

Market Insight Report Reprint

Nordics datacenter market, Part 1: A potential powerhouse on Europe's northern edge

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The Nordics leased datacenter markets include Sweden, Denmark, Finland, Norway and Iceland. It's a region that offers providers unique advantages in terms of green energy resources, low power costs and the highest percentage of enterprises using cloud in Europe.

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Introduction

The Nordics leased datacenter markets include Sweden, Denmark, Finland, Norway and Iceland. Nordic cities can offer an attractive destination not only for international enterprises and service providers seeking lower-cost alternatives for their European hubs, but also for companies in the continent's busier datacenter markets looking to escape high power prices in their home markets. With plenty of green energy resources on tap and in reserve, hyperscale datacenter providers have already been enticed into the region. All the major global cloud players have now established their availability zones here (with more to come), and like most of the local datacenter providers, they set out to build in an environmentally responsible way, working with communities and municipal authorities on initiatives like using the waste heat from their facilities for district heating.

THE TAKE

The Nordics datacenter industry is exemplary when it comes to sustainability issues. However, the market largely serves national or inter-regional needs, as opposed to supporting a large base of international clients as seen in Europe's biggest datacenter markets. Connectivity is also crucial here. While a cursory glance at a subsea fiber map of the Nordics gives the impression of a region that is covered by cables, the vast majority actually only interlink neighboring countries or other parts of northern Europe.

Nonetheless, datacenter market growth is expected here. While the datacenter markets of London, Frankfurt, Amsterdam and Paris put providers in the heart of Europe, the Nordics can serve the northern edges of the continent, along with routes into the Baltics, Russia and onward into northern Asia. Thus, with the prospects of a growing cloud market, increasing international connectivity and all that green power, Nordic cities are set to become a major datacenter force for those looking to serve the world's northern fringes.

Business climate

In recent years, Nordic IT companies have seen increased interest from local venture capital groups such as EQT, FSN, Nordic Capital, CapMan and Adelis, which are funding new technologies and helping SMEs with the tools they need to expand into international markets. Investments are driving consolidation and M&A across the market. For example, earlier in 2021 Swedish datacenter provider Conapto was acquired by the European Investment Bank's Marguerite II fund, and Azrieli Group agreed to purchase Norway's Green Mountain, while in late 2020 Germany's Northern Data picked up Hydro66's datacenter in Sweden. After acquiring and combining Norwegian fiber-provider Broadnet and GlobalConnect to create a large Nordic provider of cloud-enabling systems and fiber-based services in 2018, EQT has since added Swedish infrastructure specialist IP-ONLY to its portfolio and merged it with GlobalConnect.

According to a Nordic Council of Ministers report published in 2018, the region is expected to see annual investments of €2bn-4.3bn ($2.32bn-4.98bn) from the datacenter sector by 2025. As part of efforts to capture some of this investment, governments across the region have looked at tax measures to help reduce startup costs on capital-intensive projects like hyperscale datacenters. Some have also created new investment zones that leverage renewable energy and offer ways of cutting carbon with pre-approved sites ideal for rapid rollout of datacenter facilities.

In September 2020, Nordic trade and industry ministers agreed on a number of measures to help regional economic recovery following COVID-19. The initiatives support sustainable solutions, the circular economy, digitalization and innovation, and are backed by DKK250 million (about $38.97m) in funding from 2021-2024. The package includes an investment in Nordic Smart Government, a major cooperation program designed to make it easier for companies to operate across the Nordic region by connecting digital systems.

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Nordic Country Profiles

	DENMARK	FINLAND	ICELAND	NORWAY	SWEDEN
POPULATION 2020 (Millions)	5.8	5.5	0.4	5.4	10.1
NOMINAL GDP 2020 ($BN)	356.1	269.6	21.7	360.8	540.1
GDP GROWTH 2020	-2.06%	-2.90%	-6.65%	-1.30%	-2.91%
2020 FORTUNE GLOBAL 500	Maersk Group	Nokia	--	Equinor	Volvo
TAXES	• Corporate: 22% • Top personal rate: 15% • VAT: 25%	• Corporate: 20% • Top personal rate: 31.25% • VAT: 24%	• Corporate: 20% • Top personal rate: 46.25% • VAT: 24%	• Corporate: 22% • Top personal rate: 22% • VAT: 25%	• Corporate: 20.6% • Top personal rate: 20% • VAT: 25%
ELECTRICITY RATES AS AT H2 2020 – BAND IC CONSUMPTION <2,000MWh	• Without taxes & levies: €0.0615 • With taxes & levies: €0.2349	• Without taxes & levies: €0.0689 • With taxes & levies: €0.0941	• Without taxes & levies: €0.0704 • With taxes & levies: €0.0801	• Without taxes & levies: €0.0392 • With taxes & levies: €0.0603	• Without taxes & levies: €0.0583 • With taxes & levies: €0.0925

Source: S&P Global Capital IQ; Fortune; Nordisk eTax; various government websites and agencies; Eurostat

Power and cooling

An abundance of clean energy resources makes the Nordics an attractive destination for datacenter providers. For example, along with wind power, Denmark has plenty of biomass, as does Finland. Norway and Sweden have a lot of hydro power, and Iceland has geothermal energy. There is therefore a strong focus on sustainability. For instance, one of Copenhagen's ambitions is to become the first carbon-neutral capital city by 2025, and currently more than 70% of its power comes from renewable sources, while a similar percentage of households use district heating. Many datacenter providers in the region feed the waste heat generated by their facilities into district heating systems. DigiPlex, for example, says the waste heat from its datacenters is used to heat water, which is then added to local networks to heat 15,000 apartments in Stockholm and Oslo.

