

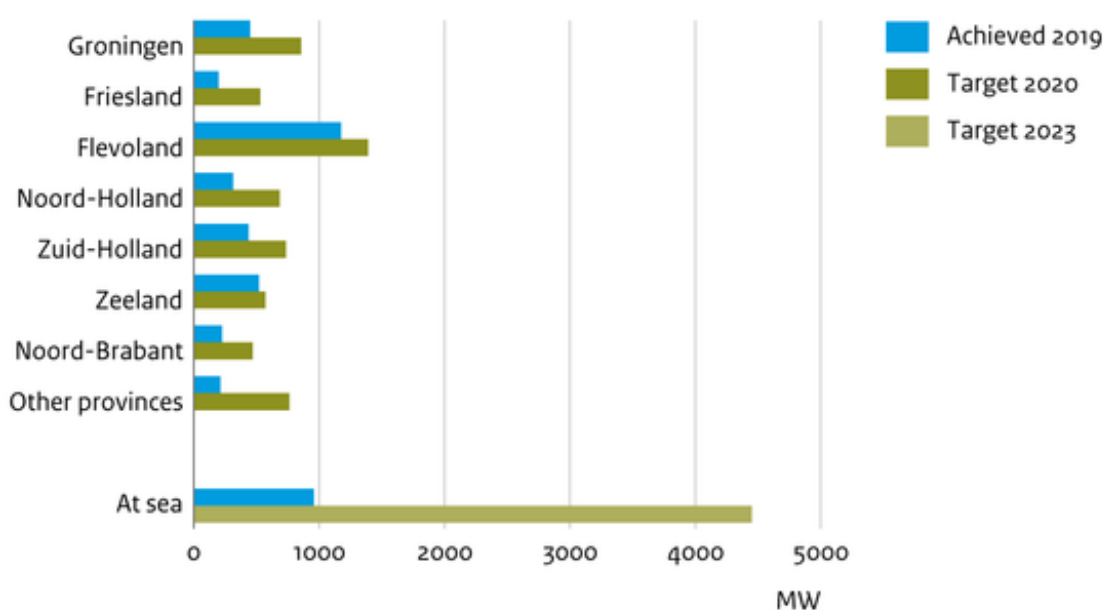
Wind energy capacity, 1990-2019

Indicator | 8 September 2020

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In 2019 Dutch wind energy capacity (4,5 thousand megawatts) increased by 2% compared to 2018.

Wind capacity on land by province and at sea



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Wind capacity increased in 2019

Total wind capacity increased from 4.4 thousand megawatts in 2018 to 4.5 thousand megawatts in 2019. This increase is entirely achieved by new wind turbines on land. The wind capacity at sea (957 megawatts) remains unchanged since 2016.

Subsidies crucial for new wind turbines

Electricity production from wind energy is still more expensive than from natural gas, coal or nuclear energy. Subsidies for wind energy are therefore crucial to investors in wind turbines. Wind turbine owners received 637 million euros in subsidies for electricity production in 2019.

Most wind turbines in Flevoland

Looking at the distribution of wind turbines on land, it is clear that most are located in the coastal provinces. This is not surprising, given the fact that the wind blows more frequently in coastal areas. However, the wind resource is not the only factor to be taken into consideration in the positioning of wind turbines. Ideas about the way in which they fit into the surrounding landscape also play an important part and this explains why, despite the fact that it is not the most suitable province in terms of wind resource, most wind turbines are found in the province of Flevoland.

Plans for onshore wind turbines

The Dutch government has projected an overall onshore wind capacity of 6,000 megawatts for 2020, including existing wind turbines. In June 2013, an agreement was reached about the distribution of the 6,000 MW across the Dutch provinces. Permits are granted at the provincial level. The national government is responsible for subsidies.

Offshore wind farms

The first offshore wind farm became operational in 2006. The second followed in 2008. In 2015 a third offshore wind farm has becoming operational (Luchterduinen with a capacity of 129 MW). Together, these three wind farms account for about 15 percent of the total wind capacity. North of the West-Frisian islands of Schiermonnikoog and Ameland, the construction of two more wind farms (Gemini, with an overall capacity of 600 megawatts) were realised in 2016.

Offshore wind turbines produce more electricity per unit capacity than onshore wind turbines. However, offshore wind turbines are much more expensive. All in all, therefore, electricity generated from offshore wind turbines is more expensive than that from onshore wind turbines (Lensink, 2013). However, a tender for the new wind farms at sea near Borssele shows that expenses for offshore wind turbines have declined.

Plans for offshore wind farms

The Dutch Energy Agreement (SER, 2013) includes an ambitious objective with respect to offshore wind farms of a planned total of 4,450 megawatts in 2023. This means that an extra subsidy to fund offshore wind farms with an overall capacity of 3,450 megawatts of wind capacity has to be granted. Because of the high, expected subsidy costs, the Energy Agreement pays a great deal of attention to a fall in costs for offshore wind, which should be achieved through innovations and productivity gains when constructing the parks. However, these higher costs are less and less an impediment for companies to enter into projects. In March 2018 Nuon won a tender to build wind farms without subsidy in the wind energy area "Hollandse kust" (RVO, 2018). This was repeated by Vattenfall in July 2019. This company won a tender for wind farms without subsidy in the same wind energy area. With the so-called [Noordzeeloket](#) [5] the national government provides an overview of the (expected) development of wind farms at sea.

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CBS, PBL, RIVM, WUR (2020). [Wind energy capacity, 1990-2019](#) [13] (indicator 0386, version 28 , 8 September 2020). www.environmentaldata.nl. Statistics Netherlands (CBS), The Hague; PBL Netherlands Environmental Assessment Agency, The Hague; RIVM National Institute for Public Health and the Environment, Bilthoven; and Wageningen University and Research, Wageningen.

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