

Preliminary Information Memorandum

February 2014



Westermost Rough

1. Investment Highlights

1.1. Attractive wind farm development

- The Westermost Rough ("**WMR**") Offshore Wind Farm will be situated in the North Sea, approximately 8.0km off the coast of Yorkshire, and will be located entirely within UK territorial waters. NGET is the onshore transmission licensee, and the WMR Transmission Assets will connect to the 275kV NGET substation at Hedon, near Hull, in Yorkshire.
- The WMR Offshore Wind Farm will be the first commercial UK wind farm to utilise 6MW wind turbine generators ("**WTGs**") and will consist of 35,6MW WTGs with an installed capacity of 210MW (205MW at the Offshore Boundary Point), which will be connected to an offshore substation platform ("**OSP**") located within the boundaries of the WMR Offshore Wind Farm¹.
- The WMR Transmission Assets are currently under construction and due to be fully operational and commissioned by the end of Q3 2014. They will include an onshore substation, an OSP, one subsea cable and one land cable, and an OFTO-dedicated SCADA system.
- The WMR Transmission Assets are expected to deliver an availability of 98%, taking into account both planned and unplanned maintenance.

1.2. Highly experienced project developer

- The participating company in the WMR Offshore Wind Farm is Westermost Rough Limited (the "**Developer**"), which is a wholly-owned indirect subsidiary of DONG Energy A/S (together with its affiliates, "**DONG Energy**").
- DONG Energy is a highly experienced project developer, bringing a wealth of development experience to the project to design, construct and operate the WMR Offshore Wind Farm with a constructed capacity of 2.5GW in operation and 1.5GW under construction.
- DONG Energy has established itself as a market leader in the UK and European offshore wind power sector, where the company has been engaged in developing, planning and constructing six of the largest offshore wind farms in operation worldwide, including major developments such as the Walney I, Walney II, West of Duddon Sands, Barrow and London Array offshore wind farms and has successfully divested five offshore transmission systems.

1.3. Mature and attractive regulatory environment

- The independent ownership and operation of offshore transmission in the UK enjoys strong political, regulatory and stakeholder support in the UK. The Department of Energy and Climate Change ("**DECC**") and Ofgem have been developing the regime for several years. Both have consulted widely and regularly on each stage of the development of the regime and have taken account of respondents' views at all stages of the process.

1.4. Financial highlights

- The WMR Transmission Licence that will be granted to the successful bidder for the WMR Transmission Assets will include the right to a 20-year revenue stream in return for purchasing the WMR Transmission Assets and operating them in accordance with the obligations of the WMR Transmission Licence.
- The 20-year revenue stream bid of the successful bidder for the WMR Transmission Assets that will be incorporated into the WMR Transmission Licence will be fixed, subject to agreed adjustment mechanisms.
- The revenue stream will be availability-based, with the opportunity to earn additional revenues for better than expected operational performance. The revenue stream will not be subject to periodic review, provided operational performance remains above the relevant minimum standard.
- The revenue stream will also not be exposed to any revenue or performance shortfalls from the WMR Offshore Wind Farm itself. If the WMR Offshore Wind Farm ceases to operate, the NETSO's obligation to pay the revenue stream will continue.

¹ The difference between installed and connected capacity is attributed to array cable losses. National Grid Electricity Transmission plc ("**NGET**") has agreed a figure of 200MW which can be exported at the onshore boundary point.

2. Initial Transfer Value

Ofgem will launch tender round three (“**TR3**”) to identify a successful bidder to whom an offshore transmission licence should be granted for each of the TR3 qualifying projects.

The Westernmost Rough (WMR) project is one of two projects which have qualified for TR3. It has met the necessary qualifying requirements and tender entry conditions in accordance with the Electricity (Competitive Tenders for Offshore Transmission Licences) Regulations 2013.

This document is a summary of information provided by the Developer and outlines specifically the opportunity for investors to acquire the transmission assets and to become the licensed OFTO of the WMR wind farm.

It is currently estimated that a Preferred Bidder for WMR will be appointed in February 2015. This is following first generation from the WMR wind farm, scheduled for August 2014. Construction of the WMR Transmission Assets is due to be completed by the end of Q3 2014. Once completed, the WMR Transmission Assets will be commissioned and transferred to the OFTO identified as the successful Bidder through the tender process via a transfer agreement. Asset transfer is currently anticipated to be approximately six months after appointment of the Preferred Bidder.

The costs of developing and constructing the Transmission Assets, estimated on the basis of information provided to Ofgem to date by the project developers, are £199.5² million (the “**Initial Transfer Value**”). For the purpose of the Enhanced Pre-Qualification (EPQ) stage of the tender process, bidders should assume this value.

