

Abergelli Power Project No Significant Effects Report

Abergelli Power Limited
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1. No Significant Effects Report

1.1 Introduction

a) Background

1.1.1 This report represents a Habitats Regulations Assessment (HRA) Screening Document prepared as part of the Environmental Impact Assessment for Abergelli Power Station (hereafter referred to as the 'Project').

1.1.2 The report is designed to serve two key functions:

- To assist Abergelli Power Limited (APL, hereafter referred to as the Applicant) by making it easier to undertake and consult on a Habitat Regulations Assessment; and,
- To act as a confirmatory checklist that can be used to ensure that the relevant information needed for a Habitats Regulations Assessment has been undertaken.

b) The Habitats Directive and Habitat Regulations

1.1.3 The need for an assessment of impacts on Natura 2000 sites (the collective name for European designated sites, including Special Protection Areas (SPA) and Special Areas of Conservation (SAC)) is set out within Article 6 of the Habitats Directive, and transposed into UK law by the Habitats Regulations. The ultimate aim of the Habitats Directive 1992 is to "maintain or restore, at favourable conservation status, natural habitats and species of wild fauna and flora of Community interest" (Article 2(2)). This aim relates to habitats and species, not the European Sites themselves, although the European Sites have a significant role in delivering favourable conservation status.

1.1.4 It is a requirement of the Habitats Directive 1992 and the Conservation of Habitats and Species Regulations 2017 (the 'Habitats Regulations' (Plate 1.1)) that plans and projects are subject to 'Appropriate Assessment' if it is likely that they will lead to significant adverse effects on a Natura 2000 site, either alone or in combination with other plans or projects. It is the duty of the competent authority (the Secretary of State in relation to the Project) to make the determination as to whether significant adverse effects are likely and, if necessary, to then undertake the Appropriate Assessment. The promoter of the Project can be asked to supply information to inform those assessments and decisions.

1.1.5 The Habitats Directive applies the precautionary principle to European Sites. Consent should only be granted for plans and projects once the relevant competent authority has ascertained either that no likely significant effects will arise or (through the Appropriate Assessment) that there will be no adverse effect on the integrity of the European Site(s) in question. Where an appropriate assessment has been carried out and results in an assessment of adverse effects on integrity, or if uncertainty remains, consent must only be granted if there are no alternative

solutions and there are imperative reasons of over-riding public interest (IROPI) for the development, and compensatory measures have been secured.

1.1.6 Throughout this report, the term 'Habitat Regulations Assessment' is used to refer to the overall procedure required by the Habitat Regulations, as described above.

1.1.7 All the European sites referenced in this document are shown in Figure 1.

Plate 1.1: The legislative basis for Appropriate Assessment

Habitats Directive 1992

Article 6 (3) states that:

“Any plan of project not directly connected with or necessary to the management of the site but likely to have a significant effect thereon, either individually or in combination with other plans or projects, shall be subject to appropriate assessment of its implications for the site in view of the site’s conservation objectives.”

Conservation of Habitats and Species Regulations 2017

Regulation 63 states that:

“A competent authority, before deciding to ... give any consent for a plan or project which is likely to have a significant effect on a European site ... shall make an appropriate assessment of the implications for the site in view of that sites conservation objectives... The authority shall agree to the plan or project only after having ascertained that it not adversely affect the integrity of the European site”.

1.1.8 Preparation of this report has involved reference to Planning Inspectorate Advice Note Ten: Habitat Regulations Assessment relevant to Nationally Significant Infrastructure Projects (January 2016).

1.1.9 An updated version of Advice Note Ten was released by the Planning Inspectorate mid-December (publication dated November 2017). This No Significant Effects Report will be updated in-line with the Advice Note prior to DCO submission.

1.1.10 PINS Advice Note Ten requires an evaluation of the potential for the Project to require other consents which could also require Habitats Regulations Assessment by different competent authorities, and a statement as to whether the DCO boundary of the project overlaps with devolved administrations or other European Economic Area (EEA) States.

1.1.11 It is confirmed that the DCO boundary of the project does not overlap with areas of devolved administrations or with those of other EEA States.

1.1.12 The following competent authorities will need to conduct an HRA:

- the Secretary of State, in relation to the DCO application; and,
- Natural Resources Wales (NRW), in relation to the environmental permit application.

c) Project Description

1.1.13 The Project Site is approximately 30.66ha and is located near to the village of Felindre, Swansea (see Figure 1). The Abergelli Power Project development proposals are for a proposed 299MW Open Cycle Gas Turbine (OCGT) power station. The Abergelli Power Project comprises the following principal elements:

- A new Power Generation Plant;
- A new Electrical Connection; and,
- A new Gas Connection.

1.1.14 The Power Generation Plant, Gas Connection and Electrical Connection together with their construction access/laydown and future maintenance access/laydown requirements are referred to as the Project.

1.1.15 A detailed description of the Project is provided in Chapter 3 of the Preliminary Environmental Information Report (PEIR) (Ref. 1.1). A summary is provided in Table 1-1 below.

Table 1-1: Project Components

Project Component	Description	Consenting Route
Power Generation Plant	<p>An Open Cycle Gas Turbine (OCGT) peaking power generating station, fuelled by natural gas and capable of providing a rated electrical output of up to 299 Megawatts (MW). The Power Generation Plant comprises:</p> <ul style="list-style-type: none"> • Generating equipment including one Gas Turbine Generator with one exhaust gas flue stack and Balance of Plant (BOP) (together referred to as the 'Generating Equipment') which are located within the 'Generating Equipment Site'; • An Access Road to the Project Site from the B4489 which lies to the west, formed by upgrading an existing access road between the B4489 junction and the Swansea North Substation (the Substation) and constructing a new section of access road from the Substation to the Generating Equipment Site; and • A temporary construction 	<i>Development Consent Order (DCO) pursuant to the Planning Act 2008</i>

Project Component	Description	Consenting Route
	<p>compound for the storage of materials, plant and equipment as well as containing site accommodation and welfare facilities, temporary car parking and temporary fencing (the Laydown Area. A small area within the Laydown Area will be retained permanently (the Maintenance Compound).</p> <ul style="list-style-type: none"> • Ecological Mitigation Area – area for potential reptile translocation and ecological enhancement. Location and area to be confirmed post-consultation once discussions with NRW and CCS have been undertaken. Area likely to be commensurate with the extent of mitigation required and within the Order Limits of the Project. • Permanent parking and drainage to include: a site foul, oily water and surface water drainage system. 	
Gas Connection	<p>The Gas Connection will be in the form of a new above ground installation (AGI) and underground gas pipeline connection (the Pipeline). This is to bring natural gas to the Generating Equipment from the National Transmission System. The Pipeline will follow an approximate north-south route corridor, between the National Transmission System south of Rhyd-y-pandy Road and the Generating Equipment Site.</p>	<p><i>The Gas Connection will be consented through the Town and County Planning Act (TCPA) and is not part of the DCO Application. Though this Project element is not part of the DCO Application, APL is likely to seek powers of compulsory acquisition over the land required for the Gas Connection.</i></p>
Electrical Connection	<p>This is an underground electrical cable to export power from the Generating Equipment to the National Grid Electricity Transmission System (NETS).</p>	<p><i>The Electrical Connection will be consented through Permitted Development and is not part of the DCO Application. Though this Project element is not part of the DCO Application, APL is likely to seek powers of compulsory acquisition over the land required</i></p>

Project Component	Description	Consenting Route
		<i>for the Electrical Connection.</i>

1.1.16 Table 1-2 provides indicative maximum and minimum dimensions for the main plant items which will be present at the Generating Equipment Site.

