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Eddy County Petroleum Industry Impact on New Mexico, 2012-2018

December 2019

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Executive Summary

Eddy County New Mexico has contracted Arrowhead Center at New Mexico State University to prepare a study of the impacts of Eddy County's petroleum industry[1] on New Mexico from 2012-2018. Eddy County is currently experiencing a tremendous oil boom. New technology advances and discoveries have made land in this area part of the most attractive oil play in the world. For the first time since 1973, the United States has become the top oil producing nation in the world, driven by oil production in the Permian Basin.[2] Recent assessments of oil and gas reserves in the Delaware Basin[3] near Carlsbad, New Mexico have reported the largest continuous oil and gas resources ever discovered.[4]

These new discoveries and subsequent drilling have produced many benefits - increased employment, economic output, and government revenue. The purpose of this impact study is to attempt to quantify and estimate the impact of Eddy County's petroleum industry on New Mexico from 2012-2018. The approach for this impact study considered:

- Oil and gas jobs in Eddy County for each year from 2012-2018, using data from the Bureau of Labor Services Quarterly Census of Employment and Wages. Multi-Regional Input-Output Analysis was used to estimate the impacts in Eddy County and the rest of New Mexico.
- Tax revenue generated by the oil and gas industry in Eddy County was calculated and beneficiaries of those taxes were estimated.
- Oil and gas royalties, rentals, bonuses, and interest revenues from state and federal lands in Eddy County were calculated and the beneficiaries in New Mexico were estimated. For oil and gas revenues on federal lands, only the portion allocated to New Mexico was used.

Highlights

- From 2012-2018, the oil and gas industry in Eddy County contributed $6.4B to state and local governments, which comprised 10% of the state's nonfederal revenue sources.

1 The terms petroleum industry and oil and gas industry are used interchangeably in this study and are used to describe the same industry.

2 (Dunn & Hess, 2018)

3 The Delaware Basin is part of the Permian Basin.

4 (Gaswirth & al., 2018)

- From 2012-2018, the oil and gas industry in Eddy County generated $10.3B in value added production (GDP) and $13.9B in total economic output for New Mexico's economy.
- From 2012-2018, the oil and gas industry in Eddy County supported 54,964 jobs and $4.9B in labor income in New Mexico's economy.
- From 2012-2018, government revenues from the oil and gas industry in Eddy County were used to support $3.2B for Education, $1.9B for Health and Human Services, $419M for Highways and Transportation, $351M for Public Safety, $226M for the Judicial system, $120M for Culture, Recreation, and Natural Resources, and $229M for Other Government Functions.

Table of Contents

Tables

Figures

Acknowledgements

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Disclaimer

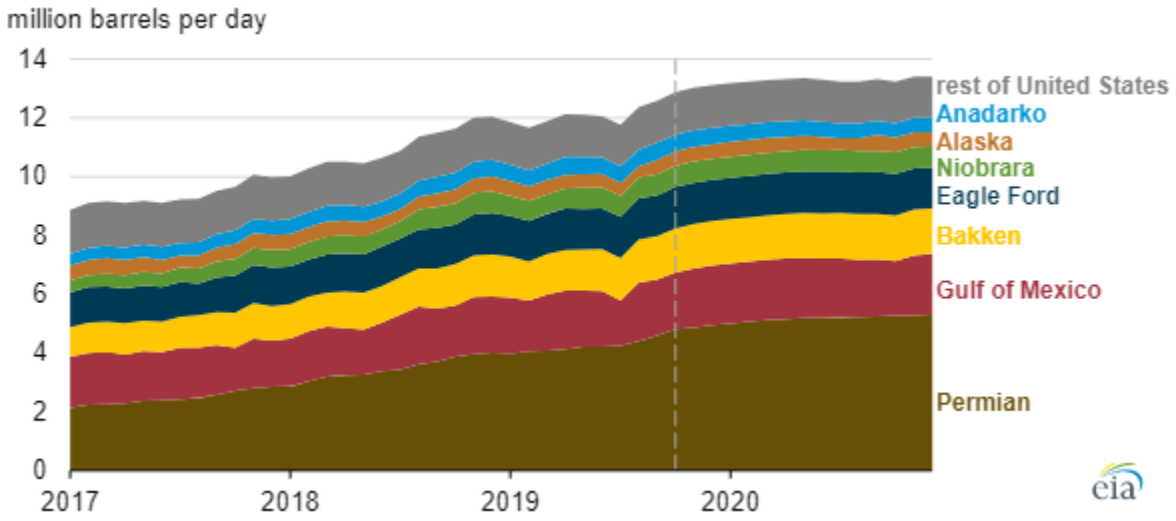
The purpose and scope of this report is to provide a best-available estimation of the impact of Eddy County's petroleum industry in New Mexico from 2012-2018. All material included in this document is based on data/information gathered from the best available sources. Due diligence has been taken to compile this document; however, with any estimation, numerous factors and assumptions can be wrong. Assumptions and methodologies used in the study are discussed in detail in this report. Arrowhead Center does not in any way assume liability for any financial or other loss resulting from this report when undertaking the business activities described herein. Prospective users of this study are encouraged to carry out their own due diligence and gather any additional information considered necessary for making an informed decision. The content of this informational report therefore does not bind Arrowhead Center legally or in any other form.

