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Fueling Kern County: The Contribution of Oil and Gas Workers on Kern County's Economy

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Support for this work was provided by Californians for Energy and Science. All errors are the responsibility of the authors.

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1. Introduction

The oil and gas industry has a significant impact on Kern County's economy. The industry employs workers in oil and gas extraction, pipeline and transportation, and refining sectors. The industry indirectly employs merchant wholesalers, accountants, payroll technicians, architects, engineers, lawyers and inspectors. In this study, we analyze the direct and indirect economic impacts of the oil and gas industry in Kern County.

We organize the report into six sections. Section 2 provides an overview of the oil and gas industry in Kern County, highlighting its production history, high-wage employment and relatively modest education requirements. We also underscore the industry's importance as a major contributor to Kern County's economic growth. Section 3 analyzes the industry's economic impact using an IMPLAN model. Section 4 presents an overview of the environmental impacts of oil and gas production, while Section 5 discusses the study's limitations. Section 6 concludes the report. Our analysis identifies eight main findings:

1. In 14 of the last 23 years, the mining, quarrying, oil and gas extraction sector has been the largest contributor of GDP growth in Kern County.
2. The oil industry employs roughly 2 percent of Kern County's workforce.
3. Mining, quarrying and oil and gas extraction workers were the third highest paid employees in Kern County, receiving an average annual salary of $106,522 in 2023. Their wages are roughly $41,523 more than the average worker in Kern County.
4. Kern County's oil industry directly employed 7,188 people in 2023. The direct impact of the oil industry contributes an additional 7,963 indirect and induced jobs, for a total employment impact of 15,151 jobs.
5. The direct labor income of the 7,188 workers is ~$1 billion ($981 million). The total labor income (including indirect and induced wages) is $1.5 billion.
6. The industry's direct value added of $3.4 billion drives an additional ~$1.2 billion in indirect and induced (value added) impacts for a total economic contribution of over $4.6 billion. When compared to Kern County's overall nominal GDP for 2023 of $59.8 billion, this translates to 8 percent of Kern County's GDP (U.S. Bureau of Economic Analysis 2025a).
7. In 2021, Kern County produced 96 million barrels of oil and 1.7 billion barrels of produced water from oil and gas operations.
8. In 2021, 46,546 (71 percent) of California's active wells were located in Kern County. Similarly, 21,205 (70 percent) of California's inactive wells were located in Kern County.

2. Historical and Economic Profile of the Oil and Gas Industry in Kern County

2.1. Oil Production

Kern County has a long history of oil production. In May 1899, oil was discovered 60 to 70 feet under the ground, only six miles away from Bakersfield in the Kern River oil field by Tom Means, Roe Elwood, Frank Wiseman and their team (Redpath 1900, California State Parks 2025a, California State Parks 2025b). The first derrick was erected in July 1899 by E. L. Doheny and the first well completed in September that year. This "Discovery" well was drilled to a depth of 350 feet and produced 30 barrels of oil a day (Redpath 1900). The first commercial well was also drilled in 1899 by Horace

[1]Defined using NAICS 21.

and Milton McWhorter (California State Parks 2025a, California State Parks 2025b). Oil refining predates oil production in Kern County; the county's first commercial oil refinery, Buena Vista oil refinery, was built in 1864 and produced roughly 4,000 gallons of oil. It ceased operations in 1867 (California State Parks 2025a, California State Parks 2025b).

In 1980, Kern County produced 203.9 million barrels of oil – an average of 558,630 barrels per day – accounting for roughly 59 percent of California's total production. By 2023, production in the county had declined to an average of 245,000 barrels per day, or 89.7 million barrels annually[2]. Over the same period, statewide oil output fell from 357 million barrels in 1980 to 123.2 million barrels in 2023 (California Department of Conservation 2026a; 2026b).

2.2. California's Oil Supply by Source

Table 1 illustrates California's source of oil over the last 4 decades. Between 1982 and 2024, the total supply of oil to refineries in California fell by 14.3 percent. During the same time period, the supply of oil to refineries in California from California oil production decreased by 67.6 percent.[3] At the same time, total U.S. oil production rose by 52.8 percent.

Table 1: California's Oil Supply by Source

Year	CA Supply to CA	% CA	Foreign Supply to CA	Total Supply to CA	U.S. Production
2024	118,733	23.3%	324,037	510,649	4,823,840
2020	169,211	34.9%	230,581	485,454	4,132,895
2010	231,339	38.1%	289,797	607,518	2,001,660
2000	325,816	49.5%	169,105	685,710	2,125,030
1990	336,154	48.3%	39,454	696,437	2,684,575
1982	365,962	61.4%	33,553	595,977	3,156,885

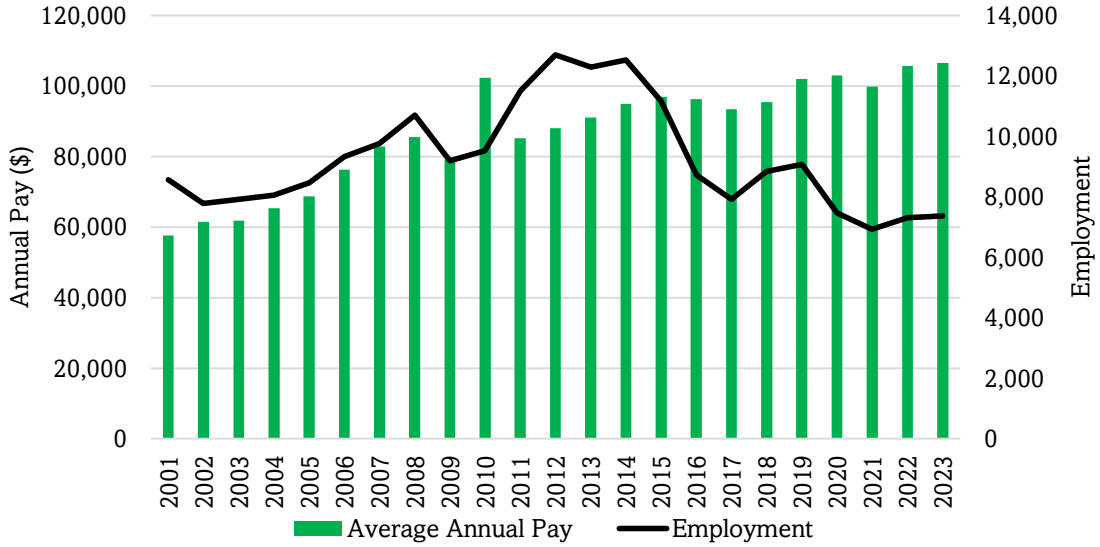
Source: U.S. production (6th column) comes from the U.S. Energy Information Administration (2025c). The 2nd through the 5th columns represent annual oil supply sources to California refineries and come from the California Energy Commission (California Energy Commission 2025). All numeric values are in thousands of barrels.

[2]Kern County's oil production peaked in 1985 when it produced 255 million barrels of oil.
[3]Total domestic supply of oil to CA refineries fell, regardless of state of production, between 1982 and 2024.

2.3. Jobs and Wages

Figure 1 illustrates the number of workers and annual wages per worker in the mining industry between 2001 and 2023. The number of employees hired in mining, quarrying, and oil and gas extraction[4] in 2023 was 7,376, compared to 8,564 in 2001. On average, workers in this sector received $106,522 in 2023, compared to $57,573 in 2001.[5] The total aggregate wages received by workers in this sector was $785,750,000 in 2023.