Table 1-2: Parameters for Assessment

Building or Structure	Maximum Height (m) ¹	Minimum Height (m)	Maximum Length (m)	Maximum Width (m)
Gas turbine generator (including gas turbine, generator, air inlet filter house, air inlet duct, exhaust diffuser, and auxiliaries such as lube oil system, air dryers, fuel gas filter package, instrument air system, compressor washing)	27	-	50	40
Exhaust gas emission flue stack	45	35	-	12
Control room/office/ workshop	7	-	45	25
Emergency Generator	6	-	13	5
Gas receiving station (including compression station, emergency generator, Joule-Thompson boilers and other auxiliary control cabinets))	10	-	70	50
Gatehouse	4.5	-	9	8
Demineralised water tank	5	-	5	5
Fire water tank	15	-	15	15
Above ground installation (AGI)	3	-	85	35
Minimum offtake connection (MOC)	3	-	35	35
Pipeline inspection gauge facility	3	-	35	35
Fin Fan Coolers	10	28	-	14
Transformer compound (including generator step up transformer, unit and other	15	-	65	60

¹ Height is metres above site level of approximately 31.5 m above ordnance datum unless otherwise stated.

Building or Structure	Maximum Height (m) ¹	Minimum Height (m)	Maximum Length (m)	Maximum Width (m)
transformers, connection to underground cable and associated equipment.)				

1.1.17 The need and alternatives for the Project are discussed in detail Chapter 5 Alternatives Considered of the PEIR (Ref. 1.1).

1.2 Designated Sites Scoped into HRA Screening

1.2.1 Table 1-3, Table 1-4 and Table 1-5 provide a description of all the Natura 2000 sites within 10km of the Power Generation Plant of the Project and which are scoped into the HRA Screening. The tables set out the distance of the relevant Natura 2000 site from the proposed stack, and justification for inclusion in the HRA Screening. Using professional judgement it is considered that Natura 2000 sites located more than 10km are at no risk of being affected by the Project, either alone or in combination with other projects and plans. This approach is in line with the consultation response received from NRW, in which Natura 2000 sites located more than 10km from the Project can be dismissed.

Table 1-3: Crymlyn Bog SAC and Ramsar

Summary of Designating Features	Justification for Inclusion in HRA Screening
Crymlyn Bog SAC and Ramsar 6.7km south-east Crymlyn Bog, which covers approximately 299ha, comprises floodplain-valley mire located within a lowland coastal context and is the most extensive wetland of its type in Wales. The mire features a complex mosaic of vegetation types, supporting examples of swamp, tall herb fen, fen meadow and carr communities. The site supports an exceptionally wide range of rich and poor fen communities, some of which bear a close floristic affinity to certain floodplain mires in East Anglia. The presence of significant areas of saw sedge (<i>Cladium mariscus</i>) swamp is notable in extensive stands of this uncommon vegetation type, occurring at only three other sites in Wales. Crymlyn Bog is part of a larger inter-estuarine complex which includes the adjacent Pant y Sais fen.	
SAC Annex I habitats that are a primary reason for selection of this site: <ul style="list-style-type: none"> Transition mires and quaking bogs; and, Calcareous fens with <i>Cladium mariscus</i> and species of the <i>Caricion davallianae</i>. Annex I habitats present as a qualifying feature, but not a primary reason for selection of this site: <ul style="list-style-type: none"> Alluvial forests with <i>Alnus glutinosa</i> and <i>Fraxinus</i> 	Supports habitats sensitive to nitrogen and acid deposition.

Summary of Designating Features	Justification for Inclusion in HRA Screening
<p><i>excelsior (Alno-Padion, Alnion incanae, Salicion albae).</i></p> <p>Ramsar</p> <p><u>Designated under Ramsar Criterion 1:</u></p> <p>Largest example of valley floodplain topogenous mire in South Wales, and one of the largest surviving fens in the west of Britain. Very few other sites are known to support a comparable complexity and diversity of vegetation.</p> <p><u>Designated under Ramsar Criterion 2:</u></p> <p>Supports a substantial population of the nationally-rare slender cotton-grass <i>Eriophorum gracile</i>, and a rich invertebrate fauna including many rare and highly localised species.</p> <p><u>Designated under Ramsar Criterion 3:</u></p> <p>The site supports 199 vascular plant species including 17 regionally-uncommon and one nationally rare.</p>	

Table 1-4: Carmarthen Bay SAC

Summary of Designating Features	Justification for Inclusion in HRA Screening
<p>Carmarthen Bay SAC</p> <p>7km west</p> <p>Carmarthen Bay and Estuary is an example of a large estuarine site covering approximately 66,092ha on the south coast of Wales, encompassing the estuaries of the Rivers Loughor, Tâf and Tywi (coastal plain estuaries) and the Gwendraeth (a bar-built estuary). Carmarthen Bay is also an example of an extensive shallow bay which varies considerably in salinity, wave action, tides, and sediment types and therefore has a wide, varied range of flora and fauna associated with each of the zones. The estuary complex includes the sandbank of Helwick Bank, which is a linear shallow subtidal sandbank that is unusual in being highly exposed to wave action and tidal action, as well as several other smaller sandbanks in relatively shallow waters. The site also includes extensive areas of intertidal mudflats and sandflats as well as being a representative of pioneer glass wort (<i>Salicornia</i> spp.) saltmarsh which has a full transition sequence to upper salt-meadow and important sand dune habitats.</p>	
<p>Annex I habitats that are a primary reason for selection of this site:</p> <ul style="list-style-type: none"> • Sandbanks which are slightly covered by sea water all the time; • Estuaries; • Mudflats and sandflats not covered by seawater at low tide; • Large shallow inlets and bays; 	<p>Supports habitats sensitive to nitrogen deposition.</p>

Summary of Designating Features	Justification for Inclusion in HRA Screening
<ul style="list-style-type: none"> Salicornia and other annuals colonizing mud and sand; and, Atlantic salt meadows (<i>Glauco-Puccinellietalia maritimae</i>). <p>Annex II species that are a primary reason for selection of this site:</p> <ul style="list-style-type: none"> Twaite shad <i>Alosa fallax</i> <p>Annex II species present as a qualifying feature, but not a primary reason for site selection:</p> <ul style="list-style-type: none"> Sea lamprey <i>Petromyzon marinus</i>; River lamprey <i>Lampetra fluviatilis</i>; Allis shad <i>Alosa alosa</i>; and, Otter. 	

