

Walney Extension Wind Farm Local Impact Report

BACKGROUND

1. On the 28th June 2013, DONG Energy submitted an application for a Development Consent Order (DCO) to the Planning Inspectorate (PINS) to build and operate an extension to the Walney Offshore Wind farm, comprising a maximum number of 207 turbines with a total generating capacity of up to 750 megawatts (MW). The proposed wind farm is located in the Irish Sea between Cumbria and the Isle of Man, about 19km west of the Isle of Walney, Barrow in Furness. The electricity generated will be exported via undersea cables to the mainland near Heysham in Lancashire. The project consists of wind turbines, foundations, offshore substations, onshore substation, offshore cables (connecting the turbines and offshore substations), offshore export cables and onshore export cables.
2. As the proposed wind farm is an off-shore electricity generating station having a capacity of more than 100MW, it is a Nationally Significant Infrastructure Project (NSIP) within the terms of Sections 14 & 15 of the Planning Act 2008. The application for the DCO will therefore be determined by the Secretary of State, following consideration by PINS.
3. Lancashire County Council and Lancaster City Council as hosts for the onshore development, together with Cumbria County Council and South Lakeland District Council as adjoining authorities are statutory consultees on this development. Other local authorities within and adjoining the Lancaster and Lancashire areas are also statutory consultees, but do not consider themselves impacted by the development and have not been actively participating in the process.
4. The four local authorities mentioned in paragraph 3 above, together with Copeland Borough Council and Lake District National Park Authority (who are within the zone of visual influence of the development) have been working together under the terms of a Planning Performance Agreement (PPA) to engage with DONG Energy in the pre-application process. The PPA authorities have previously commented on the emerging proposals and the developer's consultation arrangements.
5. The PPA between the six local authorities and DONG Energy was signed in February 2013. This has assisted the local authorities in the preparation of all the documentation and assessments which are required as part of the NSIP process. The PPA has enabled Cumbria County Council and the other authorities to commit the necessary level of resources to their participation in the project.
6. The Local Impact Report has been prepared jointly between the six PPA authorities, with Cumbria County Council leading on the offshore impacts and Lancashire County Council leading in respect of the onshore impacts, which impact upon land within the Lancaster City Council area.
7. Within fourteen days of the DCO submission, the local authorities were required to respond to PINS, to give their views on the adequacy of the pre-application consultation process set out in the applicant's Statement of Community Consultation (SoCC). A joint response was submitted on behalf of the PPA authorities, which concluded that adequate consultation had been undertaken in accordance with the relevant requirements of the Planning Act 2008.

8. Following this, on 22 July 2013 PINS confirmed that they had accepted the application, which now takes the application into what is known as the Pre-Examination stage, which is expected to last 2-3 months. The acceptance of the application also triggers a series of immediate deadlines for statutory consultees, such as the PPA authorities, to respond to the application prior to the Examination stage, which is expected to last up to 6 months thereafter.
9. A key input as part of the Examination stage process is that the PPA authorities will be formally invited by the Secretary of State to give their views on the proposal, and to prepare and submit a Local Impact Report setting out what they consider to be the effects of the development upon the local area. This Local Impact Report will be required to be submitted a few weeks after the formal Pre-Examination meeting to be held by PINS, probably in November 2013.
10. The views of local members on the proposed development will be attached as Appendix 1 to this Local Impact Report when it is submitted to PINS.

PART ONE: OFFSHORE IMPACTS

11. This part of the Local Impact Report (LIR) deals with impacts associated with the offshore elements of the project, in particular the impacts arising from:
 - The wind turbines, offshore substations and undersea cables
 - Construction of offshore elements
 - Operation and maintenance of the wind farm
 - Decommissioning
12. Most of these aspects will have an impact upon Cumbria, and the specific O&M impacts will only be capable of assessment when the port location has been confirmed. The onshore aspects relating to cable landfall, the onshore substation and connections into the National Grid, will impact upon Lancashire and are dealt with in Part Two of the LIR.

Location and Site Characteristics

13. The proposed Walney Wind Farm Extension would be located immediately west-north-west of the existing Walney 1 & 2 Wind farms in the Irish Sea, approximately 19km west of Walney Island and 36km east of the Isle of Man. It would lie approximately 26km from the Millom coastline and 40km from St Bees Head. The site is nearly 150 square kilometres in area.
14. The seascape in this part of the Irish Sea is characterised by the presence of existing energy infrastructure. In addition to Walney 1 & 2, there are three other wind farms in the area – West of Duddon Sands (under construction), Barrow and Ormonde. The latter two wind farms are those seen most readily from land, being approximately 7km from the Walney shoreline at the nearest point. There are also eight gas platforms in the area.
15. A number of commercial shipping routes operate in the locality, providing links between NW England, the Isle of Man and Ireland.

16. The sea depths in the area of the proposed Walney Extension Wind Farm vary from 21m to 55m (at low tide).

Description of the Proposed Development

17. The exact size, layout and methodology for delivery of the proposed wind farm is yet to be determined and the developer needs to retain some flexibility to take into account technological advancements, infrastructure availability and costs up to the time of construction. For this reason the proposal is described in the form of a design envelope, which states the maximum adverse case scenario within which the project would be built. This is an established principle, also known as the 'Rochdale envelope' (after legal cases involving Rochdale Council) which is commonly used for proposals of this type, where there is a rapid development of the technology, changing market conditions and a long lead-in time to construction.
18. The project would involve the construction of between 93 and 207 wind turbines and occupy an area of up to 149 square kilometres (57 square miles) in the Irish Sea. The turbines would have a generating capacity of between 3.6MW and 8.0MW. The physical dimensions of the turbines would be within the following range:
 - Hub height between 82 and 122 metres
 - Rotor blade diameter ranging from 120 to 200 metres
 - Maximum blade tip height ranging from 142 to 222 metres
 - Clearance above sea level of at least 22 metres
19. Indicative layouts have been presented by the developer, but none of these necessarily represent the actual layout that will be built. They are intended to illustrate possible scenarios within the design envelope of the project. The separation distance between each turbine will be a minimum of 737 metres.
20. The foundations for the turbines will depend on a number of factors, including the type and size of turbine, maintenance requirements, water depth, tidal conditions, weather conditions, wind and wave loading, seabed stability, geology, decommissioning, transportation, costs and other technical constraints.
21. The following foundation types will be considered:
 - Single steel monopole – a 9m diameter steel tube driven into the seabed to a depth of up to 45m. Requires minimal seabed preparation and drilling in an estimated 20% of cases;
 - Gravity base – a conical structure held in place by its own mass, which would be up to 40m diameter at seabed level and with a maximum shaft diameter of 12m. Requires seabed levelling and sediment removal, but no piling or drilling;
 - Jacket – a three or four legged steel lattice structure, fixed to the seabed by piles at each corner or by using suction caissons. The legs are up to 40m apart on the sea bed. Requires minimal seabed preparation; piles up to 70m deep are driven into the seabed to secure the foundation.
22. To prevent scour (undermining) of the foundation, it may be necessary to lay rock armour around the foundations on the sea bed. This rock protection layer may be up

to 2m deep for a distance of up to 46m around each foundation (depending on the type)

23. Each turbine is installed from a jack-up vessel, which is equipped with cranes and other equipment to lift and fix the various components into place. Firstly the turbine tower is lifted into position and mounted securely on the foundation. Then the hub is lifted to the top of the tower and securely attached. Finally the three blades are installed, either one by one or as a pre-assembled unit.
24. A network of inter-array cables (up to 27km in length) will connect the wind turbines to an offshore substation within the wind farm area, at a voltage of 33kV or 66kV. The inter-array cables will be installed on the seabed using the most suitable method, which could include ploughing, trenching, jetting, cutting and rock-cover. The cables will be buried up to 3 metres below the seabed, with this increasing to up to 10 metres deep where mobile sand waves are present.
25. Up to three offshore substations (132kV to 220kV) will be required. Each substation will be mounted on a jacket foundation; most likely of steel, but possibly concrete. The foundation will be larger than for turbines, with up to 70m between each leg at seabed level. The substation will incorporate a deck ('topside'), which houses switchgear, transformers, helicopter deck, mast, crane and lighting. The maximum height of the substation would be 110 metres above low tide.
26. Up to five undersea export cables would be required to transmit the electricity from the offshore substation to the shore – a distance of 96km. These cables would carry alternating current (AC) electricity between 132kV and 220kV. They would be buried up to 3 metres deep on the seabed, affecting a strip up to 10 metres wide (per cable). Where the desired burial depth cannot be achieved due to seabed conditions or at the crossing of other cables or pipelines the cables would be protected by rock dumping.
27. The location of the onshore base for the construction phase is not yet known and does not form part of this DCO application. A number of Irish Sea ports are being considered. A range of different vessels will be involved in the construction phase, including:
 - Foundation installation or jack-up vessels
 - Cable laying vessels
 - Crew and transfer vessels
 - Service vessels
 - Anchor vessels
 - Tugs
28. Construction materials for the offshore work would be transported generally by sea, and it is anticipated that almost 500 construction jobs would be created at its peak.
29. Similarly, the operational and maintenance base has not yet been chosen. It may be that these activities are undertaken from an existing base, such as Barrow, or that new facilities are proposed, which may be the subject of a separate future planning application. The applicant has supplied indicative information concerning the operational base, which would comprise:
 - Buildings: offices 1,000 sq m, warehouse 1,000 sq m

