PRESS RELEASE - STRICTLY EMBARGOED UNTIL 00:01 LONDON 12 APRIL 2023

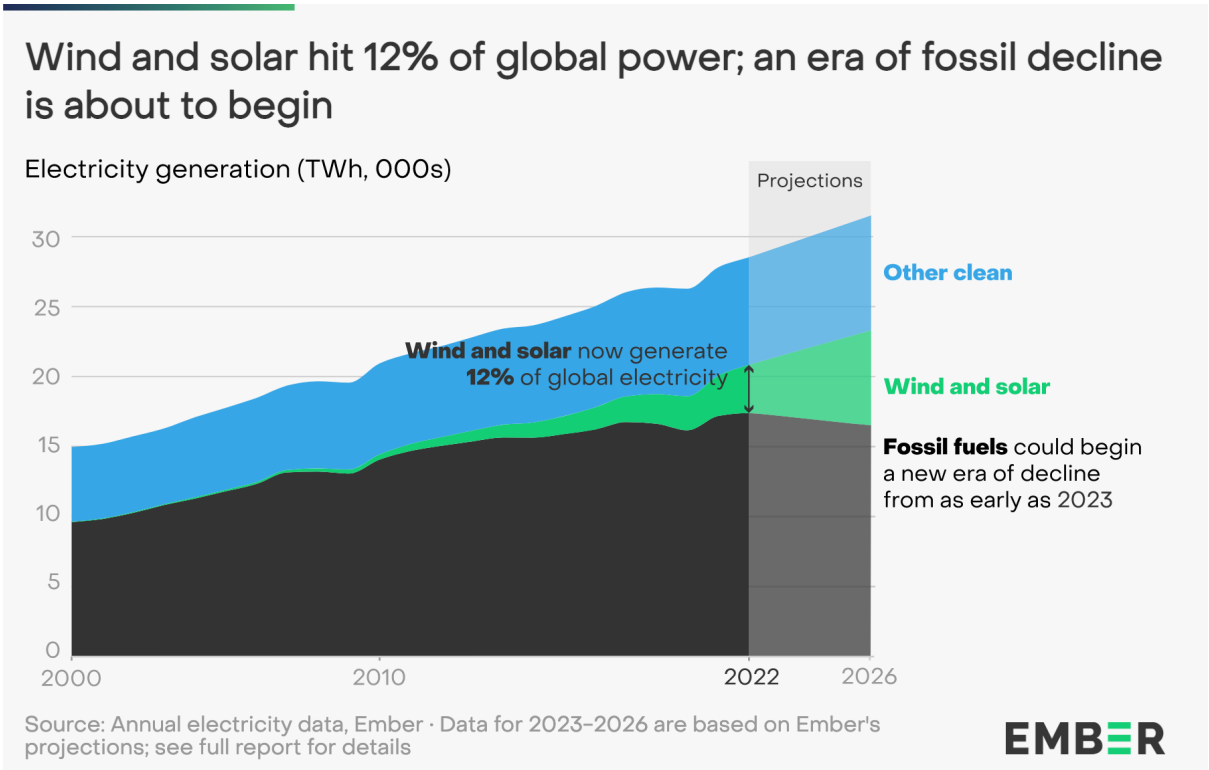
Wind and solar reach a record 12% of global electricity in 2022

Experts forecast that power sector emissions have peaked

[London, April 12th] Wind and solar reached a record 12% of global electricity in 2022, up from 10% in 2021, according to a major report launched today by energy think tank Ember. The report forecasts that from 2023 wind and solar will push the world into a new era of falling fossil generation, and therefore falling power sector emissions.

"In this decisive decade for the climate, it is the **beginning of the end of the fossil age**," said the lead author, Małgorzata Wiatros-Motyka. "We are entering the clean power era."

The fourth annual Global Electricity Review from energy think tank Ember presents electricity data from 2022 across 78 countries, representing 93% of global electricity demand. The open data and in-depth analysis provide the first accurate picture of the global electricity transition in 2022.



Solar was the fastest-growing source of electricity for the eighteenth year in a row, rising by 24% year-on-year and adding enough electricity to power all of South Africa. Wind generation increased by 17% in 2022, enough to power almost all of the UK.

The data reveals that over sixty countries now generate more than 10% of their electricity from wind and solar. Together all clean electricity sources (renewables and nuclear) reached 39% of global electricity, a new record high. Despite this progress, coal power remained the single largest source of electricity worldwide, producing 36% of global electricity in 2022.

The growth in wind and solar generation in 2022 met an impressive 80% of the rise in global electricity demand. In spite of the global gas crisis and fears of a return to coal, it was that rise in wind and solar that limited the increase in coal generation (+1.1%). Gas power generation fell very slightly (-0.2%) in 2022. Overall, that still meant that power sector emissions increased by 1.3% in 2022, reaching an all-time high.

However, the report forecasts that last year may be the 'peak' of electricity emissions and the final year of fossil power growth, with clean power meeting all demand growth this year. As a result, there would be a small fall in fossil generation (-0.3%) in 2023, with larger falls in subsequent years as wind and solar deployment accelerates.

According to modelling by the International Energy Agency, the electricity sector needs to move from being the highest emitting sector to being the first sector to reach net zero by 2040 in order to achieve economy-wide net zero by 2050. This would mean wind and solar reaching 41% of global electricity by 2030, compared to 12% in 2022.

