NSN LINK

Non Technical Summary for NSN Link

nationalgrid

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NSN LINK

UK ONSHORE DEVELOPMENTS

Prepared by TEP

For NSN Link Ltd

TEP
Genesis Centre
Birchwood Science Park
Warrington
WA3 7BH
Tel: 01925 844004
Fax: 01925 844002
e-mail: tep@tep.uk.com

nationalgrid

Written:	Checked:	Approved:
AC	JB	IJG

N1 INTRODUCTION

N1.1 Interconnectors are transmission cables which allow electricity to flow between countries and can be used for the import or export power between countries. National Grid NSN Link Ltd ("NSN Link Ltd") and Statnett are joint promoters of an electricity interconnector between the UK and Norway which is known as "NSN Link". The development of an interconnector would have mutual benefits in terms of:

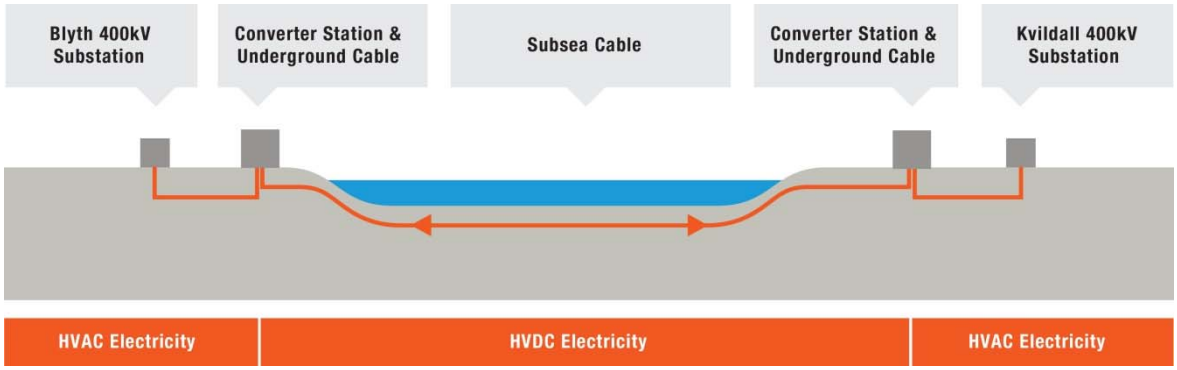
- lower energy prices for customers;
- enhanced energy security;
- a cleaner environment; and
- wider macro economic benefits.

N1.2 NSN Link is a proposed high voltage direct current (HVDC) electricity interconnector with an approximate capacity of 1400 megawatts (MW). It will allow the transfer of electrical power between the UK and Norway, via subsea cables. The interconnector will be bi-directional allowing the import and export of electricity between the UK and Norway.

N1.3 The proposed subsea cables would be routed from the converter station in East Sleekburn near Blyth to Cambois Bay to Kvilldal in Norway passing through UK and Norwegian waters.

N1.4 An illustration of NSN Link is provided in Inset 1 with the UK Onshore Development illustrated in Figure N1.

Inset 1 – Schematic representation of NSN Link



N2 KEY PARTIES

N2.1 NSN Link Ltd and Stanett are independent organisations working together to respond to challenges and changing markets collaborating with a common vision to develop this project. Once completed the NSN Link will be the largest interconnector project in the world.

N2.2 NSN Link Ltd. is part of the National Grid group of companies but remains separate from National Grid Electricity Transmission (NGET). NGET operates the high voltage transmission system in Great Britain and owns the high voltage network in England and Wales.

N2.3 Statnett is the transmission system owner and operator in Norway.

N3 PURPOSE OF THIS DOCUMENT

N3.1 This document provides a Non-Technical Summary of the predicted effects on the environment of the UK Onshore elements of NSN Link ("Proposed Development").

N3.2 Full details of the effects of the Proposed Development are contained within the Environmental Statement (ES) prepared to support the UK Onshore planning application. Separate Environmental Statements have been prepared to describe the effects of the subsea and the onshore elements in Norway.

N3.3 The various elements of NSN Link are covered by different consenting regimes and described below.

<u>UK Onshore Development</u>

N3.4 The UK onshore components of NSN Link are subject to an application for outline planning consent which includes all elements of the proposed development from the connection point at the UK transmission system to the Low Water Mark.

N3.5 The ES accompanies NSN Link Ltd.'s planning application for the UK onshore elements of NSN Link. The application was submitted to Northumberland City Council (NCC) on 15th November 2013 (reference number 13/03524/OUT).

N3.6 All components are described and assessed in this ES and in brief comprise:

- High voltage direct current (HVDC) subsea and onshore underground cables;
- A converter station; and
- High voltage alternating current (HVAC) underground cables from the converter station to a new 400kV Gas Insulated Switchgear (GIS) substation.