Ofgem is in the process of reviewing this information and expects to provide an estimate of the economic and efficient costs incurred in connection with developing and constructing the transmission assets at the Invitation to Tender (“**ITT**”) stage (the “**Indicative Transfer Value**”).

Ofgem will calculate the economic and efficient costs which have been, or ought to have been, incurred in connection with developing and constructing the transmission assets once the assets have been completed. This assessment will be used to determine the Final Transfer Value.

² Developer estimate

3. The Investment Opportunity

3.1. Location of the wind farm assets

The WMR Offshore Wind Farm will be situated in the North Sea, approximately 8.0 kilometers (“km”) off the coast of Yorkshire, and will be located entirely within UK territorial waters.

Figure 2 – Location of WMR offshore wind farm and transmission assets



Source: DONG Energy

The onshore substation will be located 15km from shore at Staithes Road, Hendon, Hull HU12 8DX, adjacent to the existing National Grid Electricity Transmission PLC (“NGET”) Hedon 275kV substation, which feeds directly into the existing 275kV GB national electricity transmission system.

The offshore export cable will be routed from the Offshore Substation Platform (“OSP”) to landfall near Withernsea on the Yorkshire coast, then via Horizontal Directional Drilling (“HDD”) pipes through the cliffs to the onshore export cable transition joint bay. The onshore export cable will be routed from the onshore export cable transition joint bay via ducts through local land, under roads and via further joint bays to the onshore substation.

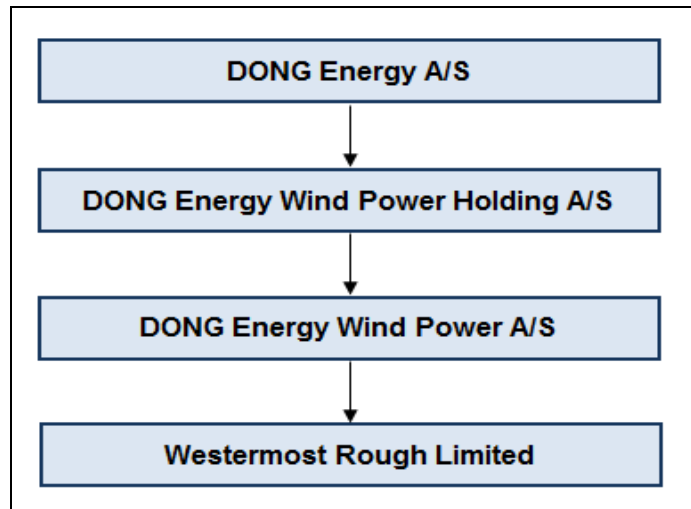
Location, onshore cable route and onshore substation maps can be found in Appendix 2, 3 & 4.

3.2. Ownership and Sponsors

The Westernmost Rough (“WMR”) Offshore Wind Farm is owned by Westernmost Rough Limited. Westernmost Rough Limited is a wholly-owned indirect subsidiary of DONG Energy A/S and holds the marine license and consent for the WMR Offshore Wind Farm under the Marine and Coastal Access Act 2009, and section 36 of the Electricity Act 1989.

An overview of the current ownership structure is illustrated in Figure 3 below.

Figure 3 - Ownership Structure



Source: DONG Energy

3.3. Operation and Maintenance

With a track record exceeding 20 years of operating offshore wind farms in Europe DONG Energy is greatly experienced in managing the long term operation of wind farms and the associated transmission assets. DONG Energy is currently operating the transmission assets of five commercial wind farms in the UK. As part of the tender for the WMR Transmission Assets an operation and maintenance agreement will be offered to the successful bidder for the service of the transmission assets. A draft form of this O&M agreement will be released at the ITT phase.

3.4. Transmission assets transferring to the OFTO

The WMR Transmission Assets will include an OSP, a single offshore export cable with a route length of approximately 11.8km, an onshore transition joint and onshore export cables with a route length of approximately 15.0km, an onshore substation and two 275 kilo volt (“kV”) Gas Insulated Switchgear (“GIS”) bays within the existing NGET Hedon substation.

An overview of the assets that the Developer currently proposes to transfer to the Offshore Transmission Operator (“OFTO”) under the project specific Special Purchase Agreement (“SPA”) and which were used to derive the initial transfer value of the WMR Transmission Assets, is set out in Table 1 below.

A simplified single line diagram for the WMR Transmission Assets including the boundary points is given in Appendix 1.

