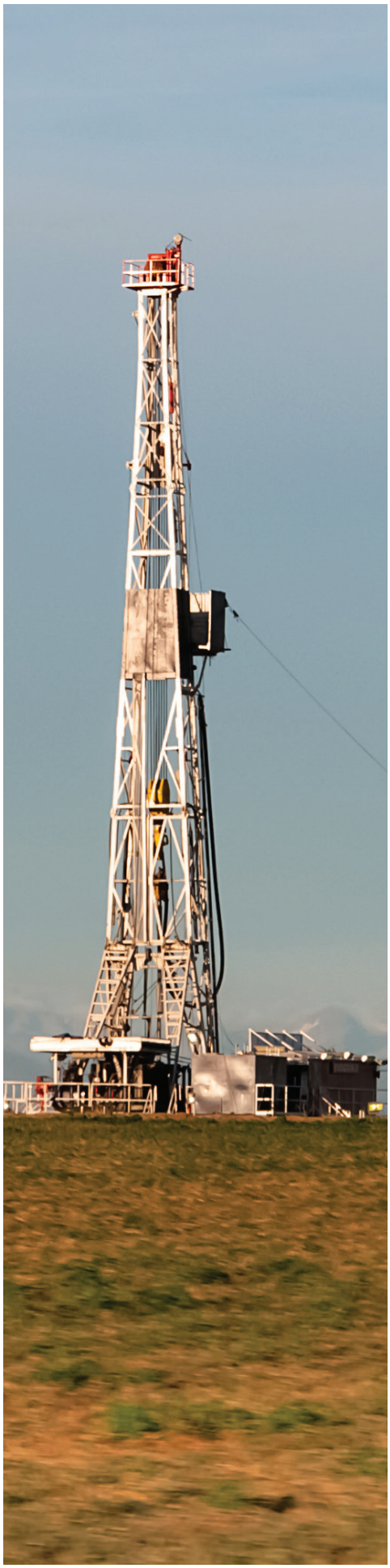
The purpose of this initial economic transition assessment is twofold: to better understand the current role of the oil and gas industry in the region's economy and the scale of local public revenue derived from the industry, and to place renewable energy development as an economic diversification tool within the context of the broader energy economy of the region.

The Solar plus Storage Study and draft Economic Transition Assessment are first steps toward building an understanding of the particular challenges and opportunities associated with achieving the statewide goal of 100% renewable energy goal by 2040 in counties where the oil and gas industry plays a large role in the economy and tax base.

Through this initial assessment and work to come, the study team hopes to catalyze a collaborative effort to create more resilient local economies in oil and gas counties as energy trends shift in the region, state and nation. In addition to the analysis summarized in this brief, additional economic analysis is also included in the Solar plus Storage Study.

Due to the limited scope of this component of the overall project, additional analysis and discussion is needed to more thoroughly understand current trends, and to plan and implement solutions to ensure thriving economies over time while meeting the state's 100% renewable energy goal.

This brief benefits from extensive data provided by staff in the Garfield County Assessor's Office and guidance from Mark Haggerty, senior fellow at the Center for American Progress, formerly with Headwaters Economics.



KEY FINDINGS

- In 2019, the Colorado oil and gas industry supported 20,808 jobs while the Colorado coal industry supported 1,273 jobs; that is 16 times the number of jobs.[1]
- Active oil and gas drilling rigs in Colorado declined by 91% from a high in 2008 to 2020.[2]
- In the three-county study region, oil and gas production is concentrated in Garfield County. No oil and gas wells are currently active in Eagle or Pitkin counties.[3]
- As of 2019, the oil and gas industry in Garfield County supported 542 full-time jobs and provided at least $77 million in public revenue.[4]
- In Garfield County, there were 56% fewer oil and gas jobs in 2019 than at the county's peak of 1,232 oil and gas jobs in 2007.[5]
- The oil and gas industry's share of total wages in Garfield County fell from 21% in 2011 to 7% in 2020.[6]
- The level of public revenue generated from the oil and gas industry is vulnerable to boom and bust cycles. For example, total public revenue generated from the oil and gas industry in Garfield County dropped by 48% between 2012 and 2016.[7]
- Between 2015 and 2019, Garfield County government and Garfield School District RE-2 depended on public revenue from the oil and gas industry for an average of at least 20% of their total funding. Over that same time period, Garfield School District 16's average dependency was 46%.[8]
- For context, in 2019, the amount of public revenue the oil and gas industry contributed to the Garfield County government was nearly equal to the amount the county spent on public safety.[9]

1 INTRODUCTION

The project team conducted this regional economic transition assessment to better understand the role of the oil and gas industry in the counties of Eagle, Garfield and Pitkin. This is an initial assessment where we begin to lay the groundwork for continued research, education, and planning on the topic of economic transitions. Within this assessment we provide:

- The physical and economic context of the oil and gas industry across the state.
- An assessment of the economic role the oil and gas industry plays in the counties of Eagle, Garfield and Pitkin.
- The share of public revenue that has been generated from the oil and gas industry for key local governments in Garfield County.

Certain economic impacts from the oil and gas industry, such as induced (multiplier) effects on jobs, discretionary severance and FML distributions, and sales tax, were not included in this report. See the Methods section, page 14, for more details.

This research was conducted as part of a 3-County Renewable Energy Challenge Grant provided by the Colorado Department of Local Affairs. This overview Economic Transition Assessment has been conducted as a complementary project to the 3-county Solar and Storage Study: Meeting Local, state and utility clean energy targets while maximizing regional benefits in Eagle, Garfield and Pitkin Counties.

