

The Great Energy Transition: **What's Next for Talent in Oil and Gas**

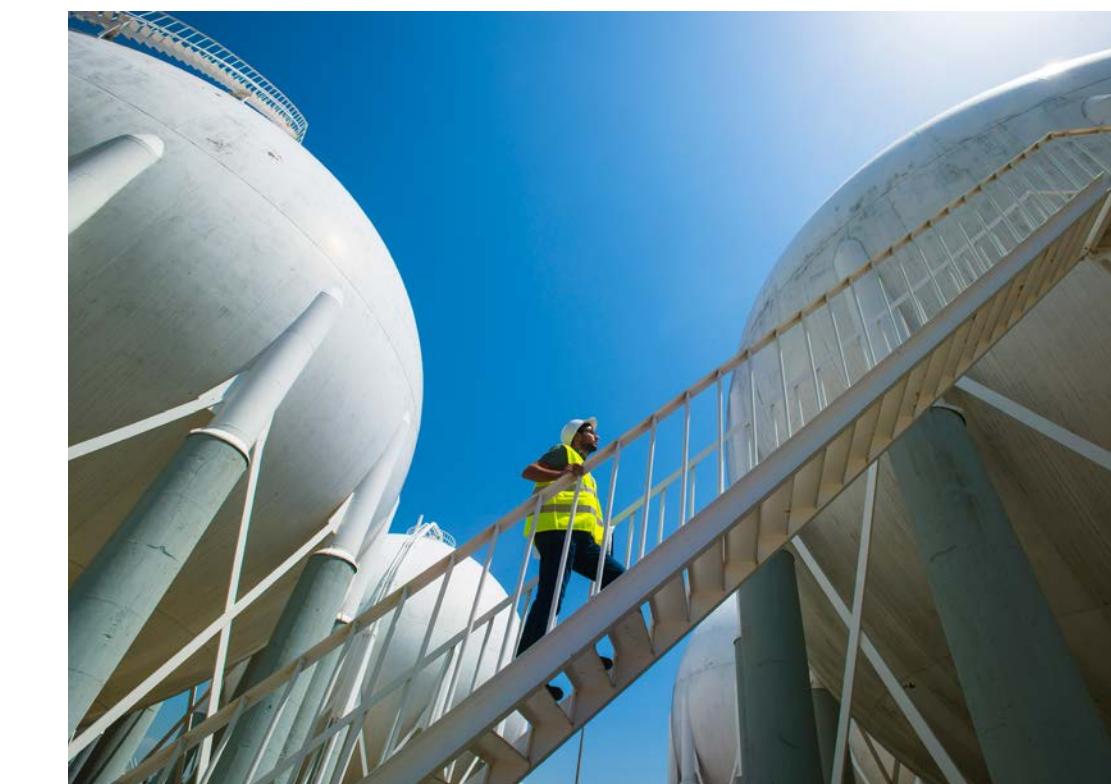
About This Report

Eightfold Talent Insights Reports contain the findings and insights of Eightfold's research and analysis garnered from its Talent Intelligence Platform™. This deep-learning platform is powered by the largest global talent dataset to reveal people's skills and potential as well as workforce trends across sectors and demographics.

For this analysis of talent in the oil and gas industry, Eightfold analyzed approximately 250,000 publicly available profiles from top oil and gas companies, and 15,000 profiles from top renewable companies for comparison purposes.

In brief:

With data-driven insights, oil and gas companies can address their needs to transform, primarily through upskilling/reskilling their workforces, calibrating roles with future skills, and hiring for potential



The Oil and Gas Workforce / Four main talent groups make up an oil and gas organization:

~40%

Core operations:
includes field staff, technicians, and mechanics and supervisors

~28%

Business support:
includes HR, business development and marketing, finance, regulatory and compliance, and supply chain

~27%

Research and engineering:
includes IT management, data analytics, and software engineering

~5%

Digital and analytics:
includes drilling, process and control, reservoir, petroleum, geology, and design and quality

Big energy companies are spending billions to move into renewable energy, increasingly making biofuels, investing in carbon capture and storage, and even buying renewable energy companies.

With that as the backdrop, what follows is a look at the oil and gas workforce as it transforms, including its roles, skills, and future readiness.

