



Diversity
Equity &
Inclusion

WORKFORCE RESEARCH SUMMARY





API's Workforce Summary is a collection of research analyzing key workforce segments across the U.S. natural gas and oil industry. The Summary provides a concise look at detailed aspects of the workforce including attitudes and perceptions, education, and job quality among various segments.

*Note: The research noted below has a variety of associated materials that can be shared, including full reports, summary documents, and one-pagers. To request any of these materials, or to learn more about the research, please contact Rebecca Winkel at winkelr@api.org

Table of Contents

Attitudes and Perceptions	4
African Americans and Hispanics	4
Veterans	5
Women	6
Education and Skills	8
Education Pathways	8
Career/Education Tools	10
Employment	14
Job Opportunities	14
Job Opportunities (Previous Research)	15
Job Quality	16
In-Focus look at employment for specific groups	19



ATTITUDES AND PERCEPTIONS

AFRICAN AMERICANS AND HISPANICS

Brilliant Corners Research & Strategies, "Nationwide Survey of African Americans and Latinos," January 2016

SUMMARY

From a nationwide telephone survey of 1,000 African American and 1,000 Hispanic adults age 18 and over residing in key states, conducted between December 20, 2015 and January 12, 2016, this study analyzes the attitudes and perceptions of these populations with regard to employment decisions and experience.

The study finds that salary is the top factor driving employment decisions for both African Americans and Hispanics, followed by health care benefits, job security, and advancement opportunities. The study finds that these cohorts do not want to feel expendable and want to be shown that they are a valued member of a team. As such, they respond well to recruitment practices that indicate the industry is making a long-term investment in them.

The overwhelming majority of respondents have very little experience with employment in the natural gas and oil industry, and do not usually talk about the industry when discussing jobs or the future job market with family or friends. In fact, only 16% of Hispanics and 14% of African Americans reported that either they or someone they know in their community has ever been employed by the industry. A full 75% of Hispanics and 66% of African Americans either do not know of or do not think there are any natural gas and oil employment opportunities within their state.

A full **75% of Hispanics** and **66% of African Americans** either do not know of or do not think there are any natural gas and oil employment opportunities within their state.



ATTITUDES AND PERCEPTIONS

VETERANS

Cicero Group, "Veteran Survey," 2020

SUMMARY

This 2020 survey of more than 1,000 veterans nationally and in key target districts focused on four main objectives:

1

Understanding veterans' career ambitions, including what motivates or deters interest in pursuing a career in natural gas and oil.

2

Segmenting veteran profiles and measuring relative market size (which segments of veterans are most interested in pursuing a career in natural gas and oil).

3

Understanding the veterans' general perceptions of the natural gas and oil sector.

4

Understanding veterans' willingness to advocate for the natural gas and oil industry.

Key findings from the survey show that preparation for employment and finding the right career are top-of-mind for veterans, and so, training and certifications are important. Assisting in training veterans for future success will resonate with the population. Already, veterans overwhelmingly believe that the natural gas and oil industry is important and that energy independence is critical to our nation's economy and security.

Veterans overwhelmingly believe that the **natural gas and oil industry is important and that energy independence is critical** to our nation's economy and security.



ATTITUDES AND PERCEPTIONS

WOMEN

American Viewpoint and Lake Research Partners, "Attitudes and Perceptions of Women About Seeking Employment in the Oil & Natural Gas Industry," January 2015.

<http://www.api.org/news-policy-and-issues/american-jobs/attitudes-of-women-seeking-employment>

SUMMARY

This comprehensive research examines the attitudes and perceptions of women about seeking employment in the natural gas and oil industry. Findings are based on 13 focus groups held across the United States with women aged 18-44 of various racial and socio-economic status, and in-depth interviews of recruiters and academic advisors. The research also included a national survey of 1,200 women aged 18-44.

When considering an employment opportunity, health care benefits, job security, job satisfaction, salary, and a good/work life balance are the top factors that drive women's decisions.

Even before hearing any specific information about the industry—positive or negative—the majority of women (53%) say they are willing to work in the industry, yet the overwhelming majority of respondents (97%) admit never applying for employment with the natural gas and oil industry. The greatest obstacle is lack of awareness and understanding of job opportunities and career development in the industry. Of the women who had never applied to work in the industry, 63% reported never doing so because they weren't aware of opportunities or did not think they were qualified.

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ATTITUDES AND PERCEPTIONS

WOMEN

Echelon Insights and GQR Insights and Action, "Survey of Registered Voters," January 2020.

