

HOW03 Progress Report Onshore Converter Station

February 2025

Onshore Converter Station

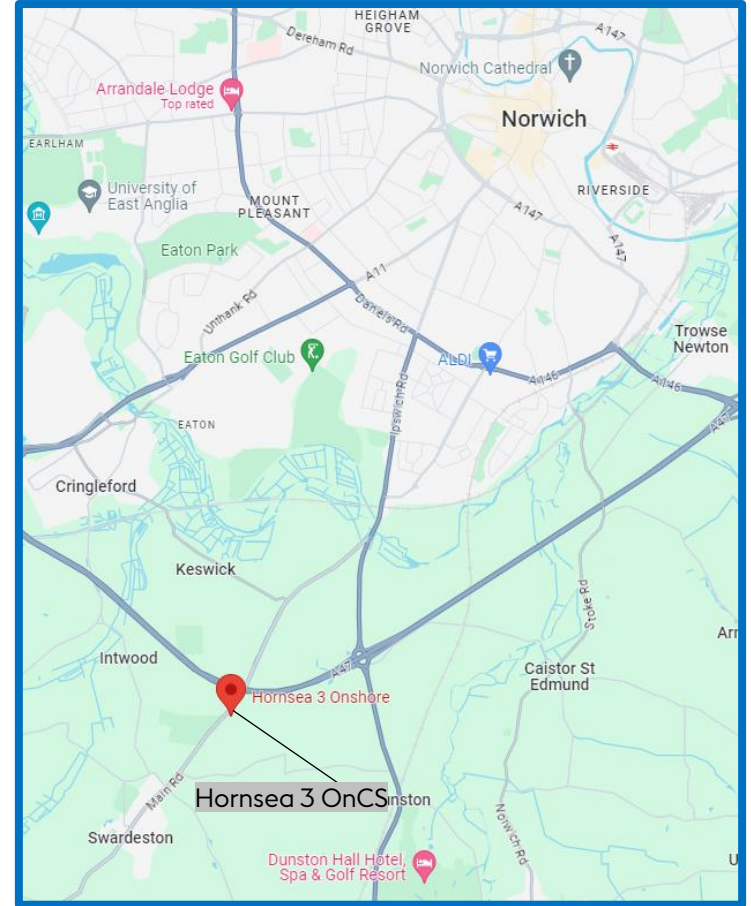
This progress report presents an overview of the main activities undertaken to date and upcoming works as part of the installation of the Onshore Converter Station (OnCS) for the Hornsea 3 Offshore Wind Farm ('the Project').

This is a series of progress reports which will be provided on a quarterly basis through to Project completion, scheduled for winter 2027/28.

The OnCS site is located south of the A47 on the B1113 and north of Swardeston, covering 0.13km² of land. It will house the converter station infrastructure, temporary welfare facilities, offices and a car park.