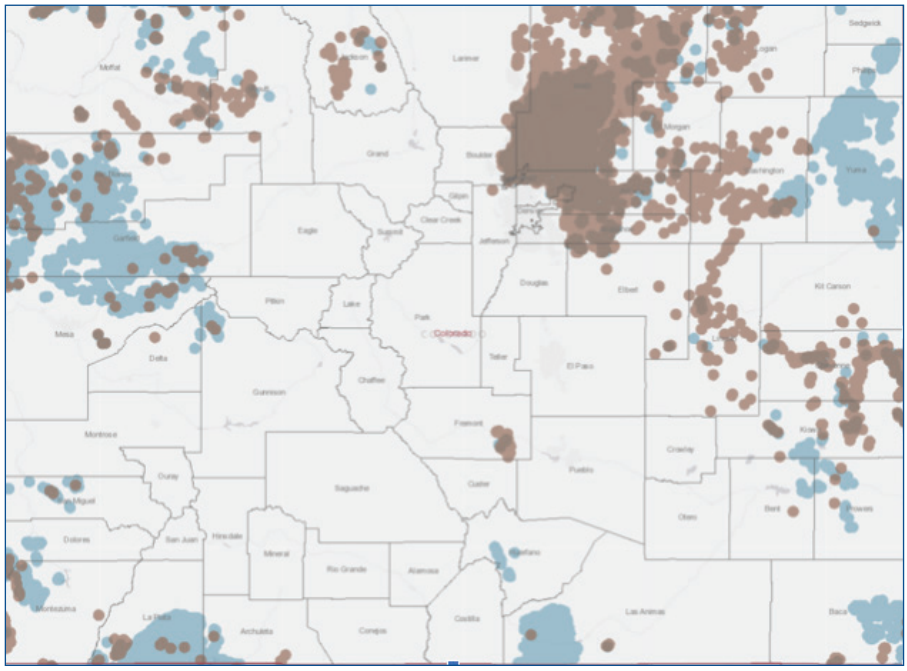
The overall goals of these combined projects are to maximize the economic benefits of solar and storage in the three-county region, to better understand resource and economic conditions and opportunities, and to work for a diversified, resilient economy that can provide continued prosperity and high quality of life in the region in the midst of economic and environmental challenges. Extensive data has been distilled down in this brief in an effort to make the information more accessible; more detail is available if needed.

2 COLORADO

2.1 PRODUCTION ACTIVITY

Oil and gas production mainly occurs across Colorado in two highly concentrated areas, the Piceance Basin on the Western Slope and the Denver Basin in northeastern Colorado.

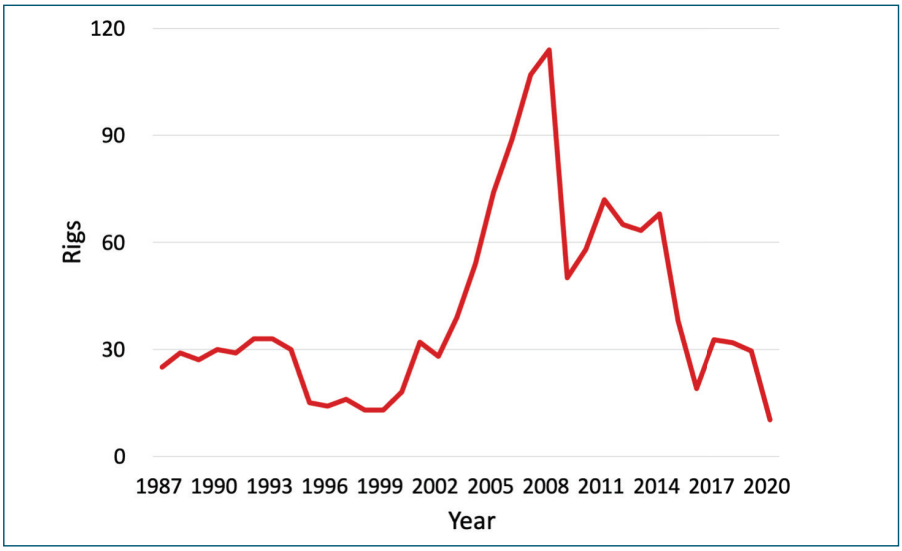
FIGURE 1: COLORADO OIL AND GAS WELLS (SEPTEMBER, 2021)



Note: Blue indicates gas wells and brown indicates oil wells.
Source: U.S. Energy Information Administration, https://atlas.eia.gov/apps/all-energy-infrastructure-and-resources/explore

The number of drilling rigs is a good indicator of how active the oil and gas industry is in a given year, and indicates future oil and gas production. The number of drilling rigs in Colorado peaked at 114 active rigs in 2008. By 2020, the active rig count declined by 91% to 10.[10] This downward trend in active drilling rigs indicates oil and gas production is in decline across the state.

FIGURE 2: COLORADO ANNUAL AVERAGE OIL AND GAS RIG COUNT (1987-2020)

