

FOLLOW THE ENERGY

GREEN DATAPORT EEMSHAVEN
YOUR NEXT DATA CENTER LOCATION IN EUROPE



GRONINGEN SEAPORTS

EEMSHAVEN BEST DATA CENTER LOCATION

- Total capacity of 8,000 MW of electrical power available
- Secure power supply at close range
- Green energy power mix from biomass, wind turbines or hydro power
- Largest onshore Dutch wind farm (300+ MW)
- Potential site for geothermal applications
- Redundant energy grid
- Greenfield business locations
- Mild climate, steady wind force for free cooling
- Landing station of global fiber optic submarine cable network
- Dark fiber connection to Amsterdam Internet Exchange
- Groningen Internet Exchange - hub for broadband connectivity
- Direct peering, interconnection and housing facilities
- Pool of well-trained and available IT staff
- Cooling water facilities

FOLLOW THE ENERGY

Based in Mountain View, California, the world's largest Internet-search provider, Google Inc. has selected Eemshaven in 2014 to build here the largest data center of Europe. It was our first launching customer in Eemshaven. Every day the demand for Google services increases and the infrastructure of data centers follows the same rhythm. To meet this growing demand from consumers and businesses the Google data center in Eemshaven will expand in the coming years. QTS Realty Trust, a leading provider of software-defined and mega scale data center solutions announced in 2019 also to come to Eemshaven, as part of its global growth strategy, and has expansion plans in Eemshaven as well.

Not without reason. Eemshaven has all facilities needed to support a reliable data center operation and will account for the production of more than 8,000 MW of energy, more than enough to supply half of the Netherlands with electricity! Lots of greenfield land is available and Eemshaven has perfect fiber connections and cooling water facilities. Add the stable political setting, the attractive land prices, the safe environment and the qualified technical staff. This is why Eemshaven is your next data center location in Europe.

Follow the energy and you will find your way to Eemshaven. Recently, this seaport has developed into one of the largest energy ports in the Netherlands. Moreover, being the operating base and service port for (planned) wind farms in the North Sea Eemshaven follows the offshore wind energy at the seaside.

Energy production from the wind farms tracks the way to Eemshaven for inland distribution. It is not only the logistical connection between land and sea, but also the energy connection. The energy abundance in Eemshaven is second to none in Europe: over 8,000 MW in a power mix is available at close range of the dedicated data center business park. Follow the energy and get connected with Eemshaven.

PLUG IN

Follow the energy and plug into your opportunities in Eemshaven.
Please contact our business manager.



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EEMSHAVEN: ENERGY PORT OF NORTHWESTERN EUROPE

- Ideal location for data centers
- 300+ MW windpower; 8,000 MW energy production in total
- Greenfield business locations available
- Investments amount 7 billion euro (including Google)
- Logistic hub in offshore wind industry

ENERGY MIX

Eemshaven has several large power stations as well as several high-voltage and medium-voltage stations, which provide a guaranteed energy supply. There are three operational power stations: the gas-fuelled power stations of ENGIE (Eemscentrale) and Vattenfall (Magnum power station) and RWE's coal power station. Besides power stations, other forms of energy are available. Electricity from a Norwegian hydroelectric power station is transported to the Netherlands by means of the NorNed undersea high-voltage cable, whilst Norway is able to buy electricity from the Netherlands by using the same cable. A large converter station has been built in Eemshaven for this purpose. Advanced plans are in place for NorNed 2. In cooperation with Danish Energinet, TSO TenneT has installed an undersea electrical connection between the Netherlands and Denmark. The interconnector is named COBRACable and transports electricity from wind energy. Gemini Wind Park has also built a landfall point of 600 MW for electricity that is generated by its wind farm in the North Sea. And the share of offshore wind energy in Eemshaven will increase in future, because thousands of wind turbines are planned in the North Sea close to the Eemshaven.

GREEN CONNECTIONS

Green Dataport Eemshaven is situated in the middle of the largest wind park on Dutch soil. Eemshaven hosts close to 100 wind turbines located each with a capacity of 3 MW. Recently a new generation wind turbines of 4.5 MW have been added to the existing

turbines in the port. Also, several wind farms in Delfzijl belong to this green energy portfolio as well as a few solar parks (approx. 80 MW together). All these turbines and solar panels add a significant amount of sustainable energy to the power mix and it is expected that the share of wind and solar energy will increase in the near future creating business opportunities for your Power Purchase Agreement. Moreover Eneco and RWE needs 1.5 million tons of biomass every year to make green energy.



