Decommissioning Programme

Blue Transmission Walney 1 Ltd

September 2011

Contents

1 Introduction

This document presents the draft decommissioning programme for the Blue Transmission Walney 1 Ltd assets and is based upon the proposals by DONG for the decommissioning of its wind farms. The decommissioning programme proposed by DONG is informed and supported by the Environmental Statement for the Walney Offshore Windfarm.

The Environmental Statement (ES) for the Walney Windfarm, produced by DONG, was submitted to Department of Trade and Industry (DTI) (now Department of Energy and Climate Change, DECC) in March 2006 and granted consent in November 2007. The DONG Energy Supervisory Board approved the construction and commissioning of Walney Offshore Windfarm in May 2009.

The Walney Offshore Windfarm project has achieved all the consents necessary for its construction and operation, those relating to decommissioning are shown in Table 1.1.

Regulation	Legislative Context	Achieved Consents
Food and Environment Protection Act (FEPA) 1985	Section 5. Placement of foundations, turbines and substations.	FEPA: 33311/08/0
Electricity Act 1989	Section 36 of the Electricity Act 1989. Wind turbines, inter-array cables, export cables and off-shore substations	Issued by Department for Business, Enterprise and Regulatory Reforms (BERR) on November 7th 2007
Coast Protections Act (CPA) 1949	Section 34. Construction or improvements, works or deposit of any materials below the level of mean high water springs.	CPA: 1949, section 34. 33311/07/0/CON

Table 1.1: Achieved consents for construction and operation of Walney Offshore Windfarm.

Upon issue of the Section 36 consent for the Walney Windfarm project, the DTI also issued DONG Walney (UK) Ltd a notice under Section 105(2) of the Energy Act 2004 regarding the requirement to prepare and approve a decommissioning programme for the project prior to commencing construction.

The programme outlines the methods for decommissioning, using the format outlined by the DTI Guidance Notes for Industry, December 2006, paying particular attention to:

- Considering integration and cooperation with other companies during decommissioning
- Environmental impacts
- Regular reviews to reflect changing circumstances and knowledge over the project lifetime
- Monitoring
- The expected timeframes and costs of removal

This draft Decommissioning Plan is submitted for approval byDECC.. It is assumed that the Generator assets will be decommissioned at the same time as Blue Transmission Walney 1 assets.

We will adopt the principles of the DECC programme process stages. However we believe that the process will differ because of the change in circumstances and will be:

STAGE 1	Blue Transmission Walney 1 Ltd discuses draft decommissioning programme with DECC, DONG and other consultant parties
STAGE 2	Blue Transmission Walney 1 Ltd produces decommissioning programme
STAGE 3	Review of decommissioning programme
STAGE 4	Responsible person ensures decommissioning is carried out in accordance with the programme
STAGE 5	Responsible person carries out post decommissioning monitoring, maintenance and management of site and as specified in the programme

2 Executive Summary

The Environmental Statement (ES) for Walney Offshore Windfarm produced by DONG was submitted in March 2006. In May 2009 DONG approved the construction and commissioning of the Walney Windfarm. An environmental monitoring programme defining survey methods for pre-, during and post-construction has been developed by DONG and discussed with the authorities. In July 2009 the environmental monitoring programme produced by DONG was approved by the statutory authorities.

The proposed decommissioning measures set out in this report aim to adhere to the existing UK and International legislation and guidance notes. In addition, decommissioning industry best practice will be applied, taking into account the legislation applying at the time of decommissioning Blue Transmission Walney 1 Ltd assets. Blue Transmission Walney 1 Ltd will pay full regard to the „waste hierarchy", which suggests that reuse should be considered first, followed by recycling, incineration with energy recovery and, lastly, disposal.

It is difficult to determine the decommissioning schedule prior to construction, as unforeseen issues can arise during the installation and operation of the wind farm, which ultimately could affect the decommissioning. At the time of writing, no offshore wind farms (including OFTO assets) worldwide have been decommissioned, so knowledge of the challenges is limited. Once other wind farms start to be decommissioned, it will provide valuable insight into the timing, costs and operational challenges to be faced.

The proposed decommissioning measures for the offshore components of the Walney OFTO assets can be summarized as: Complete removal of the offshore substations; offshore substation foundations cut off at or below seabed and removed; scour protection left *in situ* and export cables left *in situ*.

