National Roadmap for Data Centres

Rapporteur's Report

Veli-Matti Mattila

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Abstract

On 18 June 2025, Prime Minister Petteri Orpo appointed Chair of a Board of Directors Veli-Matti Mattila as the rapporteur to prepare Finland's national roadmap for data centres. The rapporteur's term ended on 31 October 2025. The task was to draw up a national roadmap for data centres that are essential for value creation in the data economy, complementing the Government's Data Economy Growth Programme.

The rapporteur's report examines Finland's position and strengths in the international competition for data centres and assesses their impacts on the economy, the power system, the environment and security. It sets national objectives for data centre operations and defines principles for attracting data centres with high value added to Finland.

The report also includes a set of proposals for measures to help Finland secure its share of the upcoming wave of data centre investments over the next few years. Immediate measures cover electricity tax relief for data centres with high value added, a fossil-free flexibility scheme for the power network, and a registration requirement for data centres.

Keywords data centre, data economy, digitalization, fossil-free flexibility, cyber security, security of supply

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Datakeskusten kansallinen tiekartta
Selvityshenkilön raportti

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Tiivistelmä

Pääministeri Petteri Orpo nimesi 18.6.2025 hallituksen puheenjohtaja Veli-Matti Mattilan datakeskusten kansallisen tiekartan laatimisen selvityshenkilöksi. Selvityshenkilön toimikausi päättyi 31.10.2025. Selvityshenkilön tehtävänä oli laatia datatalouden arvonmuodostuksen kannalta keskeisten datakeskusten kansallinen tiekartta, joka täydentää hallituksen datatalouden kasvuohjelmaa.

Selvityshenkilön raportissa tarkastellaan Suomen asemaa ja vahvuuksia datakeskustoimialan kansainvälistä kilpailussa sekä datakeskusten vaikutuksia talouteen, sähköjärjestelmään, ympäristöön ja turvallisuuteen. Raportti asettaa kansalliset tavoitteet datakeskustoiminnalle ja määrittelee periaatteet, joiden mukaisesti Suomen tulisi tavoitella korkean lisäarvon datakeskuksia.

Raportti sisältää joukon toimenpide-ehdotuksia, joiden avulla Suomen tulisi pyrkiä saamaan oma osuutensa seuraavien vuosien aikana tapahtuvasta datakeskusten investointiaallosta. Välittömät toimenpide-ehdotukset koskevat sähköveronhuojennus-ta korkean lisäarvon datakeskuksille, sähköverkon fossiilittoman jouston järjestelmää sekä datakeskusten rekisteröintivelvoitetta.

Asiasanat datakeskus, datatalous, digitalisaatio, sähkömarkkinoiden jousto, kyberturva, huoltovarmuus

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Nationell färdplan för datacentraler
Utredarens rapport

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Den 18 juni 2025 utsåg statsminister Petteri Orpo styrelseordförande Veli-Matti Mattila till utredare med uppgift att utarbeta en nationell färdplan för datacentraler. Utredarens mandatperiod löpte ut den 31 oktober 2025. Utredaren hade till uppgift att komplettera regeringens tillväxtprogram för dataekonomin med en nationell färdplan för datacentraler som är avgörande för värdeskapandet inom dataekonomin.

I rapporten granskas Finlands ställning och styrkor i den internationella konkurrensen inom datacentralsbranschen samt bedöms datacentralernas konsekvenser för ekonomin, elsystemet, miljön och säkerheten. Dessutom anges nationella mål för datacentralsverksamheten samt principer som Finland bör följa för att främja datacentraler med högt mervärde.

I rapporten listas även ett antal förslag till åtgärder som Finland bör vidta för att trygga sin position i den våg av investeringar i datacentraler som väntas under de kommande åren. Förslagen till omedelbara åtgärder gäller lättnader i elskatten för datacentraler med högt mervärde, systemet med fossilfri flexibilitet i elnätet samt skyldigheten att registrera datacentraler.

Nyckelord	datacentral, dataekonomi, digitalisering, fossilfri flexibilitet, cybersäkerhet, försörjningsberedskap		
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PREFACE

The drafting of Finland's national roadmap for data centres began in June 2025, following a commission from Prime Minister Petteri Orpo. The aim of the work has been to build a better understanding of the impact and potential of data centres for Finland. It has also focused on identifying key principles and measures to ensure that a sufficient number of data centres with high value added choose Finland as their location and become part of the Finnish ecosystem.

I would like to extend my sincere thanks to my team for their significant input, and to the ministry officials who provided valuable support. Everyone has made a substantial and high-quality contribution alongside their regular duties. I also want to thank all the experts and stakeholders who shared their insights through expert consultations, discussions and written input. Their contributions have greatly enriched this roadmap.

The principles guiding Finland's approach to attracting data centres with high value added relate to economic growth and productivity, integration of data centres into Finland's power system, environmental performance, energy efficiency and security. This roadmap also outlines the key measures that will help Finland capitalise on growth in the data centre sector.

I hope the principles and measures presented here prove useful and can be further developed to support successful implementation.

Veli-Matti Mattila
Rapporteur

1 Mandate and implementation

On 18 June 2025, Prime Minister Petteri Orpo appointed Chair of a Board of Directors Veli-Matti Mattila as the rapporteur to prepare Finland's national roadmap for data centres. The rapporteur's term ended on 31 October 2025.

The rapporteur's task was to draw up a national roadmap for data centres that are essential for value creation in the data economy. The roadmap will strengthen dialogue between the sector and public administration and promote a shared situational picture. It will also complement the Government's growth programme for the data economy.

The national roadmap for data centres must provide a structured response to at least the following questions, focusing on Finland where appropriate but also considering the broader context:

1. What goods or services are data centres used to produce?
2. What is, or could be, the significance of data centres in the global economy?
3. What is, or could be, their trade policy, security policy and geopolitical importance?
4. What qualitative or quantitative value added do data centres generate or have the potential to generate?
5. What positive or negative external economic impacts do data centres have, or could they have, on other business activities or society at large?
6. What demands do data centres place, or could they place, on energy production, social infrastructure, the use of natural resources and similar activities?
7. What information security or data protection risks are, or could be, associated with the operation, location or other aspects of data centres?
8. What is the competitive environment for data centres and how is it expected to develop?
9. How can a useful overview of the data centre landscape be created and maintained for the key stakeholders?
10. What are the most urgent proposals for immediate implementation, following a separate assessment, and which actions should be avoided?

The rapporteur was asked to work independently and decide on the content of the work and any conclusions. A secretariat composed of representatives from ministries supported the work. The secretariat included Pekka Sinko, Secretary General of the Economic Council, Prime Minister's Office (general secretary); Heikki Hietala, Counsellor, Ministry for Foreign Affairs; Liisa Lundelin-Nuortio, Ministerial Adviser, Ministry of Economic Affairs and Employment; and Tomi Paavola, Senior Specialist for Legal Affairs, Ministry of Transport and Communications.

The rapporteur also drew on a consultative support group consisting of Industry Professor Jukka Ruusunen, Doctor of Laws Janne Juusela, Director General Juhapekka Ristola, and Secretary General of the Economic Council Pekka Sinko.

The rapporteur requested and received extensive background material from ministries. This material covered the state of the data centre sector in Finland and in European peer countries and included possible development proposals.

At the start of the project, on 24 June 2025, the Prime Minister hosted a roundtable discussion on the data economy roadmap for industry stakeholders and experts. In August and September 2025, the rapporteur organised five broader thematic consultations for companies, organisations and authorities in the sector. In addition, the rapporteur held targeted meetings with key actors and received written views from several parties. More detailed information on the persons who participated in the events and the parties who submitted their views in writing can be found in Appendices 2 and 3.

2 National objectives for data centre operations

2.1 Finland needs more data centres with high value added

Finnish consumers and organisations will increasingly rely on services hosted in data centres

Computers, software and IT systems now run largely on cloud-based architectures that depend on data centres. This has driven a global shift in how data is processed and stored, moving it into data centres. The result has been a major data centre construction boom, which continues strongly, especially due to AI development. Data is stored in the cloud, software and services run in the cloud, and AI models are increasingly trained and run there. As digitalisation and AI adoption advance, almost all computing and most data storage will take place in data centres. According to a European Data Centre Association study, the sector in Europe is forecast to grow by EUR 90 billion over the next five years. In Finland, moving data processing and storage for both consumers and organisations to architectures that use data centres will expand significantly from today's level.

Finland needs enough data centres with high value added

For many Finnish users, the physical location of a data centre does not matter. But hosting a data centre in Finland, physically close to Finnish users, is important for many services due to service speed, data confidentiality and information security. Furthermore, it is essential for an increasing share of users for security of supply and operational reliability. Since most computing will take place in the cloud, Finland must be able to function even if international connections are severely disrupted or cut off. Finnish organisations and consumers are still in the process of shifting their data processing to cloud-based data centres, meaning the transition will continue at pace. The increasing adoption of AI is also driving demand to make full use of the data centres located in Finland. Currently, Finland has 33 data centres with a combined electrical capacity of about 285 megawatts (MW). Capacity in Finland is expected to multiply in the coming years. It is clear that Finland needs more data centres.

Data centres bring additional benefits

Beyond their core purpose, data centres bring investment, jobs and tax revenue to Finland. They typically secure long-term agreements for fossil-free electricity that cover their full operating capacity. This accelerates investment in renewable electricity generation, supporting Finland's transition to sustainable power.