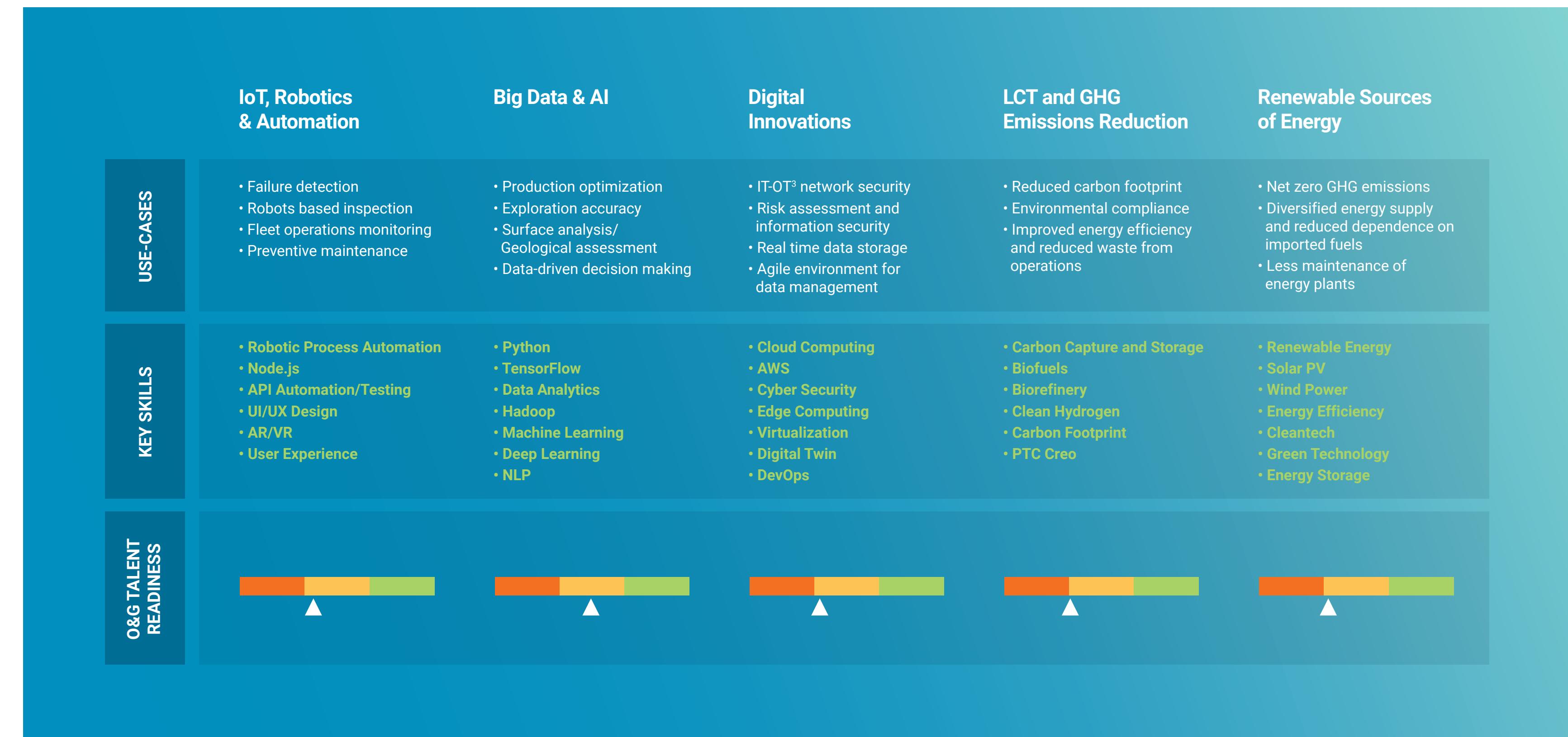
We find that energy companies have tremendous potential to build the skills mix they need. As the industry increases its renewable energy investments, talent intelligence will show organizations exactly which talent can do what.

Oil and Gas and Renewables Each Have Advantages

We took a look at the makeup of both the oil and gas workforce, as well as the renewable energy workforce. (Of course, many oil and gas companies are leaders in renewable energy as well, but for these purposes, renewable energy companies are those that do business predominantly or exclusively in that area).

When looking at the prevalence of various skills in their organizations, oil and gas companies have a number of skills advantages in areas you might expect: upstream operations, oilfield experience, and chemical engineering, for example. On the other hand, renewable energy companies have the skills edge in electrical engineering, AutoCAD, and manufacturing, among others.

Beyond just comparing the oil field with solar and such, we dug into areas like digital skills. Renewable companies have a substantial edge in many of the digital skills that are on the rise, such as Python. In contrast, the oil and gas companies' digital edge centers around SAP, IT management, business analytics, and software documentation.



You can see this edge play out by looking at the “future readiness” fulcrum at the bottom of the figure on the chart above. Oil and gas has the opportunity to move that fulcrum to the right, a topic we will tackle in the coming sections.

A professional in an oil and gas setting, wearing a hard hat and safety glasses, is focused on a tablet screen. The background is a blurred industrial or office environment.

With Three Solutions, Oil and Gas Can Solve Its Skills Needs

The oil and gas industry has much of what it takes to transform already present in its workforce. Three strategies will get it where it needs to be:

1.

**Upskilling
and reskilling**

2.

**Calibrating roles
with future skills**

3.

**Hiring for
potential**

Reskilling and Upskilling

A [Mercer report](#) on the energy industry finds that upskilling and reskilling the current workforce is critical to successful transformations. However, there are barriers to doing so, such as employees not knowing which skills they need to add and employers not knowing which skills are prevalent in their company.

Writes Mercer: "Twenty-six percent of employees report that they did not learn a new skill largely due to either a lack of clarity for which skills to focus on or a lack of guidance for which skills would help them progress. The C-suite's top 'ask' for insights (to help them make data-driven people decisions) is for an evaluation of progress made in closing the skills gaps for critical roles. The COVID-19 pandemic opened the eyes of the C-suite to the importance of skills data."

