



The Economic Contribution of the Oil and Gas Industry in Kern County January 2021

INTRODUCTION

Kern Economic Development Foundation (KEDF) was contracted by the Western States Petroleum Association (WSPA) to conduct a study on the oil and gas (O&G) industry in Kern County. The purpose of this report is to provide an analysis of the economic benefits gained by Kern County as a result of the O&G industry's presence. While emphasis is on county-wide benefits, the economic impact reaches far beyond the County line, therefore state- and nation-wide benefits are also included here.

Publicly-available data was gathered for this report in order to quantify industry benefits. Sources include the Kern County Assessor's Office; the U.S. Energy Information Administration; JobsEQ; Bureau of Economic Analysis; California Energy Commission; and the U.S. Census Bureau.

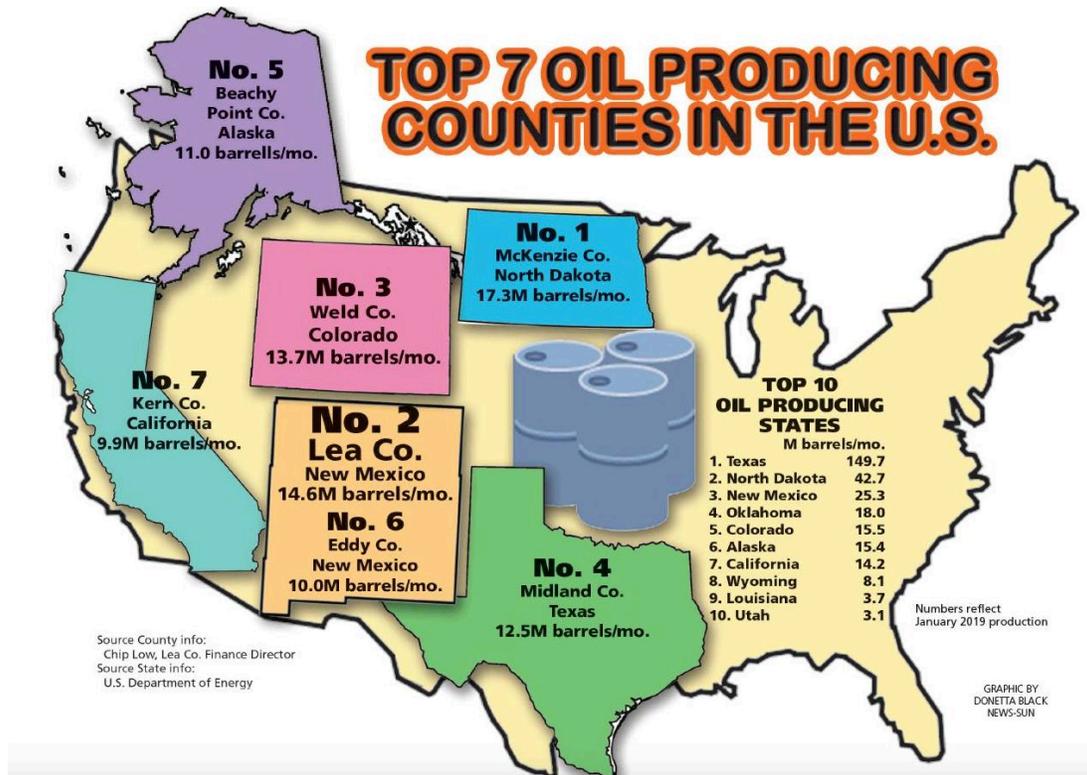
This report focuses on the following key areas:

1. Top Oil-Producing Regions in the U.S.
2. Employment Numbers and Wage Levels
3. Job and Earnings Multipliers Impact Economy
4. Tax Impact of the Industry
5. Kern County O&G Production Aids in Energy Stability/Security
6. Predicting Community Impact of Future Oil Price Fluctuations

OVERVIEW

Kern County has been an oil and gas powerhouse since the 1890's, when oil was first discovered on the county's west side. In 2019, Kern was ranked the #7 oil-producing county in the nation (Figure 1), yielding 119 million bbl of oil and 129 billion CF of gas annually, according to U.S. Energy Information Administration data. These amounts represent 71% of California's oil production and 3% of the total U.S. oil production. Kern County produces 78% of the state's total natural gas production.

