

Offshore power cables – Actual conditions to consider

Presentation to Maritime Spatial Planning and Offshore Wind
Energy Workshop

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Offshore power cables – Actual conditions to consider ...

- **What's the aim?** Fossil free Europe in 2050, expected need of 450 GW RES
- **Baltic Sea OW?** Today approx. 2 GW, in 2030 > 9 GW, in 2050... up to 85 GW*
- **How?** Long-term planning **AND** collaboration!
- Offshore power cables – to connect offshore wind farms to onshore AC systems
- **What is a offshore power cable system? And how to install it, sea and land?**



220 kV AC cable
Alternating Current
up to 400 MW
near shore – 60 km



525 kV DC cables
Direct Current
up to 2000+ MW
long distance



Installation land



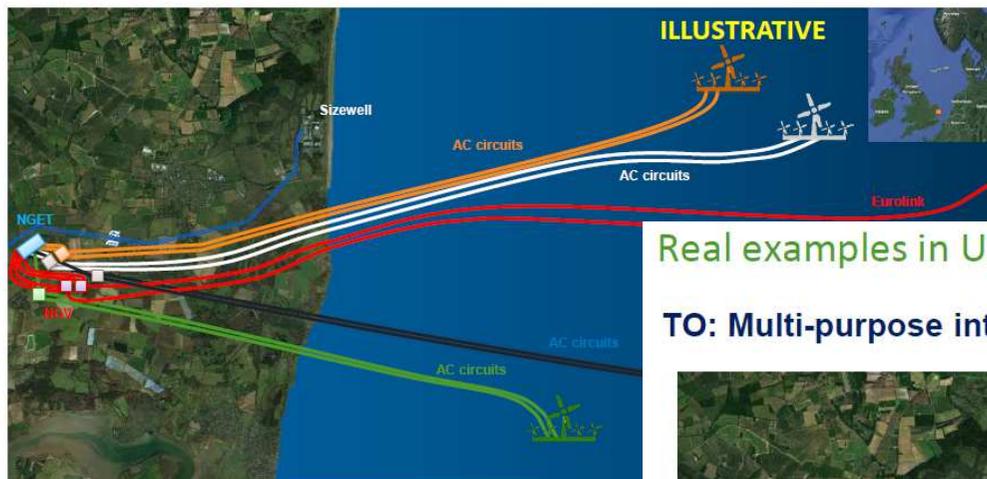
*) WindEurope November 2020, Boosting OWF Baltic Sea
OWF = Offshore Wind Farm, RES = Renewable Energy Sources
Pictures NKT HV Cables

Offshore power cables – Actual conditions to consider ...

- Experience from the North Sea?

Real examples in UK – East Suffolk

FROM: Multiple, single purpose projects

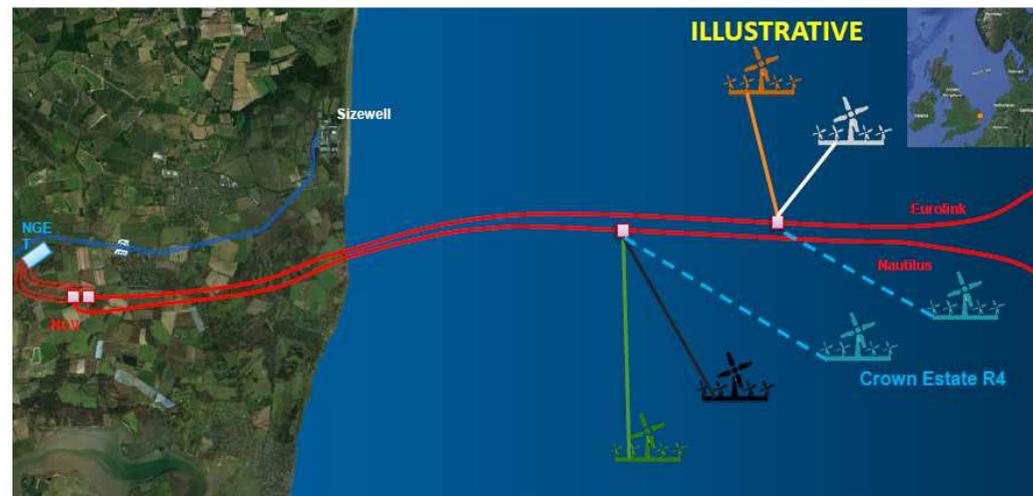


East UK North Sea planning:

- 2.6 GW OWF + 2 interconnectors
- Cable systems required?
- Space for ROW cable corridors?
- => **2 corridors instead of 6!**
- => **Reduced space & cost >67%**

Real examples in UK – East Suffolk

TO: Multi-purpose interconnector



~2.6GW of offshore wind connecting in the

Cable system corridors, examples;

- Sea, around 200 m width
- Land, around 25 m width

ROW = Right Of Way, required for cable systems to be installed in corridors

Offshore power cables – Actual conditions to consider ... - How to plan the Baltic Sea?

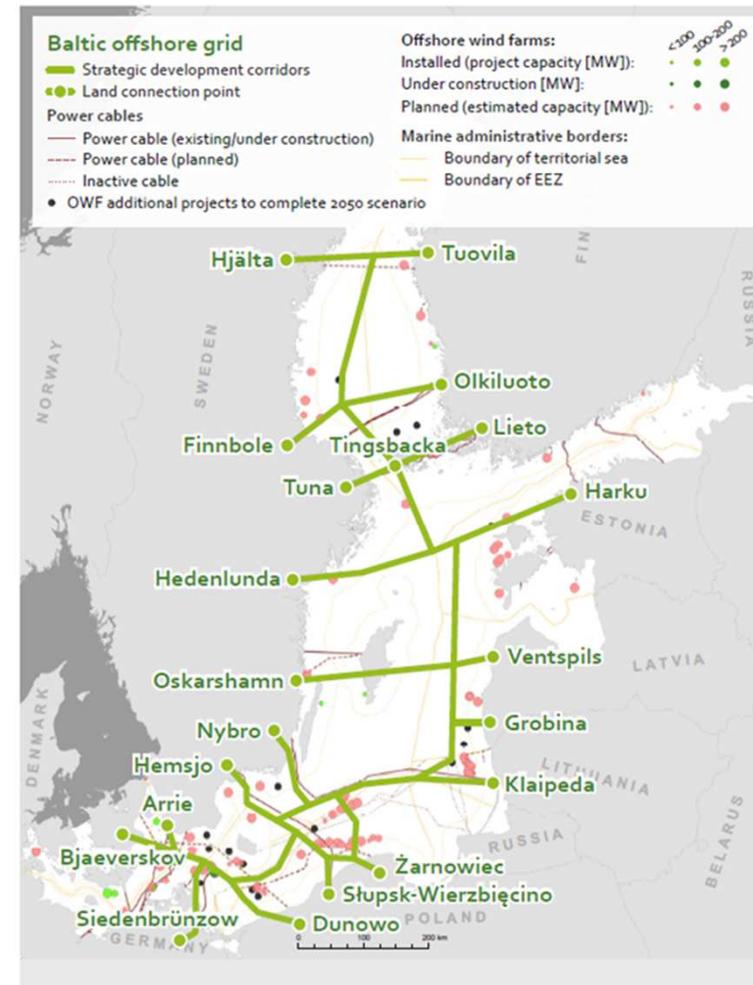
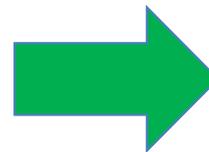
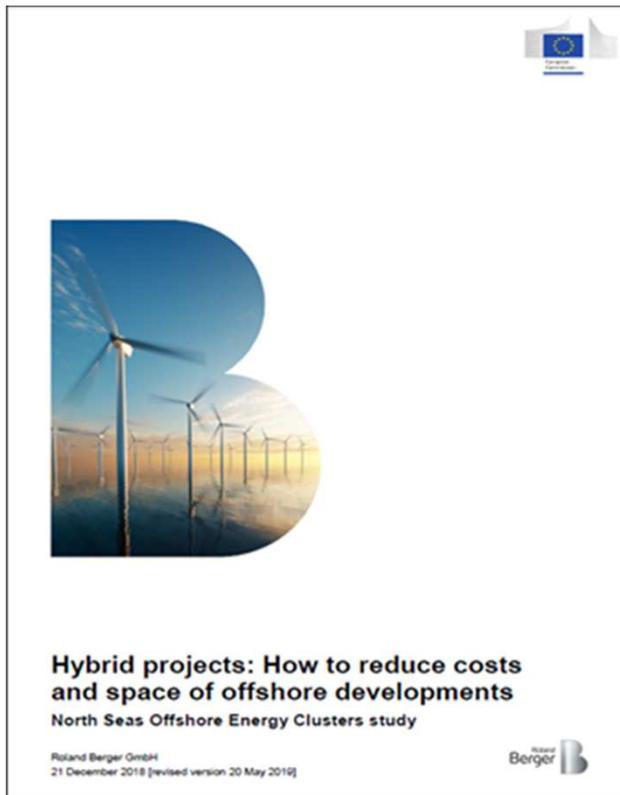
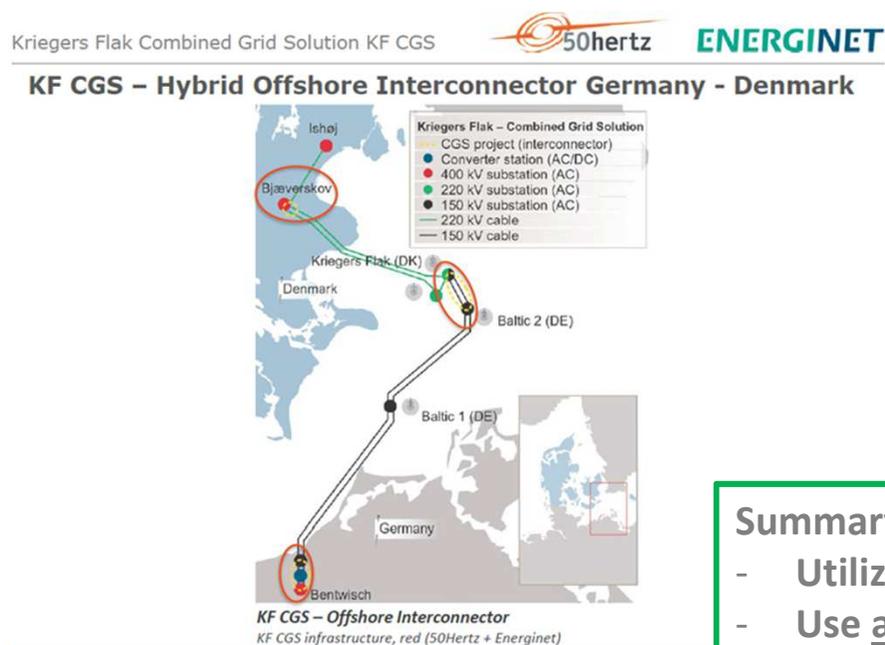


Figure 22. The Baltic Offshore Grid (BOG 2050) concept.
Source: Baltic InteGrid | Image: MIG

Offshore power cables – Actual conditions to consider ... - How to plan the Baltic Sea – The solutions are ready!



Orsted plans 'world first' 5GW offshore wind energy island

Summary:

- Utilize the North Sea experience
- Use available technologies, combine AC and DC systems = Flexible solutions!
- Combine OWF & Interconnectors, with dual functionality = Hybrid solutions!
- Kriegers Flak – 1st example in Europe!
- Hybrid solutions save significant space & costs!
- Next steps – towards a Baltic Sea DC Grid!



Thank you for your attention!

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