- Parking: 100 spaces
 - Harbour: pontoon, berthing and vessel fuelling
 - Staff: up to 100 technicians and 20 office staff
 - Traffic: 200 cars and 10 trucks per day
 - Total site area: 6,000 sq m
 - Service Vessels: 8 return journeys per day
 - Helicopter service: approx 17 return journeys per day
30. The wind farm would be operational continuously through out the year, generating electricity whenever the wind speeds are suitable, which is expected to be about 85% of the time.
31. Subject to approval, construction of the offshore elements is expected to commence in April 2016 and would take two years to complete. The wind farm would become operational in March 2018 and would have a minimum operational life of approximately 25 years.
32. Decommissioning will take place at the end of the operational life of the wind farm. A Decommissioning Plan will be approved as a requirement of the DCO. The plan will be reviewed as the decommissioning period approaches, but is expected to involve removal of the turbines, offshore substations and all structures above the sea bed. It is also to include removal of foundations to at least 1 metre below the seabed.

Planning History

33. As the development is offshore and therefore beyond the administrative boundaries of the PPA authorities, there is no conventional planning history associated with the offshore elements of the project.
34. There are other offshore wind farms in this part of the Irish Sea which have been consented under regimes that pre-date the NSIP process. These are as follows:
- Barrow, 30 turbines (90MW), operational 2006
 - Ormonde, 30 turbines (150MW), operational 2011
 - Walney 1 & 2, 102 turbines (367MW), operational 2012
 - West of Duddon Sands, 108 turbines (389MW), under construction

Planning Policy

National Policy Statements

35. National Policy Statements (NPSs) for Energy Infrastructure are relevant, especially the following (all published in July 2011):
- EN-1: Overarching National Policy Statement for Energy
 - EN-3: Renewable Energy Infrastructure
 - EN-5: Energy Networks Infrastructure

36. These NPSs expand upon the statutory provisions of the Planning Act 2008 and set out national policy for major energy infrastructure. They are the primary basis for considering and examining nationally significant infrastructure proposals relating to renewable energy. They set out the need for new nationally significant energy infrastructure projects (including those powered by wind turbines), and explain how assessment principles and criteria will be applied to schemes.
37. EN-1 states that there should be a presumption in favour of granting consent for such projects unless more specific and relevant policies set out in the NPSs clearly indicate that consent should be refused.
38. EN-1 states that there is an urgent need to deliver large-scale renewable energy infrastructure, which is vital to meet the Government's aim of reducing greenhouse gas emissions by 80% by 2050 (from 1990 levels). The UK has committed to achieving 15% of its total energy needs from renewable resources by 2020 and offshore wind energy is the main way of achieving this.
39. In evaluating proposals, PINS will need to consider the environmental, social and economic benefits and adverse impacts of the project, as identified in the NPSs, the application or elsewhere, including the Local Impact Report.
40. EN-3 reaffirms advice in EN-1 on the basis that the need for infrastructure covered by the NPS has been demonstrated, and that there are ambitious renewable energy targets in place.
41. EN-3 explains that a Development Consent Order for an offshore wind farm will normally include a deemed Marine Licence. The licence is concerned with the protection of the environment, human health and legitimate uses of the sea. The Marine Management Organisation (MMO) is the body normally responsible for such matters and is an important consultee in respect of offshore wind proposals.
42. EN-1 states that PINS should work on the assumption that the relevant pollution control regime and other environmentally regulatory regimes, including those on land drainage, water abstraction and biodiversity, will be properly applied and enforced by the relevant regulator, and should act to complement but not seek to duplicate them.
43. EN-3 makes it clear that economic viability is a matter for the applicant and not something to be assessed as part of the application process.
44. EN-3 states that it is unlikely that wind farm operators will know precisely which turbines will be procured until some time after consent has been granted. The 'Rochdale Envelope' approach of setting out the maximum adverse impact scenario is advocated to deal with this uncertainty.

National Planning Policy Framework

45. The National Planning Policy Framework (NPPF) sets out the Government's planning policies for England. The document recognises three dimensions to sustainable development as being economic, social and environmental. It makes it clear that these roles should not be considered in isolation.
46. Whilst the NPPF does not contain specific policies for NSIPs, there are relevant matters within the framework, including those relating to energy and climate change.

- 47. Paragraph 17 of the NPPF states that one of the core principles of planning should be to, “Support the transition to a low carbon future in a changing climate,.....and encourage the use of renewable resources (for example, by the development of renewable energy)”
- 48. Paragraph 93 states that planning plays a key role in helping shape places to secure radical reductions in greenhouse gas emissions, minimising vulnerability and providing resilience to the impacts of climate change, and supporting the delivery of renewable and low carbon energy and associated infrastructure. This is central to the economic, social and environmental dimensions of sustainable development.
- 49. Paragraph 162 states that “local planning authorities should work with other authorities and providers to..... take account of the need for strategic infrastructure including nationally significant infrastructure within their areas”.

Local Policy context

- 50. The Cumbria Sub Regional Spatial Strategy seeks to encourage major development in key service centres, which include Barrow and Workington/Whitehaven. The redevelopment of Barrow Port is an important spatial initiative.
- 51. Barrow Local Plan, Policy D7 protects the coastal zone from development unless it brings economic, social or other benefits to the area and could not be accommodated elsewhere. Development would not be permitted which, amongst other things, increases coastal erosion, prejudices local fisheries, has an unacceptable adverse impact on landscape character, or has an adverse effect on coastal recreation activities.
- 52. The Barrow Local Plan has a positive policy stance towards renewable energy development. Policies D45, D46 and D47 set out the Council’s policy for onshore wind energy development. The plan states in respect of the offshore wind development in the Irish Sea, ‘that a potentially very significant wind resource could be enhanced without visual or other environmental impacts that would be of the same significance as at many onshore locations’.
- 53. The Copeland Local Development Framework sets out in Policy ER2 its support for renewable energy generation at locations which maximise resources and minimise impacts. Policy ER3: The Support Infrastructure for the Energy Coast seeks (amongst other things) to minimise impacts on landscape and the natural environment, maximise economic benefits (training, skills development and supply chain), and agree measures to compensate for negative impacts.
- 54. The Copeland LDF Policy ENV5 seeks to protect and enhance landscapes by protecting all landscapes from inappropriate change, mitigating impacts and supporting proposals which enhance landscape value.
- 55. The Lake District National Park, Local Development Framework sets out in Policy CS16, the authority’s policy for renewable energy generation. The policy is supportive of renewable energy provided the development does not adversely affect the landscape character of the Park. Wind energy developments will be assessed in accordance with the Cumbria Wind Energy Supplementary Planning Document, which includes a presumption against large scale wind energy development in the Park.

Local Impacts

56. This section sets out the impacts resulting from the offshore elements of the proposed wind farm, insofar as they impact upon the administrative areas of Cumbria and Lancashire, the coastal districts of Copeland, Barrow, South Lakeland, Lancaster and the Lake District National Park Authority. It does not consider the impacts on the marine environment, except where they are relevant to the coast or shoreline, as responsibility for the sea lies with the Marine Management Organisation (MMO) and other relevant bodies such as the Joint Nature Conservation Committee (JNCC), Natural England, Centre for Environment Fisheries and Aquaculture Science (Cefas), English Heritage and the Environment Agency. The MMO considers not only the environmental impacts, but also relevant economic impacts on fishing, shipping and recreation, in consultation with the appropriate specialist bodies.
57. Whilst the PPA authorities' jurisdiction does not extend to development in the marine environment, there is understandable interest and concern about the impacts. The PPA authorities are keen to see that the relevant regulatory and competent bodies have considered offshore impacts, particularly those relating to ornithology and metocean processes. It is clear from the applicant's Consultation Report and appendices, which list all the pre-application representations, that the above mentioned organisations have been engaged at each stage of the project and commented in detail on these matters.
58. The section also deals with onshore impacts resulting from construction of the offshore elements of the wind farm and its subsequent operation and maintenance, which may affect Cumbrian or Lancashire ports.
59. For clarification, intertidal ornithology is dealt with in the onshore impacts section, since the principal impacts arise in respect of the export cable which comes ashore at Middleton, near Heysham (Lancaster district), within the designated European habitats of Morecambe Bay.
60. Throughout the pre-application stage, the PPA authorities have commented on a range of documents produced by the applicant. These include the Preliminary Environmental Information (PEI), a number of technical reports, the draft Development Consent Order (DCO) and the draft Environmental Statement (ES).
61. The main matters raised in PPA responses are: seascape (PEI, technical reports, draft ES), ornithology (PEI), transport (PEI), noise (PEI, technical reports, draft ES), socio-economic (PEI and draft ES), impact mitigation (PEI), community benefit contributions (PEI), and seabed sediments (draft DCO and draft ES).
62. Some of these issues have been adequately addressed by DONG Energy. Set out below are the matters arising from the offshore elements of the project that most likely have impacts onshore and to be of concern to residents and local authorities.

