

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 (269 acres)
- 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, inter-connection and housing facilities
- Pool of well-trained and available IT staff
- Cooling water facilities

FOLLOW THE ENERGY

We have welcomed our first launching customer in 2014! Google Inc. invests about 600 million euros (\$773 million) over the next few years to build a data center in Eemshaven for its European operations. Based in Mountain View, California, Google is the world's largest Internet-search provider.

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 third of the Netherlands with electricity! A total of 269 acres 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 so attractive for data center industry.

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 port for planned wind farms in the North Sea Eemshaven follows the offshore wind energy at the sea side.

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 broad 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
- 882 acres greenfield available (269 acres for data centers)
- Investments amount 7 billion euro (including Google)
- Logistic hub in offshore wind industry
- Another 300+ MW windpower in planning

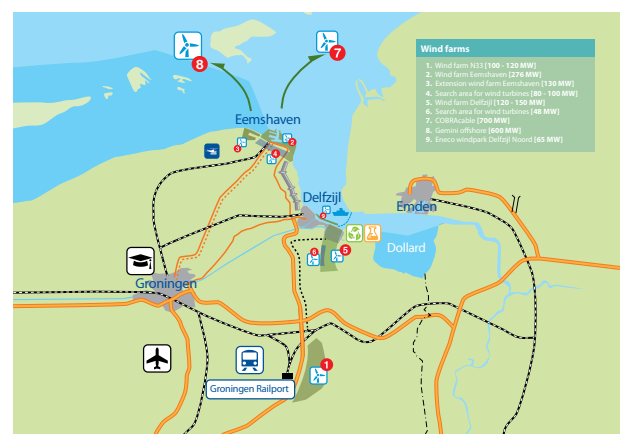
ENERGY MIX

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 GDF SUEZ Energie Nederland (Eemscentrale) and Nuon/Vattenfall (Magnum power station) and RWE/Essent's new powdercoal & biomass power station. Besides power stations, other forms of energy are also 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 and an undersea cable to Denmark - the COBRA cable - which would transport electricity from wind energy - is under construction. Gemini, in which the Canadian Northland Power has a big share, is also building a landfall point of 600 MW for electricity that is generated by wind energy 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 2 new generation wind turbines of 6 MW have been added to the existing turbines in the port. Next to that Eneco's Windpark Delfzijl Noord, consisting of 19 windturbines from 3.3 MW each, is operational. All these turbines add a significant amount of sustainable energy to the power mix and it is expected that the share of wind energy will increase in the near future creating business opportunities for your Power Purchase Agreement. Moreover Eneco and RWE/Essent use 1.5 million tons of biomass every year to make green energy.



Present and future windfarms Eemshaven/Delfzijl region

ENERGY SUPPLY

The data center market is characterised by a demand for 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 to 99,9943%. This incredibly high percentage is even higher in Eemshaven, due to the excellent connections.

ENERGY CAPACITY 8,000 MW

- GDF SUEZ Energie Nederland (2,400 MW)
- Norned (700 MW)
- Nuon/Vattenfall (1,300 MW)
- Wind energy, onshore (300 MW)
- RWE/Essent (1,600 MW)
- COBRA (700 MW)
- Gemini, offshore wind (600 MW)

“SPACE, POWER AND A FAVORABLE CLIMATE MAKES EEMSHAVEN
AN OVERALL WINNER IN DATA CENTER DEVELOPMENTS.”

(TCN Data Hotels)





FIBER

GREAT FIBER CONNECTIONS

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

TRANSATLANTIC CABLE

With the transatlantic fiber-optic cable Eemshaven connects the United Kingdom and 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.



- 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



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

Winter



Excellent air quality

60.3°F

Summer



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

ENERGY COMPANIES AND INITIATIVES

GOOGLE BUILDS HUGE DATA CENTER IN EEMSHAVEN



ENERGY RELATED COMPANIES AND INITIATIVES IN EEMSHAVEN



GDF SUEZ Energie Nederland
Gas-fuelled power station (Eemscentrale) with 2,400 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 fibre-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.



Wind turbines

Eemshaven has 88 gigantic wind turbines, each with a capacity of 3 MW, and 2 wind turbines with a capacity of 6 MW each. This is the largest wind park on Dutch soil.



TCN Telehouse Eemsdelta

TCN Telehouse Eemsdelta is a data center in Eemshaven. It was completed at the end of 2007 and offers more than 10,500 m² data floor with an average available capacity of 2.5 kW/m². The energy consumption of the data center equals that of the nearest city Groningen.



RWE/Essent

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.



Nuon/Vattenfall

Multi-fuel power station with a production capacity of 1,300 MW; the development of the multi-fuel plant is split into two phases. Nuon Magnum phase I is the gas-fuelled part (finished), whilst phase 2 comprises investments in coal and biomass gasification technology - this part is expected to be commissioned in 2020.



Typhoon Offshore

Wind energy from the North Sea. Typhoon Offshore, an independent energy innovator, is currently constructing the largest offshore wind park in the Netherlands with a landfall for its electricity in Eemshaven; it is known as the Gemini project (600 MW).



COBRACable

Wind energy from Denmark - TenneT TSO B.V. and Energinet.dk are developing an undersea high-voltage cable and converters with a capacity of approximately 700 MW to link the grids of the Netherlands and Denmark.