Figure 1: Employment and Wages in Mining, quarrying, and oil and gas extraction

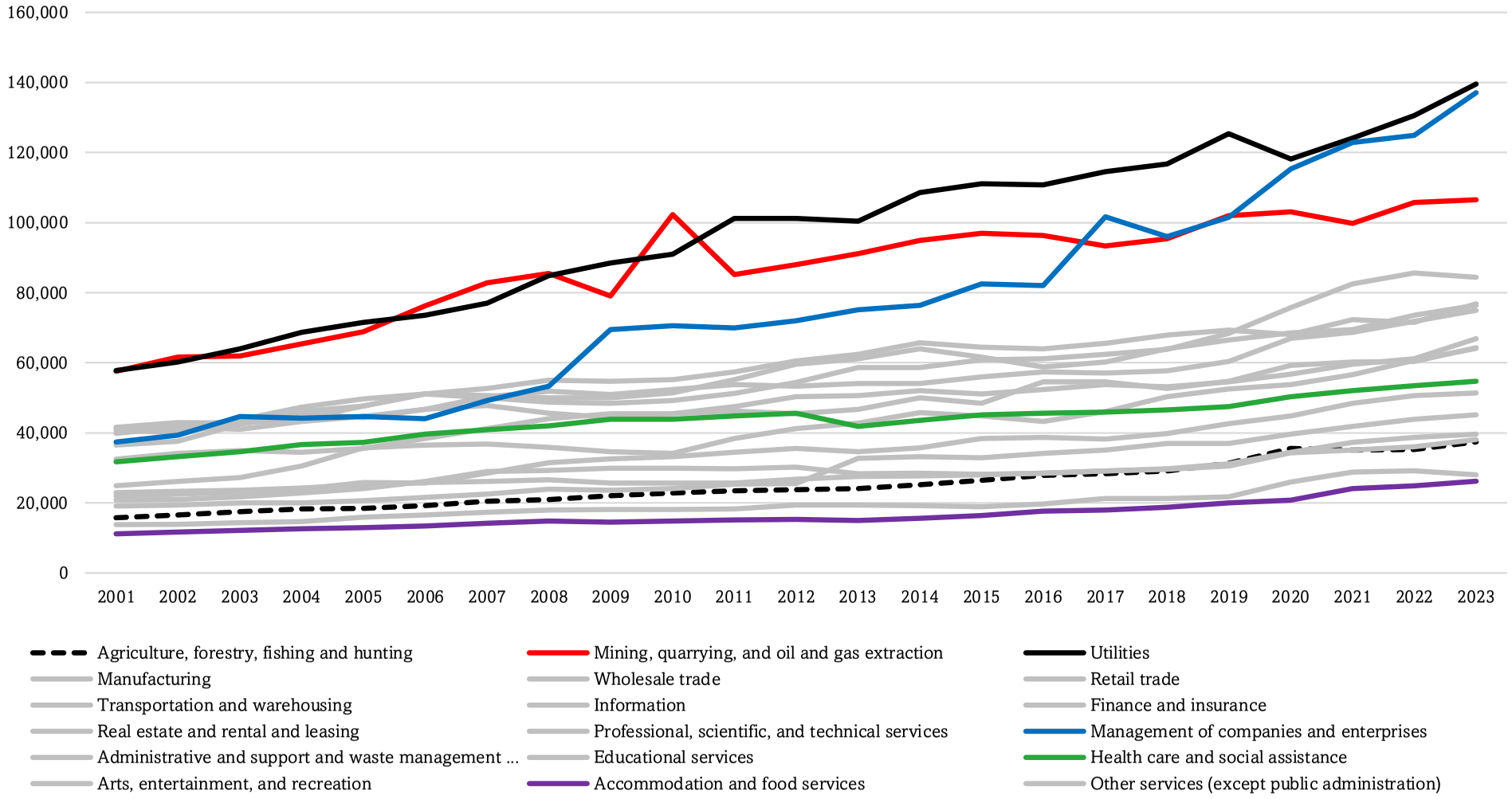


Source: Adapted from the U.S. Bureau of Labor Statistics (2025a)

Mining, quarrying and oil and gas extraction[6] workers were the third highest paid employees in Kern County, receiving an average annual salary of $106,522 in 2023. The highest paid workers include those in utilities earning $139,557 a year and those in management of companies and enterprises earning $137,087 a year. Workers in agriculture, forestry and fishing earned an average of $37,404 while those in accommodation and food services earned $26,200 (U.S. Bureau of Labor Statistics 2025). Workers in the mining, quarrying and oil and gas extraction sector earn wages that are roughly $41,523 more than the average worker in Kern County[7]. Figure 2 shows how wages in the mining, quarrying and oil and gas extraction sector (red line) have been changing over the last two decades.

[4] All Employees in Private NAICS code 21 Mining, quarrying, and oil and gas extraction for All establishment sizes in Kern County, California.
[5] In inflation adjusted terms, the 2001 salary in 2023 dollars was $105,698, which suggests that wages kept pace with inflation. Inflation measures are from the Bureau of Labor Statistics CPI Inflation Calculator.
[6] Defined using NAICS 21.
[7] The average wages of all sectors in this sample (less mining) is $64,999.

Figure 2: Wages by Sector (2001 – 2023)



Source: Authors' Adaptation from the U.S. Bureau of Labor Statistics (2025)

2.4. Education

Table 2 compares education attainment and wages across selected occupations, with an emphasis on oil and gas-related jobs, relative to other occupations. About two-thirds of many major employment categories in the oil and gas industry have an education attainment of a high school degree (or its equivalent) or less, which is comparable to education rates for construction laborers and farm workers. However, median and mean wages of workers in the oil and gas industry are 22.0 to 68.3 percent (73.9 to 139.8 percent) higher than construction laborers (farm workers). In fact, mean wages for most blue-collar workers in the oil and gas industry are comparable to mean wages for elementary school teachers, who have a considerably higher education profile. Similarly, both median and mean wages are higher for petroleum engineers than registered nurses, job occupations with similar educational profiles. This suggests that, relative to education levels, wages paid in the oil and gas industry pay a wage premium over other employment opportunities in Kern County.

Table 2: Education Levels

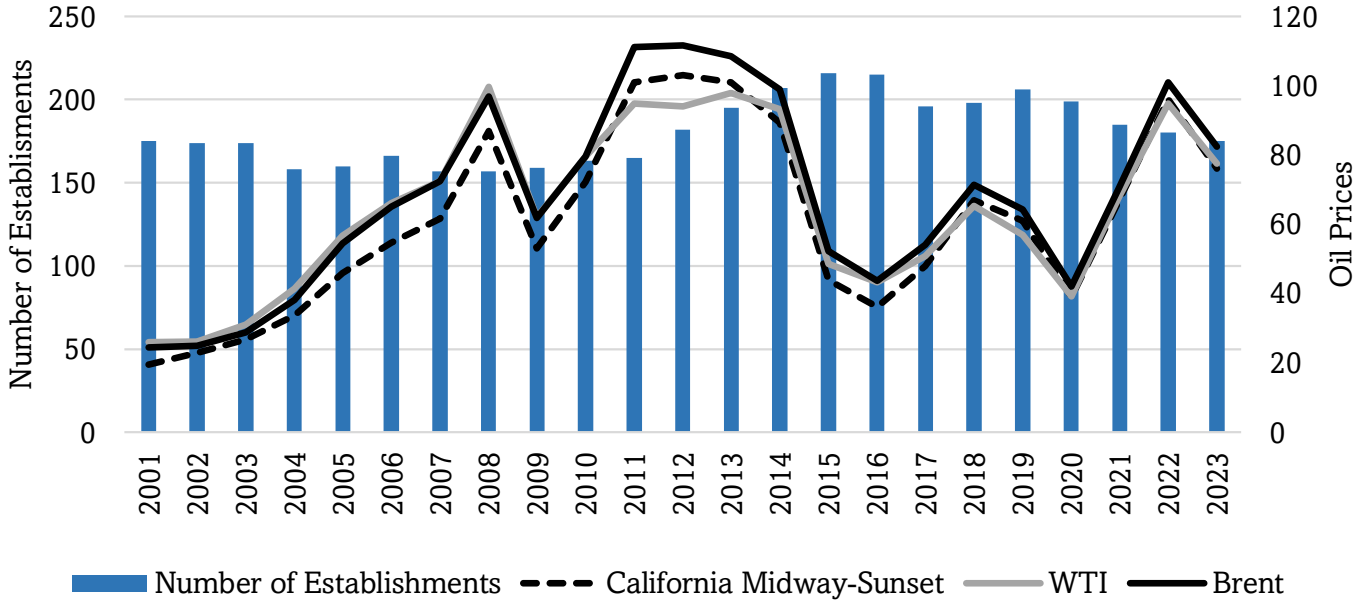
Occupation	% Less than High School	% High School	% Bachelors	Median Wage	Mean Wage
Petroleum Engineer	2.3	6.2	55.3	$65.07	$70.58
Refinery Operators	7.2	38.3	11.1	$38.60	$39.52
Derrick Operators	21.1	44.7	8.7	$27.99	$26.17
Rotary Drill Operators	21.1	44.7	8.7	$35.59	$36.61
Service Unit Operators	21.1	44.7	8.7	$28.17	$29.97
Roustabouts	21.1	44.7	8.7	$28.07	$31.84
Registered Nurse	0.5	1.1	53.8	$60.27	$58.92
Construction Laborers	34.7	39.6	5.4	$22.94	$26.06
Elementary School Teachers	0.0	0.0	44.0	-	$38.93
Farmworkers	46.7	29.0	7.4	$16.10	$16.49