Approach to the Assessments

63. The PPA local authorities have assessed the impacts of the proposal, based on the chapter headings contained within the applicant's ES. Where applicable, each chapter heading has been assigned to relevant specific officers for comment. The PPA authorities have been able to draw on in-house specialist advice covering:
 - Seascape and landscape visual impact

- Highways

Chapter 19 - Seascape, Landscape and Visual Impact

64. This section is concerned with the visual impacts of the offshore elements of the project. The impact of the onshore elements is dealt with in the onshore part of the LIR.
65. The Walney Extension project will increase the number and extent of wind turbines within the Irish Sea. The visual impact of the wind farm when viewed from the Cumbrian coastline could give rise to concern. The turbines would be seen most readily from the Walney coast, where they would be 19km offshore at the nearest point. There is considered to be negligible impact on the Lancashire coast because of the distance from the shoreline and the position of the wind farm 'behind' a number of existing offshore wind farms.
66. The applicant's Seascape, Landscape and Visual Impact Assessment (SLVIA), contained in Chapter 9 of the ES, has been reviewed in detail by Cumbria County Council's Landscape and Countryside Officer, whose comments underpin this section.
67. In Chapter 19, a total of ten onshore viewpoints on the west coast of Cumbria have been identified from which to consider the effects of the development (details below). The distance to the nearest turbine ranges from 40km at St Bees to 21km at Biggar Bank, Walney Island. Three of the viewpoints have been used in order to consider the cumulative effects of the scheme in conjunction with existing and consented wind energy developments. Wireframes and photomontages have been prepared for all viewpoints.
68. The SLVIA has been predicated upon a worst case scenario basis, following the Rochdale Envelope approach. The ES notes that this has been taken to be the 207 x 142m turbine (to blade tip) scenario, due to the following factors:
- The 207 turbine scenario would give rise to the greatest increase in density of wind turbines in views.
 - The density and number of turbines is more critical than turbine height from elevated viewpoints.
 - The 207 turbine scenario would create a greater contrast in vertical scale with existing turbines - creating an additional 'bank' of rotating elements.
 - The taller turbines did not yield a meaningful increase in the area of visibility from land based viewpoints.
 - The greater number of turbines would yield a greater number of light sources (at night).
69. Following requests made by consultees during earlier stages of consultation on the scheme, additional photomontages were developed for the 93 x 222m turbine (to blade tip) scenario. At the time of writing this response, photomontages had been prepared in regard to six of the ten Cumbrian viewpoints. These were considered in the PPA authorities' assessment of the scheme. The PPA authorities have previously expressed concern about the methodology used for production of the photomontages, which it is considered may under represent the vertical scale of the turbines (see also para. 84 below).

70. Clearly, a key factor in the assessment of landscape and visual impact is distance. The Cumbria Wind Energy SPD includes a review of good practice guidance in regard to the effect of distance upon visibility/perception. This notes that at distances of between 15 to 30kms, turbines are generally seen as minor elements of a wide landscape composition, perceptible only in clear conditions - going on to state that at distances much greater than 30km, the limit of visibility to the human eye is being approached. (It is noted that this good practice guidance is predicated upon the assessment of turbines up to a height of 120m - the proposed turbines may be up to 222m in height, as noted above). DTI guidance on the Assessment of the Impact of Offshore Wind farms refers to the effects of the earth's curvature upon long distance views, and recommends a 35km seaward limit of visual significance for regional seascape units for Round 2 offshore wind farm SVIAs. The larger turbines will mean that the seaward limit will increase.
71. Prevailing weather conditions can have a significant effect upon visual impact at the distances under consideration. This is considered in the ES, which includes an assessment of average visibility, taken from meteorological recording stations. At St Bees Head visibility is less than 40km for 98.6% of the time, and at Walney Island visibility is less than 20km for 55.9% of the time.
72. A key factor to take into account in the assessment of the scheme is cumulative impact. Several existing offshore wind farm developments are clearly visible from viewpoints in the county. The ES considers the impact of the scheme in conjunction with existing and consented wind farm schemes, both onshore and offshore. It is relevant to note in this respect that officers raised concerns in regard to the significant cumulative impact of the Walney 1 and 2 schemes when these were considered by Cumbria County Council's Development Control and Regulation Committee in 2006.
73. A review of the SLVIA Technical Report (Annex B.13.A), which includes the landscape and visual assessment used to inform Chapter 19, was undertaken by WYG on behalf of the PPA authorities in early 2013. It is relevant to note that WYG concluded that the approach and methodology generally followed good practice, and whilst some variances in magnitude of change were identified at some viewpoints, these did not significantly alter the overall assessment.

Assessment

74. This assessment focuses upon the operational phase of the development, as this is regarded as the most significant phase in landscape and visual terms. The following table summarises the assessment of Cumbrian viewpoints included in the ES:

Viewpoint Ref	Viewpoint Location	Distance to nearest turbine	Sensitivity of visual receptor	Magnitude of impact	Significance of effect
1	St Bees Head	40km	High	Low-Negligible	Minor
2	Thornhill	39km	Low	Low-Negligible	Negligible
3	Seascale Beachfront	34km	High-Medium	Low-Negligible	Minor
4	Seafront at Ravenglass	32km	High	Low	Moderate

5	Black Combe, Bootle Fell	28km	High	Medium-Low	Major/Moderate to Moderate
6	Coastal Path, Silecroft	24km	High	Low	Moderate
7	Public Footpath, NW of Millom	28km	High	Low-Negligible	Minor
8	Askam in Furness	29km	High	Negligible	Negligible
9	Biggar Bank Road, Walney Island	21km	High	Low	Negligible
10	South End Haws, Walney Island	23km	High	Low	Negligible

75. In the PPA authorities' view, the sensitivity of visual receptors should be regarded as 'high' at viewpoint 3, given the popularity of the area with visitors, who are likely to rate landscape/seascape quality as being of high importance. This would therefore increase the significance of effect to borderline 'moderate'.
76. In the PPA authorities' view the sensitivity of visual receptors at viewpoint 2 should be regarded as 'medium' given the potential impact upon residents on the edge of Thornhill. This would increase the significance of effect to 'Minor'.
77. With the exception of these points, the authorities are in general agreement with the predicted effects. Seascapes character is a key consideration, and whilst the sensitivity of receptors is correctly identified as being generally high, the predicted magnitude of impact for each viewpoint reflects the distance of the turbines, and the relatively small proportion of time over which the meteorological data would suggest they will be visible from land. The methodology used to establish magnitude of impact is acceptable. Table 19.15 of the ES notes that the criteria used to assess relative impact are as follows:
- 'High' - the degree of change must be such that the project is dominant, commanding and unmistakeable and being the foremost feature, easily seen.
 - 'Medium' - the degree of change must be such that the project is conspicuous, well defined, clearly visible and catches the eye.
 - 'Low' - the degree of change must be such that the project is apparent, obvious and evident.
 - 'Negligible' - the project is not obvious, lacks definition and its presence is both subtle and blurred.
78. Having considered the two sets of photomontages, the PPA authorities agree with the logic applied by the applicant to worst case scenario selection (19.7.9) in regard to those viewpoints where the bulk of the scheme will be seen as a backdrop to the existing offshore schemes (viewpoints 8, 9 & 10), and from elevated viewpoints around Black Combe (5), where the density and spread of turbines will be most apparent.
79. However, in the PPA authorities' view, the larger turbine scenario would have a greater impact upon those sea-level viewpoints where a relatively large proportion of the angle

of view is taken up by the scheme on its own (viewpoints 1, 2, 3, 4 and 6). Given the distance however, it is not felt that this would significantly alter the assessment of magnitude. Given this, and that the most significant impact - upon viewpoint 5 - will be exacerbated by a greater number of turbines, the PPA Authorities are satisfied that the worst case scenario applied by the applicant gives a reasonable assessment of impact upon Cumbria as a whole.