Skills data is necessary for [upskilling](#) and [reskilling](#). Armed with talent intelligence,

companies can examine their roles and skills. Then, they can look at the [adjacent skills](#) between declining and future-ready roles. From there, companies can help employees round out their skills portfolios.

A completions engineer, for example, is a declining role, but people in that role have skills similar to production engineers and facilities engineers. Likewise, a driller is a declining role, but an employee in that role has the potential to become a wind turbine technician.

Take a look at the image of a reservoir engineer's potential to become a renewable energy engineer. They use many of the same skills, and they use many similar skills. By adding knowledge of solar, cleantech, and a few other areas, we can see how the reservoir engineer has the potential to upskill.

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Calibrating Roles with Future Skills

Oil and gas companies should build the workforce of tomorrow by calibrating roles with the skills of the future.

Calibration usually involves the hiring manager and recruiter. First, they identify the capabilities they'd like to see in an ideal candidate. Understanding skills that are growing in relevance, rather than defaulting to prior calibrations and job descriptions, informs this calibration process.

You'll see a chart on page 10 showing how the skills of a production engineer have changed in 10 years. By illustrating the need to calibrate a job for the future, not the past, organizations can seek out skills growing in importance, like hydraulic fracturing, Spotfire, or Python.

It might mean seeking skills in solar PV, energy efficiency, and Python for a renewable energy engineer.

For a renewable energy engineer, it might mean seeking skills in solar PV, energy efficiency, and Python.



The Big Two

Among the chief energy disruptors are the move to renewable energy and increased automation.

By 2050, energy consumption will increase by about 50 percent, according to the U.S. Energy Information Administration. Renewable energy production will increase by nearly 150 percent. Worldwide pressure from activist investors, politicians and regulators, and even prospective employees means fossil fuel companies are taking steps to increase the availability of renewable energy.

Another catalyst for transformation is automation. "Robots may replace 20 percent of oilfield jobs in a decade," according to [Rystad Energy](#). A Mercer report on energy-industry talent finds that "64 percent of employees agree or strongly agree that AI/automation will replace their jobs within the next three years."

To successfully navigate this transformation, oil and gas companies need to focus on three main areas: innovation, culture, and talent. This may sound like a given. But a Harvard report showed that 78 percent of transformations fail primarily because not much attention is paid to culture and talent transformations.

Hiring for Potential

It is illuminating how much larger a talent pool becomes when companies adopt a “hire for potential” approach.

A job candidate may not have experience in biofuels, a skill sought after by an oil and gas company. However, talent intelligence highlights the adjacent skills, such as biomass, chemical engineering, biorefinery, and renewable energy. Organizations considering candidates with the potential to learn biofuel skills more than triple the available talent pool.

Accenture wrote in a [report on energy-industry talent](#), “Capitalizing on these skill adjacencies, oil and gas leaders can help their workforces transition more easily to a new career path. Many of the skills needed in the future are grounded in the skills of today.”

See the chart showing how adjacent skills greatly expand talent pools.

Oil & Gas workforce

Adjacent Skills				
Well Testing	Drilling	Well Completion	Formation Evaluation	Well Intervention
Machine Learning	Algorithms	Data Structures	Python	SQL
Biofuels	Biomass	Chemical Engineering	Biorefinery	Renewable Energy
Carbon Capture	Gasification	Chemical Engineering	Renewable Energy	-
Wind Power	Power Generation	Electrical Engineering	Energy Transmission	Mechanical Engineering