Source: Wage and employment values are derived from the Bureau of Labor Statistics Occupational Employment and Wage Statistics dataset, "May 2023 Metropolitan and Nonmetropolitan Area Occupational Employment and Wage Estimates, Bakersfield CA", May 2023 (U.S. Bureau of Labor Statistcs 2025c) . Educational attainment values are derived from the Bureau of Labor Statistics Employment Projections dataset, "Educational Attainment for Workers 25 Years and Older by Detailed Occupation" (U.S. Bureau of Labor Statistcs 2025d).

2.5. Number of Establishments

Figure 3 illustrates the number of establishments and oil prices between 2001 and 2023; we show three relevant oil price indices. The number of establishments in mining, quarrying, and oil and gas extraction in both 2001 and 2023 was 175. Overall, the number of establishments over the last 10 years has been larger than those between 2001 and 2010, with there being over 200 establishments between 2014 and 2016.

Figure 3: Establishments in Mining, quarrying, and oil and gas extraction



Source: Adapted from the (U.S. Bureau of Labor Statistics 2025a), the U.S. Energy Information Administration (2025a) and the U.S. Energy Information Administration

2.6. Contributions to the Economy

Kern County's real GDP grew by 5.2 percent from $44.6 billion in 2022 to $46.9 billion in 2023 (U.S. Bureau of Economic Analysis 2025a). This increase was spearheaded by the mining, quarrying, and oil and gas extraction sector, which contributed 3.15 percentage points of this growth; the retail trade sector, which contributed 0.71 percentage points of this growth; and the finance, insurance, real estate, rental, and leasing (FIRE) sector, which contributed 0.52 percentage points of this growth; combined, these three sectors represent nearly 85 percent of year-on-year real GDP growth. Historical data shows that the mining, quarrying, and oil and gas extraction sector has been one of the largest drivers of Kern County's economy. Table 3 illustrates the largest contributors to the change in real GDP in Kern County in terms of absolute values. More specifically, in 14 of the last 23 years, the mining, quarrying, and oil and gas extraction sector has been the largest contributor of real GDP growth in Kern County.[8]

The agricultural sector led real GDP growth in 2002, 2004 and 2005, followed by mining, quarrying and oil and gas, and utilities. The "unfavorable" years for the mining, quarrying, and oil and gas sectors were 2011 and 2017, where the industry ranked 6th and 12th respectively, in its contribution to real GDP growth. Apart from the mining, quarrying, and oil and gas extraction sector, the agriculture, utilities and manufacturing sectors have historically played a major role in driving the economy of Kern County. Another sector that is playing a growing role recently in real GDP growth is the transportation and warehousing sectors; these two saw considerable growth, especially in the years 2011, 2012, 2017 and 2018. Over the last decade, the finance, insurance, real estate, rental, and leasing (FIRE) sector has had a growing influence in the change in the economy (especially the last three years in our sample: 2021, 2022 and 2023). However, overall, mining, quarrying, and oil and gas extraction continues to play the most significant role in the change in Kern County's real GDP.

[8]Oil failed to lead Kern County in economic growth in 2002, 2004, 2005, 2011, 2016, 2017, 2019 and 2020. Only in 2 years, 2011 and 2017, has the mining, quarrying, and oil and gas extraction sector not been one of the three largest sectoral contributors to real GDP growth.

Table 3: Contributions to Percent Change in Real GDP, Absolute Value Terms

Description	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
All industry total (percent change)	**12.60**	**-1.00**	**8.30**	**6.60**	**13.40**	**9.60**	**-2.90**	**6.60**	**-4.40**	**-1.70**	**9.50**
Private industries	**13.18**	**-1.22**	**8.10**	**6.11**	**13.49**	**9.18**	**-3.06**	**6.79**	**-4.54**	**-2.07**	**9.53**
Agriculture, forestry, fishing and hunting	5.32	**-2.34**	3.91	1.88	-0.66	0.54	**-2.82**	0.24	**1.77**	-0.32	0.69
Mining, quarrying, and oil and gas extraction	**2.66**	-4.17	**1.68**	**1.81**	10.00	4.78	-3.53	9.67	-6.98	-0.35	6.48
Utilities	**3.49**	**2.11**	**1.59**	**-0.83**	**0.74**	0.74	-0.02	-0.06	-0.02	-1.43	**1.67**
Construction	0.01	0.23	0.60	0.52	0.40	-0.27	-0.67	**-0.65**	-0.09	0.36	0.48
Manufacturing	-0.12	1.52	0.48	0.43	**0.87**	**1.73**	**2.72**	**-2.06**	**-1.57**	**-1.10**	0.02
Wholesale trade	0.12	0.21	0.14	0.33	0.41	0.18	0.06	-0.42	0.22	0.32	0.13
Retail trade	0.40	0.48	0.35	0.36	0.39	-0.19	-0.17	-0.29	0.30	-0.07	0.14
Transportation and warehousing	0.07	0.23	-0.57	0.19	0.29	0.13	0.27	0.40	0.95	**-0.49**	**-0.92**
Information	0.11	0.10	0.09	0.08	0.15	0.17	0.10	-0.07	0.08	0.02	0.01
Finance, insurance, real estate, rental, and leasing	0.31	-0.18	-0.35	0.54	0.32	**0.88**	0.54	0.14	0.45	0.42	0.10
Professional and business services	0.33	0.35	-0.04	0.56	0.31	0.25	0.27	-0.11	0.30	0.30	0.38
Educational services, health care, and social assistance	0.27	0.19	0.25	0.06	0.13	0.23	0.27	0.15	0.04	0.24	0.20
Arts, entertainment, recreation, accommodation, and food services	0.10	0.13	-0.07	0.07	0.04	0.01	-0.06	-0.17	-0.04	0.07	0.05
Other services (except government and government enterprises)	0.09	-0.07	0.05	0.12	0.10	-0.02	-0.01	0.00	0.05	-0.03	0.10
Government and government enterprises	**-0.53**	**0.18**	**0.16**	**0.49**	**-0.12**	**0.44**	**0.13**	**-0.24**	**0.09**	**0.33**	**-0.02**

Source: U.S. BEA (2025a) | **Largest** | **2nd Largest** | **3rd Largest**

"Largest" refers to the largest sectoral contribution to that years GDP, in absolute value terms; "2nd largest" refers to the second largest sectoral contribution to that years GDP, in absolute value; "3rd largest" refers to the third largest sectoral contribution to that years GDP, in absolute value.

