

A group of three people, likely engineers or architects, are gathered around a wooden table. They are wearing plaid shirts. One person is using a pair of compasses to draw on a set of blueprints spread out on the table. Another person is holding a tablet. A yellow hard hat is on the table. In the background, a model of a wind turbine is visible. The scene is dimly lit, with a warm, orange-toned light source from the left.

Energy

INDUSTRY UPDATE

Q4 | 2023

The energy workforce is expected to grow and evolve in 2024, driven by transition to clean energy and digitization of the industry



RENEWABLE ENERGY & ENERGY EFFICIENCY

- The IEA forecasts that global renewable energy capacity will increase by 8% in 2024, reaching 3,300 gigawatts (GW). This growth will be driven by solar and wind power, which are expected to account for the majority of new capacity additions
- Global energy efficiency investment will reach \$1.3 trillion in 2024, up from \$860 billion in 2020.



NATURAL GAS & BIOFUELS

- Natural gas production is expected to reach 150 bcm by 2030.
- Biofuels production is expected to reach 250 billion liters by 2030.
- The share of natural gas in the global energy mix is expected to increase from 24% in 2022 to 27% in 2030.
- The share of biofuels in the global energy mix is expected to increase from 5% in 2022 to 7% in 2030.



ENERGY STORAGE TECH SOLUTIONS

- The global energy storage capacity is expected to reach 1.2 terawatt-hours (TWh) by 2024.
- The global energy storage market is expected to grow at a CAGR of 20% from 2024 to 2030.
- The United States is the largest market for energy storage, followed by China and Japan.