Table 1-5: Burry Inlet SPA and Ramsar

Summary of Designating Features	Justification for Inclusion in HRA Screening
<p>Burry Inlet SPA and Ramsar 8.6km south-west</p> <p>Burry Inlet is a large estuarine complex covering approximately 6,628ha and located between the Gower Peninsula and Llanelli in South Wales. It includes extensive areas of intertidal sand- and mud-flats, together with large sand dune systems at the mouth of the estuary. The site contains the largest continuous area of saltmarsh in Wales (2,200ha). The estuary experiences wide tidal fluctuations (about 8m) which have the consequence of exposing a large extent of intertidal sediments on a regular basis. These are mostly sandy, but muddy substrates are to be found in more sheltered areas. The Burry Inlet regularly supports large numbers of overwintering wildfowl and waders that feed in the saltmarshes and on the intertidal areas.</p>	
<p>SPA</p> <p>This site qualifies under Article 4.2 of the Birds Directive (2009/147/EC) by supporting populations of European importance of the following migratory species:</p> <p><u>Over winter:</u></p> <ul style="list-style-type: none"> Oystercatcher <i>Haematopus ostralegus</i>, 13,590 individuals representing at least 1.5% of the wintering Europe& Northern/Western Africa population (5 year peak mean 1991/2 - 1995/6); and, Pintail <i>Anas acuta</i>, 1,772 individuals representing at least 3.0% of the wintering Northwestern Europe 	<p>Supports habitats sensitive to nitrogen and acidit deposition.</p>

Summary of Designating Features	Justification for Inclusion in HRA Screening
<p>population (5 year peak mean 1991/2 - 1995/6).</p> <p><u>Assemblage qualification: A wetland of international importance.</u></p> <p>The area qualifies under Article 4.2 of the Directive (79/409/EEC) by regularly supporting at least 20,000 waterfowl</p> <p>Over winter, the area regularly supports 34,962 individual waterfowl (5 year peak mean 1991/2 – 1995/6) including: curlew <i>Numenius arquata</i>, black-tailed godwit <i>Limosa limosa islandica</i>, dunlin <i>Calidris alpina alpina</i>, knot <i>Calidris canutus</i>, shoveler <i>Anas clypeata</i>, shelduck <i>Tadorna tadorna</i>, oystercatcher <i>Haematopus ostralegus</i>, pintail <i>Anas acuta</i>, whimbrel <i>Numenius phaeopus</i>.</p> <p>Ramsar</p> <p><u>Designated under Ramsar Criterion 5:</u></p> <p><i>Assemblages of international importance.</i></p> <p>Species with peak counts in winter:</p> <p>41655 waterfowl (5 year peak mean 1998/99-2002/2003).</p> <p><u>Designated under Ramsar Criterion 6:</u></p> <p><i>Species/populations occurring at levels of international importance.</i></p> <p>Qualifying Species/populations (as identified at designation):</p> <p>Species with peak counts in spring/autumn:</p> <ul style="list-style-type: none"> Common redshank, <i>Tringa totanus totanus</i>, 857 individuals, representing an average of 0.7% of the GB population (5 year peak mean 1998/9 – 2002/3). <p>Species with peak counts in winter:</p> <ul style="list-style-type: none"> Northern pintail, <i>Anas acuta</i>, NW Europe 2687 individuals, representing an average of 4.4% of the population (5 year peak mean 1998/9 – 2002/3); Eurasian oystercatcher, <i>Haematopus ostralegus ostralegus</i>, Europe & NW Africa – wintering 14861 individuals, representing an average of 1.4% of the population (5 year peak mean 1998/9 – 2002/3); and, Red knot, <i>Calidris canutus islandica</i>, W & Southern Africa (wintering) 3618 individuals, representing an average of 1.2% of the GB population (5 year peak mean 1998/9 – 2002/3). <p>Species/populations identified subsequent to designation for possible future consideration under Criterion 6.</p> <p>Species with peak counts in winter:</p>	

Summary of Designating Features	Justification for Inclusion in HRA Screening
<ul style="list-style-type: none"> Northern shoveler, <i>Anas clypeata</i>, NW & C Europe 467 individuals, representing an average of 1.1% of the population (5 year peak mean 1998/9 – 2002/3). 	

1.3 Screening for Likely Significant Effects

a) Identification of Potential Impacts

1.3.1 The following potential pathways from all stages of the Project have been considered but scoped out due to the embedded mitigation detailed in the Preliminary Environmental Information Report (Ref. 1.1) designed to control and limit any likely effect, or the distance between the Project Site and the Natura 2000 sites making the pathway or effect unfeasible:

- Noise – As stated in Chapter 7: Noise and Vibration of the PEIR the loudest noise during construction of the Project will be 92 dB at source and operation of the Project 55 dB at the Project Site boundary. At a distance of over 6 km (for the nearest Natura 2000 site) this will reduce to well below existing ambient levels and will be inaudible. There are no Likely Significant Effect (LSE) on Natura 2000 sites within 10 km associated with noise;
- Vibration – As stated in Chapter 7: Noise and Vibration of the PEIR, in the absence of specific information on likely construction activities and plant, a qualitative assessment based upon professional judgement has been undertaken. Given the significant distance to residential receptors, this qualitative judgement made is that no significant vibration (medium or high magnitude impacts) is expected to result at residential NSRs from construction and therefore further assessment is scoped out. Given that the nearest Natura 2000 site is over 6 km from the nearest residential receptor it can be concluded that there will be no LSEs on Natura 2000 sites within 10 km during all stages of the Project associated with vibration;
- Water pollution – As stated in Chapter 8: Ecology of the PEIR, there is a hydrological connection between the Project Site and Carmarthen Bay SAC and Burry Inlet SPA and Ramsar via the Afon Llan. Leaving the Project Site the Afon Llan flows for approximately 12 km before reaching the Natura 2000 sites. The foul water drainage system from the operation of the Project will either drain to a septic tank or a package treatment plant within the Project Site but outside any area at risk of flooding. The processed water would then discharge on-site or to a nearby watercourse (the Afon Llan, or a watercourse that links to the Afon Llan. Discharges into to Afon Llan or any other watercourses linking to the Afon Llan will be controlled via various measures as outlined in the embedded mitigation. The embedded mitigation for construction and operation covers drainage and following best practice and guidelines, controlling pollution, storage of potential pollutants, and precautionary measures will help to limit the likelihood and effects of pollution incidents and/or runoff. In line with the drainage strategy the Project Site drainage will include filter drains / swales or oil interceptors as necessary to remove pollutants and all necessary treatment will take place within the Project Site before it is discharged to the

existing watercourses. There will be no LSEs on any Natura 2000 sites within 10 km associated with water pollution;

- Construction dust and vehicle movements – Fine particulate in the size range of PM₁₀ generated by construction activities and vehicle emissions can travel up to 1 km from a construction site if not adequately controlled, with larger dust particles travelling much shorter distances. The nearest Natura 2000 site is over 6 km away from the Project Site and, as such, there will be no LSEs on any Natura 2000 sites within 10km associated with dust;
- Direct habitat loss or fragmentation – There will be no construction or requirement to remove any habitat within any Natura 2000 site, as such there will be no LSEs on Natura 2000 sites within 10 km associated with direct habitat loss or fragmentation;
- Direct disturbance to species – There will be no construction or requirement to remove any habitat within any Natura 2000 site, as such there will be no LSEs on Natura 2000 site within 10 km associated with direct disturbance to species;
- Alteration of management – The Project will not cause the alteration of site management actions at any Natura 2000 site within 10 km, as such there will be no LSEs on Natura 2000 sites associated with alteration of management;
- Increase in lighting – As stated in the Outline Lighting Plan (Ref. 1.2), Maintaining a 'dark site' and minimising the level of light spill as far as reasonably practicable, are the underpinning factors that will be sought in the design of the lighting for the Project Site. During the hours of darkness, only critical light sources will remain in operation, these include emergency exit illumination and site security lighting at a low level. Whilst the site access roads shall not be lit to avoid impacting the local environment including wildlife and adjacent residents as much as is reasonably practicable. The nearest Natura 2000 site is over 6 km from the Project Site and as such light spill will not measurably increase onto Natura 2000 sites within 10 km. There will be no LSEs on Natura 2000 sites within 10 km associated with lighting from the Project; and
- Spread of invasive species – As stated in the Chapter 8: Ecology of the PEIR an invasive species management plan will be used to control the spread of invasive species. There will be no construction within, or requirement to access, any Natura 2000 site. The spread of invasive species into Natura 2000 sites will not be caused by the Project. There will be no LSEs on Natura 2000 sites associated with spread of invasive species.

