

ECONOMIC IMPACT STUDY



Los Angeles County Economic Development Corporation

California Oil and Gas Production Industry State Regulatory Delays

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This report was prepared by the Consulting Practice of the Los Angeles County Economic Development Corporation (LAEDC).

As the Southern California region's premier economic development organization, the mission of the LAEDC is to attract, retain and grow businesses and jobs in the regions of Los Angeles County, as well as to identify trends and to effect positive change on the local economy.

The LAEDC Consulting Practice offers unbiased custom research with expertise in water, transportation, the environment, infrastructure, economic impact studies, and regional industry analysis. Our goal is to support clients, issues and projects of significance, and to deliver long-term value to the quality of life in our region and state.

Summary of Findings

Delays in the approval of permits in the oil and gas production industry in California are holding up an estimated \$1 billion in capital investment in oil and gas field redevelopment for an average of approximately one year.

The investment in drilling, pipelines and other production-related facilities would create considerable economic activity in California, even after discounting the money that would be spent on materials purchased from manufacturers located outside the state. The exhibit below shows the total economic impacts, which include direct, indirect and induced activity, generated by a one-time capital investment of \$1 billion in oil and gas production in Los Angeles County.

Economic Impact of Delayed Capital Investment In Oil and Gas Field Redevelopment	
Output (\$ millions)	\$ 1,040.3
Employment (jobs)	6,040
Labor income (\$ millions)	\$ 425.4
State and local taxes (\$ millions)	\$ 52.4

Source: LAEDC

The \$1 billion in additional capital investment is expected to translate into an increase in production of approximately 13,000 barrels of oil per day. The exhibit below shows the total annual economic impacts, which include direct, indirect and induced activity, which would follow the capital investment and increased production activity.

Economic Impact of Delayed Annual Operations In Oil and Gas Field Production	
Output (\$ millions)	\$ 164.5
Employment (jobs)	770
Labor income (\$ millions)	\$ 59.3
State and local taxes (\$ millions)	\$ 36.2

Source: LAEDC

Introduction

Delays in procuring permits are holding up considerable investment in the oil and gas production industry in California. Statewide, investment in oilfield redevelopment is being delayed by the California Division of Oil, Gas and Geothermal Resources (DOGGR), which issues permits for drilling and associated surface facilities, and by lengthy reviews under the California Environmental Quality Act (CEQA) of permits issued by the Coastal Commission and various cities. In Southern California, projects are also held up by the time required to receive air quality permits from the South Coast Air Quality Management District (SCAQMD).

In this report, the Consulting Practice of the Los Angeles County Economic Development Corporation (LAEDC) estimates the total potential economic activity that is being held up by the delay in permits. We do so in two parts. Part I covers the initial capital investment required to increase production; Part II estimates the ongoing annual impact from the incremental increase in production.

Key Assumptions

- ❖ The delay varies from project to project, and ranges from 6 months to more than 30 months. In general, projects for which permits may have taken a few months to procure four or five years ago must now anticipate a delay of a year or more. We assume one year of delay.
- ❖ There are multiple projects facing permitting delay. More projects join the queue even as some of the projects waiting for permits receive them. The value of investment associated with these projects varies depending on the current mix of projects awaiting approval and the price of oil, with higher oil prices attracting greater investment. We have used \$1 billion in potential capital investment to estimate the value of the economic activity that is “on-hold”.
- ❖ The delayed projects are located around the state. To simplify the economic modeling, we have assumed that all of the projects are located in Los Angeles County. Nonetheless, the results can safely be interpreted as broadly representative of the likely state impact.
- ❖ Based on our experience conducting economic impact studies in this industry, we have assumed that 55 percent of the investment is for materials and equipment, only 15 percent of which is manufactured in-state. Equipment and materials manufactured outside of the state do not create additional economic activity in California beyond the value added by local wholesalers and distributors, and as such have been excluded from the analysis.
- ❖ We assume that the \$1 billion investment translates into an increase in crude oil production of 13,000 barrels per day with an annual cost of production of \$142 million.
- ❖ To estimate property taxes related to the increase in oil production, we assumed production costs are flat; production declines 9 percent per year; the oil is sold for \$85 per barrel; and we used a discount rate of 12 percent.

I. Delayed Capital Investment

Based on our previous work conducting economic impact analyses in this industry, we assume that the \$1 billion in capital investment in oil and gas field redevelopment will include drilling activity, pipeline extensions and the purchase of processing equipment, as well as labor costs. Much of the equipment and materials will be manufactured outside of the state, and that spending has been excluded from the analysis.

We estimate that the delayed capital investment would generate economic output (measured by business revenues) in Los Angeles County in the amount of just over \$1 billion. The investment will create 6,040 jobs with total earnings of \$425.4 million. Our estimates are summarized in Exhibit 1 below.

Exhibit 1	
One-Time Economic Impact of Delayed Capital Investments	
Project Spending	
Direct spending (\$ millions)	\$ 1,000.0
Total Economic Impact	
Output (\$ millions)	\$ 1,040.3
Employment (jobs)	6,040
Labor income (\$ millions)	\$ 425.4

Source: LAEDC

We have identified \$52.4 million in state and local tax revenues would be generated by the proposed investments, as shown in Exhibit 2.

