

Prospects for electricity production and consumption

FINGRID'S FORECAST Q3/2026

FINGRID

Q3/2026

FINGRID

Prospects for electricity production and consumption

01	Background.....	3
02	Prospects for electricity consumption	5
03	Prospects for electricity production.....	8
04	Prospects for dispatchable capacity and electricity storage	12
05	Preparing the forecast	14

Disclaimer

This report contains forward-looking estimates, including those related to e.g. electricity consumption and production. These estimates are based on Fingrid Oyj's (Fingrid) current expectations and beliefs, as well as assumptions about future events. These estimates are subject to risks, uncertainties, assumptions and other important factors, many of which are outside Fingrid's control, that could cause actual results to differ materially from these forward-looking estimates. These forward-looking estimates must not be used as a basis for decisions. The estimates reflect the situation only as of the date of publication of this report. Any decisions made on the basis of this report are the sole responsibility of the decision-maker.



01

Background

Energy production and consumption are undergoing a transition from conventional, primarily combustion-based energy towards the increasingly extensive use of zero-emission electricity. Demand for clean electricity is forecast to grow rapidly throughout Europe, and reliable electricity networks are among the most important national competitiveness factors for industrial projects requiring clean energy. In Finland, electricity production was already 96% carbon-neutral¹ in 2025, and the potential to increase carbon-neutral electricity production is significant. These factors currently make Finland a highly attractive location for electricity-intensive industrial projects.

This interest is also evident at Fingrid: demand for new grid connections has remained extremely strong. In particular, data center and electric boiler projects are increasing electricity consumption outlook. By mid-August 2026, the planned final combined capacity of data center projects that have signed connection agreements² totalled nearly 5 gigawatts based on information provided by project developers (nominal capacity). The combined nominal capacity of electric boiler projects under construction and in operation has exceeded three gigawatts. If these projects were realized in full, they alone would increase Finland's electricity consumption by nearly

40% compared with the 2025 level³. The connection enquiries increasing electricity consumption capacity amount in total to over 145 gigawatts, of which approximately 100 gigawatts relate to data center projects.

Electricity consumption growth in Finland depends particularly on growth in industrial electricity consumption, which in turn depends on Finland's ability to attract investments in electricity-intensive industries. Finland's competitiveness is therefore decisive for electricity consumption growth. The forecast presented in this report consists of two scenarios, differentiated by Finland's ability to compete for investments in electricity-intensive industries. The **“High Growth”** scenario serves as the basis for transmission grid planning, so that the planned grid can help enable growth in electricity demand in society, as well as a significant volume of industrial investment in Finland. It describes a situation in which Finland is highly competitive in electricity-intensive industrial projects and attracts significant investment. The **“Moderate Growth”** scenario, in turn, describes a situation in which growth in industrial electricity consumption is based mainly on investment decisions already made. The differences between the scenarios partly reflect uncertainty related to growth. Both



¹ Source: Finnish Energy, Electricity Year 2025. https://energia.fi/wp-content/uploads/2026/01/Sahkovuosi-2025_v1.pdf

² Including projects connected to distribution networks

³ The calculation assumes an average utilization rate of 65% of nominal capacity for data centers and 30% for electric boilers.



scenarios account for the expected growth in household, service-sector and transport electricity consumption. More detailed descriptions of electricity consumption growth in the different segments are presented in Chapter 2.

At present, investment activity in projects that increase electricity consumption is clearly higher than investment activity in electricity production. For this reason, the growth in electricity production and flexible generation capacity in both scenarios also includes projects that have not yet reached an investment decision or connection agreement. The growth forecast for electricity production and consumption is presented as an average across weather years⁴. A more detailed description of electricity production developments is provided in Chapter 3, and developments in flexible generation and electricity storage capacity are discussed in Chapter 4.

The realisation of the forecasts is subject to several uncertainties that affect either the overall progress of the clean transition, Finland's competitiveness in the transition, or the outlook for electricity-intensive industries. These factors include, among others, energy policy, climate policy and geopolitics, technological development, regulation, permitting, taxation, demand outlooks for electricity-intensive industries, financing conditions, and cost developments in energy production and storage technologies. Particularly significant are the impacts of these factors on Finland's position as a destination for electricity-intensive industrial investment and on the growth potential and price competitiveness of Finnish wind power relative to European and global competitors. A significant share of the electricity consumption growth forecast in the

High Growth scenario relies on using electricity generated by onshore wind power to produce export goods and services. Achieving Finland's climate targets and enabling investment projects based on the use of clean electricity that create prosperity in Finland require significant construction and development of the transmission grid. In order to enable development of the kind described in the forecast, Fingrid aims to implement its transmission grid investment programme as well as measures that improve the grid connection opportunities of new projects and enhance utilisation of the transmission grid. Predictable regulation that enables transmission grid investment plays a key role in this. Accelerating the permitting and regulatory approval processes for transmission grid projects is important so that grid investments can be implemented more rapidly than at present. In particular, the processing of expropriation permits at the Ministry of Economic Affairs and Employment is congested, and several of Fingrid's grid reinforcements can proceed only after an expropriation permit has been obtained. In addition to increasing grid capacity, it is important to establish clear rules for allocating capacity in the overall interest of society when capacity is scarce. Capacity scarcity can also be managed by measures that encourage production and consumption to locate closer to each other and by developing permanent flexible connections to meet customer needs, thereby enabling more and faster connections.

⁴ A weather year refers to a historical year whose weather conditions are used as input data in the electricity market modelling. It includes variations in wind conditions, solar irradiation, temperature and hydropower inflows during the year.

02

Prospects for electricity consumption

Figure 1 shows the development of electricity consumption in Finland through 2035 according to Fingrid's forecast. In the forecast, electricity consumption increases to 106–123 terawatt-hours by 2030 and further to 110–162 terawatt-hours by 2035.