Present and future wind farms Eemshaven/Delfzijl region

ENERGY SUPPLY

The data center market is characterised by a demand for an extremely reliable power supply. Many energy producers have already established themselves in Eemshaven or are in the process of doing so, which enables Groningen Seaports to meet a reliable power demand and present itself as a highly attractive location for data centers. The region offers an excellent energy grid with a lot of power stations in the area. The average availability of the Dutch energy grid over the last five years accounted for 99,9943%. This incredibly high percentage is even higher in Eemshaven, due to the excellent connections. Also in Delfzijl energy is available. Nobian Delesto operates a gas-fuelled power station of 530 MW, EEW Energy from Waste operates a thermal waste recycling plant for preparing commercial and household wastes as well as alternative fuels (49.9 MW) and Eneco has built a bio energy power plant by using woodchips (49.9 MW).

ENERGY CAPACITY 8,000 MW

- ENGIE (1,700 MW)
- NorNed (700 MW)
- Vattenfall (1,300 MW)
- RWE (1,600 MW)
- COBRACable (700 MW)
- Gemini, offshore wind (600 MW)
- Nobian Delesto (530 MW)
- EEW Energy from Waste (49.9 MW)
- Eneco Bio Golden Raand (49.9 MW)
- Present wind energy, onshore (340 MW)
- Future wind energy, onshore (548 MW)
- Present solar energy (78.8 MW)
- Future solar energy (33.8 MW)





FIBER

- Landfall point for a high-capacity transatlantic cable
- Direct link to the GN-IX (Groningen Internet Exchange)
- Easily connected to Amsterdam and Hamburg
- Physical fiber optic connections available
- The Netherlands has the largest internet density in Europe

GREAT FIBER CONNECTIONS

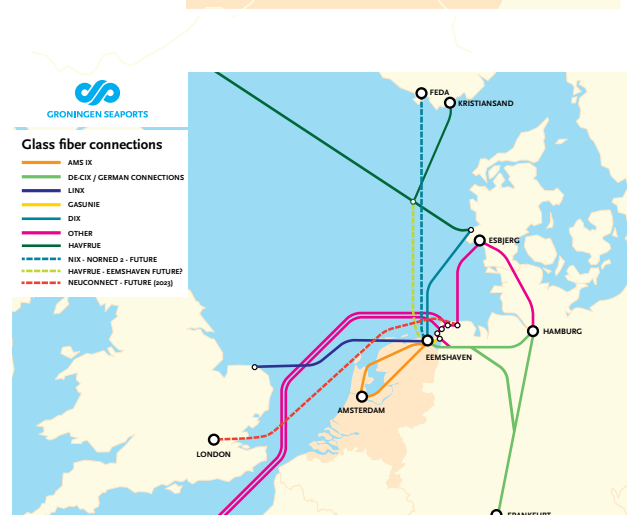
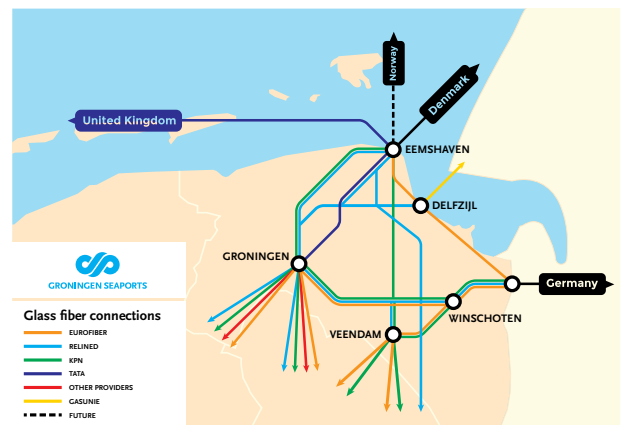
Green Dataport Eemshaven has a landing station of a global fiber optic submarine cable network, a dark fiber connection to Hamburg Internet Exchange, a hub for broadband connectivity, direct peering and interconnection.

TRANSATLANTIC CABLE

The landfall of a transatlantic fiber optic cable is in Eemshaven and it connects the United States with the European continent. This high-capacity cable transmits large amounts of data quickly and has a direct connection with the GN-IX (Groningen Internet Exchange). This connection can be linked easily with the AMS-IX, the exchange in Amsterdam, and the DE-CIX in Hamburg. The company Tata Communications manages and operates the cable.

LET'S GET DIGITAL

The Netherlands has the largest internet density in Europe. Worldwide, the Netherlands is also seen as one of the leaders in the use of social media.





CLIMATE

LOWER AVERAGE TEMPERATURE

As Groningen is one of the most northern provinces in the Netherlands, it has a slightly lower average temperature than the rest of the Netherlands.

Groningen has a sea climate, which means there is not much difference between summer and winter temperatures. Most wind comes from the sea and the sea cools down and warms up very slowly, and this combination produces less of a temperature drop in winter than in areas with a continental climate.

