

 Global Insights

Global Energy Industry World of Work 2025 Outlook



71%

OF ENERGY SECTOR EMPLOYERS ARE STRUGGLING
TO FIND THE SKILLED TALENT THEY NEED

81%

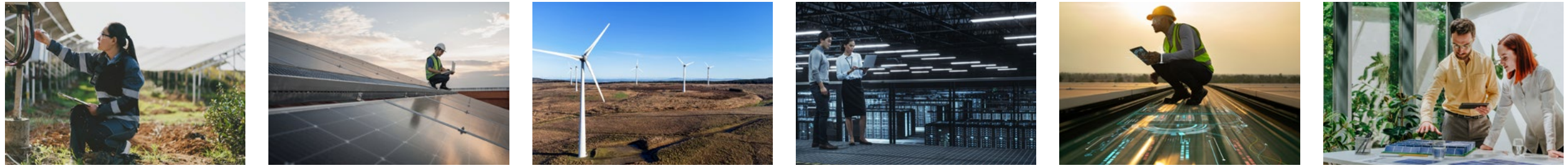
OF ENERGY SECTOR EMPLOYERS ARE
RECRUITING FOR GREEN JOBS AND SKILLS

GLOBAL CLEAN ENERGY INVESTMENT WILL REACH

\$2 Trillion

(NEARLY 2X FOSSIL FUELS) IN 2024

Contents



The global energy and utilities industry is undergoing a major transformation as it transitions to a low-carbon future. The increasing adoption of renewable energy sources, such as solar, wind, and hydroelectric power, is disrupting the traditional fossil fuel-based market and creating new opportunities for innovation and growth. This is occurring as both energy demands and the urgency of addressing climate change grow.

As the industry seeks to grow and innovate, it must also grapple with talent and skills gaps around the world. **This Global Insights report will explore the top megatrends for the energy and utilities industry as well as their impact on the future of work.**

- What is the current state of the industry as energy demand around the world surges?
- How will the transition to cleaner forms of energy impact the workforce?
- How can employers ensure they find and retain the skilled talent they need?

Reaching the Peak

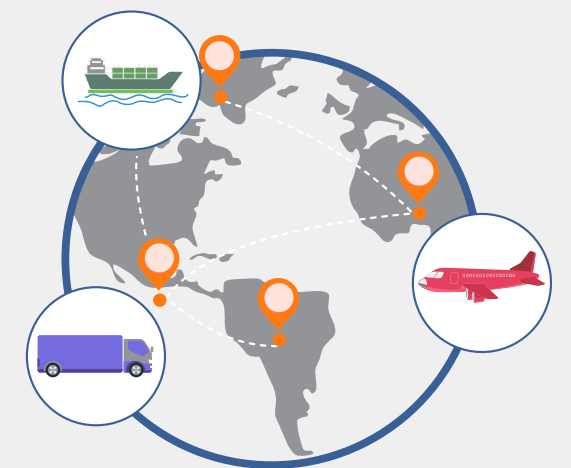
The global energy industry is in the midst of a paradigm shift as investments in clean energy surpass total investment in fossil fuels. Industry analysts expect we will finally reach peak oil—defined as the highest rate of total global petroleum production in history—before 2030 and output will gradually decline over time. Although the shift may not be as swift as many hoped, it will significantly change the workforce needs of this sector in the near future.



- **Peaking by 2030:** Global oil demand including biofuels averaged just over 102 million barrels per day in 2023. Forecasts predict it will level off near 106 million barrels per day by 2030 and decline as clean energy alternatives gain momentum.¹
- **2x in 2024:** Global spending on clean energy technologies and infrastructure is on track to hit \$2 trillion in 2024. This is nearly double the total investment in fossil fuels.²
- **Peak Talent Demand:** After many quarters of robust growth, the seasonally adjusted global Q4 2024 Net Employment Outlook for the oil and gas sector—the net of employers planning to hire or reduce their workforce—declined 53% compared to the same quarter in 2023.³

Workforce Implications:

- Common workforce skills in the oil and gas industry (e.g., business administration, chemical engineering, mechanical engineering) are relevant for clean energy industry employers.
- Established players in the fossil fuel industry will need to revamp their employer brand to attract top talent as they gradually transition significant portions of their business to renewable energy.
- This shift will have downstream effects as the workforce needs of the entire fossil fuel value chain change. Existing roles will be replaced by new clean energy jobs (e.g., vehicle charging station infrastructure).



