

How to establish a data center in Norway

Essential information about regulatory processes, time to market and contact information to relevant authorities



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This guide has been written and produced by Menon Economics and DLE Consulting on behalf of The Ministry of Local Government and Modernisation. JCP PRAD has been responsible for the graphic design.

The structure and content of the guide

The Norwegian government wants even more actors to choose Norway as the location for their data center and are committed to making the process of establishing a data center in Norway as smooth as possible. Norway offers renewable energy and an ultra-low carbon footprint at a low cost, in combination with an excellent infrastructure and connectivity, a highly competent workforce, and experience within power-intensive industries.

This brochure will provide guidance on how to set up a data center in Norway – whether you want to set up data center as a service, build-to-suit, ready-to-build, or even build your own data center. The guide is meant to be easy to read with references to more detailed resources when needed.



Foto: Utaalen-Tomas Rasmus Saug

Powered by Nature: The world's first data center strategy

The world's first national strategy on data centers was published by the Norwegian government in 2018. An updated version will be launched August 2021, with the vision to make Norway an even more attractive location for data centers.



Several actions have been taken since the first Norwegian data center strategy was launched. The government has removed property taxes on machinery and accessories in works and installations and facilitated additional fiber optic cables to other countries. In addition, new and efficient regulations for cable installations on public infrastructure, including roads, bridges and tunnels (cabling regulations) has been implemented. The new regulations will make business conditions more predictable for those establishing cable infrastructure.

With the updated strategy the government wants to take more actions to further improve business conditions and the attractiveness of Norway for data centers.

In June 2021 the Norwegian government was awarded the Inward Investment Initiatives for Data Centers award which recognizes the development and the investment of making a nation attractive for data center investments.



Could Norway be your next data center location?

Leading position in sustainable energy production and a professional data center market

Continuing decades of being a large energy producer, Norway provides renewable energy built on a solid business ecosystem. Norway has the highest share of renewable energy sources in Europe, with the lowest emissions¹. Abundant access to hydropower resources, with stable electrical supply and high reliability, providing optimal energy efficiency, makes Norway an excellent location for data centers.

The Norwegian data center market is well-established with several actors that are experienced in building, operating, and maintaining data centers.

For those wanting to build a new data center, there are a large number of contractors who have experience with large and complex construction processes from adjacent sectors.

Norwegian businesses are at the frontier of implementing ESG factors in the whole value chain of operations in most sectors. Within the data center industry R&D efforts are made to improve efficiency and energy conservation, where key elements are innovative cooling techniques and waste heat recovery.





Data centers at a very low cost and with ultra-low carbon footprint

The wholesale electricity price in Norway is among the lowest in Europe. Hydropower is a sustainable energy source where excess energy is stored and delivered as low-cost electricity without direct emissions to the atmosphere. Using green energy, with a reduced need of cooling, leads to both cost savings and a minimized carbon footprint.

With an increasing global focus on the carbon footprint of any activity, it is important for most large-scale operations to ensure that the largest possible share of the power supply is renewable. When the data center establishment is seen as a long-term investment, Norway offers locations with guaranteed renewable power supply now and in the future.

Renewable energy supply **provides zero carbon emissions**. A favorable climate that reduces cooling inefficiency enables companies to reduce their carbon footprint to a minimum, making it a future-proof investment. For further information about carbon emissions visit this [electricity map](#).



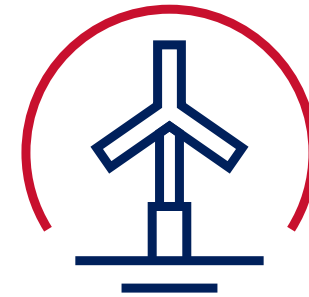
Excellent infrastructure with 99,99% continuity of supply

While other countries need to take on large infrastructure upgrades to be able to meet increased electricity demand in the coming years, Norway has already carried out most of these investments.

The power grid in Norway is highly robust and many power production hubs have not experienced downtime for several decades. According to the Norwegian Water Resources and Energy Directorate (NVE), the continuity of supply is close to 99,99%, which gives great security, almost free of interruptions.

Favorable policy conditions for power-intensive industries

The competence and experience from the oil and gas industry, combined with Norway's long history of power-intensive industries and favorable policy conditions, have made Norway an attractive location for new power-intensive industries such as battery and offshore wind.



Norway is politically and economically stable, and is rated AAA with a stable financial outlook. There are several public support schemes for funding innovative technological development in Norway. Applications for projects on utilization of low-temperature surplus heat or innovations for cooling solutions may qualify for support from Enova, Innovation Norway and the Norwegian Research Council.

International connections

Great access to dark fiber enables scalable cost-effective solutions. Robust connectivity located in the middle of the Nordic data highway, offering transatlantic fiber cables, provides excellent international connections.



How Norway produces hydropower with a minimal carbon footprint

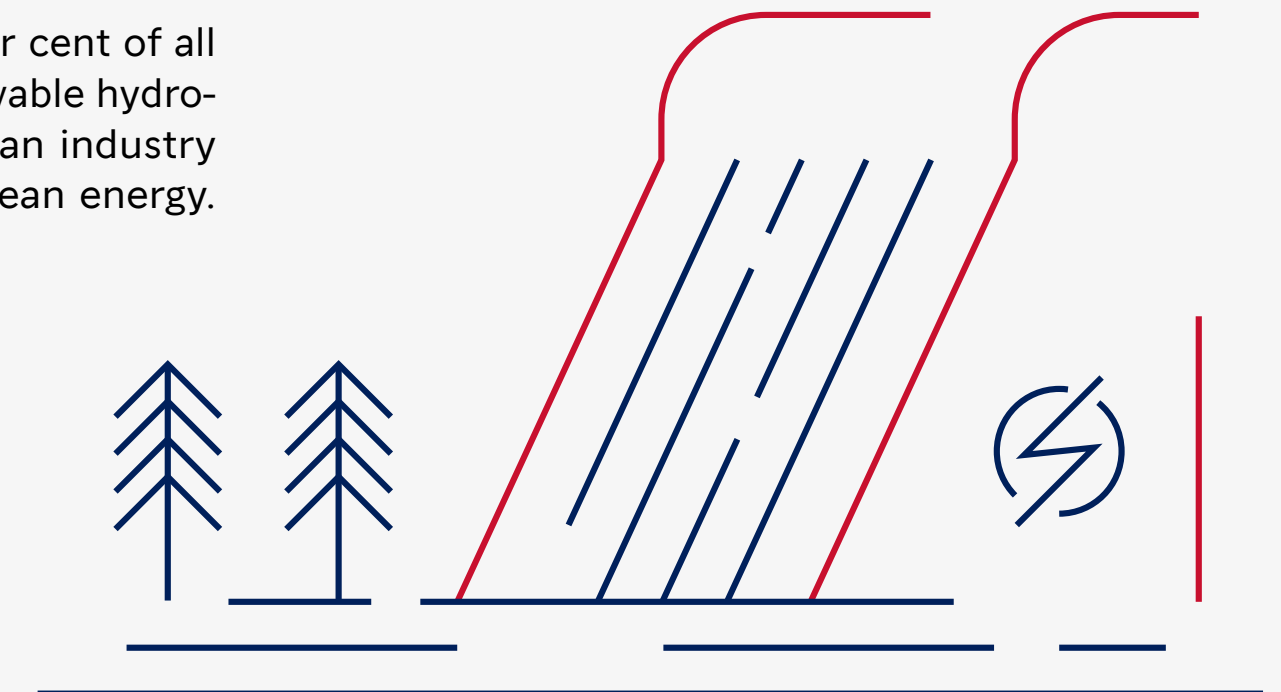
Hydropower is the only form of renewable energy production that can be adjusted based on demand. With its combination of stability, flexibility, and low production costs, it can make a huge contribution to a sustainable society. Hydropower also offers non-power related benefits in the form of multipurpose reservoirs, improved infrastructure, increased availability of fresh water, and much more.