Table 3 (cont'd): Contributions to Percent Change in Real GDP, Absolute Value Terms

Description	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
All industry total (percent change)	**-2.20**	**0.20**	**1.10**	**0.40**	**0.60**	**0.20**	**3.50**	**0.40**	**1.70**	**-3.80**	**5.20**
Private industries	**-1.95**	**0.05**	**0.61**	**-0.48**	**0.46**	**-0.32**	**3.37**	**0.67**	**1.32**	**-3.76**	**4.50**
Agriculture, forestry, fishing and hunting	**0.78**	**0.67**	**0.52**	1.48	0.06	0.20	-0.03	0.29	-0.81	**-2.10**	-0.03
Mining, quarrying, and oil and gas extraction	-4.72	-2.51	0.53	**-0.74**	-0.04	-2.69	**0.81**	**1.51**	-2.88	-2.62	3.15
Utilities	**0.85**	**0.33**	-0.13	0.64	-0.18	-0.29	**-0.60**	**1.53**	0.28	0.45	-0.32
Construction	0.19	0.02	**-0.38**	-0.40	0.07	0.29	0.42	-0.36	0.37	-0.08	-0.18
Manufacturing	0.51	0.27	**-0.38**	-0.47	**0.25**	**0.88**	0.92	-1.76	**1.22**	-0.43	0.32
Wholesale trade	0.24	0.30	-0.14	-0.45	-0.20	0.15	0.06	0.00	-0.04	-0.04	-0.10
Retail trade	0.35	0.22	0.25	0.33	0.28	0.19	0.57	-0.04	-0.08	-0.35	**0.71**
Transportation and warehousing	-0.41	0.10	0.08	-0.06	**0.32**	**0.45**	0.14	0.30	0.97	-0.32	-0.08
Information	0.08	0.00	0.18	0.03	0.16	0.10	0.04	-0.15	0.13	0.04	0.09
Finance, insurance, real estate, rental, and leasing	0.05	0.11	0.00	**-0.84**	-0.51	-0.04	0.10	0.02	**1.17**	**0.91**	**0.52**
Professional and business services	-0.13	0.12	-0.23	-0.11	0.19	0.33	0.49	-0.12	0.23	0.27	0.13
Educational services, health care, and social assistance	0.10	0.11	0.22	0.16	**0.25**	0.22	0.44	0.20	0.09	0.28	0.40
Arts, entertainment, recreation, accommodation, and food services	0.05	0.12	0.10	0.08	0.02	0.04	0.07	-0.52	0.58	0.14	0.02
Other services (except government and government enterprises)	0.12	0.19	-0.01	-0.13	-0.21	-0.15	-0.07	-0.22	0.08	0.09	-0.12
Government and government enterprises	**-0.25**	**0.14**	**0.5**	**0.85**	**0.14**	**0.51**	**0.08**	**-0.23**	**0.38**	**-0.02**	**0.69**

Source: U.S. BEA (2025a) | **Largest** | **2nd Largest** | **3rd Largest**

"Largest" refers to the largest sectoral contribution to that years GDP, in absolute value terms; "2nd largest" refers to the second largest sectoral contribution to that years GDP, in absolute value; "3rd largest" refers to the third largest sectoral contribution to that years GDP, in absolute value.

3. Economic Impact of the Oil and Gas Industry on Kern's Economy

In this analysis the economic impact of the oil and gas industry on Kern County's economy is measured. We apply regional Input-Output (I-O) Multipliers to a state-of-the-art computer program, Impact M for Planning (IMPLAN), to trace out the project's spending and employment impacts throughout the economy.

IMPLAN combines data, economic factors, multipliers and statistics to gain insight into an industry's contributions to a region (French 2018). It is a system of county-level data that uses I-O models to examine the effects of a new business to the local economy (University of Wisconsin Center for Cooperatives 2021, USDA NRCS 2021). Economic impact stems from the notion that each dollar spent in the economy creates new jobs and new dollars of income, thus igniting four multiplier effects:

- **Output multiplier** – the output multiplier is the base multiplier from which all other multipliers are derived. It describes the total economic output generated as a result of 1 dollar of output in the target industry.
- **Employment Multiplier** – the employment multipliers describe the total jobs generated as a result of 1 job in the target industry
- **Labor Income Multipliers** – the labor income multipliers describe the dollars of labor income generated as a result of one dollar of labor income in the target industry.
- **Value Added Multipliers** – the value-added multipliers describe the total dollars of value added generated as a result of one dollar of value added in the target industry (Demski 2020).

Each multiplier can be broken down into four effects: Direct, Indirect, Induced and Total Effects. These effects are illustrated in Figure 4 below:

- **Direct Effect** – the initial change determined by an analyst to be a result of an activity in the local economy.
- **Indirect Effect** measures the impact on local industries receiving the initial change of spending. They stem from business-to-business purchases in the supply chain taking place in the region.
- **Induced Effect** measures the impact on local households as they re-spend income generated by the initial change. They stem from household spending of income, after removal of taxes and savings. These are effects supported by wages earned directly or indirectly from oil and gas operations project.
- **Total Effect** is the sum of direct, indirect, and induced effects.

Figure 4: Multiplier Effects from Economic Spending

Source: Author's Adaptation

IMPLAN calculates a number of total effects, based on the four major multiplier effects. These total effects are: Employment, Labor Income, Value Added, and Output.

- Employment – the total number of jobs created from the project.
- Labor Income – the total value of all forms of employment income earned by workers, which includes employee compensation and income from proprietors.
- Value Added – this is the difference between the industry's total final output and the cost of the intermediate inputs. This is the contribution to GDP.
- Output – this is the total value of the business' production (GDP) plus intermediate inputs, which is the measure of value added, plus intermediate expenditures downstream. Output is calculated as revenues (sales) for industries with no inventory held; for industries with inventory, output is revenues less any net changes in inventory.

[9]These effects grow economic activity in housing, private hospitals e.g. physicians, dentists and healthcare providers, food services and drinking places as well as monetary authorities.

3.1. Industry Definitions

The oil and gas industry involves many activities that span separate industry classifications in government economic data. Oil and gas exploration, as well as oil and gas production, is included in the mining sector; oil refining is included in the manufacturing sector; pipeline transportation is included in the transportation sector; natural gas distribution is in the utilities sector; and oil marketing is included as part of wholesale and retail trade. Table 4 shows the composition of the industry, followed by detailed descriptions based on the North American Industry Classification System ("NAICS") and the IMPLAN software.

Table 4: Composition of the Oil Industry in Kern County

NAICS Code	IMPLAN Code	IMPLAN Description	Industry Employment (2023)
Upstream Industries (Extraction and Processing)			
211	20	Oil and gas extraction	**1,311**
213111	30	Drilling oil and gas wells	**1,194**
213112	31	Support activities for oil and gas operations	**3,818**
333132	256	Oil and gas field machinery and equipment manufacturing	**261**
Midstream Industries (transportation and Wholesale)			
486110	401	Pipeline transportation	**83**
Downstream Industries (Refining and Petroleum Products Manufacturing)			
324110	146	Petroleum Refineries	**521**
Total			**7,188**[9]

Source: Employment level data from the U.S. Bureau of Labor Statistics (2025b) and IMPLAN (2025).

3.2. IMPLAN Estimates

Table 5: Oil and Gas Industry Economic Contribution – Kern County

Impact	Employment	Labor Income	Value Added	Output
Direct	7,188	$981,238,913	$3,433,708,472	$8,417,097,800
Indirect	4,163	$356,376,126	$776,086,719	$1,303,594,037
Induced	3,800	$201,105,712	$424,460,651	$654,002,604
Total	**15,151**	**$1,538,720,751**	**$4,634,255,841**	**$10,374,694,440**

Source: Authors' IMPLAN (2025) analysis. Values are in 2023 dollars.

[10]Note: These totals differ from those in section 2.2 due to missing data and rounding. For example data for NAICS 213111 for 2023 was not available, so data for the year 2021 was used for the analysis.