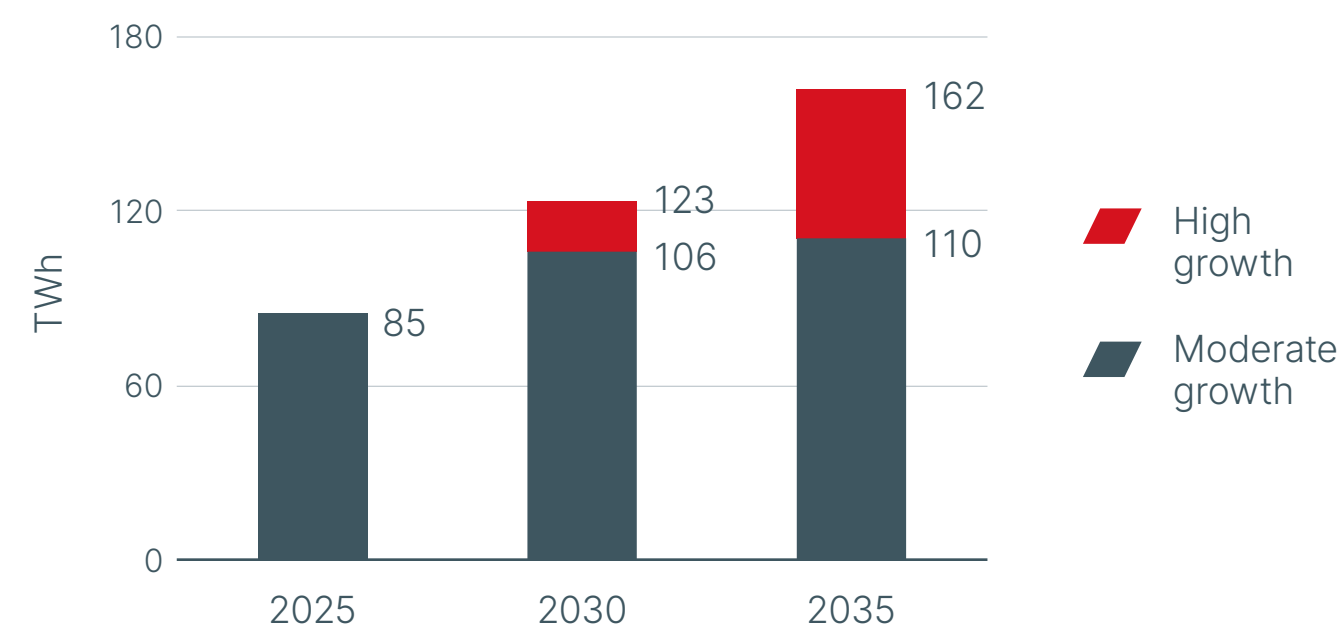


Figure 1.
Forecast electricity consumption in Finland from 2025 to 2035.
Fingrid's forecast, September 2026

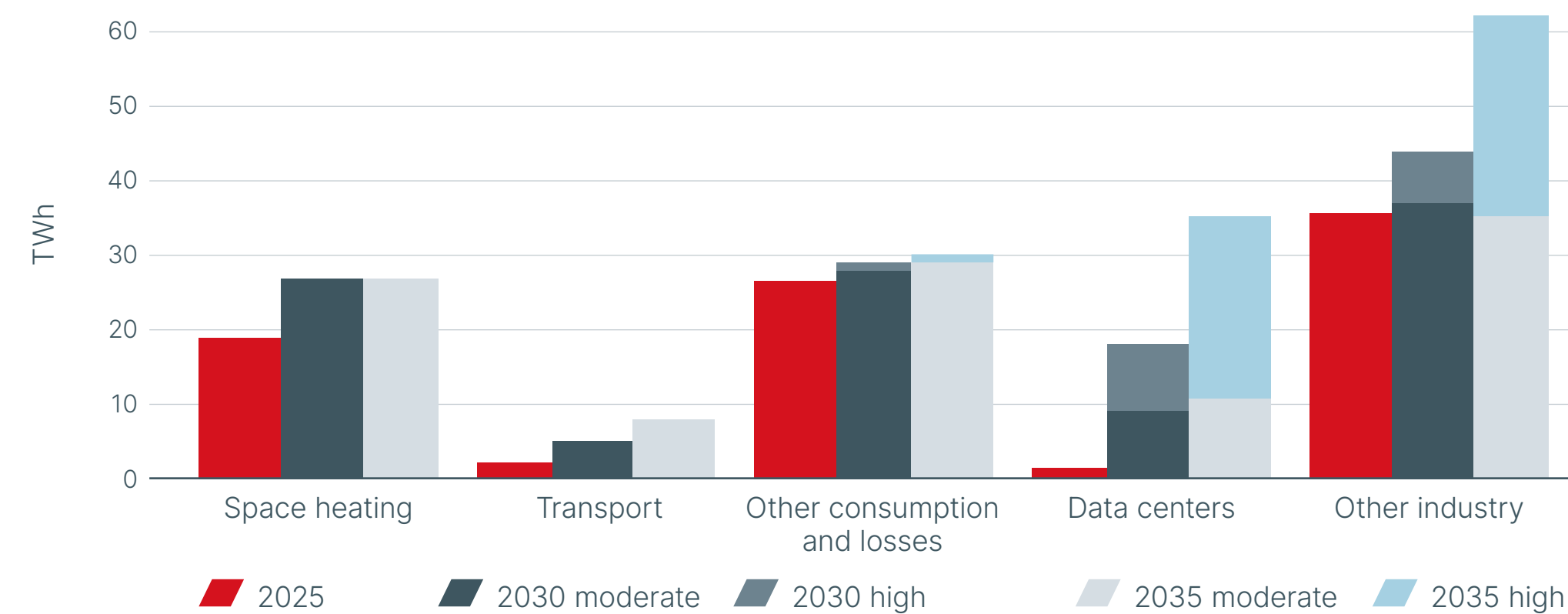


Figure 2. Sectoral breakdown of electricity consumption in 2025–2035. Electricity consumption for space heating and transport is the same in the Moderate Growth and High Growth scenarios, so the High Growth scenario is not shown as a separate bar in these categories.

Fingrid's forecast, September 2026

Electricity consumption is expected to increase in industry, heating and transport. Most of the growth included in the forecast comes from data centers, electrification of industrial processes, and production of hydrogen and hydrogen-based

derivatives. Electricity consumption in heating and transport also increases. The forecast sectoral breakdown of consumption is shown in Figure 2.

Industrial electricity consumption has several growth drivers, including data centers, hydrogen and e-fuel production, the metals industry, and replacing fuels with electricity in heat and steam production. Overall, industrial electricity consumption is expected to increase from the current level of under 40 terawatt-hours to 46–62 terawatt-hours by 2030 and further to 46–97 terawatt-hours by 2035.