Table 1 – Asset Summary

Asset	Description
OSP	<ul style="list-style-type: none"> Structural steel topsides with four main decks and a mezzanine, mounted on a jacket foundation. The overall dimensions of the substation topside will be approximately 15x30x15m with an overall height of 33.1m above the lowest Astronomical Tide level (“LAT”). The topside cable deck (18.1m above LAT) will be provided for array and export cable management and muster areas. The main deck (23.6m above LAT) will be provided for the two 150/34kV 140 Mega Volt Ampere (“MVA”) transformers, together with the associated 170kV GIS, the 34kV switchgear, the low voltage (LV1 and LV2) rooms, and the Uninterrupted Power Supply (“UPS”) rooms, UPS A and UPS B. The mezzanine deck (27.1m above LAT) will contain the main transformer radiators, auxiliary transformers and earthing resistors. Two diesel generators, generator and OFTO control rooms, public rooms and workshops will be situated on the utility deck (29.4m above LAT). A helicopter hoist area, an antenna mast and a knuckle boom crane will be provided on the roof deck (33.1m above LAT).
Offshore export cable	<ul style="list-style-type: none"> One offshore export cable consisting of two factory-jointed sections: the subsea section, which will be a three-core 800mm² copper conductor single-wire armoured cable and the landfall section, which will be a three-core 1200mm² copper conductor single wire armoured cable. The total route length of the offshore export cable is approximately 11.8km. 170kV rated, XLPE-insulated, complete with integral optical fibres.
150kV onshore export cable	<ul style="list-style-type: none"> 150kV onshore export cable consisting of three single-core 1800mm² aluminium conductor XLPE-insulated cables, and three single-core 2000mm² aluminium conductor XLPE-insulated cables. The onshore export cable will connect to the offshore cable at the onshore transition joint and will be installed underground in local arable land and beneath roads, utilising 17 sections and 16 onshore joints. The total route length to the NGET substation is approximately 15km. A 48-core fibre optic cable will be routed adjacent to the 150kV onshore export cable.
Onshore substation	<ul style="list-style-type: none"> The onshore substation will house the High Voltage (“HV”) switchgear necessary for connecting the onshore export cable to the GB national electricity transmission system with associated reactive compensation equipment. The main equipment proposed for transfer includes two 275/150kV transformers complete with 170kV GIS, two auxiliary transformers, the associated shunt reactor, and reactive compensation and harmonic filtration equipment.
NGET Hedon substation GIS	<ul style="list-style-type: none"> The Hedon substation, which is NGET’s property, is the location of the Onshore Boundary Point. Two 275kV GIS positioned within the NGET Hedon substation will be included in the equipment transfer. The NGET substation will be connected to the adjacent onshore substation with a dual circuit, each consisting of three parallel single-core 275kV 630mm² aluminium conductor cables.
SCADA	<ul style="list-style-type: none"> The WMR Transmission Assets will be operated from a standalone Supervisory Control And Data Acquisition (“SCADA”) system that will be independent of the Generator SCADA System. The OFTO and Generator SCADA Systems will exchange signals as required by the Grid Code. The OFTO SCADA System will be connected to the National Grid Control Centre via the telecoms and data interface at the NGET Hedon 275kV substation and will deliver the signals required from the HV systems of the WMR Transmission Assets and the WMR Offshore Wind Farm. The OSP and the onshore substation will have separate OFTO and Generator SCADA System equipment rooms.
Spares	<ul style="list-style-type: none"> Later in the process, the Developer will discuss the possibilities for cooperation regarding spare parts with the preferred bidder for the WMR Transmission Assets in order to ensure the highest possible availability of the WMR Transmission Assets.

3.5. Ownership Boundaries

Detail the current offshore and onshore boundary points proposed by the Developer which have been used for the purposes of calculating the initial transfer value as described in Table 2, and the section below.

Table 2 – Proposed boundary points offshore and onshore

Location	Boundary Point
Offshore	Located at the 150/34kV transformer 34kV Low Voltage (“LV”) terminals.
Onshore	Located at the interface flanges/gas barriers between busbar selector disconnectors owned by WMR and NGET busbars contained within the existing NGET Hedon 275kV substation.

