

Renewable electricity by the numbers gets thumbs-up in new study

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(Tech Xplore)—Conclusions that we can reach a stage where renewable electricity runs the world may not sit easily with skeptics but a study contends that it is feasible by 2050.

Climate News Network said the researchers believe 100% renewable electricity is attainable by mid-century, or even earlier.

The study is titled "Global Energy System based on 100% Renewable Energy – Power Sector" The study was carried out by Finland's Lappeenranta University of Technology (LUT) and the Energy Watch Group (EWG).

The Energy Watch Group (EWG) is described as "an independent, non-profit global network of [scientists](#) and parliamentarians."

The study was presented earlier this month during a [renewable energy](#) showcase event on the sidelines of the United Nations Climate Change Conference COP23 in Bonn.

The authors spelled out the extent to which they say this is feasible: A global electricity system fully based on renewable [energy](#) is feasible at every hour throughout the year. It is said to be more cost effective than the existing system, largely based on fossil fuels and nuclear energy.

"There is no reason to invest one more dollar in fossil or nuclear power production," said EWG president Hans-Josef Fell."

The study pointed out benefits accompanying such a transition to renewables—bringing greenhouse gas emissions in the electricity sector down to zero and reducing total losses in power generation. It would create 36 million jobs by 2050, 17 million more than the sector has today.

Total levelized cost of electricity (LCOE) on a global average for 100% [renewable electricity](#) in 2050 is given as €52/MWh (including curtailment, storage and some grid costs), compared to €70/MWh in 2015.

Their model, said Alex Kirby in *Climate News Network*, "simulates the most efficient energy supply with an optimal mix of technologies and locally available renewable [resources](#)."

What about wind farms? Other power sources? The authors said solar will make up 69 per cent of the energy mix by 2050. (Wind energy increases to 32% by 2030. Beyond 2030 solar PV becomes more competitive.)

In sum, the transition would be driven by solar PV and battery storage, with solar PV accounting for 69% of the total 2050 energy mix followed by wind with 18%, hydropower with 8%, and bioenergy with 2%, according to the study.

As for batteries, they were said to be the key supporting technology for solar PV. "The storage [output](#) covers 31% of the total demand in 2050, 95% of which is covered by batteries alone."

Kirby quoted Christian Breyer, lead author of the study and professor of solar economy at LUT. "A full decarbonisation of the [electricity](#) system by 2050 is possible for lower system cost than today, based on available technology. Energy transition is no longer a question of technical feasibility or economic viability, but of political will," Breyer said.

More information: [energywatchgroup.org/wp-content ... dings-compressed.pdf](https://energywatchgroup.org/wp-content/uploads/2017/11/dings-compressed.pdf)

[energywatchgroup.org/wp-content ... ide-Power-Sector.pdf](https://energywatchgroup.org/wp-content/uploads/2017/11/ide-Power-Sector.pdf)

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