Corrigendum: World Energy Employment 2024
Issued: November 2024
Link to report: https://www.iea.org/reports/world-energy-employment-2024

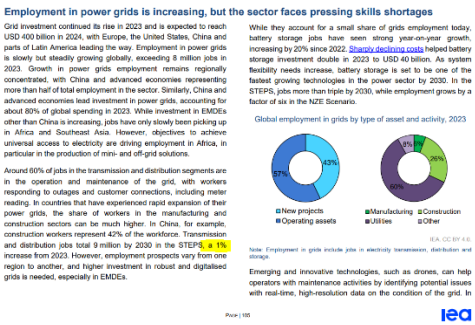
On page 5,
"Just one-quarter of clean energy job growth since 2019 has occurred in emerging and developing economies other than China, despite these regions representing two-thirds of the global workforce."
Replaced by
"Just one-quarter of clean energy job growth since 2019 has occurred in emerging and developing economies other than China, despite these regions representing **60%** of the global **labour force**."

On page 6,
"plumbers and roofers"
Replaced by
"plumbers and **electricians.**"

On page 11,
"contraction in total *energy* employment"
Replaced by*
"contraction in total employment".

much of 2023. Notable exceptions to the broader trends included India, where employment growth accelerated at a much faster pace than other countries, and the People's Republic of China (hereafter, "China"), which saw a contraction in total energy employment in both 2022 and 2023.

On page 105,
1%
Replaced by
14%



Employment in power grids is increasing, but the sector faces pressing skills shortages

Grid investment continued its rise in 2023 and is expected to reach USD 400 billion in 2024, with Europe, the United States, China and parts of Latin America leading the way. Employment in power grids is slowly but steadily growing globally, exceeding 8 million jobs in 2023. Growth in power grids employment remains regionally concentrated, with China and advanced economies representing more than half of total employment in the sector. Similarly, China and advanced economies lead investment in power grids, accounting for about 80% of global spending in 2023. While investment in EMDEs other than China is increasing, jobs have only slowly been picking up in Africa and Southeast Asia. However, objectives to achieve universal access to electricity are driving employment in Africa, in particular in the production of mini- and off-grid solutions.

Around 60% of jobs in the transmission and distribution segments are in the operation and maintenance of the grid, with workers responding to outages and customer connections, including meter reading. In countries that have experienced rapid expansion of their power grids, the share of workers in the manufacturing and construction sectors can be much higher. In China, for example, construction workers represent 42% of the workforce. Transmission and distribution jobs total 9 million by 2030 in the STEPS, a 1% increase from 2023. However, employment prospects vary from one region to another, and higher investment in robust and digitalised grids is needed, especially in EMDEs.

While they account for a small share of grids employment today, battery storage jobs have seen strong year-on-year growth, increasing by 20% since 2022. Sharply declining costs helped battery storage investment double in 2023 to USD 40 billion. As system flexibility needs increase, battery storage is set to be one of the fastest growing technologies in the power sector by 2030. In the STEPS, jobs more than triple by 2030, while employment grows by a factor of six in the NZE Scenario.

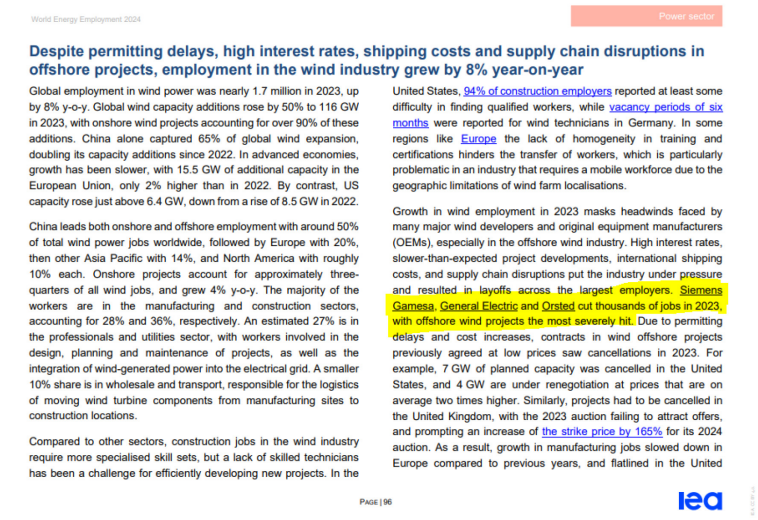
Global employment in grids by type of asset and activity, 2023

IEA. CC BY 4.0.

Note: Employment in grids include jobs in electricity transmission, distribution and storage.

Emerging and innovative technologies, such as drones, can help operators with maintenance activities by identifying potential issues with real-time, high-resolution data on the condition of the grid. In

On page 105,
Siemens Gamesa, General Electric and Orsted cut thousands of jobs in 2023, with offshore wind projects the most severely hit
Replaced by
Siemens Gamesa, General Electric and Orsted announced cutting thousands of jobs, with offshore wind projects the most severely hit



Despite permitting delays, high interest rates, shipping costs and supply chain disruptions in offshore projects, employment in the wind industry grew by 8% year-on-year

Global employment in wind power was nearly 1.7 million in 2023, up by 8% y-o-y. Global wind capacity additions rose by 50% to 116 GW in 2023, with onshore wind projects accounting for over 90% of these additions. China alone captured 65% of global wind expansion, doubling its capacity additions since 2022. In advanced economies, growth has been slower, with 15.5 GW of additional capacity in the European Union, only 2% higher than in 2022. By contrast, US capacity rose just above 6.4 GW, down from a rise of 8.5 GW in 2022.

China leads both onshore and offshore employment with around 50% of total wind power jobs worldwide, followed by Europe with 20%, then other Asia Pacific with 14%, and North America with roughly 10% each. Onshore projects account for approximately three-quarters of all wind jobs, and grew 4% y-o-y. The majority of the workers are in the manufacturing and construction sectors, accounting for 28% and 36%, respectively. An estimated 27% is in the professionals and utilities sector, with workers involved in the design, planning and maintenance of projects, as well as the integration of wind-generated power into the electrical grid. A smaller 10% share is in wholesale and transport, responsible for the logistics of moving wind turbine components from manufacturing sites to construction locations.

Compared to other sectors, construction jobs in the wind industry require more specialised skill sets, but a lack of skilled technicians has been a challenge for efficiently developing new projects. In the United States, 94% of construction employers reported at least some difficulty in finding qualified workers, while vacancy periods of six months were reported for wind technicians in Germany. In some regions like Europe the lack of homogeneity in training and certifications hinders the transfer of workers, which is particularly problematic in an industry that requires a mobile workforce due to the geographic limitations of wind farm localisations.

Growth in wind employment in 2023 masks headwinds faced by many major wind developers and original equipment manufacturers (OEMs), especially in the offshore wind industry. High interest rates, slower-than-expected project developments, international shipping costs, and supply chain disruptions put the industry under pressure and resulted in layoffs across the largest employers. Siemens Gamesa, General Electric and Orsted cut thousands of jobs in 2023, with offshore wind projects the most severely hit. Due to permitting delays and cost increases, contracts in wind offshore projects previously agreed at low prices saw cancellations in 2023. For example, 7 GW of planned capacity was cancelled in the United States, and 4 GW are under renegotiation at prices that are on average two times higher. Similarly, projects had to be cancelled in the United Kingdom, with the 2023 auction failing to attract offers, and prompting an increase of the strike price by 165% for its 2024 auction. As a result, growth in manufacturing jobs slowed down in Europe compared to previous years, and flatlined in the United

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