3.6. Consents

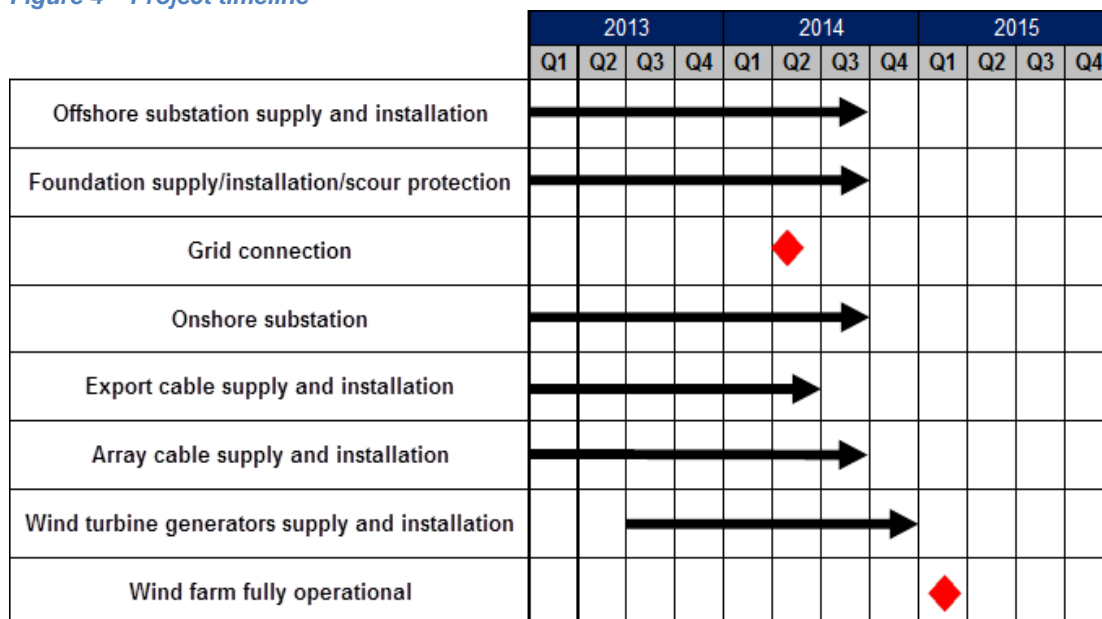
The Developer has all of the necessary consents in place to construct the WMR Offshore Wind Farm and WMR Transmission Assets. The Developer has also entered into all the required crossing and proximity agreements for the export cable route.

The Developer and the preferred bidder for the WMR Transmission Assets will have to agree on provisions relating to the assumption by the OFTO of responsibility for the performance of, and compliance with, certain consent conditions, and these will be detailed in the SPA relating to the WMR Transmission Assets.

3.7. Project Timeline

Design of the WMR Offshore Wind Farm commenced in 2011, and construction work on the WMR Transmission Assets started in Q2 2013. The construction of the WMR Transmission Assets is expected to be completed by Q3 2014, and the current expected date of delivery of the onshore connection by NGET is Q2 2014. Export of power from the WMR Offshore Wind Farm will be permitted by NGET from 01 July 2014. Commissioning of the WMR Transmission Assets is expected to take place from Q1 to Q3 2014. The commissioning of the WMR Offshore Wind Farm is expected to be completed by Q1 2015.

Figure 4 – Project timeline



Source: DONG Energy

3.8. Network design features

Table 3 summarizes the key transmission network design features of the WMR Transmission Assets:

Table 3 - Summary of WMR system design features

Key features:	
Expected designated service life	20 years
Composite export circuit capacity	212MVA
Expected minimum annual design availability	98% (taking into account both planned and unplanned maintenance)
Technical compliance with industry codes and standards	System compliant with requirements - "Codes and standards" section refers.

A Connection and Use of System Agreement (“**CUSA**”) has been entered into between the developer and NGET with Transmission Entry Capacity (“**TEC**”)³ export rights of 205MW at the OSP.

4. Commercial and contractual arrangements

Contracting and procurement for the WMR Offshore Wind Farm has been carried out on a multi-contract basis comprising 17 main contract packages, including installation vessels and Operation & Maintenance (“**O&M**”) facilities. The Developer has managed a comprehensive and robust pre-qualification, tender and contracting process, with external legal advice provided by Ashurst LLP.

Table 4 - Contractors for the transfer of the WMR Transmission Assets

Services and main equipment list	Contract and contractor
OSP - construction: Four-storey steel topside module mounted on a jacket foundation.	Supply: STX France S.A. Installation: Seaway Heavy Lifting Contracting Limited
OSP – mechanical and electrical equipment: 1. 2 x 170kV GIS switchgear 2. 2 x 150/34kV 140MVA transformers 3. 34/0.4kV Auxiliary and earthing transformers 4. Neutral earthing resistors	1. Supply and installation: Siemens A/S 2. Supply and installation: CG Electrical Systems Hungary 3. Supply and installation: Kolektor Etra d.o.o. 4. Supply: CHS Controls AB
Offshore export cables: 11.8km 170kV three-core cable	Supply: LS Cable & System UK Ltd Installation: Visser Smit Marine Contracting Limited
Onshore export cables: 3 x 13.9km 150kV single-core cables	Supply: LS Cable & System UK Ltd

³ Transmission Entry Capacity (TEC) is a CUSC term that defines a generator's maximum allowed export capacity onto the transmission system.