In accordance with the Polluter Pays Principle, Blue Transmission Walney 1 Ltd in conjunction with DONG Energy proposes to clear the seabed in accordance with the

provisions made in this decommissioning programme and in the Food and Environment Protection Act (FEPA) license, and to collect and provide evidence to reflect this.

Blue Transmission Walney 1 Ltd in conjunction with DONG Energy is committed to restoring the Walney Offshore Windfarm site and cable corridors to the condition it was in prior to construction, as far as it is reasonably practicable. The key restoration work will relate to ensuring that all cut foundations are made safe and adequately covered, and ensuring that cable ends are adequately buried.

Blue Transmission Walney 1 Ltd in conjunction with DONG Energy proposes that, following post-decommissioning, a full geophysical survey (swath, sidescan and magnetometer) is carried out. The survey will be carried out by an independent survey contractor and all results issued to the Department of Energy and Climate Change (DECC) for review and comment. It is proposed that geophysical surveys are carried out 1 and 5 years after decommissioning has been completed.

A cost estimate for the programme has been derived, based on the equipment and personnel requirements and the duration of works. Financial security provisions have been carefully considered to ensure that this liability will be met.

In advance of decommissioning, the Environmental Impact Assessment (EIA) will be reviewed to assess the potential impacts that may arise and are not covered in the initial EIA process and subsequent reviews.

Once the assets are nearing the end of their agreed operational life Blue Transmission Walney 1 Ltd will initiate a final review of this document and the proposed programme of works. Once this review is complete, a "Decommissioning Programme of Works" will be developed, in conjunction with DONG, and the schedule of works will be determined in agreement with the statutory authorities.

3 Background information

The background information consists of a description of the project, and a brief presentation of the characteristics of the project area.

3.1 Blue Transmission Walney 1 Ltd

The layout of Walney Offshore Windfarm comprises of 51 x 3.6 MW turbines and is shown in Figure 3.1. including the cable route for the Walney I export cable.

Figure 3.1: Layout for Walney Offshore Windfarm. The array cable routes (black) and the routes of the submarine export cable to the shore at Heysham
(top red line).

Blue Transmission Walney 1 Ltd is being formed to operate and maintain the Offshore Transmission Assets associated with the Walney I Offshore Wind farm.

3.2 As Built Information

The Construction Design and Management （CDM） Regulations will apply and will require accurate as-built date as amended during the lifetime of the project to be used an a basis for the decommissioning methodologies. The Developer is responsible at the time of purchase of providing the Purchaser with his information. The OFTO will expose that such information is supplied and will include as a minimum the following:

As-built positions for all structures;

Details of the construction of all structures; and

Positions, depths of burial and other forms of cable protection for all subsea cables （both Export Cables and Interarray Cables）.

If at any time during the lifetime of the wind farm the as-built details vary, for example, a repair to a subsea cable, amended details will be prepared for the ongoing live status of as-built data.

3.3 Additional Information

DONG has previously assimilated considerable data and information in relation to the Walney site. This has included the following, which have all previously been provided to the DECC as part of the consenting process:

Environmental conditions – wind and wave data, currents, seabed conditions, water depth etc;

Details of fishing activity and fishing vessels operating in the vicinity of the Walney site;

Details of navigational shipping (both types of vessels and routes used); and other special information.

All of this information is expected to be transferred to the successful OFTO bidder and will be retained and made available during the decommissioning works. Where additional information is assimilated during the lifetime of the wind farm, including any declared Archaeological Exclusion Zones, this will also be made available as required under DONG's current Lease Agreement with the Crown Estate.

4 Descriptions of items to be decommissioned

This section of the Decommissioning Plan contains details of all items which Blue Transmission Walney 1 Ltd believes will form part of the scope of future offshore decommissioning works. The scope has been broken down into two separate areas:

1. Offshore Substation;
2. Subsea Cables (Export).

These will be predominantly steel or metal items with the exception of the electrical components on the Offshore Substation structures and the grouted connections between the piles. The non steel items are chemically inert and will comprise only a small proportion of the total weight of material to be decommissioned.