Exhibit 2	
Fiscal Impact of Delayed Capital Investments (\$ millions)	
Sales taxes	\$ 13.8
Income taxes	14.8
Property taxes	11.2
Fees, fines	4.9
Social insurance	4.9
Other taxes	2.9
Total *	\$ 52.4

* May not sum due to rounding
Source: LAEDC

Our estimates of tax revenues are incomplete since we do not account for initial permits and fees payable on the project, which could be considerable for an investment of this size.

Industry Sector Impacts

The economic impact spills across industries in Los Angeles County through indirect and induced effects. The top ten industry sectors affected (by employment) due to spending for this project appear in the exhibit below.

Exhibit 3			
One-Time Impact of Delayed Capital Investments by Industry Sector			
Industry	Output (\$ millions)	Jobs	Earnings (\$ millions)
Professional, scientific and technical services	\$ 318.3	2,134	\$ 187.3
Construction	196.6	1,168	82.2
Wholesale trade	109.7	564	41.6
Retail trade	26.4	306	11.2
Manufacturing	142.7	281	22.7
Health care and social assistance	28.5	283	15.9
Administrative and waste management	17.5	274	9.5
Accommodation and food services	15.0	232	5.7
Other services	15.1	194	6.2
Finance and insurance	39.2	145	13.7
<i>All others</i>	<i>131.3</i>	<i>459</i>	<i>29.4</i>
Total *	\$ 1,040.3	6,040	\$ 425.4

* May not sum due to rounding

Source: LAEDC

Much of the impacts will occur in professional, scientific and technical services industry, but other sectors affected include construction, wholesale trade, retail trade and manufacturing.

The values in the table should be interpreted as illustrative of the industry effects rather than precise given model and data limitations. A description of these industries is provided in the Appendix.

II. Delayed Annual Production Activity

The delay in permits for additional investments in oil and gas field redevelopment means that crude oil production is lower than it might be otherwise based on prevailing oil prices and technology. We have assumed that the \$1 billion investment would generate an increase in oil production of 13,000 barrels per day at an annual production cost of \$142 million. The production costs include spending on contract oil field services, materials (including tubing, casings, valves, pumps, etc.), engineering and design labor, utilities, and permits and taxes.

This production activity would generate annual economic output (measured by business revenues) in Los Angeles County in the amount of \$164.5 million and create 770 jobs with total earnings of \$59.3 million. Our estimates are summarized in Exhibit 4 below.

Exhibit 4 Annual Economic Impact of Production Operations	
Project Spending	
Direct spending (\$ millions)	\$ 142.0
Total Economic Impact	
Output (\$ millions)	\$ 164.5
Employment (jobs)	770
Earnings (\$ millions)	\$ 59.3

Source: LAEDC

We have identified at least \$33.9 million in state and local tax revenues will be generated annual by ongoing production operations, as shown in Exhibit 5.

Exhibit 5 Annual Fiscal Impact of Production Operations (\$ millions)	
Sales taxes	\$ 1.8
Income taxes	10.8
Property taxes **	19.0
Fees, fines	3.0
Social insurance	1.2
Other taxes	0.4
Total *	\$ 36.2

* May not sum due to rounding

** See text for discussion of property taxes

Source: LAEDC

Property tax assessments for working oil fields are based on the discounted present value of the expected revenue stream that the field will produce, which in turn is a function of the ongoing extraction rate, the market valuation of the extracted oil, and the total reserves in the ground.

We have estimated the property taxes based on a production of 13,000 barrels of oil per day with a market price of \$85 per barrel. We assumed production costs are flat; production declines 9 percent per year; and we used a discount rate of 12 percent.

A small portion (about \$1.5 million of the \$19.0 million reported in Exhibit 5) is attributable to the property taxes paid by businesses and workers based on the direct, indirect and induced activity sustained by the oil production.

Industry Sector Impacts

The economic impact spills across industries through indirect and induced effects. The top ten industry sectors affected (by employment) due to spending for this project appear in Exhibit 6.

In addition to the impact in the mining sector, much of the impacts will occur in the government sector, in professional, scientific and technical services, and wholesale trade.

The values in the table should be interpreted as illustrative of the industry effects rather than precise given model and data limitations. A description of these industries is provided in the Appendix.

Exhibit 6
Annual Impact of Oil Production Operations by Industry Sector

Industry	Output (\$ millions)	Jobs	Earnings (\$ millions)
Mining	\$ 61.4	200	\$ 18.6
Government and non-NAICS	25.8	125	12.0
Professional, scientific and technical services	17.7	117	10.1
Wholesale trade	9.7	49	3.9
Health care and social assistance	4.0	40	2.2
Retail trade	3.4	39	1.4
Administrative and waste management	2.2	32	1.1
Finance and insurance	7.6	29	3.0
Accommodations and food services	2.0	30	0.8
Other services	1.9	25	0.8
<i>All others</i>	28.8	84	5.4
Total *	\$ 164.5	770	\$ 59.3

* May not sum due to rounding
Source: LAEDC

Appendix

Methodology

The total estimated economic impact includes direct, indirect and induced effects. **Direct activity** includes the materials purchased and the employees hired by oil production firms and their contractors during the project construction period. Here we account for field workers which have been added due to the project and the materials purchased for the project. **Indirect effects** are those which stem from the employment and business revenues motivated by the purchases made by the oil firms and their contractors. For example, indirect jobs are sustained by the suppliers of the office supplies and insurance purchased by contractors hired for the field work. **Induced effects** are those generated by the spending of employees whose wages are sustained by both direct and indirect spending.