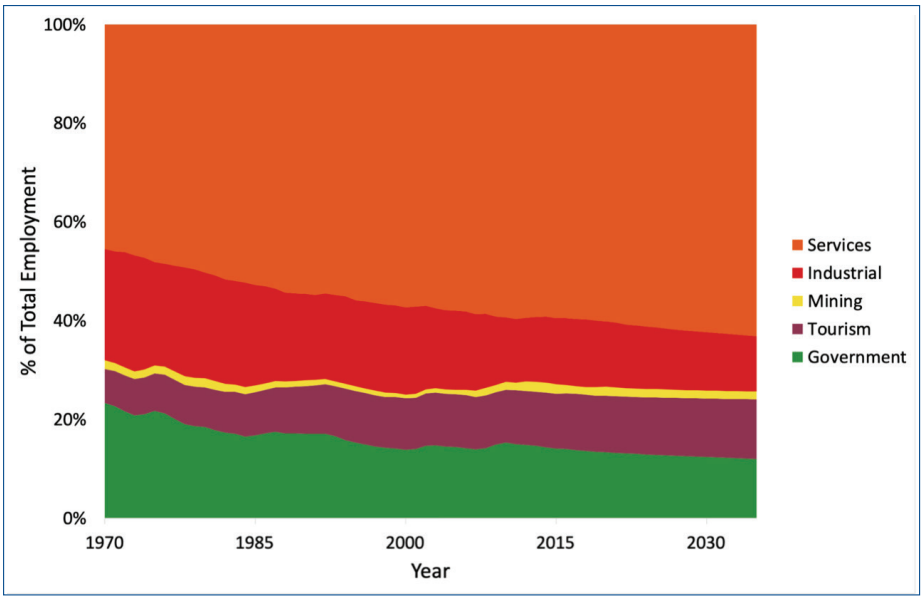


Source: Baker Hughes, https://rigcount.bakerhughes.com/na-rig-count

2.2 EMPLOYMENT

The mining industry, which includes the oil and gas industry, has accounted for 1% of total employment in Colorado over the last 51 years.[11]

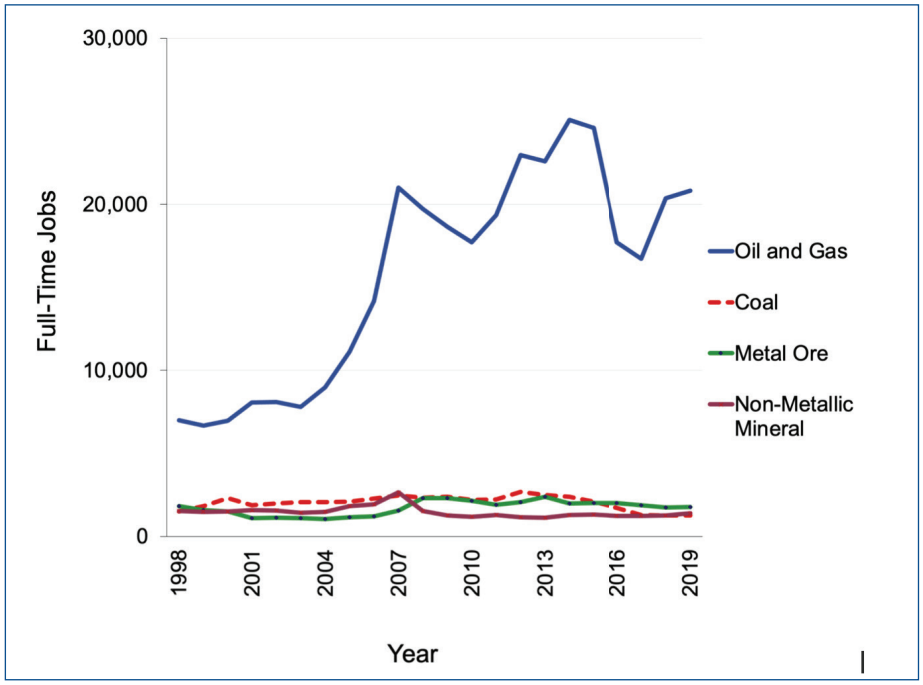
FIGURE 3: % OF TOTAL EMPLOYMENT BY SECTOR, COLORADO (1970-2035)



Source: Woods and Poole Economics Inc.

Since 2005, the oil and gas industry has accounted for at least five times the number of jobs as the coal industry in Colorado.[13] In 2019 there were 20,808 oil and gas jobs in Colorado.[14]

FIGURE 4: MINING EMPLOYMENT BY SECTOR, COLORADO (1998-2019)



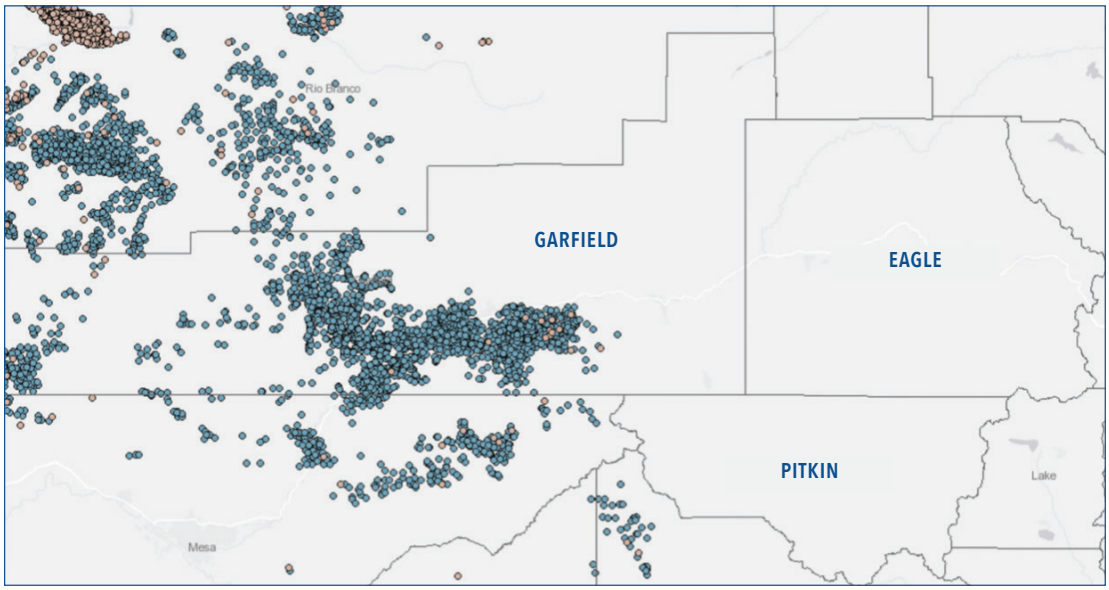
Source: U.S. Department of Commerce. 2020. Bureau of Economic Analysis, Regional Economic Accounts, Washington, D.C., reported by Headwaters Economics' Economic Profile System, headwaterseconomics.org/eps.