Table 5 shows the IMPLAN estimates for Kern County for employment, labor income, value added, and output (GDP). Kern County's oil industry directly employed 7,188 people in 2023. The largest category of employment was in support activities for oil and gas operations, with an industry employment of 3,818 jobs. The direct impact of the oil industry contributes an additional 7,963 indirect and induced jobs, for a total employment impact in Kern County of 15,151 jobs. Direct labor income is close to ~$1 billion ($981 million) with total labor income of $1.5 billion. The industry's direct value added of $3.4 billion drives an additional ~$1.2 billion in indirect and induced (value added) impacts for a total economic contribution of over $4.6 billion. When compared to Kern County's overall nominal GDP for 2023 of $59.8 billion, this translates to 8 percent of Kern County's GDP (U.S. Bureau of Economic Analysis 2025a), from around 2 percent of overall employment.

Table 6: Oil and Gas Industry Tax Impacts – Kern County

Impact	Sub County General ($ millions)	Sub County Special Districts ($ millions)	County ($ millions)	State ($ millions)	Federal ($ millions)	Total ($ millions)
Direct	$30.7	$55.2	$37.9	$187.7	$350.2	$661.7
Indirect	$25.2	$45.3	$31.1	$99.4	$100.3	$301.3
Induced	$6.9	$12.3	$8.5	$32.7	$54.7	$115.0
Total	$62.7	$112.8	$77.4	$319.8	$505.2	$1,078.0

Source: Authors' IMPLAN (2025) analysis. Tax values are in 2023 dollars. Sub County General includes city and township governments while Sub County Special Districts includes fire and public-school districts.

Table 6 shows the IMPLAN tax estimates for Kern County. The oil industry generates taxes to the Sub County General (includes city and township governments), the Sub County Special (fire and public-school districts), the County, the State, and the Federal entities. In 2023, Kern County collected $77 million (sum of Sub County General, Sub County Special Districts and County) in taxes, while the state collected $319.8 million. The tax revenue to all jurisdictions (sub counties, County, state, federal) totaled $1.1 billion in 2023.

3.2.1. Distribution of Impacts

The total impacts may be disaggregated across other producing industries. Table 7 reports disaggregated impacts of industry output for the 20 sectors that are impacted by the energy industry in Kern County.

Table 7: Top 20 Industries Supported by Oil Activity by Employment

	Display Code	Display Description	Industry Total Output	Impact Output	Percentage of Total Industry Output
1	30	Drilling oil and gas wells	$208,241,334	$238,277,822	114%
2	401	Pipeline transportation	$160,639,255	$172,339,786	107%
3	256	Oil and gas field machinery and equipment manufacturing	$113,998,353	$112,538,950	99%
4	31	Support activities for oil and gas operations	$1,271,361,301	$1,248,772,628	98%
5	146	Petroleum refineries	$5,713,519,319	$5,375,363,033	94%
6	20	Oil and gas extraction	$3,236,133,901	$1,635,565,011	51%
7	55	Maintenance and repair construction of nonresidential structures	$492,090,767	$89,352,080	18%
8	451	Management of companies and enterprises	$888,797,262	$105,108,009	12%
9	441	Custom computer programming services	$195,653,193	$22,917,802	12%
10	435	Commercial and industrial machinery and equipment rental and leasing	$508,902,385	$57,237,071	11%
11	382	Wholesale - Petroleum and petroleum products	$1,709,783,731	$178,636,205	10%
12	378	Wholesale - Machinery, equipment, and supplies	$591,963,883	$51,334,437	9%
13	424	Other financial investment activities	$238,347,729	$20,139,744	8%
14	397	Rail transportation	$201,752,314	$16,741,422	8%
15	33	Other nonmetallic minerals services	$2,940,747	$198,835	7%
16	450	All other miscellaneous professional, scientific, and technical services	$90,527,245	$5,810,784	6%
17	384	Wholesale - Wholesale electronic markets and agents and brokers	$12,462,462	$758,027	6%
18	457	Investigation and security services	$110,728,396	$6,386,076	6%
19	42	Electric power transmission and distribution	$74,111,930	$4,000,892	5%
20	440	Specialized design services	$56,874,199	$3,068,658	5%

Source: Authors' IMPLAN (2025) analysis. Values are in 2023 dollars.

The largest dollar output impact will occur in supporting industries associated with oil and gas production. The indirect and induced impacts of this activity will spur growth in other sectors of the local economy. These include sectors providing goods and services to local residents, who will then earn an income as a result of being employed by the project. More specifically, we would expect employment growth in custom computer programming services, all other miscellaneous professional, scientific, and technical services, management of companies and enterprises, and commercial and industrial machinery and equipment rental and leasing employment opportunities.

4. Environmental Impacts

The results of this analysis reflect a partial equilibrium exercise, as we examine only a subset of the impacts associated with oil and gas activity in Kern specifically labor market and tax revenue effects. These dimensions are very important. Environmental Economics research that relies on a partial equilibrium analysis should include a discussion of general equilibrium considerations. These acknowledge the potential costs or benefits that lie outside the scope of measured outcomes that may run counter to the direction of our partial equilibrium findings. Since our analysis identifies labor-market benefits, it's important to recognize that corresponding costs may arise elsewhere in the labor market. In this section we provide a brief discussion of the environmental concerns associated with oil and gas extraction.

4.1. Environmental and Public Health Concerns Associated with Oil and Gas Operations

There exist a variety of potential concerns related to the oil and gas industry. These include:

- Health impacts of oil and gas drilling and exploration
- Air pollution and environmental impacts of oil and gas drilling and exploration
- Water quality and quantity impacts of oil and gas drilling

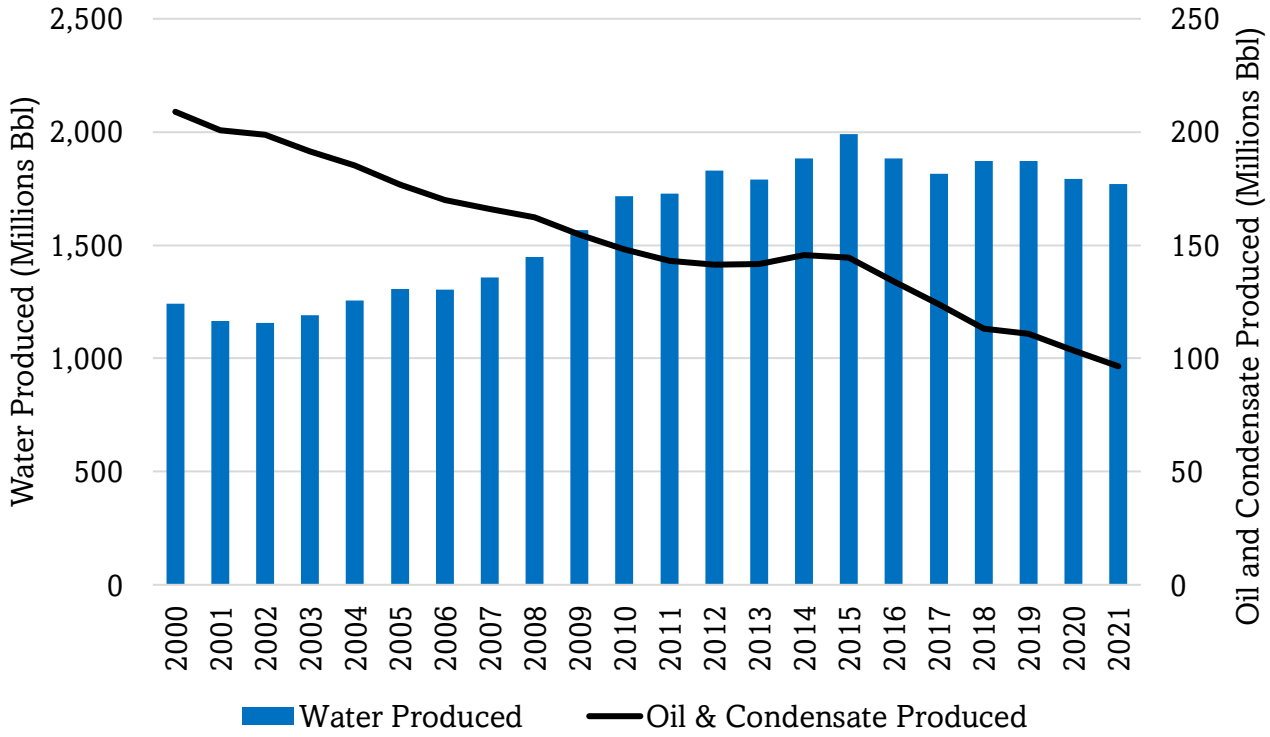
Broadly, there appears to be a consensus that there exist negative health outcomes due to exposure of upstream oil activities, including asthma exacerbations, excess deaths, cancers, and neurological symptoms (Johnston et al. 2019, Buonocore et al. 2023). Gosselin et al. (2010) note that the population-level health impacts from Canadian oil sands is mostly related from oil "boomtown" impacts and community infrastructure deficits, rather than direct contaminant exposure. Similarly, it is well known that emissions from drilling equipment, hydrocarbons escaping from wells, the flaring of natural gas, and emissions from support vehicles can degrade local air quality, with higher levels of greenhouse gas emissions (Caswell 1993, Gosselin et al. 2010). In 2002, the National Academy of Sciences (2003) estimated that 38,000 tons of petroleum hydrocarbons were released into the oceans annually in the 1990's, with considerable negative environmental impacts. Beyond this, studies have linked oil and gas drilling to the physical alteration of environments (which includes deforestation, ecosystem destruction, chemical contamination of water and land), as well as adverse impacts to soil, air, and water quality (O'Rourke and Connolly 2003, Johnston et al. 2019).