N3.7 A new 400kV GIS substation to connect NSN Link to the National Grid Electricity Transmission system is proposed. This substation is adjacent to the existing Blyth 275kV electricity substation. This substation will be owned and operated by NGET and will be subject to a separate planning application.

Subsea Cables in UK Waters

N3.8 The application for a Marine Licence and its accompanying ES was prepared by Intertek and submitted to the Marine Management Organisation. The UK Marine ES addresses the HVDC subsea cables from the mean high water mark to the median line between the UK and Norway. The area between the high water mark and the low water mark, the intertidal area, is an area of 'overlap' between the onshore and offshore consenting regimes. A Marine Licence is needed under the Marine and Coastal Access Act 2009 for installation of the subsea cables from the median line to the high water high mark whilst planning permission is also needed under the Town and Country Planning Act 1990 (as amended) for the subsea cables from onshore to the low water mark. This area of overlap between the high water mark and the low water mark is therefore considered in both this ES and the ES for the Marine Licence application ("UK Marine ES").

N3.9 The UK Marine ES presents the environmental assessment for the marine cable route within UK waters and the study area of this assessment is from the UK/Norway median line to MHWS at Cambois, Blyth; a distance of approximately 340km.

Subsea Cables in Norwegian Waters

N3.10 Consent has been granted by the Norwegian Authorities for cable installation between the Norwegian landfall (Hylen) and the UK/Norway median line.

N3.11 Applications were supported by a number of project documents including an assessment of environmental impacts.

Norway Onshore Development

N3.12 The onshore infrastructure in Norway will mirror that described above for the UK. Applications have been made and were supported by a number of project documents including an assessment of environmental impacts.

N3.13 The elements of the project in Norway (subsea cable between Norwegian landfall and UK/Norway median line and converter station at Kvilldal) were subject to environmental assessment and granted consents in 2001 (then called “North Sea Interconnector”). These consents have been reviewed to ensure that they remain current and the information in them valid.

N3.14 Consent for the following components from the Low Water Mark has been granted by Norwegian Authorities:

- HVDC subsea and onshore underground cables;
- A converter station; and
- HVAC underground cables from the converter station to a new 400kV Gas Insulated Switchgear substation.

N4 NEED FOR THE PROJECT

N4.1 The debate on how Britain can meet its energy needs has intensified over recent years and there is a broad agreement that the way in which we generate and use energy needs to change. The general view appears to be that energy should be affordable and that damaging greenhouse gas emissions needs to be reduced whilst requiring greater commitment from energy supplies demanding a reliable service to businesses and consumers so as to facilitate the UKs economic recovery.

N4.2 Within the energy industry it is recognised that that in order to have a competitive, sustainable and secure supply of energy there is a need to invest in new infrastructure and diversify the way in which energy markets operate.

N4.3 The European Union (EU) has a target to increase the transmission capacity between its member states, with the stated wish to see each country establish an interconnector capacity of around 10% of its own installed generation capacity.

N4.4 The reasons for this target are to:

- allow for a more energy efficient energy market within the EU;
- facilitate the sustainable development of the electricity sector by increasing opportunities for clean and efficient generation; and
- make it easier to exploit intermittent renewable electricity resources in the UK and Continental Europe.

N4.5 The key benefits of the project are to:

- allow energy to flow in either direction between the UK and Norway benefitting both countries by ensuring a secure and affordable energy supply;
- contribute to managing fluctuations in supply and demand as more power is generated by renewable sources and therefore indirectly providing better opportunities for development of renewable energy projects in both countries; and
- increase the potential for the UK to trade with the wider power markets.

N4.6 NSN Link is a cornerstone in the network development plans for the countries surrounding the North Sea basin, and is of high priority. There is currently no existing connection between the UK and Norwegian transmission systems.

N4.7 NSN Link will contribute to further integration of the North-European power markets, hence supporting the ambition for increased renewable energy production in the whole region and thereby contributing towards the EU's 2020 goals.

N5 THE PLANNING PROCESS

N5.1 Environmental Impact Assessment (EIA) is a process by which information about the potential environmental effects of a proposed development is collected, assessed and presented to enable decision makers to take account of these effects (both beneficial and adverse) when determining whether or not a project should be allowed.

N5.2 The process also provides the opportunity to identify potential sources of environmental effects during the design of a project so that they can be avoided or minimised through appropriate mitigation.

N5.3 A process of consultation with stakeholders and the public has been conducted to inform the scope of the ES. Communication and consultation are a key element of the EIA process, allowing stakeholders and the public to be fully informed and engaged with the

evolution of the development proposal. It also ensures that any concerns relating to the project or ideas on how it should progress are considered.