Significantly, data centres can also help ensure the functioning of the grid through several types of flexibility. This, however, will not happen automatically but requires action. At present, flexibility of data centres is limited to very short-term balancing of power generation and consumption – seconds and minutes. Data centres cannot provide flexibility over days or weeks. As capacity grows, price spikes during calm weather are a risk. Solutions are needed. As shown in modelling in Chapter 5, stronger flexibility in data centre electricity consumption would significantly reduce the highest price spikes.

Data centres generate heat, creating a need for cooling. EU law, and other rules, require waste heat to be reused where possible. This heat can be used for building heating, an affordable source of district heating or industrial processes.

Access to high-performance computing is also important for Finnish researchers and developers aiming to lead in digitalisation and AI. This is more secure if such capacity exists in Finland.

Data centres do not automatically lead to research, development or innovation activities. R&D site decisions by data centre operators are separate from their data centre location choices. At best, some operators may support innovation by contributing to Finland's ecosystems. It is important to understand that having data centres in Finland will not in itself speed up Finnish digital or AI development. That requires other efforts, such as education and training, corporate action and production development, and risk-taking. Data centre operators should be encouraged to join these efforts and related ecosystems.

Data centres with high value added contribute to sustainable development

Large data centres consume a lot of electricity and need extensive land for buildings and infrastructure. In 2024, Finnish data centres used about 1.6 TWh of electricity, just under 2 per cent of national consumption. By 2030, this is expected to rise to 5–6 TWh, or 3–4 per cent of national consumption.

Rapid growth in the number of data centres could lead to power shortages for some and/or higher prices for all users. To avoid this, data centres, alongside other industries, will have to help ensure the functioning of the power system, in addition to boosting generation or signing power purchase agreements. As the number of data centres increases, everyone will benefit from a well-functioning and affordable power system.

Data centres are already subject to the EU Energy Directive and the Critical Entities Resilience Directive (CER), which aims to improve the resilience and continuity of society's critical services and infrastructure, especially against physical threats. Data centres must also comply with the NIS2 Directive, the EU's cybersecurity legislation designed to improve and harmonise network and information security, particularly for critical and essential operators. In Finland, NIS2 is implemented through the new Cybersecurity Act, which entered into force on 8 April 2025. Finally, data centres are bound by the EU Regulation on Nature Restoration regarding environmental impacts.

It is almost impossible to know what services or applications run in a data centre or who the end users are without reliable disclosure by the operator or the user. To ensure sustainable development, operators should commit to registration.

Competition for data centre investments across Europe

Finland is not alone in seeking good data centre investments. Competition is fierce. Current European capacity is concentrated in the FLAPD markets (Frankfurt, London, Amsterdam, Paris, Dublin). Finland's competitive advantages include fast access to grid (time to power), electricity prices, strong availability of renewable energy, and scalability. To stay competitive, Finland must keep improving its power system and price competitiveness. Predictable, stable regulation is also crucial. For data centres, this is especially important regarding taxation and renewable energy, but stable regulation will naturally help investment decisions across all industries.

Data centres with high value added

Almost all data centres in Finland generate value added in many of the ways described above. However, only certain data centres can deliver high value added for Finnish people and society. The following list outlines what this means in practice. A data centre with high value added typically:

1. Generates economic value through investment, jobs, participation in innovation ecosystems and tax revenue, and complies with EU and Finnish regulation applicable to data centres;
2. Registers with a designated national authority; and
3. Actively contributes to organising power generation and developing grid functioning to significantly increase flexibility during periods of peak electricity prices.

2.2 Principles for attracting data centres with high value added

Economic growth and productivity

Finland seeks data centres that drive economic growth and improve the competitiveness of Finnish businesses.

- Finland seeks data centre investments that create value added and jobs and support the growth targets of the data economy.
- Finland aims to attract data centres that help businesses, the public sector and universities co-develop new high-value business and expertise.
- Finland sees data centres as a major opportunity to generate economic activity outside the urban areas that already drive growth. In addition to western and northern Finland, eastern Finland is a potential area, provided conditions are created for wind power investment there.

Integration with Finland’s power system

Finland will give priority to data centres that support the functioning of the power system.

- Data centres help increase Finland’s renewable generation, directly or through agreements.
- Data centres participate comprehensively in system balancing, for example through demand-side flexibility and/or by offering generation reserves to the market.
- Data centres locate in grid-favourable sites close to power generation, which both reduces the need for new grid build and speeds up data centre time to power.

Environmental performance and energy efficiency

Data centres built in Finland are energy-efficient and environmentally friendly.

- Data centres use energy and water efficiently.
- Operators are committed to maintaining biodiversity through appropriate restoration and compensation measures.
- As much waste heat as possible is recovered for building heating, district heating or industrial use.

Security

Finland will ensure adequate mechanisms to manage security risks related to data centres and use data centres to strengthen both security of supply and Finland’s strategic position.

- Finland will ensure data centre oversight and a shared situational picture, and promote preparedness and resilience of critical digital infrastructure both nationally and at EU level.
- Finland will ensure risk management for data centre investments, together with national information security and data-related security of supply, in all conditions.
- Finland will seek data centres and connectivity that reinforce Finland’s strategic position, technological sovereignty and operational reliability in all conditions.

2.3 Proposals for measures

Finland should secure its share of the coming wave of data centre investments. Competition among European countries is intense. Finland needs to strengthen its attractiveness as a competitive location and ensure that data centres deliver the greatest national benefit in line with the principles above. The following measures would best achieve these goals.

Immediate measures

- Continue implementing electricity tax relief for data centres with high value added, at a substantial level and for a reasonably long period.
- Create a fossil-free flexibility scheme to manage grid scarcity and price spikes, and enable wind power development in eastern Finland.
- Introduce a registration requirement for data centres to maintain an industry-wide situational picture, taking account of existing monitoring and oversight procedures.

Other proposed measures

- Implement the Government's data economy growth programme systematically.
- Strengthen Business Finland's capability to promote growth and value-adding data centre investments and related innovation and business ecosystems, especially innovations in data centre cooling and waste heat recovery.
- Streamline permitting procedures for data centre projects with high value added.
- Invest in education, training and coaching, following good Finnish examples already in place, to grow a skilled data centre workforce.
- Working with Fingrid, municipalities and industry stakeholders, the Government should increase information-led guidance on optimal data centre siting, considering local grid capacity, opportunities to use waste heat, and synergies with manufacturing.
- Strengthen telecommunications infrastructure to enable data centre locations across Finland.
- Encourage data centres in Finland to exceed EU and national legal requirements on environmental performance, energy efficiency and waste heat utilisation.
- Ensure minimum compensation for harm to nature caused by data centres as part of EU regulatory development.

- As security-related regulations are updated and implemented, make sure statutory monitoring and oversight procedures cover a sufficient range of data centre investment situations, including greenfield investments and capacity leasing, as well as issues related to applications run in data centres.
- Ensure effective cooperation between ministries and authorities on the security of data centre investments and operations, and on maintaining a shared situational picture.

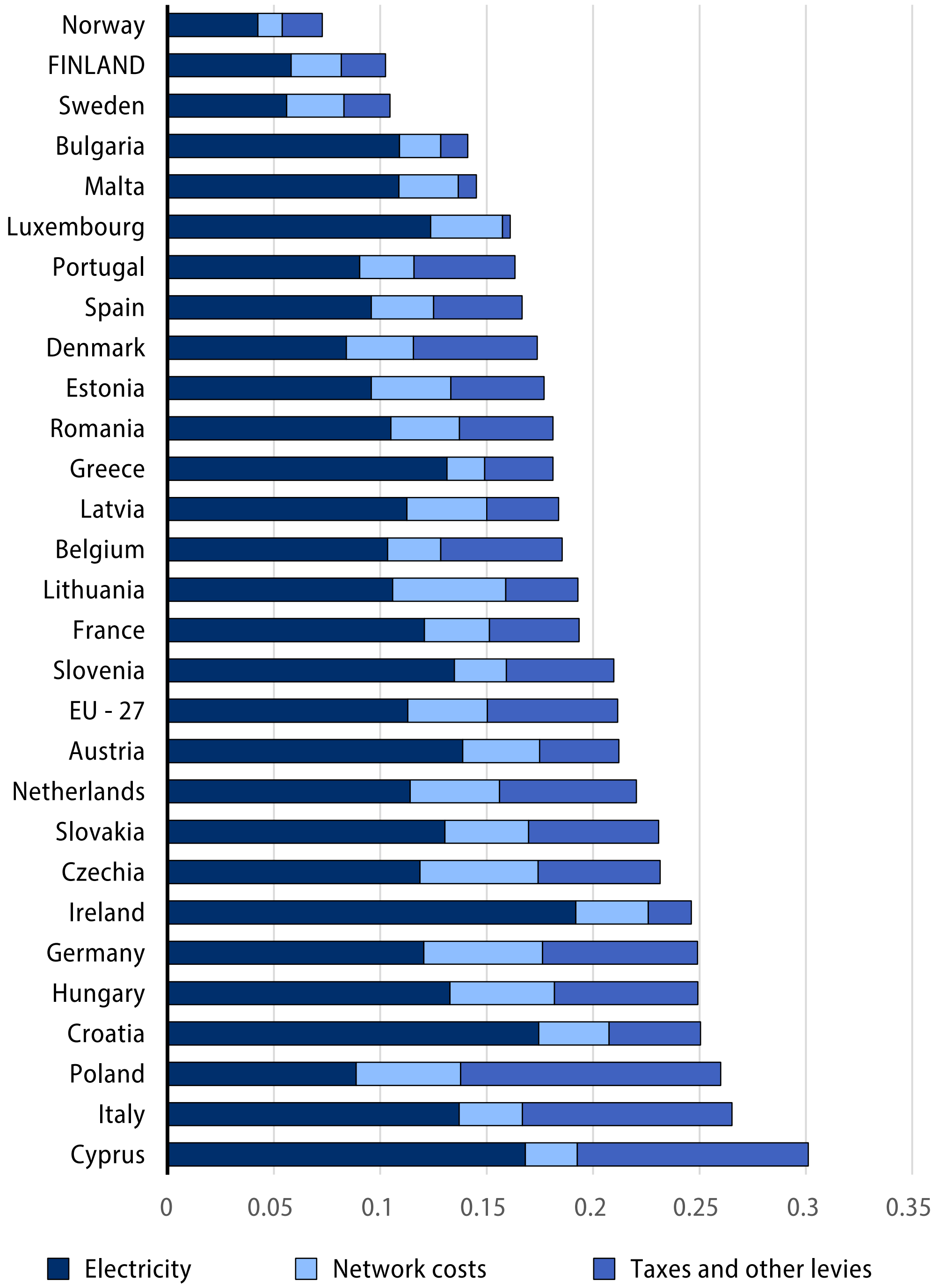
3 International competition for data centres

