EMR
integrated solutions

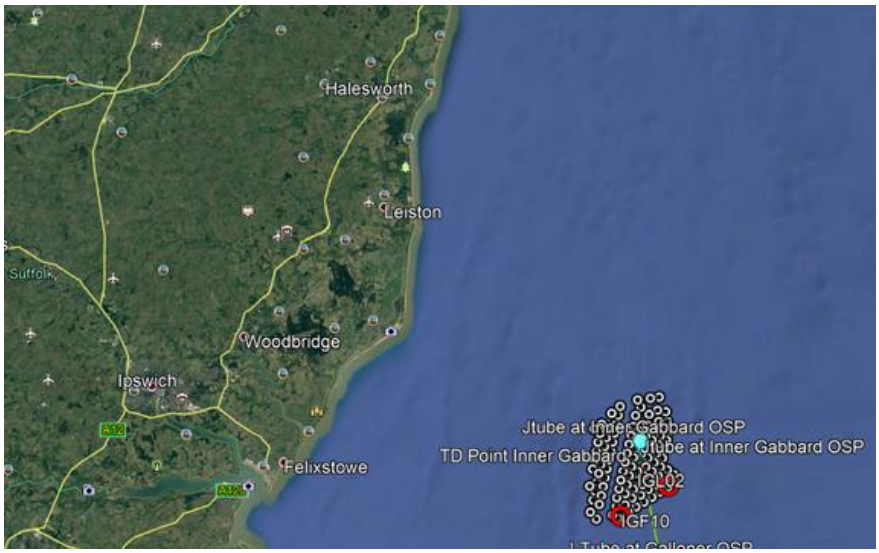
CASE STUDY

Renewable Energy

Success in the air for EMR with communications installation for UK offshore transmission system

COMPANY OVERVIEW

GREATER GABBARD OFTO PLC / EQUITIX MANAGEMENT SERVICES



Greater Gabbard Offshore windfarm is located 40km off the coast of Suffolk in England and was the world's largest offshore windfarm when commissioned in 2012.

The Greater Gabbard Offshore Transmission (OFTO) project is owned and operated by Equitix, a market-leading investor and manager of core infrastructure assets.

Greater Gabbard's 140 turbines produce 504 MW, and the project has two offshore substation platforms, connected by an interconnector cable. Three export cables connect the windfarm back to shore at the Leiston substation.

Equitix Management Services is responsible for the management of all offshore and onshore tranmission assets.

THE REQUIREMENT

Subsea submarine cables operate in harsh, underwater marine environments and are subject to degradation over time.

In a pre-emptive move, asset management staff at Greater Gabbard OFTO identified the need to supplement communications between both offshore platforms at Inner Gabbard (IG-SUB) and Galloper (GA-SUB). The interconnector cable provides both power transportation and fibre optic communications for the mission-critical operational plant information.

Following a recommendation from the windfarm operator, an existing client of EMR, general manager of Greater Gabbard OFTO, Roger Morgan engaged with EMR to investigate the feasibility of installing a high-speed microwave radio link.

EMR have a proven track record in delivering robust, high-throughput, low-latency solutions for mission-critical remote sites with plant-wide SCADA applications, such as windfarms, solar farms and oil and gas terminals.

"As a pre-emptive move and for added resilience, we identified the need to supplement the existing interconnector cable communications between both platforms, to support the balance of plant information."

Roger Morgan, General Manager, Greater Gabbard OFTO plc

THE SOLUTION

SOLUTION COMPONENTS

- Initial desktop survey using our design software to ensure the feasibility of a microwave radio link operating in a suitable frequency range.
- Consultation with Ofcom to ensure a successful license application.
- Physical site survey by specialised offshore rigging team to verify the optimal equipment locations and determine the connections back to the SCADA system.
- Installation of an Advanced Space Diversity system consisting of a single antenna at Inner Gabbard with two antennae (main and diversity) at Galloper to provide a robust 100Mbps link in this challenging offshore environment
- Testing and commissioning of the microwave link and end-to-end solution.

EMR recommended the use of Advanced Space Diversity technology which uses fewer antennae for microwave connectivity.

Just three antennae, rather than the traditional four, provide a hybrid system with two separate paths. If one path is degraded due to tidal effects, the system immediately switches to the second path without any interruption.