This section draws references on existing research, but does not attempt to link the numerous health and environmental issues to Kern County, as they may not be externally valid. Nevertheless, several studies have examined links between oil and gas operations in Kern County and environmental outcomes. Kaplan et al. (1984) analyzed the impacts of oil production on air quality, while Menzie (1991) focused on habitat loss associated with industry activity. Long et al. (2015) examined impacts on seismic activity, wildlife, vegetation, human health, and Gillespie et al. (2019) analyzed effects on groundwater quality. The California Air Resources Board (2025) evaluated air quality impacts. Although the studies examined Kern County, none, to our knowledge, monetized these environmental or health impacts.

4.2. Produced Water

The amount of water produced from oil and gas operations has increased over the last 20 years, growing at an average rate of 2 percent per year. Figure 5 illustrates that produced water increased despite the decline in oil production. In 2021, Kern County produced 96 million barrels of oil and 1.7 billion barrels of produced water from oil and gas operations. Over the last 20 years, produced water peaked in 2015, at nearly 2 billion barrels of produced water.

Figure 5. Water Production from Oil and Gas Operations

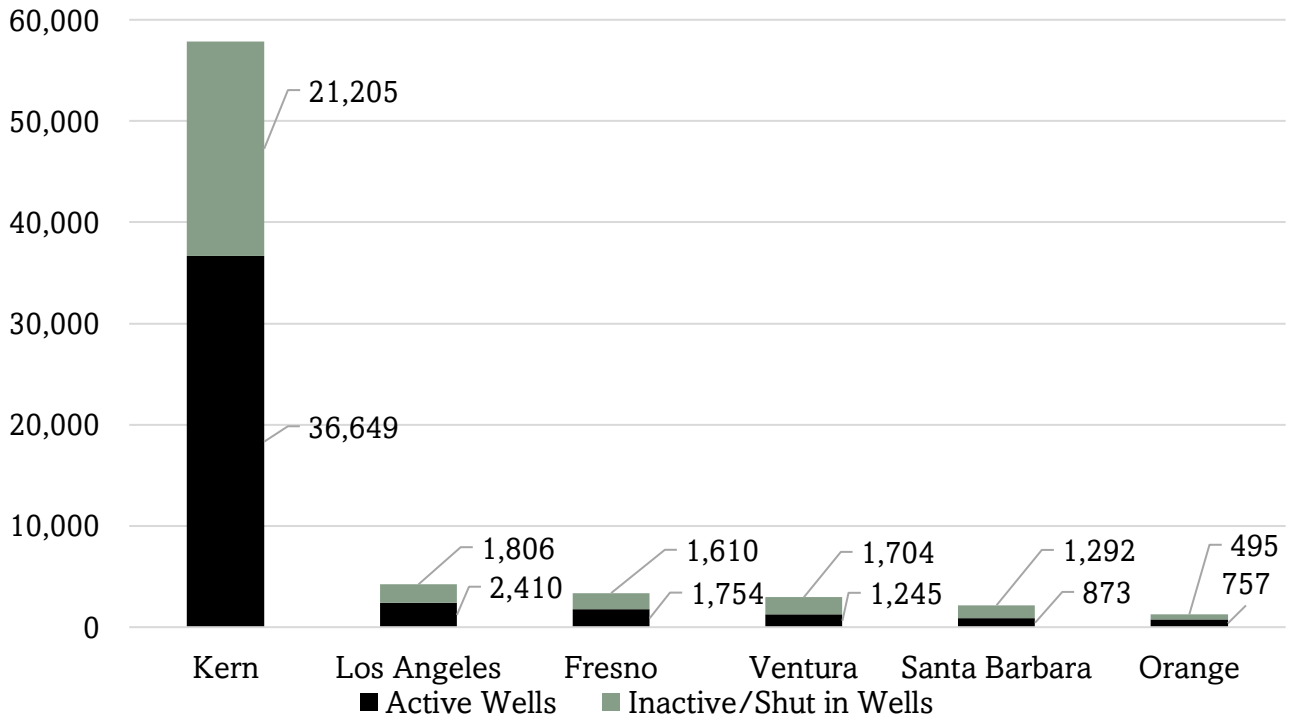


Source: California Geologic Energy Management (CALGEM) (2025)

4.3. Active and Inactive Wells

In 2021, 71 percent of the 46,546 active wells in California were located in Kern County. Similarly, 21,205, or 70 percent, of the inactive wells were located in Kern County (Figure 6) (California Geologic Energy Management (CALGEM) 2025). Every drilled well has the potential to be a source of methane through its well casing (Lebel et al. 2020). Methane has a global warming potential of 86 times that of CO2 over 20 years (Myhre et al. 2014) and its leakage can pose a potential risk of explosion (Chilingar and Endres 2005), groundwater contamination (Humez et al. 2016), and aromatics which can impact human health (Gross et al. 2013). The work by Lebel et al. (2020) showed that in California, emissions from plugged wells are low but more substantial from idle wells. The work by Duren et al. (2019) finds that upstream oil and gas production contributes about 79 percent of the total oil and gas methane point-source emissions in California, most of which are concentrated in the southern San Joaquin Valley.

Figure 6. Active and Inactive Wells in California (2021)



Source: California Geologic Energy Management (CALGEM) (2025)

Oil and chemical seepage from active and idle oil wells have the potential to contaminate groundwater. A study conducted by Wright et al. (2019) focused on the Fruitvale oil field (FVOF)[11] in Kern County and assessed whether oil field fluids mixed with ground water. Using samples from 14 wells, authors found that groundwater appeared to be of good quality and oil production activities had not led to the degradation of groundwater quality. Other work by Everett et al. (2020) collected data on the North and South Belridge oil fields while Everett et al. (2020a) monitored the Lost Hills area and found that the total dissolved solids measured from groundwater wells were reasonable.

The visual blight from oil rigs can also have an effect on housing prices. Although work of this nature has not been performed in Kern County, studies have shown that oil and gas facilities located near residential properties significantly impact their sales price (Boxall et al. 2005).