3 x 0.83km 150kV single core cables and 3 x 0.35km 275kV single-core cables Fibre optic cable – 48 single fibres	Installation: J Murphy & Sons Ltd
Onshore substation: 1. Civils construction 2. 170kV GIS switchgear 3. 150kV harmonic filter 4. 275/150/34kV 180MVA transformers 5. 34kV SVCs 6. 34kV reactor 7. 34/0.4kV auxiliary transformers 8. 275kV harmonic filter	1. Supply and installation: Balfour Beatty Civil Engineering 2. Supply and installation: Alstom Grid Denmark 3. Supply and installation: Alstom Grid Denmark 4. Supply and installation: CG Electrical Systems Hungary 5. Supply and installation: ABB Switzerland Ltd 6. Supply and installation: ABB Switzerland Ltd 7. Supply and installation: ABB Switzerland Ltd 8. Supply and installation: Alstom Grid UK Limited
Hedon NGET substation: 275kV GIS switchgear	Supply and installation: NGET
SCADA: OFTO station control and protection system	Supply, install, commission: Siemens A/S

4.1. Risk mitigation

The WMR Transmission Assets have been designed according to the planning criteria as defined in the NETS SQSS.

The WMR Transmission Assets have been designed to ensure that the capacity of the WMR Offshore Wind Farm, excluding cable losses, can be transmitted during an outage of one of the system devices, such as HV switchgear, transformers, or reactive compensation equipment. The onshore transformers have been designed with additional forced air cooling which will allow the full WMR Offshore Wind Farm output to be exported via one transformer in the event of an outage, NGET switching, or maintenance requirements.

The offshore export transformers do not have additional cooling and are each rated to export approximately 66% of the WMR Offshore Wind Farm output. Should a fault occur in one of these devices, the WMR Offshore Wind Farm will not have to be shut down by default. However, the export capacity may, under certain outage conditions, be constrained. The extent of the power reduction will depend on the prevailing wind speeds and generator availability.

5. Contact details

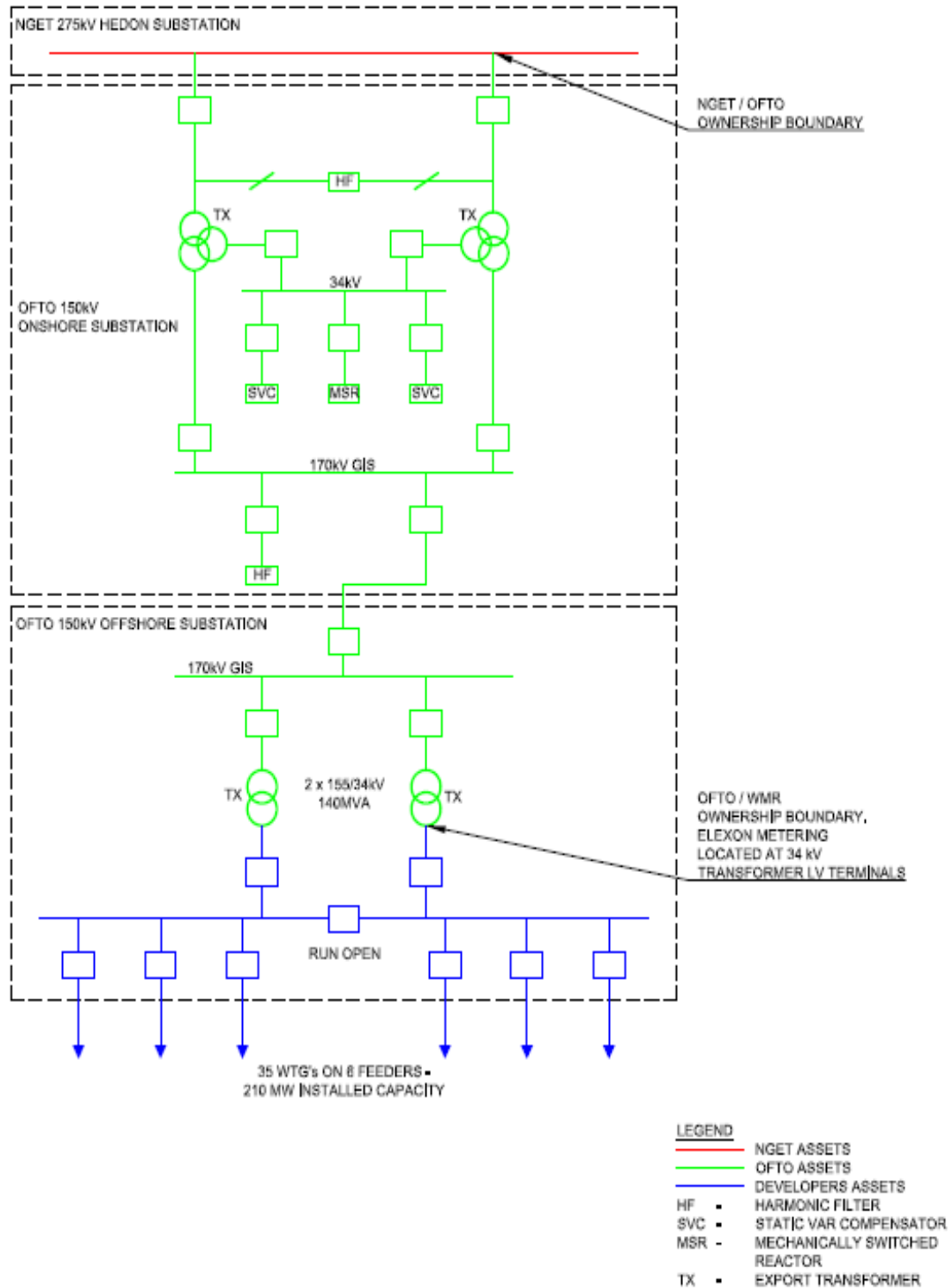
The information in this document is provided for information purposes only. It is designed to provide prospective OFTOs, lenders and advisers with certain high-level information related to the WMR Transmission Assets, to support the launch of the initial, pre-qualification phase of the tender process.