Introduction

The Permian Basin region, which includes Eddy County, New Mexico, has been experiencing significant growth in the oil and gas industry as a result of increased resource extraction. To estimate the effect of Eddy County's oil and gas industry on New Mexico, Arrowhead Center was contracted to conduct a study of Eddy County's petroleum industry and its impact on the greater economy of New Mexico during the 2012-2018 time period.

The oil and gas boom in Eddy County during this time period coincides with greater levels of overall domestic oil and gas production. In November 2019, the U.S. Energy Information Administration estimated that U.S. oil production in 2019 averaged 12.4 million barrels per day (b/d). This level of production surpasses records set in December 2018 of 11.96 million b/d, a figure that greatly exceeded previous records set in 1970 of 9.6 million b/d. The increase in domestic production is greatly fueled by the increase in output from the Permian Basin, as shown in Figure 1.

Figure 1 – Monthly U.S. crude oil production by region, 2017-2020[5]



The recent historic levels of production observed in the Permian Basin are due largely to favorable geology and advances in technology. These conditions have made Eddy County and the surrounding area one of the more economically efficient regions of the United States for crude oil extraction and have led to an increase in the number of wells for two of the Permian's most significant geologic formations: the Wolfcamp and Bone Spring formations. Between 2005 and 2019, the Bone Spring formation increased its producing well count from 436 to 4,338 while

5 (U.S. Energy Information Administration, 2019)

the Wolfcamp formation increased its producing well count from 2,200 in 2005 to 7,750 in 2018.[6] A significant number of these wells and the accompanying activities for their production are found in Eddy County.

While this increased activity in oil and gas extraction and associated industries is apparent, the impacts are far reaching and have grown the economy and government budgets in New Mexico. The purpose of this study is to quantify these impacts and specify the benefits of Eddy County's petroleum industry.

6 (Popova, Geary, Patel, & Cohen, 2019)

Background

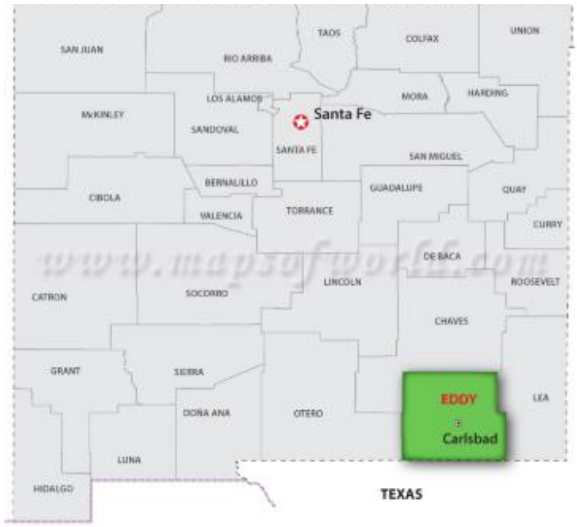
Eddy County, New Mexico's history, jobs, and economy are tied strongly to the natural geological resources abundant in the area. Located in the Chihuahuan Desert in the southeastern part of New Mexico, Eddy County covers an area of 4,175 square miles and is home to a population of 57,900 people as of 2018. [7] Table 1 shows the historical population figures for Eddy County from 2010-2018. Figure 2 shows the location of Eddy County in New Mexico. Carlsbad is the county seat and the largest city in Eddy County.

Table 1 – U.S. Census Estimates for Population, Eddy County, New Mexico, 2010-2018

Year	2010	2011	2012	2013	2014	2015	2016	2017	2018
Population	53,901	54,056	54,416	55,668	56,690	57,724	57,667	57,205	57,900

Mining, healthcare, retail, hospitality, and food services are the biggest employers in the region, with mining jobs focused in oil and gas, and in potash production (though the potash industry has been declining in the region for some time). Nuclear waste storage is also a significant and growing factor in the local economy, with an expansion planned at the Waste Isolation Pilot Project (WIPP) and construction on a proposed Consolidated Interim Storage Facility expected to begin in 2021. Jobs in the oil and gas and hazardous waste storage industries support above-average incomes relative to the rest of New Mexico. At $62,296, average annual wages in Eddy County are 34.6% higher than the average annual wages for the state of New Mexico.[8] Figure 3 shows the total wages by industry in Eddy County, the bulk of which come from Natural Resources & Mining, specifically oil and gas extraction.[9]