The offshore substation consists of a topside module placed on a support substructure of four 1.6m circular hollowed steel piles placed in the seabed. The topside modules consist of a multi-storey steel structure with three deck levels as well as an open top deck. Access walkways and stairs are placed outside the walls of the modules.

The overall dimension of the topside modules is approximately Width: 13m; Length: 23m and Height: 14m, excluding minor items e.g. cantilevered walkway areas.

The Blue Transmission Walney 1 Ltd assets include a substation which houses the electrical high and medium voltage components for transformation of the 33 kV voltages produced by the wind turbines to 132 kV voltages exported to the onshore grid.

The items which will be decommissioned will be as follows:

- All of the Topsides equipment and transformers. As this equipment is likely to have been installed in modular components, it will be lifted away in a similar fashion;
- The Topsides support structure;
- The Jacket structure, including all of the appurtenances such as J-Tubes and boat access systems;
- The piles, which will be cut off at 2m below seabed level at the bottom of any scour hole

The sections of cable (both Export owned by Blue Transmission Walney 1 Ltd and Interarray owned by DONG) which emanate away from the Offshore Substation from the exit point of the bellmouth on the J-tube to the touchdown point on the seabed and out further to the transition point where cable burial starts in the seabed. This will typically be a section of cable 10-25m long. All cables left within the J-tubes will also be recovered.

4.1 Export Cables

There is one Export Cable which connects the Walney I project to the shore. Its position is illustrated in Figure 3.1. In general the cable is buried to 1-2m beneath the seabed depending on localised seabed conditions.

The Export Cable will for the most part be left buried in situ and will not form part of the decommissioning works. The exceptions being the sections of cable close to the Offshore Substation.

The sections left in place will also include the sections of cable which cross the subsea pipelines and other cables.

4.2 External Cable Protection

In addition to the removal of cable sections as identified in 4.1 above, any external cable protection will also be recovered.

An assessment will be made immediately prior to decommissioning to establish if the removal of this external cable protection would potentially cause more damage to the environment. It is possible that these features may have formed artificial reefs and as such may be better left in place and undisturbed.

5 Descriptions of Proposed decommissioning measures

This section of the Decommissioning Plan describes the measures to be taken for the decommissioning of the Blue Transmission Walney 1 Ltd assets.

5.1 Adherence to relevant legislation & guidance

The proposed decommissioning measures set out in the following section aim to adhere to the following key UK and International legislation and guidance notes:

- Decommissioning of offshore renewable energy installations under the Energy Act 2004: Guidance notes for industry, DTI, December 2006
- Guidelines and standards for the removal of offshore installations and structures on the Continental Shelf and in the exclusive economic zone, International Maritime Organisation (IMO), 19th October 1989
- Guidance notes for industry: Decommissioning of offshore installations and pipelines under the Petroleum Act 1998, DTI
- Guidance documents on offshore wind farms by the OSPAR Commission – Protecting and conserving the North-East Atlantic and its resources
- Guidelines for environmental risk assessment and management, DEFRA, September, 2002
- United Nations Convention on the Law of the Sea (UNCLOS), 1982

Other legislation of relevance includes:

- Hazardous waste regulations 2005
- London Convention 1972 and the 1996 Protocol, relating to the prevention of marine pollution by dumping of wastes
- Construction Design and Management Regulations (CDM) 2007
- Appropriate Health & Safety Regulations

5.2 Co-ordinating decommissioning

In close proximity to Walney Offshore Windfarm, three other wind farms are situated: Ormonde Offshore Wind Farm, Barrow Offshore Wind Farm (BOW) and West of Duddon Sands Offshore Wind Farm (WODS).

Due to the offshore wind farm construction activity completed and/or planned in the East Irish Sea, it is conceivable that these wind farms will require decommissioning at similar times to Blue Transmission Walney 1 Ltd assets and Walney Offshore Windfarm. During the planning stages of decommission, Blue Transmission Walney 1 Ltd will endeavour to liaise with the owners of other offshore installations in the vicinity to WOW, to phase the decommissioning process and look for potential partnerships where possible. This may minimise environmental impacts, costs for vessel transport, staff and equipment, and make greatest utilisation of onshore handling facilities.