1.3.2 The potential pathways by which the Project could impact the qualifying features of each Natura 2000 sites are as follows:

- Potential changes in air quality from operation of the Project, resulting in effects on habitats in Crymlyn Bog SAC and Ramsar, Carmarthen Bay SAC and Bury Inlet SPA and Ramsar.

1.3.3 Transport related emissions are most relevant to sites within 200m of a major road. The Design Manual for Roads and Bridges (DMRB) (Ref. 1.3) identifies 200m as the distance beyond which the contribution of traffic emissions to local pollutant concentrations is considered to be negligible. There are no roads within 200m of any European site that are forecast to receive anything other than a nominal short term change in vehicle flows as a result of this scheme. Transport related emissions have not been considered any further in this report.

b) Potential Impacts on Air Quality

- 1.3.4 There is the potential for the Abergelli Power Project to result in changes to air quality that could subsequently affect the habitats within the Natura 2000 sites identified above. The air quality assessment, Chapter 6 of the Abergelli Power Project PEIR, sets out predicted changes in concentrations of emissions associated with the construction, operational and decommissioning phases of the development.
- 1.3.5 The analysis is summarised in the matrices in Appendix B.
- 1.3.6 There are two measures of particular relevance in this assessment. The first is the concentration of oxides of nitrogen (known as NO_x) in the atmosphere. The main importance is as a source of nitrogen, which is then deposited on adjacent habitats either directly (known as dry deposition, including directly onto the plants themselves) or washed out in rainfall (known as wet deposition). The deposited nitrogen can then have a range of effects, primarily growth stimulation or inhibition², but also biochemical and physiological effects such as changes to chlorophyll content. NO_x may also have some effects which are un-related to its role in total nitrogen intake (such as the acidity of the gas potentially affecting lipid biosynthesis) but the evidence for these effects is limited and they do not appear to occur until high annual concentrations of NO_x are reached. The guideline atmospheric concentration of NO_x advocated by Government for the protection of vegetation is 30 micrograms per cubic metre (µg m⁻³), known as the Critical Level (Ref. 1.4). This is driven by the role of NO_x in nitrogen deposition and in particular in growth stimulation and inhibition. If the total NO_x concentration in a given area is below the critical level, it is unlikely that nitrogen deposition will be an issue, unless there are other sources of nitrogen (e.g. ammonia). If it is above the critical level then local nitrogen deposition from NO_x could be an issue and should be investigated.
- 1.3.7 The second important metric is a direct determination of the rate of the resulting nitrogen deposition. Calculating nitrogen deposition rates has the advantage of being habitat specific and, for many habitats, of being directly relatable to measurable effects on the ground through scrutiny of published dose-response relationships. In contrast, the NO_x critical level is entirely generic and cannot be related to dose-response relationships. Unlike NO_x, the nitrogen deposition rate below which current evidence suggests that effects should not arise is different for each habitat. The rate (known as the Critical Load) is provided on the UK Air Pollution Information System website (www.apis.ac.uk) and is expressed as a quantity (kilograms) of nitrogen over a given area (hectare) per year (kgNha⁻¹yr⁻¹). More recently, there has also been research compiled³ which investigates nitrogen dose-response relationships in a range of habitats.

² The addition of nitrogen is a form of fertilization, which can have a negative effect on habitats over time by encouraging more competitive plant species that can force out the less competitive species that are more characteristic of such habitats.

³ Compiled and analysed in Caporn, S., Field, C., Payne, R., Dise, N., Britton, A., Emmett, B., Jones, L., Phoenix, G., S Power, S., Sheppard, L. & Stevens, C. 2016. Assessing the effects of small increments of atmospheric nitrogen deposition (above the critical load) on semi-natural habitats of conservation importance. Natural England Commissioned Reports, Number 210.

- 1.3.8 For completeness, rates of acid deposition were also calculated. Acid deposition derives from both sulphur and nitrogen. It is expressed in terms of kiloequivalents (keq) per hectare per year. The thresholds against which acid deposition is assessed are referred to as the Critical Load Function. The principle is similar to that for a nitrogen deposition Critical Load.
- 1.3.9 The LSEs are assessed in relation to aerial pollutant concentrations (NO_x only) and the resultant change in acid and nitrogen deposition at Natura 2000 sites within 10km of the proposed stack.
- 1.3.10 Table 1-6 presents the process contribution (PCs) from the proposed Project (worst case) and the resultant acid and nitrogen deposition rates in comparison to the relevant critical loads for each of the Natura 2000 sites identified within 10km of the Project Site. The worst case has been assumed to be the maximum number of hours that the plant can operate and a stack height of 35 m. The Power Generation Plant is a peaking site and will therefore only operate during periods of high power demand. It is therefore anticipated that the site will normally operate for 1,500 hours per year, but may operate for up to a maximum of 2,250 hours per year. The maximum number of hours that the plant can operate will be set out in the sites Environmental Permit and this operating period cannot be exceeded. A minimum stack height of 35 m has been proposed by APL for the proposed Project and a maximum height of 45 m. The assessment of impacts at ecological receptors has, therefore, used a stack height of 35 m as this represents the worst-case in terms of dispersion.
- 1.3.11 In April 2017 a High Court judgment⁴ (colloquially known as the Ashdown Forest judgment) partially quashed the Lewes District and South Downs National Park Joint Core Strategy in England. This was on the basis that the HRA supporting the Joint Core Strategy only considered its own contribution in determining whether there would be a likely significant air quality effect on Ashdown Forest SPA. The judge ruled that the HRA had thus explicitly failed to undertake any form of assessment ‘in combination’ and that this was in contravention of the Conservation of Habitats and Species Regulations 2010 (now repealed and replaced by the 2017 Regulations). Previously, air quality impact assessments enabled likely significant effects to be immediately dismissed without further consideration if the contribution of the project in question fell below 1% of the critical level (for NO_x) or critical load (for nitrogen deposition). In that context no assessment ‘in combination’ was required. However, in light of the above High Court judgment, this HRA does not rely on the use of that 1% threshold to dismiss the need to consider ‘in combination’ effects.
- 1.3.12 The information in Table 1-6 and 1-7 is based on the air quality modelling provided by the Applicant with a stack height of 35m (the worst case as noted above). The results of the modelling are set out in Appendix A Table 1-9, Table 1-10 and Table 1-11 in which the worst case has been provided for each relevant Nature 2000 site using the receptor most sensitive to acid and nitrogen for each site.

⁴ Wealden District Council v Secretary of State for Communities and Local Government and others, 2017 [EWHC] 351 <http://www.bailii.org/ew/cases/EWHC/Admin/2017/351.html> [accessed 26/10/2017]

1.3.13 In the tables below, nitrogen and acid deposition are rounded up to two decimal places to avoid false precision⁵. As such, the lowest deposition rates are reported as '< 0.01 kgN/ha/yr' and represent negligible deposition.

⁵ Convention dictates that the number of significant figures used in the presentation of data should be limited to what is warranted by the precision of those data.

