# **B** E R G M A N N

## Data Center Investments in Finland

### **Opportunities 2019**

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### Finland as a Data Center Location

A Market Overview

Finland has become one of the most attractive investment targets for large and mid-sized data centers. There are many good reasons for this. Let us provide an overview of the Finnish market for data centers as it presents itself today.

#### **Investment environment**

Modern data centers require abundant, reliable energy supply; strong internet connectivity; favorable weather conditions; stable societal conditions; excellent geographical location; and a supportive political and regulatory environment. Finland has all of these making it an ideal location for data centers.

Finland has a reliable nationwide power grid, availability of renewable energy and one of Europe's lowest electricity prices. According to Invest in Finland, it is possible to save up to 50% of total electricity costs compared to other European locations. In addition, large-scale data centers have enjoyed lower energy tax rates since April 2014. Due to the alleviation the energy tax for data centers in Finland is 0,703 cents per kWh. However, only data centers exceeding 5 MW are entitled to the allevia-tion.

The operating costs are further reduced by the fact that Finland's climate is cool year-round. For example, the annual average temperature even in the capital city Helsinki, situated in southern Finland, is merely 6.6 degrees of Celsius – in northern Finland the temperatures are even lower. As a land of thousands of lakes and with a coastline exceeding thousand kilometers, Finland offers also great possibilities for waterbased cooling systems.

Energy companies in Finland are also eager to reuse and buy the waste heat from data centers. Finland has one of the most developed district heating systems in Finland and an extensive district heating network, and heat is sold at market prices without complex regulatory frameworks.

Finland offers a secure environment for data centers not only geologically but also in terms of political and legal stability. According to the most recent Data Center Risk Index 2016, Finland was ranked the world's 4th safest country for data centers.

Last but not least, Finland has an abundancy of skilled, dedicated, and language-proficient IT professionals.

#### Connectivity

Reliable infrastructure is naturally one of the key requisitions for data center investments. Finland has a strong track record: several operators' national fiber networks provide for stable and redundant routing possibilities.

Finland has an ideal location in Europe with cable connections to Nothern and Central Europe. It has direct cable connections to Sweden, Estonia, Russia and Germany. In 2016, Finland was connected to directly to Germany through the so-called C-Lion1 submarine cable. The cable is 1 172 kilometers, consisting of eight optical fiber pairs with a total capacity of 144 Tbps.

Finland also functions as a key location between Europe and Asia, and the country continues to develop its infrastructure in order to reduce the latency by creating shorter links from Europe to Asia. A direct cable connection to Asia via the Northeast Passage is in planning.

#### **Existing projects**

According to research in 2012, Finland hosted around 2,800 data centers. However, there are less than ten data centers with the total capacity exceeding 5 MW. Hence large-scale data centers are relatively novel to Finland. However, in recent years Finland has been attracting increasing interest amongst data center investors, various big investments have already taken place, and more are on the pipeline.



Source: Invest in Finland

The largest data center projects in Finland include Google's data center at Hamina, southern Finland. In 2009, Google bought a 60-year-old Finnish paper mill and turned it into a modern data center that is cooled down using cold sea water and powered by wind energy. The data center has an estimated total capacity of over 100 MW.

The second largest data center in Finland is tele operator Telia's multitenant data center in Helsinki that started operation in 2018. It is the biggest multitenant data center in Northern-Europe. It uses new technology and is currently the most modern data center in Europe. The center has a total capacity of 30 MW but can, if necessary, be increased up to 100 MW.

Also in 2018, Hetzner Online GmbH, a rapidly growing German data center operator, started operations of a new data center in Tuusula in southern Finland. The data center has an estimated total capacity of 20 MW. Hetzner states that it chose Finland as the location for the data center because of cheap electricity, cool weather and good cable connections to Germany due to the new C-Lion1 submarine data cable, which Hetzner also invested into.