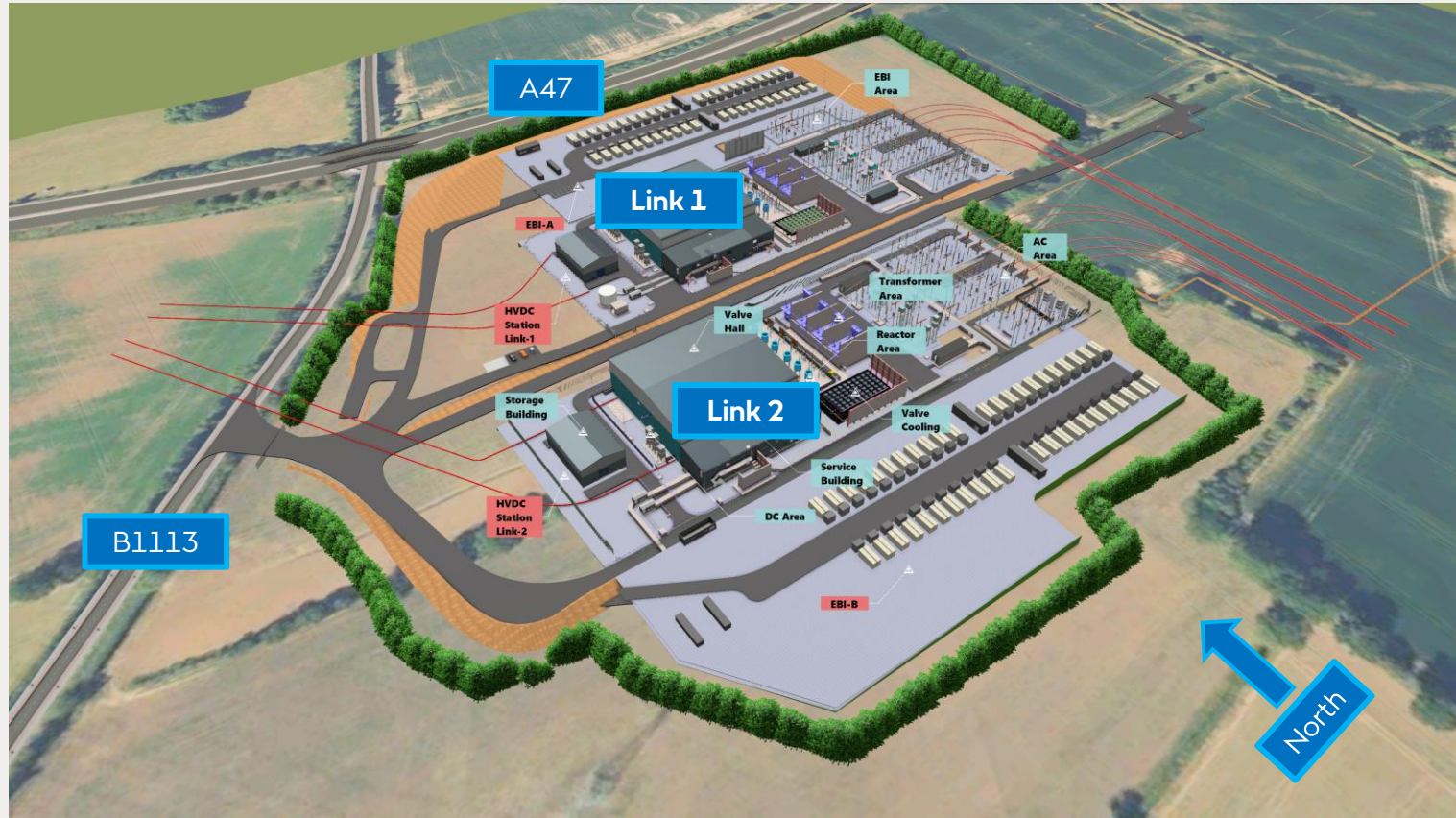
Due to the nature of our activities all dates included within this pack are subject to change.

Descriptions of information presented are provided in the glossary at the end.



Location of the Hornsea 3 OnCS

Conceptual Design



Conceptual design of the Hornsea 3 OnCS and Energy Balancing Infrastructure

Site Entrance and Overview

Overview

Access to the OnCS site is via a newly built asphalt bell mouth (site entrance) adjacent to the B1113. Temporary security huts and gate guards have been installed.

This bell mouth is connected to all work areas, including the offices and welfare facilities, via a temporary asphalt haul road running through the site. The bell mouth was completed in August 2023.

Two temporary ponds have been utilised to hold rainwater collected by a temporary drainage system across the site. The water collected is then transported off the site to local water treatment facility by tankers.

Period of use

March 2023 – Q4 2027*

*Please note that these timings are subject to change.



OnCS site entrance as completed

Welfare Facilities and Car Park

Overview

The OnCS welfare facilities and car park are temporary structures installed in June 2024.

These structures are fairly substantial to provide adequate facilities for the site staff and workers who will be involved in the installation of the Project.

These facilities are located to the east of the main construction area.

Once the installation of the Project is complete, these facilities will be removed and the land returned to its original arable state, with some landscaping and planting undertaken at this stage.

Period of installation

August 2023 – June 2024

Period of use

August 2023 – Q4 2027*

*Please note that these timings are subject to change.



OnCS Car Park



OnCS Equipment &
Machinery Storage Area

Link 1

Overview

Link 1 (Valve hall) is the point where the onshore cable from the wind farm connects into the OnCS and then goes to National Grid.

As part of our reinforced concrete (RC) works on Link 1, we have completed the Alternating Current (AC) Yard and six pits for the 400 kilovolt (kV) AC cable, which will be connected, using high voltage cables to the Norwich main substation near Dunston, where the electricity is then distributed to the National Grid.

General excavation works are ongoing for the remaining road, drainage, earthing, and fencing works.