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 to the southeast of Eemshaven. The site borders the Energy park and is approximately 447 acres in size. In September 2014 Google started building a huge data center, which will be finished in 2016. A total of 269 acres is still available for locating other data centers. 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

- 269 acres greenfield available
- Abundance of (wind) energy
- Attractive land prices
- Presence of fiber-optic cables
- Stable political setting

FACTS & FIGURES

- Available: 269 acres
- 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 the 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 good 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

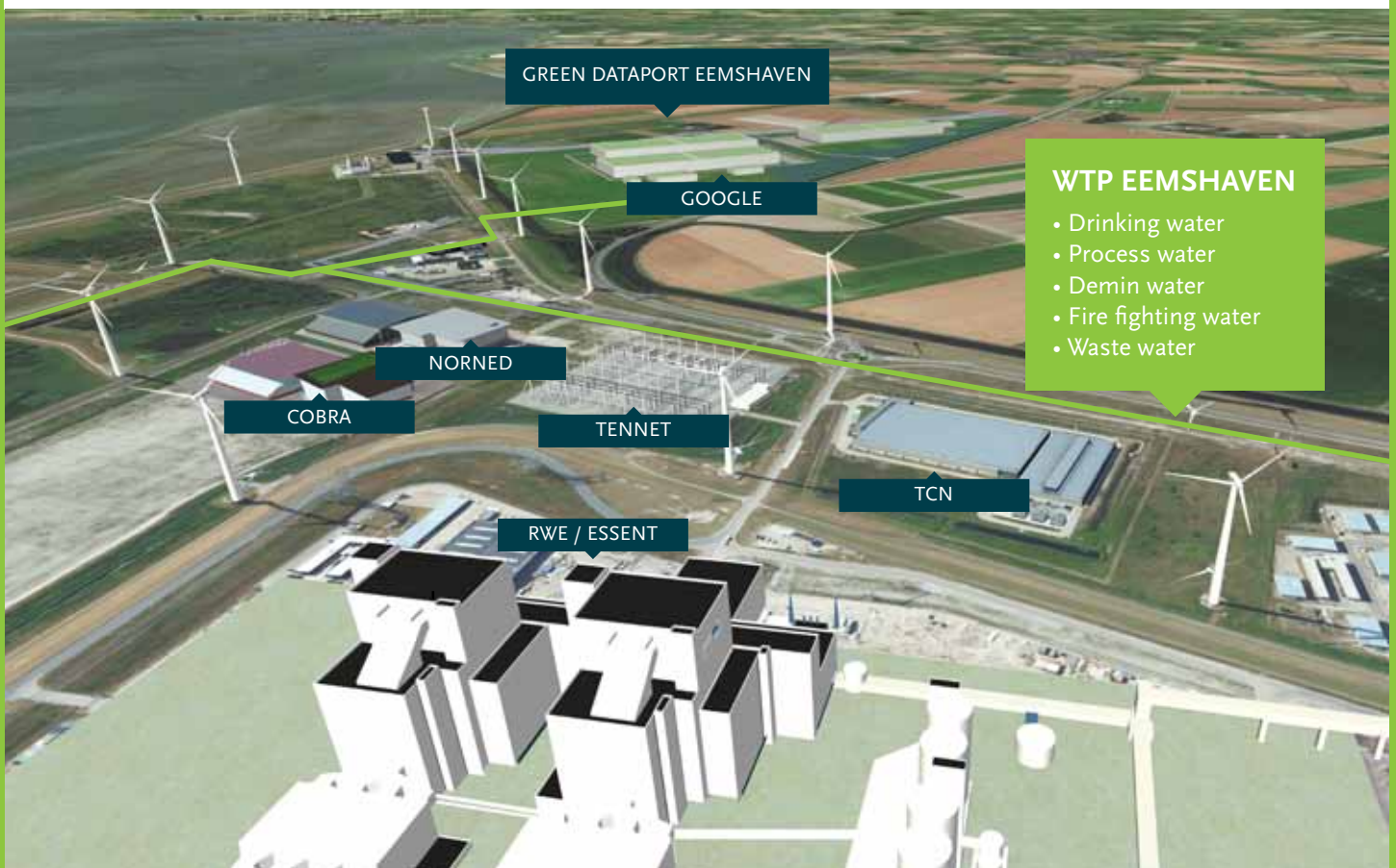
The main risks for data center locations are, in rank order, flooding, tornados, tsunamis, earthquakes, cyber-attacks and fiber-optic cable breakage. The sites of Groningen Seaports are at approximately 5 metres above the Amsterdam Ordnance Datum (NAP) or they are constructed in accordance with that 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 nil. 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 waste water

WATER TREATMENT PLANT EEMSHAVEN



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 waste water purification. North Water takes care of the design, the construction and the management of the plants and, if required, the financing too (DBFO). At the basis of the relationship are partnership, reliability, certainty of supply, sustainability and transparency. The basis for the cooperation is a win-win situation.

POTABLE WATER

Waterbedrijf Groningen takes care of potable water. The Municipality of Eemsmond (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.

WASTE WATER (SEWER)

The municipality of Eemsmond (collection) and the water board of Noorderzijlvest (disposal) are responsible for your waste water in Eemshaven.

NORTH WATER

North Water provides solutions for problems concerning water treatment and waste water 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 THE 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 are significantly lower. Houses in the Northern Netherlands for instance are generally more spacious and on average priced favorably than those in 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 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
- 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 labour is low



MORE INFORMATION

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