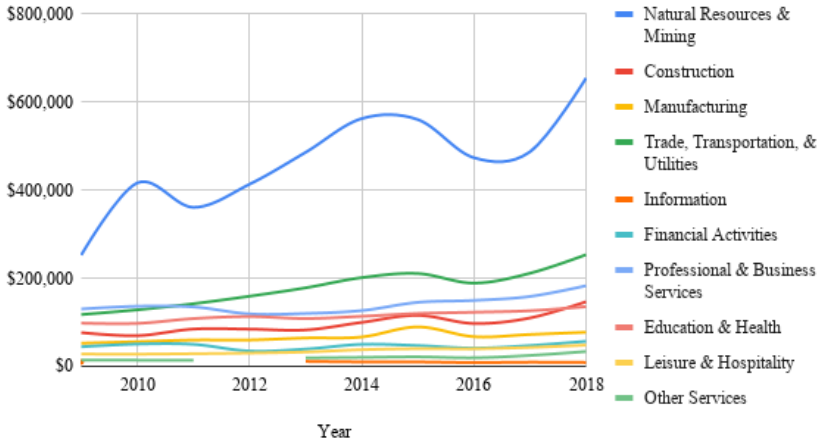
Figure 2 - Map of New Mexico, Eddy County denoted



7 (U.S. Census Bureau, Population Division, 2018)
8 (New Mexico Workforce Connection, 2018)
9 (U.S. Bureau of Labor Statistics, 2019)

Oil extraction in the greater Permian Basin that includes parts of Eddy County, Lea County, and west Texas has been ongoing for almost a century, with historical production reaching 33.4 billion barrels of oil as of September 2018.[10]

Figure 3 – Total Wages by Industry, Eddy County, 2009-2018, in thousands



Traditional vertical drilling techniques were employed for almost all extraction prior to 2010. Since then, due to technology advances, there has been a shift towards horizontal drilling in the Permian Basin, particularly in Eddy and Lea counties. By 2014, most of the new wells in Eddy County used horizontal drilling technology to increase efficiency and production, as shown in Figure 4.[11]

Production from the Permian Basin has driven the United States to surpass Russia and Saudi Arabia to become the world's largest oil producer.[12] While Russia and Saudi Arabia have maintained a relatively stable level of oil production since prices recovered in 2016 following a decline in 2014, investment and production from U.S. producers has continued to increase. The geologic formations underlying Eddy County are key to the oil production boom in the United States and the Permian Basin.[13]

Figure 4 – Eddy County Monthly Production of Crude Oil, in barrels/month, 1994-2019

10 (U.S. Energy Information Administration, 2018)
11 (New Mexico Energy, Minerals and Natural Resources Department, 2019)
12 (Dunn & Hess, 2018)
13 (Geary, 2019)

Methodology

The study considered impacts from the oil and gas industry in Eddy County, New Mexico. The specific impacts analyzed were from employment, state tax revenue, state land revenues, and the portion of federal land revenues returned to New Mexico. Beneficiaries of state revenues were estimated based on state budget information and annual financial reports.[14]

The economic impact was estimated based on oil and gas jobs in Eddy County from 2012-2018. Employment statistics were gathered from the Bureau of Labor Services Quarterly Census of Employment and Wages.[15] Economic impacts were estimated using the web-based version of the IMPLAN economic modeling software.[16] IMPLAN's Multi-Regional Input-Output Analysis technique was used to estimate the impacts in Eddy County and the rest of New Mexico.

Tax revenue generated from the oil and gas industry in Eddy County was estimated based on five primary taxes that account for nearly all the tax revenue generated by the industry - Oil and Gas Severance Tax, Oil and Gas Conservation Tax, Oil and Gas Emergency School Tax, Oil and Gas Production Equipment Ad Valorem Tax, and Gross Receipts Tax. Additional tax revenues were estimated from the Corporate Income Tax and Personal Income Tax. These taxes were estimated based on the employment and economic output estimates from our IMPLAN analysis. This approach was used because industry- and county-level figures were not available for these specific taxes.

Gross Receipts Taxes from the oil and gas industry in Eddy County were compiled from New Mexico Taxation & Revenue Department's Quarterly RP-80 Reports.[17] Gross Receipts Taxes were estimated from 2012-2014, as disaggregated data was not available, and oil and gas activities were included with mining activities. These years were estimated based on the years with available disaggregated data (2015-2018). In these years, roughly 97% of the Gross Receipts Tax reported under the available aggregated category, Mining and Oil and Gas Extraction, were from oil and gas. The oil and gas Gross Receipts Tax Revenues were estimated based on this percentage.

Oil and gas royalties, rentals, bonuses, and interest revenues from state and federal lands in Eddy County were calculated and the beneficiaries in New Mexico were estimated. For oil and gas revenues on federal lands, only the portion allocated to New Mexico was included in our

14 (New Mexico Department of Finance & Administration, 2019)
15 (U.S. Bureau of Labor Statistics, 2019)
16 The IMPLAN model was originally developed for the U.S. Forest Service but for many years it has been maintained and sold by the IMPLAN Group, Inc. (IMPLAN, 2019)
17 (Taxation & Revenue New Mexico, 2018)

analysis (49%). Private lease revenues were not considered, because it was not possible to determine whether those revenues were spent in New Mexico or elsewhere.

Financial beneficiaries of tax and land revenues were estimated based on available state budget information. Based on the complexity of the state budget and various tax rules, the beneficiary estimate is an approximation; however, this approximation does provide an illustration of the financial beneficiaries of the government revenues generated by Eddy County's petroleum industry.