5. Study Limitations

This study is not without limitations. The environmental impacts of oil and gas production were not monetized. These direct and indirect costs, which could impact human health, may offset the labor market benefits of oil and gas exploration. Second, the regulatory costs of the oil and gas industry are not quantified. These direct and indirect costs could impact agencies (oil and gas companies) and the government. Costs to the government include those formulating policy, education and monitoring, while costs to the company include technological upgrades, renewals, and compliance management – all of which impact market competitiveness and profit margins (Wu 2024). Third, oil companies engage in philanthropic activities in education, food banks, healthcare, tourism, the environment and recreation, and whose impacts were not quantified (Hwang and Paarlberg 2019). These values could increase the impacts of the industry on GDP. Finally, IMPLAN has shortcomings which include non-linearity and double counting, both of which could impact the results. These limitations present ideas for future work.

[11]Oil extraction began in 1928 in the FVOF and the region had a total of 831oil wells

6. Conclusion

This study quantifies the contribution of oil and gas workers to Kern County's economy using an IMPLAN model and data from 2023. The report highlights Kern County's trends in oil production, high-wage employment with relatively modest education requirements, and the industry's continued importance as a major contributor to the county's economic growth. These trends were assessed over a 20 year period. A discussion on the environmental impacts of oil and gas production was also presented. Several findings were worth reporting:

1. In 14 of the last 23 years, the mining, quarrying, oil and gas extraction sector has been the largest contributor of GDP growth in Kern County.
2. The oil industry employs roughly 2 percent of Kern County's workforce.
3. Mining, quarrying and oil and gas extraction[12] workers were the third highest paid employees in Kern County, receiving an average annual salary of $106,522 in 2023. Their wages are roughly $41,523 more than the average worker in Kern County
4. Kern County's oil industry directly employed 7,188 people in 2023. The direct impact of the oil industry contributes an additional 7,963 indirect and induced jobs, for a total employment impact of 15,151 jobs.
5. The direct labor income of the 7,188 workers is ~$1 billion ($981 million). The total labor income (including indirect and induced wages) is $1.5 billion.
6. The industry's direct value added of $3.4 billion drives an additional ~$1.2 billion in indirect and induced (value added) impacts for a total economic contribution of over $4.6 billion. When compared to Kern County's overall nominal GDP for 2023 of $59.8 billion, this translates to 8 percent of Kern County's GDP (U.S. Bureau of Economic Analysis 2025a).
7. In 2021, Kern County produced 96 million barrels of oil and 1.7 billion barrels of produced water from oil and gas operations.
8. In 2021, 46,546 (71 percent) of California's active wells were located in Kern County. Similarly, 21,205 (70 percent) of California's inactive wells were located in Kern County.

Appendix 1: Literature Review (Findings from Other Studies)

Author	Industry	Region	Data Year	Direct Employment	Total Employment (Jobs)	Total Labor Income	Total Value Added/GDP	Total tax Revenue
Bangsund and Hodur (2021)	Construction and Operation of Wind	North Dakota	2019	168*	636	$238 million	$630 million	$27 million
Sedgwick et al. (2025)	Oil and Gas	California	2022	148,150	536,970	$53 billion	$166 billion	$64 billion
PricewaterhouseCoopers (PWC) (2021)	Oil and Gas	U.S.	2019	2.5 million	11.3 million (5.6%)	$893 billion	$1.7 trillion	
Kaplan and Milke (2021)	Oil and Gas	U.S.	2021	2 million	5 million	$356 billion	$985 billion	$238 billion
Perry (2018)	Oil and Gas	Colorado (Piceance basin/5 Counties)	2018	5,656	9,392	$661 million	$977 million	
ICF (2020)	Oil and Gas	Louisiana	2019	94,200	249,800	$14.5 billion	$73 billion	$4.5 billion
Public Sector Consultants INC (2016)	Oil and Natural Gas Industry	Michigan	2015	22,781	47,105	$2.8 billion	$13.6 billion (3%)	$419 million
Snead (2002)	Oil and Gas	Oklahoma	1999	58,145**	135,000	$2.6 billion	$750.3 million	$400 million
Michieka and Gearhart (2025)	**Oil and Gas**	**Kern County**	**2023**	**7,188**	**15,151**	**$1.5 billion**	**$4.6 billion**	**$1.1 billion**

Where: *means wind jobs and ** translates to 2.5 percent of total employment

[12] Defined using NAICS 21.

References

Bangsund, D. A. and N. M. Hodur (2021). "Wind energy industry's contribution to the North Dakota economy in 2019." Available at < https://windindustrynd.com/_uploads/_media_uploads/_sourceExecutiveSummaryFinal01-07-2021-002.pdf>.

Boxall, P. C., Chan, W. H., and M. L. McMillan (2005). "The impact of oil and natural gas facilities on rural residential property values: a spatial hedonic analysis." Resource and Energy Economics 27(3): 248-269.

Buonocore, J. J., Reka, S., Yang, D., Chang, C., Roy, A., Thompson, T., and S. Arunachalam S. (2023). "Air pollution and health impacts of oil & gas production in the United States." Environmental Research: Health 1(2): 021006.

California Air Resources Board (2025). Study of Neighborhood Air near Petroleum Sources (SNAPS) Lost Hills, California Final Report. Available at < https://ww2.arb.ca.gov/sites/default/files/2025-10/SNAPS_Lost_Hills_Final_Report.pdf>.

California Department of Conservation (2026a). Annual Reports of the State Supervisor of Oil and Gas. 2023 Annual Oil and Gas Report. Available at < https://www.conservation.ca.gov/calgem/Documents/State%20Oil%20and%20Gas%20Supervisor%20Annual%20Report%202023.pdf>.

California Department of Conservation (2026b). Annual Reports of the State Supervisor of Oil and Gas. 1980 Annual Oil and Gas Report. Available at < https://www.conservation.ca.gov/calgem/pubs_stats/annual_reports/pages/annual_reports94_74.aspx>.

California Energy Commission (2025). Annual oil supply sources to california refineries. Available at <https://www.energy.ca.gov/data-reports/energy-almanac/californias-petroleum-market/annual-oil-supply-sources-california>.

California Geologic Energy Management (CALGEM) (2025). Annual Reports of the State Supervisor of Oil and Gas, California Department of Conservation. Avalailable at <https://www.conservation.ca.gov/calgem/pubs_stats/annual_reports/Pages/annual_reports.aspx>.

California State Parks (2025a). Discovery Well of Kern River Oilfield. Historical Landmark, Available at <https://ohp.parks.ca.gov/ListedResources/Detail/290#:~:text=On%20June%201%2C%201899%2C%20400,this%20region's%20first%20commercial%20well.>.

California State Parks (2025b). Discovery Well of Kern River Oilfield. California Historical Landmarks By County. Available at < https://ohp.parks.ca.gov/ListedResources/Detail/290>.

Caswell, M. F. (1993). Balancing energy and the environment. The environment of oil, Springer: 179-214.

Chilingar, G. and B. Endres (2005). "Environmental hazards posed by the Los Angeles Basin urban oilfields: an historical perspective of lessons learned." Environmental Geology 47: 302-317.

Duren, R. M., Thorpe, A. K., Foster, K. T., Rafiq, T., Hopkins, F. M., Yadav, V. and C. E. Miller (2019). "California's methane super-emitters." Nature 575(7781): 180-184.

Everett, R. R., Brown, A. A., Gillespie, J. M., Kjos, A., and N. C. Fenton (2020). Multiple-well monitoring site adjacent to the North and South Belridge oil fields, Kern County, California, US Geological Survey.

Everett, R. R., Kjos, A., Brown, A. A., Gillespie, J. M., and P. B. McMahon (2020a). Multiple-well monitoring site adjacent to the Lost Hills oil field, Kern County, California, US Geological Survey.