SUMMARY

This survey of approximately 2,000 women registered voters aimed to better understand the impact that people think the natural gas and oil industry has on the United States' economy, the environment, and their daily lives; what people want to see the natural gas and oil industry do and what they would like the industry to prioritize; and which messages about the industry's work seem to move unfavorable people — particularly women — to a neutral or positive position.

Overall, approximately 55% of women reported being willing to work in the industry, and 61% said they would be happy if their children or family members worked in the industry, but this varied widely when looking at specific sub-populations. For example, 66% of 18 to 29-year-olds are not willing to work in the natural gas and oil industry, and 58% of Democratic women would not be happy if their children or family members worked in the industry. Understanding how the industry is supporting U.S. jobs, boosting the economy, and investing in the future workforce through STEM programs are all messages that make the majority of women feel more favorable toward the industry.

Understanding how the **industry is supporting U.S. jobs, boosting the economy, and investing in the future workforce through STEM programs** are all messages that make the majority of women feel more favorable toward the industry.



EDUCATION AND SKILLS

EDUCATION PATHWAYS

RAND, “Postsecondary Education and STEM Employment in the United States: An Analysis of National Trends with a Focus on the Natural Gas and Oil Industry,” November 2017.

<http://www.api.org/news-policy-and-issues/american-jobs/stem-education-employment>

SUMMARY

Jobs that require STEM skills and training currently comprise 20% of all jobs in the U.S. economy. Current projections anticipate that the STEM economy will grow by approximately 9% between 2014 and 2024—faster than the growth rate projected for all other occupations. This report provides an in-depth analysis of education trends as well as the relationship between degree attainment and employment outcomes, specifically in STEM fields. The report pays particular attention to how minority and female students fit into these trends.

NOTABLE FINDINGS INCLUDE



Nearly half of all STEM jobs do not require a four-year degree and one-third of all STEM jobs are in “blue collar” occupations.



Holding a STEM bachelor’s degree nearly **doubles** the likelihood of working in the natural gas and oil industry and earning a degree in an industry-specific or -related field increases that likelihood by **three to seven times**.



Over the 2003-2015 period, **men outnumbered women nearly 4 to 1** in earning natural gas and oil specific or related degrees, and **white students outnumbered students of color nearly 3 to 1**.



Having a STEM degree and working in a STEM occupation both pay **higher wages on average** than non-STEM degrees and occupations. This is true for both men and women, and across all race/ethnicity groups.



Almost without exception, across all education levels, degree majors, gender and race/ethnicity groups, and occupation types, **those who work in the natural gas and oil industry earn more than those who do not**.

EDUCATION PATHWAYS

API, “Education and Training—Key to Attracting Greater Female and Minority Workforce Participation,” January 2015.

SUMMARY

Recognizing the need to fill a significant number of job opportunities over the coming decades, this analysis aimed to better understand workforce training trends. A key element in achieving a growing level of women and people of color to fill available industry job opportunities is to increase the number of such individuals who obtain the education and training needed for the available positions. This report looks at the number of 4-year and 2-year degrees and vocational certificates awarded by discipline over the period 2003-2012 in the United States and across the nine Census regions. It specifically focuses on attainment rates for women as a whole and for minority women.

National results show that while women were awarded more four-year degrees over the period than men, they make up fewer of degree earners in industry-specific and industry-related fields (e.g. petroleum engineering). However, women are expected to make up high shares of degree earners in disciplines that are not traditionally thought of as natural gas and oil fields.

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EDUCATION AND SKILLS

CAREER/EDUCATION TOOLS

STEM Careers Coalition

<https://stemcareerscoalition.org>

SUMMARY

In 2019, Discovery Education and leading industry partners launched the STEM Careers Coalition (SCC) to strengthen the connection between high-quality STEM education and STEM careers. With an intentional focus on racial and gender equity in STEM, the SCC is a dynamic initiative on a mission to inspire educators to integrate careers into STEM instruction, foster and promote access to quality education, and build the next generation of diverse solution-seekers.

Though this is a partner and program effort, it includes important materials related to the workforce research. The coalition's online, free platform includes hundreds of resources that connect the dynamic nature of STEM skills and their importance in an evolving workplace, reaching close to 1 million students in the first year. The coalition also includes direct investment in select schools through access to Discovery Education Experience, a flexible K-12 learning platform that connects educators to a vast collection of compelling high-quality, standards-aligned content, and STEM Connect, an interdisciplinary K-8 resource that blends dynamic digital content with ready-to-use STEM lessons and hands-on activities. This investment also includes professional development for teachers. API has invested in about 80 schools across the country. 70% of those schools are classified as Title 1; about two-thirds of the students are students of color.