Analysis of Impacts

The study considers impacts from employment, state tax revenue, state land revenues, and the portion of federal land revenues returned to New Mexico. Beneficiaries of tax and land revenues were estimated based on available state budget information. Table 2 summarizes the total impacts that were estimated.

Table 2 – Summarized Total Impact of Eddy County Petroleum Industry on New Mexico, 2012-2018

Year	2012-2018
Tax Revenues for New Mexico	$3,178,144,371
Land Revenues for New Mexico	$3,265,312,961
Tax & Land Revenues for New Mexico	$6,443,457,332
Jobs Supported (created and retained)	54,965
Labor Income Supported	$4,981,088,937
Contribution to Value Added Production (GDP)	$10,289,790,568
Contribution to New Mexico's Total Economic Output	$13,915,700,391

The following sections provide greater detail about our approach and the impacts that were estimated.

Impact from Oil and Gas Employment in Eddy County

Economic impact analysis is an attempt to measure the net change in economic activity in a given geographic area that results from a change in economic activity. Often, the change in economic activity refers to new spending or employment associated with a new business or a business expansion. In this study, we are performing an impact analysis on historical data. The main idea behind economic impact analysis is that a new dollar spent in a local area results in more than one dollar in economic activity in the area.

Economic impacts are measured in terms of changes in output, value added production, labor income, and employment. The economic impacts presented here include the direct, indirect, and induced impacts for each variable described above. All terms are defined in the Glossary at the end of this document.

The economic impact for this study was estimated based on oil and gas jobs in Eddy County for each year from 2012-2018, using data from the Bureau of Labor Services Quarterly Census of Employment and Wages.[18] Jobs in three industry classifications were considered: Oil and Gas Extraction, Oil and Gas Pipeline and Related Structures Construction, and Support Activities for Oil and Gas Operations. Table 3 shows the industry classifications used in the analysis.

Table 3 – Industry Classifications used in IMPLAN Analysis

Industry	NAICS Code	IMPLAN Code
Oil and Gas Extraction	211	20
Support Activities for Oil and Gas Operations	213112	38
Oil and Gas Pipeline and Related Structures Construction	237120	58

Economic impacts were estimated using IMPLAN economic modeling software.[19] Multi-Regional Input-Output (MRIO) analysis was used to estimate impacts in Eddy County and the rest of New Mexico. MRIO is an approach to estimate the spillover effects of economic activity in one region onto other regions. Direct, indirect, and induced impacts are considered. Dollar impacts are presented in 2019 dollars. Employment refers to full- and part-time jobs. Components may not sum to totals due to rounding. Table 4 shows the industries that were entered in the IMPLAN models for each year. These jobs are the direct impacts in the IMPLAN model.

18 (U.S. Bureau of Labor Statistics, 2019)
19 (IMPLAN, 2019)

Table 4 – Employment Data Used in IMPLAN Analysis[20]

Year	211 - Oil and Gas Extraction	213112 - Oil and Gas Pipeline and Related Structures Construction	237120 - Support Activities for Oil and Gas Operations
2012	966[21]	61	2,381
2013	1,214	60	3,187
2014	1,368	158	3,771
2015	1,502	256	3,783
2016	1,347	134	2,990
2017	1,296	367	3,725
2018	1,483	546	5,102

Based on the jobs in Eddy County's oil and gas industry, significant economic impacts were created in Eddy County and around New Mexico. The impacts outside of the county are generated by trade patterns between counties in New Mexico and can be estimated with IMPLAN software and MRIO. The impacts in other counties are influenced by linkages between the economies of the counties. These linkages are sometimes due to proximity, but are due primarily to industry structure. For example, if the oil and gas extraction industry in Eddy County requires equipment not available in Eddy County, but can be found in Chaves County, then an economic impact may be created in Chaves County based on the oil and gas extraction industry in Eddy County. Figure 5 shows the total direct, indirect, and induced jobs created by Eddy County's oil and gas industry over the period of this study. Tables 5 shows the direct, indirect and induced impacts of Eddy County's Petroleum Industry on employment, labor income, value added production, and economic output on New Mexico. Table 6 shows the same impact for New Mexico as a whole. Table 7 shows the impacts of Eddy County's oil and gas industry on economic output in Eddy County and New Mexico as a whole.

20 (U.S. Bureau of Labor Statistics, 2019)

21 The data for this year was suppressed by Bureau of Labor Services due to limited data availability. The estimate was based on the relationship between NAICS 211 and NAICS 21. This relationship was observed in other years where data for both NAICS codes was available. The 2012 NAICS 21 data was available so that was used to calculate the smaller NAICS 211.