3 THE THREE-COUNTY REGION'S OIL & GAS INDUSTRY

3.1 PRODUCTION ACTIVITY

Across the counties of Eagle, Garfield and Pitkin, oil and gas production only actively occurs in Garfield County.

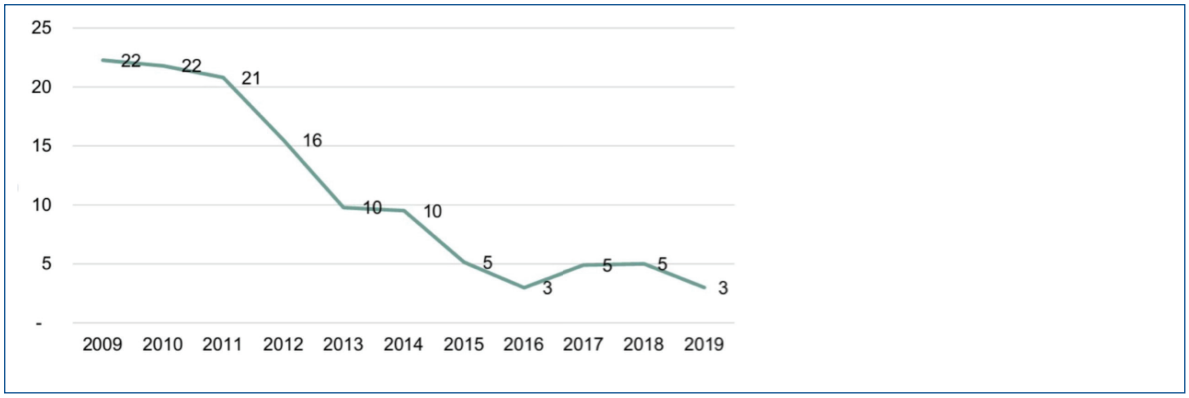
FIGURE 5: REGIONAL OIL AND GAS WELLS (SEPTEMBER, 2021)



Note: Blue indicates gas wells and brown indicates oil wells.
Source: U.S. Energy Information Administration, https://atlas.eia.gov/apps/all-energy-infrastructure-and-resources/explore

As with statewide trends, the number of active drilling rigs in Garfield County fell by 86% from 2009 to 2019, from 22 rigs in 2009 to 3 rigs in 2019.[15]

FIGURE 6: GARFIELD COUNTY AVERAGE ANNUAL RIG COUNT (2009-2019)

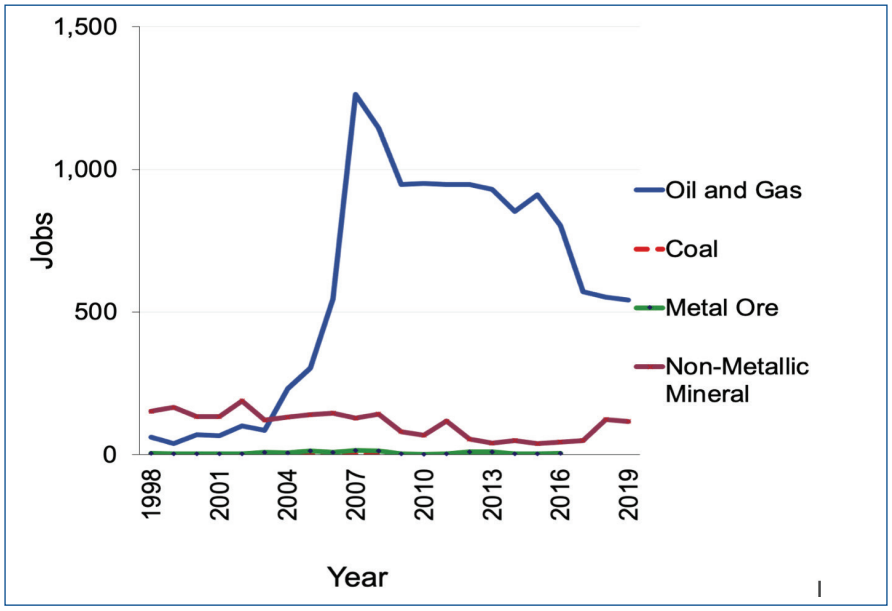


Source: Colorado Oil and Gas Conservation Commission, as reported in Garfield County's 2021 Budget

3.2. EMPLOYMENT AND WAGES

In 2019, 81% of mining jobs in the region were related to oil and gas production. There were no coal jobs in the three-county region in 2019.[16]

