

Reasonable Assumptions About Future Employment in Oil and Gas Industries

Introduction

In personal injury cases, lost earning capacity is calculated based on the difference between what a worker could have earned over his or her work life before the event that gave rise to the litigation (a pre-event scenario), and what the worker can earn after the event (a post-event scenario). It is typical to assume that when the worker had an established work history in an occupation, the worker's historical earnings are a lower bound on future earning capacity in the pre-event scenario. For example, a worker earning \$45,000 as a retail store manager before an event would usually be expected to continue earning at least \$45,000 per year in the pre-event scenario.

Employment and earnings in some industries are more cyclical than in others. For workers in oil and natural gas extraction and in support activities for oil and gas operations (hereafter "the oil and gas industry"), historical wages need to be adjusted in the pre-event scenario to account for cyclical volatility in worker earnings. An RPC white paper addresses the correct way to adjust earnings, assuming a worker is projected to continue working in the oil and gas industry.¹

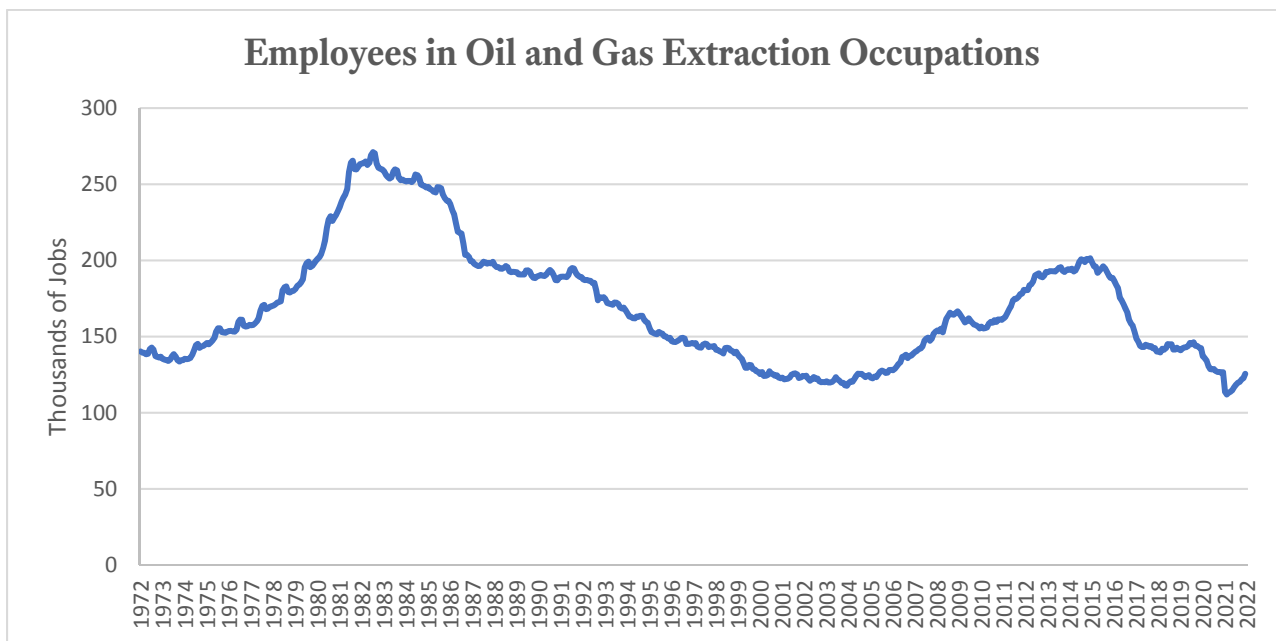
This paper addresses whether it is reasonable to assume certain jobs in the oil and gas industry will exist in the future in sufficient numbers to make it reasonably probable (more likely than not) that a worker in those jobs today could continue for the balance of his or her work life in the pre-event scenario.

A History of Employment in Oil and Gas Extraction and Support Occupations

The Bureau of Labor Statistics (BLS) began tracking employment in oil and gas extraction in 1972. At that time, about 140,000 people were employed in oil and gas extraction jobs. OPEC

¹ Research & Planning Consultants, "Estimating Base Wages and Wage Growth Rates for Workers in the Oil and Natural Gas Industries," February 2022.