Source: Eightfold Talent Intelligence Platform



Knows skill

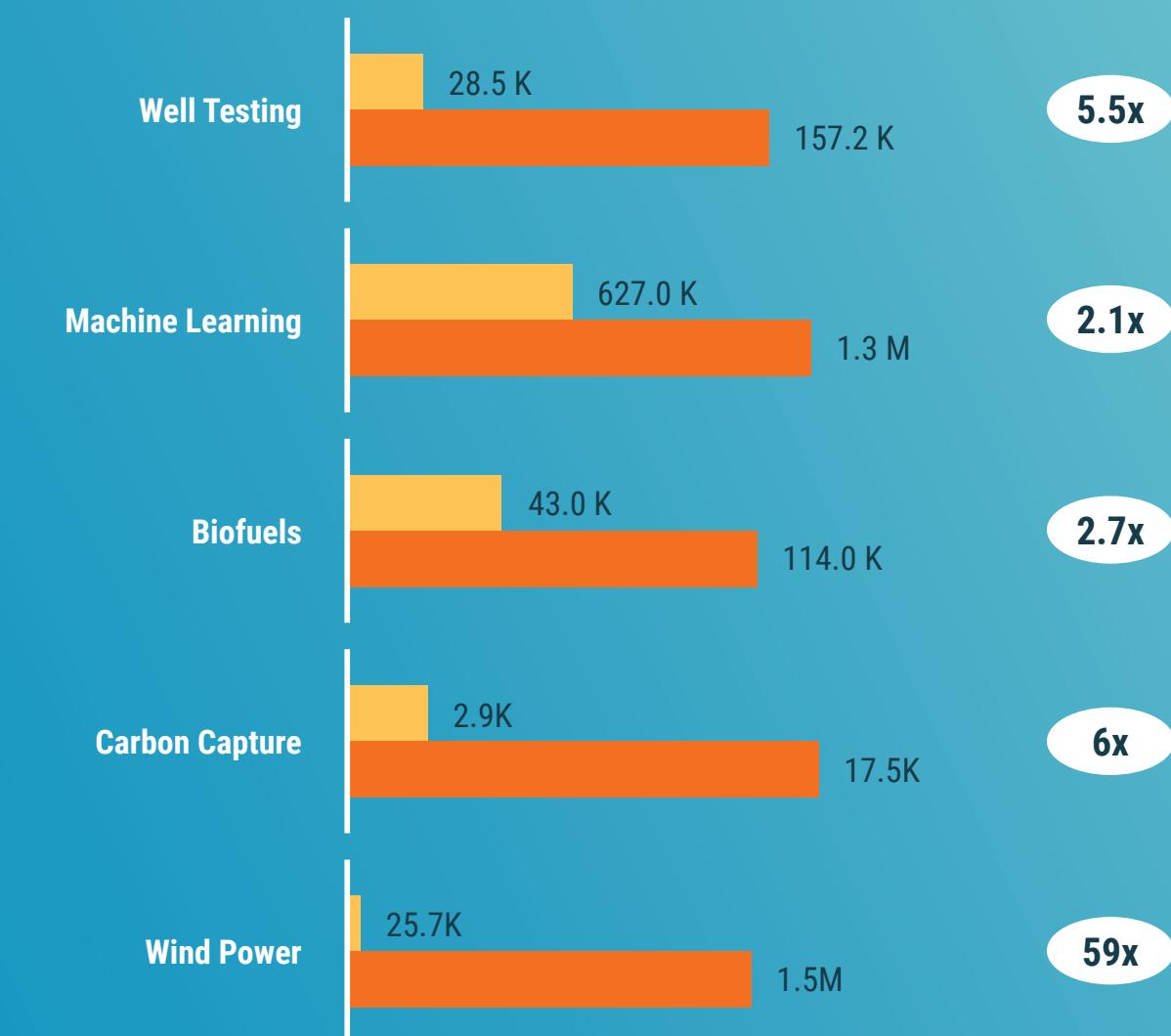


Potential to learn skill



Talent pool expansion when hiring for potential

Potential to learn based on skill adjacencies—U.S. Workforce



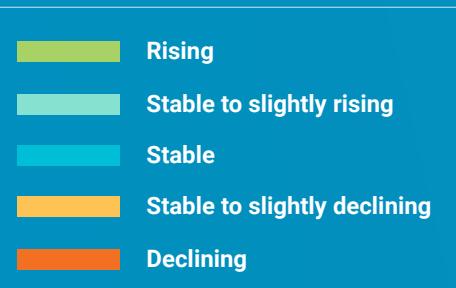
Rising and Declining Roles and Skills

Talent Insights can show us the roles and the skills of the energy industry, and how they're trending.

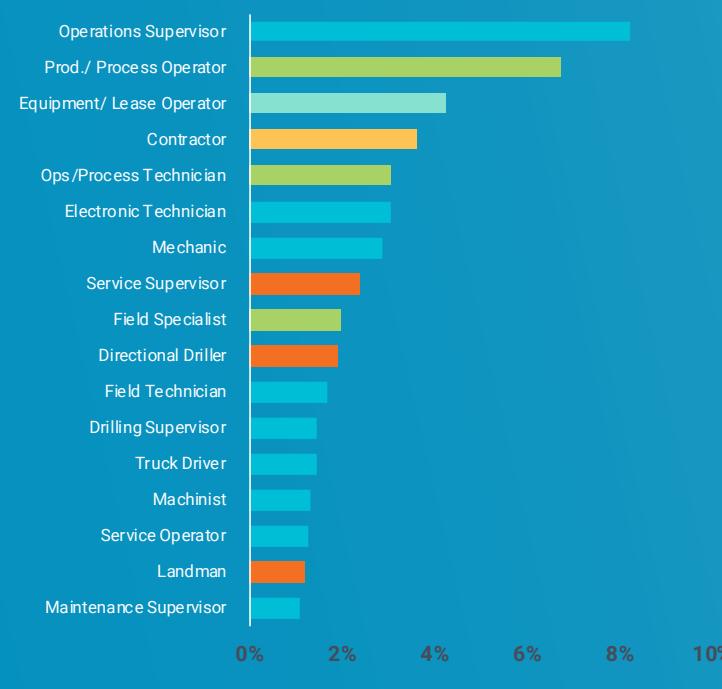
We can look at any role and see whether it's becoming more or less common. For example, core oil and gas engineering roles and operations roles are stable or declining in prevalence. On the other hand, digital and analytics roles and general engineering are on the rise.

We can do the same for skills. Most of the most common skills in oil and gas are either stable or declining in the global workforce.