Data centers are the largest individual growth segment in industrial consumption over the review period. In the scenarios, their electricity consumption increases from approximately 2 terawatt-hours in 2025 to 9–18 terawatt-hours by 2030 and 11–35 terawatt-hours by 2035. The wide range reflects considerable uncertainty in consumption growth, relating both to uncertainties in the growth of global data center electricity demand, such as increasing demand for compute and improved energy efficiency of compute, and to Finland's share of global data center investment. The lower end of the range corresponds to a situation in which the nominal capacity of data centers built in Finland remains at approximately 2 gigawatts, broadly corresponding to the scale of publicly announced investment decisions by the end of June 2026. The upper end corresponds to a situation in which global data center electricity consumption grows very rapidly and approximately 10–15% of European data center electricity consumption and 1.5–2% of global data center electricity consumption⁵ would be located in Finland. In that case, the nominal capacity of data centers in Finland would exceed 6 gigawatts. This would require a considerable number of new investment decisions. On the other hand, high growth expectations have also recently materialized quickly, as

demonstrated by the large number of data center investment decisions and connection agreements in Finland. In both scenarios, data center electricity consumption increases gradually over the years. If all projects with connection agreements by mid-August 2026 were realized in full, data center electricity consumption would be approximately 28 TWh, which is above the midpoint of the range formed by the 2035 scenarios.

Electricity consumption in other industry has remained subdued for a long time. However, the main growth driver of industrial electricity use—the need to replace fossil energy use with clean electricity—has not disappeared. This applies both to existing industry in Finland and to new industrial projects such as hydrogen, e-fuels, aluminium and steel production. The growth outlook for these sectors is decisive for future growth. In total, industrial electricity consumption excluding data centers develops in the scenarios from approximately 36 terawatt-hours in 2025 to 37–44 terawatt-hours by 2030 and 35–62 terawatt-hours by 2035. The High Growth scenario assumes significant volumes of both electrification projects in existing industry and new industrial investment. In the Moderate Growth scenario, electrification of existing industry is limited to investments under construction and small incremental changes, and as a result, corresponding electricity consumption hardly increases from the current level.

Electricity consumption for **space heating** is forecast to increase to approximately 27 terawatt-hours in both scenarios, compared with around 19 TWh used for heating in 2025. Growth is driven particularly by the increasing use of electricity



⁵ In the IEA's Liff Case, global data center electricity consumption is approximately 1,250 TWh in 2030 and approximately 1,750 TWh in 2035. In the IEA Base Case, Europe accounts for approximately 13% of global data center electricity consumption. Source: <https://www.iea.org/reports/energy-and-ai/energy-demand-from-ai>



in district heating, where investment in electric boilers has increased very strongly in recent years. As a result of these investments, the electric boiler capacity used in district heat production is expected to increase significantly in the coming years. In addition, the use of heat pumps recovering waste heat from industry and data centers is increasing in district heating production. Electric heating in individual buildings is expected to remain fairly stable at an average of approximately 17 terawatt-hours, although temperature variations will cause annual fluctuations. Improvements in energy efficiency and the replacement of direct electric heating with heat pumps offset the growing relative share of electricity-based heating methods. The impact of building-level electric heating on peak electricity consumption during cold winter days will remain significant.

Electricity consumption in transport⁶ increases in both scenarios from the current level of approximately two terawatt-hours to around 5 terawatt-hours by 2030 and around 8 terawatt-hours by 2035. Despite the rapid increase in the number of electric vehicles, annual electricity consumption in electric transport remains very small compared with Finland's total electricity consumption. However, EV charging has a significant impact on power demand, so optimizing charging times has major implications for the electricity system and for transmission needs in both the transmission and distribution grids.

Other electricity consumption includes household and service-sector electricity consumption, excluding heating, as well as transmission and distribution losses. In both scenarios,

other consumption remains fairly stable at just under 30 terawatt-hours, as improving energy efficiency offsets the consumption-increasing effect of electrification.

From a competitiveness perspective, it is essential that variable electricity production and industrial electricity demand can be aligned in the electricity system. This requires increased volumes of demand-side response, electricity storage and dispatchable capacity in the system. The assumed development of flexibility is described in more detail in Chapter 4.

Changes compared with the Q3/2025 forecast

Compared with the prospects report published in Q3/2025, the lower end of the total consumption forecast range for 2030 has increased, and the updated forecast range is 106–123 terawatt-hours (Q3/2025 report: 103–123 terawatt-hours). The forecast range for 2035 has also increased slightly to 110–162 terawatt-hours (Q3/2025 report: 104–159 terawatt-hours). The single most important factor behind the slight upward revision is the strengthened growth outlook for data center projects.

⁶ Does not include electricity used for the production of e-fuels consumed in transport. Electricity used for domestic e-fuel production is included in the forecast under industrial electricity consumption.

03

Prospects for electricity production

Electricity production in Finland has grown strongly. Between 2012 and 2022, electricity production ranged between 65 and 70 terawatt-hours, and has since increased to the current level of approximately 80 terawatt-hours. In addition to this growth, electricity production has become more weather-dependent, and its geographical focus has shifted increasingly towards western and northern Finland. Both the increasing weather dependency of electricity production and the change in geographical focus are expected to continue as growth is concentrated in wind and solar power.

Electricity production is forecast to increase to 107–118 terawatt-hours in 2030 and to 128–171 terawatt-hours in 2035. Growth in electricity production is driven primarily by growth in electricity consumption; conversely, consumption growth requires sufficient and timely development of electricity production. In the scenarios, market-based investments in electricity production are assumed to respond to developments in electricity demand and the regional electricity market. The development of electricity production is presented in Figure 3. When considering the production outlook, it is important to distinguish between projects for which investment decisions have been made and projects for which no investment decision