Figure 1. Top 7 Oil Producing Counties/Regions



KEY INDUSTRY ELEMENTS

Significant Employment and Wage Levels Bolster Local Economy

Not surprisingly, the O&G industry is the number-one industry in Kern County in terms of gross domestic product and tax contributions. The benefits of the O&G industry, however, are by no means limited to Kern County. The industry generates significant regional economic activity. Extraction, production, refining, and petroleum product manufacturing result in highly tradable products that are consumed domestically and are also exported. These efforts produce high revenues, create high wage jobs, and contribute significant tax revenue to all levels of government. The impact of the O&G industry is, indeed, very far-reaching.

Kern County’s O&G cluster is not only a significant source of overall employment, but it is also a provider of high-paying jobs that require moderate-to-high skill levels (i.e. jobs in technical and engineering occupations). Almost all segments of the industry pay higher wages than the Kern County average. In some more specialized or highly skilled areas, in 2020 wages were almost *triple* the county average of \$49,751. Across the O&G industry in 2020, there were approximately 25,000 direct, indirect, and induced energy-related jobs in Kern County.

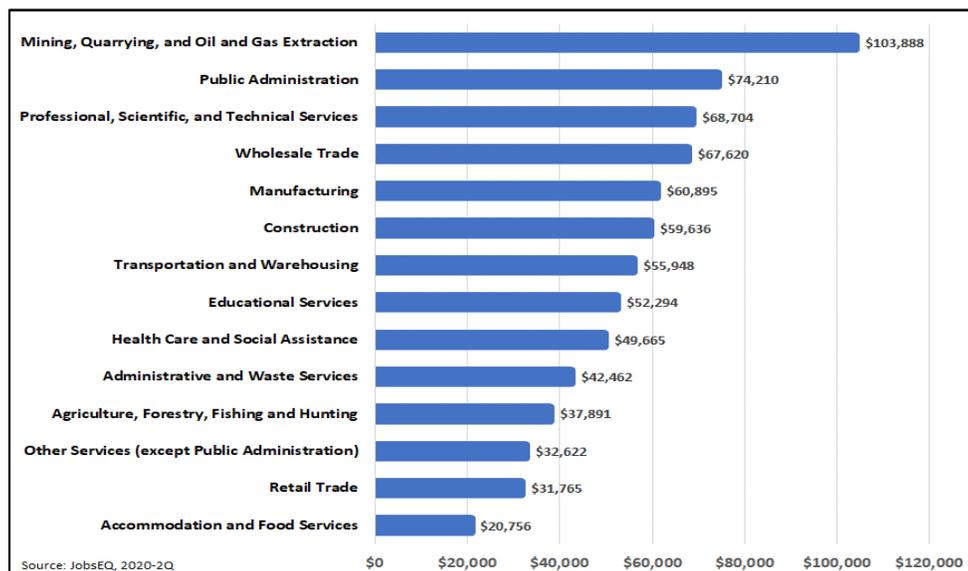
Figure 2. Oil and Gas Industry Economic Impacts, 2019

<u>NAICS Sub-Sector</u>	Employment	Location Quotient	Total Annual Wages	Average Annual Wage per Employee
NAICS 211 Oil and gas extraction	1,796	5.37	\$240,977,820	\$131,168
NAICS 213111 Drilling oil and gas wells	1,962	14.56	\$245,852,375	\$125,301
NAICS 213112 Support activities for oil and gas ops	4,211	7.95	\$342,896,561	\$81,141
NAICS 2212 Natural gas Distribution	646	2.50	\$84,368,390	\$130,609
NAICS 23712 Oil and gas pipeline construction	3,028	7.95	\$181,019,061	\$59,786
NAICS 32411 Petroleum refineries	629	4.13	\$73,440,622	\$119,919
NAICS 333132 Oil & gas field machinery and equip mfg.	332	2.52	\$20,774,542	\$62,590
NAICS 4247 Petroleum merchant wholesalers	341	1.49	\$25,473,803	\$74,786
NAICS 447 Gasoline stations	2,909	1.40	\$73,367,357	\$25,219
NAICS 45431 Fuel dealers	64	0.39	\$3,419,433	\$52,062
NAICS 486 Pipeline transportation	275	2.40	\$30,142,929	\$109,508
Total, Oil & Gas Industry	16,193		\$1,309,588,669	\$80,874
Total, All Industries	351,475		\$17,123,214,581	\$49,751