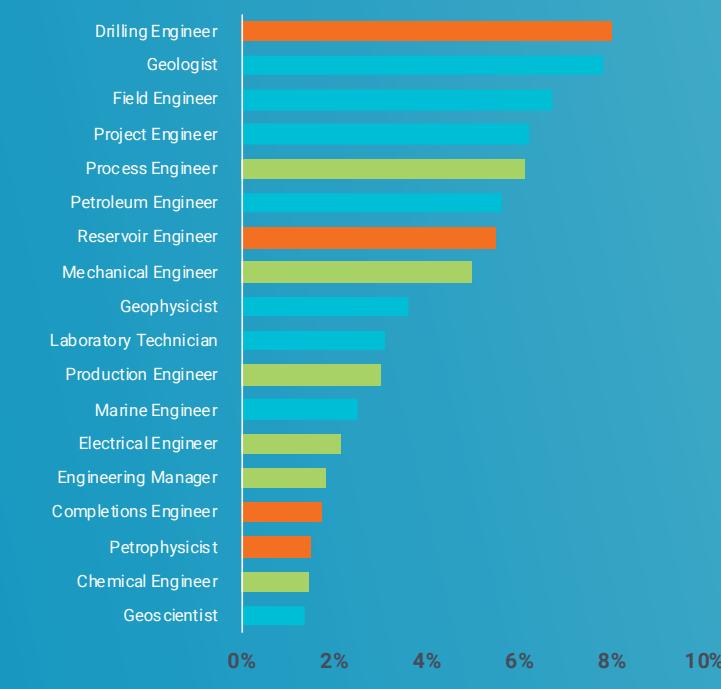
Core Oil & Gas Engineering and Ops roles are stable or declining, while Digital & Analytics and general Engineering roles are on rise