According to the [International Energy Agency \(IEA\)](#), hydropower will remain the world's most important source of renewable energy in the foreseeable future.

In Norway, approximately 92 per cent of all electricity is generated by renewable hydropower. This has given Norwegian industry stable access to inexpensive, clean energy.

When it comes to energy-intensive heavy industry in particular, Norway has one of the world's smallest carbon footprints.

However, like electricity production from other renewable and fossil sources, also hydropower can have ecological and climate impacts. For more detailed information on how Norway's natural advantages give minimal carbon emissions from hydropower, check out this [website](#).



A market-based system for production and sale of electric power

The grid connects producers and consumers in a common power system which facilitates an efficient resource utilization competition in the power market.

The power market consists of the wholesale market and the end-user market. In the wholesale market big power volumes are traded, mainly by stock exchange. The players in this market are power producers, brokers, power suppliers and big industry customers. The price is set every hour for the following day based on the demand and offer at the time. In the end-user market, end-user consumers enter into an agreement with power suppliers which then delivers the demanded power.

The Norwegian power system is a part of a common Nordic power market with Sweden, Denmark and Finland. The Nordic power system is integrated in the European power market through transmission connections to several European countries, including Germany, the Netherlands and Russia. The power market is also integrated through market connection of the power exchanges. Most years, under normal circumstances, Norway has a power surplus which explains the low electricity prices.

Waste heat recovery

Industrial production produces waste heat which has an alternative use and economic value. The new data center strategy encourages actors to make assessments of potential waste heat recovery when establishing or upgrading facilities.

To aid the assessment, NVE is developing a national heat map to visualize supply and demand of heat to better utilize the resource. Through this map you will be able to get a regional overview of the energy consumption and the heat potential. NVE also has a map that contains information about the location of power plants and the electricity grid at different levels. For more information, please contact NVE.



Great country to live in and highly ranked on ease of doing business

Norway is repeatedly ranked as one of the best countries in the world to live in according to the [United Nations' Human Development Index](#). Norway also rates highly on the World Bank's "Ease of Doing Business" [ranking](#). There is a strong local desire to facilitate entrepreneurship. Great communication and collaboration between innovative and industry-oriented municipalities, regional distribution operators and business actors is emphasized as one of the reasons why it is easy to do business in Norway. For more information on how to start a business in Norway, visit Invest in Norway's [website](#).



On the frontier of digitalization

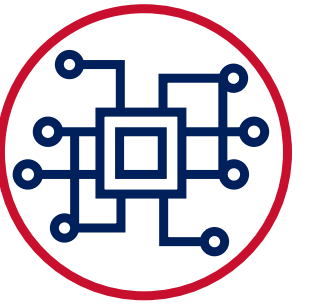
Many services such as banking, finance and tourism have digitalized most of their processes and services, and as a result achieved major cost savings. Public services have also been digitalized to a large extent. Both the state and municipalities offer most of their services digitally. This puts Norway in a unique position to develop a digital business. The Digital Economy and Society Index (DESI) published by the European Commission ranked Norway as top 6 in 2020. The ranking covers the following dimensions: connectivity, human capital, use of internet services, integration of digital technology and digital public services.

High competence and competitiveness within R&D

To digitalize Norway further, it is fundamental to possess relevant and solid IT competence. The government's strategy on education and research, as well as the data center strategy, emphasizes this by demonstrating a strong commitment to focus on digital competence in education and research. Over the last years, the government has increased the funding for several educational programs within IT, such as data science and AI. Collaborative agreements have been established between data centers and universities, and the strategy points out the importance of continuing the work of establishing more agreements.

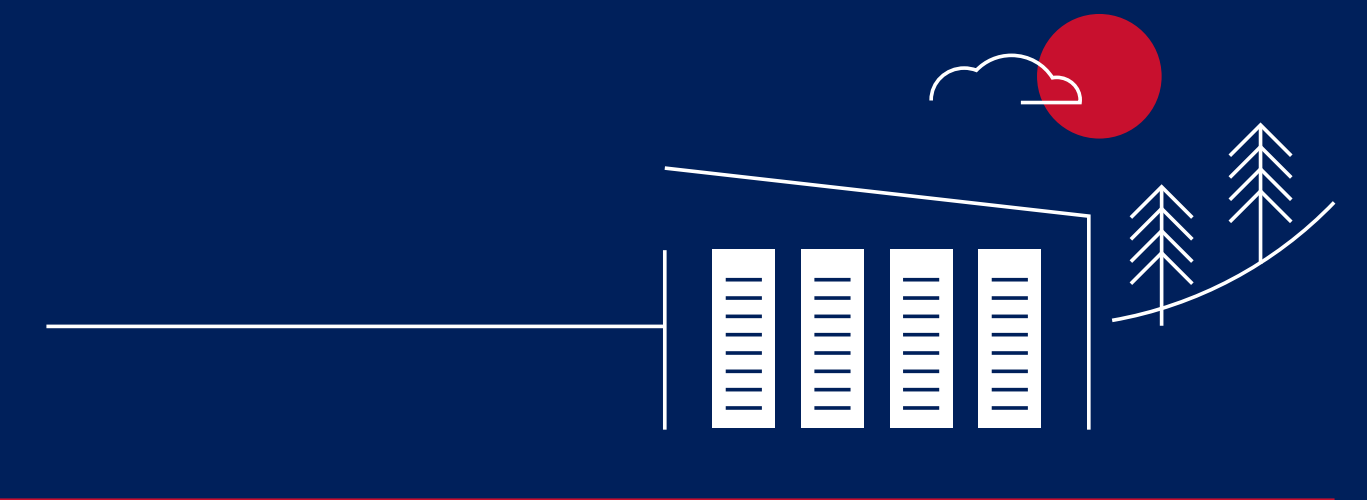


Norway also has a higher educational program specially tailored to data centers. The program offers an engineering degree specializing in data center infrastructure. Many international companies within the power-intensive industry are active in Norway, and there are several world-leading technology clusters such as the EYDE Cluster and GCE NODE.





Sustainable energy, with a low carbon footprint and cost, in combination with a long experience in the market, high competence and connectivity, makes Norway an attractive location for data centers.



Norway, integrated into the EU market

Norway is part of the single market within the European Economic Area (EEA), adapting EU's "four freedoms", ensuring free flow of goods, services, capital and people between EU/EEA countries. This ensures the same regulations in Norway as in the EU member states. In other words, all relevant EU regulations related to data storage, such as the General Data Protection Regulation (GDPR), are also followed in Norway.

