

The Triumph of Renewable Energies— Nuclear Power is Turning into a Footnote in The Market

Across the globe, energy companies, industry leaders, and investors are putting in orders for solar systems, wind power stations and other technologies using renewable energy sources. Net additions of nuclear power plants are nearing zero.

“The debate is over”, Dave Freeman wrote in 2017. “Nuclear power has been eclipsed by the sun and the wind.”¹ The New York Times awarded the ex-manager and author, who passed away at the age of 94 in 2020, the honorary title “energy prophet”. He had seen the sun rise and set on nuclear power. US President Jimmy Carter appointed Freeman as head of the energy utility Tennessee Valley Authority (TVA) in 1977. Two nuclear power stations had been under construction in this state since 1972. The first unit was connected to the grid in 1996, 24 years after construction had begun, the second in 2016, 44 years after construction start. To date, they were the last new nuclear reactors to come online in the US. Six reactors have been decommissioned in the past five years; at least three more will be closed in 2021. Two units are still under construction.

Meanwhile, around 14.5 gigawatts² of wind energy and over 10 gigawatts of solar capacity were fed into the US grid in 2020 alone – despite Ex-President Donald Trump advocating coal. According to REN21, 256 GW of new-renewable energy capacity (excluding hydro) were installed in the world in 2020, an all-time high exceeding the previous record by nearly 30 percent.³ In the same year, the global nuclear industry had to decommission six

¹ S. David Freeman, “Foreword”, in Mycle Schneider et al., “World Nuclear Industry Status Report 2017”, September 2017, see <https://www.worldnuclearreport.org/The-World-Nuclear-Industry-Status-Report-2017-HTML.html#link0>.

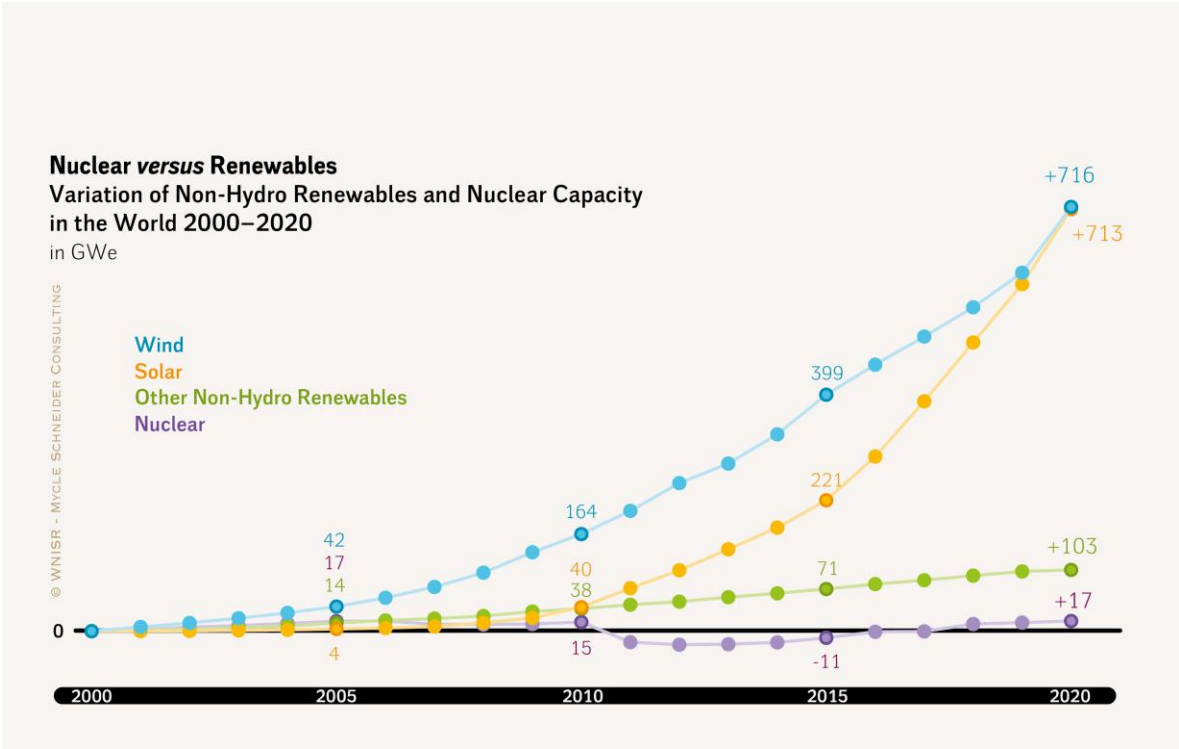
² One gigawatt corresponds to 1,000 MW or one million kilowatts.

³ REN21, “Renewables 2021 Global Status Report”, 14 June 2021, see <http://www.unep.org/resources/report/renewables-2021-global-status-report>, accessed 18 June 2021.

of its outdated, uneconomic nuclear reactors, while five new ones were connected to the grid. Yet, as the new facilities are generally more powerful than their predecessors, this brought about a microscopic net capacity gain of 0.4 gigawatts. The final score in the comparison of energy technologies reads: 0.4 to 256 gigawatts. Nuclear power has become irrelevant in the electricity industry’s global newbuild market.

China is the only country that invested heavily in nuclear power since the turn of the millennium. Over the past decade, 37 of the world’s 63 new reactors were connected to the grid in China. But even in that country nuclear energy has become a niche product. In 2020, a cumulative 150 gigawatts of solar and wind power capacities were installed, whereas only two reactors with a capacity totalling 2 gigawatts were put into operation. Nuclear power has become an economic side note.

Figure 1: Renewables Are Booming – Nuclear Power Has Been Stagnating for Two Decades



Source: IRENA, 2021

Renewables’ share in the world’s newly built power generation capacity increased from approx. 20 percent in 2001 to over 70 percent in 2019. The International Energy Agency forecasts a 90 percent share for 2021 and 2022.

Electricity generated by wind and solar systems in the EU increased by 10 percent in 2020 alone, whereas power generation from nuclear power plants declined by 10 percent. For the first time ever, the EU saw “new renewables” (excluding hydropower) generating more electricity than nuclear plants and more than the fossil fuels coal and natural gas combined.⁴

“These renewable, free-fuel sources”, Dave Freeman wrote in 2017, “are no longer a dream or a projection—they are a reality that are replacing nuclear as the preferred choice for new power plants worldwide”. Four years later, nuclear power has simply become irrelevant.

⁴ European Commission, “Quarterly Report on European Electricity Markets”, DG Energy, Vol. 13, 2021.