Finland is not the only country seeking data centre investments. Data centres are strategic assets on which states and companies build the competitiveness, security of supply and autonomy of the digital economy. Europe's data centre capacity currently lags behind that of the United States and China. Within the EU, efforts are under way to close this gap in a way that supports an attractive investment environment and prioritises socially sustainable solutions. From Finland's perspective, the main competitors for data centre locations are primarily other European countries.

Europe's current data centre capacity is concentrated in the so-called FLAPD region (Frankfurt, London, Amsterdam, Paris and Dublin), which accounts for more than 60 per cent of Europe's total capacity. This concentration is explained by both geographical and economic factors: access to optical networks, reliable electricity supply and proximity to major financial or market hubs. In Ireland, low corporate tax rates and a cool climate have also supported data centre development (EUDCA 2025). As grid connection capacity, among other reasons, increasingly constrains new construction in the FLAPD region, major data centre operators are looking for alternative locations for new investments, including the Nordic countries. The think tank Ember (2025) predicts that in less congested areas of Europe, data centre capacity will grow at twice the average rate.

Finland's strengths in attracting data centre investments include, in particular, fast access to the electricity grid and clean, competitively priced energy: more than half of electricity is renewable and wholesale prices are among the lowest in Europe (see Figure 1). Other advantages are a robust infrastructure with a reliable transmission network, strong telecommunications links and the ability to use waste heat in district heating networks. Finland's cool climate enables energy-efficient cooling, and there is ample land available, including former industrial sites suitable for data centre locations (Ramboll 2025).

Figure 1. Electricity prices for businesses in EU countries and Norway in 2024. The figure includes all consumption categories (kWh/year), including businesses with lower electricity use. Source: Eurostat.



Across Europe, recognised bottlenecks include limited availability of natural resources (energy, water and building plots) and complex, slow permitting processes that vary between Member States. Building data centres is also highly capital-intensive, which can be a barrier for new entrants.

A recent survey found that electricity availability is the single biggest obstacle to data centre investment in Europe. The problem is most acute in the traditionally strong data centre hubs in Central and Western Europe. The underlying factors include growing electricity demand from data centres, industry and transport, combined with the increasing share of variable-output renewable energy in generation. In the most congested areas, connecting a new data centre to the grid can take up to 10 years or more (EUDCA, 2025).

Electricity availability problems manifest as long waiting times for new data centres to connect to the grid ('time to power'). The average time to power varies by country and region. Defining this waiting time is not straightforward, and comparable statistics are hard to find. However, the think tank Ember (2025) reports indicative average time to power in several European countries, based on historical trends and including the time taken for planning. Table 1 supplements Ember's reported times with Fingrid's estimate of the average time to power in Finland, defined in the same way, and with up-to-date times for Norway from Statnett's website. These figures are indicative only, and there can be significant regional differences within countries.

Table 1. Estimated average time to power in selected European countries. Estimates are drawn from different sources and may not be directly comparable. Sources: Norway: Statnet (2025), Finland: Fingrid, other countries: Ember (2025).

Country	Average time to power (years)
Norway	2–7
Finland	2.5–3
Italy	3
Spain	5
Germany	7
United Kingdom	8
Ireland	8+
The Netherlands	8+

In the Nordic countries, as in Finland, renewable energy availability, low electricity prices, a cool climate and advanced infrastructure make data centre investments attractive. However, in Sweden and Norway, transmission capacity limits new data centre locations, especially in the south (cf. Figure 2). In Germany, the market is large and concentrated, but high energy prices are a key challenge. Ireland, Spain and Italy benefit from strategic locations and extensive subsea cable connections, though infrastructure bottlenecks and high energy costs constrain growth.

Finland's peer countries seek to attract investment by offering clear regulation, streamlined permitting and practical support such as site listings and advisory services. Electricity tax reliefs have, at least for now, largely been phased out in peer countries, with the focus shifting to strengthening electricity generation and transmission and increasing the energy self-sufficiency of data centres. At the same time, efforts are being made to promote the use of surplus heat, although the remote location of some centres poses challenges. In Norway and Sweden, however, there are plans to reduce electricity tax more broadly in the near future.

Regulatory frameworks for data centres are broadly similar across European countries, as they are largely based on EU-level requirements. These include obligations on energy consumption and other sustainability reporting, protection of critical infrastructure against cyber and physical threats, and data protection. Some countries have considered restricting cryptomining to ensure the highest possible value added from data centres.

Figure 2. Electricity prices and electricity tax in the Nordic countries in 2024. In Finland, most data centres currently fall under the reduced electricity tax category 2. In other Nordic countries, electricity prices – and in Sweden also taxation – vary by region. The numbered abbreviations DE/NO/SE refer to different parts of the electricity grid in Denmark, Norway and Sweden. Source: Ramboll, 2025.

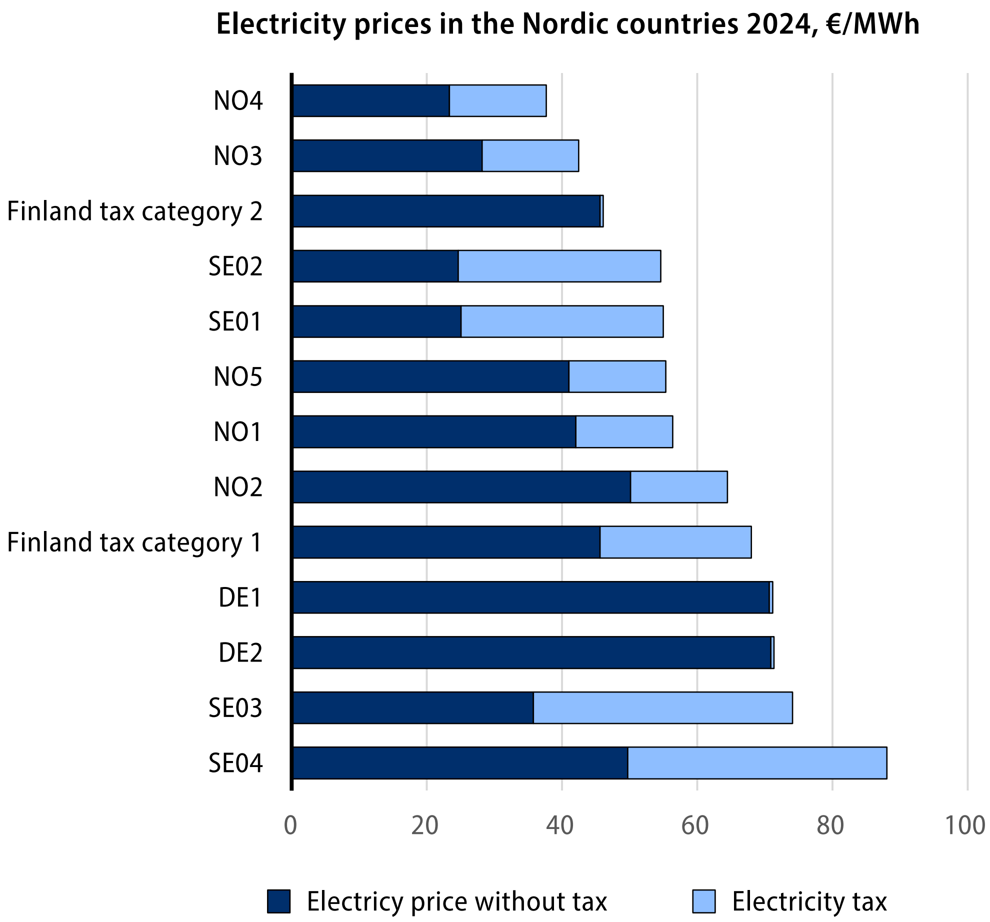


Table 2. Electricity availability, pricing and taxation for data centres in selected European countries.Based on material from several sources, including Finnish embassies (Ministry for Foreign Affairs) and expert estimates; figures are indicative.