80. It is key to note therefore, that only the impact upon viewpoint 5 is regarded as 'significant' (major/moderate and above) in EIA terms.
81. In regard to effects upon landscape and seascape character, the ES assesses anticipated impacts upon both local landscape character types (LCTs), and regional seascape units. This concludes that the significance of effect will be 'negligible' for the majority of Cumbrian LCTs identified, with the exception of a 'minor' rating for the Intertidal Flats, Coastal Marsh and Dunes and Beaches sub-types. The significance of effect upon the Duddon Estuary, Walney Island and Morecambe Bay regional seascape units are assessed as 'moderate' to 'moderate/minor' (reducing to 'negligible' in the north), 'moderate/minor', and 'negligible' respectively. The PPA authorities concur with this assessment.
82. In regard to cumulative impact, it is key to establish the net effect of the scheme under consideration. The existing and consented offshore schemes are located in closer proximity to the shoreline, and will be more prominent in many views where the Walney Extension Wind Farm is simultaneously visible. The most significant cumulative effects arising from the scheme are likely to occur from viewpoints where the turbines will encroach into undeveloped areas of seascape, thereby extending the influence of turbines in seaward views.
83. The significance of cumulative effect upon regional seascape character units is assessed as being moderate to moderate/minor, with the impact upon LCTs and viewpoints 'minor'. This would reflect the pre-existing cumulative effects already apparent. The authorities would generally agree with this, but consider that the effect upon landscape sub-type 1a, Bay and Estuary: Intertidal Flats should be regarded as 'low' rather than 'low-negligible'. This is due to the fact that this sub type extends along the west coast of the Cumbria for much of the zone of theoretical visibility of the scheme, with views being therefore theoretically possible across much of this area. This would increase the significance of effect to 'moderate' in regard to this sub-type.
84. As pointed out in para. 69 above and para 189 below, the PPA authorities have raised some concerns regarding the methodology for visual impact assessment and the production of photomontages. At the time of writing a meeting was still to be held with the applicant's landscape consultant to discuss these issues. The PPA authorities therefore may wish to comment further on seascape, landscape and visual impact subject to the outcome of this meeting.
85. In conclusion therefore, the assessment gives a generally accurate reflection of the likely landscape, seascape and visual effects, albeit the points made above should be noted.

Chapter 28 Traffic and Transport

86. The potential impacts of the offshore construction and O & M base activities upon the transport network are not examined in the ES. Chapter 28 limits its scope to the assessment of impacts arising from the onshore development. These aspects are covered in the onshore part of this LIR.

87. The port to be used as a base for construction, operation and maintenance (O&M) of the wind farm has yet to be decided. The existing wind farms in the area are operated and maintained from dedicated facilities built at Barrow Port, which DONG Energy have confirmed is one of a number of ports under consideration.
88. Transportation impacts associated with either activity could be significant and include travel to work journeys, construction traffic, and the movement of construction materials by road, rail or sea, together with associated congestion, noise and pollution.
89. The turbine foundations and cable laying will require significant quantities of construction materials, some of which may need to be transported from onshore sources to the construction site offshore, via local roads and harbours. Such movements may result in significant deterioration or damage to the highway and could have significant impacts upon communities along the route.
90. While the proposed development has the potential to have a significant impact on the Cumbrian or Lancashire highway and transportation network should Barrow-in-Furness, Workington or Heysham, be selected as a construction port or Operation & Maintenance base, currently there are too many variables and insufficient detail to provide an assessment of the resulting impact in order to identify any necessary mitigating measures. It is also unclear within the supporting documentation of the exact consent process to be followed for these elements. As such there remains uncertainty whether subsequent consent processes will necessitate formal consultation with the relevant highway authority and whether the aforementioned detrimental impacts will be appropriately assessed and appropriate mitigating measures identified and secured.
91. In discussions about this matter, the applicant has indicated that onshore activities relating to the offshore construction work will take place within the terms of existing consents, e.g. port operations or require planning consent. The PPA authorities do not accept that this is necessarily the case and at the Examination stage will seek to ensure that the issue is fully considered and appropriate mitigation provided.

Chapter 31 Socio Economic

92. There are potential benefits and adverse impacts associated with the proposed wind farm.
93. The applicant's assessment in the ES (Chapter 31: Socio Economics) identifies a number of relevant issues to consider, in line with NPS guidance. These include job creation and training, impact on tourism (including the visual impact of the development), influx of workers, existing socio economic conditions, and the cumulative effects as a result of interaction with other projects.
94. The applicant's assessment suggests that nearly 500 jobs will be created throughout the main (four year) construction period. Of these, an estimated 230 will be in the North West (NW). Nearly 100 more jobs are expected to be created in the NW indirectly through the supply chain or as a result of increased spend.
95. During the operational phase (2020 - 2044), the applicant anticipates that around 380 direct jobs will be created. 185 of these jobs will be created in the NW, with two thirds at the operations and maintenance base. This number would comprise 100 technicians and 20 office staff. A further 75 jobs would be created through the supply chain and increased spending in the area.

96. It is worth noting that the existing Walney 1 & 2 schemes have created 76 new jobs which will exist for the operational lifetime of the wind farm. The evidence suggests that the majority of these jobs are filled by local people and it is the applicant's stated intention to recruit suitably skilled local people and involve local services where possible. A study by DONG Energy has shown that the local economy benefitted to the tune of around £950,000 per month during construction of these earlier schemes.
97. The additional employment created by the proposed wind farm has been estimated to add £63.5M to the value of the local economy during the construction period and £14M per annum during operation.
98. As there is not yet a firm indication of the construction port or the location of the operations and maintenance (O&M) base, it is difficult to ascertain the socio-economic impact (both beneficial and adverse) upon Cumbria and Lancashire. The potential construction ports include Liverpool, Belfast, Heysham and Barrow. These are also the potential locations for the O&M base, along with Workington, Douglas and Garston. An early decision on this would allow for detailed discussion around the necessary support that local partners can provide in supporting local recruitment, suitable training options, alerting the potential local supply chain and evaluating any impact on local services, housing and businesses which may need to be mitigated.
99. The PPA authorities would especially welcome early discussions around developing a local supply chain framework to ensure that local businesses are provided with ample opportunity to secure work and provide services during each phase of the development. For example, the authorities would want to explore opportunities for small and medium enterprises (SMEs) to benefit from innovative approaches to training schemes such as shared and community apprentices, or to be supported and mentored to achieve the necessary quality standards that DONG Energy would need to see in any contractors it employs.
100. There is potential for the additional employment created by the development to lead to pressure on the local housing market. The applicant has assessed this impact as not significant, as there is suitable accommodation available in the potential construction ports (including Heysham and Barrow) to accommodate the anticipated number of temporary workers. The housing needs of locally engaged staff are likely to be already met.
101. The effect of the project upon the local fishing industry is assessed by the applicant as not significant. The project lies within an area of limited fishing activity, which takes its catch to Whitehaven and accounts for 30% of the port value. The wind farm would occupy only a small part of this fishing zone (ICES 36E6) and is expected to have limited impact on profitability or employment. Smaller vessels will be able to continue to fish in and around the wind farm once it is operational. The indication at other offshore wind farms is that the area around the turbines can develop into a useful spawning ground for fish.
102. The applicant has researched the effects upon coastal tourism resulting from the visual impact of the wind farm. This included a review of previous survey research carried out with visitors and tourism businesses which suggests that there is little evidence to suggest that the minor visual impact will have any significant negative impact on tourism. (Visual impact as a whole is addressed in "**Seascape, Landscape and Visual Impact**" section above).
103. The evidence presented in the ES suggests that majority of visitors do not expect their behaviour to be influenced by the presence of a wind farm. Tourism activities where

the primary focus of the visitors is on enjoying the landscape especially its wildness and tranquillity (eg. walking) are more likely to be adversely affected by wind farm developments

104. The SLVIA (see “**Seascape, Landscape and Visual Impact**” section above) highlights that across the range of identified viewpoints the visual impacts are assessed to be mainly minor to negligible. The only visual impact that is assessed as significant in EIA terms is the view from Black Combe at Bootle Fell. The change in visual impact given the existing visual context is stated to be minimal.
105. Britain’s Energy Coast vision is for West Cumbria to maximise the economic benefit for local communities from investment in energy related proposals and to seek opportunities to diversify the local economy. The same economic vision also applies in Lancashire.
106. DONG Energy has agreed in principle to the establishment of a Community Benefit Fund (CBF) if a DCO is granted. The PPA authorities welcome this, but recognise that the CBF falls outside the planning process. This will be paid to communities in recognition that the project may have national benefits but the impacts are local and long term.
107. In overall terms, the authorities consider that the applicant’s ES has adequately assessed and described the socio economic impacts. However, the authorities wish to maximise the economic benefits for the area by seeking agreement with the applicant to promote local employment, training and supply chain opportunities. This will continue to be pursued with the applicant.

Chapter 8 Sea bed sediments

108. The PPA authorities have drawn the applicant’s attention to the possible presence of:
 - radioactive particles contained within sediments on the sea bed
 - radioactive debris on the sea bed
109. The authorities are concerned that, if radioactive material is disturbed during construction of the wind turbines, it could result in the release and movement of radioactive particles, which could in turn lead to contamination of the coastline. (See also paragraph 116 below relating to radioactive waste arising from decommissioning)
110. It is known that radioactive particles are present within sea bed sediments in the Irish Sea as a result of historic discharges from Sellafield. The Environment Agency regulates the monitoring of sea bed sediments and certain beaches on the Cumbria coastline.
111. The applicant has addressed this issue in ES Chapter 8 Sediment and Water Quality. Reference is made to an HPA study (2011) of radioactivity on Cumbrian beaches which indicates a very low existing risk to people using the beach. The applicant has also indicated that any disturbed sediment particles from the offshore construction works would re-settle on the sea bed long before they could be carried to the shore.
112. The applicant refers to a previous study into the health risk surrounding the disturbance of radionuclides in sea bed sediments undertaken for the Walney 1 & 2 wind farms. This concluded that there would be no impacts on human health and the applicant considers that the results are equally applicable to the Walney Extension project, because of its close proximity.