Table 1-6: Potential Effects of Air Quality – NO_x Daily and Annual Process Contributions and Predicted Environmental Concentrations, and Process Contributions and Predicted Environmental Concentrations as a % of the Air Quality Standard

Name	Distance from stack (km)	Most sensitive receptor	NO _x Daily (µg/m ³)		NO _x Annual (µg/m ³)		NO _x Daily (µg/m ³)		NO _x Annual (µg/m ³)	
			PC	PC as % AQS	PC	PC as % AQS	PEC	PC as % AQS	PEC	PEC as % AQS
Carmarthen Bay and Estuaries SAC	7.2	Estuaries	3.70	5%	0.01	0.02%	27.5	37%	11.98	40%
Crymlyn Bog SAC/Ramsar	6.8	Transition mires and quaking bogs	3.62	5%	0.00	0.01%	35.4	47%	15.90	53%
Burry Inlet SPA and Ramsar	8.9	Saltmarshes	3.35	4%	0.01	0.02%	24.5	33%	10.79	36%

Table 1-7: Potential Effects of Air Quality – Nitrogen and Nitrogen Acid

Name	Distance from stack (km)	Most sensitive receptor	Nitrogen			Nitrogen acid		
			Empirical Critical Load Nitrogen (kg N/ha/yr)	Process Contribution (35m stack) (kg N/ha/yr)	Background (kg N/ha/yr)	Empirical Critical Load Nitrogen acid (keq H ⁺ /ha/yr – HNO ₃)	Process Contribution (35m stack) (keq H ⁺ /ha/yr – HNO ₃)	Background (keq H ⁺ /ha/yr – HNO ₃)
Carmarthen Bay and Estuaries SAC	7.2	Estuaries	20-30	<0.01	15.1	Not sensitive	<0.01	1.33
Crymlyn Bog SAC/Ramsar	6.8	Transition mires and quaking bogs	5-10	<0.01	11.5	0.70	<0.01	1.06
Burry Inlet SPA and Ramsar	8.9	Saltmarshes	20-30	<0.01	15.1	2.02	<0.01	1.33

1.4 Summary of Likely Significant Effects Screening

- 1.4.1 Only NO_x has been modelled as an emitted pollutant; no other relevant pollutants are expected (such as sulphur dioxide). Impacts due to emissions of sulphur dioxide and, by inference deposition of sulphur, have been scoped out of the assessment since natural gas is an inherently low sulphur fuel. However, background levels of sulphur deposition are considered in the assessment of acidification.
- 1.4.2 For all receptors, the annual (long-term) average and 24hr (short-term) average PEC (Predicted Environmental Concentration i.e. the total concentration including the Project) for NO_x is forecast to be well below the critical level of 30 micrograms/cubic metre (for long-term NO_x) and 75 micrograms/cubic metre (for short-term NO_x). Since the critical level will not be breached there are no grounds to conclude a likely significant effect based on atmospheric concentrations alone.

a) Nitrogen Disposition

- 1.4.3 Considering the forecast change in nitrogen deposition rates due to the Project, the PC is extremely small being less than 0.01kgN/ha/yr in all instances. This is so small that it effectively represents no forecast change in nitrogen deposition, compared to the baseline.
- 1.4.4 For Carmarthen Bay and Estuaries SAC and Burry Inlet SPA and Ramsar site, where the current background levels for nitrogen are within the critical loads for the most sensitive receptor at each of the sites, these increases are concluded not to have a LSE on either site.
- 1.4.5 For Crymlyn Bog SAC and Ramsar the background level is already in exceedance of the critical load for nitrogen for the most sensitive receptor at the site. However, the increase arising from the Project is deemed to be so small that it can be concluded the increase will not have a LSE on the site.
- 1.4.6 In published data on nitrogen dose-response relationships (Ref. 1.5) it has been shown that no habitats studied to date are responsive to such small incremental changes in nitrogen deposition.
- 1.4.7 The studies also indicate that the effect of adding a given amount of nitrogen is not simple, linear and additive as is often assumed but depends heavily on the existing nitrogen deposition. As such the response of vegetation to nitrogen deposition is far more subtle than the 'black and white' critical load concept suggests. In bog, for example, at background deposition rates of 15 – 20kgN/ha/yr an increase of 3.3kgN/ha/yr would be required to reduce species richness by one species. Note that this does not mean any species would be 'lost' from the affected area, just that one species would occur at a reduced frequency. The study illustrates the fairly subtle effect of nitrogen deposition at moderately high background rates.

- 1.4.8 Although woodland and fen are not included in the report in terms of deriving dose-response relationships the report indicates that the same broad pattern of response can be applied to fen and woodland habitats (at least at woodland edges which will be more exposed to pollutants).

b) Nitrogen Acid Desposition

- 1.4.9 None of the receptors for Carmarthen Bay and Estuaries SAC are sensitive to nitrogen acid deposition.
- 1.4.10 For Crymlyn Bog SAC and Ramsar the PC is less than 0.01keqH⁺/ha/yr and so low as to be effectively zero. Although the background level is above the critical load for the most sensitive receptor, any increase less than 0.01keqH⁺/ha/yr will not cause a measurable exceedance of the critical load for nitrogen acid at the site.
- 1.4.11 For Burry Inlet SPA and Ramsar the PC is less than 0.01keqH⁺/ha/yr and so low as to be effectively zero. Furthermore, the background level is below the critical load for the most sensitive receptor, and as such any increase less than 0.01keqH⁺/ha/yr will not cause an exceedance of the critical load for nitrogen acid at the site.

1.5 In-Combination Effects

- 1.5.1 The Conservation of Habitats and Species Regulations 2017 state that when considering whether a specific plan or project is likely to have a significant effect on a Natura 2000 Site, consideration should be given to the effect of the proposal alone and in-combination with other plans and projects. Part of the HRA process is to identify the plans, programmes and projects that could have in-combination effects. The PINS Advice Note Ten: Habitat Regulations Assessment relevant to Nationally Significant Infrastructure Projects (January 2016) states that in assessing in-combination effects the following projects should be considered:

- Projects that are under construction;
- Permitted application(s) not yet implemented;
- Submitted application(s) not yet determined;
- All refusals subject to appeal procedures not yet determined;
- Projects on the National Infrastructure's programme of projects⁶; and
- Projects identified in the Swansea Unitary Development Plan and emerging development plans (Swansea Deposit Local Development Plan) with appropriate weight being given as they move closer to adoption, recognising that much information on relevant proposals will be limited and the degree of uncertainty which may be present.

- 1.5.2 The projects which have been researched are shown in Table 1-8 below.

⁶ <https://infrastructure.planninginspectorate.gov.uk/projects/>

Table 1-8: Projects Considered In-Combination

# / Planning Application		Name	Description
Under Construction			
1	2006/0773 (varied by 2009/1520 and 2011/1143) and consecutive temporary planning permissions 2007/2513, 2009/0062, 2009/1585, 2011/1311 and 2014/0913 (varied by 2016/1270)	Felindre Business Park	Strategic business park for B1 and B2 uses to accommodate emerging industries, high tech manufacturing, high level services, ancillary uses, associated car parking, landscaping and access roads (outline). The site has been laid out and is effectively a serviced site, however no buildings have been constructed. Park and ride schemes also operate on match days to the Liberty football stadium; and for car parking for the Driver and Vehicle Licensing Agency (DVLA) site in Longview Road, Morriston.
2	2013/0135	Abergelli Solar Farm	Installation of ground mounted array of solar panels, inverter substations and 2.4 m high fencing on land at Abergelli Farm. This development will be located adjacent to the Gas Connection.
3	2013/0865	Cefn Betingau Phase 1, Morriston	Construction of 9MW solar park consisting of installation of up to 135,000 pv panels and 9 inverter/transformer cabins and a single control building
4	2014/0739	Gelliwern Isaf solar park	6MWe solar park at Gelliwern Isaf Farm - installation of a solar PV array, construction of a storage room, inverter cabin, a substation, switchgear building and fencing
5	2014/1022	Brynwhilach Solar Park	Construction of 12.69MWe solar park consisting of installation of up to 47,000 pv panels and 8 inverter/transformer stations, 2 substations, storage container, new access tracks, security fencing/cctv and associated equipment and infrastructure work.
6	2007/1250 (varied by 2017/0325/S73)	Former J R Steelworks, Bryntwyod	Retention of use of land as timber recycling centre including processing of wood, wooden materials, associated plant and machinery and previously tipped inert material together with on-site storage of wood chip material, construction of building for the dry storage of recycled wood waste and the creation of a 1m high clay bund around southern, western and northern boundaries of the site without complying with conditions 2, 3, 5, 9, 10, 11, 14 and 16 of planning permission 2007/1250 granted 11th December.