GLOBAL OIL DEMAND IS EXPECTED TO **PEAK BY 2030**.¹

1. [International Energy Agency \(IEA\)](#) 2. [IEA](#) 3. [ManpowerGroup Employment Outlook Survey](#)

A Solar Eclipse

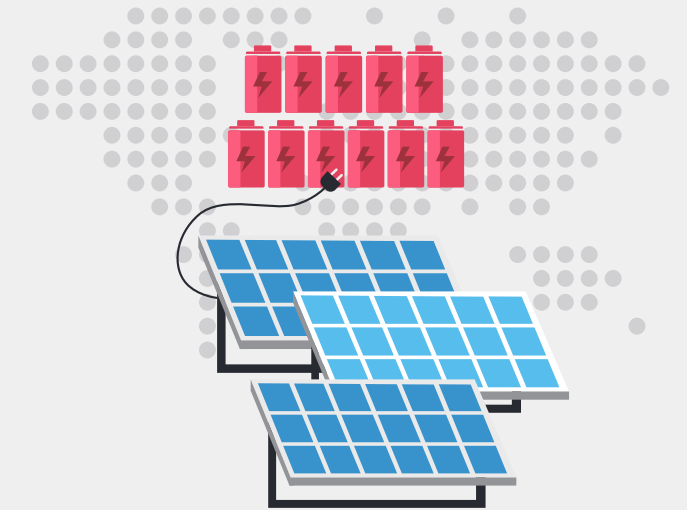
The global solar energy market is growing rapidly, driven by the increasing demand for clean and renewable energy sources, the falling costs of solar panels and batteries, and the supportive policies and incentives of many governments. The primary markets for solar energy are China, the United States, India, Japan, and Europe, but emerging markets such as Africa, Latin America, and Southeast Asia also offer significant potential for growth. As solar energy becomes more widespread and affordable, it will create new opportunities and challenges for the workforce.

- **Sunny Skies Ahead:** More money is now going into solar than all other electricity generation technologies combined. In 2024, investment in solar is set to grow to \$500 billion as falling module prices spur new investments.¹
- **Job Growth in Europe:** Solar power is growing rapidly in the European Union as countries seek to increase their energy independence. Solar industry employment in Europe is forecast to rise by 24% and reach 804,702 by the end of the year.²
- **Job Growth in North America:** The U.S. Bureau of Labor Statistics (BLS) anticipates solar photovoltaic (PV) installer jobs will grow 22% from 2022-2032. This is much higher than the 2.8% growth BLS expects for the total labor market during the same period.³



1. [IEA](#) 2. [Reuters](#) 3. [U.S. BLS](#)

**#1 SOLAR IS NOW
TOP TECHNOLOGY
FOR GLOBAL
ENERGY INVESTMENT.¹**



Workforce Implications:

- **Employers must prepare for a future where solar fully scales and a skilled workforce will be needed to maintain the rapidly growing number of solar PV installations.**
- **Scaled recruitment marketing sharing the compelling sustainability story of this industry and its impact on climate change has the potential to resonate with younger workers.**
- **Retention will be critical since the most experienced workers boost productivity and accelerate new employee training as this industry scales up.**



Winds of Change

The global wind energy industry has been growing rapidly in recent years, driven by the increasing demand for clean and renewable energy sources, government policies, and increasing economies of scale. The outlook for the wind energy industry remains positive, as more countries and regions are committed to achieving net-zero emissions and enhancing their energy security and diversity. As the industry continues to scale, so will the need for a highly skilled workforce to design, engineer, build, and maintain a growing number of turbines around the world.

- **Winding Up:** In 2023, the industry surpassed annual records for new installations of onshore wind—more than 100 gigawatts (GW)—and the second highest annual for new offshore wind (11 GW). As a result, total global wind energy recently surpassed 1 terawatt (TW). Due in large part to rapid growth in China, industry analysts expect it will exceed 2 TW by 2030.¹
- **3X by 2030:** During the COP28 summit, representatives from 200 countries set the ambitious goal of tripling global renewable energy by 2030.²
- **Confronting the Headwinds:** However, the industry still faces significant challenges including inflation, regulatory barriers, supply chain constraints, grid capacity issues, and skilled talent scarcity. In the U.S. alone, recent government forecasts predict the industry will face a shortfall of 124,000 workers by 2030.³