Country	Electricity availability	Grid transmission capacity	Electricity price	Electricity tax
Finland	Good, renewable	Good	Low	Reduced electricity tax rate until 1 July 2026
Sweden	Good, renewable	Restrictive	Low, especially in the north	Tax subsidies abolished; Government preparing general reduction in electricity tax
Norway	Good, renewable	Restrictive	Low, especially in the north	Tax subsidies abolished; Government preparing general reduction in electricity tax
Denmark	Good, renewable	Restrictive	Moderate	No specific subsidies for data centres
Germany	Limited, fossil-based	Restrictive	High	No specific subsidies for data centres; lower electricity tax under consideration
Ireland	Limited, import-dependent	Restrictive	High	No specific subsidies for data centres
Spain	Good, fossil-based	Restrictive	Moderate	No specific subsidies for data centres
Italy	Good, fossil-based	Restrictive	High	No specific subsidies for data centres

4 Current state of data centres and economic impact

4.1 Current situation and outlook for data centres

Data centres are facilities specialised in storing and processing digital data. They provide a range of digital services for businesses, the public sector and households. Some serve the needs of a single company, while the largest lease capacity to multiple clients or deliver cloud services such as desktop applications, email and internet access. They may also host software controlling industrial production processes. Many new centres are designed for workloads linked to artificial intelligence (AI). Others directly support research (such as Finland's LUMI supercomputer) or specialise in cryptocurrency mining.

As of September 2025, Finland has 33 data centres with a combined electrical capacity of about 285 megawatts (MW). Of this, 57 per cent is in large cloud data centres (2 facilities), 18 per cent in enterprise-specific centres (17 facilities) and 25 per cent in colocation centres leasing capacity to various customers (14 facilities).[1]

Capacity in Finland is expected to multiply in the coming years. This rapid growth is part of a global trend driven by digitalisation, especially the expansion of AI and cloud services.

Worldwide, investment in data centres has almost doubled since 2022 to nearly USD 0.5 trillion. Under certain assumptions, cumulative investment could reach USD 4.2 trillion by 2030, with more than half going to the United States and China as the second-largest destination. Capacity is also expanding rapidly in Europe (IEA, 2025) where the European Union aims to at least triple its data centre capacity within the next 5–7 years (European Commission, 2025b).

1 (Ramboll, 2025); only data centres with a capacity of more than 1 MW are included in the analysis. Data centres engaged in crypto and bitcoin mining are excluded.

In Finland, investment in new data centres was estimated to exceed EUR 1.5 billion in 2024 (Digita, 2025). At the end of August 2025, the Confederation of Finnish Industries Data Dashboard for green transition investments listed over 60 projects classified as data centres. About 20 had either reached an investment decision (13) or start of operations phase (8). The remaining projects were either in a planning (18) or feasibility study phase (23).

According to the Data Dashboard, projects with investment decisions or in the start of operations phase represent about EUR 8 billion and 1,300 MW of capacity, scheduled for completion in 2025–2027. Projects in the planning or feasibility study phases amount to roughly EUR 21 billion and 2,500 MW (Confederation of Finnish Industries 2025).[2] Unannounced data centre investment projects are likely to increase these figures significantly, though not all plans will materialise.

An industry association estimates that electricity consumption by data centres will rise nearly fourfold to 5–6 TWh by 2030, representing 3–4 per cent of Finland's total electricity use (FDCA 2025).

4.2 Impacts on value added, employment and tax revenue

Like other sectors, data centres bring private investment that drives economic growth in Finland. A large 100 MW facility typically requires about EUR 1 billion in investment (excluding servers) and directly employs 50–150 people (Ramboll, 2025). The direct contribution of data centre operations to GDP comes from their own employment impact as well as taxes and capital income paid in Finland. How much tax and capital income stays in Finland depends, among other things, on whether the operator is Finnish or foreign and in which municipality the data centre is located.

In addition to these direct GDP effects, data centres, just like other business sectors, have indirect impacts through their value chains. This includes subcontracting for maintenance and other services during the operational phase. These indirect effects

2 The Confederation of Finnish Industries Data Dashboard does not provide the value or capacity for all projects, so the figures are indicative only.

are on average about twice the size of the direct impacts (EUDCA, 2025). There are also indirect effects on GBP when employees spend their wages on goods and services.

Construction typically requires major investments, creating significant temporary GDP impacts through jobs and potential domestic procurement during the construction phase. Taking both direct and multiplier effects into account, the contribution of data centre operations to GDP in 2025 is estimated at around EUR 200 million, while the contribution from data centre construction in 2025 is about EUR 1 billion (Ramboll, 2025). Combined, operations and construction would account for roughly half a per cent of Finland's GDP.

According to a recent estimate, the data centre sector currently employs about 300 full-time staff directly and generates an estimated 1,700 indirect jobs in Finland. By 2030, direct employment is expected to rise to around 1,200, with total employment including indirect effects approaching 9,000.[3]

The employment impact during the construction phase is typically much higher than during operations. Building a large data centre can create several thousand person-years of work, including direct and indirect effects. According to an industry study, the cumulative employment impact of construction in 2025 is estimated at 10,000 person-years in Finland, rising to about 45,000 by 2030.

Part of the value added created by data centres flows to the public sector as tax revenue. Like other businesses, data centres pay real estate tax, corporation tax, VAT and electricity tax in Finland. Their employees also pay income tax. There are no precise sector-specific statistics, but total tax revenue from the data centre industry is estimated at around EUR 100 million in 2025 and over EUR 350 million in 2030 (Ramboll, 2025).

According to the industry association, the five largest data centres paid a total of EUR 19 million a year on average in corporation tax between 2019 and 2023. A recent study suggests that a large 100 MW data centre pays EUR 0.5–1.5 million a

3 The employment impact estimate is based on Ramboll's (2025) calculations, which cover not only direct jobs but also indirect employment effects through value chains and jobs generated by data centre staff's consumption spending.

year in real estate tax, depending on its location in Finland (Ramboll, 2025). Based on the current total capacity of about 300 MW, real estate tax payments would amount to several million euros annually.[4]

Electricity tax for data centres in Finland is levied at the reduced industrial rate, so payments have been modest. Assuming continuous consumption equivalent to 250 MW and the reduced rate, total electricity tax revenue is about EUR 1 million a year.

In addition, data centres pay VAT on their operations. Some confidential business data suggests that VAT receipts are typically similar in scale to corporation tax. Employees' income tax contributions follow the same logic as in other sectors, based on payroll.

4.3 Spillover effects on the economy

Locating data centres in Finland does not guarantee that companies will establish product or service development here, as those decisions are made separately on their own merits. Ideally, however, data centres can enable R&D and business ecosystems in Finland, for example in areas such as construction, energy systems, energy efficiency, cooling and circular economy solutions linked to the data centre sector.

Public measures can help maximise this broader value added. For example, Business Finland's Flexible Energy Systems programme is developing the Finnish ecosystem and export offerings in data centre energy systems and waste heat recovery. Business Finland's R&D funding can also support this.

Data centres consume large amounts of electricity, and rapid growth could in principle push up electricity prices and limit grid connection opportunities for other users. It is therefore essential that electricity supply and distribution grid capacity expand in line with demand to avoid bottlenecks. From an economic perspective, rising demand for clean electricity is positive. The integration of data centres into Finland's power system is examined in more detail later in this report.

4 This is a very rough estimate because the real estate tax base is not directly comparable to electrical capacity. Smaller data centres are likely to pay higher real estate tax relative to their capacity than larger facilities, which means the total real estate tax take would be higher than this estimate suggests.

Because of the nature of their operations, data centres can be located outside major growth centres, including in former industrial locations. This means they can have a significant positive impact on regional economies. However, data centres compete for the same workforce as other businesses. To avoid labour shortages, it is important to ensure an adequate supply of skilled labour both nationally and regionally.

5 Data centres as part of the power system

Finland's power system offers data centres several key advantages: fast connection to a strong grid, low electricity prices, high reliability and abundant fossil-free generation.

In Finland, a large number of energy-intensive industrial investment projects linked to the clean transition are in feasibility study or planning phases, including hydrogen, hydrogen fuels and low-carbon steel and aluminium. Decarbonising Finland's steel and chemical industries by phasing out fossil fuels and raw materials is expected to double national electricity consumption within just over a decade. Most of these projects will only reach investment decision in the coming years as market demand evolves, and their implementation will take time. A key milestone will be the end of free emission allowances for industry in 2034.

In the near term, data centre projects are expected to reach investment decision in greater numbers than hydrogen projects among electricity-intensive investments. However, this may change as market demand and EU and national regulation evolve. It is also worth noting that a major data centre project takes several years to complete, and its electrical capacity typically ramps up gradually over multiple years.

Expanding the grid to accommodate industrial electrification and growing data centre capacity will require major investment. According to transmission system operator Fingrid, there is currently spare grid connection capacity for data centres, especially in northern, western and eastern Finland. Connection capacity in southern Finland is being significantly increased.

The closer electricity production and consumption are to each other, the lower the need for grid investment and the smaller the transmission losses. Users contribute to grid reinforcement costs through transmission charges. Fingrid believes Finland can maintain one of Europe's lowest electricity prices even as demand by data centres and other industries rises sharply, thanks to the ability to build large volumes of new generation at low production cost. Additional investment in storage and regulating capacity will also be needed.[5]

Concerning the potential consumption increase, Fingrid has received grid connection enquiries totalling about 70 GW, nearly half of which relate to data centres. Battery storage projects also require capacity, with enquiries increasing rapidly and now exceeding 30 GW (Fingrid Oyj, 2025). Not all these projects will be realised and large investments take time, with consumption increasing gradually. Heavy industry's electrification needs are not yet fully visible in these figures.