For more information on the tender process please refer to the Generic Preliminary Information Memorandum (Generic PIM) published alongside this document.

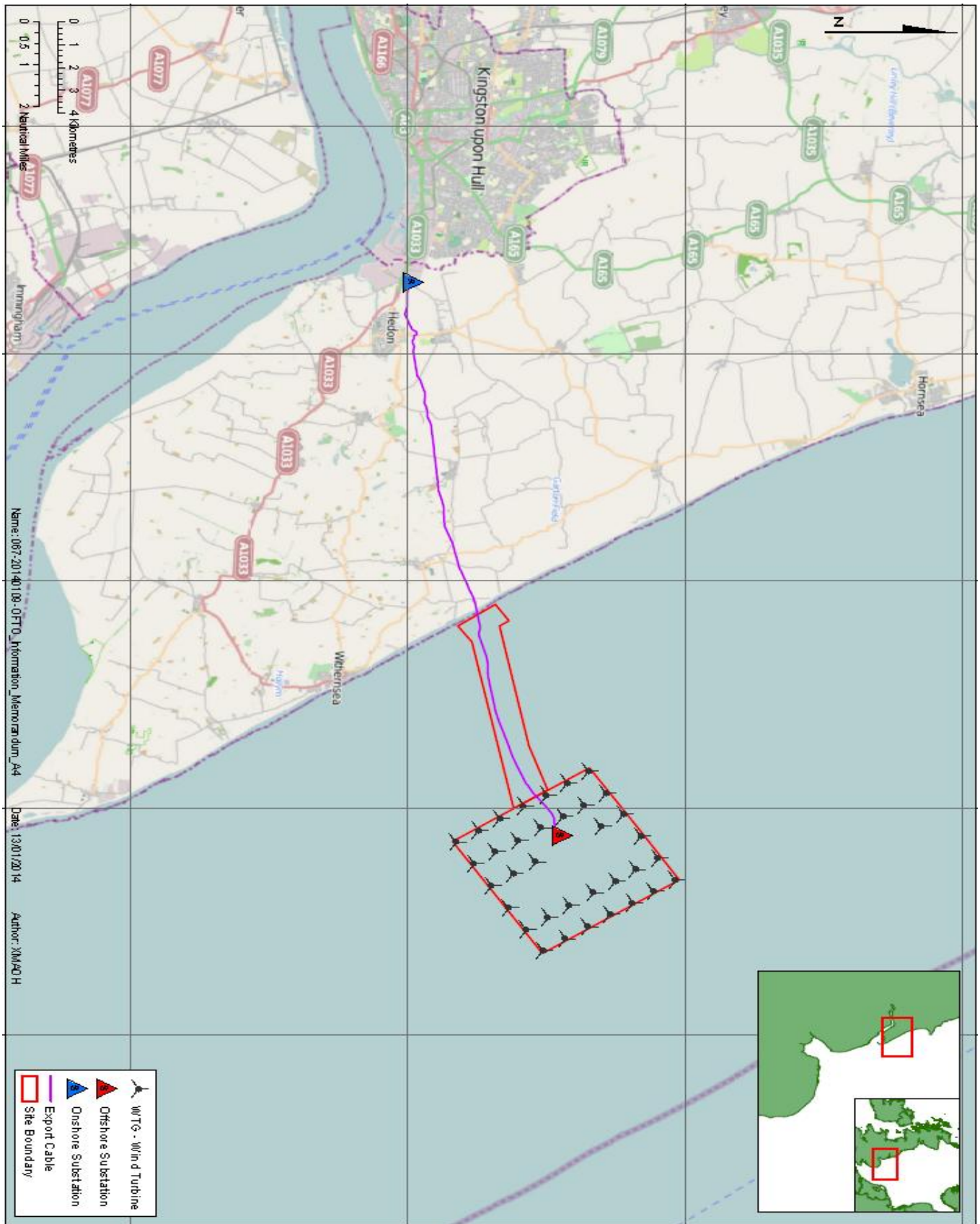
All enquiries or communications, including requests for additional information, should be sent to tendercoordinator@ofgem.gov.uk.