Figure 5 – Jobs Generated in New Mexico by Eddy County Petroleum Industry, 2012-2018

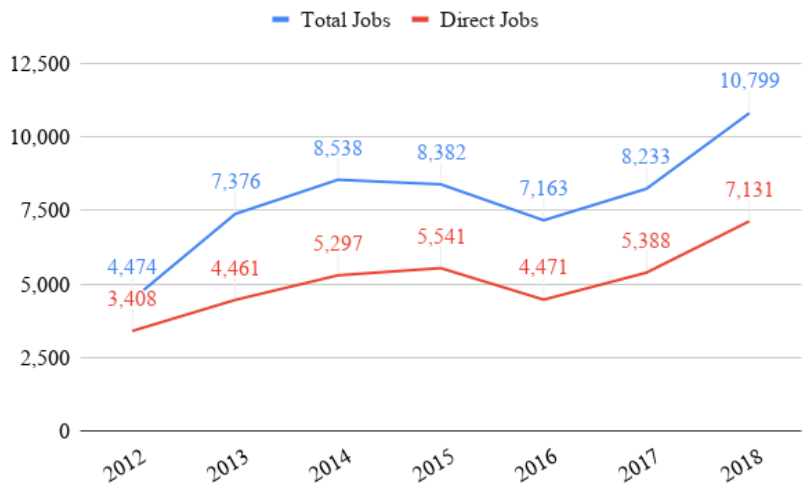


Table 5 – Economic Impact of Eddy County Petroleum Industry on Eddy County, by type of impact, 2012-2018

	Employment	Labor Income	Value Added	Output
1 - Direct	35,697	$3,995,258,900	$8,446,652,705	$10,781,554,328
2 - Indirect	5,722	$408,875,696	$699,463,238	$1,170,302,710
3 - Induced	12,223	$511,741,601	$998,065,580	$1,717,666,442
Total	**53,642**	**$4,915,876,196**	**$10,144,181,523**	**$13,669,523,480**

Table 6 – Economic Impact of Eddy County Petroleum Industry on New Mexico, by type of impact, 2012-2018

	Employment	Labor Income	Value Added	Output
1 - Direct	35,697	$3,995,258,900	$8,446,652,705	$10,781,554,328
2 - Indirect	6,967	$471,132,667	$839,405,192	$1,406,392,311
3 - Induced	12,299	$514,697,371	$1,003,732,671	$1,727,753,752
Total	**54,964**	**$4,981,088,937**	**$10,289,790,568**	**$13,915,700,391**

Table 7 – Economic Impact of Eddy County Petroleum Industry on New Mexico, by year and region, 2012-2018

Year	Eddy County	Rest of counties in New Mexico	Total Output
2012	$818,918,688	$52,497,291	$871,415,979
2013	$2,181,461,073	$44,159,767	$2,225,620,840
2014	$2,228,898,950	$47,139,299	$2,276,038,249
2015	$1,567,639,109	$28,635,622	$1,596,274,731
2016	$1,378,727,745	$21,706,172	$1,400,433,917
2017	$2,466,232,451	$22,914,721	$2,489,147,172
2018	$3,027,645,464	$29,124,039	$3,056,769,502
Total	**$13,669,523,480**	**$246,176,911**	**$13,915,700,391**

State Land Revenue from Oil and Gas in Eddy County

In general, companies wishing to extract oil and gas on state lands will pay taxes, royalties, and other fees that are reported by the New Mexico State Land Office, New Mexico Taxation & Revenue Department, and other state organizations. Revenues generated from extraction activities on state lands are contributed to the state's General Fund and Permanent Fund, and are distributed among agencies throughout the state, as shown in Table 8.

Table 8 – State Land Revenue Source Descriptions

Revenue Source[22]	Description	Use
State Land Office Rental and Bonus Income	Generated through land leases and bids	Land Maintenance Fund (distributed monthly to 22 beneficiaries including the General Fund)
State Land Office Royalty Payments	20% (adjusted based on the location of known production areas and the likelihood of discovering oil and gas)	Land Grant Permanent Fund

Land revenues include royalties, bonuses, rents, and other revenues. Land revenue information was gathered from the State Land Office's publicly accessible data resources and directly from the State Land Office, with assistance from their staff. State Land Office revenues are historically reported on a fiscal year basis, with the year beginning on July 1st and ending on June 30th. In order to present the state lands revenue data on a calendar year basis for this report, an adjustment was made to allocate half of each fiscal year to the appropriate calendar year.

In order to compare the relative size of economic contributions from royalties, bonuses, rents, and other revenues generated in Eddy County against revenue generated from these sources throughout the entire state, statewide figures for years 2015 through 2018 were collected from the State Land Offices Fiscal Year Revenue Pages, with Fiscal Year 2015 beginning on July 1st, 2014. Since the availability of historical Revenue Pages on the State Land Offices' website was limited, statewide data for years 2012 through 2014 were estimated using the State Land Office's Earned Distribution to Beneficiaries chart.[23] These figures were presented by fiscal year and were adjusted using the same approach described above.

22 (Iglesias, 2018)
23 (The New Mexico State Land Office, 2019)

Based on data provided by the New Mexico State Land Office, land revenues generated by oil and gas operations on state lands in Eddy County totaled $1,546,275,976 from 2012-2018. This estimate includes revenues generated from royalties, bonuses, rents, and other revenues. Table 9 shows that the land revenues generated by oil and gas operations on state lands in Eddy County comprised 34% of all oil and gas state land revenue collected during the period. Table 10 shows state land revenues by year for Eddy County and New Mexico as a whole.

