

Content

**Documentation: Femern
EIA Scoping Report 1**

**Close competition between
bridge and tunnel 4**

**Holidaymaking dominates
trips across the
Fehmarnbelt 8**

**Similar values but dissimilar
knowledge of our
neighbours 10**

**Fewer motor vehicles
between Germany and
Scandinavia 11**



Documentation: **Femern EIA Scoping Report**

As part of the approval process for the forthcoming fixed link across Fehmarnbelt, Femern A/S is conducting a comprehensive environment investigation programme.

The programme has now been sent for consultation to ensure that all relevant investigations will be carried out in the best possible scientific way. The so-called Scoping Report consultancy process will be undertaken from 21 June, 2010 to 6 September, 2010.

Under the treaty between Denmark and Germany as well as under national legislation, the project's environmental impact must be assessed. The assessment also comprises international legislative requirements, including a requirement for consultation with the countries around the Baltic Sea. On behalf of the Danish Ministry of Transport, Femern A/S is undertaking these investigations which identify, describe and evaluate the project's overall environmental impact.

Part of a general application

The environmental investigations are the pre-condition for Femern A/S' subsequent EIA statement which is an important component of the overall project approval application to the German and Danish authorities. ►

Visit

femern.com

for further information about
the Fehmarnbelt Fixed Link.

Femern A/S
Vester Søgade 10
DK-1601 Copenhagen V
T +45 33 41 63 00
F +45 33 41 63 01
E info@femern.dk

The process means that Femern A/S describes the investigation programme in the form of a Scoping Report. The Danish Ministry of Transport sends the report out for public consultation in Denmark. In Germany, Landesbetrieb Strassenbau und Verkehr in Schleswig-Holstein (LBV-SH) sends the report for consultation by the relevant authorities and environmental organisations entitled to take part in the hearing.

Once the consultancy process is completed in Denmark, the Ministry of Transport will prepare a consultation paper following discussions with the Minister of Environment during which the two ministers will consider the reactions to the consultations. The Scoping Report and the consultation paper will then provide the basis for the environmental investigation programme to be carried out by Femern A/S.

During the consultation period, a meeting will be held in Germany at which the relevant authorities and environmental organisations entitled to take part in the hearing will have the opportunity to comment on the report. The minutes of this meeting recording both answers and proceedings will be incorporated in the final environmental investigation programme.

The completed environmental investigations and assessments will be described in the EIA (Environmental Impact Assessment). In Germany, this is known as an UmweltVerträglichkeitsStudium, UVS.

The EIA report will then become part of the final application for the project's approval in Germany and provide the basis for the construction act which, in Denmark, will approve the project's design, alignment and conditions, including the environmental conditions.

Overview

All material is available to the public. Here is an overview:

- The Scoping Report itself is a large and fairly technical publication which details methods, content and extent of the environmental investigations. The report is available in four languages: Danish, English, German and Polish. [The report can be downloaded here](#)
- The resumé is ten pages long and describes the report's most important elements. The short version is available in Danish, English, German, Polish, Estonian, Latvian, Lithuanian, Russian, Swedish and Finnish. [Download the resumé here](#)
- Femern A/S is currently carrying out a series of investigations. You can read about the investigations and see some of the initial results on our website for the environmental programme. You will find this at www.femernenvironment.com
- A number of pre-investigations of the environment were implemented before Denmark and Germany signed the treaty ►

for the Fehmarnbelt fixed link. These investigations are described in a report published in 2006. [Download the 2006 report here](#)

- EIA is a statement as to how a project will impact on the surrounding environment based on the EU's EIA directive. You can read more about EIA investigations at www.vvm.dk

Who is responsible?

The consultation process concerning the Scoping Report will be undertaken by the authorities in Denmark and Germany.

- The Ministry of Transport is responsible for the process in Denmark. Everyone is entitled to submit their response to the consultation process. Responses must be submitted no later than 6 September, 2010. The Scoping Report has been distributed to a number of authorities and stakeholder organisations. [See the list here](#). The Ministry's website: www.trm.dk
- The Agency for Spatial and Environmental Planning under the Ministry of the Environment is responsible for consultation with the Baltic nations. The report has been distributed to all Baltic nations. The agency's website is: www.blst.dk
- In Germany, the Länder government of Schleswig-Holstein (Landesbetrieb Strassenbau und Verkehr Schleswig-Holstein) is responsible for the consultation process. Website: www.lbv-sh.de

Meetings in both countries

In August, 2010 the Ministry of Transport will hold a public meeting about the Scoping Report for Danish stakeholders and representatives of all the Baltic Sea nations. The meeting will take place at Hotel Maribo Søpark in Maribo. The meeting is public, but registration is necessary. When registration for the meeting opens, it will be available on this website and at www.trm.dk.