Source: JobsEQ

As illustrated in Figure 2, the O&G cluster, almost without fail, offers higher-than-average wages in Kern County. Oil and gas extraction, consisting of highly skilled engineering and geological jobs, was the highest-paying segment of the cluster with an average annual salary of \$131,168. The average annual salary for the entire sector was \$80,874, which is nearly double the “all industries” annual average of \$49,751.

Figure 3. Kern County, Average Wages by Sector, 2020-2Q



The oil and gas industry is one of the most “impactful” industry sectors (Figure 4) on economic activity throughout the region.

Figure 4. Economic Impact of O&G Expenditures and Production

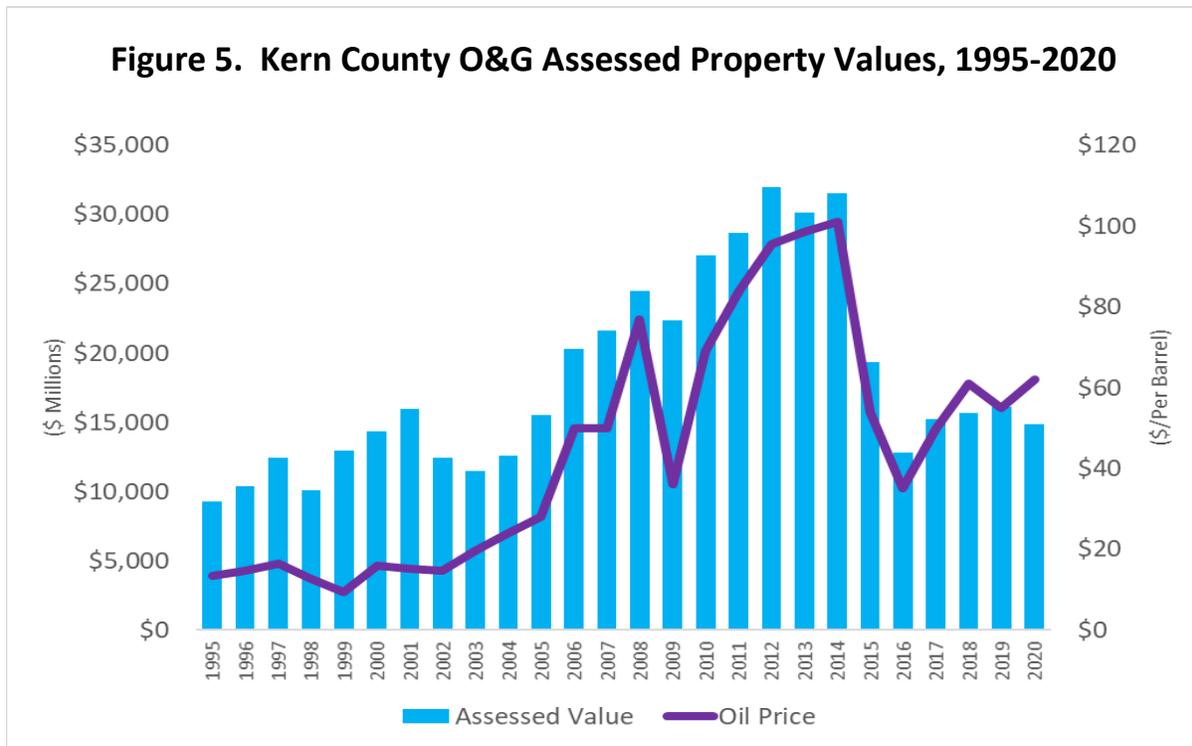
<i>Impact per \$1 million of O&E Extraction Expenditures</i>				
			<i>Value</i>	
Impacts	Jobs	Wages	Added	Gross Output
Direct	1.39	\$134,740	\$395,179	\$1,000,000
Indirect	2.44	\$174,982	\$278,836	\$562,231
Induced	<u>2.00</u>	<u>\$102,470</u>	<u>\$183,927</u>	<u>\$305,457</u>
Total	5.83	\$412,191	\$857,942	\$1,867,688
<i>Impact per \$1 million O&E Production</i>				
Direct	1.80	\$133,757	\$542,968	\$1,000,000
Indirect	2.18	\$157,460	\$281,037	\$469,367
Induced	<u>1.83</u>	<u>\$93,727</u>	<u>\$168,233</u>	<u>\$279,367</u>
Total	5.80	\$384,945	\$992,238	\$1,748,733

