**Key Facts – Grid connection**

**Principal:**
Energett

**Location of the project:**
The Baltic Sea, Denmark

**Total cable length:**
100 km

**Duration:**
2015-2019

**Key Facts – Combined Grid Solution**

**Principal:**
50Hertz and Energinet

**Location of the project:**
The Baltic Sea, Germany and Denmark

**Total cable length:**
50 km (two parallel cable systems of 25 km)

**Duration:**
2017-2019

**Scope:**
- Design and engineering of a high-voltage cable system, including submarine cables.
- Cable manufacturing and qualification testing.
- Offshore cable installation and cable-laying.
- Commissioning.

**Key Facts – Grid connection**

**Principal:**
Energinet

**Location of the project:**
The Baltic Sea, Denmark

**Total cable length:**
100 km

**Duration:**
2015-2019

**Quantity of order:**
A turnkey 220 kV HVAC cable system with a 600 MW power rating

**Total cable length:**
100 km

**Duration:**
2015-2019

**Scope:**
- Design and engineering of a high-voltage cable system, including submarine cables.
- Cable manufacturing and qualification testing.
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- Commissioning.

**NKT is signatory of the Europacable Industry Charter: A commitment towards superior quality.**
Cable systems for renewable energy integration

Connecting offshore wind farms to onshore grids is essential to enable integration of more renewable energy and pave the way for a sustainable future. In turn, interconnecting grids create opportunities to strengthen energy markets, secure supply and share capacity. As the selected supplier of cable systems and installation work, NKT contributes to the unique Kriegers Flak development in the Baltic Sea. Two national electricity grids are being connected via offshore wind farms.

The European power transmission system is evolving towards an infrastructure based on high-voltage cable systems. The Kriegers Flak connection and interconnection showcase this transformation and support the European Union’s goal of reaching a minimum of 27 percent renewable energy by 2030.

Kriegers Flak grid connection

Denmark’s largest offshore wind farm, Kriegers Flak, is connected to shore by NKT.

NKT’s solution consists of 220 kV (kilovolt) HVAC (high-voltage alternating current) cable systems between the offshore transformer platforms as well as connections to shore. The advanced solution enables the integration of 600 MW (megawatt) into the mainland grid, and brings green energy to 600,000 Danish households.

Design, testing and production of the submarine cable system were conducted in NKT’s world-class facilities in Karlskrona, Sweden. NKT was also responsible for installation, cable-laying and pull-in operations for the three-core submarine cables. This approach significantly reduces interface risk thanks to NKT’s in-depth understanding of both cable systems and installation methodology. NKT’s experience and expertise ensure reliable transmission of electrical energy.

The offshore cable-laying, platform connection and land installation were successfully performed with the state-of-the-art cable-laying vessel NKT Victoria. The vessel is built specifically for the task of handling and laying submarine cables. The performance was excellent, with regards to both speed and accuracy, and the mission was completed within the scheduled time. The offshore cable-laying, platform connection and land installation was successfully performed with the state-of-the-art cable-laying vessel NKT Victoria. The vessel is built specifically for the task of handling and laying submarine cables. The performance was excellent, with regards to both speed and accuracy, and the mission was completed within the scheduled time.

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Kriegers Flak Combined Grid Solution

NKT is securing green power transmission between Germany and Denmark.

Transmission system operators 50Hertz of Germany and Energinet of Denmark have established the world’s first offshore interconnection by using the national grid connection to the offshore wind farms Kriegers Flak and Baltic 2. The Kriegers Flak Combined Grid Solution uses a submarine cable system from NKT. It has been designed and manufactured at our optimized factory in Cologne, Germany.

The interconnection contributes to a high level of secure supply of electric power. It also allows producers and consumers to buy and sell more power across the borders, increasing the value of renewable energy and contributing to the green transition. As the grids are asynchronous, a frequency transformer is necessary. An offshore transformer has been placed on an additional offshore platform due to the different voltage levels of the Danish and German offshore wind farms.

The Kriegers Flak Combined Grid Solution holds the status of a “project of common interest”, given by the European Commission. Such projects are grid expansions of significant importance, as they bridge gaps in the infrastructure of the European power system and simplify the development of a common European energy market. At NKT, we are proud having participated and having used our extensive experience and knowledge to support this important project, which has been commissioned in April 2019.

“Our cable system is part of the world’s first offshore power grid that combines wind energy with the possibility to exchange power between two countries.”