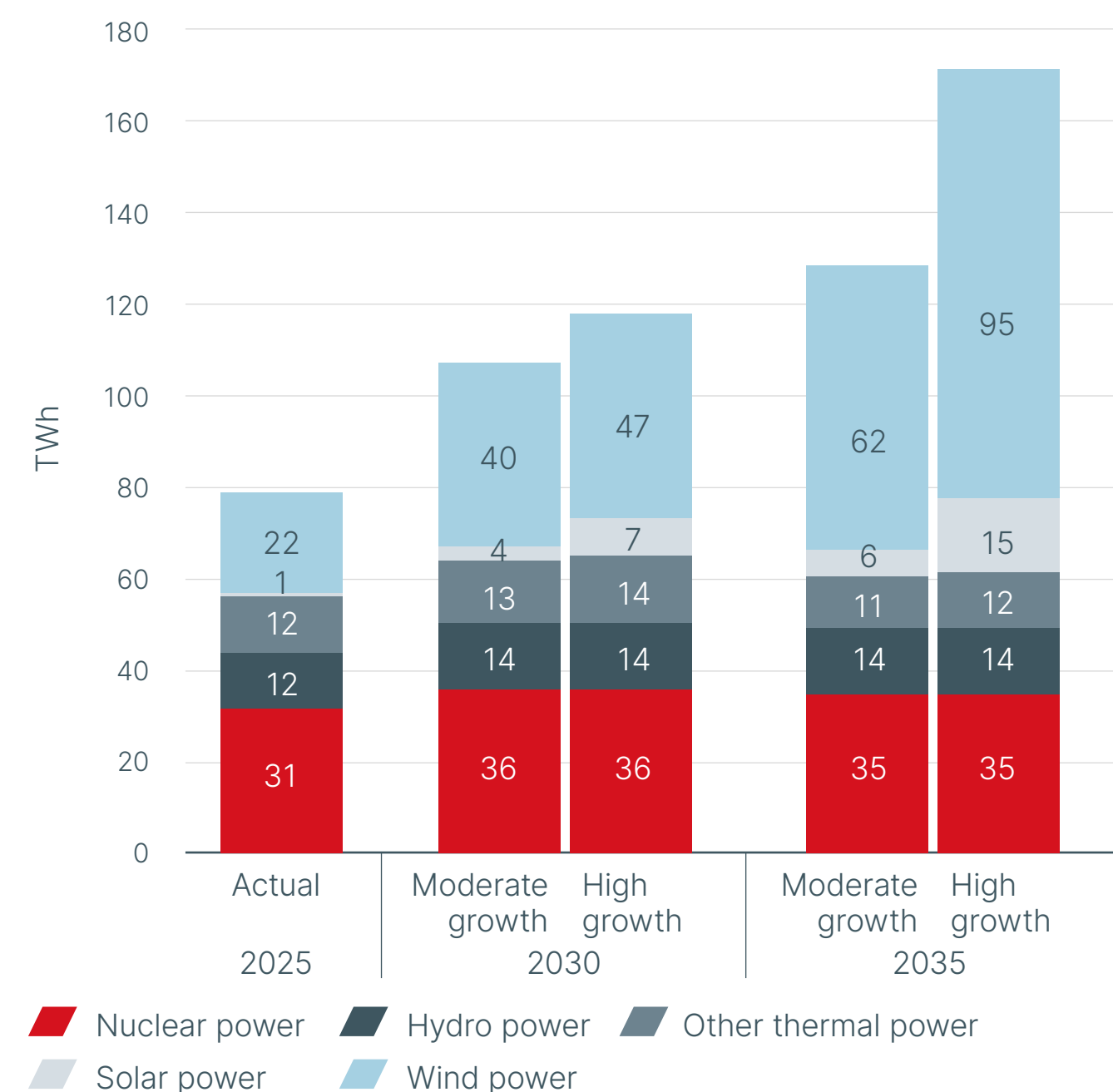


Figure 3. Forecast electricity production in Finland from 2025 to 2035.

Fingrid's forecast, September 2026

has yet been made but which are assumed to be built if electricity consumption grows in line with the scenarios. This is examined in more detail at the end of this chapter.

Electricity production grows and the transformation of the production mix continues

Electricity production grows most strongly in onshore wind power, as conditions for its development are favourable in Finland and the technology is highly competitive⁷ compared with other forms of new electricity generation. Wind power capacity is estimated⁸ to increase from the current level of approximately 10 gigawatts to 13–15 gigawatts by 2030 and 22–34 gigawatts by 2035. The capacity consists almost entirely of onshore wind power. According to Renewables Finland⁹, the combined capacity in operation or under construction amounted to 10.4 gigawatts at the beginning of July 2026. Consequently, the 2030 forecasts require growth to restart rapidly in both scenarios, which involves uncertainty.

Solar power generation capacity is estimated to increase from approximately 2 GW in summer 2026 to 4–6 GW in 2030 and 6–15 GW in 2035. The amount of solar power capacity in operation is approximately 2 GW, consisting of around 0.8 GW of solar farms¹⁰

⁷ See, for example, NVE, Costs of Power Generation (Kostnader for kraftproduksjon), 2024 estimates of the levelized cost of electricity (LCOE) for new power generation, available at: <https://www.nve.no/energi/analyser-og-statistikk/kostnader-for-kraftproduksjon>

⁸ The capacities presented in this chapter refer to capacity at the beginning of the year.

⁹ 9,535 MW in operation and 823 MW under construction. Source: Renewables Finland. <https://suomenuusiutuivat.fi/tuulivoima/hankkeet-ja-voimalat-suomessa/rakenteilla-olevat-hankkeet/>

¹⁰ Source: Renewables Finland <https://suomenuusiutuivat.fi/media/aurinkovoima-30.6.2026.pdf>

and around 1.2 GW of small-scale production¹¹. Approximately 0.1 GW of solar farm capacity was under construction¹² in July 2026. Consequently, the 2030 forecasts also require solar power growth to accelerate. In both scenarios, small-scale production accounts for slightly more than 2 GW of capacity in 2030 and just under 4 GW in 2035.

For nuclear power, both scenarios take into account the announced planned upgrades¹³ and an assumed improvement in the capacity factor, resulting in an annual nuclear power production level of approximately 35–36 terawatt-hours in an average year. Hydropower production is expected to remain at approximately 14 terawatt-hours in both scenarios, with variations in weather conditions causing fluctuations between individual years. The decline in thermal power production is expected to cease, as increasing inflexible electricity consumption raises the need for dispatchable electricity generation. The development of dispatchable capacity is examined in more detail in Chapter 4.

A tightening Nordic power balance increases the importance of growth in domestic electricity production

In the scenarios, the development of electricity production has been assessed using electricity market modelling that, in addition to Finland, covers a large part of the European electricity market. In addition to domestic developments, the projected level of investment in electricity production depends on developments in electricity production and consumption elsewhere in the Baltic Sea region, particularly in Sweden and Norway, as these affect electricity import and export opportunities. No new cross-border transmission connections will be commissioned

in Finland by 2035, so the modelling takes account only of existing cross-border connections.

The combined electricity surplus of Sweden and Norway has supported Finland's opportunities to import electricity from Sweden in the 2020s, but this surplus is set to decline significantly. During the 2020s, the annual surplus has been around 50 terawatt-hours. Figure 4 shows the historical level of the surplus and the forecast for the future.