Source: Implan (CA Model)

In addition, the approximately \$1.3 billion paid in 2019 to local O&G employees creates a significant “ripple effect” phenomenon in the local economy. “Direct activity” includes the materials purchased and the employees hired by the industry itself. “Indirect effects” are those which stem from the employment and business revenues motivated by the purchases made by the industry and any of its suppliers. “Induced effects” result from increased spending of new money in the community, generated by increased output, on new homes, durable goods such as cars and appliances, plus additional spending on restaurants and entertainment options.

Industry Has Significant Tax Impact, Benefitting All Levels of Government

According to the Kern County Assessor’s Office, the O&G industry accounted for roughly \$15 billion (Figure 5) of the County’s \$102 billion in property tax valuations in 2020. According to the LAEDC, economic activity associated with the O&G industry in Kern County was estimated to have generated \$925 million in state and local tax revenues in 2017. Of the state and local government revenue portion, \$392 million came from sales taxes; \$331 million came from property taxes paid by households and businesses; and \$68 million came from personal and corporate income taxes, and \$134 million from other categories.



Taxes paid by the O&G industry play a major role in the support of local infrastructure, including schools, public safety, streets and roads, and parks.

In terms of annual property taxes, in FY 2018-2019, the O&G industry (Figure 6) contributed over \$80 million to the County of Kern; over \$103 million for local school districts; and over \$12 million for local special districts for a total of almost \$200 million per year.

During FY 2018-2019, O&G (Roll 2) parcels generated over \$197 million in property tax revenue for the of Kern, including \$156.5 million in “1% property tax” revenue, \$22.5 million in property tax in-lieu of vehicle license fees (VLF), and \$18.1 million in bond tax revenue.

Figure 6. Summary of Annual Property Tax Revenue for Oil & Gas Industry, Kern County, FY2018-2019

Jurisdiction Type	1% Property Tax Revenue	Property Tax In Lieu of VLF	Additional Bond Tax Revenue	Total Property Tax Revenue FY 2018-2019
County of Kern	\$58.2 million	\$22.3 million	N/A	\$80.5 million
Incorporated Cities	\$0.4 million	\$0.2 million	N/A	\$0.6 million
School Districts	\$90.2 million	N/A	\$13.6 million	\$103.8 million
Special Districts	\$7.7 million	N/A	\$4.5 million	\$12.2 million
GRAND TOTAL	\$156.5 million	\$22.5 million	\$18.1 million	\$197.1 million

Source: Kern County Assessor’s Office; Kern County Auditor-Controller’s Office; TNDG.

Clearly, the O&G industry represents a major source of tax revenue, generated by businesses operating within the industry, as well as consumers. The production, refining, distribution, sale and consumption of oil and gas all face taxes levied by local, state and federal governments.

The following is a description of the taxes and fees paid by the O&G industry and its consumers:

Ad Valorem (Property Taxes): Ad valorem taxes (property taxes) are locally assessed and administered by each county. The State of California dictates that ad valorem taxes have a one percent maximum; however, individual counties have the option to add to this rate to satisfy local voter-approved debt.

CALGEM Assessment Rate: The State imposes a \$0.565/bbl (FY 2019/20) assessment on O&G production in California in order to support the California Geologic Energy Management Division (CalGEM).

State Excise Taxes: Excise taxes are levied on the purchase of certain goods and are paid by the end user at the time of sale. California imposes an excise tax on both natural gas and oil sales. The \$0.47/gallon tax levied on natural gas consumption in California varies among the different private utility gas distributors in the state and with the type of customer (residential, commercial, industrial, etc.), while excise taxes levied on the purchase of fuel varies by fuel type.