N5.4 Consultation with the NCC concluded that an EIA would be required on the grounds that NSN Link has the potential to give rise to significant impacts on the Northumberland Shores Site of Special Scientific interest (SSSI) and the Blyth Estuary Site of Nature Conservation Importance (SNCI). It also stated that due to the scale of the development and proximity to residential properties it has potential to give rise to effects on the landscape and visual appearance of the area.

Content of the Environmental Statement (ES)

N5.5 The ES for the UK onshore development is split into 19 chapters. Chapters 1 to 6 provide:

- an introduction of the proposed development;
- summarise the process to date;
- set out the environmental impact assessment method and approach;
- provide a detailed description of the proposed development;
- undertake a review of relevant planning policy and
- set out the alternatives which were considered in the development of the project.

N5.6 The remaining chapters (chapters 7-18) present the effects assessments for each of the EIA topics. Chapter 19 presents the conclusions of the EIA.

Table 1: ES Technical Chapters

Technical Assessments	
ES Chapter 7	Ecology
ES Chapter 8	Landscape Assessment
ES Chapter 9	Visual Assessment
ES Chapter 10	Historic Environment
ES Chapter 11	Land Use
ES Chapter 12	Geology and Land Quality
ES Chapter 13	Hydrology and Flood Risk
ES Chapter 14	Traffic and Transport
ES Chapter 15	Noise and Vibration
ES Chapter 16	Air Quality

Technical Assessments	
ES Chapter 17	Electric and Magnetic Fields
ES Chapter 18	Socio-Economics

N5.7 The ES along with other supporting documents are available and requests should be made to the dedicated community relations team by phone (0800 298 0405), email (nsninterconnector@commnitycomms.co.uk) or in writing at the address provided below:

Freepost RSLG-YXEU-BJUC
NSN Interconnector PO Box 68215
London
SW1P 9UJ

N5.8 A charge would be made for copies of the ES. Digital copies would be charged at £10.00 per copy and paper copies at £100.00 per copy.

N6 PROJECT PROPOSALS

Feasibility Studies

N6.1 Feasibility study confirmed the preferred onshore elements of NSN Link which comprise a converter station site at East Sleekburn; a landfall at the existing slipway in north Cambois; a DC cable route through agricultural land and Ferguson Business Park; and a short AC connection between the converter station site and a proposed new substation adjacent the existing Blyth Substation. The new substation would be owned and operated by National Grid Electricity Transmission plc (NGET).

N6.2 The Proposed Development assessed in the Environmental Statement is the preferred option in relation to technical feasibility, economic viability and deliverability and is expected to cause the least disturbance to the environment and people relative to other options that have been considered.

N6.3 Detailed environmental and technical studies together with consultation have been used to refine the preferred option and further reduce the potential environmental effects of NSN Link. This work included considering the emerging results from environmental assessment with initial technical designs and consultation with stakeholders, land owners and local communities.

UK Onshore Development

N6.4 The Proposed Development will comprise:

- High voltage direct current (HVDC) subsea and onshore underground cables;
- A converter station; and
- High voltage alternating current (HVAC) underground cables from the converter station to a new 400kV Gas Insulated Switchgear (GIS) substation.

HVDC Onshore Underground Cables

N6.5 The cable routeing studies sought to define a cable route which avoided or minimised environmental effects and took account of existing and proposed development proposals. The following factors particularly influenced the cable routing studies:

- Designated sites of nature conservation;
- Presence of protected species;
- Proximity to residential areas;
- Archaeology;
- Highways;
- Planning proposals;
- Water courses;
- Risk of encountering contamination;
- Utilities and services; and
- Land use.

N6.6 The subsea cables would be laid separately and joined to the HVDC onshore underground cables in a transition joint pit (TJP) in Cambois to the south of the River Wansbeck. The approximate distance between the low water mark and the TJP would be approximately 500m.

N6.7 The TJP would be an excavated pit and once the connection has been made the excavation would be backfilled to original ground levels and once restored there would not be any visible sign of the TJP.

N6.8 From the low water mark the underground subsea cables would be laid through the beach and slipway to the TJP. From here the underground cables would be laid through agricultural land and through Ferguson Business Park to the converter station.

Converter Station

N6.9 The converter station would be constructed on land immediately to the east of the A189 spine road, to the north of East Sleekburn. The site is approximately 1.5km north east of Blyth, on the north side of the Blyth estuary and 1km inland from the Northumberland coastline.

N6.10 The proposed converter station site and part of the HVDC cable route corridor, south of Ferguson's Business Park are located on land which forms one of the BEREZ strategic sites; the East Sleekburn Strategic Site, which is identified for use as a blade or nacelle manufacturing plant or other major manufacturing operations associated with the Port and offshore renewables. It is also subject to a Local Development Order (LDO), which offers a potential fast-track planning approval for developments specified within the order.

