IRENA
International Renewable Energy Agency

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ABOUT IRENA

The International Renewable Energy Agency (IRENA) is an intergovernmental organisation that supports countries in their transition to a sustainable energy future and serves as the principal platform for international co-operation, a centre of excellence, and a repository of policy, technology, resource and financial knowledge on renewable energy. IRENA promotes the widespread adoption and sustainable use of all forms of renewable energy, including bioenergy, geothermal, hydropower, ocean, solar and wind energy, in the pursuit of sustainable development, energy access, energy security and low-carbon economic growth and prosperity.

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MESSAGE FROM THE IRENA DIRECTOR-GENERAL

Francesco La Camera

Director-General

International Renewable Energy Agency

As the world grapples with the coronavirus (COVID-19) pandemic, the close connections between the natural environment, our economies and human well-being have taken centre stage. A clean, reliable energy supply and durable, healthy, low-carbon job creation are essential components to the transformative decarbonisation of our societies.

Renewable energy, now predominant in new electric power capacity, has proven especially flexible, cost-effective, and resilient in the face of the 2020 health and economic crisis. Even better, renewables create numerous and diverse jobs. Last year, jobs in the sector worldwide reached an estimated 11.5 million, continuing a long-term growth trend.

If countries now focus on supercharging the energy transition, many more such benefits are attainable. The post-COVID agenda put forward by the International Renewable Energy Agency (IRENA) would create some 5.5 million transition-related jobs over the next three years, bring renewables jobs to nearly 30 million globally by 2030 and pave the way for longer-term resilience, development and equality.

Already, renewable energy employment reflects the emergence of innovative technologies. Solar photovoltaics (PV) – a segment that looked almost avant-garde just a decade ago – accounts today for some 3.8 million jobs, or nearly a third of the sector total. Growing shares of those jobs are off-grid, supporting productive use in farming, food processing and healthcare in previously remote, isolated, energy-poor communities. In parallel, rural areas benefit from the feedstock production that underpins bioenergy and which accounts for the bulk of about 3.6 million jobs in that segment.

Wind power now employs 1.2 million people, over one fifth of them women. Sector-wide, renewables show a better gender balance (32% women) than fossil fuels (22%), although much remains to be done to even the playing field for women and tap into their talents and ideas.

The transition to carbon neutrality by mid-century calls for an expanded skills base, requiring more vocational training, stronger curricula, dedicated teacher training and enhanced technology use for remote learning focused on forward-looking energy systems. An ambitious package of policies and investments centred on renewables can create new jobs, leverage existing domestic industries, soften the blow of today's economic turbulence and where needed open new opportunities for workers losing jobs in conventional energy. Building up local value chains will widen the benefits further.

More broadly, governments must continue to build strong policy frameworks to enhance the positive impact of the whole energy transition technology mix.

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KEY NUMBERS

11.5 million renewable energy jobs in 2019

38% in China

3.8 million in the solar PV industry

KEY FACTS

Annual Review 2020

- Employment in renewable energy worldwide was estimated at 11.5 million in 2019, up from 11 million in 2018. Women hold 32% of these jobs.
- Most jobs have been created in a small number of countries, but employment benefits are showing up more widely, especially through the deployment of solar photovoltaic (PV) technologies. Asia accounted for 63% of total jobs in renewables globally.
- Although precise estimates remain scarce, off-grid decentralised renewables are creating a growing number of jobs, while also propelling employment in productive uses ranging from agro-processing and health care to communications and commerce in local communities.
- The solar PV industry retains the top spot, with 33% of the total renewable energy workforce. In 2019, 87% of global PV employment was concentrated in the ten countries that lead in worldwide deployment and in the production of equipment.
- Driven by output growth of 2% for ethanol and 13% for biodiesel in 2019, biofuels jobs worldwide expanded to 2.5 million. Production expanded robustly in Brazil, Colombia, Malaysia, the Philippines and Thailand all of which have labour-intensive supply chains, whereas output in the United States and the European Union fell.
- Employment in wind power supports 1.2 million jobs, 21% of which are held by women. Onshore projects continue to predominate, but the number of countries with offshore farms now stands at 18, up from 10 a decade ago. Supply chains are expanding.
- Hydropower has the largest installed capacity of all renewables, but its growth is slowing. The sector employs close to 2 million people directly, many in operations and maintenance.
- Building the skills base necessary to support the ongoing global energy transition from fossil fuels to renewables requires more vocational training, stronger curricula, more teacher training and expanded use of information and communications technology for remote learning.
- The COVID-19 pandemic reinforced the importance of strong policy frameworks for renewables to achieve social, economic and environmental objectives.