The Explorer has written an article on how Norway is integrated into the European single market which can be read [here](#). For more detailed information on how Norway is related to the EU through the EEA Agreement and its implications for doing business, a white paper which highlights how Norway is legally aligned with EU standards on investment and market access can be found [here](#).



Strong fiber optic network with low latency values

In line with digitalizing the society, the Norwegian fiber infrastructure has been strengthened significantly in recent years, mainly due to growth in the data center market and a massive influx of international connectivity via new fiber-optic submarine cable systems.

Norway has direct, secure and fast connections to the main data hubs in Europe. Due to several new subsea cables Norway now has equally solid connectivity, capacity and route diversity as the other Nordic countries².

The improved submarine cable network leads to improved latency to a point where it is as good, and in some cases better,

² <https://www.theexplorer.no/stories/energy/norways-submarine-cable-network-provides-world-class-connectivity>

Fiber infrastructure
The map gives an overview of existing terrestrial and submarine cables and new cables under construction.

- Existing lines
- - - Planned project
- Existing international submarine cables
- - - Planned new submarine cable projects

1. N0r5ke Viking
2. Tampnet Norfest
3. Altibox Carrier
4. NO-UK Cable (Norway- UK)
5. Tampnet Carrier (Norway - Scotland)
6. Skagenfiber West (Norway - Denmark)
7. Havsil (Norway - Denmark)
8. Havfrue (Norway - USA)
9. Skagerrak-4 (Norway - Denmark)

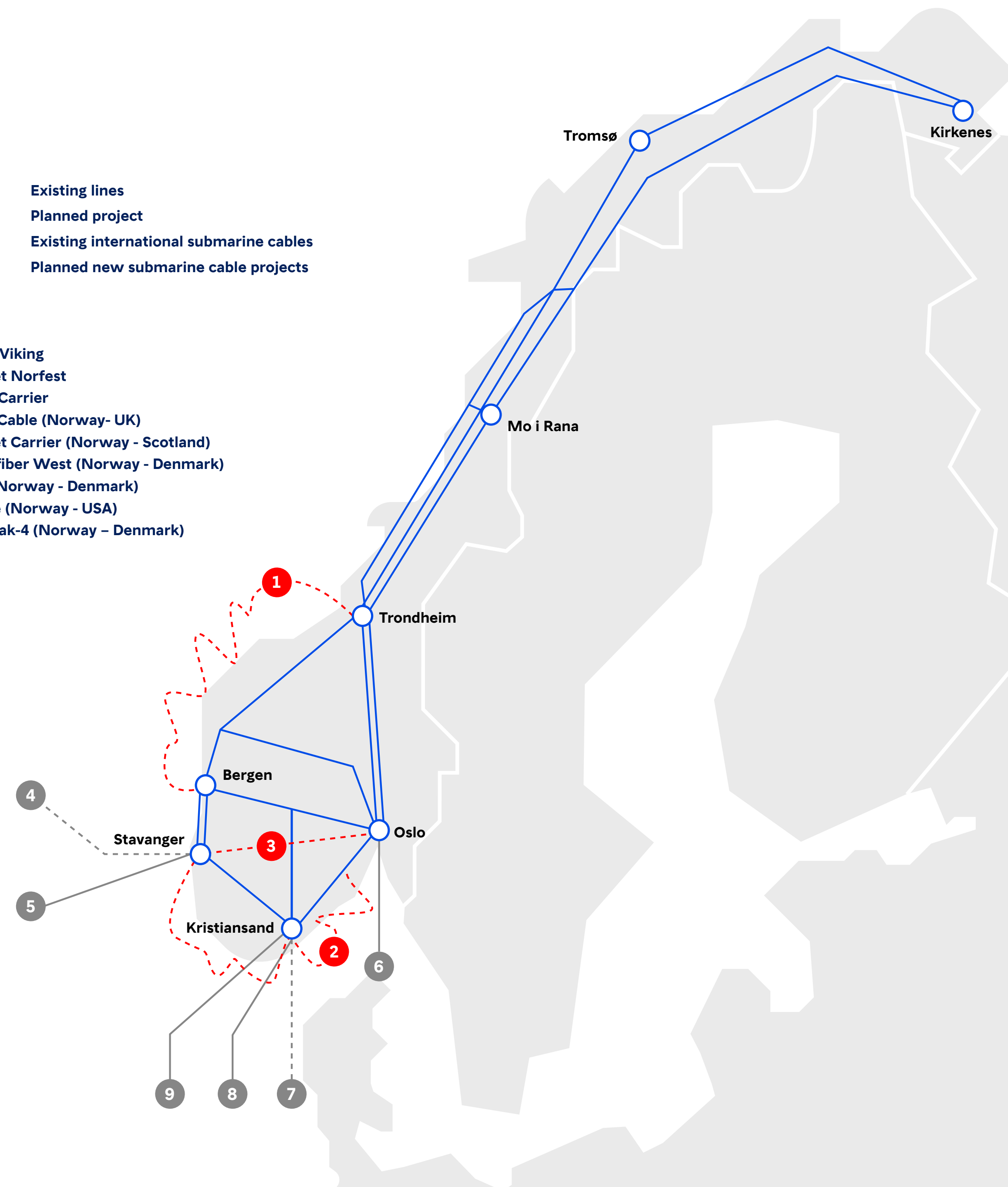




Foto: Ocean waves at Herøy-Rune Werner Mohnes

than in other Nordic countries. The new cables can be used as alternative routes in the case of interruption, enhancing both the integrity and safety of the system.

From each of the subsea cable landing sites, new terrestrial backhauls have been constructed to provide sufficient capacity and route diversity between Points-of-Presence (PoP) in Frankfurt, Amsterdam, London and other leading markets in Europe. Dark fiber services are offered on selected routes over the domestic network. Data centers require diversity in the fiber infrastructure. From most data center locations and internet exchanges (IX) in Norway, it is possible to establish three, and in some cases four, independent fiber paths to other nodes located in the fiber network, both nationally and internationally.

New national fiber projects are underway, mainly between hubs in South-Western Norway and Eastern Norway and Central Norway. These projects involve both new submarine cables and terrestrial fiber. Together these cables provide more capacity and diversity in the fiber networks and open new markets and Points-of Presence (PoP) for national and international Tier1 carriers.

Capacity pricing to and within Norway is becoming more harmonized with European levels as international Tier1 providers are expanding their presence. **Once a Tier1 carrier has established a PoP in a data center, the pricing will be the same PoP to PoP, whether you connect between Frankfurt and Amsterdam or Frankfurt and Oslo.**

	Oslo	Kristiansand	Stavanger	Bergen	Trondheim	Tromsø	Stockholm	Copenhagen	Dublin	Frankfurt	London	Amsterdam	Paris
Oslo		3,8	5,4	4,5	4,9	22,8	6,8	9,6	18,2	14,4	14,9	12,6	19,9
Kristiansand			2,8	4,9	8,7	26,6	10,6	7,3	14,3	11,0	11,2	12,1	18,3
Stavanger				2,1	8,7	28,2	11,3	10,7	12,1	14,1	11,6	16,3	17,4
Bergen					9,4	27,3	11,3	12,8	14,2	19,0	13,7	18,4	19,5
Trondheim						17,9	11,7	13,9	24,8	20,2	24,3	21,1	23,3
Tromsø							29,6	32,4	41,0	37,2	37,7	35,4	40,2

Latency Figures, Primary Route

The table indicates typical latency values between endpoints in Norway and leading markets in Europe.