N6.11 The converter station site would occupy a footprint of approximately 5 hectares and would be designed for a 40 year lifespan. The converter station and associated buildings would be metal clad buildings and are not expected to exceed 25m in height.

N6.12 Access to the converter station is proposed via a new access off Brock Lane. Permanent roads around the perimeter of the converter station and internal roads would be constructed to provide access to the different building units for regular and ad hoc maintenance activities and for the delivery of materials to site.

N6.13 Landscaping around the perimeter of the converter station would help integrate the Proposed Development site into the landscape setting. The existing native planting to the road frontage and around the site would be largely retained and supplemented with additional native planting around the converter station site.

N6.14 The converter station would be contained within a secure fenced compound. The majority of electrical equipment would be indoors to prevent exposure to saline air as salt deposition can lead to damage and the need to prematurely replace equipment.

HVAC Land Cables

N6.15 From the converter station six 400kV HVAC cables will connect the converter station to the proposed new 400kV GIS substation. The HVAC cables will be the same type as the HVDC cables (mass impregnated – MI) and will be approximately 150mm in diameter. The total length of the HVAC cables route is less than 1km. They will be laid in two banks of three, with a separation gap between them. A construction corridor of about 20m will be

required as shown in Inset 1.2. This will accommodate a haul route along the length of the cable, sufficient operating space around the works, areas for stockpiling top soil and excavated material, and space for drainage and temporary security fencing.

NGET Substation

N6.16 The HVAC cables will connect to the proposed National Grid Electricity Plc (NGET) Substation. NGET is a separate part of the same National Grid Plc as National Grid NSN Link Ltd. The proposed NGET substation does not form part of this planning application but has been considered in this ES in the assessment of cumulative impacts.

N6.17 The proposed NGET substation scheme is at an early stage of development with initial environmental surveys in progress. Whilst the size, location and technology has yet to be determined, it is currently expected that the substation will be situated within the area indicated on Figure N1.

Construction Programme

N6.18 The construction of the converter station is intended to be undertaken over a period of 36-42 months between 2016/2017 and 2019/2020 and commissioned by 2020.

N6.19 Main construction activities will include:

- Preliminary works and preconstruction surveys;
- Site clearance and establishment;
- Civil engineering works including earthworks;
- Mechanical and electrical works;
- Commissioning and testing; and
- Site reinstatement and landscape works.

N6.20 Cable installation is expected to take place over a period of approximately 12 months and will include excavation, laying the cables, jointing, terminating and testing the cables, which will be carried out in parallel with the construction of the converter station between 2019 and 2020.

N6.21 The onshore underground cables will be installed primarily in excavated trenches using standard techniques. Where the onshore underground cables cross obstructions “trenchless technologies” would be considered to avoid surface disturbance.

Operation

N6.22 The converter station will have a small workforce on site (approximately 6 personnel per day divided between 3 shifts over a 24 hour period) and the site will be subject to infrequent inspections and maintenance visits whilst in operation. The frequency and duration of maintenance visits will be dependent on the manufacturer's recommendations for the equipment installed.

N6.23 NSN Link Ltd will be responsible for on-going maintenance and upkeep of the converter station. This will include regular inspection of the site and equipment as well as safety checks. In addition to the permanent staff there will be a requirement for a small number of additional visiting staff. The frequency of visiting staff will be ad hoc and subject to the activities to be undertaken. Should a programme of refurbishment/replacement be required there may be a requirement for greater numbers of personnel on site albeit on an ad hoc basis.

Decommissioning

N6.24 The requirement for decommissioning is dependent on the condition and operation of the component parts. Decommissioning would involve similar activities to those described previously for construction. The main components would be disconnected, dismantled and where possible removed for reuse. In the event that infrastructure is left in situ there would be little or no ground disturbance.

Summary of Environmental Impacts

N6.25 The following section summarises the predicted effects of the construction and operation of the Proposed Development on the environment.

Ecology

N6.26 The ecological assessment identified:

- one ecological receptor of international value (Northumbria Coast SPA/Ramsar);
- one receptor of national value (Northumberland Shore SSSI);
- one receptor of county value (Blyth and Sleekburn Estuary LWS);
- two receptors of local value (plantation woodland and bats); and

- 12 receptors of site value (semi-improved neutral grassland, trees, hedgerows, ditches, non-native species, amphibians (excluding great crested newts), water voles, otter, reptiles, wintering birds, breeding birds and other S.41 species (e.g. invertebrates and eels).

