

Renewable Energy Costs Take Another Tumble, Making Fossil Fuels Look More Expensive Than Ever

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The cost of renewable energy has tumbled even further over the past year, to the point where almost every source of green energy can now compete on cost with oil, coal and gas-fired power plants, according to new data released today.

Hydroelectric power is the cheapest source of renewable energy, at an average of \$0.05 per kilowatt hour (kWh), but the average cost of developing new power plants based on onshore wind, solar photovoltaic (PV), biomass or geothermal energy is now usually below

\$0.10/kWh. Not far behind that is onshore wind, which costs close to \$0.12/kWh.

These figures are global averages and it is worth noting that the cost of individual projects can vary hugely – the cost of producing electricity from a biomass energy plant, for example, can range from as low as \$0.05/kWh to a high of almost \$0.25/kWh.

However, all these fuel types are now able to compete with the cost of developing new power plants based on fossil fuels such as oil and gas, which typically range from \$0.05/kWh to over \$0.15/kWh.



Sunlight falls on a field of solar photovoltaic panels (photo: IRENA) IRENA

These figures are contained in the latest *Renewable Power Generation Costs* report, released today by the Abu Dhabi-based International Renewable Energy Agency

(IRENA), an inter-governmental body with around 160 members.

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The most attractive renewable energy sources, from a cost perspective, are onshore wind and solar PV. IRENA says onshore wind costs of \$0.03-0.04/kWh are now possible in places with good natural resources and the right regulatory and institutional frameworks.

It also points out that new solar PV projects in countries such as Chile, Mexico, Peru, Saudi Arabia and the UAE have seen a levelized cost of electricity of as low as \$0.03/kWh – helped by the fact that governments have been holding competitive bidding processes when launching contracts to develop new power plants.

All this suggests IRENA was on the right track when it predicted [early last year](#) that renewable energy should be consistently cheaper than traditional fossil fuels by 2020.

Even the most expensive renewable energy technology, concentrated solar power (CSP), is competitive against fossil fuels in some circumstances. The cost of developing a CSP plant ranges from around \$0.10/kWh to \$0.27/kWh, with an average price of around \$0.18/kWh.

The ability of renewable energy to compete effectively against the older fossil fuel technologies is coming as a result of consistent falls in the cost of new plants. Last year alone, the global weighted-average cost of electricity from bioenergy fell by 14%, while solar PV and onshore wind costs dropped by 13% and

hydropower fell by 11%. The sharpest fall came in the cost of CSP plants, which dropped by 26%. The cost of geothermal and offshore wind appeared to plateau though, with costs edging down by just 1%.

IRENA says these trends are likely to continue over the next decade, particularly for solar and wind power technologies. According to the organisation's database, over 75% of the onshore wind and 80% of the solar PV capacity due to be commissioned next year will produce power at lower prices than the cheapest new coal, oil or natural gas options. “Crucially, they are set to do so without financial assistance,” it noted.

Francesco La Camera, director general of IRENA, has suggested the falling cost of renewable energy means it now ought to play a central role in the wider efforts to tackle climate change.

"Renewable power is the backbone of any development that aims to be sustainable", he said, in a statement issued to announce the publication of the new report. "We must do everything we can to accelerate renewables if we are to meet the climate objectives of the [Paris Agreement](#)."

There are also geopolitical implications for the growing popularity of renewable energy, with China likely to take a [leading role](#) in this area, potentially at the expense of traditional oil and gas producers such as the [Middle East states](#).

Dominic Dudley is a freelance journalist with almost two decades' experience in reporting on business, economic and political stories in the Middle East, Africa, Asia and Europe.