Table 9 – State Land Revenue from Eddy County Petroleum Industry, 2012-2018

Tax	2012-2018	% Share of Total Revenue Collected
State Land Revenue	$1,546,275,976	34%

Table 10 – State Land Revenue from Eddy County Petroleum Industry by year, 2012-2018

Calendar Year	Oil and Gas Revenues Eddy County	Oil and Gas Revenues New Mexico
2012	$233,157,868	$598,450,000
2013	$280,781,693	$681,450,000
2014	$291,789,513	$761,000,000
2015	$209,027,221	$585,471,907
2016	$142,410,054	$536,555,196
2017	$153,722,677	$707,930,261
2018	$235,386,950	$918,006,544
Total	$1,546,275,976	$4,788,863,908

Federal Land Revenue from Oil and Gas in Eddy County

Companies that wish to extract natural resources from federally owned lands in New Mexico are required to pay a variety of fees that, in turn, generate federal revenue. Non-tax land revenue is typically generated through the collection of payments for rents, bonuses, royalties, and other fees and penalties. Federal land revenues are collected by the Office of Natural Resources Revenue (ONRR), a component of the Department of the Interior, which is responsible for managing and ensuring full payment of revenues owed for the development of United States natural resources. For onshore extractive revenues, a portion of the revenues collected by the ONRR is returned to the states from which the revenue originated for disbursement by the state government. Specifically, New Mexico and most other states receive 49% of extractive revenues in the form of disbursements back to the state government, as shown in Table 11. [24]

Table 11 – Federal Land Revenue Source Descriptions

Revenue Source[25]	Description	Use
Federal Land Rental and Bonus Income	Generated through land leases and bids	~50% Federal Government and ~50% to General Fund (NM)
Federal Land Royalty Payments	12.5% (U.S. federal on shore)	~50% Federal Government and ~50% to General Fund (NM)

Federal land revenues include royalties, bonuses, rents, and other fees collected by the Department of the Interior and distributed to New Mexico in the form of federal disbursements to the state government. Revenue figures used in this evaluation are from the ONRR's *Calendar Year* dataset and are recorded on an accounting year basis, allowing for data correction up to seven years after a transaction has occurred. Owing to reporting discrepancies, corrections from reporting companies, the timing of disbursements, and the frequency of disbursements, some variability between reported disbursements declared by the ONRR and estimated disbursements based on publicly available data may exist.[26]

Based on data collected from publicly available resources at the ONRR, federal land revenues returning to New Mexico from oil and gas operations in Eddy County totaled $1,719,036,986 from 2012-2018.[27] Table 12 shows that the land revenues generated by oil and gas operations on

24 (Department of the Interior, 2019)
25 (Iglesias, 2018)
26 (Department of the Interior, 2019)
27 (Department of the Interior, 2019)

federal lands in Eddy County comprised 43% of all oil and gas federal land revenue collected during the period. Table 13 shows federal land revenues by year for Eddy County and New Mexico as a whole.

Table 12 – Federal Land Revenue from Eddy County Petroleum Industry, 2012-2018

Tax	2012-2018	% Share of Total Tax Collected
Federal Land Revenue	$1,719,036,986	43%

Table 13 – Federal Land Revenue from Eddy County Petroleum Industry by year, 2012-2018

Calendar Year	Oil and Gas Revenues Eddy County	Oil and Gas Revenues NM
2012	$194,884,941	$ 452,294,937
2013	$232,837,673	$ 508,522,745
2014	$264,663,797	$ 619,153,751
2015	$179,431,466	$ 404,331,787
2016	$139,942,380	$ 309,394,902
2017	$169,605,053	$ 484,429,296
2018	$537,671,675	$ 1,191,081,827
Total	$1,719,036,986	$ 3,969,209,247

Beneficiaries of State Revenues

Financial beneficiaries of tax and land revenues to New Mexico were estimated from the New Mexico Comprehensive Annual Financial Reports produced by the New Mexico Department of Finance & Administration.[28] Based on the complexity of the state budget and various tax rules, the beneficiary estimate is an approximation; however, this approximation does provide an illustration of the financial beneficiaries of the revenue generated by Eddy County's petroleum industry.

The approach used considered the net program costs of state government functions from 2012-2018.[29] The programs considered include General Control; Culture, Recreation, and Natural Resources; Highway and Transportation; Judicial; Legislative; Public Safety; Regulation and Licensing; Health and Human Services; Education; and Indirect Interest on Long-term Debt. Table 14 shows the totals from these different categories from 2012-2018.

Table 14 – Net Program Costs for New Mexico Major Government Functions, 2012-2018[30]

Net Program Costs	2012-2018
General Control	-$815,156,000
Culture, Recreation, and Natural Resources	$786,876,000
Highway and Transportation	$2,753,522,000
Judicial	$1,482,843,000
Legislative	$174,316,000
Public Safety	$2,300,980,000
Regulation and Licensing	$471,471,000
Health and Human Services	$12,640,955,000
Education	$20,793,459,000
Indirect Interest on Long-term Debt	$852,654,000
Total	**$41,441,920,000**

These net program costs are borne by the state of New Mexico. The primary difference between net program cost and the total budget is that federal contributions to New Mexico are excluded under the net program cost calculation. The bulk of these federal contributions are used for either Education or Health and Human Services. The remaining "net program cost" is a good proxy for what is spent in New Mexico from state revenues.