Time to Market – Different solutions for establishing a data center

Norway offers different solutions for your data center depending on your time schedule and to what degree you wish to manage the entire process of establishment yourself.

The time from making an investment decision until the start-up of the service delivery in a data center is getting shorter and shorter and, in many cases, this will determine the desired solution. If a short time to market is your key preference, it is possible to acquire either a ready-to-build site that already has electricity and fiber access or simply buy a service from a colocation actor that offers build-to-suit solutions. One could also combine those solutions for those with a short-long term strategy. For those who want to control the whole



process and have more time to build their own data center, this guide will give you more information about the relevant regulatory and license processes and timeline.

In the following we distinguish between different segments and solutions depending on when the data center capacity needs to be available:

1. **Data center as a service:** Ready within 3-6 months from time of decision
2. **Build-to-suit or ready-to-build:** Ready within 6-24 months from the time of decision
3. **Build your own:** Ready after 24 months from the time of decision

Data center as a service

Choosing the data center as a service solution does not require any involvement with the regulatory authorities. In this situation you should directly approach one or more of the existing colocation suppliers in Norway.

You can find more information about the [Norwegian power system](#), [Norwegian tax system](#), or if you have any questions regarding the data center industry in Norway in general there is a list with contact information for the relevant authorities at the end of this guide.

Build-to-suit or ready-to-build

If you have certain specific requirements, most of the major colocation suppliers in Norway have strengthened their availability and build-to-suit capacity to fast-track customers' requirements,

from “in house” tailor-made solutions to campus modular built out in separate buildings. The wholesale approach also ensures low cost, renewable power, and ultra-low carbon footprint.

Those who have a time to market span of less than two years and at the same time wish to build their own data center, should approach providers of pre-regulated sites. These are sites with sufficient power capacities where only minor detail work remains before the construction process can be established. In collaboration with the local municipality and power company you should verify details such as the desired building size, location, fiber connectivity and timetable for access to required power capacity. [Invest in Norway](#) can provide you with more information on available ready-to-build sites.

The building process can start once the detailed zoning plans are completed and can be performed in parallel with the licensing process. **It is crucial to have a good dialogue with the municipality** as the time to build depends on the collaboration with the local authorities. Most site developers have good relations with the municipality and DSO, and are in many cases partly owned by them. The site developers should therefore be valuable partners throughout the entire process.

How to obtain construction permits

Before one can start the building process, construction permits must be obtained. Table 1 summarizes the necessary construction permits and the expected time of each procedure. In all cases, the municipalities are the most important point of contact in this process. An overview (in English) of the relevant building laws and regulations in Norway can be found [here](#).



Table 1: Construction permits in Norway. Source: World Bank Data, Doing Business in Norway

Procedure	Expected time	More information
Obtain a site-map and the plan of statutes from the municipality (Available online)	<1day	All municipalities have a plan of statutes containing a sequence of requirements that decides the eligibility to build
Obtain all necessary approvals from different Authorities <ul style="list-style-type: none"> • Health and Safety Authority • Environmental Authorities • Road Authorities • Water and Sewage Authorities (approval from electricity company is not necessary at this point) 	10-14 days	All approvals can be obtained in parallel and are often already regulated earlier in the regulation process. Make sure all approvals are granted
Notify all surrounding neighbors of the future construction	1 day	
Obtain the frame permit (first step of the building permit)	20-84 days	<i>Contact the Municipal Building Authorities</i> Smaller municipalities tend to have more flexibility; thus this process can go as fast as 20 days.
Obtain the start-up permit and present a control registration form	Within 21 days	Contact the Municipal Building Authorities
Apply and obtain a certificate of completion	Within 21 days	Contact the Municipal Building Authorities
Obtain water and sewage connection	1 day	Agency: Water and Sewage Authorities

Build your own data center

This section presents information for actors with a time perspective of more than two years and who want to manage the entire process themselves. Typically, this will be actors who consider the establishment of a data center in Norway as a long-term investment and part of a strategic process where they want to secure capacity in a longer perspective. Before choosing the preferred site, one should have a thorough process and carefully consider all aspects regarding regulatory processes, access to sufficient electricity supply and fiber capacity among others.

Below you will find more information to help you navigate through the relevant regulatory processes and points of contact where you can get further details.

Two important regulatory processes

In order to establish a data center, two main processes have to be carried out:

- licensing process to connect to the grid
- detailed zoning plans and construction permits

The complexity, as well as the time perspective, of the regulatory processes may vary considerably depending on the site's grid capacity and regulatory status. The time frame depends on whether the request for capacity triggers a need for upgrading the grid, and if so, what kind of measures must be implemented to meet the requirement. The quickest

process will take about one year. In very rare, cases the process may take up to 11 years, although in most cases the timeframe will probably be closer to the lower range of the timeline.

In order to shorten the time to market, it's beneficial to find a site that has access to the necessary power capacity. It is therefore highly recommended to start the dialogue with the distribution system

operator(s) (DSO) and the municipalities as early as possible to find a suitable site. A close dialogue with the municipalities is also recommended in order to identify sites that already have area zoning plans, as this will significantly reduce the timeline. Early dialogue with the DSO and the municipality is also important to give them as much time as possible to plan the processes.

Site and building regulations

Once a site has been selected, the detailed zoning plan and the grid connection process can start in parallel. A prerequisite for starting these processes is that the site is already regulated for industry by the municipality. The process of applying for the relevant construction permits can start once the detailed zoning plan is completed, and when these



Finding a suitable site

If you have not decided on a specific location, it is recommended to look at [Statnett's grid development plan](#) (in Norwegian only) to get an overview of the current capacity in the transmission grid and the planned investments. Additionally, power system studies are produced for 17 regions, which can be useful if there are specific regions of interest.

Choosing a site nearby a power producer, enabling the data center to connect (in) directly to the production, will have the benefits of a minimal loss on transmitting power and its likely to shorten the time relating to the licensing process.

For more information about the grid capacity, the data center can contact the relevant DSO to get an overview, or Statnett if there are no specific regions of interest and the requested capacity is significant. In any case, Invest in Norway can help by introducing the data center to suitable sites or establish contact with the relevant actors.



permits are secured, the construction process can start.

The impact assessment in the detailed zoning plan should identify and describe all factors that can affect the establishment of the data center and assess significant consequences for the environment and society. This process usually takes about one year. The expected time of obtaining the necessary construction permits is four months. The different types of procedures involved in the construction permit process are presented in the previous section, build-to-suit or ready-to-build.