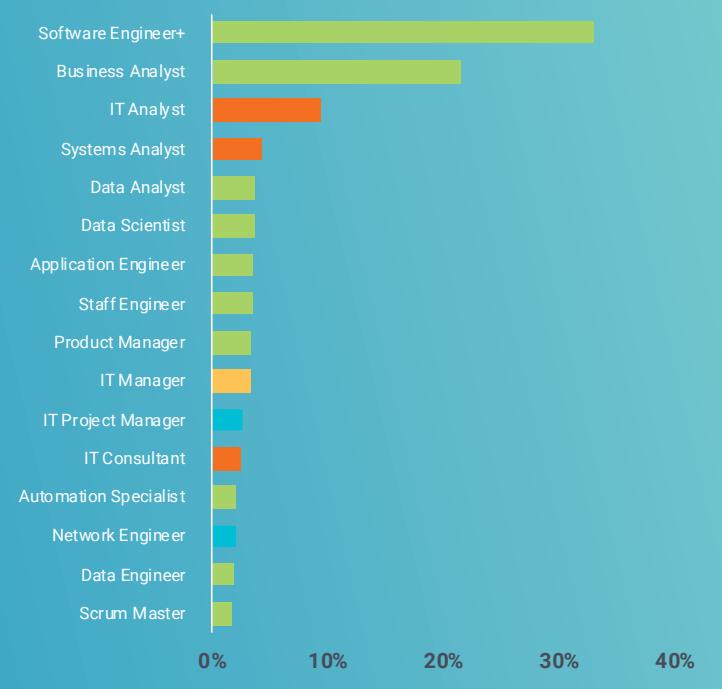
Core Operations roles



Research & Engineering roles



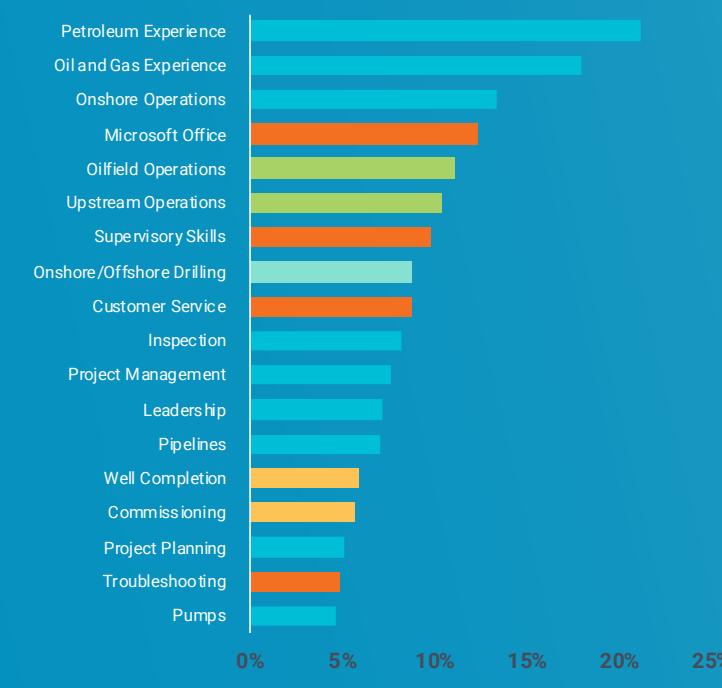
Digital & Analytics roles



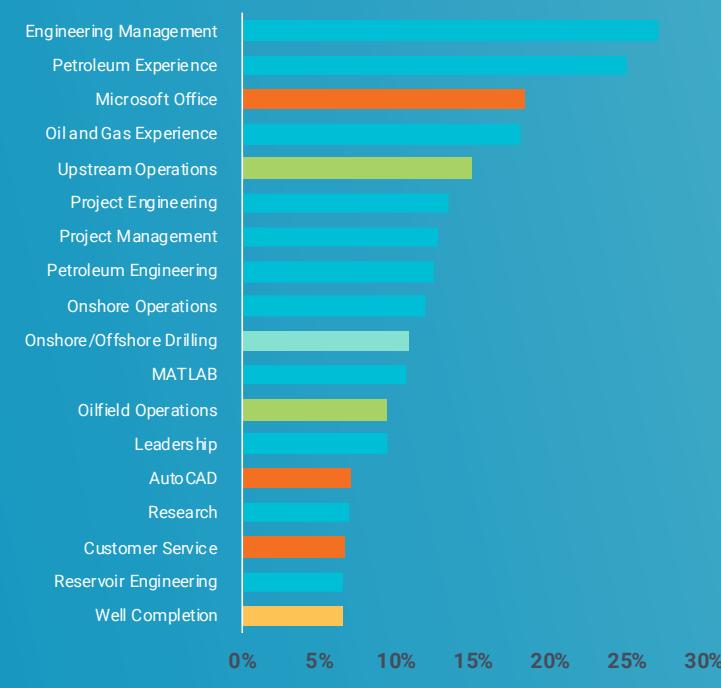
On the other hand, most of the top penetrated skills in Oil & Gas are either stable or declining in the global workforce