1. [GWEC](#) 2. [IEA](#) 3. [U.S. NREL](#)

Workforce Implications:

- **Unlike other challenging global headwinds, industry leaders can take action to address future talent shortages by partnering to train its future workforce.**
- **Streamlining strategic workforce planning can help offset the cost pressures currently faced by this important sector of the energy industry.**
- **A focus on retention and reducing employee turnover today will pay future dividends as this sector scales up and maintenance needs grow.**



THE U.S. WIND ENERGY INDUSTRY NEEDS TO FIND
124,000 MORE WORKERS BY 2030
TO KEEP UP WITH GROWING DEMAND.³

Powering Up for Growing AI Demand

The growing use of artificial intelligence (AI) is already having a significant impact on most businesses around the world in every sector. For the energy sector itself, AI offers the potential to accelerate innovation, improve efficiency, and drive greater workforce productivity. However, it also adds to the significant challenge of growing global energy consumption.



- **2X by 2026:** Data centers are significant drivers of growth in electricity demand in many regions. After globally consuming an estimated 460 terawatt-hours (TWh) in 2022, total data center electricity consumption is expected to double, reaching a total of 1,000 TWh by 2026.¹
- **It All Adds Up:** Using an AI model to generate just one image uses as much energy as fully charging a smartphone.²
- **Part of the Solution:** The growing energy needs of AI pose a big challenge for industry leaders and their net zero carbon emissions ambitions. However, they also offer a piece of the solution through more energy efficient buildings, smarter grids, and additional innovation. This offers the potential to reduce global greenhouse gas emissions 5-10% by 2030.³ Most employers (65%) are optimistic and predict AI will improve their Environmental, Social, and Governance (ESG) performance in the next two years.⁴

1. [IEA](#) 2. [MIT Technology Review](#) 3. [World Economic Forum](#) 4. [ManpowerGroup Employment Outlook Survey](#)
5. [ManpowerGroup Global Talent Shortage Study](#)

Workforce Implications:

- Operators of large data centers are exploring innovative solutions such as nuclear energy, hydrogen power or advanced battery storage. Each of these technologies will require a highly skilled and specialized workforce to install and maintain these systems.
- These data centers will also drive long-term capital investment and job growth in the traditional energy & utilities sector in the coming years.
- This future growth must overcome persistent global talent scarcity considering 71% of energy employers today say they are struggling to find the skilled talent they need.⁵



THE POWER NEEDED FOR DATA CENTERS
WILL DOUBLE BY 2026!¹

Improving Efficiency

The global energy efficiency industry is growing rapidly, driven by the need to reduce greenhouse gas emissions, lower energy costs, and enhance energy security. Some of the key drivers of this market are the adoption of smart technologies, such as smart meters, smart grids, smart buildings, and smart lighting, as well as the implementation of energy efficiency policies and standards across industries. All these technologies will require equivalent growth of a skilled workforce to build and maintain them.



- **Smarter Grids:** Grids have become a bottleneck for energy transitions, but investment is rising. After stagnating around \$300 billion per year since 2015, spending is expected to hit \$400 billion in 2024, driven by new policies and funding in Europe, the United States, China, and parts of Latin America.¹
- **Building Opportunity:** Global investment in the energy efficiency of buildings in 2022 increased by 14% from 2021 and reached \$285 billion. However, global economic uncertainty caused investment to decline in 2023 and sustainable buildings still account for less than 5% of construction investment. As energy costs increase, there is significant room for growth.²
- **Efficient Job Growth:** Global clean energy transformation is expected to create more than 10 million new jobs this decade. Energy efficiency is expected to drive the greatest share of job growth, generating 3.2 million new jobs.³

1. [IEA](#) 2. [United Nations](#) 3. [World Economic Forum](#)

SUSTAINABLE BUILDINGS
STILL ACCOUNT FOR
LESS THAN 5%
OF CONSTRUCTION INVESTMENT.



Workforce Implications:

- Compared to the large capital expenditures needed to improve the efficiency of infrastructure worldwide, labor costs are more variable. Effective strategic workforce planning can help offset high fixed costs and offer an opportunity for competitive advantage.
- The current economic uncertainty offers a unique opportunity to source and develop skilled roles related to an efficiency industry which is projected to grow for the foreseeable future.
- The continuously evolving nature of efficiency technology will require sustained upskilling and reskilling programs delivered at scale.