How to proceed to connect to the grid

The distribution system operator (DSO) or Statnett (the Norwegian Transmission System Operator, TSO), will be responsible for making a connection point available so that the data center can connect to the grid. This may require some adjustments on the grid. In all cases where the request is above 22 kV, the data center will be responsible for building and obtaining a separate license from the NVE to connect the installation to the connection point. This licensing process can be carried out in

parallel with Statnett/the DSO's grid licensing process.

The first step in the grid connection process is that the data center applies for the capacity it needs to the DSO. The DSO will, in cooperation with Statnett, assess and determine whether the request is operationally sound. That assessment is free of charge and relies on two factors:

1. **the existing surplus in the power grid**
2. **the consequences for contingency and safety for the existing users of the power grid**

If they find that the request is not operationally sound, then measures need to be taken to ensure that the requested capacity can be delivered on the grid. If the measures affect the regional grid, the DSO will be responsible for the assessment and implementation of the measures. If measures need to be performed on the transmission grid, Statnett will carry out the process. A rule of thumb is that a capacity need of over 300 MW may require direct connection to the transmission grid, but there are exceptions.

For NVE to consider the licensing application, the following requirements must be fulfilled in advance:

- The site needs to be regulated for industry
- An assessment of whether the request is operationally sound must be completed. If it is not operationally sound, an investigation agreement must be attached to the application where the data center commits to covering the costs for the further assessments and measurements.
- If the connection requires large investments in the regional or transmission grid, such as new high voltage cables or transformer stations, NVE can demand to process all the applications at the same time.

A key factor to speed up the process is to make sure that all the requirements from the NVE (listed above) are met and that the application and

Checklist

The DSO needs the following information in order to assess whether the request is operationally sound:

- **Type of production or consumption**
- **The location of the facility**
- **Connection point and voltage level**
- **Desired maximum effect in MW, information about a potential scaling up plan and variations over the year**
- **Special requirements for security of supply N-1**
- **Brief description of the plans, including progress plan and milestones**

investigations have a sufficient standard. NVE has a guide that specifies the necessary content in the application, available [here](#) (in Norwegian only).

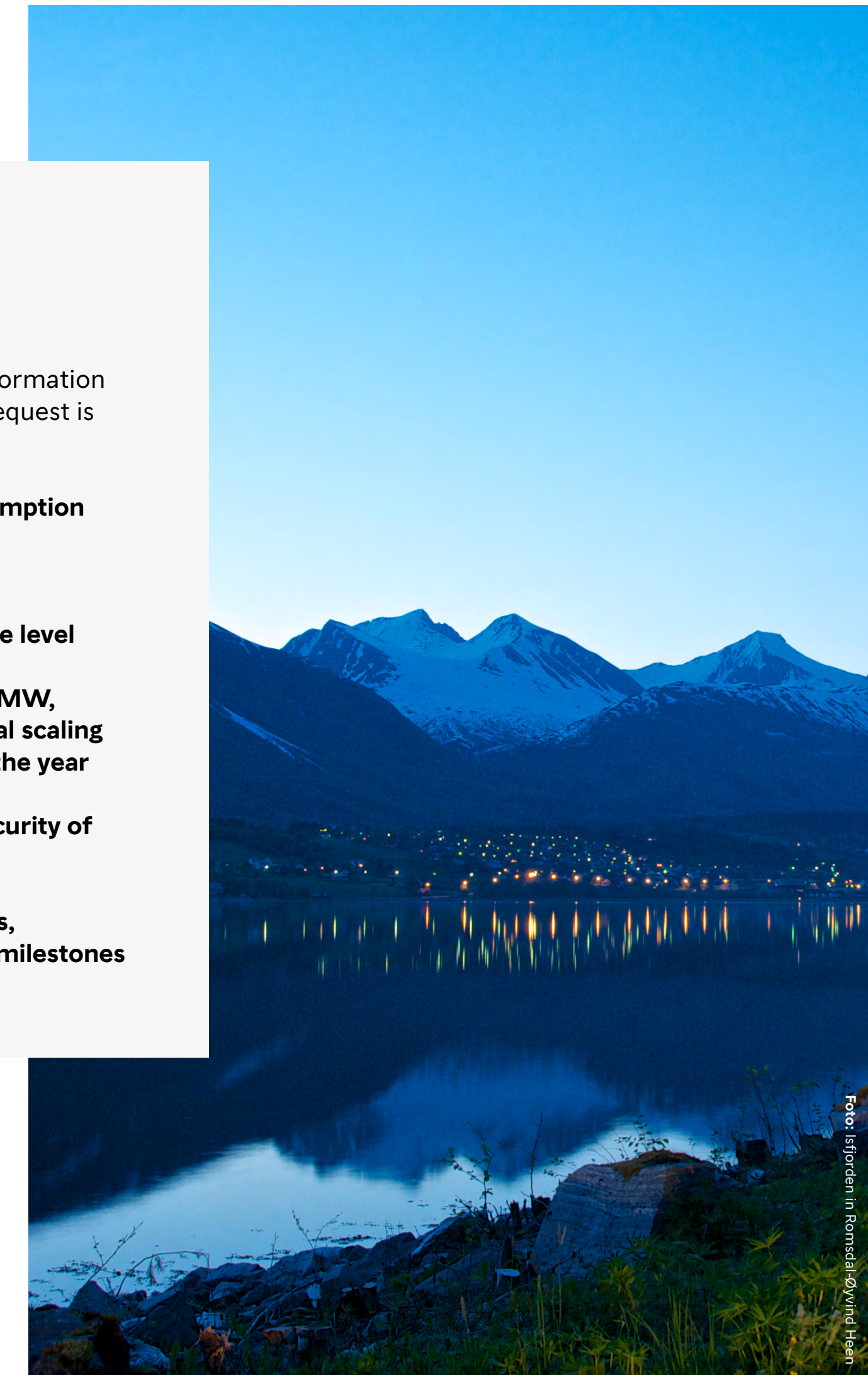


Foto: Ifjordene i Romsdal Øyvind Heen

REGULATION

The site must already have an area zoning plan (i.e. regulated for industry) in order to start the following steps.

Does the site have detailed zoning plans?

YES

NO

Make detailed zoning plans for the location

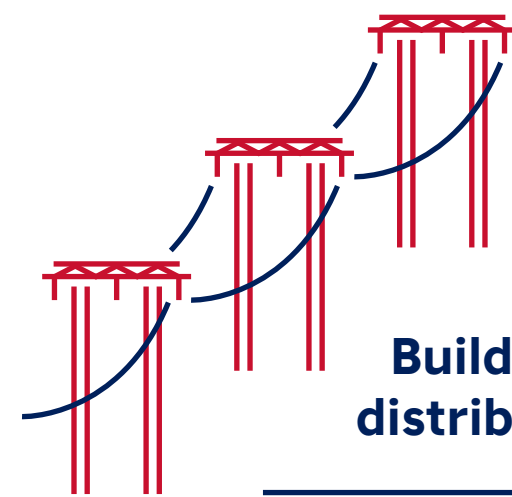
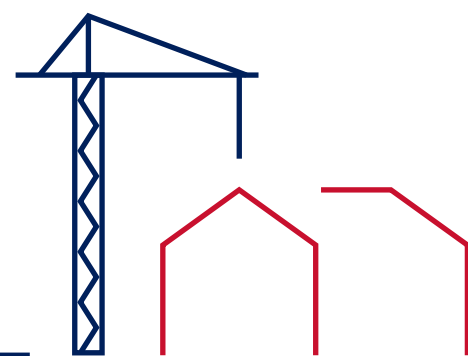


Apply for construction permits from the municipality

12 MONTHS

4-6 MONTHS

Start building the data center



Build out the distribution grid

12 MONTHS

DATA CENTER UP AND RUNNING

GRID CONNECTION

6 MONTHS

3 - 6 MONTHS

DSO/Statnett's licensing

Is the request for power operationally sound?