N6.27 There will be no direct impacts on receptors of international value. The assessment has identified there to be direct impacts in the intertidal zone of the Northumberland Shore SSSI during cable installation. These effects will be temporary only and very localised. No rare or protected species or habitats of conservation importance were identified in the vicinity of the cable works and intertidal species recover quickly from physical disturbance so the impact will not be significant.

N6.28 Without mitigation, there is the potential for indirect impacts on international and national sites through disturbance to designated bird species. There is also the potential for indirect impacts on the Blyth and Sleekburn Estuary LWS through potential pollution due to the drainage outfall and/or disturbance of wintering and breeding birds.

N6.29 There are no predicted likely significant effects on the Northumbria Coast SPA as a result the Proposed Development alone (NSN Link project) or in-combination with other projects. There is no requirement to undertake an Appropriate Assessment.

N6.30 The majority of impacts relating to both cable routes are temporary only, during construction, as all habitats will be reinstated following completion of cable installation. The only permanent loss of habitat for the cable routes will be due to the 7m easement above the cables where plantation woodland cannot be reinstated. Shrubs and grassland will be planted in these areas.

N6.31 A hierarchy of mitigation measures have been identified to ensure that the remaining adverse impacts can be managed to acceptable levels.

Landscape

N6.32 The installation of the underground cables would give rise to short term minor adverse effects on the local landscape. Following the reinstatement of the cable swathe the operation of the cables would give rise to an effect of neutral significance. The converter station would be consistent with existing industrial development in the area and siting and design have been considered in the development of the project to reduce the significance of this effect. There are several large scale metal clad buildings in the area and the former Blyth Power Station site and overhead lines increase the industrial influences in the

landscape. The use of colour graded cladding and the retention of existing vegetation would assist in reducing the effect of the Proposed Development within the wider landscape context giving rise to a minor adverse significance of effect on the landscape.

Views

N6.33 The installation of the cables would give rise to short term effects on views from receptors within a small geographic area. These predicted effects would be reversible with the landscape reinstated to its original condition and therefore the residual effects are not considered to be significant. The converter station would be a large structure, but siting and design have been considered in the development of the project to reduce the significance of effect on views. There are relatively few views into the site and juvenile planting around the East Sleekburn site would be retained and as it matures would filter views where they are available.

N6.34 The residual effects of the converter station on views would be similar to those arising at the year of operation with effects mitigated through embedded measures such as the siting and design of the converter station.

Historic Environment

N6.35 A desk-based study and walkover survey has been undertaken to assess the archaeological potential of the Proposed Development site. There are no Scheduled Monuments, UNESCO World Heritage Sites, Registered Parks and Gardens at the Proposed Development site or within the study area. There are two designated Grade II listed buildings and 68 non-designated heritage assets within the Proposed Development.

N6.36 Whilst 10 areas of known buried archaeology have been identified these can be mitigated through the development and implementation of a Written Scheme of Investigation which is likely to include archaeological monitoring and recording of topsoil stripping during the cable installation works; provision for specialist recording and sampling should peat deposits be encountered at the landfall; and a programme of pre-construction investigation to allow for the identification and recording of any surviving archaeology within the converter station development footprint.

N6.37 Following the implementation of a programme of mitigation, the effects on the archaeological and cultural heritage resource within, and close to, the Proposed Development is not considered to be significant.

Land Use

N6.38 The location of the converter station site would result in a permanent loss of 5 hectares of Grade 3 agricultural land. Whilst NSN Link does not qualify under the strict criteria as defined in the Local Development Order it is similar in nature and does not preclude future development under the Cambois Zone of Economic Opportunity.

N6.39 The cable route and converter station sites have been carefully selected to minimise disruption to amenity and with cognisance to NCC's aspiration for future development.

N6.40 The onshore cables have been routed to avoid areas of existing and proposed developments. Effects on land use during construction will be highly localised and temporary and where open space and land which is currently available for recreation and walking is disturbed, there will be alternative routes available and the absence of any facility will be short term and reversed after the reinstatement of the land.

Geology and Ground Conditions

N6.41 Construction activities such as cables installation, drilling and piling have the potential to disturb areas of contamination and create pathways for the migration of contaminants into watercourses.

N6.42 A ground investigation has been undertaken to assess the nature and extent of all known existing areas of contamination and to inform a strategy identifying where mitigation measures are required. This methodology will include a protocol to address unexpected contamination and specific mitigation measures.

N6.43 There is a risk of ground and water contamination from spillages of fuel, oil and chemicals and this can be managed by the implementation of best practice guidelines. A Construction Environmental Management Plan would be prepared to set out the minimum requirements which contractors would be required to undertake in order to prevent adverse impacts.

N6.44 Appropriate mitigation techniques would ensure that potential adverse effects are prevented both during construction and operation.