113. The applicant will carry out sampling for radioactivity should dredging for gravity base foundations be required to enable a further risk assessment to be carried out.
114. The ES concludes that no impact to human health will result from the disturbance of radionuclides during the construction period.
115. The PPA authorities wish to seek clarification of the methodology and assumptions underpinning the applicant's approach before accepting their conclusion that there is no impact to human health. The HPA study for example does not consider the issue of further sediments being deposited on beaches and it is necessary to check the validity and relevance of the other studies referred to. The authorities would also wish to consult the EA before coming to a final view.

Chapter 9 Offshore Noise and Vibration

116. Chapter 9 assesses noise impacts, which are at their highest level during the piling of foundations in the construction phase.
117. A maximum noise level of 31.5 decibels is predicted at the nearest onshore point (19km from the nearest turbine). This is significantly below the guideline levels of the World Health Organisation and the relevant British Standards.
118. The ES concludes that it is extremely unlikely that the levels of noise experienced by humans onshore will be a cause for concern.
119. In respect of noise resulting from onshore construction (in Lancaster district), the applicant is proposing to publish contact details for concerned members to speak to a site representative.
120. The PPA authorities accept the applicant's assessments that the noise arising from offshore construction is unlikely to cause disturbance onshore. However, it is suggested that contact details also be made available to residents on the Cumbrian coast during construction to enable any concerns to be expressed. This would be consistent with the arrangements for onshore noise (see para 202).

Chapter 4 Project Description (Decommissioning)

121. The applicant proposes to decommission the wind farm at the end of its operational life. This is explained in the ES (Section 4.18 of Chapter 4: Project Description).
122. The decommissioning of the offshore elements would include removal of the turbines, sub stations and foundations (to a depth of around 1 metre below sea bed level). This will effectively restore the sea bed to its condition prior to development.
123. The applicant proposes to leave in place the deeper parts of the foundations and the undersea cables, as the impacts of removing these could be damaging to the marine environment. Similarly, any rock armour may be left in place if it is considered desirable to preserve marine habitats which may have become established.
124. The PPA authorities are aware that decommissioning of oil and gas rigs off the UK coast has sometimes produced radioactive waste. This issue appears to arise as a result of naturally occurring radioactivity within the hydrocarbons being extracted. However, the PPA authorities consider that the potential for radioactive waste arising from decommissioning of the turbines should be assessed, since disposal of this

material could have impacts upon Cumbria where the appropriate disposal facilities are located.

125. Under the terms of the DCO, a Decommissioning Plan will be required to be submitted to the Secretary of State following consultation with the MMO and the Centre for Environment, Fisheries and Aquaculture Science (Cefas), prior to commencement of construction. The plan will be continually reviewed so that it remains relevant at the time decommissioning takes place.
126. It is understood that DONG Energy will be required to provide a bond, which will guarantee the availability of funding to undertake decommissioning. However, the process for securing the bond is not apparent in the application.
127. The PPA authorities are in agreement with the applicant's approach to decommissioning, but consider that there should be a clear timescale specified for approval of the Decommissioning Plan and the mechanism for securing the bond needs to be clear.

PART TWO: ONSHORE IMPACTS

128. This part of the Local Impact Report (LIR) deals with impacts associated with the onshore elements of the project, in particular the impacts arising from:
 - The Horizontal Directional Drilling (HDD) required to bring the export cables ashore
 - Underground cabling between the shore and the new substation
 - Construction of the new substation
 - Connections to the National Grid
129. It is these aspects that will have an impact upon Lancaster district in Lancashire.

Location and site characteristics

130. The onshore element of the Walney Extension wind farm will be located south of Heysham, within the district of Lancaster in Lancashire. The landscape close to and around the site is predominantly low-lying pasture, open in character with hedged or ditched field boundaries, farmsteads and generally low tree cover.
131. The settlement pattern focuses on the small village of Middleton, with the larger settlement of Heysham to the north. Development in the surrounding area includes the port and nuclear power stations at Heysham (including existing substations and transmission pylons), several caravan parks serving the local tourist industry, and a number of industrial developments. Overall, the area identified for the substation lies on the edge of the built up area of Heysham, whilst the proposed cable route and cable landing crosses open farmland to the east and south of Middleton.

Description of the proposed development

Onshore cable route

132. Up to 5 export cables will make landfall at Middleton Sands, near Heysham. Where the cables come ashore and cross the intertidal salt marsh they will be installed using a tunnelling technique known as Horizontal Directional Drilling (HDD) and pass at depth beneath the salt marsh. The cables will then be buried in standard cable

trenches along a route running from Middleton Sands terminating at the proposed substation site located to the north of the Lancaster West Business Park approximately 3.5 km to the north and east.

133. An indicative working width for the cable route of up to a maximum 40m during construction activities will be required. The corridor has been aligned to take into account field boundaries and other features and passes to the east of Middleton village and a business park. The cable route will consist of a number of cable jointing bays separated at points typically around 600-1000m distance along the cable. Each jointing bay will be approximately 10m long, 2m wide and buried at 1.5m with a reinforced concrete floor. The distance between the jointing bays will be defined by the cable voltage and the length of the cables wound onto drums.
134. A temporary working compound will be required at Middleton Sands in order to accommodate the drilling equipment and operations associated with the HDD.

Onshore substation

135. The proposed substation will be located to the north of the A683, opposite the entrance to the Lancaster West Business Park. The site area covers 2.9 ha and will include electrical equipment needed for the connection of the wind farm and for compliance with the code for connecting to the National Grid. This equipment is likely to include transformers (to step up the voltage to 400kV); switchgear (indoors); conductors; reactive compensation; filters; control, telecoms and relay rooms; HGV access and turning; car parking and internal roads; drainage and oil containment; noise mitigation; any necessary fire fighting plant; and perimeter and internal compound fencing.
136. The proposed development floor level is between 5.1m and 6.0m Above Ordnance Datum (AOD). The maximum height of the substation buildings and major components (excluding lighting protection) will be 21m AOD. The lightning protection which represents the tallest component of the substation has proposed maximum height of 29m AOD.
137. A 400kV cable connection between the Project substation and a new NGET substation to enable the Project to connect into the national grid will be provided. This cable corridor section will be approximately 315 m long (depending on the final location of the Project substation). Temporary working compounds have also been identified on land adjacent to the substation site covering an area of approximately 13 ha.

Planning history

138. Heysham is a popular location for accommodating energy infrastructure: initially this was because the first nuclear power station required access to a ready supply of water for cooling the reactors. This has grown so that today there are two nuclear power stations, two electricity substations and the cable connections from two further offshore wind-farms are already located in close proximity to the current proposal. In addition, National Grid has consent from Lancaster City Council to install a new electricity substation on land immediately west of the DONG Energy proposal (application no. 13/00393/FUL: decision dated 23 July 2013).
139. As far as the current proposal is concerned, there is no planning history of applications on any of the land affected by the cable route or the substation.

Planning policy

National

140. The NPPF came into effect on 27 March 2012. The document recognises three dimensions to sustainable development as being economic, social and environmental. It makes it clear that these roles should not be considered in isolation. The NPPF makes it clear that local authorities should work with neighbouring authorities and transport providers to develop strategies for the provision of viable infrastructure to support sustainable development. Importantly the government recognises that different policies and measures will be required in different communities and opportunities to maximise sustainable transport solutions will vary between urban and rural areas.
141. Of particular relevance to the consideration of the Walney Extension offshore wind farm proposal are the sections in the NPPF relating to:
 - Building a strong, competitive economy (paragraphs 18 – 22);
 - Meeting the challenge of climate change, flooding and coastal change (paragraphs 93 – 108).
142. In addition to the NPPF, the development plan is required to be consistent with relevant national policy contained in the Department of Energy and Climate Change's National Policy Statements for Energy Infrastructure especially the following (all published in July 2011):
 - EN-1: Overarching National Policy Statement for Energy
 - EN-3: Renewable Energy Infrastructure
 - EN-5: Energy Networks Infrastructure
143. These policy statements expand upon the Planning Act 2008 and are the primary basis for examining NSIPs proposals. The policy statements set out the need for new nationally significant energy infrastructure projects (including those powered by wind turbines), and explains how assessment principles and criteria will be applied to schemes.