YES

NO

Data center's licensing

This licensing application is processed by the NVE. The process can start after the assessment of whether the request is operationally sound has been done, and in parallel with the processing of the DSO/Statnett's grid licensing application.

Electric power transmissions with voltage < 132 kV no matter the length or
Electric power transmissions < 15 km no matter the voltage or
Electrical substation, switchgear and other high voltage systems.

Send licensing application to the NVE and start detailed investigation of the measure

NVE makes a decision concerning the application

Implementation of the measure(s)

1,5 - 2,5 YEARS

Electric power transmissions with voltage ≥ 132 kV and a length ≥ 15 km

Release public notification of the project and start detailed investigation

Send licensing application to NVE with impact assessment

NVE makes a decision concerning the application

Implementation of the measure(s)

3 - 7 YEARS

Electric power transmissions with voltage ≥ 300 kV and a length ≥ 20 km

Conduct conceptual appraisal

Release public notification of the project and start detailed investigation

Send licensing application to NVE with impact assessment

Cabinet decision concerning the application

Implementation of the measure(s)

5 - 11 YEARS



The Norwegian Power system

The Norwegian power grid is a monopoly regulated by the state under the [Energy Act](#). The Norwegian Energy Act is based on the principle that electricity production and trading should be market-based, while grid operations are strictly regulated. It is the Norwegian Water Resources and Energy Directorate (NVE) that regulates the system and grants licenses for the transmission and production of renewable energy. In order to own, build or operate within the grid, a grid license is needed. Depending on a data center's demand for power, different grid operators must apply to NVE for a grid license if a new grid is needed to connect the data center. The grid licensing process is subject to a public process and strict processing rules. The licenses to own and build distribution grids (22 kV and below) are organized so that the license is awarded for a specific area – a monopoly once granted. Although the distribution of power is a monopoly, the customers can choose the supplier.

Electricity production in Norway is 98,9% renewable

The electricity production comes from 98,9% renewable sources. Figure 1 shows the most recent numbers of the share of electricity production between different types of power.