In 2026, the surplus has declined partly for temporary reasons, and the rolling 12-month surplus¹⁴ has fallen below 40 terawatt-hours. Going forward, the combined electricity surplus of Sweden and Norway is expected to decline as electricity consumption

grows faster than production, reaching approximately 30–35 terawatt-hours by 2030 and approximately 5–15 terawatt-hours by 2035, depending on the scenario. In comparison, forecasts published by Svenska kraftnät and Statnett indicate that the decline could be even faster: in its 2025 short-term market analysis¹⁵ (KMA), Svenska kraftnät forecast Sweden's electricity surplus to decline to 12 terawatt-hours by 2030, while Statnett¹⁶ forecast a Norwegian surplus of 5 TWh in 2030 in its own short-term market analysis published in 2025. The combined surplus of Norway and Sweden may therefore decline faster in the coming years than Fingrid forecasts. Considering that inflows into the Nordic hydropower system can vary by several tens of terawatt-hours between different weather years, the Nordic electricity system would become a net importer of electricity

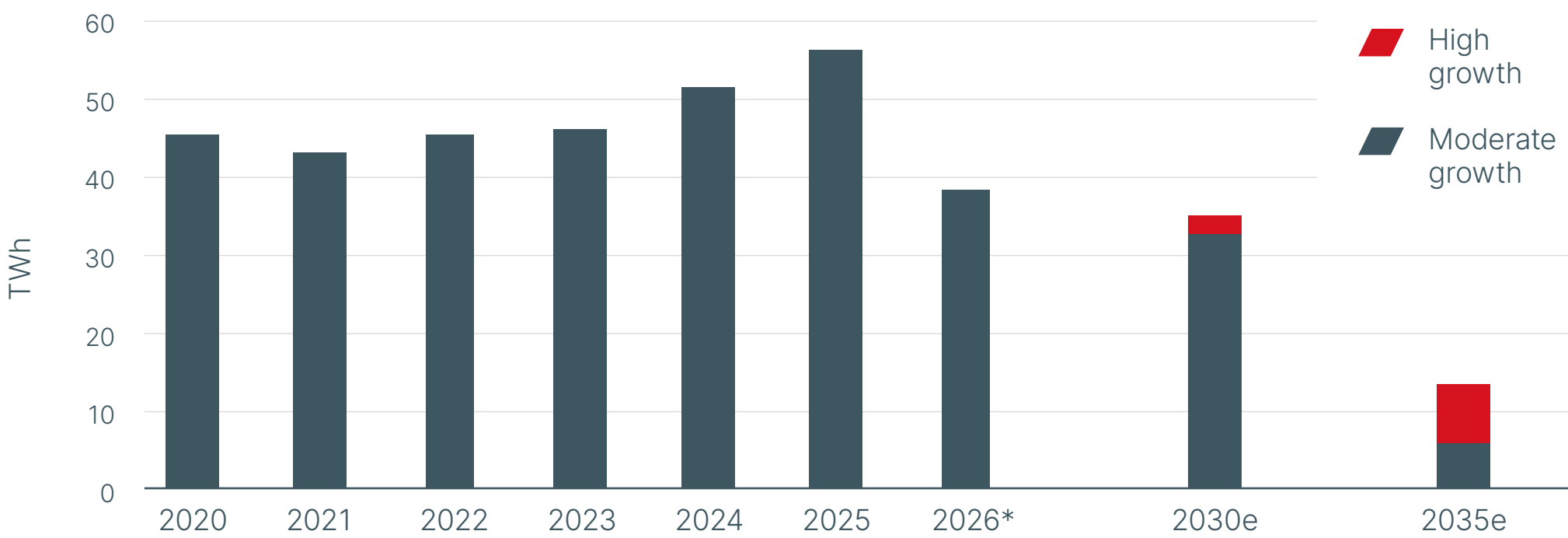


Figure 4. Combined electricity surplus of Norway and Sweden in 2020–2026 and the forecast level in Fingrid's scenarios for 2030 and 2035.

* For 2026, the latest 12-month period available when the report was written has been used, comprising actual data for weeks 37/2025–36/2026. Historical data: Statistics Norway, Energiföretagen and Montel Syspower; forecast: Fingrid.

Fingrid's forecast, September 2026

¹¹ Source: Finnish Energy Authority <https://energiavirasto.fi/-/aurinkosahkon-tuotantokapasiteetti-kasvoi-yli-neljanneksen-vuonna-2025-eniten-kasvua-teollisessa-mittaluokassa>
¹² Source: Renewables Finland <https://suomenuusiutuivat.fi/aurinkovoima/aurinkovoimahankkeet-ja-voimalat-suomessa/rakenteilla-olevat-aurinkovoimahankkeet/>
¹³ <https://www.fortum.fi/media/2024/05/fortumin-loviisan-ydinvoimalaitoksen-matalapaineturbiinit-modernisoidaan-ja-sahkotehoa-lisataan-noin-38-mw> and <https://www.tvo.fi/ajankohtaista/tiedotteetporssitiedotteet/2024/olkiluoto1-jaolkiluoto2-laitosyksikoidenkayttoianpidennystajatehonkorotustakoskevayva-ohjelmaonvalmistunut.html>
¹⁴ Based on weeks 37/2025–36/2026. Source: Montel Syspower.
¹⁵ Source: Svenska kraftnät <https://www.svk.se/494e46/contentassets/15b86ea1af674859867243761471c6ca/aktuella-tendenser-i-kraftsystemet--kortsiktig-marknadsanalys-2025.pdf>
¹⁶ Medium-scenario. Source: <https://www.statnett.no/globalassets/for-aktorer-i-kraftsystemet/planer-og-analyser/kma/kortsiktig-markedsanalyse-2025---2030.pdf>

from continental Europe on an annual basis in dry years unless Finland's surplus increased significantly at the same time. It is also significant for Finland that the decline in the surplus also affects the northern bidding zones of Sweden and Norway. For example, Svenska kraftnät's analysis forecasts the surplus in bidding zone SE1 to fall from its historical net export level of approximately 15 TWh to zero by 2030.

The transformation of the Nordic electricity system highlights the market-based need for growth in domestic electricity production in Finland. In the scenarios, Finland's electricity production grows faster than consumption, particularly in the 2030s, as import opportunities are reduced. In the High Growth scenario, Finland remains a net importer of 5 TWh in 2030, the same level as in 2025. By 2035, Finland is expected to become a net exporter, with net exports of 9 TWh, while Sweden's surplus declines at the same time. Investment in electricity production in Finland is currently lagging behind investment in consumption, and closing this gap will take time. Consequently, in the High Growth scenario, Finland is not expected to become a net exporter until the 2030s.