Another large data center investment was made in 2013 by Russian internet company Yandex. The company, renowned for its popular search engine, built a 40 MW data center at Mäntsälä, southern Finland – a location chosen due to its good location and reliable energy output.

More data center investments are expected in Finland. Notably, a consortium of enterprises called Silent Partner announced in October 2018 that they are planning to build three data centers in Finland with the expected maximum capacity of 250 MW.

#### **Finland Facts**

Total area:



Key industries are electronics, metal, forestry and chemical industries. The main import partners are Germany, Sweden, the US, the Netherlands and Russia. **Population:** 5.5 million (2018 estimate)

338,434 km2

Finland has been a European Union member state since

1995 and is the only Nordic state to have joined the euro.

Largest cities by population:

	Helsinki (644,788), Espoo (279,284),
	Tampere (231,967), Vantaa
	(223,108), Oulu (202,238) and Turku
	(189,794) (December 2017)
Currency:	Euro (€, EUR)
GDB:	EUR 215 bn (2016 estimate)
GDB per capita:	EUR 39,236 (2016 estimate)
Official languages:	Finnish and Swedish
Corporate tax rate:	20 %
<b>Trade organizations:</b> Source: Statistics Finland and Po	EU (1995), WTO (1995), OECD (1969) opulation Register Center

#### **Public support**

The Finnish government aims to develop Finland into a Global Data Hub – it was one of the main investors in the C-Lion1 submarine cable project and it is also strongly supporting building of a cable between Asia and Europe. Finland's commitment to data center projects is also expressed in lower energy tax rates.

Finland supports data center projects through its organization Invest in Finland. Invest in Finland has mapped potential sites for data center investments, identifying over 50 sites with more than 5 million square meters of building rights and a total power capacity exceeding 2500 MW. Invest in Finland supports data center projects and investors also by offering information and advice.

Municipalities in Finland are eager to get their share of the data center investments and are, thus, competing to attract investors in a variety of ways, for example by offering affordable sites.

All in all, in Finland the stakeholder interest is strong, making it a particularly attractive location for foreign investors.

### Data Center Investor's Due Diligence

Legal Aspects

Before selecting the site for your data center, it is prudent to subject the candidate sites to thorough scrutiny (due diligence). Here, technical and legal aspects go hand in hand. The list of items to be checked will depend on the nature of the project. In this article, we highlight some central legal aspects.

#### Permissions

As any building activity in Finland, a data center will require a construction permit from the municipality. The permit is granted based on the local zoning plans. Even if a local zoning plan already exists at the site, it may not, however, be sufficient for building a data center and, consequently, it may have to be run through the local organs for amendment.

Environmental permits are required for many data center projects, mostly due to their need to construct emergency power generators, but also with respect to their use of cooling water. Additionally, if water from natural water sources is used, a water permit is required. Further special permits may be required depending on the circumstances.

In Finland, one-stop permitting process is under preparation and expected to come in force in 2020. This would make the permitting process less burdensome, as multiple permits could be applied at the same time and go through the same process, compared to the current system where various permissions must be applied for separately, and they are granted by different authorities.

#### Power supply and connectivity

Finland's power market is largely liberalized; industrial consumers can freely choose their power vendor. Large consumers may decide to purchase their power directly from the power exchange or via a wholesale agent.

It is also possible to procure power directly from a specific producer through bilateral contracts. Power purchase greements, PPAs, are becoming more popular for purchasing power for data centers. In 2018, Google contracted three wind power projects through a 10-year PPA to power its Hamina data center. Finland is part of the common Nordic power market Nord Pool, which facilitates direct procurement even from sources outside Finland.

Data center operators can decide to rely on renewable energies utilizing green certificates. The certificate system is voluntary in Finland. Green certificates can be acquired before or after the actual power purchase. Renewable energy is becoming more and more competitive with conventional power, and especially through PPAs the renewable energy costs are competitive with the costs of power from the grid.

One criterion for site selection can be the possibility to utilize waste heat. District heating has a strong standing in Finland, and at many sites it will be possible to make mutually ben-eficial arrangements with the local utility companies for what may be referred to as "combined data and heat".

