GF PIPING SYSTEMS – SUCCESS STORY

Reliable piping systems for clean electricity

GF Piping Systems is contributing to the energy transition with fire and heat-resistant, long-lasting PVDF structures.

With the Dogger Bank Wind Farm project in Britain, GF Piping Systems is once again demonstrating its innovative strength and contributing to the success of the largest offshore wind farm in the world.

About Hitachi Energy and Georg Fischer AB

Hitachi Energy, which is based in Ludvika (Sweden), pioneered commercial HVDC technology more than 65 years ago. The company is supplying high-voltage systems to connect the offshore wind farm at Dogger Bank. Hitachi Energy has realized more than half of the world's HVDC projects. Hitachi Energy describes this technology as a key for enabling the clean energy transition. GF Piping Systems serves about 500 customers in all business areas in Sweden and Finland through its company Georg Fischer AB. The GF pre-fabrication site in Avesta (Sweden) primarily serves customers in the energy, pharmaceutical, chemical, and marine industries. In 2021, Georg Fischer AB celebrated its 50th anniversary in the Nordics.

By moving away from coal, natural gas, and CO2 emissions, Britain's energy generation is becoming more renewable. Against this backdrop, the country is forging ahead with expanding its environmentally friendly wind energy generation. The North Sea offers ideal conditions to this end.

GF has been committed to developing solutions for efficient energy production for many years, and in doing so, has been supporting the global trend towards the more intelligent and sustainable use of resources. Technological innovations play a key role in this shift, for example, GF Casting Solutions manufactures heat-resistant investment castings and GF Machining Solutions offers airfoil machining solutions to meet the requirements of the next generation of gas/hydrogen turbines. GF Piping Systems has for many decades supported customers in numerous industries improve their environmental impact, including in the energy sector, and is now also supporting the renewable energy challenge.

Martin Sylven is based in Stockholm (Sweden). He joined GF Piping Systems in 2017 as Managing Director for Sweden and Finland. He took over the position of Head of Region North Europe in 2021.

Johan Martinsson is Site Manager of the GF Prefabrication Service Center in Avesta, the competence center for plastic welding solutions in Sweden. Johan also works as Key Account Manager for Hitachi Energy. He joined GF Piping Systems in mid-2021.

GF solutions for the energy transition

On the Dogger Bank sandbank, around 130 kilometers off the North Sea coast of Britain, construction is underway on what will eventually be the largest offshore wind farm in the world. Once up and running, several hundred wind energy systems will convert the strong North Sea winds into environmentally friendly electricity. Several hundred kilometers of submarine cables will enable distribution to land without any significant losses. Three Hitachi Energy conversion stations on the high seas and three on land will convert the energy from alternating (AC) to direct current (DC).

Because this conversion process generates heat, GF Piping Systems in Sweden has developed a solution to cool the valves: fire and heat-resistant, long-lasting PVDF structures. Since 2020, the GF team in Avesta (Sweden) has planned and produced 48 prefabricated PVDF structures, including thousands of quality-assured welds using IR technology on behalf of Hitachi Energy. Two of the three wind farm sectors will use these deionized water-based systems.

"Trust is key in a project like this. We share information with Hitachi Energy and openly discuss what is possible and what's not."

Johan Martinsson, Site Manager of the GF Prefabrication Service Center in Avesta

GF's PVDF solutions are in demand not only among companies in the energy sector but also in the microelectronics sector for semiconductor, photovoltaics, and TFT/LED production as well as in industries that require piping systems for the transportation of acids and water.

Local presence and global network

For the Dogger Bank project, the GF team in Avesta has put its many years of experience in the energy sector to good use: "Over the past 20 years, we have successfully completed several projects together with Hitachi Energy. For example, the grid connection of a wind farm in Germany," says Johan Martinsson, Site Manager Prefabrication at GF Piping Systems and Key Account Manager for Hitachi Energy, a long-standing and important customer for GF in northern Europe. "Our recipe for success is a good combination of local presence and global network," he says. The city of Ludvika (Sweden), where Hitachi Energy is based, is a little under an hour's drive from GF Piping Systems in Avesta, meaning shorter delivery routes for the modules. Within GF, the team in Avesta was able to count on the full support and expertise of other sites: the individual PVDF pipes were manufactured at GF in Ettenheim (Germany) and assembled into modules at GF in Avesta, after which they were transported to Ludvika. The Advanced Engineering team from Schaffhausen (Switzerland) contributed the necessary load and fatigue assessments. These computer simulations ensure that the PVDF modules can withstand the movements that take place during sea transportation. The unique combination of static load calculation and fatigue assessment is also greatly valued by other companies in the energy sector.

Dogger Bank Wind Farm will power six million British households with environmentally friendly electricity. GF Piping Systems will continue to contribute to the broader success story of the wind farm.

Facts and Figures

Largest wind farm in the world

Covering an area of 1’674 square kilometers, the Dogger Bank Wind Farm is larger than the Greater London (Britain) area. With 277 wind turbines with a total capacity of more than three nuclear power plants, the wind farm is expected to produce electricity for six million British households each year after their gradual commissioning. Each wind turbine measures 260 meters from top to bottom – almost three times the height of London’s landmark Big Ben.

Sustainability is the foundation of GF’s business and at the core of innovative customer solutions. Wind energy, which is environmentally friendly, is key to reaching the UN’s Sustainable Development Goals: ensuring access to affordable, reliable, sustainable and modern energy for all (Goal 7).

1’674 square kilometers

✚ Dogger Bank Wind Farm

277 wind turbines

✚ with a total capacity of more than three nuclear power plants

260 meters

✚ the wind turbine measures

GF's solutions are in demand not only among companies in the energy sector but also in many other industries.

Two Points of View

In your opinion, what is essential for a good customer relationship?

Martin Sylven: It's all about a long-term commitment built on trust and openness. We want to be a reliable and supportive partner during all phases of a project, adding value with our expertise in plastic piping systems and our superior GF solutions for customers.

How is this reflected in the collaboration with Hitachi Energy?

Johan Martinsson: Trust, openness, and caring are key in a project like this. In this case, it means that we can openly discuss what is possible and what's not. That helps us find positive and competitive solutions together.

What inspires you?

Martin Sylven: Johan and I are both part of a highly professional and dedicated team. The GF culture encourages involvement and business development. We act locally, but we always feel the great support of all of GF's central functions. That is very motivating.