

Netherlands energy storage for renewable energy

The energy mix in the Netherlands consists of crude oil, natural gas, coal, renewable energy and other types of energy such as nuclear and energy from waste. The Netherlands has substantial natural gas reserves, but the government decided in 2018 to phase out the extraction of natural gas (mainly because of earthquake concerns).

Pursuant to the European Green Deal and the European Climate Law, each EU member state must use 100% renewable energy and thus become climate neutral by (ultimately) 2050. By 2030, the Netherlands aims for a CO? reduction of 36%, and a 27% share of renewable energy in its energy mix, but the latter may be raised to 32-42%. Furthermore, the Dutch government initiated the Climate Agreement in 2019. This national agreement aligns governments and commercial partners to speed up the transition to a sustainable society.

Because of (societal) issues with renewable energy on land, including "not in my backyard" (NIMBY) sentiments, offshore wind is the main focus of the Dutch government. The market is up and running, and offshore wind energy has proven to be relatively reliable in terms of supply. The Dutch government aims for 50 GW installed capacity in 2040 and 70 GW by 2050.

In terms of renewable energy technologies, the Netherlands is currently mostly relying on biomass (including biogas/green gas and bioLNG), wind and solar PV. The largest renewable sources in 2023 were: biomass 5,58% (106.002 TJ), wind energy 5,31% (96.147 TJ) and solar energy 4,04% (43.149 TJ) (source: Statistics Netherlands).

Hydrogen and geothermal heat are still relatively small sectors. Hydrogen only represents a share of 0,02% (304 TJ) in the energy mix, while geothermal heat covers 0,73% (13.176 TJ) of renewable energy usage. Although still small, these sectors are upcoming.

The renewable energy market is challenged by congestion on national and regional electricity grids. The capacity of electricity grids has to be increased as soon as possible, but the current speed of grid expansion is insufficient. The Dutch national energy regulator ACM (Authority for Consumers and Market) has taken certain measures to regulate this congestion. For more detail, see 4.2 Intermittency, Grid Congestion and Flexibility.

There is quite some uncertainty in the field of regulation for (collective) heat supply projects, caused by a long-pending legislative proposal for a new Heat Act (for more detail see 2.1 Governing Law and Upcoming Changes). This results in projects being paused or terminated.

Due to the international energy crisis (following the war in Ukraine), the government installed a price cap on



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gas, electricity and heat prices for consumers and small and medium companies in 2023. This price cap mechanism ended on 1 January 2024.

Preparations for two new nuclear plants have started. The Minister of Economic Affairs and Climate Change aims for start of operation in 2035. Parliament has also passed a motion to allow two additional nuclear plants.

The Dutch energy market is governed to a large extent by the Electricity Act 1998, the Gas Act and the Heat Act, combined with subordinate legislation, such as decrees, regulations and national network codes. In addition, the competences of the energy regulator ACM are governed by its Establishing Act and the General Administrative Law Act.

There are specific provisions for renewable energy in place focussing on sound certification of renewable energy products and protection against greenwashing. The Gas Act, the Electricity Act and the Heat Act include sections on "guarantees of origin" (GoOs), which certify the renewable origin of energy.

Parliament has adopted an overarching new Energy Act, which will inter alia replace and update the current Electricity Act and Gas Act (not the Heat Act), aiming to facilitate the "energy system of the future", including more local renewable energy production, storage and flexibility. The new Energy Act incorporates and unifies parts of the current legislation and includes new legislation on consumer protection, flexible use of the electricity grid and exchange of information between grid operators, energy suppliers and off-takers.

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