Buildings (blockwork etc.) works have started within the building with the initial cable trays installed in the external concrete cable troughs.

Construction of the concrete foundations and steel portal frames, including the cladding for the two Relay Buildings are now completed. Internal floor decking is planned to start soon.

The Transformer Bays reinforcement works are ongoing with concrete fire walls now visible; we are preparing a house for our 400kV transformers.

Timings

December 2023 – March 2025*

*Please note that these timings are subject to change.



AC Yard, Cable Pits & Duct Installation



Transformer Bays and Relay Building 

Link 2

Overview

Link 2 (Valve hall) is the point where the onshore cable from the wind farm connects into the OnCS and then continues to the National Grid.

At Link 2, the RC works for our Valve Hall, Service Building and two Relay Buildings are now complete with ongoing building (steel) works.

The transformer base slab/s are poured with the lower walls now being constructed with ongoing reinforcement materials.

The reinforcement works for the external concrete cable troughs and the AC Yard are progressing well.

Deep drainage works are almost complete with backfilling and general site levelling ongoing.

Timings

March 2024 – March 2025*

*Please note that these timings are subject to change.



AC Yard & Cable Pits



Transformer Bays

Steel Erection & Cladding Installation

Overview

The steel portal frames and cladding for the Valve Directional Current (DC) Hall and Service Building, for Link 1 are now complete – doors and windows will be complete by December.

Link 1's internal building works and initial cable containment and mechanical installation works have now started.

Link 2's Valve hall steelwork is complete with the fire protection (white) painted steelwork for the service building ongoing and will be finished in November.

Cladding works for the Link 2 buildings will start before the year end completing in the spring.

Timings

March 2024 – August 2025*

*Please note that these timings are subject to change.



Link 1: Valve Hall & Service Building



Link 2: Valve Hall & Service Building

Glossary

Links 1 and 2

The electricity generated by the offshore wind turbines is Alternating Current (AC), which when transmitted, loses more power than Direct Current (DC).

To avoid this loss the AC is converted into DC to be transmitted along the length of the cable.

At the OnCS, the Links will then convert the 320kV of DC electricity from the onshore cable into 400kV of AC electricity required to connect to the grid.

This 400kV AC electricity will be carried to the Norwich Main substation through a separate underground cable.

Valve and DC Hall

The Valve and DC Hall houses our converter modules. These modules will be used in the conversion of DC into AC.

Duct Installation

Duct installation works consist of trench excavations where ducting will be laid. The ducting acts as a protective casing through which the cabling will be pulled later in the project. Upon completion of installing the ducting, the trench will be reinstated with subsoil.

A specialist insulating material is used to surround the ducting, to help reduce the risk of the cables overheating.

A team of groundworkers use excavator machines to complete the digging and backfilling of the trenches.

Glossary

Bell mouths

To access land plots for our works, new gated construction traffic access points (bell mouths) need to be installed at highway entrance/exit points. The bell mouths provide access to the work area for plant, machinery, materials and anything else required to ensure the project is delivered on time.

Drainage

Pre-construction drainage is installed where necessary to keep soils effectively drained during our works. Post-construction drainage will then be installed to help the land return to its former use.

Relay Buildings

The buildings in which we monitor the current and voltage of the electricity generated and look for abnormal operating conditions.

Transformer Yard

The yard in which the power transformer changes AC electricity into DC electricity.

Service Building

The service building allows the site team to monitor, maintain and regulate the converter station.

Have you signed up to the Hornsea Three Community newsletter?

The Hornsea 3 Offshore Wind Farm is a major infrastructure project of national importance. With a generating capacity of 2.9 GW, Hornsea 3 will produce enough green energy to power more than 3 million UK homes.

We know that as with any large-scale infrastructure project, people are curious about Hornsea 3 and have questions about it.

We're here to help.

If you would like to get our quarterly newsletters with detailed updates on the status of the project delivered straight to your inbox, please scan the QR Code below.



Please reach out to our dedicated Community Relations team if you have any further questions:

Email: community@hornsea3.co.uk

Telephone: 0800 158 2354

How to get in touch

Project enquiries

Community Liaison Officers

Telephone: 0800 158 2354

Email: community@hornsea3.co.uk

Community Relations Team

We aim to provide a full response to all enquiries within 10 working days.

Let's create a world
that runs entirely on
green energy