In the Moderate Growth scenario, electricity consumption grows more slowly, and electricity production is therefore expected to grow clearly faster than consumption. Finland is forecast to be a net exporter of 1 TWh in 2030, with net exports increasing to 18 terawatt-hours by 2035. In practice, the combination of lower electricity consumption and higher exports describes a situation in which a larger share of electricity generated in Finland is exported rather than consumed in Finland. Taken together, the surplus of Finland, Sweden and Norway would be

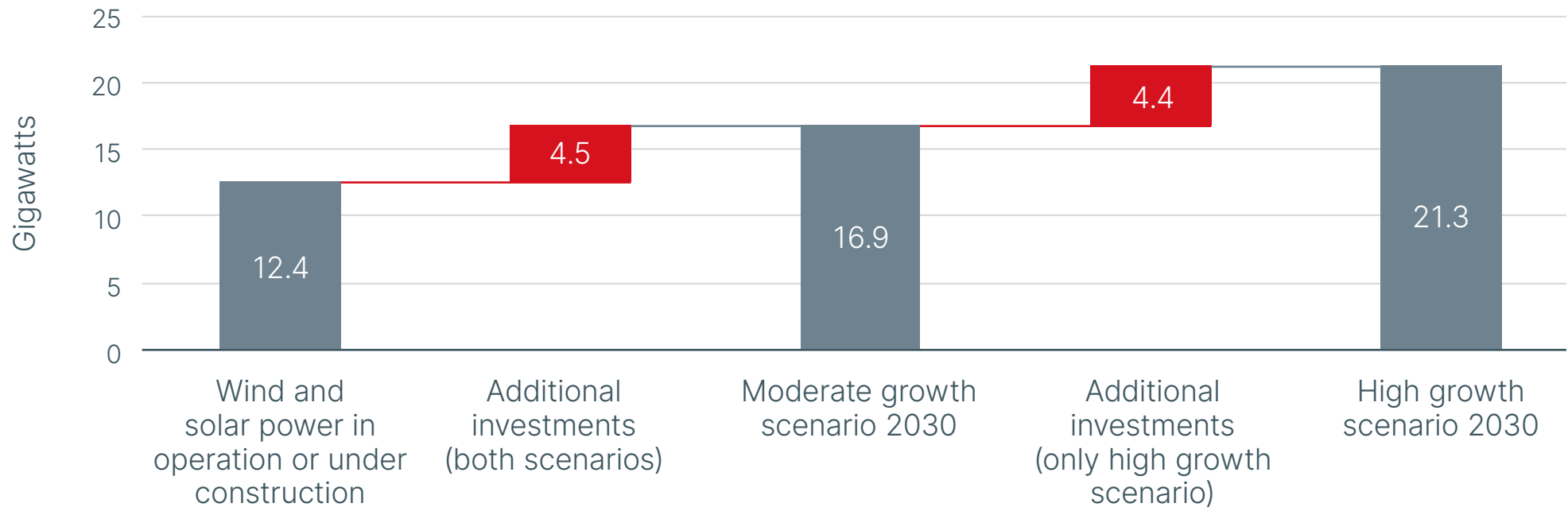


Figure 5. Scale of additional wind and solar power investments required in the scenarios beyond investment decisions already made, based on the annual electricity consumption and electricity balances in the Moderate Growth and High Growth scenarios. The 2030 capacities describe the situation at the beginning of the year.

Fingrid's forecast, September 2026

approximately 25–30 TWh in the 2030s under these scenarios, clearly below the level seen in 2023–2025.

Wind and solar power account for most of the growth in electricity production

At the end of August 2026, the estimated annual production of wind and solar power projects in operation or under construction, once fully operational, was approximately 32 TWh. Taking into account also the projected growth in other forms of production, wind and solar power production would need to increase to approximately 44 terawatt-hours by 2030 in the Moderate Growth scenario for Finland's electricity production to cover domestic consumption on an annual basis as assumed in the scenario. This would require new investment decisions corresponding to approximately 12 terawatt-hours of production, equivalent to around 4.5 GW of installed capacity with the

wind-to-solar ratio assumed in the scenario. In the High Growth scenario, investment decisions corresponding to approximately 10 terawatt-hours would be needed in addition to the Moderate Growth scenario, or 22 TWh in total, to reach the scenario's wind and solar production level of 54 TWh in 2030, when Finland's electricity balance would be 5 TWh in deficit. The installed capacity of the additional investments corresponding to 22 terawatt-hours of production would be approximately 9 GW. Figure 5 illustrates the difference between publicly known investment decisions and the additional production required in the scenarios. A significant number of electricity generation projects in Finland are at an advanced stage of development¹⁷, indicating growth potential for electricity production. However, whether the growth will be realised on the presented scale in the coming years is uncertain, as investment decisions are market-based and affected by several factors.

¹⁷ Source: Renewables Finland <https://suomenuusiutuvat.fi/media/surf-tuulivoimahankkeet-suomessa-kesa-2026-1.pdf> and <https://suomenuusiutuvat.fi/media/surf-aurinkovoimahankkeet-suomessa-kesa-2026.pdf>

Forecast changes compared with the Q3/2025 forecast

Compared with the forecast published in Q3/2025, the electricity production forecasts have decreased for 2030 and increased for 2035. For 2030, the total production forecast in the High Growth scenario has decreased to 118 terawatt-hours (Q3/2025 report: 122 TWh). For 2035, the forecast is broadly unchanged at 171 terawatt-hours (Q3/2025 report: 169 TWh). In the Moderate Growth scenario, the corresponding total production figures are 107 TWh in 2030 (Q3/2025 report: 109 TWh) and 128 TWh in 2035 (Q3/2025 report: 120 TWh). The production forecast for 2035 has therefore increased particularly in the Moderate Growth scenario. This is explained by the simultaneous reduction in the forecast surplus of Sweden and Norway and by higher electricity consumption in Finland in the Moderate Growth scenario compared with the report published a year earlier.



04

Prospects for dispatchable capacity and electricity storage

The generation mix in the power system is changing rapidly. Thermal power capacity in Finland has declined in recent years while the share of weather-dependent electricity generation has increased. At the same time, electricity storage capacity has grown strongly. Figure 6 shows the development of baseload and dispatchable capacity in the High Growth scenario in 2026–2035. For nuclear power, the drivers of growth in capacity and electricity production are described in Chapter 3.