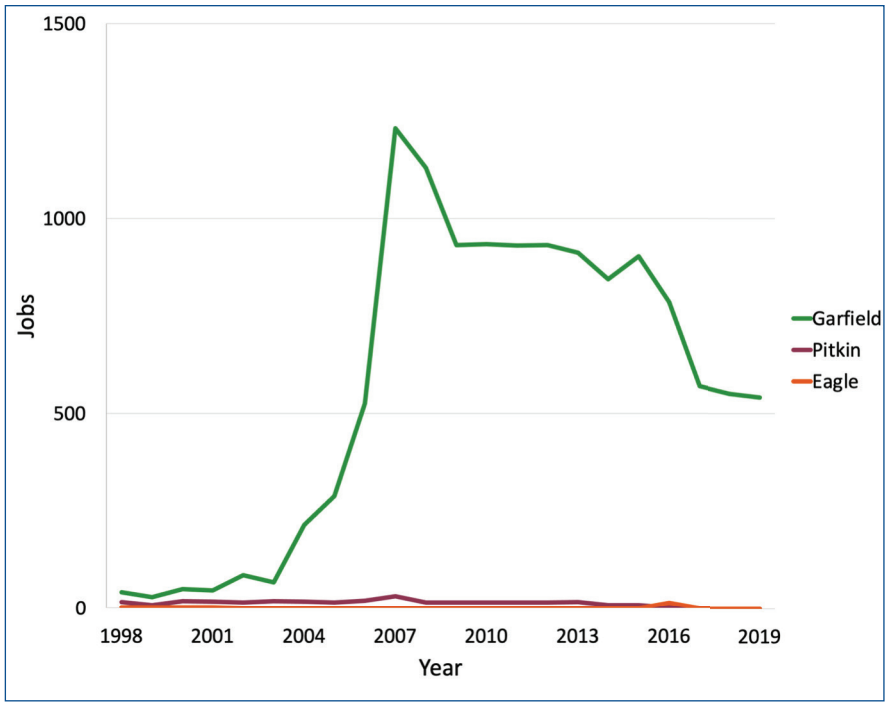
FIGURE 7: THREE-COUNTY MINING EMPLOYMENT BY SECTOR (1998-2019)



Source: U.S. Department of Commerce. 2020. Bureau of Economic Analysis, Regional Economic Accounts, Washington, D.C., reported by Headwaters Economics' Economic Profile System, headwaterseconomics.org/eps.

For the 20-year period from 1998 to 2019, virtually all oil and gas employment in the three-county region was in Garfield County. A rapid increase in oil and gas jobs resulted from several factors including rising natural gas prices, increased use of natural gas for electric power production, and advances in drilling technology such as hydraulic fracturing. [17] The onset of the Great Recession in 2008 marked an initial decline in employment, followed by further declines after 2016.

FIGURE 8: OIL & GAS AS A PERCENTAGE OF TOTAL WAGES, GARFIELD COUNTY (2001-2020)

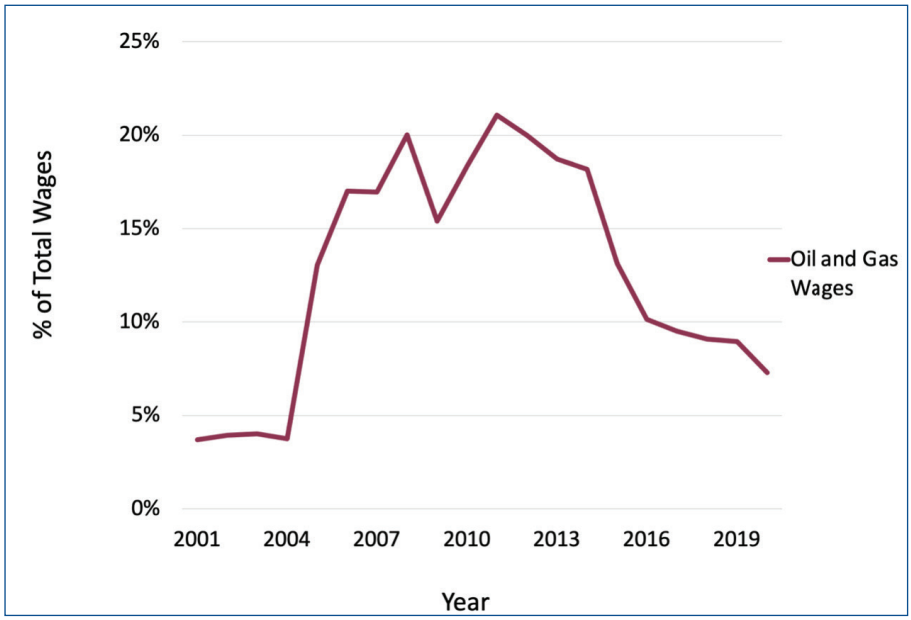


Source: U.S. Department of Commerce. 2020. Bureau of Economic Analysis, Regional Economic Accounts, Washington, D.C., reported by Headwaters Economics' Economic Profile System, headwaterseconomics.org/eps.

3.2. EMPLOYMENT AND WAGES

Oil and gas industry jobs typically pay well above average. In 2011, the industry accounted for 5% of total employment in Garfield County, while representing 21% of total wages.[18] But as the industry's employment has fallen, so has its share of wages. By 2019, oil and gas employment represented 9% of total wages in the county and 4% of total employment.[19]

FIGURE 9: GARFIELD COUNTY OIL AND GAS EMPLOYMENT AS A PERCENTAGE OF TOTAL WAGES, (2001-2020)[20]