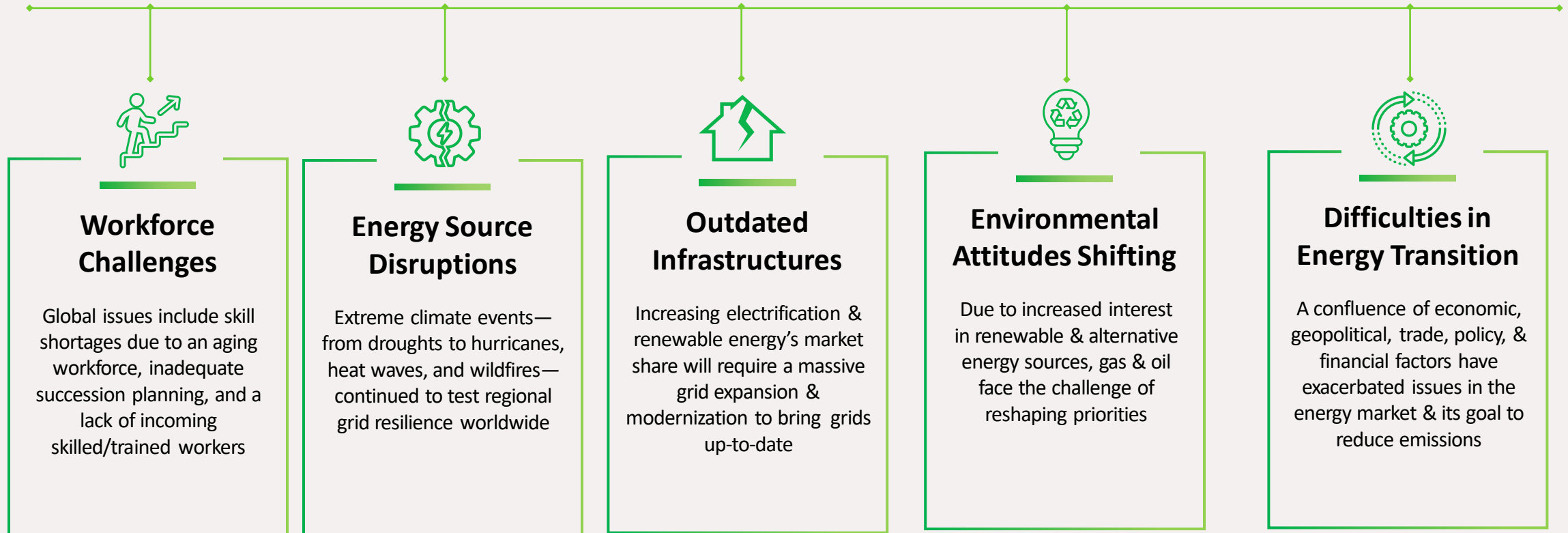


INVESTING IN CLIMATE TECH

- The adoption of new technologies, such as artificial intelligence (AI), machine learning (ML), and robotics, is changing the way energy companies operate. This is creating a demand for workers with skills in these areas.

Workforce challenges & industry-wide issues the energy sector seeks to overcome in 2024

Challenges faced by the energy industry in its mission for carbon neutrality



Key Global Energy Workforce Statistics

The global energy workforce is undergoing transformation, drive by the transition to a low-carbon economy. This transformation is creating new opportunities for workers in the renewable energy and energy efficiency sectors, while also posing challenges for workers in the fossil fuel industry.

Energy Workforce in 2024 and beyond

- The global energy workforce is estimated to be around **29 million** people in 2024.
- The renewable energy sector is expected to create **24 million new jobs by 2030**.
- The energy efficiency sector is expected to create **11 million new jobs by 2030**.
- The fossil fuel industry is expected to lose jobs as demand for oil, gas, and coal declines.

Multiple Obstacles to Overcome

- The need to attract and retain a diverse and skilled workforce.
- The need to address the skills gap in the renewable energy and energy efficiency sectors.
- The need to ensure a just transition for workers in the fossil fuel industry.



Workforce Challenges



Energy Source Disruptions



Outdated Infrastructures



Difficulties in Energy Transition



Environmental Attitudes Shifting

Opportunities for the Energy Workforce

- The growth of the renewable energy and energy efficiency sectors.
- The development of new technologies and innovations in the energy sector.
- The increasing importance of energy efficiency and sustainability.

Overall, the global energy workforce is facing a period of significant change. However, this change also presents several opportunities for workers who are willing to adapt and learn new skills.

Key Causes of Skill Shortages By Region:

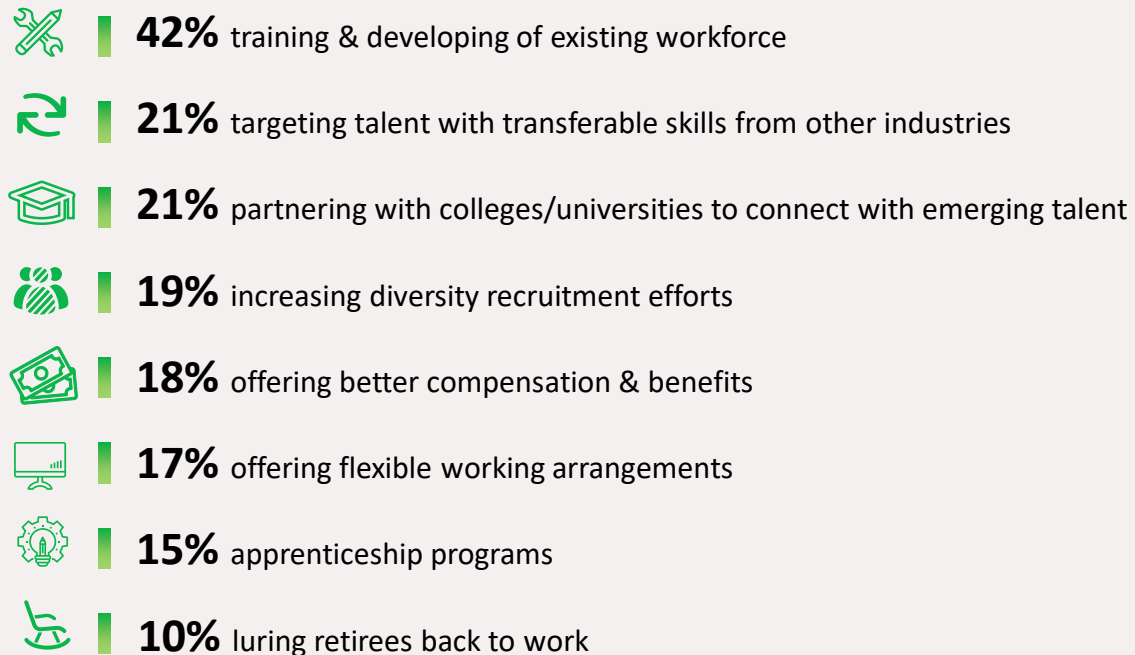
Region	Key Causes of Skills Shortages
N AMER	Loss of expertise due to aging workforce Political instability Inadequate succession planning for knowledge transfer/skills retention
S AMER	Political instability Lack of motivational factors Environmental consciousness
EUROPE	Inadequate succession planning for knowledge transfer/skills retention Lack of diversity Loss of expertise due to aging workforce
AFRICA	Inadequate succession planning for knowledge transfer/skills retention Education and Training Political instability
MIDDLE EAST	Inadequate succession planning for knowledge transfer/skills retention Education and Training Lack of candidate consideration/inadequate pay
ASIA AND PACIFIC	Inadequate succession planning for knowledge transfer/skills retention Education and Training Lack of candidate consideration/inadequate pay