Gillespie, J. M., Davis, T. A., Stephens, M. J., Ball, L. B., & Landon, M. K. (2019). Groundwater salinity and the effects of produced water disposal in the Lost Hills–Belridge oil fields, Kern County, California. Environmental Geosciences, 26(3), 73-96.

Gosselin, P., Hrudey, S. E., Naeth, M. A., Plourde, A., Therrien, R., Van Der Kraak, G., and Z. Xu (2010). "Environmental and health impacts of Canada's oil sands industry." Royal Society of Canada, Ottawa, ON 10.

Gross, S. A., Avens, H. J., Banducci, A. M., Sahmel, J., Panko, J. M., and B. E. Tvermoes (2013). "Analysis of BTEX groundwater concentrations from surface spills associated with hydraulic fracturing operations." Journal of the Air & Waste Management Association 63(4): 424-432.

Hwang, H., and L. E. Paarlberg (2019). "The energy boom: Boon or bane for local philanthropy?" Social Science Quarterly, 100(5), 1899-1915.

Humez, P., Mayer, B., Ing, J., Nightingale, M., Becker, V., Kingston, A. and S. Taylor (2016). "Occurrence and origin of methane in groundwater in Alberta (Canada): Gas geochemical and isotopic approaches." Science of the Total Environment 541: 1253-1268.

ICF (2020). The Economic Impact of the Oil and Gas Industry in Louisiana. Louisiana Mid-continental Oil and Gas Association, Available at <https://www.lmoga.com/assets/uploads/documents/LMOGA-ICF-Louisiana-Economic-Impact-Report-10.2020.pdf>.

IMPLAN® model, (2025). 2023 Data andModel, using inputs provided by the user and IMPLAN Group LLC, IMPLAN System (data and software), 16905 Northcross Dr., Suite 120, Huntersville, NC 28078 www.IMPLAN.com.

Johnston, J. E., Lim, E., and H. Roh (2019). "Impact of upstream oil extraction and environmental public health: A review of the evidence." Science of the Total Environment 657: 187-199.

Kaplan, E., Royce, B., Garell, M. H., Riedel, E. F., Sathaye, J. and G. J. Rotariu. (1984) "An environmental assessment of enhanced oil recovery." Minerals and the Environment 6, no. 2 (1984): 54-65.

Kaplan, L. and M. Milke (2021). Enhancing North American Energy Security: Analyzing the Economic Impacts of the U.S. Oil and Gas Industry, Canadian Energy Centre. Available at < https://www.canadianenergycentre.ca/enhancing-north-american-energy-security-analyzing-the-economic-impacts-of-the-u-s-oil-and-gas-industry/>.

Lebel, E. D., Lu, H. S., Vielstädte, L., Kang, M., Banner, P., Fischer, M. L., and R. B. Jackson (2020). "Methane emissions from abandoned oil and gas wells in California." Environmental Science & Technology 54(22): 14617-14626.

Long, J., Feinstein, L., Birkholzer, J., Foxall, W., Houseworth, J., Jordan, P., ... and M. Jerrett (2015). An Independent Scientific Assessment of Well Stimulation in California Volume III: Case Studies of Hydraulic Fracturing and Acid Stimulations in Select Regions: Offshore, Monterey Formation, Los Angeles Basin. Available at < https://escholarship.org/content/qt4nn3m0bb/qt4nn3m0bb_noSplash_0aed88a947a7c0d93935a347409711da.pdf>.

Menzie Jr, R. J., and H. B. Schymiczek. (1991). Environmentally Significant Locations in the Kern County Area.

Myhre, G. (2014). "Anthropogenic and natural radiative forcing." Climate Change 2013-The Physical Science Basis: 659-740.

National Research Council Committee on Oil in the Sea: Inputs, F. and Effects (2003). Oil in the Sea III: Inputs, Fates, and Effects. Washington (DC), National Academies Press (US). Copyright 2003 by the National Academy of Sciences. All rights reserved.

O'Rourke, D. and S. Connolly (2003). "Just oil? The distribution of environmental and social impacts of oil production and consumption." Annual Review of Environment and Resources 28(1): 587-617.

Perry, N. (2018). Economic Contribution of the Oil and Gas Industry in the Piceance Basin. Available at <https://www.coloradomesa.edu/energy/documents/economic-contribution-of-oil-and-gas-in-the-piceance.pdf>.

PricewaterhouseCoopers (PWC) (2021). Impacts of the Oil and Natural Gas Industry on the US Economy. Available at <https://www.api.org/-/media/files/policy/american-energy/pwc/api-pwc-economic-impact-report.pdf>.

Public Sector Consultants INC (2016). Michigan's Oil and Natural Gas Industry: Economic Contribution. Available at <https://publicsectorconsultants.com/wp-content/uploads/2016/12/Michigans-Oil-and-Natural-Gas-Industry-Report-1.pdf>.

Redpath, L. V. (1900). Petroleum in California: A Concise and Reliable History of the Oil Industry of the State, Lionel V. Redpath.

Sedgwick, S. M., Adams, J., Wei, D and M. Skyberg (2025). Oil and Gas in California: The Industry, Its Economic Contribution And Major User Industries, Institute for Applied Economics. Los Angeles County Economic Development Corporation. Available at <https://laedc.org/research/reports/oil-gas-in-california/>.

Snead, M. (2002). The Economic Impact of Oil and Gas Production And Drilling On The Oklahoma Economy. Available at < https://business.okstate.edu/site-files/archive/docs/economy/State_Impact.pdf>.

U.S. Bureau of Economic Analysis (2025a). Real Gross Domestic Product, Chained Dollars ([Billions of chained (2017) dollars]). National Income and Product Accounts. CAGDP1 County and MSA gross domestic product (GDP) summary. Available at <https://www.bea.gov/>.

U.S. Bureau of Labor Statistics (2025c). May 2023 Metropolitan and Nonmetropolitan Area Occupational Employment and Wage Estimates. Available at<https://www.bls.gov/oes/2023/may/oes_12540.htm>.

U.S. Bureau of Labor Statistics (2025d). Table 5.3 Educational attainment for workers 25 years and older by detailed occupation, 2021-22. Available at<https://www.bls.gov/emp/tables/educational-attainment.htm>.

U.S. Bureau of Labor Statistics (2025). State and County Employment and Wages (Quarterly Census of Employment & Wages – QCEW). Avaliable at <https://www.bls.gov/data/home.htm>.

U.S. Bureau of Labor Statistics (2025a). State and County Employment and Wages (Quarterly Census of Employment & Wages – QCEW). NAICS 21 Mining, quarrying, and oil and gas extractionfor All establishment sizes in Kern County, California, NSA. Washington D.C. Available at <https://www.bls.gov/cew/>.
U.S. Bureau of Labor Statistics (2025b). State and County Employment and Wages (Quarterly Census of Employment & Wages – QCEW). Washington D.C. Available at <https://www.bls.gov/cew/>.
U.S. Energy Information Administration (2025a). California Midway-Sunset First Purchase Price. Washington, DC. Available at <https://www.eia.gov/dnav/pet/hist/LeafHandler.ashx?n=PET&s=F005006143&f=M>, US Energy Information Administration.
U.S. Energy Information Administration (2025b). Spot Prices. Washington, DC. Available at <https://www.eia.gov/dnav/pet/pet_pri_spt_s1_m.htm>.
U.S. Energy Information Administration (2025c). U.S. Field Production of Crude Oil. Available at <https://www.eia.gov/dnav/pet/hist/LeafHandler.ashx?n=pet&s=mcrfpus2&f=a>.
Wright, M. T., McMahon, P. B., Landon, M. K., and J. T. Kulongoski (2019). "Groundwater quality of a public supply aquifer in proximity to oil development, Fruitvale oil field, Bakersfield, California." Applied Geochemistry 106: 82-95.
Wu, L. (2024). "Quantifying the environmental regulatory costs." Available at < https://papers.ssrn.com/sol3/papers.cfm?abstract_id=4925630>.

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