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CAREER/EDUCATION TOOLS

Veterans Energy Pipeline Online Tool

<http://www.veteransenergypipeline.com>

SUMMARY

The Veterans Energy Pipeline website was developed to help facilitate employment of transitioning service members and veterans in the natural gas and oil industry. The tool allows service members, veterans, and civilian hiring managers to search by military or civilian occupation to determine the best matches to natural gas and oil jobs. The tool also indicates how closely related military and civilian occupations are based on a job task analysis that compares job duties and tasks of military occupations to a civilian counterpart. The tool is intended to serve two primary audiences:

Military service members who are leaving the service and veterans who want to understand how their military training and experience might help them qualify for jobs in the natural gas and oil industry. In addition to using the Military Occupation Search to find related jobs in the natural gas and oil industry, service members can learn about energy careers, including industry highlights, job demand and pay, characteristics of veterans currently in the industry, and employment resources.

Natural gas and oil hiring managers and employers interested in learning about how military training and experience applies to their jobs and how they can find qualified veterans to fill these positions. They can learn about military careers including the military workforce structure, military training and education, the potential labor pool of transitioning service members, and tips for hiring veterans. They can also use the Civilian Occupation Search to search by one of the top 70 natural gas and oil industry jobs and find what military occupations match these jobs.

EDUCATION AND SKILLS

CAREER/EDUCATION TOOLS

Career guide and videos

<http://www.api.org/~media/Files/Policy/Jobs/oil-and-gas-career-guide.pdf>

SUMMARY

The career guide provides a sample of approximately 160 career opportunities available in the natural gas and oil industry, along with the typical education required and the median annual salary. Jobs are grouped by job families and are meant to show the breadth of opportunities available in the industry. Occupations were compiled from two sources: the IHS study Minority and Female Employment in the Oil & Gas and Petrochemical Industries (2014) and the Ohio Oil & Gas Energy Education Program Career Guide (OOGEEP). In addition, there are 28 career videos that showcase a range of opportunities in the industry.

- [Administrator](#)
- [Automation, Electronic, Engineering, Production and I & E Technician](#)
- [Business Administrator](#)
- [Chemical Engineer](#)
- [Construction](#)
- [Derrickhand and Floorhand](#)
- [Diesel Mechanic](#)
- [Drilling Operator](#)
- [Engineer](#)
- [Environmental, Health, Safety](#)
- [Equipment Operator](#)
- [Facility Operator](#)
- [Field Engineer](#)
- [Financial Accountant](#)
- [Geologist](#)
- [Human Resources](#)
- [Land Lease Operations](#)
- [Legal](#)
- [Maintenance, Mechanical Technician](#)
- [Natural Gas Marketer](#)
- [Petroleum Engineer](#)
- [Production Operator](#)
- [Public Outreach Communications](#)
- [Roustabout](#)
- [Surveyor](#)
- [Technician](#)
- [Truck Driver](#)
- [Welder](#)

EDUCATION AND SKILLS

CAREER/EDUCATION TOOLS

Building Trades Training Facilities Interactive Map

<https://maps.api.org/training/>

SUMMARY

Building trades interactive map showing training facilities overlaid with ONG industry jobs.



EMPLOYMENT

JOB OPPORTUNITIES

IHS, "The Future of Work: The Influence of New Technologies on Employment and Demographic Trends in the Oil, Natural Gas, and Petrochemical Industries," July 2020

<https://www.api.org/-/media/Files/Policy/Jobs/2020/API-IHS-Report-The-Future-of-Work-072020>

SUMMARY

Continuing a series of research studies, this IHS report examines long-term U.S. demographic and labor market trends that will create future job opportunities for people of color and women in the natural gas and oil and petrochemical industries, with a particular focus on the effect of expected shifts in digital and automation technologies on future hiring. The study presents projections of job opportunities by occupation, industry segment, race/ethnic group, and gender based on industry growth and investment, jobs arising from pro-development policies, and the need to replace workers retiring from the industry over the next two decades. It also includes robust technology narratives, including measures of industry readiness and industry use cases. The demographic employment projections should not be considered ceilings but are estimates based on current and projected trends in factors such as labor force participation rates and population growth rates.

IHS projects over **1.9 million direct job opportunities through 2040** in the natural gas and oil and petrochemical industries.