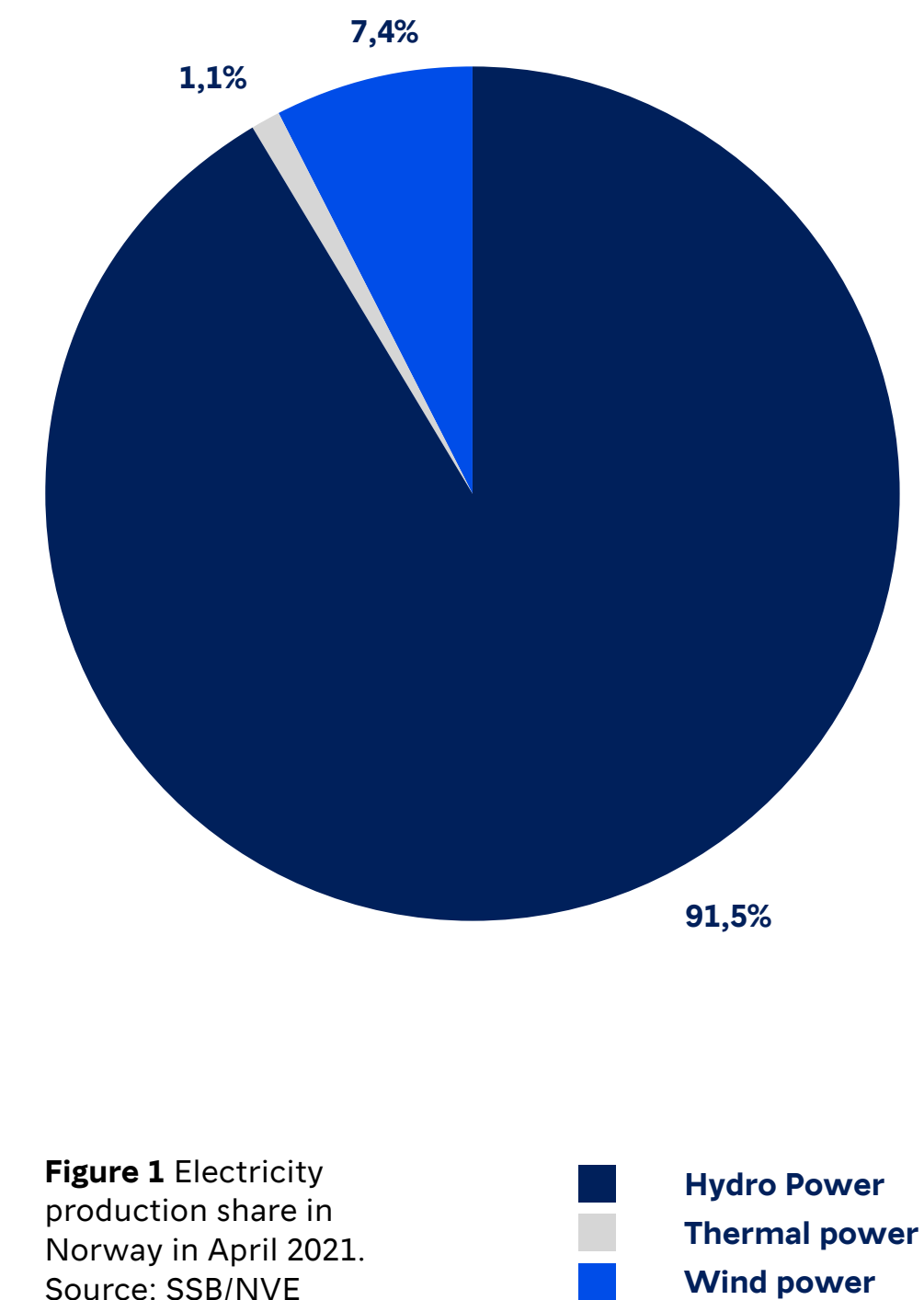


Figure 1 Electricity production share in Norway in April 2021. Source: SSB/NVE

■ Hydro Power
■ Thermal power
■ Wind power

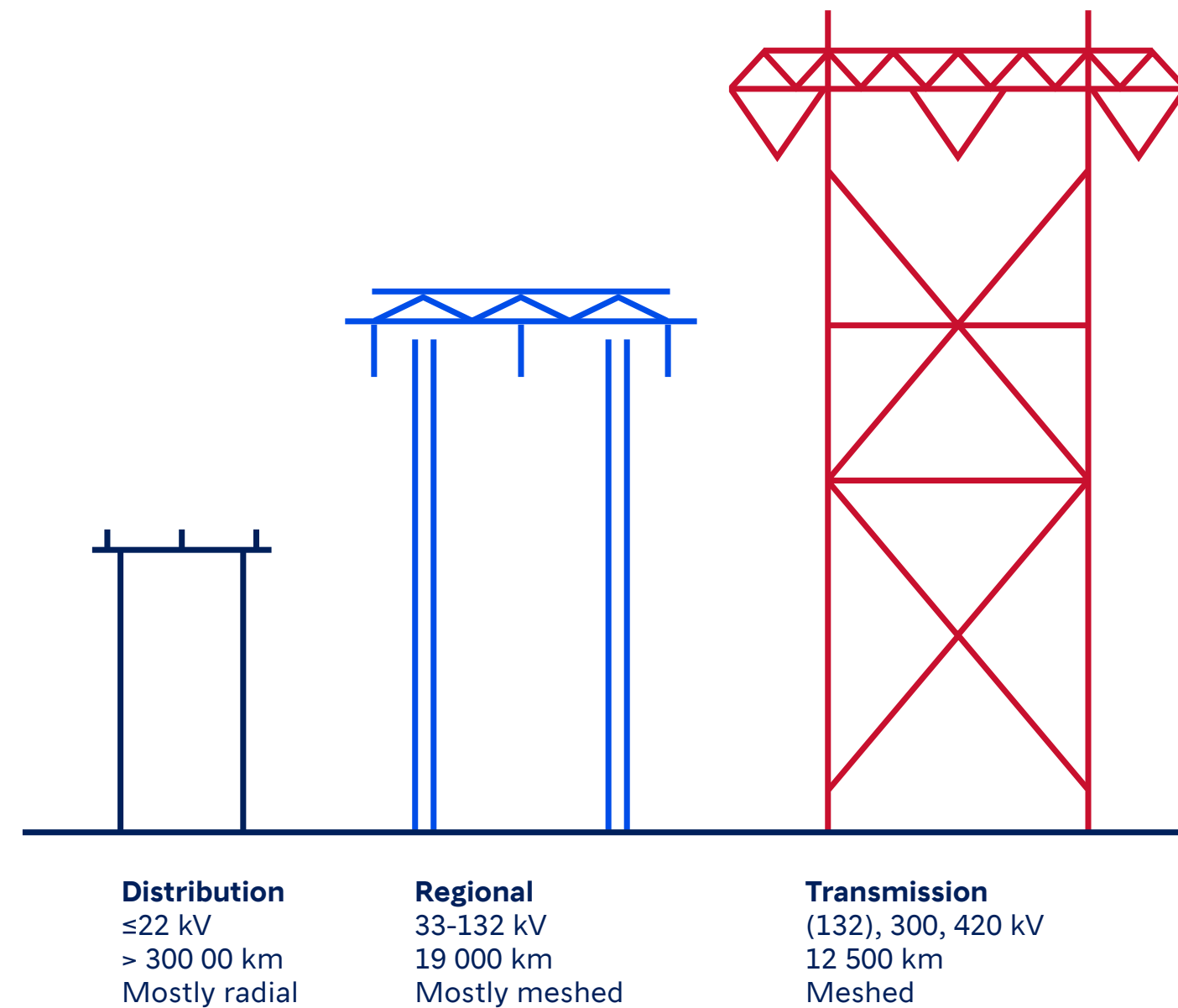


Figure 2 The Norwegian electricity grid system.
Source: NVE

	Responsible for the grid	Approximately interval of power need	Contact
Distribution grid	Local distribution operators	<10 MW	Local and regional grid companies, grid development plans and contacts (in Norwegian)
Regional grid	Regional distribution operators	<300 MW	Local and regional grid companies, grid development plans and contacts (in Norwegian)
Transmission grid	Statnett	>300 MW	Statnett

Hydro power dominates electricity production in Norway. However, the share of wind power is increasing every year. According to both Statnett and NVE, wind power is becoming more and more cost-efficient, and thus more used. More than 75 percent of the production capacity is flexible, where Norway has half of Europe's hydro reservoir capacity.

Essential information about the electricity grid

An important foundation of the [Energy Act](#) is that consumers and generators are offered market access on terms that are unbiased and non-discriminatory. If such access requires investments in the distribution, regional or transmission grid, Statnett and/or the DSO are obliged to proceed with planning, apply for grid licenses and invest in new capacity without undue delay. These obligations are conditioned by the consumer's acceptance to pay the requested share of the costs for developing the necessary grid project, the connection charge and grid tariffs in line with the regulatory scheme.

The Norwegian electricity grid is divided into three levels: the distribution, the regional and the transmission grid. As defined by EU/EEA legislation, distribution and regional grids are characterized as distribution systems. Statnett operates in the transmission grid, while approximately 130 distribution systems (DSO) operate in the distribution and regional grids.

Depending on the size of the data center and/or the demand for power, a new client will have to connect to different grid levels.

- Data centers with a need for power up to **10 MW** can connect to the distribution grid.
- If a data center needs an amount of power between **10-300 MW**, connection to the regional grid will be necessary.
- In the case of establishing a very large data center, direct connection to the transmission grid may be necessary. In these cases, customers should contact Statnett directly.

The illustration summarizes the characteristics of the different grid levels, a guidance on where you need to operate depending on your demand.

In all cases, once the data center knows its need for power, it is necessary to contact the regional distribution operator in the area of interest as a first step in the licensing process. The regional distribution operator will in any case guide you to a local distribution operator or to the TSO if necessary. For more details on grid connection and licensing, have a look at this guide from [NVE](#).

Starting a business in Norway is easy

Norway was ranked among the top ten in the World Bank’s “Ease of Doing Business” ranking in 2020, where Denmark was the only Nordic country with a higher ranking.

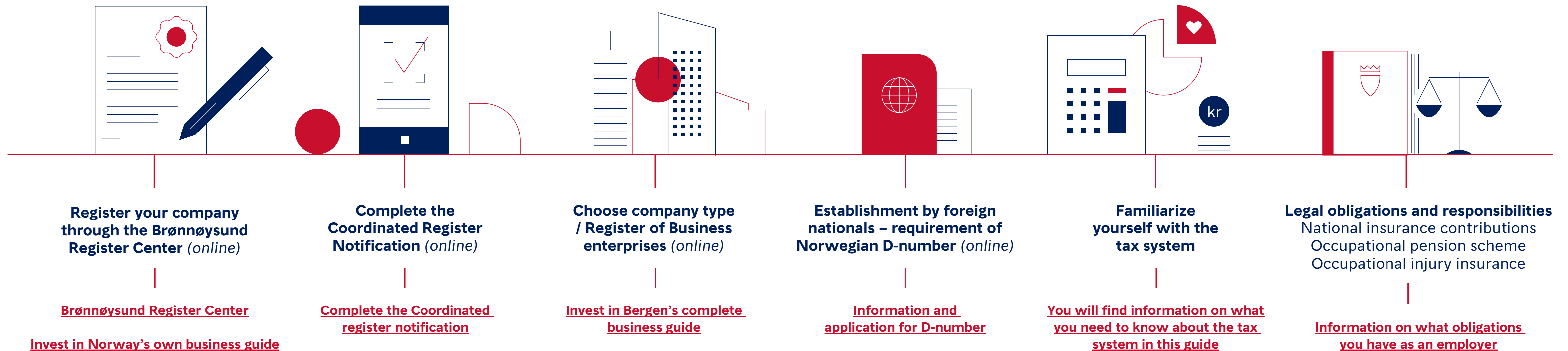
Even if the process is fairly simple, it is recommended to get help from a professional lawyer/accountant in order to avoid unnecessary delays and/or extensive fees.