Ember's senior electricity analyst, Małgorzata Wiatros-Motyka, continued:

> "The stage is set for wind and solar to achieve a meteoric rise to the top. Clean electricity will reshape the global economy, from transport to industry and beyond. A new era of falling fossil emissions means the coal power phasedown will happen, and the end of gas power growth is now within sight. Change is coming fast. However, it all depends on the actions taken now by governments, businesses and citizens to put the world on a pathway to clean power by 2040."

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Notes to editor

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Media Pack - press release, report, graphics

The report will be published online on 12th April at:
https://ember-climate.org/insights/research/global-electricity-review-2023

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About Ember
Ember is an independent, not-for-profit energy think tank that aims to shift the world to clean electricity using data. It gathers, curates and analyses data on the global power sector and its impact on the climate. It uses data-driven insights to shift the conversation towards high impact policies and empower other advocates to do the same. ember-climate.org

Key data table of global electricity generation in 2022 vs 2021
For the full dataset, including country-level and historic data, please see the Media Pack

	2022	2021	Year-on-year change
	Share in the electricity mix, % (Generation, terawatt hours)		Change in generation, terawatt hours (as a percentage)
Solar	4.5% (1,284 TWh)	3.7% (1,039 TWh)	+245 TWh (+24%)
Wind	7.6% (2,160 TWh)	6.6% (1,848 TWh)	+312 TWh (+17%)
Hydro	15% (4,311 TWh)	15% (4,238 TWh)	+73 TWh (+1.7%)
Coal	36% (10,186 TWh)	36% (10,078 TWh)	+108 TWh (+1.1%)
Gas	22% (6,336 TWh)	23% (6,348 TWh)	-12 TWh (-0.2%)
Nuclear	9.2% (2,611 TWh)	9.9% (2,739 TWh)	-129 TWh (-4.7%)
Bioenergy	2.4% (672 TWh)	2.4% (666 TWh)	+5.5 TWh (+0.8%)
Electricity demand	28,510 TWh	27,816 TWh	+694 TWh (+2.5%)

Supportive quotes

Damilola Ogunbiyi, CEO and Special Representative of the UN Secretary-General for Sustainable Energy for All, and Co-Chair of **UN-Energy**, said:

“Global progress, while encouraging, doesn't reveal the growing disparity in renewable energy adoption which is tipped disproportionately in favour of developed countries and emerging economies in Asia; much more needs to be done to ensure that developing countries are not left behind and locked into high carbon futures. Furthermore, coal power remained the single largest source of electricity worldwide, producing 36% of global electricity in 2022, which means that the power sector remains off-track in meeting net zero targets globally by mid-century, the deployment of wind and solar needs to be massively and urgently accelerated."

Dr Ajay Mathur, Director General, **International Solar Alliance:**

“The cumulative global solar PV capacity has reached ~942 GW in the last decade, while the global wind capacity reached ~853 GW. Countries like China, the USA, India, and Japan have made some of the largest contributions to the global solar PV capacity. In the last decade, cost for solar and wind has declined drastically (82% and 34% respectively), however, cost for coal fired energy remained similar while cost of nuclear fired energy increased by 61%. While the global RE share is increasing but to achieve net zero by 2030, the RE generation must cater at least 60 % of total generation from renewables.”

“The way forward lies in pacing up renewable energy and making renewable energy technology a global public good. Robust policies on easing finance and improving global access to components and raw materials coupled with geographical diversification of supply chain will address some of the challenges. In addition, continuous capacity building, shifting energy subsidies from fossil fuels to renewable energy, and solar mini-grids would make for faster movement towards universal energy access.”

Kingsmill Bond, CFA, Energy Strategist, **RMI** (Rocky Mountain Institute), said:

“Ember’s analysis captures a key tipping point in the global electricity system. The rapid growth of solar and wind, led by China, means that fossil fuel demand has reached a peak and all the future growth will be from renewables. It is time for investors to adjust their capital allocation for this new environment.”

Landscape Indonesia’s Chief Executive Officer, **Agus Sari,** said:

“Fossil electricity system is currently addressing its enormous stranded asset risks. Clean energy is cheaper and much less volatile. Facing the climate crisis today, energy transition is inevitable. Those who fail to engage will be left behind.”

Li Shuo, Senior Policy Advisor, **Greenpeace East Asia**, said:

“China is the 800 pound gorilla when it comes to the global power sector. This is not only because of China's sheer scale, but also a concerning trend of its electricity sector development. China has no doubt been leading global renewable energy expansion. But at the same time, the country is accelerating coal project approval. An offset dynamic between renewables and fossil fuel seen elsewhere in the world is becoming a mutually reinforcing relationship in China. This won't carry the country far to truly decarbonize. Rapid power sector reforms are needed to put the country back to the carbon neutrality vision it has set for itself.”

In the foreword to the report, **Chile’s energy minister**, **Diego Pardow** said:

“In recent years, Chile has made important progress with respect to its transition. The latest achievements have positioned Chile as the best emerging country to invest in renewable energies, added to the high penetration of clean energies in our system, with last year's milestone standing out that, for the first time, solar and wind overtook coal in electricity generation.”

“In that respect, 2023 seems promising at a global level, especially thanks to the prediction of this report, which indicates that emissions from the electricity sector could begin to decrease as of this year. But we still have a long journey to travel, with many challenges ahead and with a clear objective: we must act quickly, always putting people at the centre. There are no more excuses.”