Source: U.S. Bureau of Labor Statistics

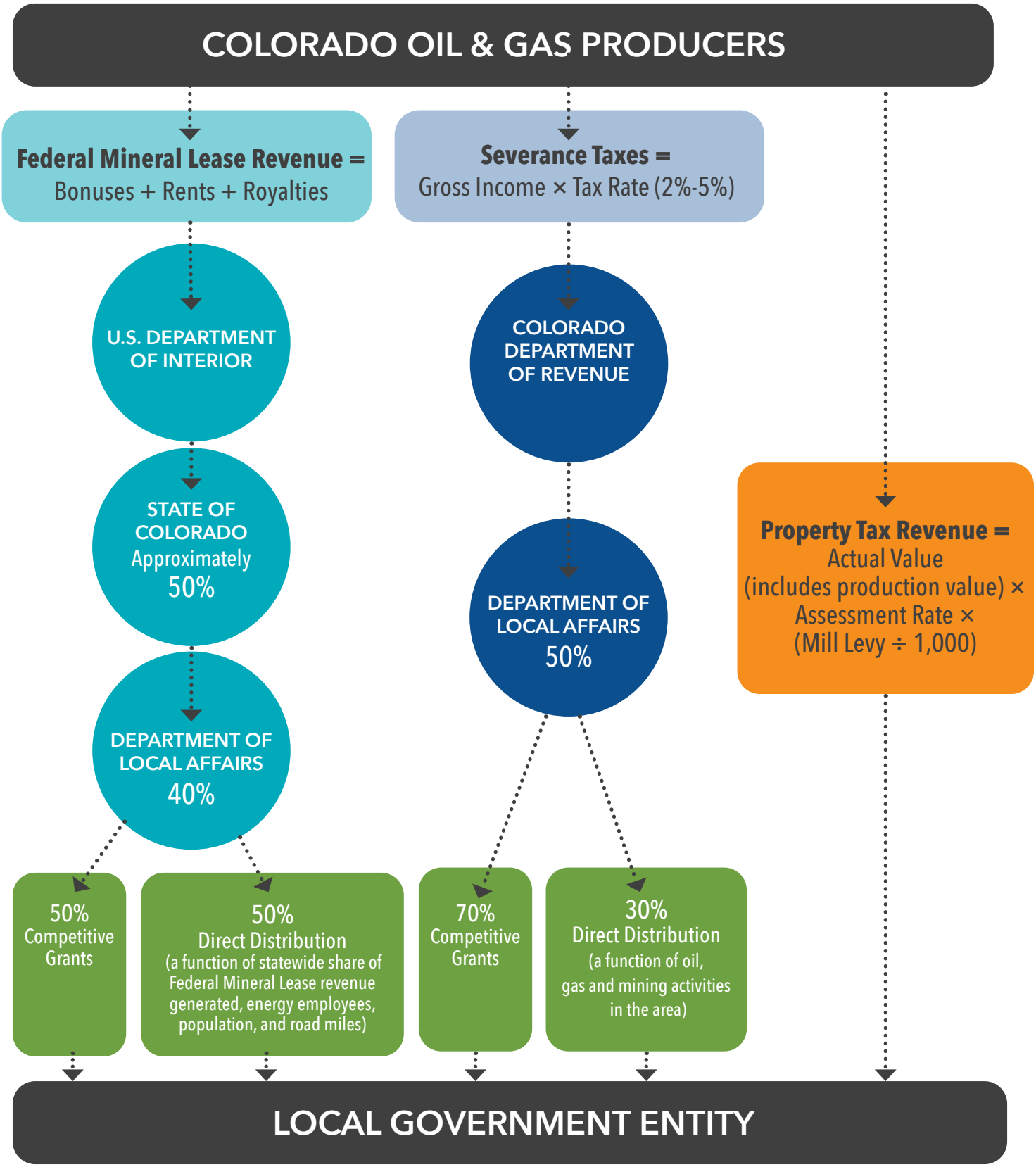
4 GARFIELD COUNTY PUBLIC REVENUE FROM THE OIL & GAS INDUSTRY

4.1

As seen in the flow chart on the next page, the oil and gas industry pays three different types of taxes, which are distributed to the Federal Government, the State of Colorado and to local governments through three different formulas. The federal government levies a federal mineral lease tax on oil and gas producers working on federal land. The state of Colorado levies a severance tax on oil and gas producers based almost exclusively on the value of oil and gas produced; this make severance tax amounts fluctuate in line with oil and gas prices. While most of the revenue collected from these taxes goes to the federal and state government, a portion of the revenue is returned to local governments based on formulaic (direct) and competitive grant (indirect) distributions.

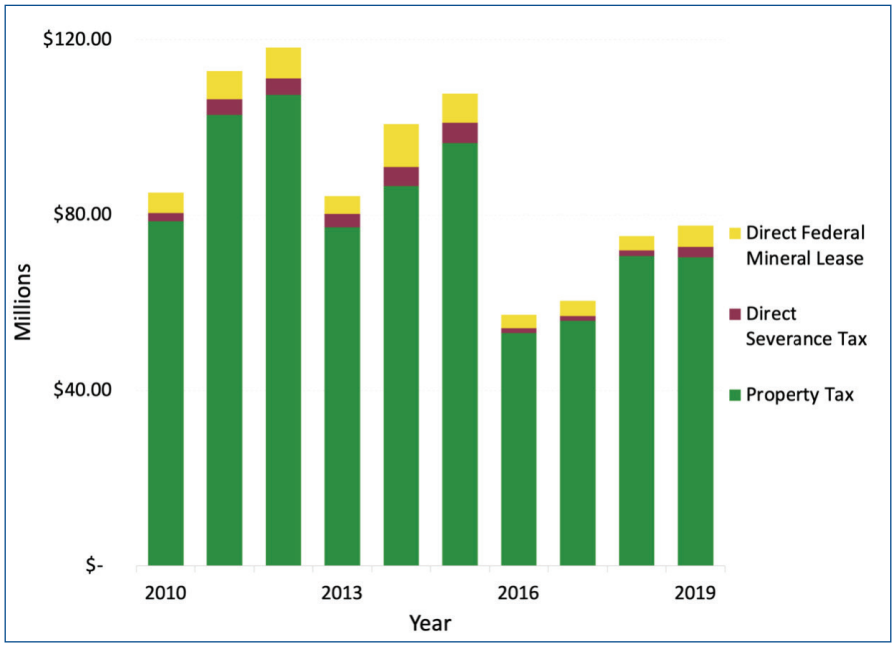
The third and single largest way local governments collect public revenue from the oil and gas industry is through local property taxes. For illustration, in 2019 Garfield county as a whole collected $7.2 million in direct Severance Tax and Federal Mineral Lease distributions and $70.3 million from local property taxes on the oil and gas industry. Across the region, Garfield County is the only county where the oil and gas industry is currently active. Therefore, this section only focuses on the public revenue generated from the oil and gas industry in Garfield County.