In Germany, a meeting is held at which only the relevant authorities and environmental organisations entitled to take part in the hearing will have the opportunity to comment on the report.

Close competition between bridge and tunnel

A tunnel under the Fehmarnbelt might be more cost-effective than presumed. That seems to be the result of 12 months' work on a range of possible scenarios and Femern A/S is now in the process of scrutinising the proposals put forward by consultants.

Two consultant consortia have been working on the design for the last 12 months, and have come up with their recommendations for a fixed link over the Fehmarnbelt. One group, led by Cowi A/S & Obermeyer, is working on a bridge, whilst the other, led by Rambøll, Arup and TEC, is working on an immersed tunnel.

Femern A/S released the initial results of the consultants' work in the spring of 2010, in the form of 'conceptual design'. So far, both are neck and neck in terms of technology, safety and finances.

When it comes to the environment, ongoing studies are to identify every possible effect of both recommendations - i.e. during the construction period and as a result of the finished traffic infrastructure.

The successful consortium will be given the job of producing the final proposals to be used by Femern A/S for its applications to the authorities to go ahead with construction.

The treaty signed by Denmark and Germany calls for a cable-stayed bridge over the 19 km wide Fehmarnbelt as the preferred solution, whilst a tunnel is the preferred alternative.

Researching different variants

Femern A/S has asked the two consultancy consortia to examine the advantages and disadvantages of a cable-stayed bridge and an immersed tunnel. What will be the optimum span for shipping safety and economy? What will an immersed tunnel look like in cross-section, if it turns out to be the best and cheapest? Other solutions – suspension bridge and bored tunnel – have also been subject to scrutiny by consultants.

"What turns out to be the best solution will depend on more than environmental aspects and price, for example. The recommendations will also be judged on simplicity and ease of construction, traffic and shipping safety, soil engineering, successful traffic flow and so on. That's why we have asked the consultants to go right back to basics to look at the solutions and check out each detail," explains Technical Director Peter Lundhus. ►

The detailed studies seem to indicate that a cable-stayed bridge is the best of the possible bridge options, and that an immersed tunnel is the best of the tunnel options, but the work is far from finished yet. For instance, the recommendations will be subject to the extensive environmental and soil engineering studies, and studies of navigational safety started in 2009 and continuing throughout 2010.

The strengths and weaknesses of all recommendations will be described and documented in a process in which all factors - such as environment, design and safety - are analysed against each other, and which will discard any which transpire to be uncompetitive.

"We need to find the best fixed link over Fehmarnbelt possible taking into account all factors, and we need to be able to prove our findings," states Lundhus.

The optimum constructional and aesthetic solution is vital, as the fixed link will be there for over 100 years.

Decision expected at the end of the year

Femern A/S will evaluate the recommendations and results the consultants come up with during the summer.

Parallel with the design recommendations, the soil engineering and environmental studies will continue, and the scope of the environmental programme is expected to be finalised in a public hearing process held in Denmark, Germany and the other Baltic countries affected in some way by the project.

Where the link will be placed between Rødbyhavn in Denmark and Puttgarden in Germany will also go into the equation. Similarly, Femern A/S will be looking at a number of variants for the route of the infrastructure, discarding those which analysis shows will be unsuitable on environmental and technical grounds.

"We are highly satisfied with the results we have seen so far from the consultants. There is a high degree of technical innovation involved, and we have a lot of analysis to do before Femern A/S can select the design we want to submit for approval to the authorities. Environmental aspects and safety can still change a lot of things," concludes Lundhus.

Presuming the analyses indicate a clear winner, Femern A/S expects to be able to submit the final project and route corridor by January 2011.

