

**Crossing Femern Bælt with
ferry**

Meeting railway journalists

jst
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Femern
Sund ≈ Bælt

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Why a fixed Femern connection?

General reasons:

- To close an infrastructure-gap
- Time saving passengers/freight
- Positive socio-economic effects
- Better competition
- Less pollution (CO2)

Specific railway reasons:

- 160 km shorter way to Hamburg for railway freight
- Improving market share
- Copenhagen-Hamburg-.... with faster trains
- Capacity for more passenger traffic east-west Denmark

The railway net in Denmark



Strong market shares:

-Regional passenger traffic
Copenhagen area

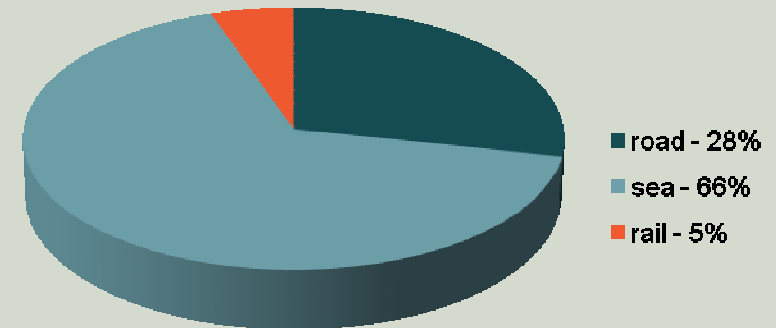
-East-west passenger traffic

-Import/export and transit
railfreight

Railfreight market shares (mio tons)

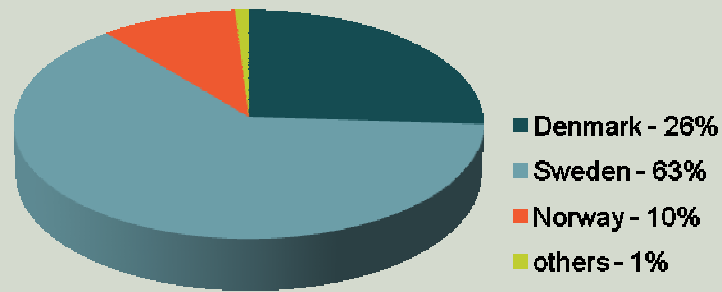


International

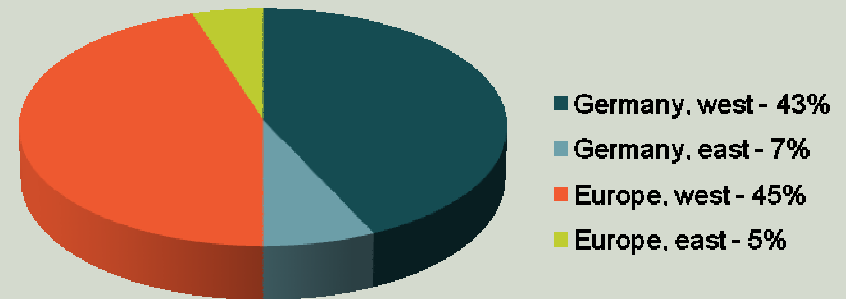


Freight at the Femern fixed link (rail 11 mio t)

