

# CHART OF THE WEEK

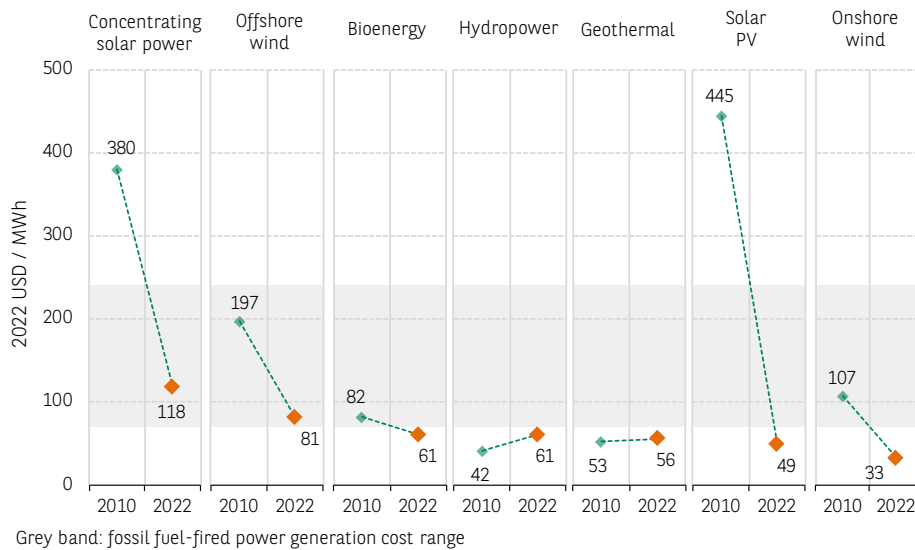
CHART OF THE WEEK

3 April 2024

## GREEN ENERGIES INCREASINGLY COMPETITIVE

Jean-Luc Proutat

### Average electricity cost by technology



Source: IRENA, BNP Paribas

Intermittent, cumbersome and... expensive: while the criticisms levelled at renewable energies are still numerous, they are increasingly unfounded. In the face of the climate emergency, the technological shift is such that what was hardly conceivable - meeting the world's energy needs almost entirely without fossil fuels within a generation or two - enters the field of possibilities.

Reputedly difficult to pilot, green electricity is becoming increasingly flexible, thanks to smart grids, real-time flow measurement, the use of very high voltage direct current, and battery storage. If it cannot be eliminated, the footprint of solar panels and wind turbines can be contained by improving productivity or deploying complementary solutions, such as offshore wind or solar thermal power plants.

As for the cost of renewable energies, it is falling: -70% in real terms for onshore wind and even -90% for photovoltaics over the last ten years. At USD 33 and USD 49 respectively per megawatt-hour of electricity supplied (levelized cost<sup>1</sup>), these two technologies are not only less polluting but also more competitive than most of fossil fuel-based solutions (see graph). Beyond technical progress, the leap in competitiveness of green energies reflects a very rapid learning effect, that is unrivalled to date<sup>2</sup>

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<sup>1</sup> The Levelized Cost of Energy (LCOE) is the discounted sum of the costs of producing energy (fixed capital investment, intermediate consumption, maintenance, etc.) divided by the quantities of energy supplied over the equipment lifetime (generally expressed in kilowatt-hours or megawatt-hours of electricity). Estimates are for the year 2022 and are provided by the International Renewable Energy Agency. Cf. (IRENA, 2023), *Renewable power generation costs in 2022*, August.  
<sup>2</sup> *Ibid.*, pp 56-57.

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Published by BNP PARIBAS Economic Research

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Internet: [group.bnpparibas](http://group.bnpparibas) - [www.economic-research.bnpparibas.com](http://www.economic-research.bnpparibas.com)

Head of publication : Jean Lemierre / Chief editor: William De Vijlder



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