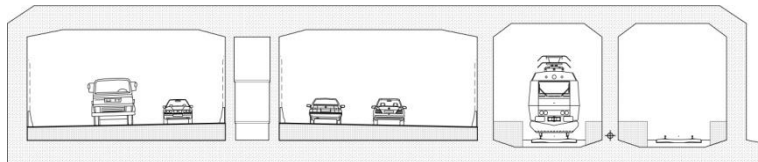
Cable-stayed bridge



A cable-stayed bridge with two decks and four-lane motorway on the ▶

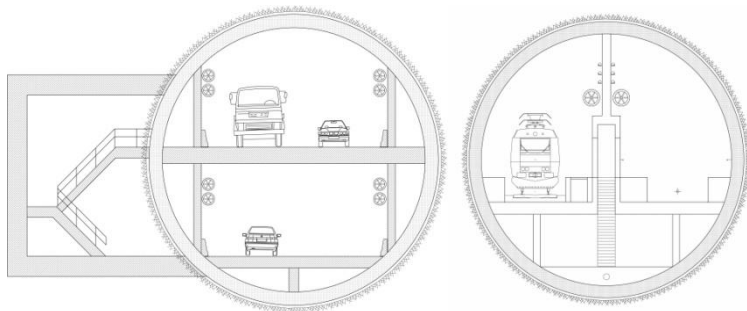
upper and two-track railway on the lower is being studied. Three and four pylon bridges are being studied, with different length spans over the navigation channel being assessed. A cable-stayed bridge over Fehmarnbelt will be based on known technology - but will be the biggest of its kind in the world, representing a singular challenge for the engineers.

Immersed tunnel



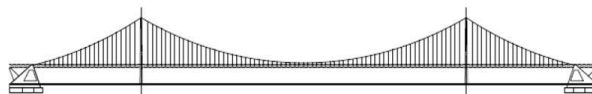
An immersed tunnel with two railway tracks and two road pipes can be accomplished in different ways. The simpler the solution, the cheaper it will be to produce on a production line basis. That's why the consultants are looking at different variants, including whether to use one or two decks.

Excavated tunnel



Excavated tunnels and giant drilling machines have developed rapidly over the last 20 years since the two tunnel pipes for the Great Belt link were built. Nowadays, gigantic drilling machines can drill two tunnels so big that 2+2 roads on two decks, or two railway tracks separated by a central partition wall can fit inside a single pipe. The greatest challenge with regard to bored tunnels is geology. Adverse subsoil conditions, such as large rocks and unstable strata can increase the cost and delay the project, as can safety measures with regard to adequate emergency routes.

Suspension bridge



A suspension bridge will also do the job, and is being closely studied. A ►

suspension bridge is more flexible than a cable-stayed bridge, which means making it stable enough to carry the large goods trains which will run over the Fehmarnbelt link is a challenge.

Technical consultants for the bridge project:

A joint venture consisting of Cowi A/S (DK) and Obermeyer Planen und Beraten (DE). Cowi has worked over the last few decades on some of the world's biggest bridges, including those over the Great Belt and Øresund, plus the Messina bridge in Italy. Obermeyer is one of the biggest engineering and architectural firms in Germany, and has been involved in numerous bridge and tunnel projects in Germany over the last 50 years.

Main sub-consultants to Cowi A/S and Obermeyer:

- Leonhardt, Andrä und Partner, Beratende Ingenieure VBI, GmbH (DE)
- Flint & Neill Partnership (UK)
- Dissing + Weitling A/S (DK)

Technical consultants for the tunnel project:

A joint venture consisting of Rambøll Danmark A/S (DK), Ove Arup & Partners International Ltd. (UK) and Tunnel Engineering Consultants – TEC (NL). All three have played key roles in some of the world's biggest infrastructure projects, such as the tunnel under the Øresund, the City Tunnel in Malmö, the Medway Tunnel in England and Amsterdam's Metro.

The leading sub-consultants to Rambøll, Arup & TEC are:

- WTM Engineers GmbH (DE)
- HTG Ingenieurbüro für Bauwesen GmbH (DE)
- Wilkinson Eyre Architects (UK)
- Schønherr Landskab (DK)
- Oriental Consultants (JA)

The Øresund bridge will fit under one span of a Femern bridge

Regardless of whether a tunnel or bridge is built over the Fehmarnbelt, the project will set new world records. A 19 km immersed tunnel is five times longer than the world's biggest combined road and rail tunnel under the Øresund. A cable-stayed bridge will be longer, higher and have a higher span than any other of its kind.

The scale can be illustrated very simply: the Øresund high level bridge has a span of 492 metres and pylons 203 metres high, yet can easily fit under just one of the spans of a projected cable-stayed bridge over the Fehmarnbelt.