Destination Scandinavia



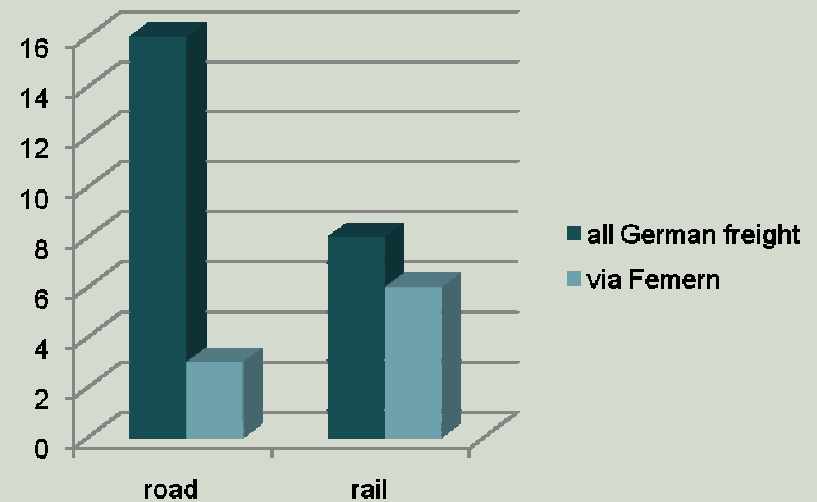
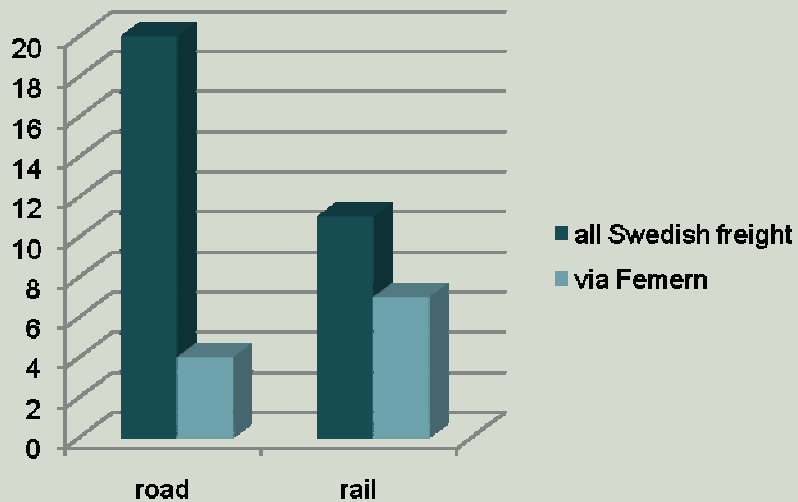
Destination South



Across Femern – most important markets

Part of Swedish freight (mio t)

Part of German freight (mio t)



Railway part of project in Femern A/S

- Capacity planning – collaboration with German railway planning authorities
- Railway design – technical project, bridge/tunnel and approach areas
- Railway safety planning and risk management – approval procedures for railway installations
- What to do with existing railway components in Rödby harbour?

Bridge or tunnel?



Decision in 2010

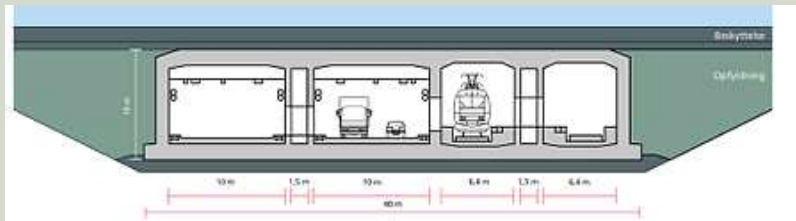
Double track railway – 19 km long
plus approach areas

Max. gradients 1,56% - normal
limit 1,25%

Max. speed 160-250 km/h

Axel load up til 25 tonnes at 100
km/h

Tunnel profile (existing Øresund tunnel, Drogden)



-Railway at the sides?

-Capacity/safety in tunnel
(dangerous freight, railway)

Suspension bridge also possible



-Wider spans

-More expensive than cable-stayed bridge

Not a combined bridge/tunnel solution



Sea floor more like a “bath-tub” at Femern Bælt – no “natural” stops in between

Railway design

The fixed link



The approach areas



Rödby Harbour area



Faster railway connection to Europe

Today:

- Passenger trains via Femern
- Freight trains via west DK
- Night trains via west DK

Copenhagen-Hamburg: 4½ hours

Future:

- All trains via Femern
- Freight trains save 160 km
- Copenhagen-Hamburg: 3 hours



Bottlenecks – other smaller bridges

Fehmarnsund Bridge



Storströms Bridge



Today's passenger traffic at 2018 track lay-out

