

Locating Electricity Consumption Close to Electricity Generation

The location of electricity consumption matters. Placing new electricity-intensive facilities in areas with strong electricity generation offers numerous benefits for customers, society, and the power system as a whole.

Fingrid invests in the transmission grid through long-term planning and by anticipating customer needs. The Finnish transmission grid is currently being reinforced more extensively than ever before. By 2035, the company's total investments are expected to reach approximately EUR 5.2 billion.

Grid investments enable growing electricity demand from industry and society, as well as the new electricity generation required to support that growth. Although Fingrid's investment programme will create substantial new connection and transmission capacity, the amount of new capacity is not unlimited. The growth enabled by transmission grid reinforcements is significantly greater when new electricity generation and consumption are located closer to one another. **Improved siting of new customers could enable up to 20 gigawatts of additional electricity consumption, generation, and storage capacity within the Finnish power system.** This corresponds to dozens of major industrial projects that, if realised, could generate significant economic prosperity for Finland.

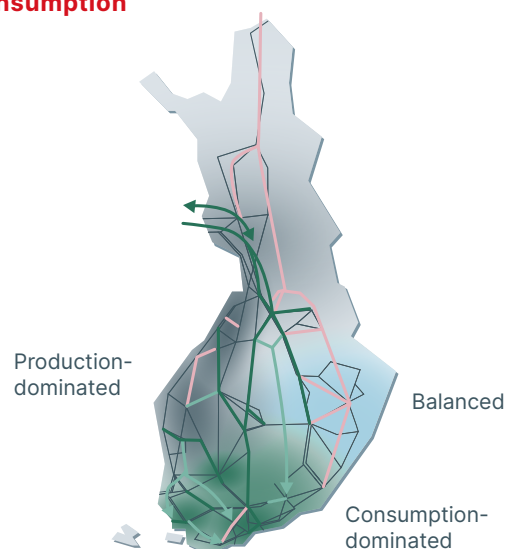
Currently, more than 70% of Finland's electricity generation is located in the production-dominated regions of Western and Northern Finland, while more than 50% of electricity consumption is concentrated in Southern Finland. The north and west have abundant wind and hydropower resources, strong interconnections with Sweden, and a large pipeline of well-developed renewable energy projects. Finland's population, however, is concentrated in the south. If current trends continue, this geographical separation between electricity generation and consumption will become even more pronounced, increasing transmission

distances. This would lead to higher transmission losses, increased need for transmission grid investments and their environmental impacts, and slower grid connection times for customers.

The Scale of Industrial Investments Challenges the Transmission Grid

A single transmission line can enable a significant amount of new electricity consumption and generation. In Finland's transmission grid, one new 400 kV transmission line provides approximately 1,000 MW of transmission capacity, which is nearly equivalent to Helsinki's peak electricity demand. The peak electricity demand of a medium-sized Finnish city such as Vaasa is approximately 200 MW. Consequently, electricity demand in such a city can increase substantially if a large battery energy storage facility or data centre is established in the area. In consumption-dominated regions with little local generation, increasing electricity demand always requires transmission grid reinforcements, as electricity must be transmitted from elsewhere.

Fingrid's main transmission network, planned reinforcements, and the geographical concentration of electricity generation and consumption





Why Should New Electricity Consumption Be Located in Production-Dominated Areas?

Faster Grid Connections	In production-dominated areas, connecting new electricity consumption to the grid can be several years faster than in consumption-dominated regions such as Southern Finland. For location-independent projects, choosing the right location therefore represents a significant competitive advantage for the customer.
Increased Overall Grid Connectivity	Electricity-intensive industrial projects always require reinforcement of the power grid. By locating more electricity consumption in production-dominated areas, closer to electricity production, the overall connectivity of the power system increases. This allows greater economic benefits to be achieved with the same level of grid investment.
Supporting a Single Finnish Bidding Zone	The risk of internal transmission bottlenecks decreases when transmission needs are reduced. A single bidding zone offers the advantage of a larger market, providing greater stability and predictability. A larger market also attracts more participants, creating, among other benefits, better opportunities for electricity price hedging.
Reduced Land Use	The transmission corridor of a 400 kV overhead line, including its border zones, is approximately 62 metres wide. Lower transmission requirements reduce the need for new transmission lines and thereby minimise their impacts on land use, landscapes, and the environment.
Lower Transmission Losses	Transmitting electricity over long distances creates transmission losses. The less electricity that needs to be transported, the lower the losses. This benefits all transmission grid customers through lower transmission grid charges. Transmission losses currently account for approximately 2% of the electricity consumed in Finland. In 2025, the cost of procuring this loss energy amounted to approximately EUR 84 million for Fingrid's customers.
Responsibility and Sustainability	Fingrid encourages new customers to make choices that support the efficiency and sustainability of the energy system. At the same time, Fingrid continues to invest in system flexibility and to enable additional clean electricity generation.

Fingrid's objective is to maintain a reliable and cost-efficient transmission grid with reasonable transmission charges. Transmission grid customers pay for the electricity transported through the grid, and investments in the transmission grid are financed through customer fees. Through timely and appropriately sized investments, as well as efficient utilisation of transmission capacity, Fingrid aims to keep the costs of a growing power system competitive while minimising environmental impacts. The location of new grid connections therefore has a direct impact on the future development of transmission grid charges, as more customers can be connected to the existing network.

By guiding the location of new customers, Fingrid seeks to improve connectivity so that customers can connect to the grid as quickly as possible and existing transmission infrastructure can be utilised as efficiently as possible without the need for additional grid investments. In addition to information-based guidance, Fingrid is also exploring economic incentives that would encourage customers to choose locations that are beneficial from a grid perspective. Currently, Fingrid's grid charges are not location-dependent. In addition to possible economic incentives, **grid operators should have the ability to steer location-independent investments away from congested areas towards regions where grid capacity is more readily available.** For example, the business case for an electricity storage facility is generally not dependent on whether it is located in a production-dominated or consumption-dominated area. Better placement of electricity storage facilities would reduce grid congestion and enable more grid connections needed by an increasingly electrified society and industry.

What Can a Single 400 kV Transmission Line Enable?