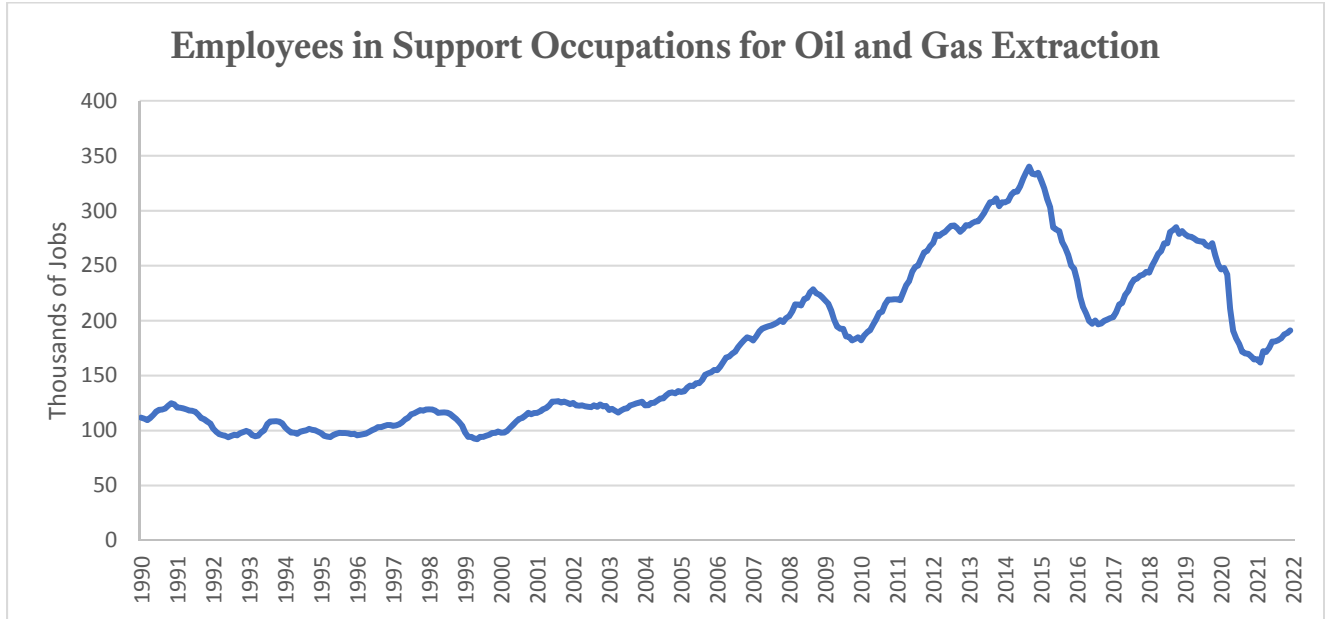
embargos in 1973 and again in 1979 caused increased investment in US production, leading to peak employment of about 270,000 jobs during the early 1980s. After 1982, employment fell steadily until 2000, when it reached 125,000 jobs. In the early 2000s, the widescale adoption of hydraulic fracturing, or “fracking,” made many more oil deposits profitable. Employment rose until late 2014, when a collapse in oil prices led to a sharp drop in the number of active rigs and a corresponding drop in employment. Between 2017 and 2019, employment in oil and gas extraction was between 140,000 and 155,000 jobs. Reduced demand from COVID-19 lockdowns coupled with price wars and other structural changes caused oil prices to plummet in 2020, reducing oil and gas industry jobs to a historic low of 112,000 in February 2021. The graph below shows the BLS count of oil and gas extraction jobs.



Source: Bureau of Labor Statistics. All Employees in oil and gas extraction, not seasonally adjusted.

In 1990, the BLS began tracking an additional category of workers in support activities for oil and gas operations. In 1990 there were about 110,000 workers in support occupations. This number was roughly constant until the fracking boom in the early 2000s, when employment in support occupations skyrocketed, surpassing the number of workers in oil and gas extraction. At

the peak in December 2014, there were over 334,000 workers in support jobs. The graph below shows the BLS count of support activities for oil and gas operations.



Source: Bureau of Labor Statistics. All Employees in support activities for oil and gas operations, not seasonally adjusted.

Factors Currently Influencing Employment in the Oil and Gas Industry

Since bottoming out in 2020, oil prices have increased but employment recovery has lagged. Automation, consolidation, and requirements for more green energy are driving structural changes and reducing the employment outlook in the oil and gas industry.

