

# Not yet ready for the scrap heap, even after 20 years

In a few years, the first wind turbines will no longer be eligible for EEG subsidies. In view of the electricity exchange prices, continued operation is not worthwhile for many operators. However, this could change in the future. In addition, companies that are taking over old turbines have stepped onto the scene.

At the beginning of 2021, subsidies under the Renewable Energy Sources Act (EEG) will end for the first wind turbines. Then the fixed feed-in tariff will no longer be applicable. Between 2021 and 2025, around 16,000 megawatts (MW) of installed capacity will be affected, which will then be without a functioning business model. Even though they will soon reach the limit of their originally planned service life, the turbines could still reliably produce clean electricity.

Under the current framework conditions, however, their continued operation is usually not worthwhile. Without EEG subsidies, operators can primarily sell their electricity on the electricity exchange. However, the low price there makes them lose out in terms of profitability. According to calculations by Agora Energiewende, a think tank supporting the energy transition in Germany, the price averaged 4.4 cents per kilowatt hour (kWh) in 2018.

But there is hope: experts expect the situation on the electricity exchange to improve due to the closure of fossil power plants and a higher CO<sub>2</sub> price. According to a study by the consulting firm Enervis Energy Advisors, the price of electricity will continue to rise in the future. The analysts base their assumption on the World Energy Outlook published by the International Energy Agency.

## **Small turbines with little chance of success**

In order for continued operation to make economic sense, the revenues from the electricity generated must not only cover operating costs such as service and maintenance, but must also refinance all costs of continued operation such as expert opinions and permits. Studies have shown that operating costs amount to 2.64–5.00 cents per kilowatt hour produced, depending on the type of turbine and the quality of the location. As a general rule, the larger the wind turbine and the more power it has, the greater its chances of continued operation. However, industry representatives assume that even with operating costs of 4 cents, 50–60 percent of the turbines cannot be operated economically. These are relatively small machines with high basic costs and high costs per kilowatt hour generated.



In operation for 20 years: Enercon E-66 at the motorway junction Bayreuth/Kulmbach. Photo: Jan Oelker

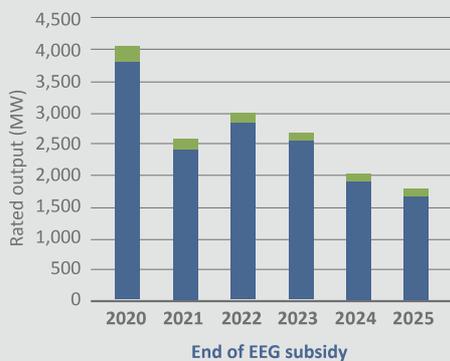
Dewind D8 type wind turbines have been in operation since 2002. Photo: Jan Oelker



The good news is that almost all old turbines can be safely operated going forward. Whether this is worth it, however, does not only depend on the price of electricity. The maintenance and operating concept is also important. All prices for spare parts, service, maintenance, leases or insurance must be carefully checked, adjusted or renegotiated. The point is to keep the turbine running as inexpensively as possible. Expensive maintenance contracts or full maintenance are no longer economically viable. Turbine manufacturers and service companies have also responded to this and developed corresponding service offers.

CONTINUED OPERATION

**Rated output of old turbines after the end of EEG subsidies**



The green area shows plants that were still present at the time of analysis but may be decommissioned before they drop out of EEG remuneration.

Source: Deutsche Windguard

The issue of continued operation is particularly difficult for small operators. They usually do not have the financial means to continue operations with initially meagre proceeds and technical risk, or they shy away from the organisational effort. If their turbines are nevertheless to remain on the grid, they can also sell them for continued operation. In 2018, companies such as Hanse Windkraft and Windplus came onto the scene to take over specific wind farms or individual turbines from existing operators. This means that old and paid turbines can continue to generate clean electricity reliably even after 2021 – and that is also good news for the energy transition.