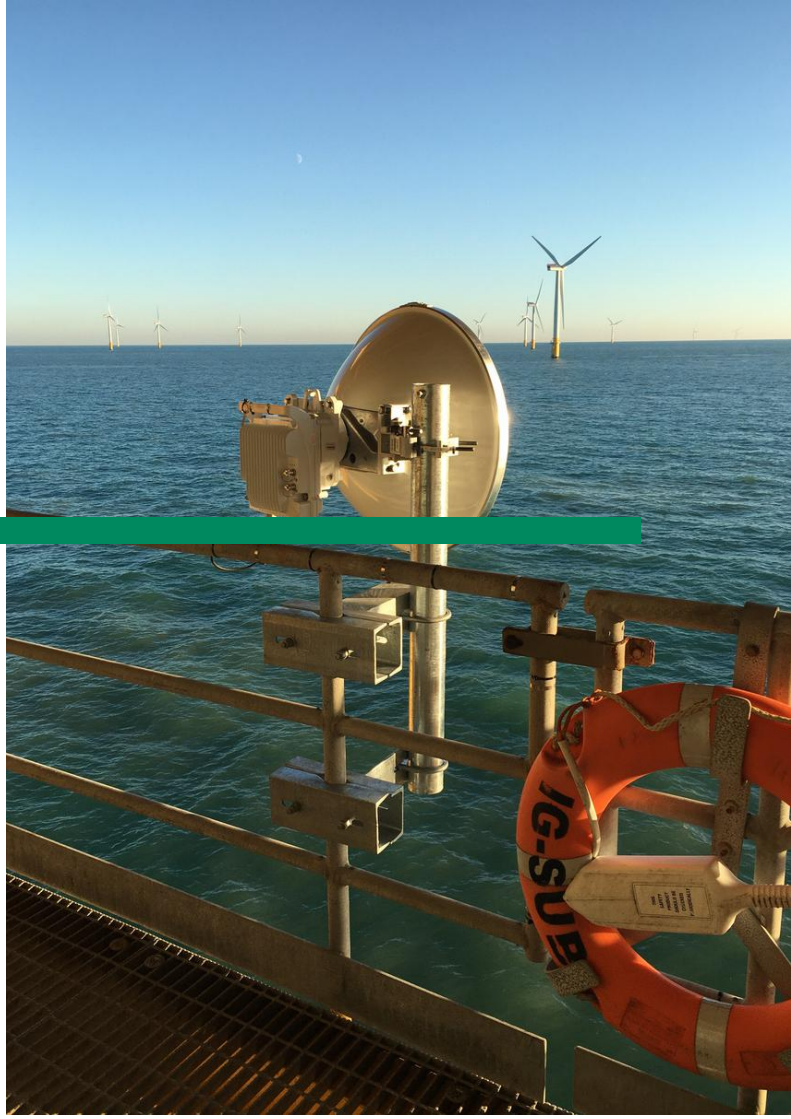
As always with offshore installations, the main challenge was access to the substation platforms during periods of high wind, meaning the project had to be completed during windows of good weather.

EMR worked closely with the site generator and O&M provider to ensure a successful project completion.

"The operational information that's coming my way says it's a pretty robust solution. When the signal is interrupted, it resets very quickly and doesn't create lots of unnecessary alarms."

Roger Morgan, General Manager, Greater Gabbard OFTO plc

THE BENEFITS



Speed of deployment and lower financial investment when compared to interconnector replacement, are two of the key benefits accruing from the microwave deployment at Greater Gabbard.

By pre-empting interconnector degradation and deploying the microwave now, communications resilience has been built into the system. It delivers the robust, high speed, reliable connectivity that Equitix Management Services demands of the assets it manages.

Such is the success of the project, Equitix Management Services are in discussions with EMR to enhance connectivity through other transport mechanisms such as utility-grade satellite communications.

> "We agreed on the most efficient solution, which was mindful of people's safety, installation methodology and the project costs."
>
> Roger Morgan, General Manager, Greater Gabbard OFTO plc

BENEFITS AT A GLANCE

- Resilient telecoms connectivity for Greater Gabbard offshore transmission assets ensuring uninterrupted operational data from offshore to onshore transmission SCADA system
- Reliable traffic pass-through thanks to hybrid connectivity paths, suited for marine environments.
- Quicker deployment and more cost-effective project costs

WHY EMR?

"It has been a big success story, to be honest. Everything is working and it is rock-solid. Control room feedback has been excellent."

Roger Morgan, General Manager,
Greater Gabbard OFTO plc

ABOUT EMR

EMR Integrated Solutions is a leading provider of communications, SCADA and instrumentation solutions. With a track record stretching back to the early 1980s and a management team with a wealth of industry experience, the company has established a strong, successful foothold in markets as diverse as retail, hospitality, utility, transport, telecoms and public safety.

The organisation has customers across Ireland, the UK and Europe and has the expertise, engineering know-how and project management capability to delivery large, complex, integrated solutions on time and within budget.

+353-1-8013131 **Ireland**
+44-870 2953979 **UK**

info@emrsolutions.ie

www.emr.ie