Data connectivity arrangements need to be made with one or several backbone operators, depending on the desired degree of redundancy.

#### Real estate development

How will you obtain control over the real estate that you have picked for your data center? The legal rules around real estate in Finland differ in many aspects from what an investor may be accustomed to. For example, the actual owner of a site may not always be visible in the real estate registers. And registrations of encumbrances on the estate may be scattered around a number of different registers.



### B e r g m a n n

Data center sites are often offered by municipalities or other public owners that prefer not to sell the site but rather grant a long-term land lease right. When established carefully (but only then), such right is sufficient for the data center operator in many scenarios. In particular, the lease can be fully transferable, it will entail that the operator has ownership of the buildings and equipment, and it can be used as collateral much the same as real estate ownership.



### **Procurement of Construction Services**

**Risk Management** 

For many data center investors, their Finnish data center is the first contact with Finland as a business environment. Many things work a little different here. It is a question of good management not to let these little differences turn into actual business risks. In this article, we look into a few aspects.

# Contract models and their impact on availability of services

Depending on whether you choose to procure the complete data center construction work as a turn-key contract, or whether you manage the project yourself, your company will have to enter into one or many construction delivery agreements. You will have seen and used such agreements before. Strictly speaking, there is nothing (legally speaking) that would prevent you from using the same contracts in your project in Finland.

However, you have to adjust yourself to the local practices if you want to have a range of reasonable bids from reliable suppliers to choose from when awarding your contracts. As far as Finnish suppliers are concerned, they are accustomed to certain contractual standards. They will base their price calculations on their experience with these standards.

For each deviation from the normal, your potential contractors will make (usually disproportional) risk mark-ups on their bid.

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If the contract to be awarded looks too strange, many reliable bidders will be scared away altogether, and you will be left with the suppliers most prepared to take risks. Which may be a risk for you.

#### **Risk allocation and cost control**

In a large-scale construction project, the damages resulting from malperformance and delay generally exceed what can be expected to be collected from the malperforming supplier (often a small service provider low in the contract chain). Prudent risk management and damage avoidance should be built into the contract chain.

Typical risk factors can be further controlled by an active project management, with appropriate legal or factual action being taken as quickly as possible when problems emerge.

Finnish law is quite generous when it comes to awarding additional compensation for work suppliers for work that is alleged to be outside of the scope of a fixed price contract. Usually, the chain of events leading to such awards involves some sort of communication or miscommunication between lower-level employees on both sides acting at the work site.

Effective cost control in Finland requires active cost management in all phases: stringent contract agreements; supervision at the site; clear communication of responsibilities to the contract partner; resolute intervention in unclear situations. Early and continuous procurement of legal advice will go a long way towards securing your interest in the long run.

#### Important contacts

#### Networks and advisors

#### Bergmann Attorneys at Law

Helsinki-based law firm with a strong specialization in industrial projects in construction and engineering, energy, and infrastructure.

Pohjoisesplanadi 35 E 00100 Helsinki office@bergmann.fi www.bergmann.fi

#### Invest in Finland

Government agency (under the roof of Business Finland) aiming at the promotion of foreign investments in Finland.

Porkkalankatu 1 00180 Helsinki info@investinfinland.fi www.investinfinland.fi

#### **Digitice Finland**

A Finnish data center and digital business cluster that aims to bring together the expertise needed to grow data center and digital business industries in Finland.

P.O. Box 10 (Seminaarinkatu 2) 87100 Kajaani www.digitice.fi

#### Finnish Data Center Forum ry

An association dedicated to data center professionals. It aims to connect Finnish and other data center professionals, customers and service providers.

Eteläranta 10 00130 Helsinki www.fdcf.fi

#### Proceed Consulting Ltd.

A consulting service provider specialized in management consulting and strategic projects related, for example, to data centers.