7	2012/1221	Mynydd y Gwair Wind Farm	Installation of 16 wind turbines (maximum height to blade tip of 127 m with a hub height of 80 metres), with a maximum generating capacity of 48MWe, associated tracks and ancillary infrastructure.
Permitted but not implemented			
8	2013/0795	Tyle Coch Mawr Wind Farm	Installation of four 5 kW wind turbines 20.7 m to tip and associated infrastructure.
9	2013/1835	Felindre Business Park	Construction of park and ride/share car park (approximately 480 spaces) with new vehicular access, security office, toilet, engineering and associated works, including lighting, fencing, drainage attenuation and landscaping.
10	2015/1529 (appeal ref 4369653)	Llettyr Morfil Farm	Construction of a 4.9 MW solar park (approx. 8.8 ha) including photovoltaic panels, four inverter stations, centre station, new access tracks, security fencing, security cameras and associated equipment and infrastructure works. Allowed on appeal in June 2016
11	2015/0308	Plot 8 Felindre Strategic Business Park	Two/three storey private hospital development with associated landscaping, site roads and car parking
12	2016/1522	Griffiths Waste Management Site, Bryntwyod Llangyfelach Swansea SA5 7LP	Demolition of existing waste management facility buildings and construction of replacement buildings and associated infrastructure
13	2008/0912	Former Walters Yard Pontlliw Swansea	Construction of 67 dwellings with associated access, roads, parking, open space and demolition of existing buildings. Approved with S106 in March 2016.
Submitted but not determined			
14	2011/0345	Land at Llewellyn Road, Penllergaer	Construction of up to 200 residential units with associated access (outline).
15	2012/0721	Royal Fern Golf Resort	Application to vary Condition 8 of Outline Planning Permission 2008/0154 to extend the period for the submission of the reserved matters for a further three years in relation to the proposed development of 18 hole championship and 9 hole par 3 golf courses, golf club house including health facilities, sauna, swimming pool, gymnasium, golf school and academy, 80 golfing lodges, approximately 135 housing plots, green keepers flat, associated infrastructure, car parking and landscaping

			(outline).
16	2014/0977	Parc Ceirw, Cwmrhydyceirw Quarry, Swansea	Proposed cessation of landfill and other operations enabled by residential development of circa 300 dwellings, public open space and associated highway and ancillary works (outline)
17	2017/1822/OUT	Land West Of Llangyfelach Road Tirdeunaw	Outline planning application (with all matters reserved apart from strategic access junctions) for residential led mixed use development, to be developed in phases, including up to 1950 dwellings, link road, local centre provision of a primary school, community facilities, Public Open Space including facilities for children, and areas of landscaping (including sustainable drainage systems), outdoor sports provision including playing pitches, associated services, infrastructure and engineering works including new vehicular access, improvements to the existing highway network, new roads, footpaths / cycleways, and ancillary works.
18	2016/1478	Land North Of Garden Village Swansea	Hybrid planning application (with all matters reserved apart from strategic access) for residential-led mixed use development, to be developed in phases, including approximately 750 residential units; provision of 1 no. Primary school; circa 280m ² - 370m ² flexible A1-A3 / D1 floorspace; open space including parks; natural and semi natural green space; amenity green spaces; facilities for children and young people; outdoor sports provision including playing pitches; associated services, infrastructure and engineering works including new vehicular accesses, improvement works to the existing highway network, new roads, footpaths/cycleways; landscaping works (including sustainable drainage systems), ecological mitigation works and ancillary works. Submitted in July 2016 and currently pending determination. (The application would be referable to Welsh Ministers if the Council are minded to approve).
19	2017/0986/FUL	Former Civic Centre Penllergaer Swansea SA4 9GH	Construction of 80 no. residential units with associated access and landscaping
Identified / Allocated (and not referenced above)			
20	UDP Policy EC1(3)	Swansea Vale Strategic Mixed-Use	25 ha allocated employment land

		Site	
21	UDP Policy EC1(10)	Land at Bryntywod, Felindre (Local Employment Site)	15.8 ha allocated employment land
22	UDP Policy EC1(12)	Penllergaer Business Park (Local Employment Site)	8.2 ha allocated employment land
23	UDP Policy HC13	West of Morriston Hospital	Hospital related activities
24	LDP Policy SD G	Northwest of M4 J46, Llangyfelach	Comprehensive mixed use development of up to 850 homes during the Plan period, incorporating a mix of low-medium and high density residential, a new district centre with commercial units, primary school, a mix of public realm, open space and play provision, new community buildings, and a strategic business park
25	LDP Policy SD A	South of Glanffrwd Road, Pontarddulais	Comprehensive, residential led, development of up to 720 homes, incorporating a primary school, leisure and recreation facilities, public open space and appropriate community facilities, employment and commercial uses
26	LDP Policy SD C	South of A4240, Penllergaer	Comprehensive, residential led, mixed use development of up to 750 homes during the Plan period (and up to 1,000 homes beyond the Plan period), incorporating primary school, leisure and recreation facilities, public realm, public open space and appropriate community and commercial uses
27	LDP Policy SD E	North of Clasemont Road, Morriston	Comprehensive, residential led, mixed use development of up to 675 homes during the Plan period, incorporating primary school, leisure and recreation facilities, public realm, public open space and appropriate community and commercial uses
28	LDP Policy SI 4	Morriston Hospital	Land adjacent to Morrison Hospital is safeguarded solely for the future development and expansion of the Hospital. Development at this location is restricted to healthcare related uses in association with the beneficial use of Morriston Hospital. Proposals must be delivered alongside appropriate new and enhanced highway infrastructure that will significantly improve the existing substandard road access leading to the site. A new access road is proposed as part of this proposal (Strategic Transport

			Strategy Table 9.2) to resolve road capacity issues from the roundabout immediately north of M4 J46.
29	LDP Policies RP7 and RP8, paragraph 2.14.28 (Preferred Locations)	Former Tip Site, Felindre	Preferred areas for new waste management facilities include the former Tip site at Felindre. The site at Felindre is identified specifically for the potential to accommodate a Combined Heat and Power (CHP) Facility which could provide heat or power for adjacent proposed developments.
30	LDP Policy H1.11	Land at Ramsey Road, Clydach	60 dwellings
31	LDP Policy H1.21	Land east of Pontarddulais Road, Gorseinon	90 dwellings
32	LDP Policy H1.26	Land at Carmel Road and Bryntirion Road, Pontlliw	100 dwellings
33	LDP Policy H1.30	Land north of Llewellyn Road, Penllergaer	50 dwellings
34	LDP Policy H1.31	Land at Bolgoed Road, Pontarddulais	50 dwellings

1.5.3 Projects with point source emissions have been considered for the in-combination assessment where deposition of those emissions may be geographically coincident with this Project. Two projects have been identified to be included in the in-combination assessment:

- 2015/1716. Land at Abergelli Farm near Felindre Swansea SA5 7NN. Emergency standby electricity generation facility comprising: modern modular diesel generator units (up to 14 in total), transformers, diesel storage tanks, boundary treatment including acoustic screening, access improvements and associated works.
- LDP Policies RP7 and RP8, paragraph 2.14.28 (Preferred Locations). Former Tip Site, Felindre. Preferred areas for new waste management facilities include the former Tip site at Felindre. The site at Felindre is identified specifically for the potential to accommodate a Combined Heat and Power (CHP) Facility which could provide heat or power for adjacent proposed developments.