Worldwide skill shortages are prompting the energy industry to take action to attract & retain talent

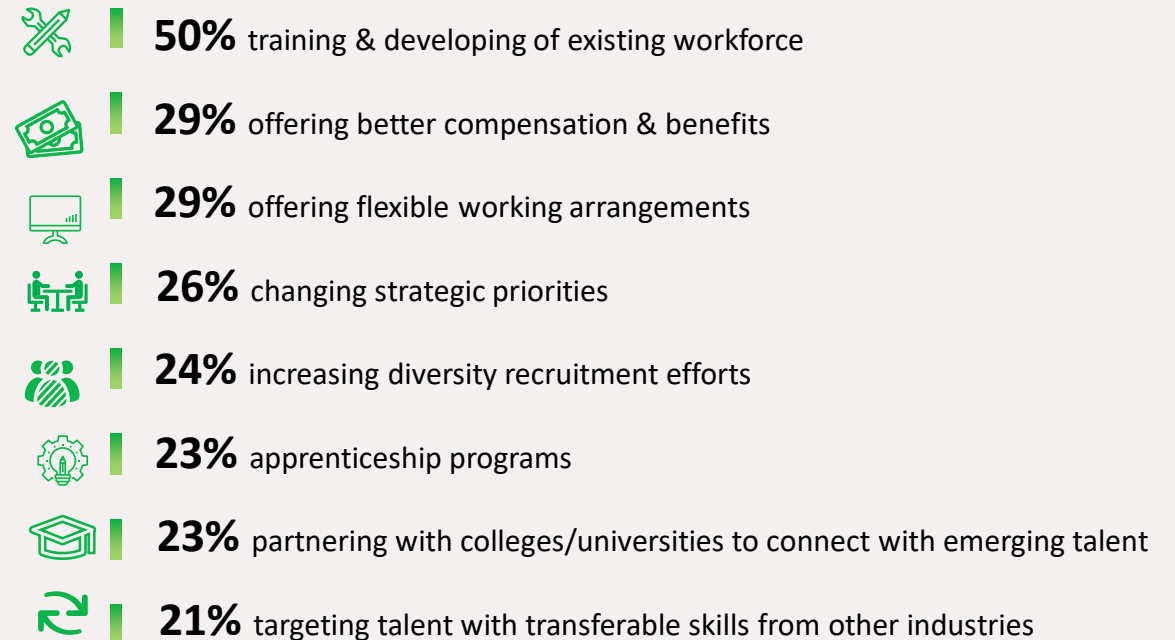
How Energy Companies are Overcoming the Skill Gap Across All Regions

Top methods have changed significantly in just the last year (from 2022 to 2023)