In addition to flexible generation capacity and electricity storage, demand-side response plays a significant role in the power system and electricity markets, and in ensuring flexibility and electricity adequacy. However, the available volume, duration and timing of flexibility vary considerably by consumer group, season, time of day and weather conditions, as well as, for example, the availability of heat and hydrogen storage. Overall, demand-side response is expected to increase significantly. Detailed prospects for demand-side response are not addressed separately in this report. Fingrid's scenarios for the development of demand-side response and the related factors were previously presented in the Electricity System Vision report¹⁸ published in 2025. This chapter focuses on the prospects for flexible generation capacity and electricity storage.

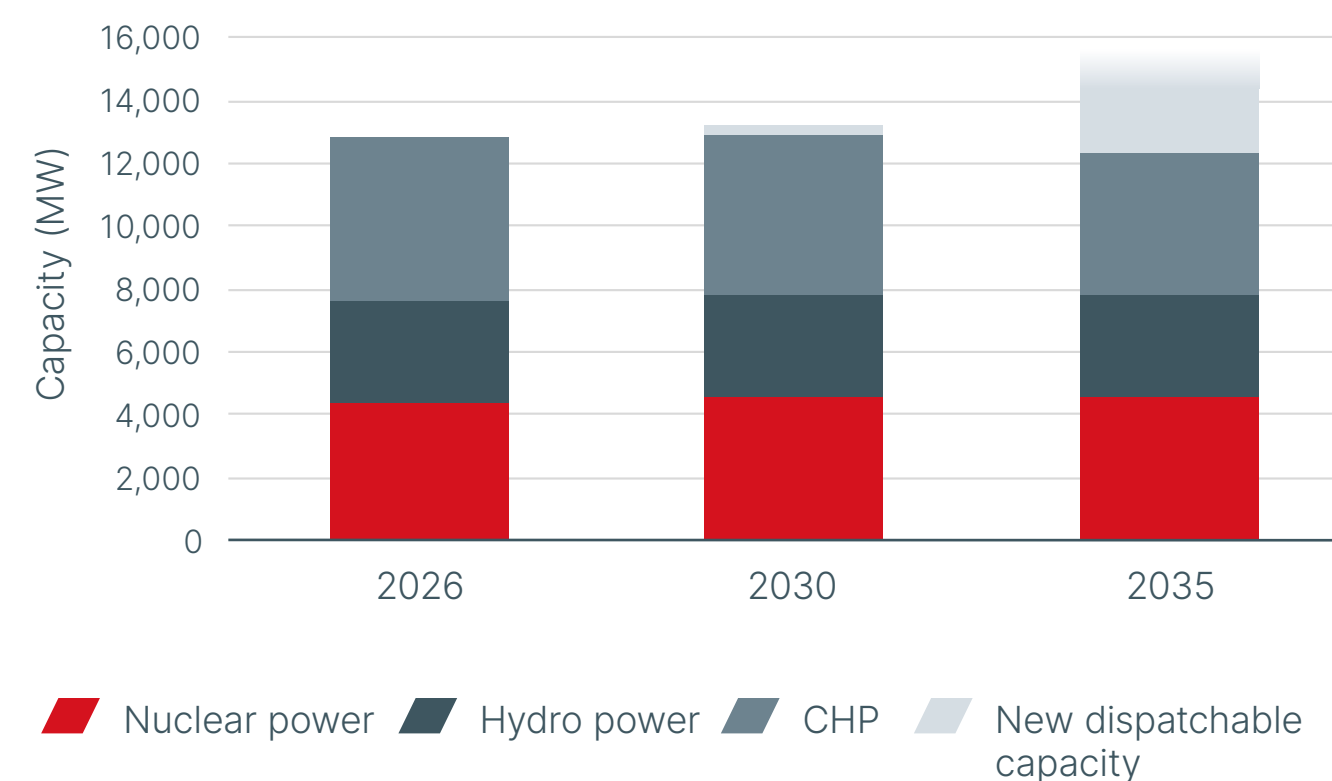


Figure 6. Baseload generation capacity and dispatchable generation capacity in the High Growth scenario in 2026–2035 (capacity at the beginning of the year).

Fingrid's forecast, September 2026

Prospects for dispatchable capacity

Following the closure of conventional condensing power plants, dispatchable capacity in Finland consists of hydropower and dispatchable thermal power, such as CHP plants. Hydropower generation capacity has not changed significantly in the 2020s and is expected to remain unchanged over the forecast period in both scenarios. Thermal power production has declined sharply in recent years as capacity has decreased and utilisation rates have fallen, with growth in weather-dependent electricity generation and other market changes reducing the dispatch of thermal plants in the electricity market. The foreseeable growth in inflexible electricity consumption increases the need for dispatchable electricity generation. In both scenarios, CHP capacity is estimated to decline much more slowly over the forecast period compared to the decline seen in recent years, and the capacity is expected to remain largely at its current level, particularly in the next few years. Existing capacity also offers some scope to increase annual electricity production as demand grows.

As electricity consumption grows, the system will need new dispatchable capacity in addition to existing hydropower and CHP capacity, capable of generating electricity continuously for several days. In practice, this could consist of, for example,

¹⁸ https://www.fingrid.fi/globalassets/dokumentit/fi/kantaverkko/kantaverkon-kehittaminen/sahkojarjestelmavisio-2025/fingrid-sahkojarjestelmavisio-2040.-loppuraportti-10_2025.pdf

capacity such as engine power plants or gas turbines. Previous estimates indicated a need for approximately 800 megawatts¹⁹ of new dispatchable capacity by 2030, but based on the current outlook, significant new dispatchable capacity might not be completed during this decade. The forecast therefore assumes only a few hundred megawatts of new dispatchable capacity by 2030. However, dispatchable capacity should increase in step with new inflexible electricity consumption, which means a significant addition is needed as quickly as possible. By 2035, several gigawatts of new dispatchable capacity are required in the High Growth scenario to ensure electricity adequacy, which would bring the combined capacity of CHP and new dispatchable capacity to a level clearly higher than today. The volume of electricity generated by new dispatchable capacity remains small, as the capacity is needed only infrequently, but in those situations its role in ensuring electricity adequacy is extremely important. Ensuring electricity adequacy is also a prerequisite for growth: for Finland to be an attractive investment environment for energy-intensive industry, electricity adequacy must be secured cost-effectively in all situations.

The precise amount of new dispatchable capacity required depends particularly on how much of the existing CHP capacity remains in operation and how demand-side response develops. Electricity adequacy and the amount of investment required are also affected by the development of generation, consumption and flexibility resources in neighbouring countries, as well as electricity transmission opportunities between countries. If less electricity or flexible capacity is available from neighbouring countries than assumed, the need for domestic dispatchable capacity will increase.