N6.45 Parts of Section 1 of the cable route fall within a Coal Authority Development High Risk Area. These areas are defined as places where there are records of one or more coal mining related features which have the potential to cause instability or present a degree of risk to the surface. A detailed Coal Mining Risk Assessment has been carried out and

taking account of the nature of the proposed development indicates that the risks are in fact very low.

Hydrology and Flood Risk

N6.46 The Environment Agency flood maps shows the majority of the Proposed Development to be located within Flood Zone 1 and is therefore considered to be at low risk of flooding from rivers and sea. The exception to this is when the Proposed Development falls within the tidal zone and within the sea and estuary where the effects can be managed through best practice.

N6.47 Where possible watercourses will be crossed by open cut methods, this will involve the watercourse being temporarily dammed and a pump used to maintain flow across the cable trench. At Cow Gut alternative methods have been assessed to minimise disruption and these may include either a pipe bridge, culvert or open cut.

N6.48 The Proposed Development has the potential to have adverse effects on the water environment through surface water run-off, ground contamination and disturbance to existing flows and the mobilisation of contaminants both during construction and operation. Best practice measures to prevent pollution of the water environment during construction will be implemented through standard construction techniques and practices, full compliance with UK legislation and development of the Construction and Environmental Management Plan.

N6.49 Once the development is operational the impacts on hydrology and flood risk will be largely limited to the converter station site, however mitigation has been incorporated into the design of the project to minimise impacts during the operational phase, including the allowance for surface water runoff from the surrounding fields in the converter station drainage design to minimise surface water flood risk in the area and the inclusion of a range of sustainable drainage techniques in the converter station drainage design to minimise impacts to water quality at the proposed outfall into Sleek Burn.

Traffic and Transportation

N6.50 Once the development is operational the transport impacts will be limited to the proposed converter station site and are not considered to have a material effect on the surrounding network. On this basis the assessment has been focused on the construction phase.

N6.51 Average Annual Daily Traffic flows have been obtained for the key roads planned for use during the construction of the Proposed Development. These roads include Brock Lane and West Bridge Street.

N6.52 Maximum total daily two-way construction vehicle movements are likely to equate to 10 Heavy Goods Vehicles, 30 cars or Light Goods Vehicles and one minibus during the peak period of the construction programme. Based on the existing traffic flows collected in the vicinity of the site, an increase of 1.7% in total traffic and 4.7% in HGV traffic is predicted for Brock Lane and 0.2% in total traffic and 1.0% in HGV traffic is predicted for West Bridge Street.

N6.53 The increases in general levels of total traffic are considered to be low at less than 2% and the increase in HGV construction traffic on Brock Lane is less than 5% also considered to be low. The additional construction traffic would not be expected to make any significant difference in terms of the recorded road safety accident situation.

N6.54 The assessment has concluded there to be no significant impacts with regards traffic and transportation. Impacts on safety, noise, severance and air pollution will not require specific mitigation measures, other than the standard measures outlined in the Construction Environmental Management Plan.

Noise and Vibration

N6.55 Receptors currently experience noise from existing sources and these include road traffic, industrial and agricultural activities. Sensitive receptors have been identified in consultation with the Environmental Health Officer at NCC.

N6.56 Potential construction effects on noise and vibration can potentially arise from construction traffic however once operational, noise emissions are limited to the converter station only and are not considered to be significant.

N6.57 Best practice construction methods as part of the development of the Construction Environmental Management Plan will need to be implemented to mitigate construction phase noise and vibration effects.

Air Quality

N6.58 The Proposed Development will make no emissions to air during operation and in consultation with NCC this has been excluded from the assessment. Potential construction

effects on air quality can potentially arise from construction and dust arising from construction works.

N6.59 A number of mitigation measures will be implemented during the construction works and detailed within the CEMP to minimise potential impacts from dust and air quality emissions. Measures include reducing vehicle speed limits, site management, maintenance of equipment, and careful location of storage to avoid wind-blown dust. Following the implementation of these mitigation measures, effects on air quality resulting from construction traffic and other dust generating activities will be negligible.

Electric and Magnetic Fields

N6.60 All equipment that generates, distributes or uses electricity produces Electric Magnetic Fields. NSN Link uses both AC and DC technology therefore producing both static and alternating electric and magnetic fields.

N6.61 The proposed converter station will be designed to ensure that it is compliant with International Commission on Non-Ionizing Radiation Protection guidelines (ICNIRP, 1998). With all installation techniques, it has been demonstrated that both the HVDC and HVAC cables would be compliant with exposure limits so there will be no significant electric and magnetic fields effects resulting from NSN Link.

