

# Resource adequacy electricity

TenneT annually analyses the resource adequacy in the Netherlands and checks whether there is sufficient supply of electricity to meet demand at all times. Up to 2025 the resource adequacy is expected to be within the standard. This will continue to be the case from 2025 onwards, although there will be a sharp increase in the mutual dependence of the Northwest European countries to meet their resource adequacy standards. TenneT considers European cooperation on resource adequacy to be an important condition for addressing uncertainties after 2025.

## Main conclusions of the report

- Resource adequacy in the Netherlands is within the standard up to 2025. During this period, there will be sufficient production capacity in the Netherlands to meet the national electricity demand. Analysis concerning the position of the gas-fired capacity shows that the risks of conservation in the coming years are limited. The resource adequacy analysis shows that, thanks to TenneT's interconnections neighbouring countries, the standard of 4 hours per year (shortage of electricity supply compared to demand) is not expected to be exceeded, even in extreme scenarios.
- From 2025 onwards, the uncertainties increase. In the Netherlands, as in most other European countries, electricity consumption will continue to rise, there will be a further reduction in

operational thermal capacity and an increase in the share of renewable generation with fluctuating production, making the system increasingly weather-dependent.

- These developments, in combination with the many increasing uncertainties in the European energy market, create greater risks for the resource adequacy. The analysis of import dependency shows that the mutual dependency of Northwest European countries to meet their resource adequacy standards in 2030 high.
- In the long term 2025-2030 there is a decline of the resource adequacy, but the average shortfall in 2030 does not exceed the 4 hours standard in any of the three scenarios considered. In individual historical weather years, the number of hours of shortfall may exceed 4 hours per year.
- Sensitivity analyses show that a faster development of non-flexible electrification than is estimated so far in the KEV2021 could lead to a further increase in the adequacy risks. Policy aimed at accelerating electrification will therefore have to go hand in hand with policy that results in sufficient flexibility on both the supply and demand sides to support the resource adequacy.
- Because of the increasing importance of imports and exports for the resource adequacy of the Netherlands and neighbouring countries, it is crucial that the Netherlands discusses and coordinates policy that affects the available production capacity for electricity with neighbouring countries in order to jointly prevent shortages.

### **Most significant developments up until 2030**

The energy landscape of the Netherlands is going to change considerably over the next 10 years. The total demand for electricity is expected to rise sharply as a result of increased electrification in industry and the built environment. The scenarios considered, with different ambitions in terms of CO<sub>2</sub> emission reduction, take into account growth rates of 10% to 50% compared to current demand in 2030. On the supply side, there is a strong increase in electricity generation by solar and wind. In addition, a decrease in the number of coal- and gas-fired

power stations is anticipated. The same trend is visible in neighbouring countries, where additionally several nuclear power plants are also expected to close down. Due to these developments electricity generation will become more weather-dependent and less controllable. As a result, it is more likely that electricity shortages and surpluses will occur abroad at the same time as in the Netherlands.

Uncertainties about the energy landscape will further increase from 2030 onwards. The energy supply is to a large extent subject to government policy, both in the Netherlands and abroad. In addition, it is still unclear how electricity producers and customers will respond to changing policy and electricity consumption.

### **Analyse TenneT**

TenneT has analyzed the abovementioned developments. Various scenarios have been used, including the Climate Agreement. In the analysis the entire European electricity market has been simulated in detail until (and including) 2030. The scenarios used are subject to the weather conditions of the past 35 years, unexpected power plant outages and other sensitivities, such as an additional reduction in the number of gas-fired power plants. The number of hours per year where all electricity demand cannot be met were investigated, with a standard of 4 hours per year.

The conclusions of this analysis are presented in the Dutch resource adequacy report, which is published annually. A recommendation to the Minister of Economic Affairs and Climate Policy is also included in the report.

The main conclusions of the 2021 resource adequacy assessment are provided in this one-pager.

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