Access to cheap, clean energy through renewable sources means datacenter providers can benefit from low electricity prices (see above) of €0.03 to €0.07 before taxes. By comparison, per-kilowatt-hour gross rates in Europe's top five datacenter markets range from €0.0698 in the UK to as high as €0.1252 in Ireland (source: Eurostat). The majority of datacenter providers across the region use 100% renewable energy. For example, Green Mountain's DC-1 facility in Stavanger, southwestern Norway, is powered by three independent grid supplies fed from multiple hydroelectric plants. The datacenter is cooled using water from an adjacent deep-water fjord where the temperature is said to be a stable 8° C all year round, enabling the firm to claim a PUE rating of less than 1.18. Elsewhere, and with average temperatures across the region ranging from -5° to 2° C during the winter and 16° to 21° C in the summer, many local datacenter providers are also able to take advantage of free outdoor air cooling for much of the year. However, some Nordic countries experienced near-record temperatures in June 2020, with an unprecedented 33.6° C recorded in Lapland, and Norway seeing 34° C in Saltdal county near the Arctic Circle.

Connectivity

Nordic countries are among the best-connected in Europe. For instance, Sweden is seen as a gateway to Russia and Asia, with Stockholm said to be the most connected city in the region, while Denmark is at the crossroads of the Nordics and northern Europe.

The region is served by 56 subsea fiber cables that are currently live or expected to light up by the end of 2021. The vast majority are used for regional interconnectivity or connectivity to other northern European locations, with the most notable exception being Havfrue/AEC-2, a 4,750-mile fiber link between North America and Europe that went live in 2020. In September, GlobalConnect announced that it would begin laying a 'mega capacity' fiber cable from the northern tip of Sweden to Berlin, with deployment expected to be completed within 12 months.

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Demand for datacenter services

The percentage of enterprises using cloud computing services across the Nordics ranks as Europe's highest. While the average number of enterprises across the EU using cloud computing was 36% in 2020, it was 75% in Finland, 70% in Sweden, 67% in Denmark and 64% in Norway (source: Eurostat). The public sector has played a key role here. For example, Nordic governments have adopted e-government strategies that have spurred the digitalization of public administration.

Away from the major metropolitan regions, while remote Nordic locations can have higher latency to continental customers, they can be an appealing option for non-latency-sensitive workloads, including certain types of AI modeling, HPC, disaster recovery, storage and cryptocurrency mining. The latter has become more challenging in Norway, however, following the approval of legislation in 2018 that means cryptocurrency miners are no longer subject to the tax relief on power consumption at the same rate as other power-intensive industries.

Hyperscale activity

In 2019 Microsoft announced plans to build large-scale, sustainable datacenters in Gävle and Sandviken in Sweden, and then followed that up a year later by adding a third location in Staffanstorp. Sweden Central will become one of the company's latest Availability Zones when it launches in Q4 2021. Microsoft is working with utility provider Vattenfall to bring 100% renewable energy to the sites. The move is not without controversy – citizens in Gävle have reportedly appealed Microsoft's purchase of land there, saying they fear a large-scale datacenter could lead to power shortages.

In June Google subsidiary DSC International was granted permission for a datacenter in the municipality of Avesta, about 100 miles northwest of Stockholm. Google acquired 109 hectares of land in the area in 2017. It has been granted permission on the conditions that it build the datacenter within 10 years, endeavor to use only fossil-free fuel in the reserve power generators by 2030 and take measures to enable the utilization of waste heat. In the meantime, Google's Europe-North1 region is based in Finland.

AWS launched its Europe (Stockholm) Region in 2018. Toward the end of 2020, the company unveiled its first operational wind farm in Europe with the launch of the 91MW Bäckhammar project in western Sweden to support its datacenters and retail business in the country. The project is expected to deliver 280,000 megawatt hours of clean energy annually into the Swedish grid – the equivalent of powering 29,000 average homes in Sweden.

Denmark has also been a focal point for hyperscalers in the Nordics as they build sites in the country and look to colocation providers in Copenhagen for connectivity, content distribution and access to IT service-provider partners.

For example, in November 2020 Google opened its fifth datacenter in Europe with the launch of a €600m facility near the town of Frederica, about 134 miles west of Copenhagen. The company signed a power purchase agreement to ensure its datacenter is 100% powered by renewable energy, and has reportedly invested in five solar parks around the country with a total capacity of 160MW.

At the end of 2020, Microsoft announced that Denmark will be its next cloud region, with datacenters powered by 100% renewable energy and a promise to digitally upskill 200,000 Danes by 2024 as part of its contribution to help the digital transformation of the nation's public and private sector organizations. At the time of this writing, the company had not revealed the opening date of its new Denmark East Region, which is 'coming soon' and will join its other Nordic regions at Norway East (launched in 2019) and Sweden Central.

In the second part of our Nordics market focus, we look at how the region's leased datacenter providers are expanding and ask, is Europe ready for SHROC?

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