2022



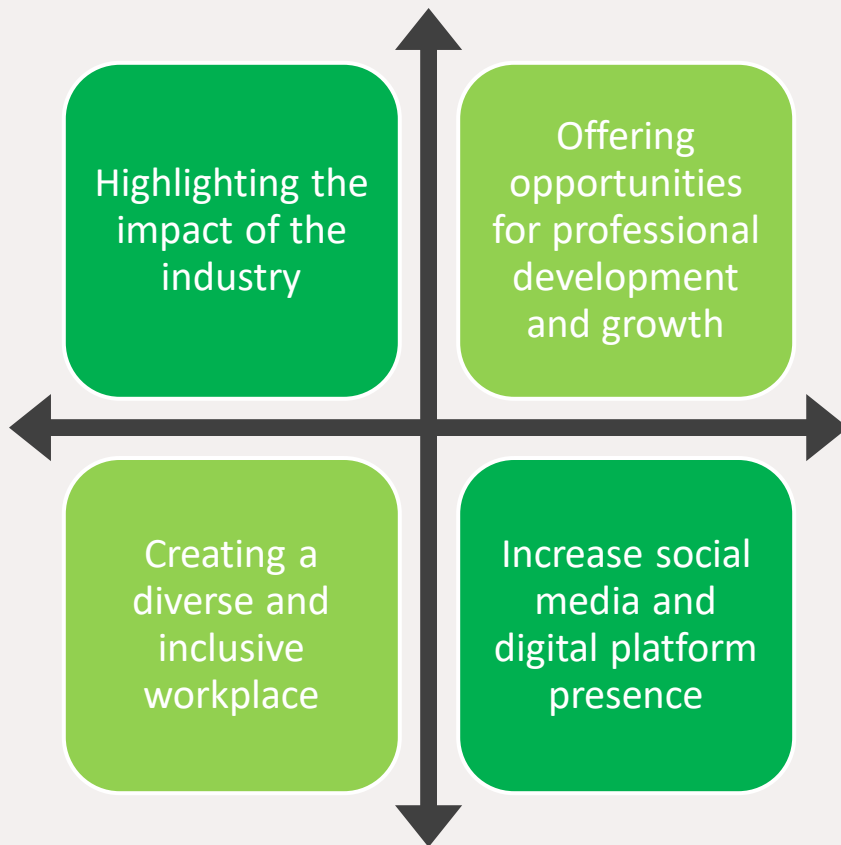
2023



Searching for Gen Z talent in the energy industry

- Gen Z is the most diverse and educated generation in history and they are the most concerned about climate change; making them an asset to the energy workforce.
- It's predicted that **Gen Z and Millennials will make up 72%** of the world's workforce by 2029
- Yet a Deloitte survey reported that **62% of Gen Z respondents** stated that they find a career in the oil and gas industry unappealing.
- This talent shortage poses a significant challenge for the global sector.
- The 2021 World Petroleum Congress Global Youth Survey found that industry approval rates are lowest in North America. **30%** of American survey respondents believe working in the oil and gas industry is unattractive. This was followed closely by **14%** of European respondents.
- Those who are interested want to get hands-on with the newest technology and work in major cities rather than rural campuses.
- **Only 44% of STEM** millennials and Gen Z are interested in pursuing a career in oil and gas, which is sparse compared to the **77% interested** in tech-driven sectors.
- Gen Z is more interested in working in the clean energy industry than traditional fossil fuel industry due to alignment with their values and climate change concerns.