5.3 Plan of Works and Integration

A detailed plan of work will be prepared for the decommissioning works at least one year ahead of the proposed decommissioning date and will incorporate the results of a detailed and recent EIA on the subject. The process supporting the EIA will include pre-decommissioning surveys. The plan of work will include detailed Method Statements together

with project specific hazard and risk assessments. Blue Transmission Walney 1 Ltd will also liaise with other developers in the Eastern Irish Sea area including DONG to ensure that if potential synergies are available for decommissioning facilities at the same time, then such synergies are exploited.

5.4 Proposed Method of Removal

The detailed Method Statement for the Decommissioning Plan will cover:

- Health and safety considerations;
- Best Practicable Environmental Option (BPEO), the option which provides the most benefit or least damage to the environment as a whole in both the long and short term, at an acceptable cost; and
- Safety of surface and subsurface navigation.

For the decommissioning of the wind farm components which have to be removed, the installation methodology is generally reversed. As in Section 4, the proposed methodology of removal has been split for the two separate areas as follows:

1. Offshore Substation;
2. Subsea Cables.

5.4.1 Offshore Substation

The Offshore Substation will be dismantled. A detailed dismantling programme will be proposed beforehand to ensure safe dismantling of all items which could affect its environment This will be performed in conjunction with DONG who own the 33KV switchgear and busbars. The various components will then be transported back to the decommissioning port, where a quayside crane will lift the components onto the quayside where they will be processed for recycling or disposal as appropriate. All decommissioning will have appropriate hazard and risk assessments completed to ensure risks to personnel were minimised and handling of any hazardous materials carefully controlled.

The Offshore Substation piles will be removed by cutting and lifting the pile structures in suitable sections. Cutting of the pile sections will be performed by remote cutting methods. The piles will be cut at 2m below seabed level at the bottom of any scour holes that have formed.

5.4.2 Offshore Export Cables

The environmental impact of removing offshore cables will have a greater impact on the environment than leaving the decommissioned cables in the seabed.

Thus, the intention would only be to remove those offshore cables, sections of offshore cables or, cable ends are uncovered. This will be determined by a survey prior to

decommissioning of the site. Cables in this category will be removed by lifting the ends into the cable retrieval vessel and the cables spooled back into a drum. A water jetting or similar tool would typically be required to assist if retrieval of buried cables is required.

In order to avoid damage to the sub-sea pipelines and other cables, the offshore cables at the crossing points will not be removed.

Any sub-sea trenches left after cable removal will be filled by natural tidal action. Exposed cable ends, where a foundation has been removed, will be buried to a suitable depth. If the cable length is expected to remain covered and total cable removal is therefore not required, reburying of cut cable ends is likely to be carried out by remotely operated vehicles.

5.5 Proposed Waste Management Solutions

Waste management will be carried out in accordance with all relevant legislation at the time. It is intended that the vast majority of all elements of the offshore wind farm will be taken back to land for reuse and recycling.

5.6 Details Of Any Items Which May Be Left In Situ Offshore Following Decommissioning

As described in the previous sections, it is proposed to leave major sections of offshore cables and the embedded piles in the seabed. The basis of this decision is that the item in question meets at least one of the four situations in which (based on the IMO standards) non-removal or partial removal may be considered.

The four situations are where:

1. The installation or structure will serve a new use, whether for renewable energy generation or for another purpose, such as enhancement of a living resource (provided it would not be detrimental to other aims, such as conservation);

2. Entire removal would involve an unacceptable risk to personnel;

3. Entire removal would involve an unacceptable risk to the marine environment; or

4. Entire removal would involve extreme costs.

The primary reason for leaving cables buried and embedded piles in the seabed is that their removal is likely to cause a major impact to the environment and may require significant and dangerous diver involvement. The complete recovery of all of the pile structures would entail a major excavation of the seabed that would be very costly and hugely damaging to the environment in the area.

6 Environmental Impact Assessment

DONG Energy completed an Environmental Impact Assessment (EIA) of the total project including OFTO assets and wind farms in 2006. The resulting Environmental Statement including assessment of the environmental impacts related to the decommission phase was submitted as part of the consent application.