28 (New Mexico Department of Finance & Administration, 2019)
29 (New Mexico Department of Finance & Administration, 2019)
30 (New Mexico Department of Finance & Administration, 2019)

A complicating factor in estimating beneficiaries is the different fund sources and restrictions of the various taxes and land revenues. For example, some taxes like severance taxes go directly to the Severance Tax Permanent Fund while others go to the general fund or local governments. Allocations to the permanent funds are not used in the period they are earned; however, distributions from the permanent funds are used in state budgets. The New Mexico Tax Research Institute (NMTRI; 2014 & 2018) estimated 96% of the distributions from permanent fund are attributable to oil and gas revenues.[31] Since it is not possible to attribute the distributions from the permanent funds to Eddy County over the period of this study, the General Control portion of net program costs, which includes permanent funds, was excluded from this beneficiary estimation. General Control is negative because its revenues were greater than its expenses over the period.

Table 15 shows the tax and land revenues generated by Eddy County's petroleum industry from 2012-2018. These revenues comprised 15% of the net program costs described in Table 14. This percentage is used to allocate revenue generated from Eddy County's petroleum industry to the major functions of New Mexico's state budget, shown in Table 16.

Table 15 – Tax and Land Revenue Generated by Eddy County Petroleum Industry by source, 2012-2018

Tax	2012-2018	% Share of Revenue Source Collected
School Tax	$1,068,831,846	40%
Severance Tax	$1,204,872,259	40%
Conservation Tax	$67,599,888	41%
Production Tax	$330,260,540	34%
Gross Receipts	$417,016,553	2%
State Corporate Income Tax	$17,216,952	2%
State Personal Income Tax	$72,346,333	1%
Total Tax Contribution	$3,178,144,371	
State Land Revenue	$1,546,275,976	34%
Fed Land Revenue	$1,719,036,985	43%
Total Contribution to State Budget	**$6,443,457,332**	

The estimates shown in Table 16 are approximations of the dollar value contribution to each of the beneficiaries. These are provided to present an illustration of the financial beneficiaries of the state revenues generated by Eddy County's petroleum industry.

31 (New Mexico Tax Research Institute, 2019)

Table 16 – Estimated Financial Beneficiaries of Eddy County Petroleum Industry, 2012-2018

Beneficiary	Contribution from Eddy County Petroleum Industry, 2012-2018
Education	$3,170,635,040
Health and Human Services	$1,927,522,249
Highway and Transportation	$419,863,445
Public Safety	$350,858,788
Judicial	$226,107,353
Culture, Recreation, and Natural Resources	$119,984,684
Other Government Programs	$228,485,772
Total	**$6,443,457,332**

Summary & Conclusions

The oil and gas industry in Eddy County has had a tremendous impact on New Mexico's economy and governmental revenues. During the period of study, 2012-2018, Eddy County's oil and gas industry generated $10.3B in value added production (GDP) and $13.9B in economic output and supported more than 54,000 jobs and $4.9B in labor income in New Mexico's economy. During the same period, the oil and gas industry in Eddy County contributed $6.4B to state and local governments, which comprised 10% of the state's nonfederal revenue sources. Table 17 shows the summarized total impacts of Eddy County's petroleum industry on New Mexico.

Table 17 – Summarized Total Impact of Eddy County Petroleum Industry on New Mexico, 2012-2018

Year	2012-2018
Tax Revenues for New Mexico	$3,178,144,371
Land Revenues for New Mexico	$3,265,312,961
Tax & Land Revenues for New Mexico	$6,443,457,332
Jobs Supported (created and retained)	54,965
Labor Income Supported	$4,981,088,937
Contribution to Value Added Production (GDP)	$10,289,790,568
Contribution to New Mexico's Total Economic Output	$13,915,700,391

Government revenues from the oil and gas industry in Eddy County are estimated to support $3.2B for Education, $1.9B for Health and Human Services, $419M for Highways and Transportation, $351M for Public Safety, $226M for the Judicial system, $120M for Culture, Recreation, and Natural Resources, and $229M for Other Government Functions. Table 18 shows the estimated financial beneficiaries of Eddy County's petroleum industry.