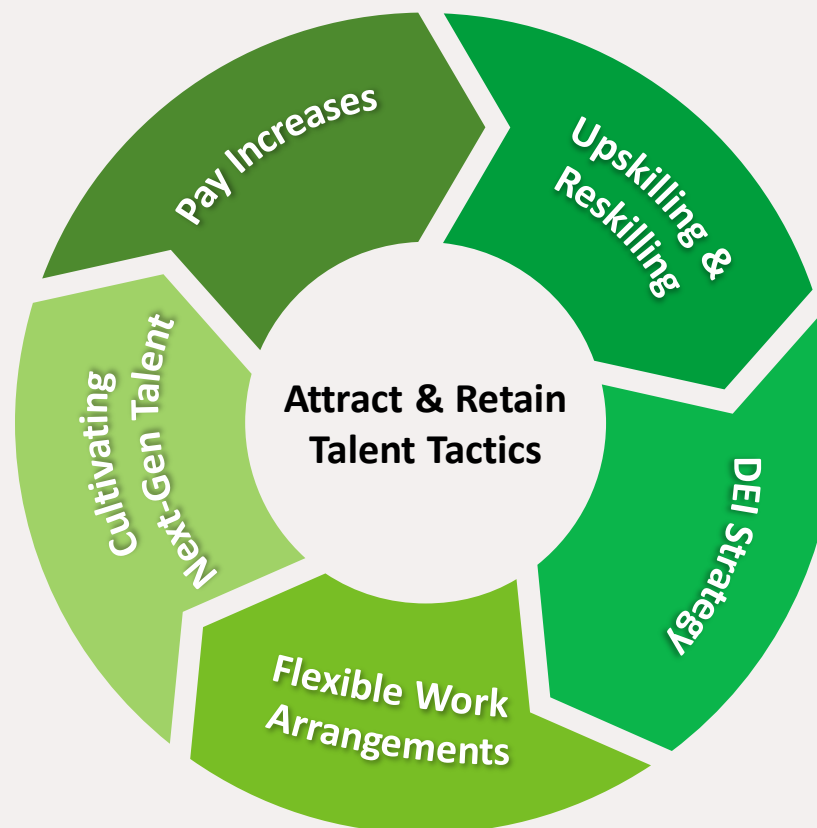
How the Energy industry can attract and Gen Z Talent



Gen Z Talent...

- wants to work for companies that are making a positive impact on the world. The energy industry can highlight its role in providing affordable, reliable, and sustainable energy to meet the world's growing needs.
- is ambitious and wants to learn and grow. Outline clear career paths for potential candidates, highlighting opportunities for advancement, promotion, and professional development across the energy industry's numerous opportunities.
- is the most diverse generation yet, and they value workplaces that are welcoming and inclusive. Showcase the energy industry's commitment to DEI through initiatives, such as mentorship programs, employee resource groups, and unconscious bias training.
- is highly active on social media and digital platforms. Use these channels to share company culture, promote job openings, and engage with potential candidates.

What energy employers are doing to attract & retain a skilled workforce



What energy industry employers need to know

A Move Towards Renewable Energy

INVESTING IN CLEAN ENERGY: Due to the rapid expansion of clean energy sources like wind, solar, and green hydrogen, the demand for skilled & highly-trained workers is increasing.

INNOVATING WITH CLIMATE TECH: As more nations invest in renewable energy sources in the mission of global decarbonization, many investors are looking for cutting-edge climate tech to help reach these goals. Skilled workers who can navigate new/evolving climate/clean tech are highly sought after.

OVERCOMING INDUSTRY-WIDE CHALLENGES: The energy sector will continue to deal with supply chain disruptions, an aging workforce, a lack of skilled workers, outdated infrastructure, and logistical challenges. The need for a highly trained & capable workforce takes center stage to help the industry overcome these challenges and transition towards a greener energy future.

While Focusing on Talent Strategies

TALENT ATTRACTION & RETENTION: Many energy organizations across the globe are rethinking benefits offered, such as better compensation packages, more robust mental & physical health support, and work/life balance initiatives.

TRAINING & WORKFORCE DEVELOPMENT: Driven by a tight labor market and a lack of skilled workers, energy companies are offering expanded career development opportunities and training.

CONNECTING WITH EMERGING & DIVERSE TALENT POOLS: The energy sector is connecting with emerging talent via colleges, universities, and apprenticeships while also focusing more on DEI recruitment efforts to achieve a more well-rounded and diverse workforce.