Building for the Future

The global green energy transition is a monumental challenge that requires unprecedented collaboration, innovation and investment. It also offers opportunities for economic growth, social development, and environmental protection. However, to realize these benefits, the energy sector needs to overcome a critical bottleneck: talent scarcity. The demand for skilled workers who can design, build, operate, and maintain the global transition will continue to grow.

- **The Challenge and Opportunity of Net Zero:** Decarbonization of just one energy-intensive sector in Europe, such as steel using hydrogen-based processes, will drive an additional demand of 800TWh in Europe by 2030, which is equal to the current electricity demand of France and Italy combined. To meet its 2030 goals, Europe alone will require €1 trillion in new investment in the next six years.¹
- **Greener and Cleaner:** Energy & Utilities is the leading global sector for green jobs recruitment. Most (81%) say they are currently recruiting or considering green jobs and skills.²
- **Necessity Meets Scarcity:** A majority (71%) of Energy & Utilities employers say they are struggling to find the skilled talent they need.³



Workforce Implications:

- Aging global populations will reduce the size of the total workforce in developed countries. This means traditional recruitment strategies that worked before 2020 will be less effective, and access to untapped sources of talent will become a differentiator.
- Upskilling and reskilling programs must be scaled to build and maintain the skilled workforce of the future.
- Employers will need to look beyond compensation to attract the next generation of talent. Gen Z (ages 18-27) workers say meaningful work, flexibility, and career advancement opportunities are more important than pay.⁴



1. [EIT InnoEnergy](#) 2. [ManpowerGroup: A People-First Green Business Transformation](#) 3. [ManpowerGroup Global Talent Shortage Study](#) 4. [McKinsey](#)

Top Workforce Opportunities in the Energy Industry



Green Momentum: There is a growing understanding among policymakers around the world regarding the urgency of shifting to cleaner and more sustainable sources of energy. As the impacts of climate change become clearer, it is likely they will continue to incentivize investment in this sector.



Demand Certainty: The global growth of data centers, vehicle electrification, and residential power use (e.g., air conditioning) will drive demand for the foreseeable future. Few industries have the same relative certainty of future demand.



The Next Generation: Younger workers say meaningful work, flexibility and career advancement are more important than pay alone. This industry has the potential to offer all three as it scales and leads the global race to reach net zero carbon emissions.



Future-Proof Work: As AI scales, so does the potential the technology will make many of today's white-collar roles obsolete. In energy and utilities, AI will be a growth driver as increasing demand for clean energy to power data centers increases demand for workers in the skilled trades.



Skills Adjacencies: A peak oil future offers a unique opportunity for clean energy businesses to recruit workers from the oil and gas industry who will bring highly relevant and transferrable technical skills.



Global Workforce Solutions for Energy and Utilities



Workforce Consulting
& Analytics



Workforce
Management



Talent
Resourcing



Career
Management



Career
Transition



Top Talent
Attraction



About Us - ManpowerGroup® (NYSE: MAN), the leading global workforce solutions company, helps organizations transform in a fast-changing world of work by sourcing, assessing, developing, and managing the talent that enables them to win. We develop innovative solutions for hundreds of thousands of organizations every year, providing them with skilled talent while finding meaningful, sustainable employment for millions of people across a wide range of industries and skills. Our expert family of brands – Manpower, Experis, and Talent Solutions – creates substantially more value for candidates and clients across more than 75 countries and territories and has done so for 75 years. We are recognized consistently for our diversity – as a best place to work for Women, Inclusion, Equality, and Disability, and in 2023 ManpowerGroup was named one of the World’s Most Ethical Companies for the 14th year – all confirming our position as the brand of choice for in-demand talent. For more information, visit manpowergroup.com.

Forward-Looking Statements - This report contains forward-looking statements, including statements regarding labor demand in certain regions, countries and industries, economic uncertainty and the use and impact of AI in the global labor market. Actual events or results may differ materially from those contained in the forward-looking statements, due to risks, uncertainties and assumptions. These factors include those found in the Company’s reports filed with the U.S. Securities and Exchange Commission (SEC), including the information under the heading “Risk Factors” in its Annual Report on Form 10-K for the year ended December 31, 2023, whose information is incorporated herein by reference. ManpowerGroup disclaims any obligation to update any forward-looking or other statements in this release, except as required by law.