Socio Economic

N6.62 The scale of NSN Link will generate a much greater economic impact over a wider geographic area bringing lower energy prices to consumers, enhanced energy security and a cleaner environment.

N6.63 There would be a large number of construction jobs which would be temporary and short-term. These will be valuable to the local economy and the service industry due to accommodation requirements and the purchase of materials, equipment and other services during the construction phase. This may have a small benefit through the creation of temporary and permanent jobs locally and nationally.

N6.64 The works to install the cables are similar to those carried out by any utility company in its day-to-day business and would be of short duration and limited in geographic effect. All land take associated with cables installation will be reinstated following completion of cable laying activities so will not adversely affect future recreational land use.

N6.65 Indirect impacts on tourism and recreational activities would result from temporary disruption caused by construction activities. This would affect coastal recreational activities during the landfall and cable installation works at Cambois Bay. The duration of works in this area would be very short and the wider area of the Bay will provide undisturbed opportunities.

N6.66 Clearly signed temporary diversions would be erected to ensure that Public Right of Way remain open throughout the duration of the installation works or alternative are provided.

Cumulative Assessment

N6.67 When considered in isolation, the environmental effects of any single project upon a receptor may not be significant. When individual effects are considered in combination, the resulting cumulative effect may be significant. In terms of cumulative assessment, the following major development proposals have been considered:

- Port of Blyth Biomass Power Station;
- Proposed NGET 400kV GIS Substation;
- Ferguson Business Park Single Turbine;
- Earth Balance Single Turbine;
- Narec Offshore Wind Demonstration Site; and
- Residential development – 48 dwellings.

N6.68 An assessment has been undertaken to determine the likely significance of cumulative effects between NSN Link and other planned developments including the component parts of NSN Link (as reported in a Bridging Document which accompanies this ES). The assessment has concluded there to be no predicted long-term cumulative effects resulting from NSN Link and planned developments with any potential effects likely to be localised and temporary during construction and mitigated by the use of appropriate industry standards and compliance with legislation, policy and guidance.

N6.69 Applications for consent for the other elements of NSN Link (UK Marine and Norwegian onshore development proposals) have been subject to environmental assessment to determine the potential for effects on the physical, biological and human environment. All other elements of NSN Link have been assessed as having no significant adverse effects on the environment.

N6.70 There is the potential for cumulative construction and operation effects to arise from the proposed UK onshore elements of NSN Link (to which this application relates) together with other elements of the project, including the subsea cables in UK and Norwegian waters and the onshore infrastructure in Norway.

N6.71 Cumulative effects will be limited to the interaction of the subsea cables close to the UK foreshore and the land cable installation in the foreshore and the surrounding area. The assessment has concluded there to be no:

- cumulative effects as a result of the UK onshore components and the subsea cable works within UK/Norwegian waters.
- cumulative effects as result of the UK onshore component with Norwegian onshore components, due to distance between these developments during construction and operation.

N6.72 No significant cumulative adverse effects resulting from any aspect of the UK onshore elements with any other aspect of NSN Link are anticipated to arise during the construction or operation phases as significant adverse effects can be avoided through cable micro-routeing and the adoption of best practice and industry-standard mitigation measures during construction.

N7 SUMMARY AND CONCLUSIONS

N7.1 The construction of NSN Link is in accordance with European Union and UK policy to increase transmission capacity between countries and to ensure robust electricity supplies.