Even before the combined supply and demand shocks in 2020, the oil and gas industries were becoming more automated. Remotely monitored and controlled drilling operations require fewer workers. According to an article in the *Wall Street Journal*, “After cutting thousands of jobs during the coronavirus pandemic, the oil industry is accelerating its embrace of remote drilling and fracking, changes that will reshape its workforce permanently.”² In a 2021 industry

² Collin Eaton, “Drillers Go Remote as Pandemic Reshapes Oil Business,” *Wall Street Journal*, August 2, 2020.

report, analysts found that existing automation solutions could reduce at least 20% of the current jobs in drilling, operational support, and maintenance over the next ten years.³

As firms consolidate, they reduce overall employment by eliminating duplicated jobs. The drop in employment in oil and gas extraction and support occupations in the 1990s is correlated with increased market concentration in the industry, especially in the upstream areas of exploration and production.^{4,5} The fracking boom and the rise of natural gas as a cleaner alternative to coal created many new firms in the oil and gas industry.⁶ By 2019, industry concentration was increasing, with analysts projecting even more consolidation.⁷ Since 2020 there have been fewer, but larger upstream merger and acquisition deals.^{8,9} A wave of bankruptcies accelerated by the pandemic has also increased consolidation and reduced employment.¹⁰ Analysts expect the surviving companies to engage in more megadeals and expect continued consolidation in the oil and gas industry.¹¹

Pressure to reduce use of fossil fuels and decarbonize from environmental, social, and governance (ESG) requirements is also driving structural change in the oil and gas industry.¹² For companies with a competitive advantage in producing green energy, this transition may increase employment. Yet, capital markets continue to underinvest in oil and gas, as it is increasingly

³ Rystad Energy, “Robots Could Replace Hundreds of Thousands of Oil and Gas Jobs, Save Billions in Drilling Costs by 2030,” March 29, 2021.

⁴ Federal Trade Commission, “The Petroleum Industry: Mergers, Structural Change, and Antitrust Enforcement,” August 2004, <https://www.ftc.gov/reports/petroleum-industry-mergers-structural-change-antitrust-enforcement-report-staff-federal>.

⁵ Government Accountability Office, “Energy Markets: Effects of Mergers and Market Concentration in the US Petroleum Industry,” May 2004, <https://www.gao.gov/assets/gao-04-96.pdf>.

⁶ Alison Sider, “Fracking Firms Face New Crop of Competitors,” *Wall Street Journal*, July 9, 2013.

⁷ Dan Eberhart, “Oil Sector Primed for Major Merger and Acquisition Activity,” *Forbes.com*, January 14, 2019.

⁸ Deloitte US, “2020 Oil and Gas Mergers and Acquisitions: Bigger M&A Deals, Fewer Transactions,” <https://www2.deloitte.com/content/dam/Deloitte/us/Documents/energy-resources/us-oilandgas-mna-2020-outlook.pdf>.

⁹ Jon Haubert, “Upstream M&A Rises 25% YOY in 2021 to \$66 Billion,” *Enverus*, January 13, 2022, <https://www.enverus.com/newsroom/upstream-ma-rises-25-yoy-in-2021-to-66-billion/>.

¹⁰ Jack Kelly, “The Increase in Corporate Bankruptcies is Bad News for Workers and Job Seekers,” *Forbes.com*, August 4, 2020.

¹¹ PWC, “Energy Deals Stay Strong, Industry Recalibrates,” *Energy: Deals 2022 Outlook*, <https://www.pwc.com/us/en/industries/energy/library/deals-insights.html>

¹² Deloitte, “2022 Oil and Gas Industry Outlook,” <https://www2.deloitte.com/content/dam/Deloitte/us/Documents/energy-resources/us-2022-outlook-oil-and-gas.pdf>.

perceived as a sunset industry.¹³ Cyclical hiring and worker layoffs have adversely affected the industry's reputation as an employer, and environmental mandates will magnify employment challenges.¹⁴

Employment Outlook in the Oil and Gas Industry

Short Term

In October 2018, there were a combined 426,000 workers in oil and gas extraction and support occupations. In February 2020, there were approximately 383,000 workers. By February 2021, employment had dropped to 274,000. While the oil price crash of 2020 triggered the fastest layoffs in the history of the industry, the decline began before the pandemic, after investors soured on the sector.¹⁵ Since 2020, prices have nearly doubled, but only about 40% of jobs lost since then have come back.

In the short run, employment can be expected to continue to recover, although it is not projected to reach pre-pandemic levels. Karr Ingham, a petroleum economist with the Texas Alliance of Energy Producers, stated, "I am certain we will never get back to 2014 [employment] levels."¹⁶

Medium Term

Structural shifts due to automation, consolidation, and environmental requirements will change the employment landscape in the industry. Analysts predict nearly 60% of the workforce needs to be reskilled or upskilled, only 43% of the workforce will be reskilled or upskilled, and it

¹³ Mitch Fane, "Four Trends Driving the Oil and Gas Industry in 2022 and Beyond," EY Americas, December 27, 2021, https://www.ey.com/en_us/oil-gas/four-trends-driving-the-oil-and-gas-industry.