6. Appendices

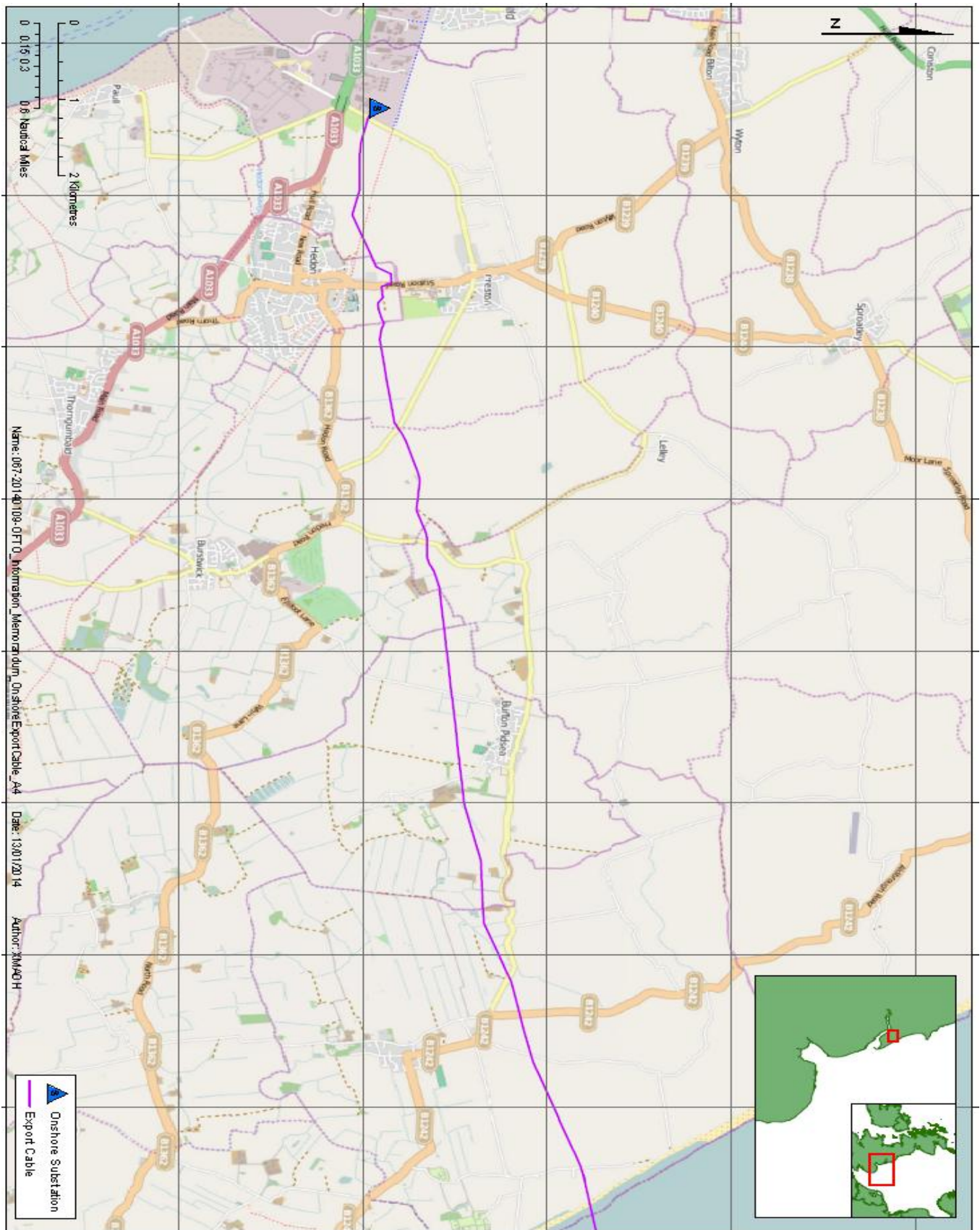
Appendix 1 - Simplified Single Line Diagram