Federal Excise Tax: The federal government levies an excise tax on fuel consumption in addition to those levied by the State of California. The tax applied to the purchase of fuel (from point of sale, terminal, refinery or from outside of the U.S.) also varies by fuel type, including gasoline, aviation gasoline, diesel, and jet fuel. Compressed natural gas used as a fuel for motor vehicles is also subject to a federal excise tax.

Sales Tax: Sales tax is levied on the sale of gasoline by both state and local governments; the purchaser incurs the tax burden at the point of sale. State and local (county and city) sales tax rates are usually bundled together. The total rate varies from county to county (and even different areas within the same county), based upon voter-approved measures specific to that geography. Diesel fuel sales in California are subject to an additional sales tax levied by the state.

Federal (Public) Lease and Royalty Payments: O&G operations involving extraction may enter into a mineral lease with the federal government in order to obtain the right to explore, drill, extract, remove, and dispose of oil and gas deposits on federally owned lands. Leases are purchased, bonus lease payments are paid, rental rates apply and once production is underway the lessees are subject to royalty fees.

Energy Independence Creates Stability and Security

California is currently the third-largest consumer of gasoline in the world, behind only China and the United States. According to California Energy Commission, California is currently a net importer of oil, producing only about 30% of the petroleum that it uses (Figure 7). In 2019, the state imported a record 58%--360 million barrels--of its crude oil supply from foreign sources. (In comparison, in 1989, the state imported less than 7%--or 47 million barrels--from foreign sources.) Approximately, 42% of crude oil imports come from Saudi Arabia and Iraq (Figure 8). According to a 2020 International Council of Clean Transportation study, 13% of the world's maritime emissions were from oil tankers, which produce 114 million tons of CO2 per year.

Dependence on foreign oil makes the state, which is considered an “energy island”, vulnerable to energy shortages and price spikes and makes the region dependent on foreign countries for energy. In 2019, California's reliance on imports cost the state an estimated \$23 billion. In addition, Californians forgo funding for critical infrastructure projects since imported oil is exempt from California taxes (while high-paying O&G jobs then go to foreign countries or other states).

All oil and gas produced in California is extracted under the most stringent regulations in the world. In contrast, Saudi Arabia and Iraq were ranked 90th and 106th in the world respectively, in the 2020 Environmental Performance Index report published by the Yale Center for Environmental Law & Policy.