FIGURE 10: HOW THE OIL AND GAS INDUSTRY GENERATES TAX REVENUES TO BENEFIT LOCAL GOVERNMENTS



The oil and gas industry is prone to boom and bust cycles. As a result, public revenues received from the industry are vulnerable to significant fluctuation. In the decade from 2010 to 2019, the total amount of public revenue that taxing entities in Garfield County received from the oil and gas industry fluctuated from a high of $118 million in 2012 to a low of $57 million in 2016.[21]

FIGURE 11: ALL PUBLIC REVENUE FROM THE OIL AND GAS INDUSTRY, GARFIELD COUNTY (2010-2019)



Source: Colorado Department of Local Affairs' Local Government Information Service and from the Garfield County Assessor's Office

Property taxes are the largest source of local public revenue from oil and gas producers. Fourteen taxing authorities in Garfield County received more than 50% of their total property tax revenue from the oil and gas industry in 2019. Only the five largest local government entities in terms of total property tax collected from the oil and gas industry are included in the following table. Additional information on other local government entities is available as requested.

TABLE 1: OIL & GAS PROPERTY TAX VALUE, ESTIMATED REVENUE, AND SHARE OF TOTAL PROPERTY TAX REVENUE (2019)

Local Government Entity	Type of Local Government Entity	Oil and Gas Property Taxable Value	Oil and Gas Property Tax Revenue Estimate	Oil and Gas Share of Total Property Tax Revenue
Garfield County	County Government	$1,332,043,380	**$18,189,052**	53.43%
School District RE-2	Education District	$460,342,400	**$12,606,016**	57.16%
School District 16	Education District	$606,168,610	**$8,137,207**	87.92%
Colorado Mountain College	Education District	$1,066,511,010	**$4,279,909**	48.58%
Grand Valley Fire Protection District	Fire District	$620,328,100	**$3,866,505**	88.07%

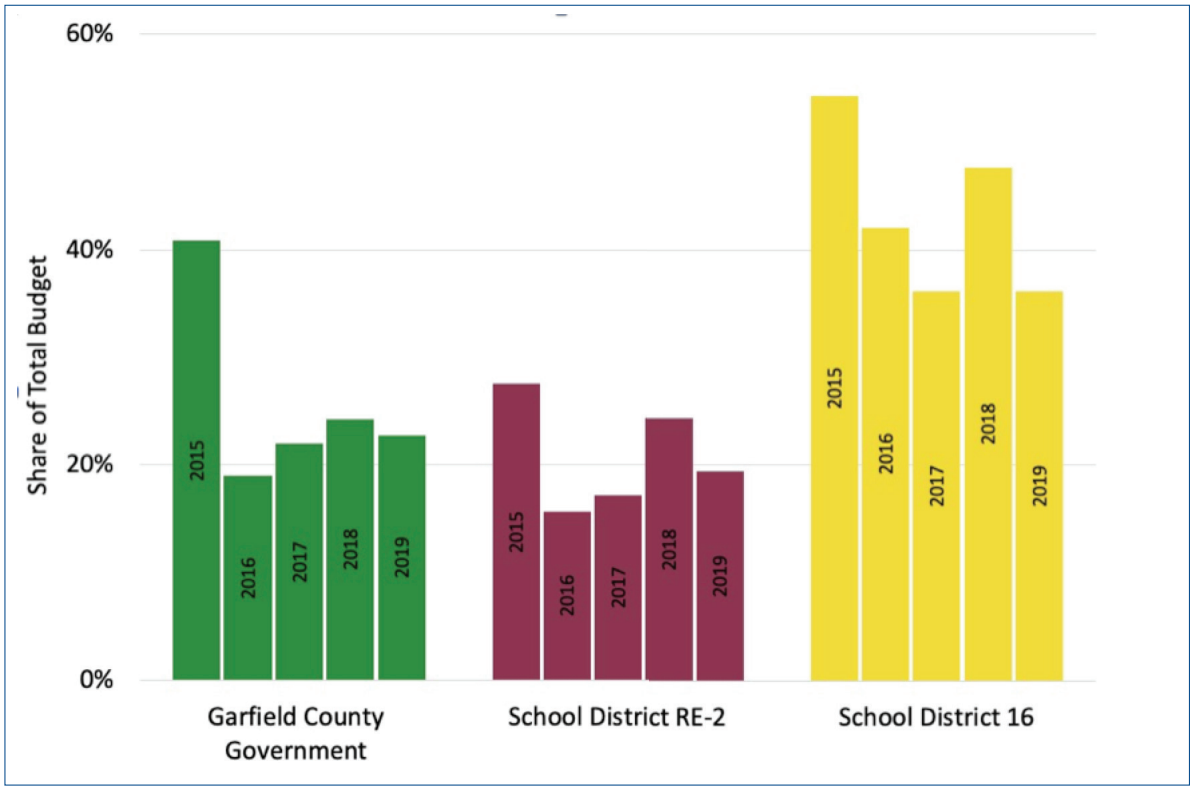
Source: Source: Colorado Department of Local Affairs' Local Government Information Service and Garfield County Assessor's Office

In 2019, the Garfield County government collected $22 million in public revenue from the oil and gas industry. To provide context for the size of the revenue collected from the oil and gas industry, in 2019, Garfield County government's net expenditure on public safety was $23 million.[22]

Figure 12 shows what percentage of three different local government's total budgets comes from revenue collected from the oil and gas industry. While more information on other taxing entities can be provided upon request, the three local government included below collect the most property tax revenue from the oil and gas industry.