Considering all types of job growth, IHS projects over 1.9 million direct job opportunities through 2040 in the natural gas and oil and petrochemical industries. Approximately 50% of those opportunities are projected to be filled by people of color; while approximately 20.5% are projected to be filled by women. Combined, people of color and women are projected to account for approximately 60% of the total job opportunities. Implementation and deployment of the technologies examined in this study will enable an employment transition with job creation for highly skilled and professional jobs, allowing the transition from the basic labor and semi-skilled labor classes. Accordingly, the fastest growing occupational category will be for professional and related jobs, followed by management type jobs and highly skilled craft positions.

JOB OPPORTUNITIES (PREVIOUS RESEARCH)

- IHS, “Minority and Female Employment in the Oil & Natural Gas and Petrochemical Industries, 2015-2035,” March 2016. <http://www.api.org/news-policy-and-issues/american-jobs/minority-and-female-employment-2015-2035>
- IHS, “Minority and Female Employment in the Oil & Natural Gas and Petrochemical Industries,” March 2014.
- IHS, “Employment Outlook for African Americans and Latinos in the Upstream Oil and Natural Gas Industry,” November 2012.

SUMMARY

API has long considered the future workforce needs of the natural gas and oil industry and how to attract and retain the best available talent, while the changing demographics of the United States have shaped efforts in a meaningful way. According to the U.S. Census Bureau, “By 2030, one in five Americans is projected to be 65 and over; by 2044, more than half of all Americans are projected to belong to a minority group.” Over the last decade, API has commissioned a series of in-depth research to better understand the challenges and opportunities associated with job creation and workforce opportunities in the industry with a focus on greater collaboration, outreach and education with communities of color and women.

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EMPLOYMENT

JOB QUALITY

The Cicero Group, “Understanding Transferability between the ONG and Clean Energy Industries,” November 2021.

SUMMARY

API and the North America’s Building Trades Unions (NABTU) commissioned a study by Cicero Group to understand the most prevalent occupations in the natural gas and oil and renewable energy industries, and to evaluate whether American natural gas and oil workers can realistically transition to the most in-demand renewable energy occupations. The study analyzed the 18 most prevalent occupations in natural gas and oil and the 18 most in-demand occupations in renewable energy and showed that many natural gas and oil occupations do not easily transfer into the renewable energy industry.

Only two of the most prevalent natural gas and oil occupations are reasonably transferable to the most in-demand renewable energy occupations—one Technical-Trade occupation (out of 14) and one Professional occupation (out of 3). The sole Sales occupation in the natural gas and oil industry does not demonstrate reasonable transferability to renewable energy due to a mismatch in education requirements. Transferability is a function of job requirements, quality and availability.

The report encourages federal and state policymakers to ground their policymaking in data about the potential for occupation transferability in order to align policymaking with the daily realities of American workers who ultimately must decide whether it is possible and reasonable to transition their careers and livelihoods to a different industry.

JOB QUALITY

The Cicero Group, "Perspectives and Comparisons of Job Quality Across the U.S. Energy Industries," July 2020. https://nabtu.org/press_releases/two-new-energy-construction-studies

SUMMARY

This study, done by the North America's Building Trades Unions (NABTU), aimed to better understand the important role that trades jobs play in the U.S. economy, and the differences in those jobs across various energy sectors. The analysis utilized both secondary and primary data sources including in-depth interviews with workers, union leaders and energy experts across multiple energy sectors; focus groups with individuals from varying locations, energy industries and trades; and an online survey with more than 1,600 respondents of union and non-union construction workers and employers across 25 trades, 8 energy sectors, and 49 states.

Findings show that energy sector jobs and energy sector construction jobs provide Americans without a college education a vital pathway to middle class careers and living standards. In particular, tradespeople report that natural gas and oil industry projects provide better wages, benefits, and opportunities than renewables projects; offer projects with longer durations than those in renewable energy industries, which means steadier income and more consistent benefits; and have better project variety, trades opportunities, skill development, and project consistency.

The report also details differences in trades, geographies, and skill sets required for projects in natural gas and oil versus projects in solar or wind. In particular, tradespeople identify first and foremost by the trade or craft they have chosen for themselves, which is important as many of the trades that work on natural gas and oil projects are not as prevalent on renewables projects. This indicates that skilled trade jobs are not highly interchangeable between industries. In addition, natural gas and oil building and maintenance projects require larger, more diverse crews and higher skill workers than projects in wind and solar.

Tradespeople report that **natural gas and oil industry projects provide better wages, benefits, and opportunities** than renewables projects.