Electricity adequacy is unlikely to be secured entirely through market-based solutions, as investment signals based solely on electricity prices are weak for flexible capacity that is needed only rarely. Therefore, there is no guarantee that the amount of dispatchable capacity described above would be realised on a market basis even if electricity consumption developed in line with the scenarios. In Fingrid's view, Finland needs a cost-effective and targeted support mechanism that guarantees electricity adequacy even under rare weather conditions. The forecast assumes that flexible capacity will be built in the 2030s with regulatory support so that electricity adequacy is ensured.

Prospects for electricity storage

Electricity storage is a rapidly growing flexibility resource. Its power capacity was approximately 1 gigawatt at the beginning of 2026 and had already increased to 1.6 gigawatts by the summer. Connection agreements for electricity storage, including capacity already in operation, total more than 4 gigawatts. Electricity storage power capacity is estimated to increase to approximately 4 gigawatts in the Moderate Growth scenario and to more than 5 gigawatts in the High Growth scenario by 2030. By 2035, storage capacity would amount to 6 GW in the Moderate Growth scenario and 9 GW in the High Growth scenario. The capacities presented in the scenarios also include estimated battery capacity in small-scale installations. Development in the High Growth scenario is shown in Figure 7.

However, the high installed power capacity of storage facilities does not mean that they could cover prolonged energy deficits. For existing electricity storage facilities, the ratio of energy storage capacity to power is typically 1–3 MWh/MW. The

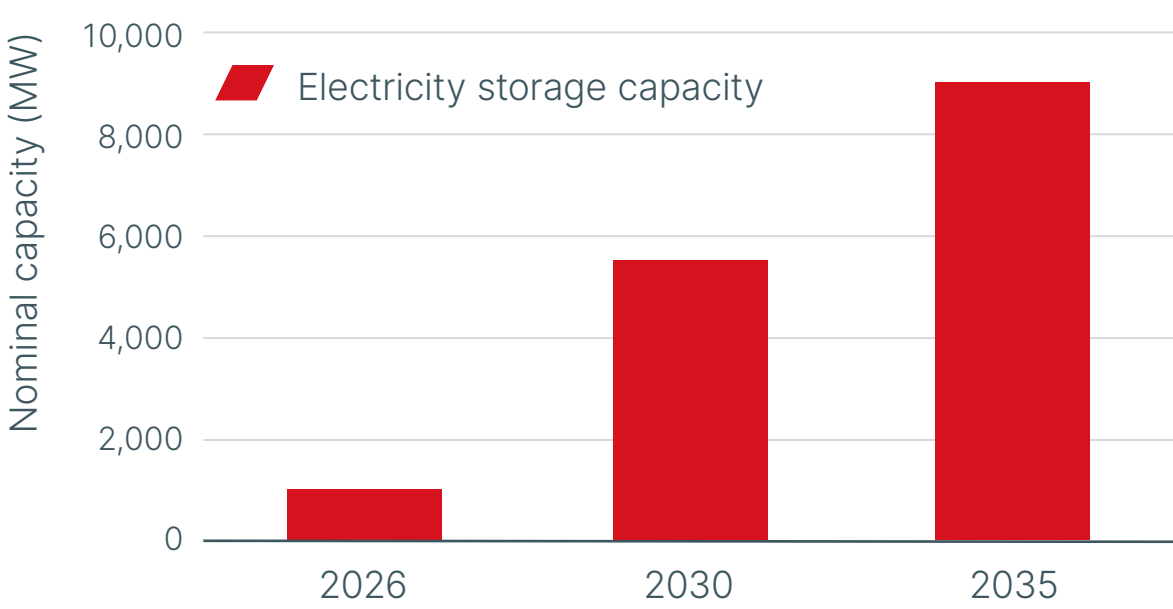


Figure 7. Electricity storage power capacity at the beginning of the year in the High Growth scenario in 2026–2035.

Fingrid's forecast, September 2026

energy capacity of electricity storage is expected to increase as installed storage power capacity grows and storage sizing shifts towards longer-duration storage. The scenarios assume that the energy-to-power ratio of electricity storage gradually increases towards 4–8 MWh/MW. Energy capacity would then grow considerably faster than storage power capacity and could reach almost 50 gigawatt-hours in the High Growth scenario in 2035. Even this amount would remain limited relative to the size of Finland's electricity system under the scenario. Electricity storage facilities similar to those currently in use are therefore primarily suited to managing relatively short-duration electricity market and system phenomena lasting no more than a few hours, whereas dispatchable capacity and demand-side response play a more important role in longer-duration events.

¹⁹ Source: Final report of the Working Group on non-fossil flexibility <https://julkaisut.valtioneuvosto.fi/server/api/core/bitstreams/5e92eeb9-8d3a-4712-862a-bc60f5b8eee6/content>

05

Preparing the forecast

The forecast has been prepared as a basis for Fingrid's transmission grid planning and is based on connection enquiries for production and consumption as well as the results of electricity market modelling. The forecast takes account of the growing need in Europe for clean electricity and for products and services produced from electricity, as well as Finland's excellent prospects for attracting the related investments. The higher scenario, which guides transmission grid planning, has been designed to be challenging from the perspective of transmission grid planning and the electricity system, while remaining realistic if Finland is highly competitive in electricity-intensive industrial projects. This scenario helps Fingrid to proactively address the challenges associated with the transformation of the electricity system and identify grid investments and other solutions through which the company can help enable a significant volume of investments related to clean electricity in Finland. For electricity production and storage, the growth forecast has been developed based on growth in Finland's electricity consumption and on the balance between electricity production and consumption in the Baltic

Sea region and in Central and Western Europe as assessed through electricity market modelling. The projected growth in electricity production, consumption, flexible capacity and storage is not a forecast of the realisation of individual projects, nor does it constitute a position on how market participants should act.

The electricity market modelling simulates the operation of the electricity market and the resulting electricity transmission needs on an hourly basis. The modelling takes account of increasing electricity consumption as well as growth in electricity generation and its increasing weather dependence. In addition to Finland, the electricity market modelling covers the entire Baltic Sea region as well as Central and Western Europe. For other countries, forecasts received from other transmission system operators and scenarios prepared by ENTSO-E, the European Network of Transmission System Operators for Electricity, have been used where applicable.



Fingrid delivers. Responsibly.

Fingrid Oyj

Läkkisepäntie 21, 00620 Helsinki
P.O.Box 530, FI-00101 Helsinki, Finland
Telephone +358 30 395 5000



FINGRID