[Invest in Norway](#) can assist you in finding the correct resources.

The table below summarizes what steps you must follow, the approximate time it takes, and relevant link with more information of every step.

Moving to Norway

If you are planning to live and work in Norway, there are requirements with regards to obtaining visa and work permit. For more information about how to apply and what you will need to prepare, visit [Internations.org](#), a comprehensive guide on relocating to Norway.



Understanding the tax system

The Norwegian data center strategy has focused on simplifying the tax system, and the updated version emphasizes the importance of a business-friendly regulatory framework that creates jobs through tax reforms. The following section focuses on the most relevant tax categories for a data center. ▶



Property tax

The Norwegian municipalities can choose to impose a property tax or not, which can be applied to both private property and enterprises. The tax is calculated based on the value of the property. Municipalities can adjust the tax to local conditions in terms of the type of property included, the rate charged and apply rate differentiations. Every year, the municipalities determine the tax rate and basic allowance. The property tax is normally 0.2 percent as a minimum and 0.7 percent as a maximum for enterprises and agriculture.

As a part of the previous data center strategy, the government introduced a tax exemption for machinery and accessories in works and installations in 2019. This means that all production equipment and installations in data centers, such as computers, servers, storage solutions and cooling systems, will be exempted from the property tax. The tax will be phased out within 2026.

Valuation discount

In 2017, a 10 percent valuation discount was introduced for shares and operating assets and associated debt. The aim was to allow more capital flow towards business activity, motivating existing and new business to create new jobs and value creation. The discount has increased several times and in 2021 the discount has been increased to 45 percent.

Tax on electrical power

Data centers with a power usage above 0.5 MW benefit from a reduced tax on electricity. The reduced tax corresponds to 0.54 EUR/MWh as opposed to 16.5 EUR/MWh which is the standard tax rate.

Employer contributions

The rate of employer contributions depends on where in Norway the business is carried out. The general rate is 14.1 percent, but reduced rates apply to certain regions and municipalities in northern Norway and other sparsely populated areas.

Value-added tax

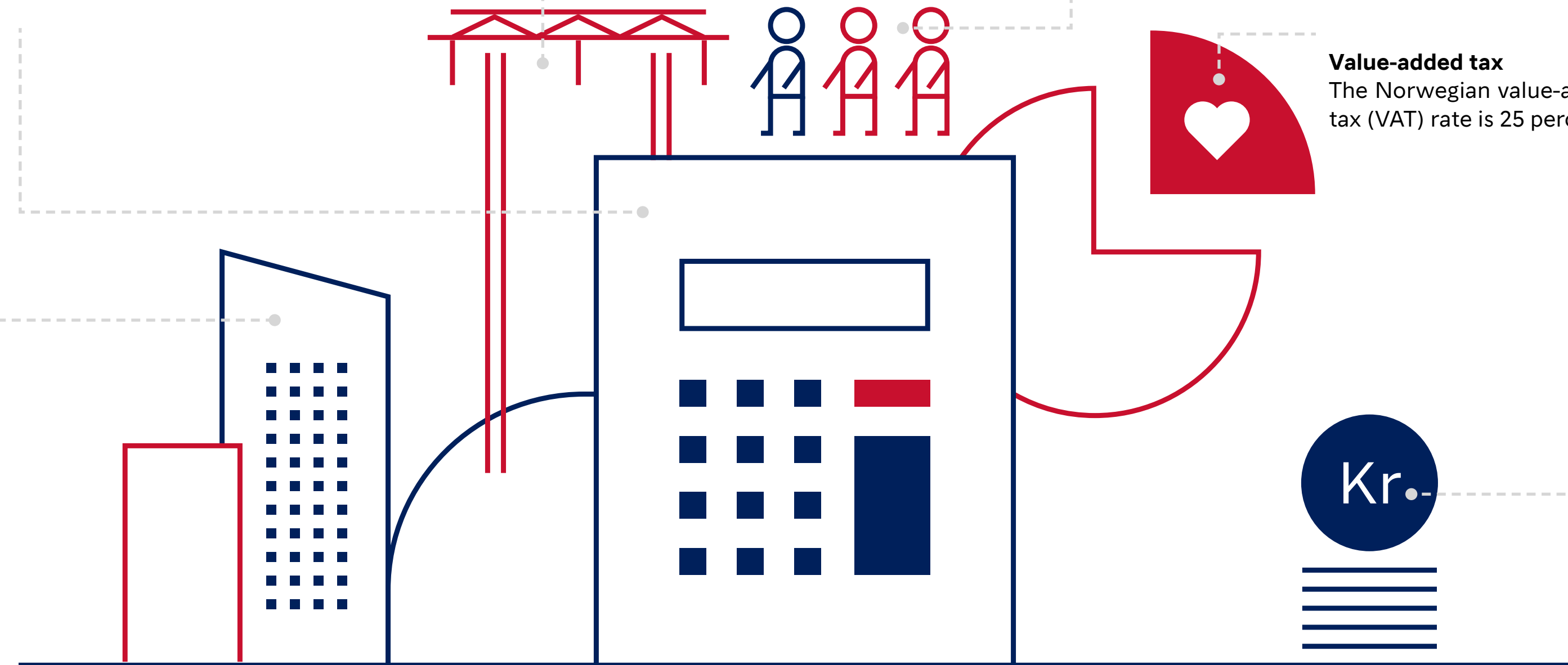
The Norwegian value-added tax (VAT) rate is 25 percent.

Corporate income tax

Companies that are tax residents in Norway are subject to a corporate income tax of 22 percent on their net tax income. A lower rate of 18.5 percent applies to residents of the Finnmark and Nord-Troms regions. Companies resident in Norway are subject to tax on their worldwide income; non-resident companies are subject to tax on Norwegian-sourced income.

In addition, employment income will be taxed with the following rates:

- 1.9% for any income above NOK 180,800
- 4.2% for any income above NOK 254,500
- 13.2% for any income above NOK 639,750
- 16.2% for any income above NOK 999,550



Contact information for the relevant authorities



Name	Description	Contact information
Invest in Norway	An extensive network to help foreign companies establish their business in Norway	Web page datacenter@innovationnorway.no
Statnett	The system operator of the Norwegian power system, operating the transmission grid	Web page firmapost@statnett.no +47 23 90 30 00 On the web page you will find the contact information for Statnett's regional offices
DSOs	Local and regional grid companies in Norway	Web page A list of all local and regional grid companies in Norway with contact information
NVE	The Norwegian Water Resources and Energy Directorate process the grid licensing applications	Web page nve@nve.no +47 22 95 95 95
Norwegian Data Center Industry	Industry association representing data center actors in Norway as well as certain DSOs	Web page info@datasenterindustrien.no +47 22 54 27 40