When the final decommissioning measures are known, the Blue Transmission Walney 1 Ltd will review the EIA in conjunction with DONG to assess the potential impacts that may arise and are not covered in the initial EIA process and subsequent reviews. At this point, a decision will be made as to whether a more detailed assessment is required. Key criteria for this decision include:

- An updated review, identification and assessment of potential impacts on the environment. Potential impacts upon both the physical, biological and human environments will be assessed.
- An updated review, identification and assessment of potential impacts relating to interference with other legitimate uses of the sea. It is possible that the nature and/or intensity of human activities taking place on/around the Walney Offshore Wind farm site (including OFTO assets), such as commercial fishing, have changed over the lifetime of the project. A review will be undertaken to identify those activities with the potential to be affected by decommissioning
- An updated review, identification and assessment of the potential impacts of decommissioning on the local community, i.e. potential socio-economic impacts
- An updated review, identification and assessment of potential impacts on historic environment interests, in particular marine archaeological features.

If required, a specific EIA covering the decommissioning process will be prepared in conjunction with DONG, which will fill in any gaps in relation to the above. Furthermore, it will describe the measures envisaged to avoid and reduce, and if possible, remedy adverse impacts.

The use of explosives is not proposed, however should they be necessary during the course of decommissioning, the potential impact of these on marine life, particularly marine mammals, will be assessed. Should the need to use explosives arise, a comprehensive mitigation strategy will be proposed following all appropriate guidelines and regulations such as those set out by the Joint Nature Conservation Committee (JNCC).

7 Consultations with key stakeholder and general public

DONG Energy maintained a high level of consultation with key stakeholders at a local and at a national level, from the scoping and Environmental Statement stage and past consent of the project to date Walney I

OFTO will work in conjunction with DONG Energy to ensure that this level of consultation is continued throughout the construction phase, as well as the decommissioning phase of the project.

DONG Energy has consulted the following organisations on the decommissioning programme Table 7.1.

Organisations	Date of response	Key Issues
Associated British Ports, Barrow & Fleetwood	8th October 2009	Concerns relating to leaving cables and cutoff foundations *in situ* in case they create a fouling hazard for anchoring and trawling.
British Marine Aggregates Producers Association	No response	
Chamber of shipping	1st October 2009	Decommissioning activity to be coordinated with nearby developments to minimise disruption. If new techniques are developed, foundations to be completely removed. Chamber of shipping to be advised if post decommissioning survey reveals that part of the foundation is protruding above the seabed. The cost of marking any obstruction resulting from decommissioning to be met by the developer. A genuine attempt to remove artificially buried cables to be made.
English Heritage	16th October 2009	Acknowledge the production of a written scheme of investigation for Walney and the commitment to undertake a review, identification and assessment of potential impacts on historic environment interest. Support the reference to archaeological exclusion

		zones.
Environment Agency Heysham Port	No response	
Joint Nature Conservation Council	No response	
Maritime and Coast-guard Agency	No response	
National Federation of Fishermens Organisations	9th October 2009	Foundations should be completely removed and should be designed as such. However were cutting will take place it should be below the mud-line. Scour protection in the form of rock placement to be levelled to remove obstacles for fishing. Concrete mattresses used as scour protection to be removed. All cables to be totally trenched and buried or removed. Suggest a „wind Farm legacy trust" be set up to deal with potential long term legacy and safety issues affecting fishing groups All debris associated with the wind farm and its decommissioning to be removed The use of over-trawlability trials after decommissioning to demonstrate that commercial fishing can return to the area.
Natural England	No response	
North Western and North Wales Sea Fisheries Committee	4th November 2009	It may be worth exploring with Natural England an option to retain foundations above the seabed to create a reef structure which could in time provide a breeding ground for many marine species.
Royal Yachting Association	No response	
Trinity House	13th October 2009	If foundations are not

		removed they should be cut to at least 1 metre below seabed. The commitment to provide marking of any obstruction resulting from decommissioning should include a commitment to maintain that marking until no danger exists.

At the time of decommissioning Blue Transmission Walney 1 Ltd in conjunction with DONG Energy will issue notices to mariners and other navigational warnings of the position and nature of the decommissioning activities, which will be taking place. Efforts will be made to ensure that this information reaches mariners in the shipping and fishing industry as well as recreational mariners. The UK Hydrographic Office will be notified as appropriate on the progress and completion of the work.