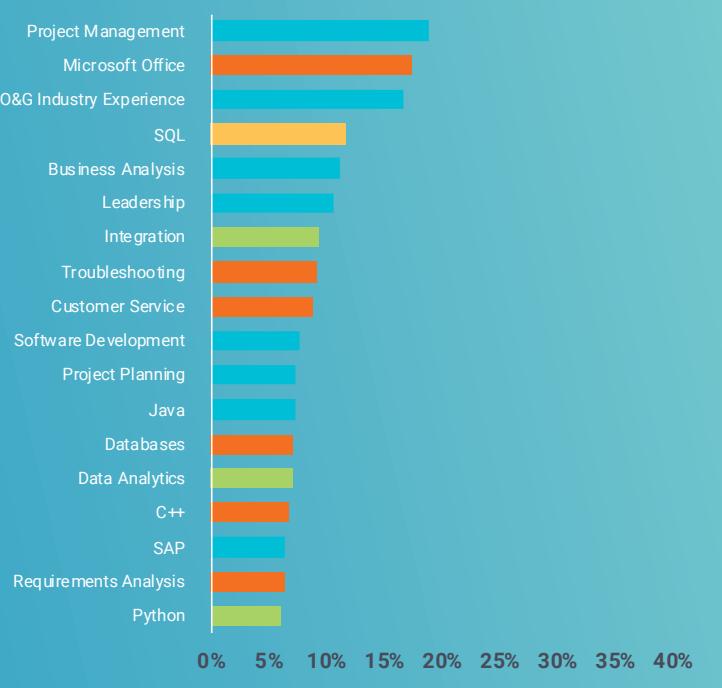
Core Operations skills



Research & Engineering skills



Digital & Analytics skills



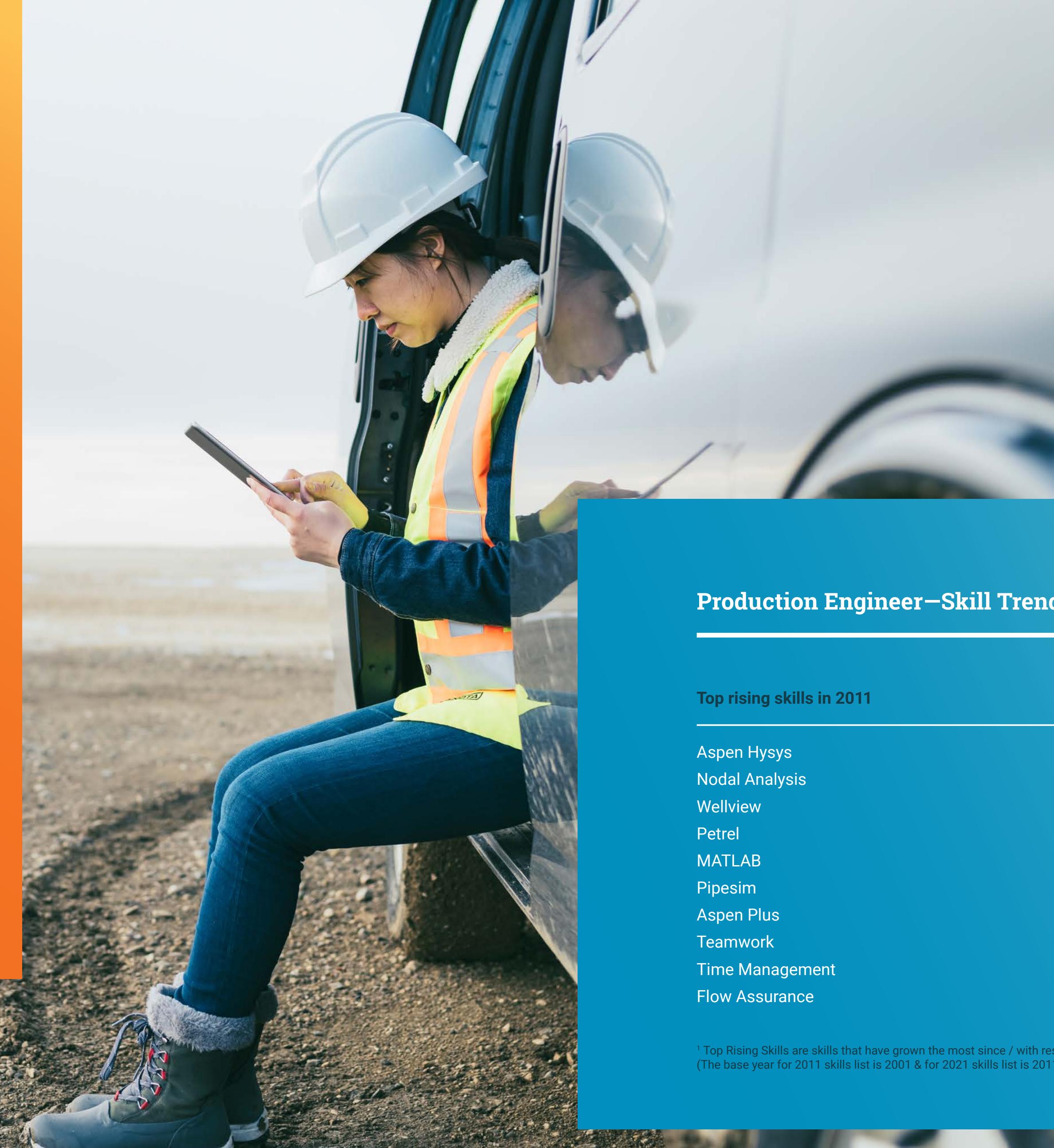
Source: Eightfold Talent Intelligence Platform + Software Engineer includes Software Engineer and Software Developer

Why Energy Employees Come and Go

Mercer's study of talent in the energy industry found an "incongruence between employee and HR views as to why energy employees join and stay."

The study asked HR leaders why they think employees join their companies. They thought the organization's brand reputation was the top reason. However, employees said job security topped their list, followed by career opportunities, salary, learning opportunities, and brand reputation.

Why do employees stay? Again, job security was number one, followed by opportunities for flexible work, competitive pay, rewards practices, and vacation policies. Employers thought "trustworthy leadership" and "confidence in our strategy" were high on employees' lists, but they were nowhere in the top five.



Skills needs are changing too fast for companies to keep hiring the way they have been, to calibrate jobs based on past needs or "the way we've always done it." But with the talent intelligence now available, oil and gas can upskill/reskill, calibrate roles for future skills, hire for potential, and always be on the leading edge of energy's transformation.

Production Engineer—Skill Trends

New Skills Rising

Top rising skills in 2011

Aspen Hysys
Nodal Analysis
Wellview
Petrel
MATLAB
Pipesim
Aspen Plus
Teamwork
Time Management
Flow Assurance

Top rising skills in 2021

Well Testing
Spotfire
Python
Aspen Hysys
Hydraulic Fracturing
Wellview
Data Analysis
Offshore Drilling
Oilfield
MATLAB

¹ Top Rising Skills are skills that have grown the most since / with respect to the base year
(The base year for 2011 skills list is 2001 & for 2021 skills list is 2011)

Where Are the Renewable Skills Hiding?

The [World Economic Forum](#) estimates that the transition to cleaner energy will generate 10.3 million net new jobs globally by 2030. That's 2.7 million lost due to a shift in fossil fuel reliance, but 13 million gained with increased energy demands and the clean energy movement.

Most of these new jobs will likely be in the electrical, power generation, and automotive sectors.

In the preceding pages, we've outlined talent strategies for those ~10 million positions. Organizations will need to recalibrate jobs, hire people with adjacent skills (as demonstrated by talent intelligence), and close any gaps in those individuals' skills portfolios. Also, the oil and gas industry will need to upskill and reskill people already in their workforce.