In 2024, 95 per cent of Finland's electricity came from fossil-free sources: nuclear, wind, hydro, solar and renewable fuels (Statistics Finland, 2025). Finland has strong potential to expand generation, beginning with onshore wind and solar in particular. Over 100 GW of wind power is in various planning stages, including more than 60 GW onshore and about 46 GW offshore. Not all will be built. Onshore projects already zoned, permitted or under construction amount to over 14 GW and zoned offshore projects to 1.5 GW (Renewables Finland, 2025). According to the Confederation of Finnish Industries Data Dashboard for green transition investments, projects worth around EUR 300 billion are in the pipeline for Finland, more than 60 per cent of which are investments in wind and solar power generation (as of September 2025).[6]

The realisation of Finnish wind and solar projects depends heavily on the progress of high-consumption investments, such as data centres, and on regulatory developments. Much of the financing for wind and solar relies on long-term power purchase agreements (PPAs) with end-users, particularly large data centres – meaning consumption and generation investments go hand in hand. For buyers, PPAs reduce risks related to electricity procurement and therefore operations.

In 2024, Finland had the highest relative hourly price volatility for electricity spot prices in the EU (including Norway). The standard deviation of hourly prices (EUR 74.4/MWh) was 163 per cent of the average. Volatility is expected to continue. Smoothing price spikes will require more demand-side response, and volatility encourages investment in energy storage and flexible demand (Energy Authority, 2025). According to the basic principle of the electricity market, the market price should provide a sufficient signal for users to operate flexibly.

5 Fingrid's presentation at the data economy roundtable on 24 June 2025.

6 The figure also includes projects in the feasibility study and planning phases.

Currently, data centres operate as baseload, unaffected by the conditions in the electricity market. At today's scale, Finland's power system has absorbed them without major issues. It is the sheer scale of the published investment plans that makes the potential inflexibility of data centre electricity use a challenge, as it could lead to high price spikes during windless periods.

The nature of data centre business typically demands continuous readiness without disruptions. Any flexibility in electricity use is therefore driven solely by the centre's own operational needs. This applies especially to centres providing cloud services. Data centres usually have backup systems such as batteries and generators to ensure continuity of operations and backup capacity for the whole facility. Technically, these could provide flexibility to the power system without compromising their primary objective of ensuring the facility's uninterrupted electricity supply. In contrast, some data centres do not run time-critical operations and are designed to take prevailing electricity market prices into account when timing their activities, for example in cryptomining or AI training.

Certain data centres could help stabilise the power system by using their battery storage (UPS) and backup generators. According to the data centre industry, with the right incentives they could increase demand-side flexibility, including load shifting. Some centres already take part in Fingrid's fast frequency reserve (FFR) market (Ramboll, 2025). At present, this flexibility is limited to very short-term balancing – seconds and minutes. Data centres cannot provide flexibility over days or weeks.

Data centres could, in principle, support the grid in emergencies such as an energy crisis. AFRY (2025) carried out an analysis for this study of how data centre consumption and demand flexibility affect electricity prices. The analysis is an indicative estimate and should be refined in future work. Two alternative capacity scenarios were used for data centres in 2030: 1,200 MW (baseline) and 2,500 MW (strong development).[7] In both scenarios, additional onshore wind power was assumed to match the annual energy demand of data centres. Even with this assumption, higher demand from data centres would significantly affect annual electricity prices. If data centres operate as inflexible baseload, increasing capacity from 1,200 MW to 2,500 MW would raise the annual average electricity price by

7 The baseline assumes that all projects with an investment decision are completed by 2030. This roughly corresponds to the industry association's forecast for capacity development (cf. Chapter 4).

more than 10 per cent.[8] However, data centres do not operate in isolation. Their additional demand creates an incentive for new generation investment in the electricity market. This effect was not included in the calculation.

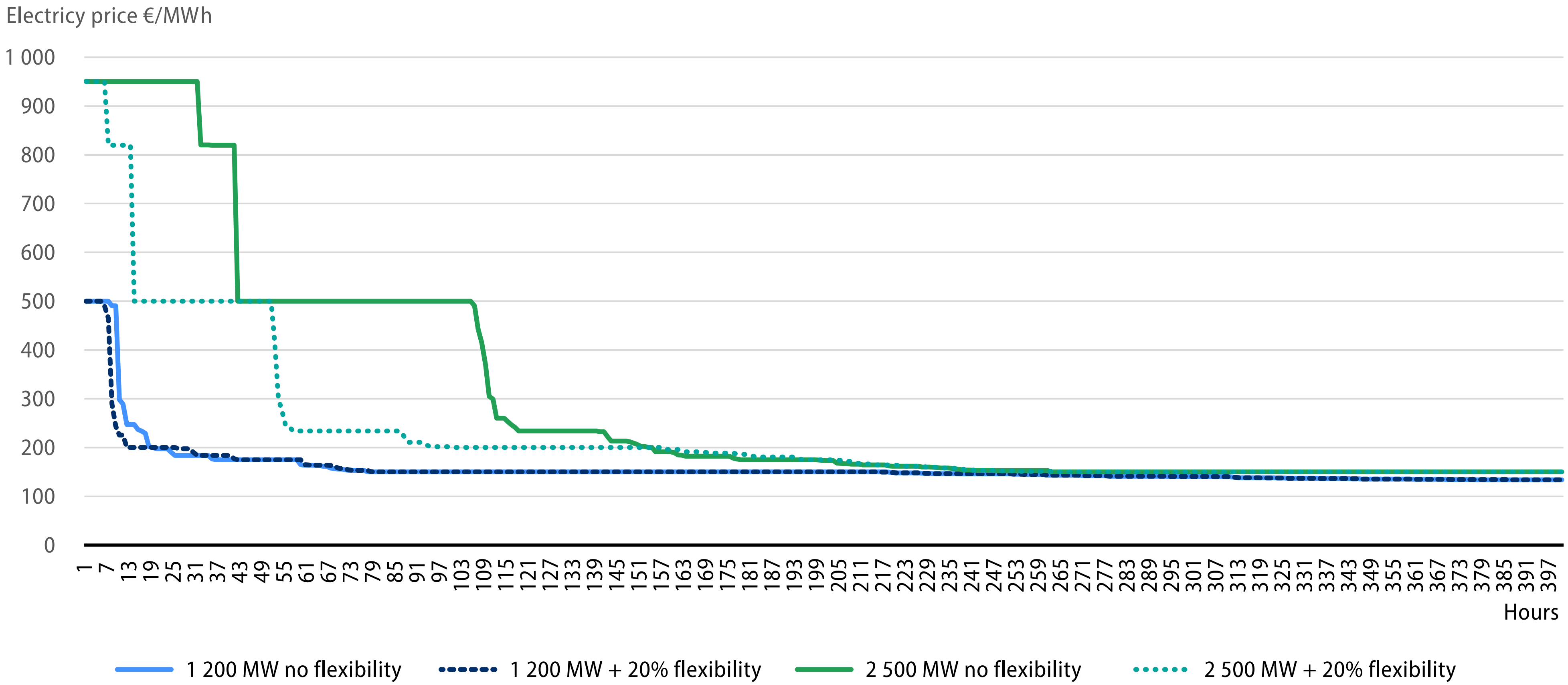
The analysis also examined the impact of flexibility. It assumed that data centre consumption could be reduced by 20 per cent whenever the electricity price exceeds EUR 200/MWh, for a maximum of one week. The analysis did not specify whether this flexibility would come from reducing consumption or using backup generators.

Flexibility has little impact on the annual average price when data centre capacity is 1,200 MW. The effect is greater at 2,500 MW, where flexibility reduces the annual average price by about 1.5 per cent compared to a no-flexibility scenario.

The role of flexibility becomes clearer when looking at the impact of data centre consumption on price spikes. Figure 3 shows how flexibility affects the distribution of hourly prices in the two scenarios. If capacity grows faster than expected (strong development), price spikes become much higher and more frequent. Flexibility has little effect in the baseline scenario, but in the strong development scenario, 20 per cent flexibility significantly reduces both the frequency and severity of price spikes. If data centres cannot provide this level of flexibility, it will have to be delivered at the power system level.

8 This effect occurs because inflexible demand during windless periods leads to very high spot prices, which push up the average. The same effect applies to other large industrial investments with inflexible electricity use.

Figure 3. Impact of flexibility on the distribution of hourly electricity prices in two data centre development scenarios. Figures reflect conditions during a year with low rainfall. Source: AFRY (2025)



The Government's draft energy and climate strategy, circulated for consultation in summer 2025, proposes promoting flexibility mainly through market mechanisms. These would incentivise flexible generation, demand response, and electricity and heat storage. The draft also calls for introducing a fossil-free flexibility support scheme, which the Ministry of Economic Affairs and Employment is currently preparing. In line with the Government Programme, it recommends assessing the need for capacity mechanisms while ensuring they do not weaken incentives for demand response or battery storage. Because data centres operate as baseload, there is growing need for flexibility lasting days or weeks, such as fossil-free reserve capacity, to prevent sharp price spikes during windless periods.

6 Environmental impacts of data centres

The main environmental impacts of data centres come from their electricity use, and the direct and indirect emissions and biodiversity effects linked to power generation. Around 40 per cent of electricity consumption is for servers, another 40 per cent for cooling (IEA, 2024), and the rest for other technology and infrastructure (Traficom/Third Rock Finland, 2025).

Different power sources have different environmental footprints. These can be reduced by improving energy efficiency, increasing the share of low-emission energy and cutting overall energy consumption. In Finland, 56 per cent of electricity is generated from renewables, and up to 95 per cent can be considered CO_2-neutral (Ramboll 2025). Finnish data centres are generally highly energy-efficient (Figure 4) and use more renewable energy than the European average (Figure 5).

Data centres also increase investment in renewables and grid infrastructure, supporting the green transition. Their energy efficiency is expected to keep improving, driven by EU's updated Energy Efficiency Directive. Large data centre operators can also build new renewable generation to match their needs through long-term power purchase agreements (PPAs).