Local

144. The Lancaster District Core Strategy (2008) includes Policy ER7 relating to Renewable Energy. The policy identifies South Heysham as a key focus for the industry, partly in association with the major offshore wind energy schemes in Morecambe Bay and the Irish Sea.
145. The Lancaster District Local Plan (strike-through edition 2008) includes policy E24 which requires new or replacement electricity lines to take the least visually harmful route.
146. The City Council is currently preparing new development plan documents (DPDs) which will eventually replace the Core Strategy and District Local Plan. These include the Development Management DPD and the Land Allocations DPD, which will identify land to meet future development needs and land to be protected from development. The Development Management DPD will include policy direction on enhancing renewable energy opportunities, whilst the Land Allocations DPD identifies the

Heysham Energy Coast on the Local Plan Policies Map as an area where the Council anticipates further energy investment, including the construction of new substations and other grid-related infrastructure.

147. At the Preferred Options stage of developing the DPDs, representations were made on amenity, landscape, and environmental capacity and contamination matters connected with the Energy Coast. One representation called for greater consideration of cumulative impacts and another for more specific designations of land within the Energy Coast. This last point is important because whilst there were no representations on the proposed area identified for a substation on land to the west of the proposed DONG Energy substation, the DONG Energy substation site was not shown on the Policies Map of the DPD. It was shown as part of a wider area of open countryside, and so representors did not have the opportunity to comment on this proposal as part of the DPD consultation.
148. The Development Management and Land Allocations DPDs warrant material consideration in this process according to the guidance set out in NPPF, paragraph 216. They provide more detail on the strategic principles already adopted within the Core Strategy, and through the course of 2013 as the documents are revised in advance of publication and submission, the weight attached to both documents will increase. Specifically, the Development Management DPD will reach Publication Stage in the autumn of 2013, whilst the Land Allocations DPD will require an addendum consultation in autumn 2013.
149. The Joint Lancashire Minerals and Waste Local Plan (Site Allocations & Development Management Policies, to be adopted on 26 September 2013), identifies a Minerals Safeguarding Area (MSA) on open land to the south of Heysham which includes the site for the proposed substation. Policy M2 of the plan safeguards the mineral deposits from incompatible development and states that planning permission should not be granted unless it meets one of a series of exception criteria.
150. The Site Allocations and Development Management DPD also identifies sites at Lancaster West Business Park and Heysham Industrial Estate as being suitable for waste management, recycling transfer and materials recovery. The site at Lancaster West Business Park adjoins the proposed DONG Energy substation and its cable route south of the substation towards Middleton village. These site allocations will not be compromised by the onshore elements of the project.

Approach to the assessments

151. The PPA local authorities have assessed the impacts of the proposal, based on the chapter headings contained within the applicant's ES. Each chapter heading has been assigned to relevant specific officers for comment. The PPA authorities have been able to draw on in-house specialist advice covering:

- Planning
- Ecology
- Archaeology
- Landscape
- Highways
- Economic development
- Environmental health

- Flood risk
152. Where relevant the PPA authorities have made reference to the DONG Energy typology of significance adopted within the ES (see Section 3.4 of the Preliminary Environmental Information Report, August 2012).

Planning Assessment

Chapter 14 – Intertidal Ornithology

153. Natural England is the statutory nature conservation body for the purposes of the Conservation of Habitats and Species Regulations 2010 (as amended). The Habitats Regulations place a duty on competent authorities (i.e. the decision maker in this case) to consult the appropriate nature conservation body in the assessment of the implications of proposals for European sites.
154. The Wildlife and Countryside Act 1981 (as amended) also places duties on Natural England in respect of Sites of Special Scientific Interest (SSSIs), and there is a procedure to be followed prior to the authorisation of operations likely to damage SSSIs. Therefore, it is the PPA authorities' view that it is the role for Natural England to provide detailed advice in terms of the implications for the nationally and internationally designated sites.

Chapter 23 – Hydrology and Flood Risk

155. The temporary works associated with the cable routes and potentially the access routes to the substation site will have an impact on water courses. The applicant should be aware that Ordinary Water Consents will be required from Lancashire County Council.
156. Annex B.14 (Flood Risk Assessment) of the ES makes reference to the use of Sustainable Drainage Systems (SuDS) at the substation site. The applicant should consider, in line with good practice and paragraph 118 of the NPPF, to incorporate biodiversity enhancement opportunities wherever possible. The PPA authorities view is that the use of ponds should be considered as part of the surface water management strategy.

Chapter 24 – Terrestrial Ecology and Nature Conservation

157. Much of the area potentially affected by these proposals is of relatively low biodiversity value and it is accepted that, for example, temporary impacts on agriculturally improved habitats are unlikely to result in significant adverse impacts on biodiversity, and that the reinstatement of agriculturally improved land (species-poor grassland) and habitats such as hedgerows is achievable.
158. However, the development does also affect protected sites and protected and priority species, and there is therefore a need for the ES to demonstrate adequate avoidance, mitigation and compensation. Whilst some of the issues from the draft ES have now been addressed, it is the PPA authorities' view that there remain omissions, errors and inconsistencies in Chapter 24. These are detailed below.

Designated Sites

159. In respect of statutory designated sites, and associated biodiversity interests, Natural England is the relevant nature conservation body and it will ultimately be for Natural England to advise the competent authority in respect of impacts on such sites.
- Lune Estuary SSSI/ Morecambe Bay SSSI and SAC (and associated species including Belted Beauty moth).
160. The draft Environmental Statement had indicated that the proposals would have a potentially catastrophic impact on the population (and salt marsh habitat) of Belted Beauty moth within Morecambe Bay SSSI and SAC, for which no mitigation or post-construction monitoring was proposed.
161. Following the concerns raised by numerous consultees, Chapter 24 now indicates that trenchless (HDD) crossing of the salt marsh can be carried out without any above ground impacts on the salt marsh. Whilst this would appear to avoid impacts on the designated site and associated species, the ES goes on to introduce some uncertainty about whether or not impacts would indeed be avoided, e.g. Paragraphs 24.9.2.3 and 24.9.2.4) indicate that there will be no storage of material or vehicle movements on the salt marsh "unless otherwise approved in writing by the relevant planning authority". It is not clear under what circumstances the developer might need access to the salt marsh, but this does appear to introduce the possibility that, even with HDD, impacts might not be entirely avoided
162. Paragraph 24.9.2.7 introduces the possibility of HDD failure or a break out of inert drilling muds (which would result in impacts on the designated site and habitat of Belted Beauty moth). However, since there are apparently alternative routes that would avoid actual and potential impacts on the designated site, it would seem appropriate for the determining (and competent) authority to be satisfied that the proposed method of working is feasible in this case (i.e. significant impacts are reasonably unlikely).
- Heysham Moss SSSI, Local Nature Reserve (LNR) and Biological Heritage Site (BHS).
163. Paragraphs 24.9.2.11 – 24.9.2.15 appear confused, with the distinction between the SSSI and BHS (Local Site) not clearly identified. Impacts on the BHS (immediately adjacent to the proposed substation site) do not appear to be addressed in the ES and the biodiversity value of the BHS appears to be poorly understood, e.g. paragraph 24.9.3.7 states that birds are not cited as qualifying features of the SSSI/ BHS. This is incorrect: one of the qualifying criteria for the BHS designation relates to birds.

European protected species

- Great crested newts
164. Great crested newts are known to be present within 250m of the proposed development. Chapter 24 suggests that a licence will not be required, but states that updated surveys will be carried out and reasonable precautions will need to be employed.
165. Whilst non-licensed avoidance measures may be appropriate in this case, the draft ES had clearly stated that works would need to be carried out under European protected species licence. Indeed, Annex B.15.B (Protected Species Survey Report) does still state that a licence will be required. The revised (formally submitted) chapter 24 does not appear to explain why it now disagrees with the conclusions and recommendations of the draft ES and protected species report.

166. The competent authority will need to have regard to the requirements of the Conservation of Habitats and Species Regulations 2010 (as amended) in the making of this planning decision, and will need to come to a view in respect of the likelihood of a breach of legislation and the need for a licence. Natural England is the statutory nature conservation body and should be asked for their opinion. It would also be helpful if the applicant could provide further clarification in terms of why a European protected species licence is no longer thought necessary for this species.

- Bats

167. Proposals have the potential to impact upon bats through habitat removal (severance of foraging and commuting routes) and lighting.

168. The ES indicates that bat activity surveys have been carried out during summer 2013 but are not yet available. In the absence of the results of these surveys, it is not possible for the PPA authorities to comment on the significance of potential impacts on bats and their habitat.

Protected species

- Nesting birds

169. The proposals will result in the loss of habitats potentially used by nesting (and foraging) birds. The ES suggests (paragraph 24.9.2.62) that although the duration of habitat loss and displacement would be 25 months, there is other habitat elsewhere that birds could use. Whilst many species of bird are adaptable, and could move, this does depend on there being suitable and unoccupied habitat into which displaced birds could relocate.