¹⁴ Deloitte, "2022 Oil and Gas Industry Outlook," <https://www2.deloitte.com/content/dam/Deloitte/us/Documents/energy-resources/us-2022-outlook-oil-and-gas.pdf>.

¹⁵ Deloitte, "2022 Oil and Gas Industry Outlook," <https://www2.deloitte.com/content/dam/Deloitte/us/Documents/energy-resources/us-2022-outlook-oil-and-gas.pdf>.

¹⁶ Paul Takahashi, "Despite Soaring Oil Price, Drilling Jobs Are Slow to Return," *Houston Chronicle*, January 27, 2022.

will take ten months or longer to reskill or upskill the average worker.¹⁷ Increased competition for greener jobs in tight labor markets will result in escalating costs. Workers who are not reskilled or upskilled will be laid off, and many low-skill positions will disappear.

Long Term

Long term, industry consolidation and automation create a very negative outlook for employment in oil and gas extraction and support occupations. A joint research endeavor funded in part by the Canadian government and undertaken by Ernst & Young and PetroLMI, a division of Energy Safety Canada, projected the effects of automation on the oil and gas workforce through 2040.¹⁸ While data availability led their report to focus on the Canadian upstream (exploration and production) oil and gas industry, there is no reason to doubt their findings would be similar for the US.

They made specific findings for 124 discrete jobs identified and validated using National Occupational Classification codes and the US Department of Labor's O*Net. The report estimated that by 2040, between 48% and 76% of drilling operations jobs could be lost to automation. By 2040, automation could cause the loss of between 59% and 67% of equipment operator jobs, and between 55% and 68% of trades jobs. The authors anticipated these reductions would occur gradually through attrition.

Reasonable Assumptions About Continued Employment in the Oil and Gas Industry

In personal injury cases, the standard for expert vocational and economic opinions is that they must be "reasonably probable," i.e., more likely than not to occur. For pre-event jobs, the usual opinion is the worker could have continued in the job for the balance of his or her work life.

¹⁷ EY, "How Do You Reshape when Today's Future May Not Be Tomorrow's Reality?" Oil and Gas Digital Transformation and the Workforce Survey 2020, https://assets.ey.com/content/dam/ey-sites/ey-com/en_gl/topics/oil-and-gas/ey-oil-and-gas-digital-transformation-and-the-workforce-survey-2020.pdf.

¹⁸ EY and PetroLMI, "Preparing for the Future Now: Rethinking the Oil and Gas Workforce in 2040," Ernst & Young, LLP, 2020, available at https://www.ey.com/en_ca/oil-gas/rethinking-the-oil-and-gas-workforce-in-2040.

For jobs in the oil and gas industry, it is no longer reasonably probable a worker could continue that job for the medium or long term.

Oil and gas employees are characterized by short job tenure and high turnover with any one employer, as employees take better jobs and as employers adjust their workforces to meet their needs. Turnover is higher for workers under age 45. Employers predict increasing turnover among Generation X and Generation Y workers.¹⁹

In the short run, employment numbers will likely rebound slowly and not return to pre-pandemic levels.

In the medium term, many low-skilled positions will be lost. Employment levels are expected to decrease due to increased costs associated with competitive labor markets for high-skilled workers and retraining employees to meet environmental requirements.

Over the long term, about 60% of oil field jobs could be lost to automation, consolidation, and environmental requirements. An assumption that a worker would continue to be employed in an oil field job through 2040 absent any injury does not meet the standard of reasonable probability.

Because of the decreasing probability a worker could be employed for his entire work life in the oil and gas industry in the pre-event scenario, RPC calculates multiple pre-event scenarios in cases involving injured oil and gas workers. One scenario assumes continued employment in the oil and gas industry and applies the adjustments described in RPC's white paper on estimating wages and growth rates for oil and gas workers.²⁰ A second pre-event scenario assumes the pre-event job will end. RPC bases pre-event earnings in this scenario on other factors, such as transferable skills and educational attainment. RPC explains to the trier of fact

¹⁹ Deloitte, "Oil and Gas Talent Management Powered by Analytics: Adopting Analytics to Effectively Manage Workforce Needs," 2013, <https://www2.deloitte.com/content/dam/Deloitte/global/Documents/Energy-and-Resources/dttl-ER-Oil-and-Gas-Talent-Management.pdf>.

²⁰ Research & Planning Consultants, "Estimating Base Wages and Wage Growth Rates for Workers in the Oil and Natural Gas Industries," February 2020.

that these two scenarios create a range of potential earnings in the pre-event scenario, but the probability of continued employment in the oil and gas industry declines over time. For workers in certain jobs and those with a short remaining work life, a second scenario may not be necessary. RPC makes this determination case by case.