Figure 4. Power Usage Effectiveness (PUE) for data centres in Finland and selected EU countries. This metric shows how much energy is used for purposes other than actual data processing. A lower number means better efficiency. Source: European Commission (2025a).

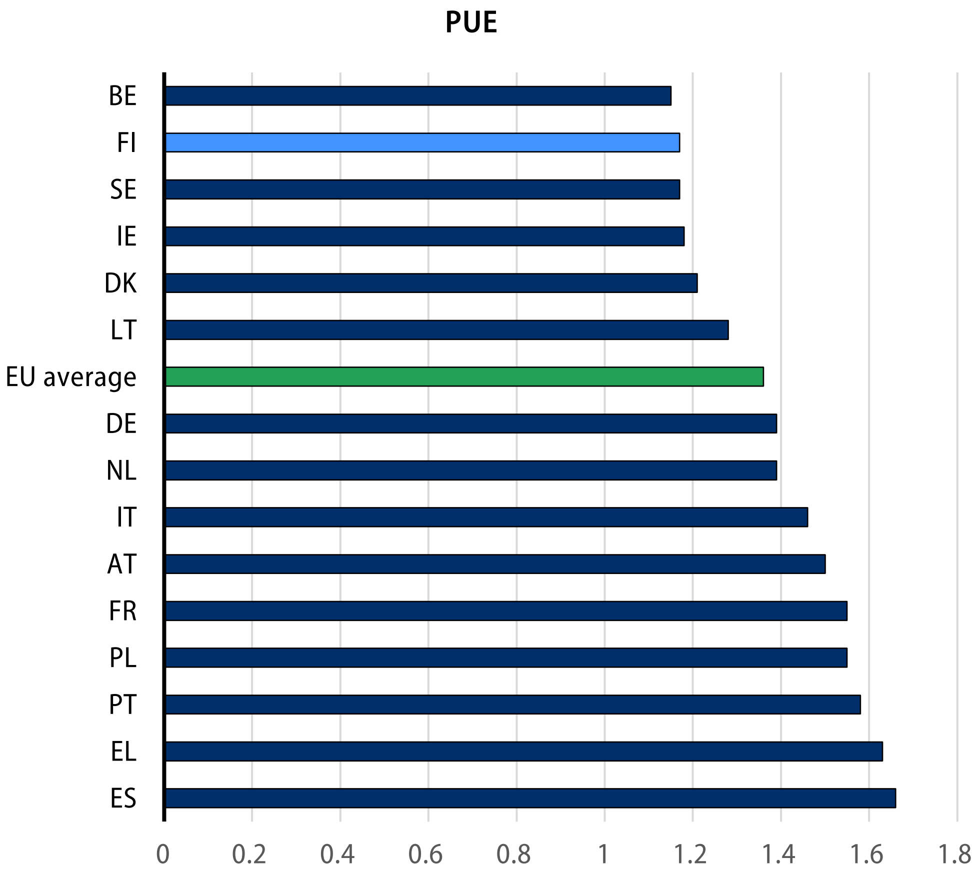
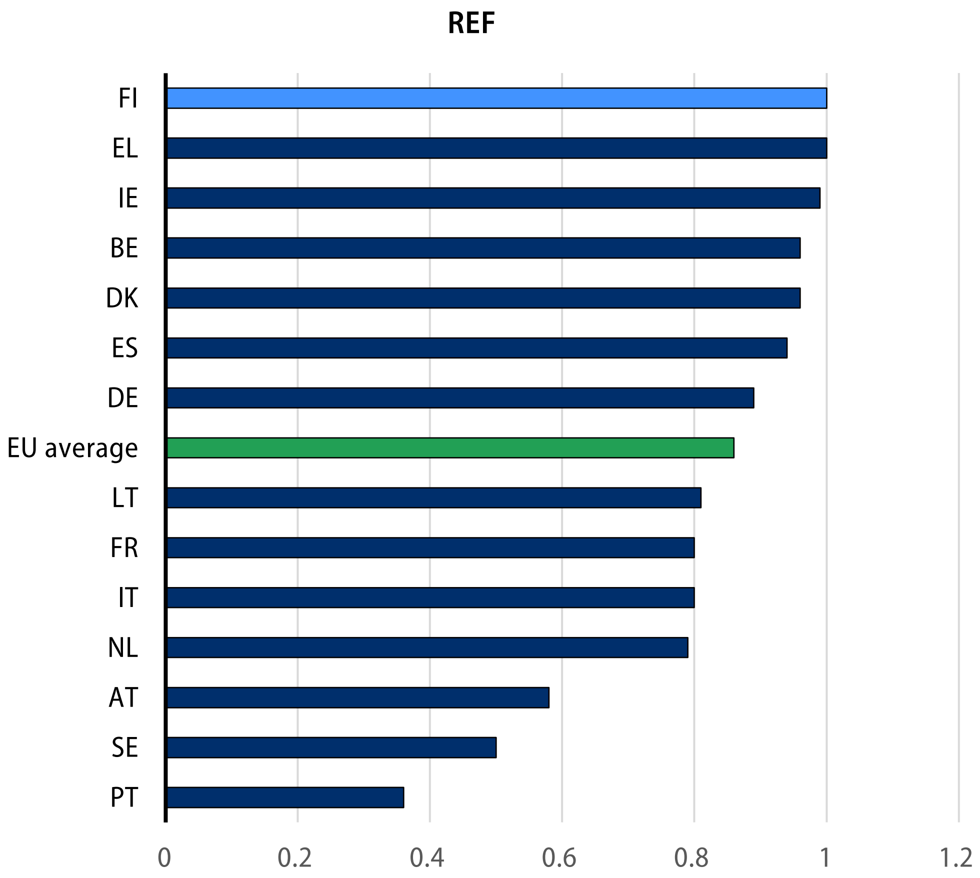


Figure 5. Renewable Energy Factor (REF) measuring the share of renewable energy in total energy use by data centres in Finland and selected EU countries. Source: European Commission (2025a).



Building data centres requires large land areas, which can lead to habitat loss, fragmentation and reduced biodiversity. Converting natural land to built environments increases stormwater management needs. New land use and large-scale construction always change the landscape. Environmental impacts also arise from the construction of power transmission connections and municipal infrastructure, and from transport. Environmental impacts from transport are at their greatest during construction. Finally, earthworks and building consume natural resources.

Globally, the average footprint of a data centre is estimated at 16 hectares (Roundy, 2025). However, AI-focused centres have rapidly increased both power and space requirements. In the US, new data centres averaged 90 hectares in 2024 (Cushman

& Wakefield, 2025). In Finland, APL Group's Varkaus site covers 28 hectares, Microsoft's Vihti site 60 hectares, and Hyperco has acquired 130 hectares in Pyhäjoki.

In addition to the data centre itself, green energy generation projects linked to it through PPAs also require substantial land areas. Their size depends on the chosen energy source. Solar power, in particular, consumes a great deal of land. Some estimates suggest that producing enough solar power for a 100 MW data centre would require over 500 hectares of panels (Simple Thread, 2025).[9]

In addition to direct emissions, construction generates indirect emissions from building materials. Climate impacts may also be caused by loss of carbon sinks if trees, vegetation or peat are cleared from the construction site. Sites should therefore be chosen where biodiversity impacts are minimal. Using disused industrial sites, existing infrastructure and built-up areas reduces environmental harm and makes better use of infrastructure that may otherwise be underused. Some operators have voluntarily funded conservation measures to compensate for their land use (Finnish Natural Heritage Foundation, 2025).

Manufacturing servers and other equipment causes emissions and requires rare earth metals and other natural resources. Mining these can lead to environmental damage such as deforestation, soil contamination and water pollution. At end of life, components become electronic waste. Globally, only about one-fifth of electronic waste is properly recycled; the rest ends up in landfills or nature, causing harm to people and ecosystems (Traficom/Third Rock Finland, 2025). These indirect environmental impacts generally occur outside Finland.

Since data centres increase the use of natural resources through construction, equipment and the additional electricity generation they require, these impacts should be considered both during planning and throughout their lifecycle. Recycling and reusing servers and other hardware could create new business opportunities for Finland and support the EU's goal of strengthening critical raw material value chains.