Laakeritie 22 90620 Oulu Tel. +358 40 726 8875 petri.hyyppa@proceed.fi www.proceed.fi

### Finnish-British Chamber of Commerce

The London-based FBCC is an independent non-profit organization that is dedicated to the formation and promotion of effective business networks between Finland and Britain. Lyric House, 5th Floor 149 Hammersmith Road London W14 OQL or P. O. Box 83 00101 Helsinki events@fbcc.co.uk www.fbcc.co.uk

#### Deutsch-Finnische Handelskammer

(German-Finnish Chamber of Commerce)

Being part of the network of German chambers of commerce,

Major fiber network operators

#### Cinia Group Oy

Ilmalantori 1 00240 Helsinki Tel. +358 29 300 8710 contactcenter@cinia.fi www.cinia.fi

#### DNA Oy

P.O. Box 10 01044 DNA Tel: +358 44 0440 www.dna.fi

#### Elisa Oyj

P.O. Box 1 00061 Elisa Tel: +358 102 6000 www.elisa.fi business relations between Germany and Finland. P. O. Box 83 (Mikonkatu 25)

the Helsinki-based chamber offers

various services in order to promote

00101 Helsinki info@dfhk.fi www.dfhk.fi

#### **FNE-Finland Oy** Vantaankoskentie 14

01670 Vantaa Tel +358 9 4257 9202 fne@fne.fi www.fne.fi

#### Telia Finland Oyj

P.O. Box 4700 00051 Telia Tel: +358 200 18818 www.sonera.fi State administration and state-owned companies

#### Fingrid Oyj

Enterprise in majority state ownership responsible for the Finnish power transmission grid. At present, the grid comprises lines at a total length of 14,000 km. Some 2,500 km of additional lines are being added in the coming 10 years.

P. O. Box 530 (Läkkisepäntie 21) 00101 Helsinki Tel. +358 30 395 5000 kirjaamo@fingrid.fi www.fingrid.fi

### Ministry of Transport and Communications

(Liikenne- ja viestintäministeriö)

The ministry in charge of communications policy, including communications networks, information security and data protection. The ministry has taken an active stance towards the Northeastern Passage Undersea cable.

P.O. Box 31 (Eteläesplanadi 16) 00023 Government Tel. +358 295 16001 kirjaamo@lvm.fi www.lvm.fi

**Ministry of the Environment** (Ympäristöministeriö)

The ministry responsible for the built environment, housing, biodi-

versity, sustainable use of natural resources and environmental protection.

P. O. Box 35 (Aleksanterinkatu 7) 00023 Government Tel. +358 2952 50000 kirjaamo.ym@ymparisto.di www.ym.fi

#### Finnish Communications Regulatory Authority (Viestintävirasto)

The authority monitors and promotes communications markets and services, in the interests of the general public, business and industry. It also maintains an overview of the functionality of electronic communications networks and information security, and reports of eventual information security threats.

P. O. Box 313 (Dynamicum, Erik Palmenín aukio 1) 00561 Helsinki Tel. +358 295 390 100 kirjaamo@viestintavirasto.fi www.viestintavirasto.fi

Other relevant contacts

#### FICIX ry

FICIX ry is the first and the biggest Internet exchange point provider in Finland. It is a non-profit organization with currently 29 members. FICIX operates at three locations in Helsinki, Espoo, and Oulu.

P.O. Box 146 00180 Helsinki contact@ficix.fi www.ficix.fi

#### **TREX Regional Exchanges Oy**

TREX operates an Internet exchange point in Tampere as a commercial service.

Hermiankatu 6 A 33720 Tampere info-2016@trex.fi www.trex.fi

#### Nord Pool

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Nordic power market where the power price is determined according to supply and demand. Their webpage includes useful information on the electricity prices.

www.nordpoolspot.com

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- Financial arrangements

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- Planning law and permitting
- Environmental compliance

#### **Bidding and Contracting**

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- Bidder advisory in public procurement
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- Change management and dispute avoidance
- Litigation and arbitration
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Helsinki

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