1.5.4 The planning application for the Land at Abergelli emergency standby electricity generation facility was refused on 16 October 2015. The applicant has stated that there is no intention of resubmitting the application or to appeal of the decision notice (and the time for submitting an appeal has now expired).

1.5.5 The Former Tip Site, Felindre Combined Heat and Power (CHP) Facility is a preferred location in the Deposit Local Development Plan policy, and is therefore at an early stage in the (potential) consenting process. As such no planning

application or background information is available to undertake in-combination air quality modelling or assessment. The Deposit Local Development Plan is currently at Examination and as a result only limited weight can be attached to the allocation.

1.6 Conclusion

a) Introduction

- 1.6.1 This section summarises the potential effects of the proposed Project and considers whether the requirement to proceed to Stage Two of the HRA process (Appropriate Assessment) is triggered in relation to the proposed Project.
- 1.6.2 An Appropriate Assessment is necessary when the screening exercise concludes that a project, alone or in combination with other plans or projects, is likely to give rise to significant effects on a Natura 2000 site. When required, an Appropriate Assessment considers the impact of the project on the integrity of the Natura 2000 site having regard to the site's conservation objectives.

b) Potential Effects

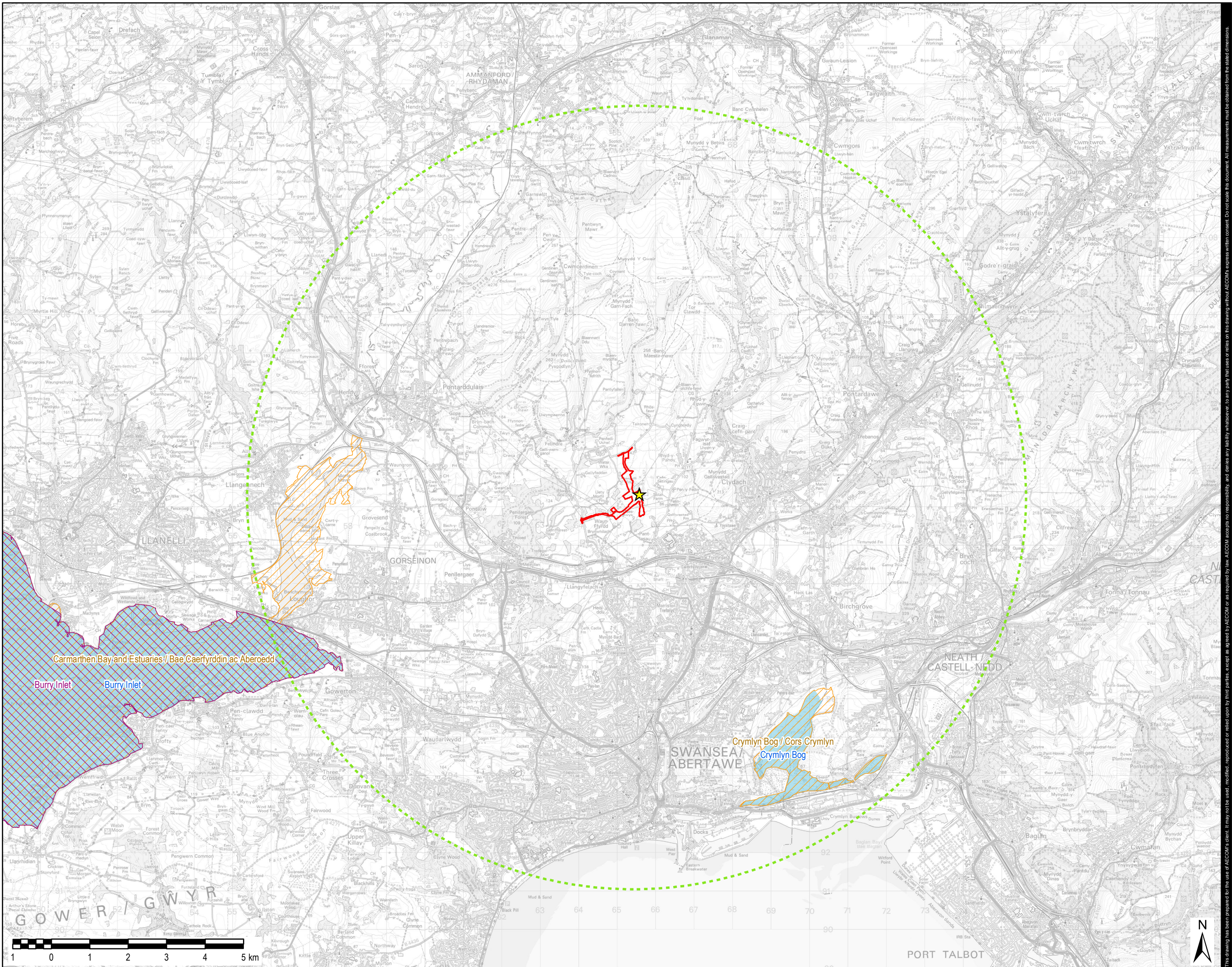
- 1.6.3 There are no LSEs on Natura 2000 sites within 10km of the proposed development associated with air quality- nitrogen and nitrogen acid deposition as a result of NOx emissions from the proposed Project alone or in-combination with projects.
- 1.6.4 No other impacts arising from the construction, operation or decommissioning of the Project have the potential to have an impact on any Natura 2000 sites.
- 1.6.5 Therefore the Appropriate Assessment – Stage Two of the HRA – process is not required.
- 1.6.6 The Applicant remains committed to consultation with NRW and will continue to discuss the air quality aspects of the proposed development in the period up to submission of the DCO application and in the period before Examination. It is the Applicant's intention to agree a Statement of Common Ground with NRW covering the matters included in this report and it is proposed that further meetings and dialogue will take place as necessary between the Applicant and NRW with that objective.

References

- Ref. 1.1 AECOM. (2017). Abergelli Power Project Preliminary Environmental Information Report.
- Ref. 1.2 WSP (2017). Abergelli Power Station Outline Lighting Strategy. November 2017.
- Ref. 1.3 DMRB (2007). Design Manual for Roads and Bridges, Volume 11 Environmental Assessment, Section 3 Environmental Assessment Techniques, Part 1 HA 207/07, Air Quality (May 2007).
- Ref. 1.4 APIS (2017). Critical Loads and Critical Levels - a guide to the data provided in APIS, Section 3.3 Critical Levels, Table 1: Critical levels of air pollutants Available at http://www.apis.ac.uk/overview/issues/overview_Cloadslevels.htm#_Toc279788054 [Access on 29/11/2017].
- Ref. 1.5 Caporn, S., Field, C., Payne, R., Dise, N., Britton, A., Emmett, B., Jones, L., Phoenix, G., S Power, S., Sheppard, L. & Stevens, C. (2016). Assessing the effects of small increments of atmospheric nitrogen deposition (above the critical load) on semi-natural habitats of conservation importance. Natural England Commissioned Reports, Number 210.