JOB QUALITY

Philips, "Job Quality for High School Graduates in the Construction and Oil-and-Gas Industries," July 2020.

https://nabtu.org/press_releases/two-new-energy-construction-studies

SUMMARY

This study, from the Institute for Construction Economic Research (ICERES) and the North America's Building Trades Unions (NABTU), examines the nature and quality of jobs in construction and natural gas and oil focusing on jobs held by workers with high school educations. The analysis looks at four dimensions of job quality: 1) remuneration, 2) safety, 3) job security and 4) career advancement—and benchmarks these characteristics in the construction and natural gas and oil industries against the overall economy.

The report finds that the natural gas and oil and construction industries are better paying and offer better benefits for workers with a high school education compared to high school educated workers in other sectors of the economy. In addition, both industries offer ample opportunity for career advancement for those with only a high school education, particularly relative to other industries. Though both natural gas and oil and construction can be cyclical industries, certain strategies help workers mitigate any negative effects: natural gas and oil workers follow jobs to where work is concentrated, which may necessitate moving, while construction workers work and save in the boom and find side activities in the bust. In terms of safety, natural gas and oil is a relatively safe industry compared to other sectors of the economy, though the potential exists for catastrophic events and in some years, fatality rates can be high. Thus, workplace safety is a continuing priority for this industry.



EMPLOYMENT

IN-FOCUS LOOK AT EMPLOYMENT FOR SPECIFIC GROUPS

IHS, "Millennials in the Oil & Natural Gas and Petrochemical Industries," January 2018.

<http://www.api.org/news-policy-and-issues/american-jobs/millennials-in-the-oil-and-natural-gas-and-petrochemical-industries>

SUMMARY

This study looks at the characteristics of millennials and their employment in the natural gas and oil and petrochemical industries. The study has three main components:

1

Comparing Millennials to Baby Boomers and Gen X-ers at the same age when they were the new entrants to the labor force;

2

Estimating the number of Millennials employed in the natural gas and oil and petrochemical industries in 2015 (by gender, race, occupation category and region)

3

Projecting Millennial's future role in the industry through 2035 (by occupation and region).

The study finds that there were 475,000 Millennials employed in the industries in 2015 (34% of total industry employment). that share is expected to rise to 41% by 2025. The study also finds that Millennials are more diverse, better educated, less likely to be in the labor force, and more likely to be employed in professional and technical occupations than the previous two generations when they were the same ages.

The study finds that there were **475,000 Millennials employed** in the industries in 2015.

IN-FOCUS LOOK AT EMPLOYMENT FOR SPECIFIC GROUPS

Solutions for Information Design, "Veterans and Energy: Opportunities in the Oil & Natural Gas Industry," Updated February 2017.

<http://www.api.org/news-policy-and-issues/american-jobs/veterans-and-energy>

SUMMARY

To help military trained applicants and civilian employers understand how military training and experience relate to civilian jobs in the natural gas and oil industry, this report and the accompanying crosswalk tool were designed to facilitate a better understanding of the transferability of skills and employment opportunities. This report provides an overview of the organization of the military workforce, including which groups of service members and veterans (i.e. enlisted, warrant officers, and commissioned officers) would be best suited to the various types of available natural gas and oil jobs. The report also details information on how military occupations are categorized and the types of skill sets one can assume based on training and experience gained as part of military service. The report also addresses the skill sets attained through military service and the qualifications of military applicants, and demonstrates how these skills are applicable to the natural gas and oil industry.

IN-FOCUS LOOK AT EMPLOYMENT FOR SPECIFIC GROUPS

API, "Veterans in the Oil & Natural Gas and Petrochemical Industries," September 2015.

SUMMARY

This report, compiled using data from IHS, examines the number of veterans in the natural gas and oil and petrochemical industries in 2014. Findings are broken down by industry segment, occupation, region, gender, and race.

In 2014, there were nearly 185,000 veterans employed in the natural gas and oil and petrochemical industries, accounting for 10.5% of total natural gas and oil employment. The industry employed nearly 6,000 female veterans and 41,240 minority veterans in 2014. Minority veterans include African Americans, Asians, Hispanics, other races and multiple race individuals.

The natural gas and oil and petrochemical industries consistently employ larger shares of veterans than both the government and the private sector (2007-2014). In 2014, veterans accounted for 10.4% of the government workforce and 6.5% of the private sector workforce compared to 10.5% of the natural gas and oil and petrochemical industry workforce. Overall veterans accounted for 7% of total employment in the U.S.

Findings from this report are presented in the Solutions for Information Design Veterans and Energy report. It is not available as a standalone report online.

In 2014, there were nearly **185,000 veterans employed in the natural gas and oil and petrochemical industries**, accounting for 10.5% of total natural gas and oil employment. The industry employed nearly 6,000 female veterans and 41,240 minority veterans in 2014.