170. Paragraph 24.9.2.68 indicates that bird boxes will be erected on suitable trees surrounding the cable corridor and substation to provide alternative nesting habitat during construction and compensatory habitat upon completion. It is not clear what species would be targeted, or that there are suitable trees in suitable locations where bird boxes could be deployed to effectively mitigate impacts.

171. Paragraph 24.9.2.70 states that screening planting around the substation will provide habitat during construction and compensatory habitat upon completion. However, most of the proposed planting around the substation is located within the temporary working areas/ cable corridor and it therefore seems highly unlikely that the screen planting would be planted before completion of construction. Even if the landscaping was to be created at an early stage, it seems highly unlikely that planting would be sufficiently mature to provide habitat during construction or that vegetation within a construction site/ temporary working area would be of any significant value to nesting birds. Moreover, if suitable bird nesting habitat is created within the working area, and birds did nest during construction, then this may result in constraints (time delays) to development, i.e. the applicant's legal duty to avoid a breach of the Wildlife and Countryside Act 1981 (as amended).

172. It would therefore seem more appropriate for consideration to additionally be given to providing offsetting in the longer-term through the enhancement of habitat (including hedgerows and ditches) for nesting birds.

173. Paragraph 24.9.2.70 states that after mitigation (mainly compliance with the Wildlife and Countryside Act 1981 (as amended)): avoidance of impacts on nesting birds, their

nests and eggs) there will be no significant residual impact on nesting birds. However, it is the PPA authorities' view that the ES does not demonstrate this. For example, the substation and associated screening planting are located in an area of coastal and floodplain grazing marsh, adjacent to a BHS (Local Site). According to the site description, the BHS is of ornithological value for breeding and wintering birds, some of which are ground-nesting/ ground-feeding and may therefore be displaced away from the substation and associated screen planting. The proposals may thus result in at least an indirect effect on the BHS, an impact which does not appear to be considered, and for which no mitigation appears to be proposed. Whilst the residual impact might not be 'significant', planning policy requires net gains in biodiversity. It seems unlikely that these proposals will not deliver gains.

- Wintering birds (qualifying features Morecambe Bay SPA)
174. Appendix 17.4 provides a summary of consultee responses to the draft ES. In response to concerns regarding potential impacts on pink-footed goose, appendix 17.4 indicates that further information has now been added to Chapter 24. This appears to be reference to paragraph 24.9.2.63, which concludes that works will not result in significant displacement of pink-footed goose because there's suitable habitat elsewhere. This does not constitute an adequate assessment of likely significant effect and does not appear to be based on a sound understanding of pink-footed goose ecology and habitat use.
- Reptiles
175. Paragraphs 24.9.2.71 onwards deal with mitigation for potential impacts on reptile species, including clearance of vegetation during summer. Whilst this would be appropriate, it may not be compatible with the mitigation proposed to avoid impacts on nesting birds (e.g. paragraph 24.9.2.61: vegetation clearance will be undertaken outside of the period March to August inclusive).
- Habitats and Species of Principal Importance in England (section 41 NERC Act 2006)*
176. The proposals will result in the temporary loss of several hundred metres of *hedgerow*. Whilst hedgerow will be re-planted following construction, it would seem appropriate for enhanced hedgerows to be created (*i.e.* increased species diversity, enhanced management for the benefit of biodiversity).
177. The proposals will result in temporary and permanent impacts on *coastal and floodplain grazing marsh*: the MAGIC website (hosted by Defra) suggests that much of the grassland in the cable corridor and substation footprint qualifies as this priority habitat. Other than simply reinstating post-construction, no mitigation or compensation/ enhancement is proposed.
178. Paragraph 24.9.3.11 claims that the permanent loss of 3.1ha of this habitat (substation) is not significant because this is only a small proportion of the total area of the habitat locally. Whilst this may be true, the government has indicated that it is committed to halting or even reversing biodiversity declines; UK BAP priority habitats were identified as those being most threatened and requiring conservation action. It is therefore disappointing that no mitigation or compensation is proposed to offset this loss of priority habitat.

179. With regard to the Belted Beauty moth. The applicant now proposes HDD to avoid impacts on the designated site (and habitat of this species). Provided HDD can be successfully employed, and there is no subsequent requirement to damage habitats above-ground, then it seems that significant impacts on this species and its habitat may be avoidable.
180. Other Species of Principal importance that would be affected/ potentially affected by these proposals are also legally protected, and are considered separately (above).

Biodiversity enhancement

181. Table 24.1 summarises how the ES addresses the provisions of NPS EN-1 and EN-5. With specific reference to paragraph 5.3.4 of EN-1 (taking advantage of opportunities to conserve and enhance biodiversity), this appears weak. For example, the ES indicates that mitigation will be agreed with Natural England but may include provision of hibernacula, habitat creation and enhancement. This appears to be a specific reference to amphibian mitigation. However, the formally submitted Chapter 24 (contrary to the draft chapter) now indicates that mitigation for impacts on newts can be delivered through non-licensed avoidance measures, and Chapter 24 does not appear to propose any enhancement for amphibians.
182. The ES indicates that the project has been designed to avoid impacts to habitats such as hedgerows. Since the project will impact upon somewhere between 700 – 900m of hedgerow, it is difficult to see how this demonstrates avoidance of impacts on hedgerows. Impacts on other habitats, such as the priority habitat coastal and floodplain grazing marsh, have not been avoided.
183. The ES indicates that the project has been adapted to conserve nature conservation designated sites. This appears to be a reference to avoiding impacts on an internationally designated site through the use of HDD. Compliance with protected site legislation hardly constitutes taking advantage of opportunities to conserve and enhance biodiversity interests.
184. Paragraph 24.9.1.9 indicates that a Landscape Management Plan will be prepared and agreed. This should be required to demonstrate enhancement, and not merely reinstatement (as currently proposed in the ES). For example, paragraph 24.9.1.11 states that hedgerows will be reinstated using larger specimens to reduce the time for breaches to be filled, plants to be protected by tree guards for a minimum of two years. The use of larger specimens will result in a taller feature but will not necessarily fill the gaps more quickly, particularly if planted in tree guards which prevent side growth. The need for tree guards should be made on a case by case basis, and it may be more appropriate to consider fencing out the lengths of new hedgerow to enable a denser structure to form at the base. If tree guards are used, then it seems likely that a tall sparse hedge will be created which will need laying to achieve a dense structure (to achieve stock proofing and benefit to wildlife). Consideration could also be given to gapping up other hedgerows (i.e. those not directly affected by proposals) and to diversifying the range of locally appropriate native species present. If possible, hedgerow trees should be planted.
185. Paragraph 24.9.1.10 states that landowners will be advised that if injurious weeds become problematical, they should be treated to avoid becoming dominant. In the opinion of the PPA authorities, if injurious weeds are likely to become problematical as a result of the actions of the developer, then the onus should be on the developer to treat (or finance treatment of) any resultant injurious weed infestation.

186. Paragraphs 24.9.2.24 – 24.9.2.27 deal with impacts on ditches (40m stretches for a period of two years maximum; culverts and bridges of shorter length, but retained for longer). The ES proposes that mitigation will be agreed with the Environment Agency, but states that areas of disturbed ground would be allowed to recolonise naturally. It should be noted that whilst natural recolonisation can be the most appropriate option in some cases, it is often selected because it is an easy option. In this case, it seems likely that in at least some locations natural recolonisation will result in establishment of vegetation of low biodiversity value. Where the affected ditches fall within coastal and floodplain grazing marsh priority habitat, and given that the acknowledgement that ditches will function as wildlife corridors in the landscape, it would seem appropriate for the proposals to result in enhancement of ditches for the benefit of biodiversity.

Chapter 25 – Land Use and Agriculture

187. The land, from a planning point of view, is unallocated and currently identified as open countryside. However, as set out in paragraph 146 of this document, it should be noted that the site falls within the Heysham Energy Coast where Lancaster City Council anticipates further energy investment. Attention is also drawn to the fact that the land is identified as a Mineral Safeguarding Area, as described in paragraph 149. It is the PPA authorities' view that the applicant should consider the viability of prior extraction before work commences on site.
188. The PPA authorities wish to ensure that the substation proposed by DONG Energy takes full account of the proposals and consents for the adjacent National Grid substation (13/00393/FUL: decision dated 23 July 2013). This applies in particular to the two schemes adopting, where practicable, a common approach to mitigation measures, on matters such as landscaping treatment and flood risk.

Chapter 26 – Landscape and Visual Impact Assessment

189. The PPA authorities have previously raised concerns regarding the applicant's methodology relating to the landscape and visual impact of the onshore impacts. These are set out in the 'Response of the PPA Authorities to the Draft Environmental Statement (June 2013)'. These concerns are summarised in paragraphs 3.17 and 15.1 of that document and express the view that the PPA authorities were, as a result, unable to fully assess landscape and visual impacts. These concerns have not been addressed within the final ES. At a meeting of the PPA authorities and DONG Energy (15 August 2013), DONG Energy agreed to meet with the PPA authorities' landscape specialists to discuss the outstanding issues.
190. The PPA authorities reserve the right to comment further on landscape and visual impact subject to the above subsequent meeting and agreement being reached on the methodology.