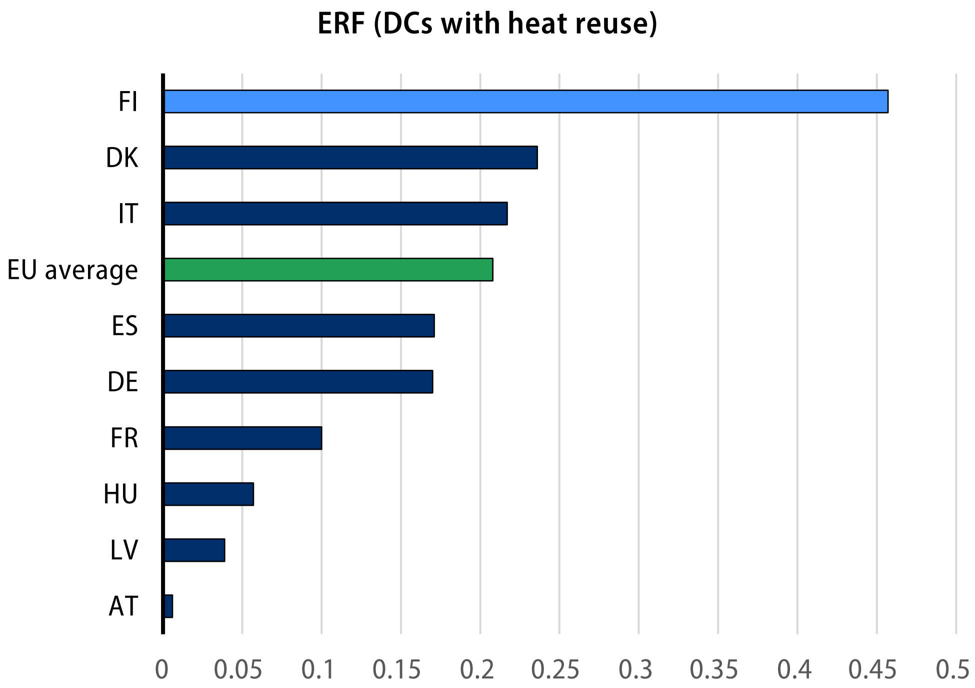
Waste heat is another major environmental factor. If not reused, it may be discharged into water bodies, causing local environmental damage such as thermal stress or additional water consumption. However, waste heat can be recovered for

9 The calculation takes into account the need, due to the nature of solar power, to build peak capacity about four times higher than the baseload requirement.

district heating, especially in densely populated areas with high heat demand. This can replace fossil fuels and improve overall energy efficiency. Heat should be used as close as possible to its source to minimise transmission losses. Locating data centres near district heating networks and urban areas supports Finland's climate goals and circular economy principles. Waste heat recovery can also be applied in other industrial processes. Finnish data centres are among Europe's leaders in this area (Figure 6).

Significant market-driven projects are being planned and built to recover waste heat from data centres. The EU Energy Efficiency Directive now requires data centres over 1 MW to reuse waste heat unless they can prove it is technically or economically unfeasible.

Figure 6. Energy Reuse Factor (ERF) for data centres in Finland and selected EU countries. This metric shows what proportion of total energy consumption is reused outside the facility, for example as district heating or in industrial processes. The data for this chart only includes centres that reuse waste heat. Source: European Commission (2025a).



In Finland, the government proposal to implement the Energy Efficiency Directive is currently before Parliament (HE 85/2025 vp). Waste heat recovery would include, for example, feeding heat into a district heating network or capturing it for use within the data centre itself. According to the proposal, in 2023 data centres supplied around 125 GW of waste heat to district heating networks in seven municipalities. This covered an estimated ten data centres, representing about 20 per cent of centres with a capacity above 1 MW, although the share of recoverable heat is higher in terms of energy volume. Waste heat is also used for purposes such as heating staff facilities on-site. One possible barrier to using waste heat in district heating is the lack of economically viable demand within a reasonable distance from the data centre.

The European Commission is preparing a common EU classification system for data centre sustainability under the Energy Efficiency Directive and its delegated regulation. Early plans include specific energy efficiency requirements and clearer criteria for waste heat recovery. The Directive already requires data centres with a capacity above 500 kW to report certain annual data to the Commission's system. This includes information relevant to energy efficiency, water footprint and demand-side flexibility.

The environmental and land-use impacts of data centre construction are linked to zoning and permitting processes that take place before construction. Construction that is considered to have a significant impact on its surroundings, or require coordination of activities and guidance of construction, must have a local detailed plan under the Land Use and Building Act (132/1999). The activity shown in the plan must align with the objectives of the master plan or fit into its overall framework. The detailed plan can designate areas for different purposes and guide construction and land use according to local conditions, urban and landscape character, good building practice and other planning objectives. It is important to identify the zoning status and the landscape and environmental features early, as they may affect the location and design of the data centre.

In addition to land use planning, data centre construction requires a permit under the Construction Act (751/2023). Other permits or exemptions may also be needed, such as those under the Water Act and the Nature Conservation Act. Backup power systems may require an environmental impact assessment (EIA). Data centres also need an environmental permit under the Environmental Protection Act (527/2014) for backup generators and fuel storage.

7 Data centres and security

In today's intensifying geopolitical competition, technology is inseparable from security. This highlights the need to strengthen technological independence at EU and national level. Key measures include improving self-sufficiency, boosting resilience and managing dependencies on third-country actors in critical digital infrastructure such as data centres.

The concentration of data centres is a global megatrend. To manage related dependencies, expanding domestic data centre operations is in Finland's national interest, especially in the current geopolitical climate. Data centres process data and rely on chips, computing power and applications that involve conflicting security interests. This means the operator and type of data centre matter from a security perspective.

Having sufficient capacity in Finland ensures that critical public data resources can be stored within national borders. A broad domestic data centre sector also requires and brings extensive international network connections, enabling rapid evacuation of data in emergencies.

Some public commentary has suggested that hosting major foreign data resources in Finland could increase the country's strategic importance and other nations' willingness to defend Finland militarily. Experts, however, do not consider this effect significant. Nevertheless, comprehensive and well-distributed international network links improve resilience against potential hybrid threats.

A single data centre rarely poses a direct threat to Finland's national security. However, Finnish data centres could give third countries access to data, chips, computing and algorithm development they would not otherwise have. This is why assessing dependencies created by data centre investments requires understanding the operator, the nature of its activities and how they may affect Finland.

While individual centres are not seen as direct information security or data protection risks, the data they process and their applications can become targets or channels for foreign intelligence operations and information influence activities. From a cybersecurity and data protection standpoint, increasing data centre capacity within the EU is positive. Yet foreign intelligence laws may still allow access to data processed in data centres regardless of their location or governance arrangements. Storing public security-related data in private centres therefore requires ensuring national data sovereignty in all circumstances.

Existing EU and national legislation on critical infrastructure security, resilience and robustness (NIS2 and CER Directives) obliges data centre operators to implement risk management measures and report incidents. It also gives authorities powers to monitor compliance. If harmful traffic threatening information security spreads from any server room to the internet, telecom operators can intervene at the level of internet access services under the Act on Electronic Communications Services (917/2014, section 272), as they already do daily to block other malicious in Finnish networks.

Under the EU Digital Services Act (DSA), data centre services are classified as hosting services that store user-provided data on request. In addition to general obligations for intermediary services, hosting providers must offer a mechanism for reporting illegal content and justify any restrictions on user content.

When considering whether to allow foreign property purchases, authorities consider the impact of a data centre's location on national security but do not otherwise take a stand on lawful operations (Act on Permit Requirements for Certain Real Estate Acquisitions, 470/2019).

However, the Act on the Screening of Foreign Corporate Acquisitions (172/2012) allows intervention in foreign ownership in case of acquisition of security-critical companies. The Act generally favours foreign investment, but authorities can monitor the ownership of companies considered essential for security of supply and national security and restrict foreign ownership if necessary. The Act does not cover service agreements between companies, such as colocation, nor greenfield investments. However, the Act will be revised during this government term to better address risks to national security, security of supply and broad-based influence activities. The revision will also consider extending monitoring to greenfield investments.

At EU level, Regulation (EU) 2019/452 of the European Parliament and of the Council establishing a framework for the screening of foreign direct investments into the Union is directly applicable legislation in Finland. Changes to the EU Regulation will also affect national legislation on acquisitions. Preparations to amend the EU Regulation are under way, and the aim is to align the revision of the national Screening Act with these changes.

Data centres are among the sectors most exposed to supply chain dependencies. Export restrictions by third countries can affect the availability of critical raw materials and components, and therefore the data centre operating conditions. Finland has sought to secure access from partner countries by monitoring the export of AI chips, making the country a safe destination for technology imports. If a data centre were to export datasets or provide services subject to export controls, an export licence would be required already under current rules. The end-user and purpose of data centres in Finland could potentially influence the overall availability of AI chips from partner countries.

The application of current legislation has revealed difficulties in identifying the actual controllers and beneficiaries of data centres. Authorities need better visibility and shared understanding of the sector. Permit and notification processes should be developed so that security impacts and related economic and political dependencies can be assessed before investment decisions. Best practice from other sectors includes the permit process for establishing satellite ground stations and radars, which also requires disclosure of customers.

A lack of a shared situational picture of data centre investments and operations within the central government has also been identified as a key challenge. Improving information exchange across central government and refining permit processes could help address this. Existing coordination bodies should be used for this purpose wherever possible.

Appendices

Appendix 1: Common claims and facts about data centres

Claim: **Data centres hardly create jobs**

- Fact: A large data centre of around 100 MW typically employs 50–150 people directly. Industry estimates suggest data centres in Finland currently employ about 300 full-time staff and generate roughly 2,000 indirect jobs. During construction, a large centre can create several thousand person-years of temporary work. While data centres employ fewer people than some other energy-intensive sectors, their employment impact is still significant.

Claim: **Data centres take all the electricity away from industry and other users**

- Fact: Large data centres usually secure electricity supply in advance by signing power purchase agreements (PPAs) for clean energy investments that match their capacity needs. This means consumption and generation investments go hand in hand, and supply grows in step with demand.

Claim: **Data centres drive up electricity prices**

- Fact: Because data centre investments also increase generation capacity (see above), they help curb upward pressure on prices. However, as power generation relies more on wind and solar, price spikes can occur especially during calm and cold periods. This is why it is important to ensure data centres have enough capability to participate in demand and supply flexibility.

Claim: **During hours of high electricity prices (no wind, cold and dark), data centres get power at a fixed rate, while regular consumers and businesses face sharp price increases on the spot market**

- Fact: Consumers and industry, including data centres, can buy electricity at either a variable (spot) price or a fixed rate. During expensive hours, those on fixed-rate contracts – whether households or businesses – pay the agreed price. However, expected price spikes (price risk) are already factored into fixed-rate deals. So consumers, businesses and industry all have the same options for managing price risk.