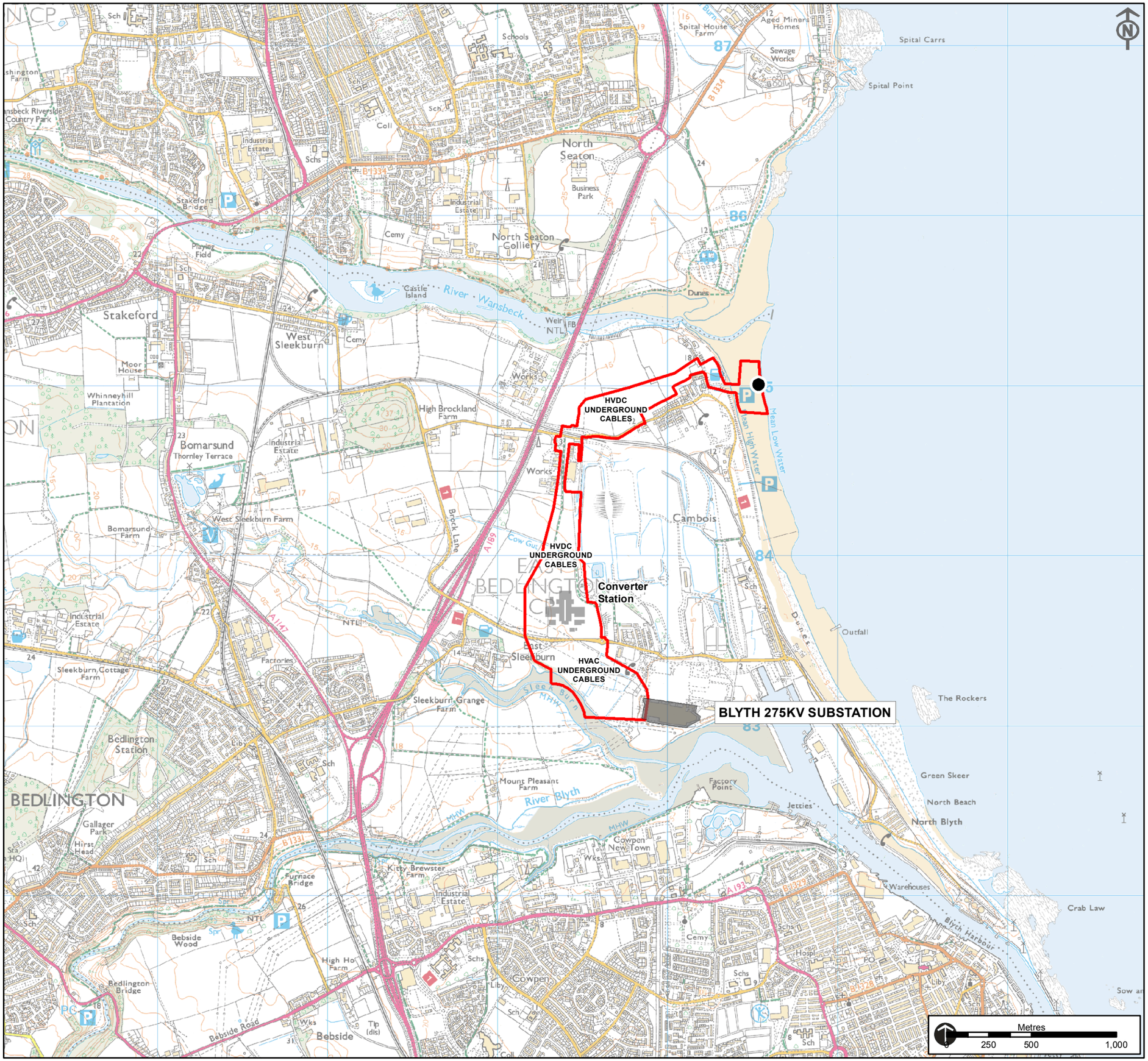
N7.2 NSN Link would allow the bi-directional transfer of electrical power between the UK and Norway via subsea cables. NSN Link will give the UK access to Norwegian hydro power whilst giving Norway access to UK's increasing portfolio of wind and other renewable technology generation. NSN Link is of national importance and represents a large-scale project in excess of £1 billion and would be the longest interconnector in the world.

N7.3 In consultation with NCC, NSN Link Ltd has prepared an ES to accompany the planning application to enable the anticipated environmental effects of the Proposed Development to be assessed and appropriate mitigation measures to be determined and implemented.

N7.4 In terms of environmental impacts, the assessments that have been undertaken on the various components of NSN Link have not identified any significant adverse long term

effects, either in isolation or when considered in combination. Any impacts identified as part of the assessments are considered to be localised and temporary and appropriate mitigation measures will be implemented to avoid offset or reduce impacts. Any residual effects identified are not considered to be significant.

N7.5 The scale of economic benefits of NSN Link are not just confined to the UK and Norway, but also benefit Europe as a whole through opening up of energy markets. This clearly outweighs any environmental impacts that have been identified, which are not considered to be significant.



Key

Proposed Infrastructure

- Red Line Planning Application Boundary
- Proposed Landfall
- Proposed Converter Station Layout

Existing Infrastructure

- Existing National Grid Electricity Transmission Substation

Note:

For UK Marine Elements of NSN Link refer to UK Marine ES Submitted to the Marine Management Organisation

(Ref MLA 2013/00436)

This map includes data from the following sources:
- Ordnance Survey
- National Grid

ISSUE	DATE	COMMENTS	DRAW	CHK'D	APP'D
A	03/07/2014	FIRST DRAFT FOR COMMENTS	JS	AC	JB

TEP
Genesis Centre
Birchwood Science Park
Warrington WA3 7BH
Tel 01925 844004
Fax 01925 844002
email tep@tep.uk.com

nationalgrid

Project: **NSN LINK**

Title: **UK ONSHORE DEVELOPMENT**

Drawing No: **FIGURE N1**

Date: 07-07-2014

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Drawn:	Checked:	Approved:
JS	AC	JB