Chapter 27 – Archaeology and Cultural Heritage

191. Paragraph 27.9.2.9 of the Final ES states that the impact of the proposals upon Site 30 is assessed as 'moderate at most' even though the precise siting has yet to be established (derived from the Rochdale Envelope principle) and there is potential for its complete destruction of archaeology either by piling works for the substation (paragraph 27.9.2.3) or by de-watering (paragraph 27.9.2.4). Whilst the environmental information carried within the peat is irreplaceable, the presence of well-preserved peats within the Heysham Moss SSSI mean that there is a larger resource available and reduce the importance of this site somewhat, although the potential for information on the Mesolithic-Neolithic transition should not be dismissed. A moderate impact on

the palaeoenvironmental remains is thus a reasonable estimate. The site's potential for other types of remains (particularly artefacts of organic materials) must not be ignored, however and it is the PPA authorities view that an overall impact of major significance would be a fairer overall assessment.

192. Mitigation is discussed in several paragraphs, and a suggested scheme of works is set out in section 27.9.2.16 and in Table 27.7. Neither of these mentions the 'strip, map and record' or other assessment at the substation site, despite earlier comments noting the necessity of these and what is stated in Table 27.2 (top of page 10). As is noted in the chapter and above, the area of the substation has a reasonable potential for the preservation of prehistoric remains. These may be within the peat basin (Site 30) where rare organic materials may also survive, or outside the basin yet still on the fringes of Heysham and Brown Mosses where cut features and more robust materials could still survive.
193. Given this potential and the amount of disturbance that may result from the construction of the substation and the use of the adjacent temporary working area, a simple watching brief in this area does not appear adequate and a phased programme of work including both a coring survey and 'strip map and record' elements is required. The PPA authorities are satisfied that an amendment to requirement 29 (archaeology onshore) in the DCO would allow for this. There would be, however, no requirement to undertake any such mitigation work in the portion of the development site already occupied by the former railway sidings, on the assumption that any remains in this area would already have been destroyed.
194. With the exception of the immediate coastal strip, potential for as-yet unknown sites along the onshore cable route seems lower than within the substation site. In the coastal strip there is some potential for remains associated with the known WWII defences south of Heysham Harbour, and these may be disturbed by the cable route and works associated with HDD under the coastal salt marsh. Given the lower significance (relatively) of such remains, and the limited disturbance and lower potential along the main cable route, a simple watching brief is considered adequate mitigation for this section of the works.

Chapter 28 – Traffic and Transport

195. When cable system installation is to cross any roads then the work should preferably be undertaken using the Horizontal Directional drilling methodology that has been identified. The applicant indicates that this is subject to further investigation of the site and conditions, but given the busy nature of the A638 and to avoid significant impacts, the Highways Authority preferred option is the use of HDD at this road crossing. The Highways Authority would wish to have discussions with the developer / contractor to ensure that this method would not affect the road surface or create any weakness under the road structure.
196. The proposal for access to the cable working corridor via a temporary access road is acceptable. The main requirement is that all vehicles must be able to enter and leave the site in forward gear. There should be sufficient room (length and width) at the entrance to the access road to ensure that all vehicles are able to pull off the adopted highway and not have to wait on the highway creating an obstruction. There will also need to be a sufficient length of hard surfacing at the entrance to prevent loose material being transported onto the highway. The best place for this access would be south of the A638 where the proposed access for the Banks Renewables wind turbine development is to be located. The Section 278 works associated with that project

should form the basis of any agreement for this proposed work going forward. Any access road would be subject to same agreements as currently proposed with Banks Renewables for the erection of three wind turbines (11/00689/FUL: decision dated 28 November 2012).

197. With regard to the Carr Lane access the Highways Authority have concerns that the construction vehicles will cause disruption for other road users. This may require the creation of passing places along the road. This is likely to be particularly so with delivery of cable drums to site.
198. All abnormal loads traffic will have to use routes agreed by the Highways Authority, the Police and Developer and will be subject to a trial run prior to actual delivery. Timetable for any such deliveries should take into account external factors (such as timing of ferry arrivals / departures from Heysham). Clarification is required on the type and size of abnormal loads to be transported via M6 and come through Lancaster. Currently the document says these will be able to use the new Heysham-M6 link road, however, alternative arrangements should be considered at an early stage.
199. Site access to the main substation site will be from the existing roundabout to the north of the A638. As with proposals for works to south of the A638 there should be sufficient room to ensure that vehicles are not creating an obstruction on the existing highway.

Chapter 30 – Noise and Vibration

200. The PPA authorities are pleased to note that the potential for tonal noise from operation of the transformer station in close proximity to residential properties appears to have been addressed.
201. Provided that technical solutions are put in place to ensure that noise disturbance is not experienced by local residents and adequate monitoring arrangements are made, the PPA authorities do not wish to raise any concerns regarding noise.
202. In respect of noise resulting from onshore construction, the applicant is proposing to publish contact details for concerned members of the public to speak to a site representative. This could also be used by the public to raise any other concerns regarding construction.

Chapter 31 – Socio-economics

203. As there is not yet a firm indication of the construction port or the location of the operations and maintenance (O&M) base, it is difficult to ascertain the socio-economic impact (both beneficial and adverse) upon Cumbria and Lancashire. The potential construction ports include Liverpool, Belfast, Heysham and Barrow. These are also the potential locations for the O&M base, along with Workington, Douglas and Garston. An early decision on this would allow for detailed discussion around the necessary support that local partners can provide in supporting local recruitment, suitable training options, alerting the potential local supply chain and evaluating any impact on local services, housing and businesses which may need to be mitigated.
204. Reference is made to Table 31.19 'Summary of significance, mitigation and monitoring'. With regard to the onshore element of the project the 'Construction phase' section is of relevance. Slight beneficial impacts associated with the supply chain and construction have been identified in the ES. There are also slight negative impacts

associated with local services and disruption to local tourism and recreational businesses and activities. Given the scale of the overall investment associated with the project the overall local socio-economic benefits are disappointing. Furthermore there is no indication, despite earlier concerns raised by the PPA authorities, that mitigation measures will be put into place to maximise the use of local businesses and employment.

205. The PPA authorities would especially welcome early discussions around developing a local supply chain framework to ensure that local businesses are provided with ample opportunity to secure work and provide services during each phase of the development. For example, the authorities would want to explore opportunities for small and medium enterprises (SMEs) to benefit from innovative approaches to training schemes such as shared and community apprentices, or to be supported and mentored to achieve the necessary quality standards that DONG Energy would need to see in any contractors it employs.
206. DONG Energy has agreed in principle to the establishment of a Community Benefit Fund (CBF) if a DCO is granted. The PPA authorities welcome this, but recognise that the CBF falls outside the planning process. This will be paid to communities in recognition that the project may have national benefits but the impacts are local and long term.

Comments on Representations

207. The views of local members on the proposed development will be attached as Appendix 1 to this Local Impact Report when it is submitted to PINS.

Conclusions

208. In respect of the known impacts of the offshore elements of the project there are positive, neutral and negative impacts. The PPA authorities consider that the negative impacts of the offshore elements of the project are not significant overall, and in most cases they can be mitigated against by requirements in the DCO. These relate to the following matters:
 - Consideration of transport impacts arising onshore relating to offshore construction activity and from the subsequent operation of the wind farm;
 - Economic impacts, most importantly the need to maximise job creation, training and supply chain benefits;
 - Ensuring that radioactive particles in sea bed sediments are not mobilised onto shore;
 - Ensuring that a means of contact is provided to enable any concerns to be expressed by the public during construction;
 - Ensuring that decommissioning takes place.
209. The offshore seascape, landscape and visual impacts are only significant in EIA terms when considering the visual impact from high ground near the Cumbrian coast (e.g. the viewpoint at Black Combe, near Bootle). Due to the nature of this impact, it is not possible to undertake any mitigation other than selecting scenarios involving the lowest numbers of turbines.
210. In respect of the known impacts of the onshore elements of the project there are positive, neutral and negative impacts. The PPA authorities consider that the negative

impacts of the onshore elements of the project are not significant overall, and they can be mitigated against by requirements in the DCO and/or a s106 agreement. These relate to the following matters:

- Further consideration of avoidance, mitigation and compensation relating to the impacts on protected sites, and protected and priority species;
- Consideration of the viability of the prior extraction of minerals from the area of search corresponding with the location of the substation;
- Further assessment of the landscape and visual impacts of the substation proposals.
- The requirement for a “strip, map and record” process of mitigation during the construction of the substation;
- Safety on the local highways network, highways maintenance and the routing of abnormal loads from the M6;
- The need to maximise the use of, and support for, local businesses and employment.

211. Discussions are still required between the PPA authorities and the applicant on the landscape and visual impact of the proposals. The authorities also expect to be involved in decisions on the construction port and O&M base, and reserve the right to comment further on these topics.