Between 2015 and 2019, all three of these taxing entities depended on oil and gas revenue to provide at least 15% or more of their annual budgets. School District 16 saw their revenue dependency cross the 40% threshold three times during that five-year period.

FIGURE 12: CONTRIBUTION OF OIL & GAS REVENUE TO GARFIELD COUNTY AND SCHOOL DISTRICTS BUDGETS (2015-2019)



Source: Colorado Department of Local Affairs' Local Government Information Service and Garfield County Assessor's Office

While the overall dependency on oil and gas tax revenue has fluctuated for the three local government entities, as seen in Figure 12, this overall dependency cannot be ignored in planning for the future. The continued, and expected decline of the oil and gas industry must be planned for to ensure local public entities can adequately provide needed public goods and services.

5 APPENDIX

5.1 METHODS

Public revenue from the oil and gas industry has been calculated from the sum of direct severance tax and federal mineral lease (FML) distributions, and property tax. Discretionary severance tax and FML distributions were not included because their distributions fluctuate greatly year to year and because their allocation is more dependent on a government's ability to apply for project funding than the amount of oil and gas activity in a region. Sales tax and income tax were not included because it is beyond the scope of this assessment to disentangle the oil and gas industry's specific contribution to these larger revenue streams.

Indirect (multiplier) employment effects were not calculated in this report but we hope to add these in the future. See Colorado Mesa University professor Nathan Perry's 2018 paper, *Economic Contribution of the Oil and Gas Industry in the Piceance Basin*, for more details on the oil and gas industry's economic role in the Piceance Basin at large.

5 ENDNOTES

1. Calculated from data provided by: *U.S. Department of Commerce. "Bureau of Economic Analysis, Regional Economic Accounts." Washington, D.C.: Online, 2020. reported by Headwaters Economics' Economic Profile System, headwaterseconomics.org/eps.*
2. Calculated from data provided by: *Baker Hughes. "Rigs by State - Current and Historical." Online, September 2021, https://rigcount.bakerhughes.com/na-rig-count.*
3. *U.S. Energy Information Administration. Map. U.S. Energy Mapping System. Washington, D.C, 2021, https://atlas.eia.gov/apps/all-energy-infrastructure-and-resources/explore.*
4. Calculated from data provided by: U.S. Department of Commerce. *"Bureau of Economic Analysis, Regional Economic Accounts." Washington, D.C.: Online, 2020. reported by Headwaters Economics' Economic Profile System, headwaterseconomics.org/eps.*
   –Colorado Department of Local Affairs. "Local Government Budgets," September 2021. https://dola.colorado.gov/lgis/.
   –Garfield County Assessors' Office. "Selected Authority Property Tax Abstracts." Glenwood Springs, CO, 2020.
5. Calculated from data provided by: U.S. Department of Commerce. *"Bureau of Economic Analysis, Regional Economic Accounts." Washington, D.C.: Online, 2020. reported by Headwaters Economics' Economic Profile System, headwaterseconomics.org/eps*
6. United States Department of Labor. *"U.S. Bureau of Labor Statistics' Quarterly Census of Employment and Wages." Washington, D.C.: Online, 2021.*
   Calculated from data provided by: *Colorado Department of Local Affairs. "Local Government Budgets," September 2021. https://dola.colorado.gov/lgis/.*
7. *Garfield County Assessors' Office. "Selected Authority Property Tax Abstracts." Glenwood Springs, CO, 2020.*
8. Ibid
9. Ibid
10. Calculated from data provided by: *Baker Hughes. "Rigs by State - Current and Historical." Online, September 2021.*
11. Calculated from data provided by: *Woods and Poole Economics, Inc., "Colorado Economy (1970-2035)," October 2020.*
12. Ibid
13. Calculated from data provided by: *U.S. Department of Commerce. "Bureau of Economic Analysis, Regional Economic Accounts." Washington, D.C.: Online, 2020. reported by Headwaters Economics' Economic Profile System, headwaterseconomics.org/eps*
14. Ibid
15. *Garfield County Finance Office, 2021 Adopted Budget § (2021).*
16. Calculated from data provided by: *U.S. Department of Commerce. "Bureau of Economic Analysis, Regional Economic Accounts." Washington, D.C.: Online, 2020. reported by Headwaters Economics' Economic Profile System, headwaterseconomics.org/eps*
17. Perry, Nathan. "*Economic Contribution of the Oil and Gas Industry in the Piceance Basin," 2018. https://www.coloradomesa.edu/energy/documents/economic-contribution-of-oil-and-gas-in-the-piceance.pdf*
18. Calculated from data provided by: *United States Department of Labor. "U.S. Bureau of Labor Statistics' Quarterly Census of Employment and Wages." Washington, D.C.: Online, 2021.*
19. Ibid
20. The oil and gas data used in this graphic represent mining (including oil and gas) wages. Oil and gas wages are the vast majority of wages represented in mining in Garfield County. Therefore, this is an accurate representation of oil and gas wages.
21. Calculated from data provided by: *Colorado Department of Local Affairs. "Local Government Budgets," September 2021. https://dola.colorado.gov/lgis/.*
    Garfield County Assessors' Office. "Selected Authority Property Tax Abstracts." Glenwood Springs, CO, 2020.
22. *Colorado Department of Local Affairs. "Local Government Budgets," September 2021. https://dola.colorado.gov/lgis/.*