Table 18 – Estimated Financial Beneficiaries of Eddy County Petroleum Industry, 2012-2018

Beneficiary	Estimated Contribution from Eddy County Oil and Gas, 2012-2018
Education	$3,170,635,040
Health and Human Services	$1,927,522,249
Highway and Transportation	$419,863,445
Public Safety	$350,858,788
Judicial	$226,107,353
Culture, Recreation, and Natural Resources	$119,984,684
Other Government Programs	$228,485,772
Total	**$6,443,457,332**

Appendix – 2017-2018 Summary

2017-2018 Highlights

- From 2017-2018, the oil and gas industry in Eddy County contributed $2.2B to state and local governments, which comprised 11% of the state's nonfederal revenue sources.
- From 2017-2018, the oil and gas industry in Eddy County generated $4.6B in value added production (GDP) and $5.6B in total economic output for New Mexico's economy.
- From 2017-2018, the oil and gas industry in Eddy County supported 19,032 jobs and $1.7B in labor income in New Mexico's economy.
- From 2017-2018, government revenues from the oil and gas industry in Eddy County were used to support approximately $1B for Education, $682M for Health and Human Services, $101M for Highways and Transportation, $160M for Public Safety, $99M for the Judicial system, $44M for Culture, Recreation, and Natural Resources, and $90M for Other Government Functions.

Table 19 - Summarized Total Impact of Eddy County Petroleum Industry on New Mexico, 2017-2018

Year	2017-2018
Tax Revenues for New Mexico	$1,096,214,072
Land Revenues for New Mexico	$1,096,386,355
Tax & Land Revenues for New Mexico	$2,192,600,427
Jobs Supported (created and retained)	19,032
Labor Income Supported	$1,693,876381
Contribution to Value Added Production (GDP)	$4,569,967,242
Contribution to New Mexico's Total Economic Output	$5,545,916,674

Table 20 – Estimated Financial Beneficiaries of Eddy County Petroleum Industry, 2017-2018

Beneficiary	Estimated Contribution from Eddy County Oil and Gas, 2017-2018
Education	$1,016,803,412
Health and Human Services	$681,700,723
Highway and Transportation	$101,248,255
Public Safety	$159,572,613
Judicial	$98,831,839
Culture, Recreation, and Natural Resources	$43,933,450
Other Government Programs	$90,510,134
Total	**$2,192,600,427**

Appendix – 2018 Summary

2018 Highlights

- In 2018, the oil and gas industry in Eddy County contributed $1.5B to state and local governments, which comprised 14% of the state's nonfederal revenue sources.
- In 2018, the oil and gas industry in Eddy County generated $2.5B in value added production (GDP) and $3B in total economic output for New Mexico's economy.
- In 2018, the oil and gas industry in Eddy County supported 10,799 jobs and $957M in labor income in New Mexico's economy.
- In 2018, government revenues from the oil and gas industry in Eddy County were used to support approximately $676M for Education, $453M for Health and Human Services, $65M for Highways and Transportation, $107M for Public Safety, $66M for the Judicial system, $29M for Culture, Recreation, and Natural Resources, and $64M for Other Government Functions.

Table 21 - Summarized Total Impact of Eddy County Petroleum Industry on New Mexico, 2018

Year	2018
Tax Revenues for New Mexico	$687,510,632
Land Revenues for New Mexico	$773,058,625
Tax & Land Revenues for New Mexico	$1,460,569,257
Jobs Supported (created and retained)	10,799
Labor Income Supported	$956,880,204
Contribution to Value Added Production (GDP)	$2,509,392,380
Contribution to New Mexico's Total Economic Output	$3,056,769,502

Table 22 - Estimated Financial Beneficiaries of Eddy County Petroleum Industry, 2018

Beneficiary	Estimated Contribution from Eddy County Oil and Gas, 2018
Education	$676,032,222
Health and Human Services	$453,022,913
Highway and Transportation	$64,774,463
Public Safety	$107,029,701
Judicial	$66,313,419
Culture, Recreation, and Natural Resources	$29,020,173
Other Government Programs	$64,376,366
Total	**$1,460,569,257**

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Glossary

Bonuses are the amount the highest bidder paid for a natural resource lease.

Direct effects are the immediate (or first-round) consequences of a change in economic activity or policy. For example, if a firm spends $1 million on construction of a new building, the direct effect on output (sales) in the construction sector is $1 million. If eight workers are employed on the construction of the building, then those eight workers are also a direct effect.

Employment refers to full- and part-time jobs.

Gross Domestic Product (GDP) is defined as the market value of the final goods and services produced by labor and property located in the United States. Conceptually, this measure can be arrived at by three separate means: as the sum of goods and services sold to final users, as the sum of income payments and other costs incurred in the production of goods and services, and as the sum of the value added at each stage of production (Chart 2.1; Bureau of Economic Analysis, Concepts and methods of the National Income and Product Accounts, page 2-7[32]).

Indirect effects occur because industries purchase inputs from other industries. If a construction project requires steel beams, there will be indirect effects on iron mining and coke producing industries.

Induced effects result from households spending of the wage and salary income received by those employed directly or indirectly on the new activity.

Input-output model refers to a type of economic model designed to capture relationships among industries and ultimate consumers.

Labor income consists of employee compensation (including benefits), supplements to wages and salaries (such as employer contributions to pension funds), and proprietor's income.

Output refers to gross industry sales or expenditures, depending on the consequences.

Rents are payments for leasing land or waters before production starts.

Royalties are payments for extracted natural resources that are determined by a percentage of the production value of the extracted resource.

Total effects refer to the sum of direct, indirect, and induced effects.

32 (Bureau of Economic Analysis, 2017)

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