8 Costs

Costs are confidential.

9 Financial Security

The financial security is confidential.

10 Schedule

A revised EIA may be commissioned two years ahead of the proposed decommissioning period (refer to Section 6). A detailed schedule of the decommissioning works will then be prepared a year before the start of the works taking onboard the results of the EIA and its consultation process. Such schedules will be forwarded for DECC review and approval.

The schedules will clearly map out the sequence of decommissioning activities, providing detail for the offshore removal works. The Offshore Substation is expected to take up to three (3) weeks to decommission, remove and load onto a barge for transport to shore for recycling.

11 Project Management and Verification

The final Decommissioning Plan will provide information on how Blue Transmission Walney 1 Ltd will manage the implementation of the decommissioning works and also provide assurance to the DECC concerning progress and compliance.

The project management of the decommissioning works will be undertaken with rigor expected of such a project. The OFTO envisages a single main contractor for the decommissioning work and will also appoint an experienced and highly qualified project

management team to ensure the decommissioning work proceeds to schedule and in accordance with the requirements of the Decommissioning Plan.

12 Sea-bed clearance

In accordance with the Polluter Pays Principle, Blue Transmission Walney 1 Ltd in conjunction with DONG Energy proposes to clear the seabed in accordance with the provisions made in this decommissioning programme and FEPA license, and to collect and provide evidence to reflect this.

Following decommissioning, surveys (e.g. side scan surveys) will be carried out to show that the site has been cleared. These surveys will enable identification and subsequent recovery of any debris located on the seabed, which may have arisen from activities related to the Walney Offshore Windfarm, and which may pose a risk to navigation, other users of the sea or the marine environment.

The area to be covered will be determined prior to decommissioning, but Walney I is aware of the guidance for oil and gas installations which specifies a 500m radius around any installation.

Reference will also be made to the "Archaeological No Build Areas" in order that these are not inadvertently cleared in the process of removing any potential wind farm debris. Analysis of the survey data will also ensure that items for removal and disposal relate only to the wind farm. The appropriate competent authority will be approached regarding the identification of other anomalies which may be of archaeological interest.

13 Restoration of the site

DONG Energy is committed to restoring the Blue Transmission Walney 1 Ltd site and cable corridors to the condition it was in prior to construction, as far as it is reasonably practical. Consistent with the decommissioning provisions detailed above, the key restoration work will relate to:

- Ensuring that all cut foundations are made safe and adequately covered
- Ensuring that cable ends are adequately buried

Scour protection materials will not be completely removed during decommissioning. By their nature these materials would be difficult and almost impossible to recover and, in any case, they might provide useful marine habitat as artificial reefs by the time of decommissioning.

Active restoration by mechanical excavation is not considered, as it would pose an unnecessary risk to personnel and the environment. Allowing the sea to self-settle is considered sufficient and in proportion to the limited environmental impact of the proposed decommissioning. This latter approach is also proposed with respect to the in-filling of any scour pits left after the main decommissioning works. Any scour pits that form in this area will have been produced due to the presence of the monopile structures acting on local hydrodynamic processes. Upon removal of these structures, it is predicted that these scour pits will start to infill naturally.

14 Post-decommissioning monitoring, maintenance and management of the site

Walney I with DONG Energy proposes that the following post-decommissioning monitoring surveys be carried out:

- Full geophysical survey (swath, sidescan, magnetometer). Survey to be carried out by independent survey contractor and all results issued to DECC for review and comment.

It is proposed that geophysical surveys be carried out 1 and 5 years after decommissioning has been completed.

Should any elements of the wind farm be detected to be protruding above the seabed, Blue Transmission Walney 1 Ltd will notify the UK Hydrographic Office so that suitable notation of a potential anchoring hazard can be marked on relevant charts and mariners informed accordingly.

Following this initial notification, Blue Transmission Walney 1 Ltd will undertake remedial decommissioning work to remove or re-bury these structures. The exact technique used for these remedial measures will depend on the type/size of the structure of the item(s) found to be protruding above the seabed, but are likely to be similar to those used in the primary decommissioning works.

15 Supporting Studies

Any supporting studies or investigations which are undertaken in support of future decommissioning plans will be included as annexes to the final Decommissioning Plan.