

Netherlands

The Integrated National Energy and Climate Plan (NECP) is the main source of the Netherlands' targets. In addition, the Climate and Energy Outlook 2024 (KEV 2024) and the National Energy System Plan (NESP) will be used.

Targets

The main target is a 55% reduction in emissions from the 1990-level by 2030, and climate neutrality by 2050.¹ This is unlikely to be reached according to the Dutch Environmental Assessment Agency.² Further, renewable energy should generate 27% of Dutch energy by 2030.³ Electricity production should be carbon free by 2035.⁴ More specifically, the government aims for 35 TWh of installed onshore solar and wind by 2030.⁵ It is down to the regions to find new areas, and there are thus no individual targets for solar and wind.⁶ Offshore wind has a more concrete target of 21 GW by 2030,⁷ but this has already been postponed to 2032.⁸ This is intended to increase to 50 GW in 2040 and 70 GW by 2050 if possible.⁹ The Dutch government also has a plan for installing 1 GW of offshore solar by 2030.¹⁰ In the NESP, the Dutch government targets 3.5-7 GW of nuclear power by 2050.¹¹

Energy demand projections

The NECP requires targets for energy efficiency, and the Netherlands seems to use the EU target of 11.7% reduction from the 2020 EU Reference Scenario for 2030. This means that the Netherlands should reduce its energy consumption by 11.7% from an estimated reference scenario.¹² The current (2019), forecasted, and target consumption can be found in Table 1 below. The KEV 2024 have a better breakdown,¹³ however this is also only for total energy consumption, and not electricity consumption, and it is primary energy consumption, not final. The KEV 2024 estimates are found in Table 2. Notice that 2019 is off by 20 PJ from Table 1. The reason for this is that the NECP used Eurostat data that is slightly off from the numbers used in the KEV 2024.¹⁴ The estimates are made according to the Energy Efficiency Directive (EED).

¹ The Government of the Netherlands, 'Integrated National Energy and Climate Plan Netherlands', 8.

² Planbureau voor de Leefomgeving, *KEV 2024*, 5.

³ The Government of the Netherlands, 'Integrated National Energy and Climate Plan Netherlands', 9.

⁴ The Government of the Netherlands, 'Integrated National Energy and Climate Plan Netherlands', 9.

⁵ The Government of the Netherlands, 'Integrated National Energy and Climate Plan Netherlands', 33.

⁶ The Government of the Netherlands, 'Integrated National Energy and Climate Plan Netherlands', 33.

⁷ The Government of the Netherlands, 'Integrated National Energy and Climate Plan Netherlands', 34.

⁸ Planbureau voor de Leefomgeving, *KEV 2024*, 73.

⁹ The Government of the Netherlands, 'Integrated National Energy and Climate Plan Netherlands', 35.

¹⁰ The Government of the Netherlands, 'Integrated National Energy and Climate Plan Netherlands', 35.

¹¹ Ministerie van Economische Zaken en Klimaat, 'Nationaal Plan Energiesysteem', 48.

¹² The Government of the Netherlands, 'Integrated National Energy and Climate Plan Netherlands', 38.

¹³ Planbureau voor de Leefomgeving, *KEV 2024*, 68.

¹⁴ Planbureau voor de Leefomgeving, *KEV 2024*, 68.

Table 1: Energy demand projections for the Netherlands (PJ)¹⁵

	Consumption 2019	Forecast 2030	Target 2030
Primary Energy Consumption (PEC)	2 668 PJ	2 061 – 2 416 PJ	1 950 PJ
Final Energy Consumption (FEC)	2 011 PJ	1 729 – 1 974 PJ	1 837 PJ

Table 2: Primary energy consumption according to the EED 2023 (PJ)¹⁶

	2019	2022	2025 ^A	2030 ^A	2035 ^A
Electricity	317 PJ	269 PJ	252 PJ	151 PJ	102 PJ
Industry	897 PJ	838 PJ	905 PJ	856 PJ	812 PJ
Households	665 PJ	613 PJ	573 PJ	572 PJ	504 PJ
Transportation	666 PJ	572 PJ	607 PJ	592 PJ	525 PJ
Agriculture	155 PJ	109 PJ	125 PJ	119 PJ	107 PJ
Total	2 684 PJ	2 356 PJ	2 462 PJ	2 246 PJ	2 050 PJ

A: Estimated values

Transportation

The definition of the transport sector in the NECP of the Netherlands seems to include rail, sea, and air, however, mobility does not.¹⁷ The Dutch are also planning their own aviation strategy to reduce CO₂-emissions, since aviation and maritime transport is not part of the emission targets set in the NECP.¹⁸ This is also the case for maritime shipping.¹⁹ The NECP aims for all new cars and vans to be zero-emission by 2030.²⁰ The Dutch government has four pillars for mobility: (1) more walking and cycling, (2) electric passenger cars, (3) greening goods and services transport, and (4) sustainable fuels.²¹ There are a couple of targets:²²

- 1) By 2030 there should be about 1.9 million EVs,
- 2) with 1/3 of energy consumption in mobility being renewable

¹⁵ The Government of the Netherlands, 'Integrated National Energy and Climate Plan Netherlands', 38.

¹⁶ Planbureau voor de Leefomgeving, KEV 2024, 68.

¹⁷ The Government of the Netherlands, 'Integrated National Energy and Climate Plan Netherlands', 27.

¹⁸ The Government of the Netherlands, 'Integrated National Energy and Climate Plan Netherlands', 62–63.

¹⁹ The Government of the Netherlands, 'Integrated National Energy and Climate Plan Netherlands', 61–62.

²⁰ The Government of the Netherlands, 'Integrated National Energy and Climate Plan Netherlands', 32.

²¹ The Government of the Netherlands, 'Integrated National Energy and Climate Plan Netherlands', 60.

²² The Government of the Netherlands, 'Integrated National Energy and Climate Plan Netherlands', 51.

Heat pumps

Heat pumps are important for the Dutch energy strategy. The KEV 2024 expect the ‘omgevingswarmte,’ ambient heat, produced by heat pumps to reach 50 PJ by 2030. (I don’t know what they mean by ambient heat here.) Specific details are found in Table 3.

Table 3: Heat pump projection²³

		2023	2030
Ground-water heat pumps		140 000	300 000
Air-water heat pumps	Hybrid	~ 210 000	300 000 – 600 000
	Full-electric	~ 210 000	600 000 – 800 000
	Total	420 000	900 000 – 1 400 000

Hydrogen and batteries

Because of the changes in the energy mix, the Dutch government will incentivise electricity storage. The government will also mandate the build out of batteries in large-scale solar parks and promote hydrogen production at sea.²⁴ For hydrogen, the government has set a target of 500 MW of electrolysis capacity in 2025 and 3 to 4 GW of capacity in 2030, from renewable sources.²⁵ There is also a target of 8 GW of electrolysis capacity, which might be installed as early as 2032²⁶

²³ Ministerie van Economische Zaken en Klimaat, ‘Nationaal Plan Energiesysteem’, 97–98.

²⁴ The Government of the Netherlands, ‘Integrated National Energy and Climate Plan Netherlands’, 9.

²⁵ The Government of the Netherlands, ‘Integrated National Energy and Climate Plan Netherlands’, 35.

²⁶ The Government of the Netherlands, ‘Integrated National Energy and Climate Plan Netherlands’, 59.