Holidaymaking dominates trips across the Fehmarnbelt

By far the majority of passengers on the ferries between Denmark and Germany are on their way to a holiday or a short break, a survey carried out for Femern A/S in April 2010 has revealed.

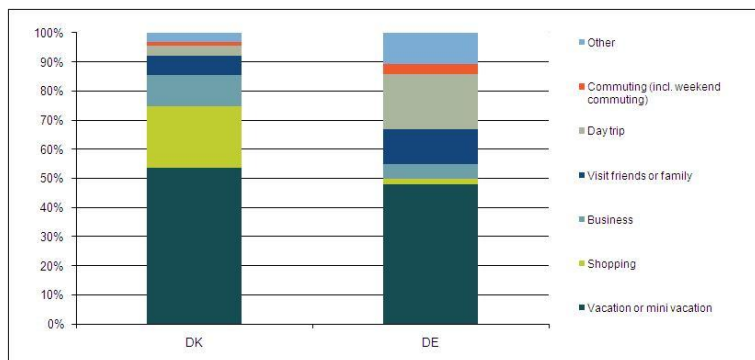
54% of Danish and 48% of German respondents to the survey had used the ferries within the last two for holidaymaking purposes.

For some Danish passengers, the primary reason for travelling was shopping: 21% of all the Danes who used the ferries over the past two years travelled for that very reason. Amongst Danish passengers heading for Germany, this share was as high as 30%.

Shopping in Denmark and the rest of Scandinavia, on the other hand, was not such an attraction for Germans, with only 2% of German respondents taking the ferry to Denmark citing shopping as their primary reason for travelling.

Commuting hardly featured in the survey. Only 1% of Danish respondents and 3% of German respondents gave commuting as the reason for their journey. Business travel was a little more prominent in the survey: 11% of Danish and 5% of German travellers were travelling for business purposes.

Purpose of travel



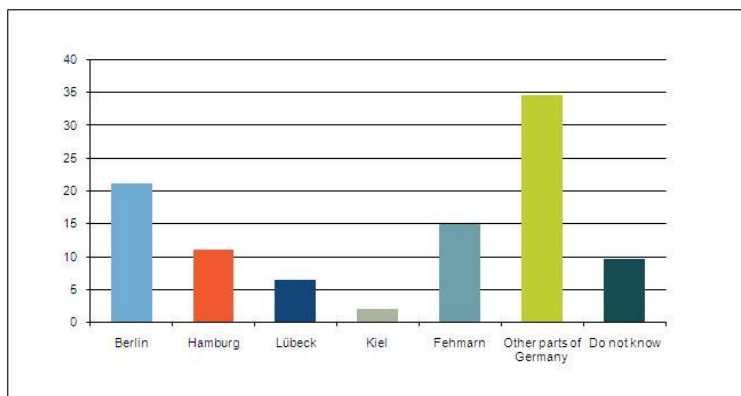
Amongst the Germans questioned on taking ferries between Germany and Denmark, the whole of Scandinavia was given as a destination. 20% were heading for Sweden and 10% for Norway, while 64% would remain in Denmark. For those whose trip ended in Denmark, Copenhagen was the top destination (36%). Lolland-Falster and Møn, too, were attractive destinations (24%).

Just under 60% of the Danes questioned said that Germany was the end point of their journey. Berlin was the city of choice in the immediate ►

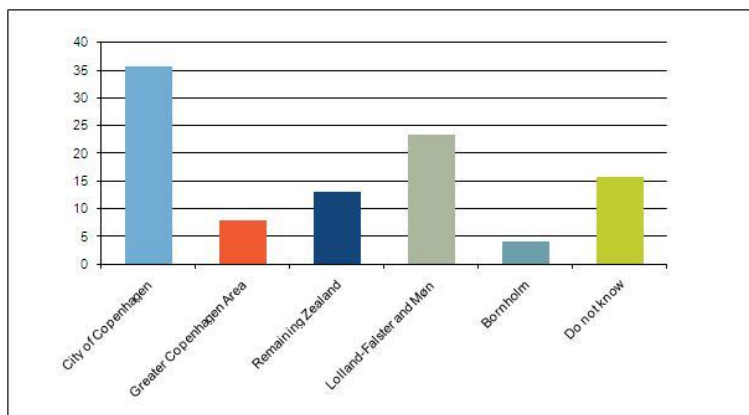
vicinity of the ferry connections: 21% of passengers heading for Germany were travelling to Berlin, compared with 11% en route to Hamburg. Still fewer of these passengers were heading for Lübeck (7%) and Kiel (2%). On the other hand, Fehmarn was the destination for 15% of Danish passengers travelling to Germany. The island's popularity is due in particular to the fact that many Danes visit to go shopping.