FREE AIR

The average temperature in the area of Green Dataport Eemshaven is relatively low because of its northerly location, and that makes it fractionally higher than the seawater that is present at a short distance. During the winter months, the average temperature is 42.8°F and during the summer period it is 60.3°F.

The climate in the Northern Netherlands is characterised by mild winters and cool summers. It is generally windy in Eemshaven and this wind can be used to cool data centers.

- Low temperature from sea climate
- Sea climate
- Free air to cool data centers

42.8^{°F} = 6°C

Winter



Excellent air quality

60.3^{°F} = 15.7°C

Summer



Very suitable location with indirect cooling due to a moderate sea climate with favorable wind currents

ENERGY COMPANIES AND INITIATIVES

GREEN ENERGY IN EEMSHAVEN

Solar panels and wind turbines in Eemshaven



ENERGY RELATED COMPANIES AND INITIATIVES IN EEMSHAVEN



ENGIE

Gas-fuelled power station (Eemscentrale) with 1,700 MW installed capacity; largest gas-fuelled power station on the European continent.



NorNed

Converter station; hydropower from Norway arrives in Eemshaven by means of a 580 km undersea high-voltage cable between Eemshaven and Feda (Norway) with a capacity of 740 MW.



Tata Communications

Booster station; transatlantic fiber optic cable from the USA via Eemshaven to Zernike Science park (GN-IX, Groningen) and then onward to Amsterdam.



TenneT

Switching station national grid operator.



Enexis

Switching station regional grid operator.



Google Inc

The world's largest Internet-search provider, Google Inc. has chosen Eemshaven in 2014 to build here the largest data center of Europe.



QTS

Quality Technology Services is a leading provider of data center solutions across a diverse footprint spanning more than 7 million square feet of QTS Mega Data Centers throughout North America and Europe.



RWE

Supercritical pulverised coal and biomass power station with a capacity of 1,600 MW. One of the cleanest power stations of its type in the world.



Vattenfall

Gas-fuelled power station (Magnum) with a production capacity of 1,300 MW.



Gemini

Wind energy from Gemini Wind Farm in the North Sea with a landfall for its electricity in Eemshaven (600 MW).



COBRACable

Since 2019 the Danish and Dutch high-voltage grid are interconnected via a high-voltage direct current submarine cable, the COBRACable (700 MW).



TenneT

Switching station national grid operator.



**“EEMSHAVEN IS AN EXCELLENT LOCATION FOR SINGLE-USER/
SINGLE-OWNER DATA CENTERS BECAUSE OF ITS UNIQUE SPACE
AVAILABILITY, (GREEN) POWER AVAILABILITY, INTERNATIONAL
CONNECTIVITY AND PRICE” (Deloitte)**

LOCATION

EEMSHAVEN

Eemshaven has all the facilities needed to guarantee the reliability required for data centers. Nowhere in Europe there is so much energy available as in Eemshaven: over 8,000 MW. There is ample space as well and the region has excellent connections with internet hubs in both Amsterdam and Hamburg. Add the stable political setting, the attractive land prices, no danger of flooding and good quality of employees nearby and it is obvious why Eemshaven is the place to be to settle a data center.

GREEN DATAPORT EEMSHAVEN

Green Dataport Eemshaven is the area at the southeast of Eemshaven. The site borders the Energy park and is approximately 447 acres in size. In September 2014 Google started building a large data center, which will continuously be expanded. Green Dataport Eemshaven is on the N33 and has a direct link with a number of energy suppliers. The site also has fiber optic connections, which are offered by a number of different players. A number of regional and national switching stations are also situated nearby.

IDEAL LOCATION FOR DATA CENTERS

- Greenfield locations available
- Abundance of (wind) energy
- Attractive land prices
- Presence of fiber optic cables
- Stable political setting

FACTS & FIGURES

- Abundance of (wind) energy available
- Power supply if one source fails
- Attractive land prices
- Presence of people with knowledge and experience
- Direct link to GN-IX possible
- Presence of fiber optic cable to connect to the (international) exchange
- No danger of flooding
- Different cooling opportunities
- Stable political setting

ABUNDANCE OF (WIND)ENERGY

The data center market is characterised by a demand for extremely reliable power supplies. Many energy producers have already established themselves in Eemshaven or are in the process of doing so, which enables Eemshaven to meet this demand and present itself as a highly attractive location for data centers.

The region has an excellent infrastructure for gaining electricity from the power stations in the area. These power stations provide a high level of reliability for power supplies in general, but there is always a back-up available if one of them fails. There are several connection possibilities of grid operators.