We estimated the direct, indirect and induced effects using models developed with data and software from the Minnesota IMPLAN Group. In all cases, we have proceeded as if the capital spending will take place within a single year, as is customary in this type of impact analysis.

To simplify the economic modeling, the estimated economic impacts are based on spending within Los Angeles County. Job creation estimates are measured on a job-count basis for both wage-and-salary workers and proprietors regardless of the number of hours worked.

Description of Industry Sectors

The industry sectors used in this report are established by the North American Industry Classification System (NAICS). NAICS divides the economy into twenty sectors, and groups industries within these sectors according to production criteria. Listed below is a short description of each sector as taken from the sourcebook, *North American Industry Classification System*, published by the U.S. Office of Management and Budget (2007).

Agriculture, Forestry, Fishing and Hunting: Activities of this sector are growing crops, raising animals, harvesting timber, and harvesting fish and other animals from farms, ranches, or the animals' natural habitats.

Mining: Activities of this sector are extracting naturally-occurring mineral solids, such as coal and ore; liquid minerals, such as crude petroleum; and gases, such as natural gas; and beneficiating (e.g., crushing, screening, washing and flotation) and other preparation at the mine site, or as part of mining activity.

Utilities: Activities of this sector are generating, transmitting, and/or distributing electricity, gas, steam, and water and removing sewage through a permanent infrastructure of lines, mains, and pipes.

Construction: Activities of this sector are erecting buildings and other structures (including additions); heavy construction other than buildings; and alterations, reconstruction, installation, and maintenance and repairs.

Manufacturing: Activities of this sector are the mechanical, physical, or chemical transformation of material, substances, or components into new products.

Wholesale Trade: Activities of this sector are selling or arranging for the purchase or sale of goods for resale; capital or durable non-consumer goods; and raw and intermediate materials and supplies used in production, and providing services incidental to the sale of the merchandise.

Retail Trade: Activities of this sector are retailing merchandise generally in small quantities to the general public and providing services incidental to the sale of the merchandise.

Transportation and Warehousing: Activities of this sector are providing transportation of passengers and cargo, warehousing and storing goods, scenic and sightseeing transportation, and supporting these activities.

Information: Activities of this sector are distributing information and cultural products,

providing the means to transmit or distribute these products as data or communications, and processing data.

Finance and Insurance: Activities of this sector involve the creation, liquidation, or change of ownership of financial assets (financial transactions) and/or facilitating financial transactions.

Real Estate and Rental and Leasing: Activities of this sector are renting, leasing, or otherwise allowing the use of tangible or intangible assets (except copyrighted works), and providing related services.

Professional, Scientific, and Technical Services: Activities of this sector are performing professional, scientific, and technical services for the operations of other organizations.

Management of Companies and Enterprises: Activities of this sector are the holding of securities of companies and enterprises, for the purpose of owning controlling interest or influencing their management decision, or administering, overseeing, and managing other establishments of the same company or enterprise and normally undertaking the strategic or organizational planning and decision-making of the company or enterprise.

Administrative and Support and Waste Management and Remediation Services: Activities of this sector are performing routine support activities for the day-to-day operations of other organizations, such as: office administration, hiring and placing of personnel, document preparation and similar clerical services, solicitation, collection, security and surveillance services, cleaning, and waste disposal services.

Educational Services: Activities of this sector are providing instruction and training in a wide variety of subjects. Educational services are usually delivered by teachers or instructors that explain, tell, demonstrate, supervise, and direct learning. Instruction is imparted in diverse settings, such as educational institutions, the workplace, or the home through correspondence, television, or other means.

Health Care and Social Assistance: Activities of this sector are operating or providing health care and social assistance for individuals.

Arts, Entertainment and Recreation: Activities of this sector are operating facilities or providing services to meet varied cultural, entertainment, and recreational interests of their patrons, such as: (1) producing, promoting, or participating in live performances, events, or exhibits intended for public viewing; (2) preserving and exhibiting objects and sites of historical, cultural, or educational interest; and (3) operating facilities or providing services that enable patrons to participate in recreational activities or pursue amusement, hobby, and leisure-time interests.

Accommodation and Food Services: Activities of this sector are providing customers with lodging and/or preparing meals, snacks, and beverages for immediate consumption.

Other Services (except Public Administration): Activities of this sector are providing services not specifically provided for elsewhere in the classification system. Establishments in this sector are primarily engaged in activities, such as equipment and machinery repairing, promoting or administering religious activities, grant-making, advocacy, and providing dry-cleaning and laundry services, personal care services, death care services, pet care services, photofinishing services, temporary parking services, and dating services.