The survey was carried out on behalf of Femern A/S by TNS Infratest (Germany) and TNS Gallup (Denmark), who interviewed a representative cross-section of the population by telephone. A total of 1,000 people over the age of 18 in Denmark and Northern Germany (Schleswig-Holstein, Hamburg and Mecklenburg-Vorpommern) took part between late March and mid-April 2010. Only respondents who had taken the ferry between Rødby and Puttgarden or between Gedser and Rostock answered the question about the purpose of their journey.

Where in Germany is your destination?



Where in Denmark is your destination?



Similar values but dissimilar knowledge of our neighbours

If the Fehmarnbelt region is to succeed, Danes, Germans and Swedes must get to know each other better, and there has to be a many-fold increase in areas of contact between the three countries.

The coming Fehmarnbelt fixed link will not only affect the number of cars and trains crossing between countries, but will also affect the expectations and attitudes that drive developments between Denmark and Germany. The future lies in the hands of the young citizens in the region. Therefore Femern A/S interviewed 800 young people, aged 18-20, from Denmark, Germany and Sweden and the results reveal that, except for a few dissimilarities, they have more values in common than you might expect.

They were questioned about their values and attitudes to the job market, housing, culture, politics, the environment and what they thought would be the consequences of the fixed link.

Their answers were collated in the analysis project "A new dynamic regional development in Northern Europe", which was presented by Professor Christian Wichmann Matthiessen at a STRING conference in Malmö on 7 June 2010. The analysis is the result of the efforts of Danish, German and Swedish researchers to map new trends and opportunities and, from these, to make recommendations to the politicians.

Dissimilar knowledge of our neighbours

The answers given by the young people clearly demonstrate that they have dissimilar knowledge of their neighbours. In particular, contact between and knowledge of the German section of the region is quite limited. Contact between the countries is comprised first and foremost of visits by young Danes and Swedes to Germany. The Danish section of the region, notably Copenhagen, is well-known among young Swedes and Germans, while young Danes and Swedes know nothing about Hamburg. The young Germans' knowledge of Malmö is equally limited.

With regard to studying, working or living in a neighbouring country, the contact between Denmark and Sweden is good and the interest is high. In Germany, the interest among young Germans in the other two countries is very high. Young Danes and Swedes are not interested in living or studying in Germany, but do think about the possibility of working there. Young Germans are interested in studying and living in Sweden or Denmark, and they are even more interested in working there.

"Mobility between Germany and Denmark – and between Sweden and Germany – remains relatively low. This will change once the fixed link is ►

completed. New opportunities will arise and new relations and new perspectives for economic growth and welfare will emerge,” comments Christian Wichmann Matthiessen.

Read more about the analysis [here](#).

Fewer motor vehicles between Germany and Scandinavia



In the first four months of this year, vehicular traffic between Scandinavia and Germany fell by 3.9%.

This was revealed by the figures for ferry routes Rødby-Puttgarden, Gedser-Rostock, the Trelleborg routes between Sweden and Germany as well as the land link between Jutland and Schleswig-Holstein.

Of these four traffic corridors, only the ferries between Rødby-Puttgarden experienced an increase compared to the same period last year, with an increase in motor vehicles of 1.7%. Gedser-Rostock experienced a drop of 8.3%, the Trelleborg routes a drop of 3.2% and the Southern Jutland border a drop of 4.3%.

The land corridor between Northern Germany and Jutland is by far the most heavily trafficked with motor vehicles crossing the border. In the first four months of this year, around 5 million vehicles crossed here. During the same period, the Rødby-Puttgarden ferries carried about 0.5 million vehicles, Gedser-Rostock carried about 0.2 million, and the Trelleborg routes only about 0.1 million vehicles.

Interestingly, compared to 2009, the ferry route Rødby-Puttgarden experienced an increase of more than 50% in coach traffic in April this year. The explanation for this unusual increase is most probably to be found in Iceland where a certain active volcano forced many European plane passengers to take to the coaches.