HARDLY ANY LOCATION RISKS

The main risks for data center locations are, in rank order, flooding, tornados, tsunamis, earthquakes, cyber-attacks and fiber-optic cable breakage. The sites of Groningen Seaports are at approximately 5 metres above the Amsterdam Ordnance Datum (NAP) or they are constructed in accordance with that standard. That makes the flooding risk of the Groningen Seaports' sites 1 in 4000, which means the chance of a flood in Green Dataport Eemshaven is virtually zero. Occasionally, smaller earthquakes take place in Groningen region. The chance of tornados and tsunamis in this region is equally non-existent.



WATER

- Water treatment plant available in Eemshaven
- North Water provides sustainable process water
- Waterbedrijf Groningen partner for potable and wastewater

WATER TREATMENT PLANT EEMSHAVEN

WTP EEMSHAVEN

- Drinking water
- Process water
- Demin water
- Fire fighting water
- Wastewater



NORTH WATER

There is an increasing demand from the market for custom-built work in the area of water. As the water partner for industry, North Water maps out its client's entire water chain and subsequently offers to provide them with a long-term tailor-made solution. North Water produces and delivers the desired quality of industrial water. Also North Water is active in the field of wastewater purification. North Water takes care of the design, the construction and the management of the plants and, if required, the financing too (DBFO). Our client relationships are all about partnership, reliability, supply security, sustainability and transparency. All good partnerships are win-wins. As our client, you can conclude a long-term agreement and avoid direct investment in an activity that falls outside of your core business. This ensures that our relationship is a win-win.

POTABLE WATER

Waterbedrijf Groningen takes care of potable water. The municipality of Het Hogeland (in which Eemshaven is located) has main waterworks with a length of 260 kilometers and a line size of over 50 mm (5 centimeter). The cost of water (per liter) depends on the connection, quantity and quality ('potable water', 'industry water', 'demin water' and 'water fit for use') for your data center.

WASTEWATER (SEWER)

The municipality of Het Hogeland (collection) and the water board of Noorderzijlvest (disposal) are responsible for your wastewater in Eemshaven.

NORTH WATER

North Water provides solutions for problems concerning water treatment and wastewater purification for businesses in sectors which include a.o. the (petro-) chemical industry, the metal industry, the food industry, agro business and the energy sector.

More information? www.northwater.nl

WATERBEDRIJF GRONINGEN

As a social enterprise, Waterbedrijf Groningen broadly focuses on the sustainable protection of water interests. We and our partners contribute to the sustainable development of our region with activities relating to drinking and industrial water, sewer systems, international cooperation and energy.

More information? www.waterbedrijfgroningen.nl

“THE CONCEPT **GREEN DATAPORT** STRENGTHENS OUR COMMITMENT TO DEVELOP A SUSTAINABLE WATER SUPPLY IN EEMSHAVEN’ (North Water)

WORKFORCE/ EDUCATION

COST OF LIVING / QUALITY OF LIFE

The housing market is relatively relaxed. It is easier to find a house in this region than elsewhere in the Netherlands. Either in the city center, close to bars, restaurants and movie theaters, or in the surrounding countryside. Also, housing costs in the Northern Netherlands are generally lower and more spacious in comparison to the Western part of the Netherlands:

- Crime rates are low, people feel safe
- Roads are relatively uncongested, so there won't be a daily traffic jam on the way to work
- The air is clean, pollution levels are low
- The Northern Netherlands offer a wide range of cultural facilities

PENETRATION OF INTERNET/MOBILE/COMPUTER USAGE

Dutch internet / computer usage is 94%, and almost all people have mobile phones

% ENGLISH SPEAKING

87% of the Dutch population speaks English

NO. OF UNIVERSITY GRADUATES

The number of university graduates of the total Dutch population between 15 and 65 years is 1,034,000

- 87% Of the Dutch population speaks English
- Dutch internet / computer usage is 94%
- The air is clean, pollution levels are low

EDUCATION

The city of Groningen is close to the Eemshaven (30 kilometres). Groningen is a city of students and offers a wide range of education possibilities inclusive the University of Groningen and Hanzehogeschool.

BIG DATA



PREFERRED SUPPLIERS



CITY OF GRONINGEN

WHY INVEST IN GRONINGEN?

- Capital and largest city of the Northern Netherlands
- A well developed infrastructure
- Top sectors: Energy/ Healthy Ageing/ ICT
- Extensive trade connections and enormous economic potential
- Relatively low labor costs
- Availability of motivated and educated personnel
- No congestion of traffic
- Cooperative local government
- High quality of life (affordable housing, low crime, clean air)

USP's OF GRONINGEN

- Fastest growing economy of the Netherlands
- Highly educated workforce, flexible, young
- Incubator for many (student) start-ups and scale-ups
- Nr. 1 App building city in the Netherlands
- Top sectors: Energy, Healthy Ageing and ICT/Innovation
- Modern IT architecture
- Real estate developments
- Good quality of life
- Price of labor is low



MORE INFORMATION

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GRONINGEN SEAPORTS