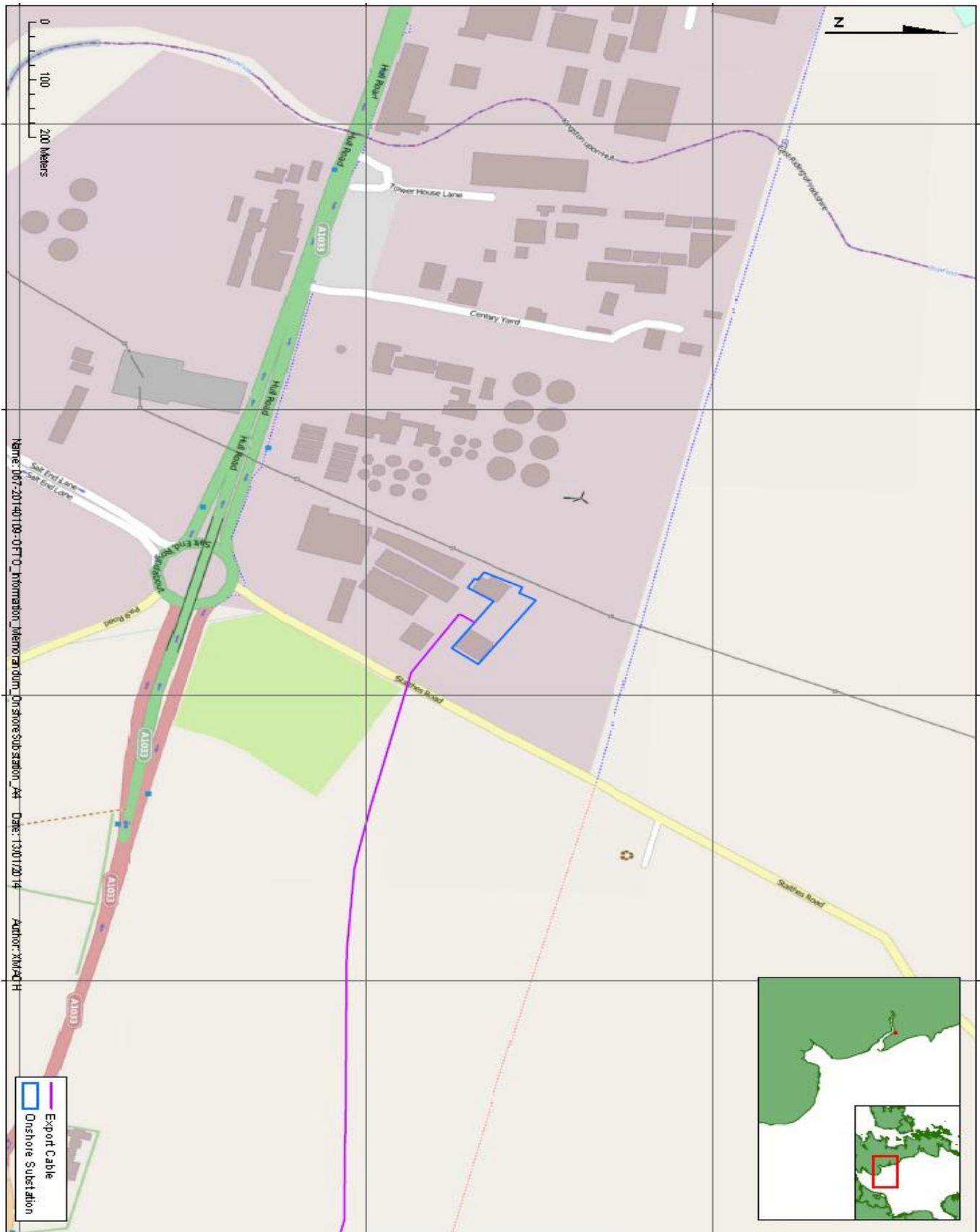
Appendix 2 - Location map



Appendix 3 - Onshore cable route



Appendix 4 - Onshore substation



Appendix 5 – Disclaimer and Notices

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