Claim: **Sweden and Norway don't offer electricity tax relief for data centres**

- Fact: Both Sweden and Norway have abolished specific tax reliefs for data centres. However, governments in both countries are preparing major cuts to general electricity tax, which will also reduce costs for data centres.

Claim: **Data centre operators do not pay taxes in Finland**

- Fact: Like other businesses, data centre operators pay real estate tax, corporation tax, VAT and electricity tax in Finland. Their employees also pay income tax. The sector's total tax contribution is estimated at around EUR 100 million in 2025.

Claim: **Data centres enable organisations' AI development**

- Fact: The growth of data centre capacity is part of a global trend driven by digitalisation, especially the rise of AI and cloud services. Physical location is not the key factor, but having centres in Finland can lower the threshold for Finnish companies to adopt AI in their business.

Claim: **Data centres bring research and product development to Finland**

- Fact: Data centres make this possible but do not guarantee it. Dedicated measures are needed to attract R&D and new business ecosystems, and data centre operators can play a role in these efforts.

Claim: **Data centres damage the environment and waste energy**

- Fact: The main environmental impacts of data centres come from their electricity use, and the direct and indirect emissions and biodiversity effects linked to power generation. On the other hand, data centres also increase investment in renewables and grid infrastructure, supporting the green transition in the economy. Their environmental impacts and energy efficiency can be managed, for example through environmental permits and requirements for nature restoration and waste heat recovery.

Claim: **Data centre operations pose major security risks**

- Fact: A single data centre rarely poses a direct threat to Finland's national security. However, when assessing dependencies created by data centre investments, it is important to consider the type of operator and activity and how these could affect Finland. Authorities' ability to monitor data centre operations should be developed as needed, in cooperation with other EU countries.

Appendix 2: Consultations and participants

More extensive consultations of experts

Prime Minister's roundtable on the data economy roadmap, 24 June 2025 Petteri Orpo, Prime Minister; Riikka Purra, Minister of Finance; Sakari Puisto, Minister of Economic Affairs; Riku Huttunen, Director General, Ministry of Economic Affairs and Employment; Mervi Airaksinen, Managing Director, Microsoft; Tiina Kupila-Rantala, Vice Managing Director, CSC; Asta Sihvonen-Punkka, CEO, Fingrid; Aleksi Taipale, Co-Founder & CEO, Hyperco; Thomas Hietto, Business Area President, Sweco; Pasi Korhonen, Chief Executive Officer, Securitas Technology; Heli Koski, Research Director, Etla; Heikki Haasmaa, CEO, Sitowise; Veli-Pekka Alkula, Vice President Finland and the Baltics, OX2; Ilkka Niemelä, President, Aalto University; Heikki Vuorenmaa; President and CEO, YIT; Veijo Terho, Chair of the Board, FDCA; Esa Hyvärinen, Senior Vice President, Fortum; Ari Järvelä, Managing Director, Tietoevry; Juha Luusua, CEO, Eltel; Ilkka Tykkyläinen, CEO, Pohjolan Voima; Topi Manner, President & CEO, Elisa; Kristo Lehtonen, Director, International Programmes, Sitra; Jukka Leskelä, Managing Director, Finnish Energy; Pekka Metsi, CEO, Granlund; Elina Ussa, Managing Director, FiCom; Niko Halonen, Senior Vice President, CGI; Tatu Rahkamäki, Director, Palta; Saku Sipola, President & CEO, SVR; Kari Päivärinta, Country Manager, Glesys; Laura Juvonen, Senior Vice President Strategy, VTT; Jyri Häkämies, Director General, Confederation of Finnish Industries; Helena Soimakallio, Executive Director, Technology Industries of Finland; Olli Sirkka, CEO, Helen; Ari Peltola, Managing Director, Oracle; Antti Järvinen, Country Director, Google; Kim Gunnelius, Head of Finland, Managing Director, Verne; Pekka Järveläinen, Sales Director, AtNorth

Data centre operations and the international competitive landscape, 29 August 2025 Matti Liski, Professor, Aalto University; Janne Koistinen, Head of Infra Product Management; Antti Järvinen, Country Director, Google; Janne Kari, Head of Industry, Business Finland; Joonas Mikkilä, Senior Adviser, Technology Industries of Finland; Mika Tuuliainen, Chief Policy Adviser, Confederation of Finnish Industries; Veijo Terho, Chair of the Board, FCDA; Mikko Toivanen, Chair of the Board, Polarnode; Pekka Järveläinen, Sales Director, AtNorth; Urs Pennanen, Senior Vice President, Fortum; Sampsa Nissinen, Senior Ministerial Adviser, Ministry of Economic Affairs and Employment; Maria Rautavirta, Chief Specialist, Ministry of Transport and Communications

Data centres as part of the power system and electricity markets, 4 September 2025 Tatu Pahkala, Senior Ministerial Adviser, Ministry of Economic Affairs and Employment; Risto Kuusi, Senior Advisor, Fingrid; Veijo Terho, Chair of the Board, FCDA; Heidi Paalatie, Director of Operations, Renewables Finland; Pasi Kuokkanen, Managing Director, Association of Energy Users in Finland; Samuli Honkapuro, Professor, LUT University; Antti Poikola, Leading Expert, Technology Industries of Finland; Pekka Salomaa, Director, Finnish Energy

External and spillover effects of data centres, 4 September 2025 Mika Kataikko, Chief Specialist, Ministry of Economic Affairs and Employment; Joonas Mikkilä, Chief Specialist, Technology Industries of Finland; Mari Walls, Director, CSC; Samuel Kaski, Director, Ellis Institute; Janne Kotiaho, Chair, Finnish Nature Panel; Martti Setälä, Senior Adviser, Association of Finnish Cities and Municipalities; Aino Salo, Public Affairs Manager, Finnish Property Owners Rakli; Seppo Orjasniemi, Senior Ministerial Adviser, Ministry of Finance; Sami Rinne, Ministerial Adviser, Ministry of the Environment; Antti Arasto, Vice President, VTT

Geopolitics, security and information security, 5 September 2025 Laura Eiro, Director General, Ministry of Transport and Communications; Anu Sallinen, Senior Ministerial Adviser, Ministry of Defence; Lasse Puroma, Chief Specialist, Ministry of Economic Affairs and Employment; Ismo Parviainen, Chief Specialist, Ministry of the Interior; Stefan Lee, Counsellor, Ministry for Foreign Affairs; Sari Kajantie, Senior Researcher, Finnish Security and Intelligence Service; Anu Talus, Data Protection Ombudsman, Office of the Data Protection Ombudsman; Vili Lehdonvirta, Professor, Aalto University; Markus Holmgren, Research Fellow, Finnish Institute of International Affairs

Interagency cooperation, 25 September 2025 Aino Sipari, Director of Unit, Ministry of Transport and Communications; Anna-Leena Seppälä, Senior Ministerial Adviser, Ministry of the Environment; Anu Sallinen, Senior Ministerial Adviser, Ministry of Defence; Eeva Vahtera, Senior Ministerial Adviser, Ministry of Economic Affairs and Employment; Petri Knape, Director, Ministry of the Interior; Petri Peltonen, Under-Secretary of State, Ministry of Economic Affairs and Employment; Riku Huttunen, Director General, Ministry of Economic Affairs and Employment; Marianne Nissilä, Counsellor, Ministry for Foreign Affairs; Ville Koponen, Senior Ministerial Adviser, Ministry of Finance

Consultations with individual parties/experts

Tesi, 20 August 2025: Henri Hakamo, Chief Strategy and Research Officer

Ministry of Finance Tax Department, 25 August 2025 (Teams): Merja Sandell, Head of Unit; Leo Parkkonen, Senior Ministerial Adviser; Jussi Kiviluoto, Specialist, Finance

Google, 2 October 2025, visit to Hamina Data Centre: Antti Järvinen, Country Director; Heidi Jern, Government Affairs and Public Policy Manager; Jukka Vainonen, Data Center Operations Site Manager; Ilkka Alapoikela, Site Server Operations Manager; Niko Repo, Data Center Security Manager; Maud Texier, Director EMEA Energy, Data Centers; Zivile Vens, Energy Regulatory Negotiator, Data Centers; Enrique Frances, Data Center Energy Strategic Negotiator; Eduardo Albuquerque, Strategic Negotiator, Data Centers; Markus Hongisto, Country Sales Lead, Google Cloud; Irene Ek, Government Affairs and Public Policy Manager, Google Cloud Nordics

European Commission, 3 October 2025 (Teams): Werner Steng, Cabinet Member; Executive Vice President Henna Virkkunen at European Commission

Business Finland, 3 October 2025 (Teams): Teija Lahti-Nuuttila, Executive Director; Jouni Salonen, Senior Advisor; Janne Kari, Head of Industry, ICT and Digitalisation; Arto Pussinen, Senior Director

FDCA and Microsoft, 8 October 2025 (Teams): Heidi Nystedt, Director of Governmental Affairs MS;, Olli Huotari Senior Program Manager MS; Veijo Terho, Chair the Board, FDCA

Appendix 3: Parties that have submitted written views and background material to the rapporteur

- AFRY
- DNA
- E-Heat
- Fingrid
- Google
- Hyperco
- Green Fennica
- Ministry of Transport and Communications
- Microsoft
- Northeast Flow
- Ministry of Justice
- Ministry of Defence
- Ministry of the Interior
- Finnish Academy of Science and Letters
- Finnish Electrotechnical Trade Association
- Technology Industries of Finland
- Ministry of Economic Affairs and Employment
- Ministry for Foreign Affairs
- Ministry of Finance
- Verne
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