Figure 7. Sources Supplying Crude Oil to California Refineries, 1996-2019

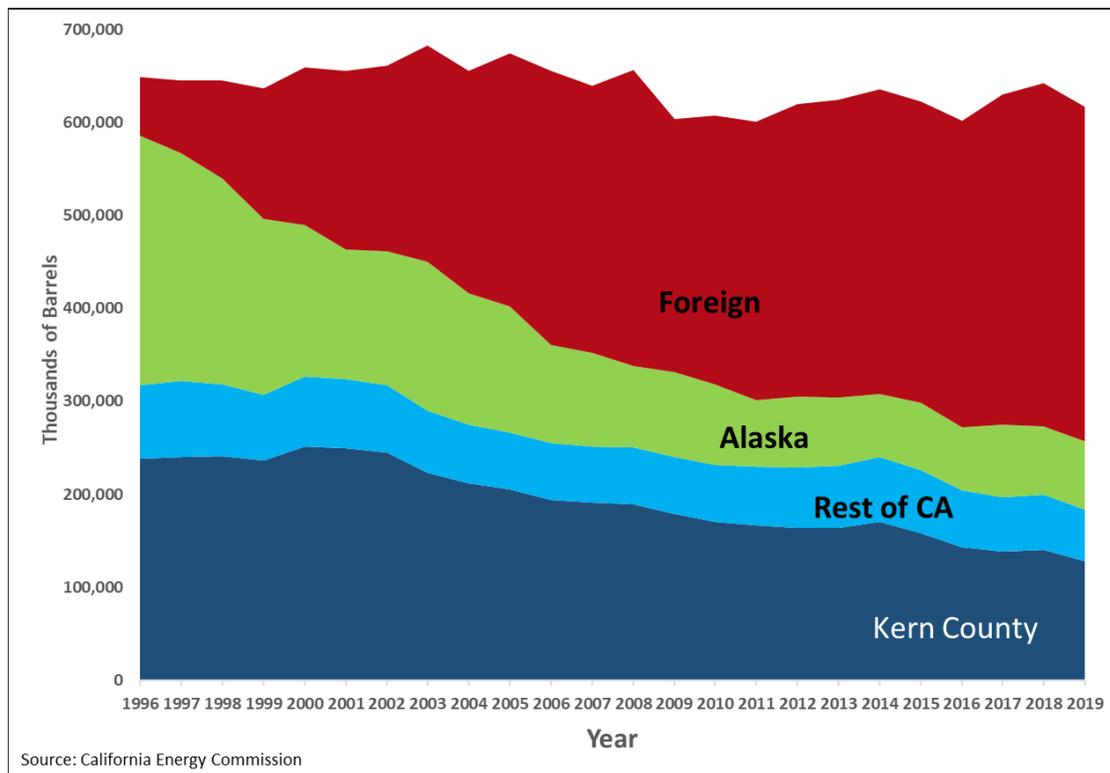
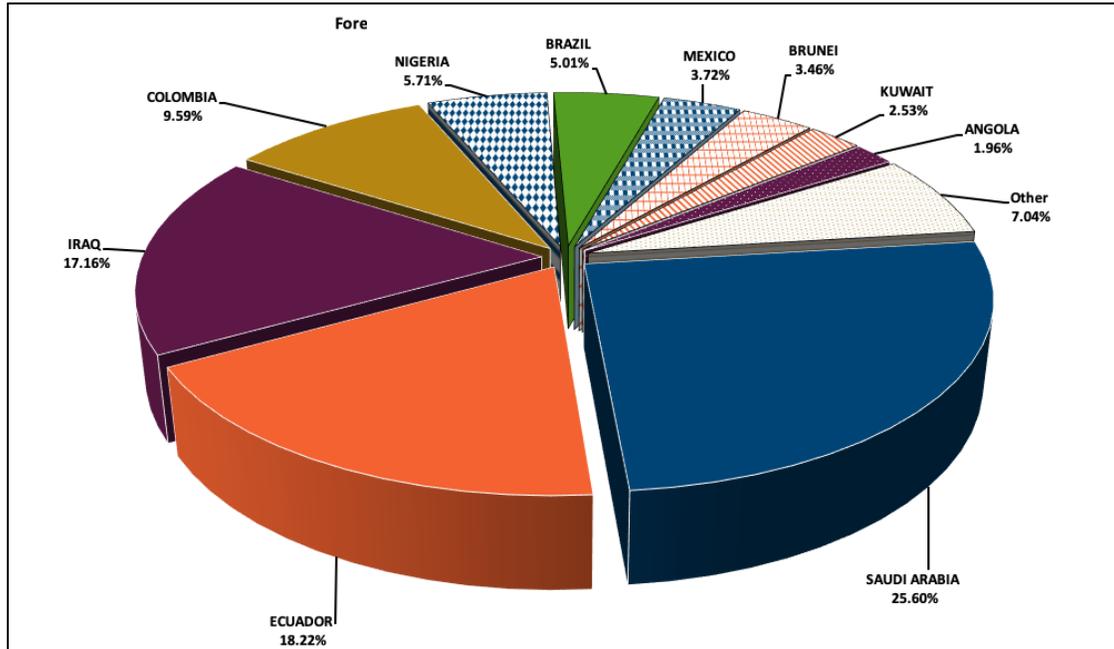


Figure 8. Foreign Sources of Marine Crude Oil Imports to California, 2019



REGIONAL ECONOMIC IMPACT OF OIL PRICE VOLATILITY

Measuring Oil Price Fluctuations and Their Local Economic Impact

Recent oil price volatility serves as a reminder of why the region must gauge how local economic output might be affected in the future—and how that will affect the region as a whole. Local drilling activity and production are critical factors in predicting future outcomes.

Figure 9 shows the strong positive correlation between rising oil prices and regional economic growth. In addition, the coefficient of determination (R^2) shows how well a regression model fits the data. Its value represents the percentage of variation that can be explained by the regression equation. Analysis confirms that a staggering 52% of GDP growth (2001-2019) could be directly attributed to rising oil prices.

Figure 9. Change in Kern Oil Prices vs. Kern GDP Growth, 2001-2019