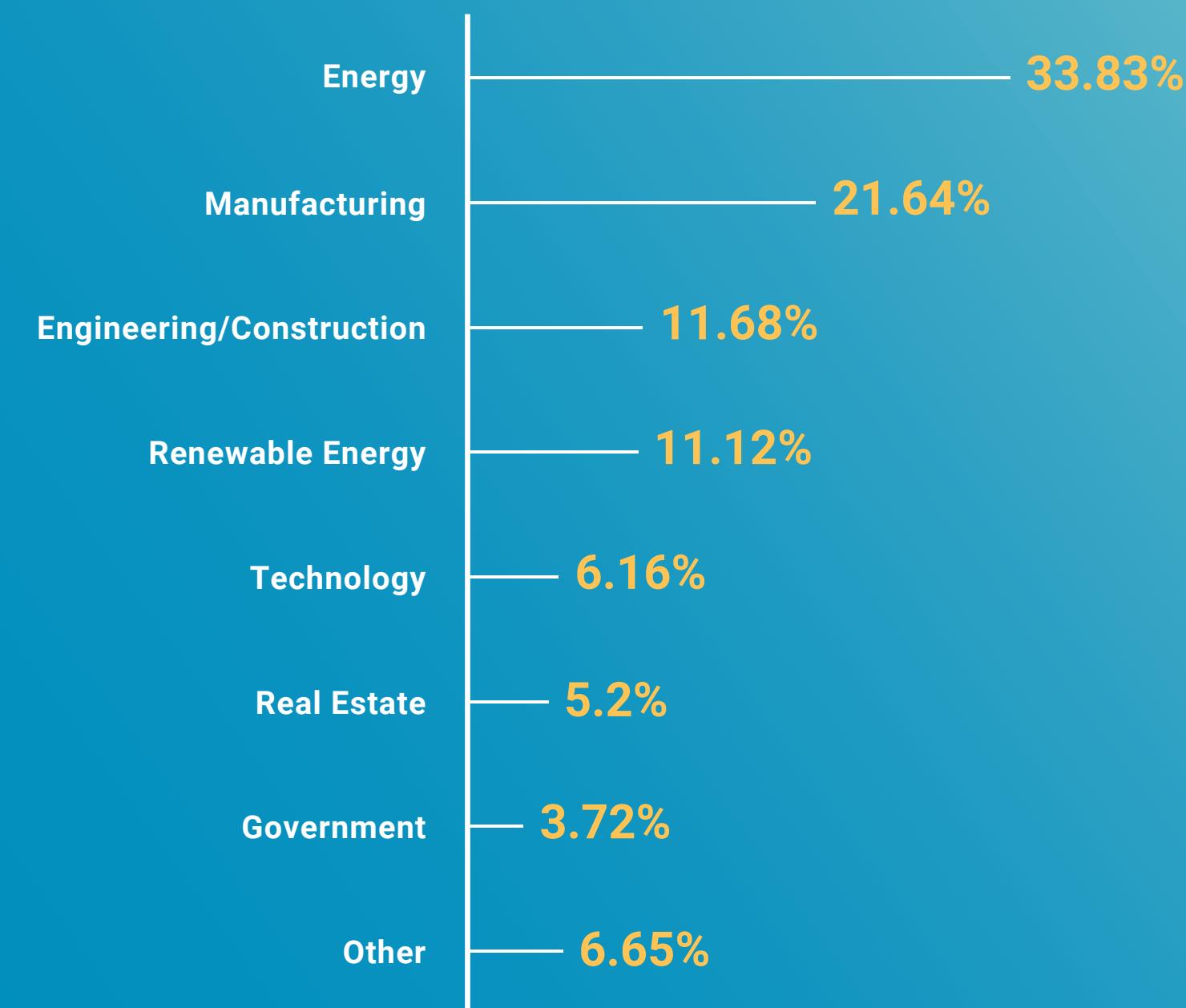
For those new hires with adjacent skills, this begs the question: where will you find the prospects to train?

The most obvious answer is to lure them from the renewables sector. But it's not the only answer and not necessarily the best answer.

We looked at skills directly tied to renewable energy production, such as energy efficiency, photovoltaics, solar power, and alternative energy.

From there, we looked at the industries where you can find these critical renewable energy skills in the greatest quantity. The upshot: the manufacturing industry has about double the number of people with renewable-energy skills than the renewable energy industry (see graph). Manufacturing companies are ripe targets for recruiting people with renewable energy skills and adjacent skills, as are engineering and construction companies.

Of all workers with renewable energy skills, what percent are in...



Definitions of key terms:

Role penetration: % of employees in a role (out of the total number of employees in a group/cohort)

Skill penetration: % of employees with a given skill (out of the total number of employees in a group/cohort)

Relative skill penetration: Skill penetration within a given company minus skill penetration in the market or competitors

Skill prevalence: Increase/decrease of individuals with the skill in the global workforce.

Understanding the short-term trend and long-term trend for a given skill with relatively more focus on the short-term trend

Prevalence index (role): Role prevalence relative to the highest point on the chart. A value of 100 represents peak use of the role

Adjacent skills: Frequently co-occurring skills within profiles in the global workforce

Adjacent roles: Roles that have high direct and related skill overlap. The higher the overlap of direct and related skills, the higher the adjacency score



About Eightfold AI

Eightfold AI's market-leading Talent Intelligence Platform™ helps organizations retain top performers, upskill and reskill their workforce, recruit talent efficiently, and reach diversity goals. Eightfold's patented deep learning artificial intelligence platform is available in more than 155 countries and 24 languages, enabling cutting-edge enterprises to transform their talent into a competitive advantage. For more information, visit www.eightfold.ai.