Figure 1.1 Location of Project Site and Natura 2000 Sites

- ★ Proposed Stack Location
- Project Site Boundary
- 10km Study Area
- Special Area of Protection
- Special Area of Conservation
- Ramsar



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AECOM Internal Project No:

60542910

Drawing Title:

NATURA 2000 SITES

Scale at A3: 1:90,000

Drawing No:

FIGURE 1

Drawn: Chk'd: App'd: Date:

GM CC CA 13/12/17

Appendix A Air Quality Modelling: Table 1-9, Table 1-10 and Table 1-11

Table 1-9: Process Contributions of NOx

Natura 2000 Site	Most Sensitive Habitat Type	NOx Daily (µg/m3)		NOx Annual (µg/m3)		NOx Daily (µg/m3)		NOx Annual (µg/m3)	
		PC	PC as % AQS	PC	PC as % AQS	PC	PC as % AQS	PC	PC as % AQS
			75 µg/m3		30 µg/m3		75 µg/m3		30 µg/m3
Carmarthen Bay and Estuaries SAC	Estuaries	3.70	5%	0.01	0.02%	27.5	37%	11.98	40%
Crymlyn Bog SAC & Ramsar	Transition mires and quaking bogs	3.62	5%	0.00	0.01%	35.4	47%	15.90	53%
Burry Inlet SPA & Ramsar	Saltmarsh; Acid Grassland	3.35	4%	0.01	0.02%	24.5	33%	10.79	36%

Table 1-10: Process Contributions, Critical Loads and Predicted Environmental Concentration of Nitrogen

Natura 2000 Site	Most Sensitive Habitat Type	Process Contribution	CL (kg N/ha/yr)	CL (kg N/ha/yr)	PC as % Min CL	PC as % Max CL	N Dep (kg N/ha/yr)	PEC	PEC as % Min CL	PEC as % Max CL
			Min CL	Max CL			Background	Max		
Carmarthen Bay and Estuaries SAC	Estuaries	0.001	20	30	0.00%	0.00%	15.1	15.1	76%	50%
Crymlyn Bog SAC & Ramsar	Transition mires and quaking bogs	0.001	5	10	0.01%	0.01%	11.5	11.5	230%	115%
Burry Inlet SPA & Ramsar	Acid Grassland	0.001	10	15	0.01%	0.01%	15.1	15.1	151%	101%

Table 1-11: Process Contributions, Critical Loads and Predicted Environmental Concentration of Nitrogen Acid

Natura 2000 Site	Most Sensitive Habitat Type	Process Contribution	Critical Load (keq/ha/yr) Max			Process Contribution	Background	PEC	
			CLminN	CLmaxN	CLmaxS	% CLF		PEC	% CLF
Carmarthen Bay and Estuaries SAC	Estuaries	0.0001	N/A	N/A	N/A	0.00%	1.33	1.41	0%
Crymlyn Bog SAC & Ramsar	Transition mires and quaking bogs	0.00004	0.32	0.70	0.37	0.01%	1.06	1.06	153%
Burry Inlet SPA & Ramsar	Acid Grassland	0.0001	0.44	2.02	1.58	0.00%	1.33	1.33	66%

Appendix B HRA Screening Matrices for the Abergelli Power Project

Planning Inspectorate

Advice Note 10

Habitats Regulations Assessment

HRA Screening Matrices for the Abergelli Power Project

Potential Effects

Potential effects upon the European site(s)* which are considered within the submitted HRA report (AECOM, 2017) are provided in the table below.

Effects considered within the screening matrices

Designation	Effects described in submission information	Presented in screening matrices as
Crymlyn Bog SAC and Ramsar Carmarthen Bay SAC Burry Inlet SPA and Ramsar	<ul style="list-style-type: none">• Increase in concentration of NO_x• Increase in deposition of Nitrogen• Increase in deposition of Acid	<ul style="list-style-type: none">• Air quality

* As defined in Advice Note 10.

STAGE 1: SCREENING MATRICES

The European sites included within the screening assessment are:

Crymlyn Bog SAC

Crymlyn Bog Ramsar

Carmarthen Bay SAC

Burry Inlet SPA

Burry Inlet Ramsar

Evidence for, or against, likely significant effects on the European site(s) and its qualifying feature(s) is detailed within the footnotes to the screening matrices below.

Matrix Key:

✓ = Likely significant effect **cannot** be excluded

✗ = Likely significant effect **can** be excluded

C = construction

O = operation

D = decommissioning

HRA Screening Matrix 1 Carmarthen Bay and Estuaries SAC

Name of European site and designation: Carmarthen Bay and Estuaries SAC						
EU Code: UK0020020						
Distance to NSIP: 7km						
European site features	Likely effects of NSIP					
Effect	Air quality			In combination effects		
Stage of Development	<i>C</i>	<i>O</i>	<i>D</i>	<i>C</i>	<i>O</i>	<i>D</i>
Estuaries		xa			xb	
Sandbanks which are slightly covered by sea water all the time;		xa			xb	
Mudflats and sandflats not covered by seawater at low tide;		xa			xb	
Large shallow inlets and bays		xa			xb	
Salicornia and other annuals colonizing mud and sand; and,		xa			xb	
Atlantic salt		xa			xb	

<i>meadows (Glauco-Puccinellietalia maritimae).</i>						
<i>Twaite shad Alosa fallax</i>		xa			xb	
<i>Sea lamprey Petromyzon marinus</i>		xa			xb	
<i>River lamprey Lampetra fluviatilis</i>		xa			xb	
<i>Allis shad Alosa alosa</i>		xa			xb	
<i>Otter Lutra lutra</i>		xa			xb	

Evidence supporting conclusions:

- a. Table 1-6, Table 1-8, Table 1-9 and Table 1-10 of the No Significant Effects report show the potential effects of NO_x, nitrogen and nitrogen acidity on the most sensitive receptor of Carmarthen Bay and Estuaries SAC. Section 1.5.2 – 1.5.3 states that the process contributions are extremely small for nitrogen (<0.01kgN/ha/yr) and the current background levels for nitrogen are within the critical loads for the most sensitive receptor at the site the increase is concluded not to have a LSE on the site. Section 1.5.8 states that none of the receptors for the site are sensitive to nitrogen acidity deposition.
- b. Table 1-7 and Sections 1.6.3 – 1.6.5 provide a summary of the projects and plans provided by the local authority for an in-combination assessment. One project that was refused planning has point source emissions; the promoter has stated they do not intend to resubmit the application or to appeal against the refusal. There is a point source emitter within the Local Development Plan; however there is no information on the plan since it is a preferred location only and as such it is not possible to obtain air quality data. It is concluded that there are no point source emitters that would contribute to an in-combination effect with the emissions from the proposed Project.

HRA Screening Matrix 2 Crymlyn Bog SAC

Name of European site and designation: Crymlyn Bog SAC						
EU Code: UK0012885						
Distance to NSIP: 6.7km						
European site features	Likely effects of NSIP					
Effect	Air quality			In combination effects		
Stage of Development	C	O	D	C	O	D
Transition mires and quaking bogs		xa			xb	
Calcareous fens with <i>Cladium mariscus</i> and species of the <i>Caricion davallianae</i>		xa			xb	
Alluvial forests with <i>Alnus glutinosa</i> and <i>Fraxinus excelsior</i> (<i>Alno-Padion</i> , <i>Alnion incanae</i> , <i>Salicion albae</i>)		xa			xb	

Evidence supporting conclusions:

- a.** Table 1-6, Table 1-8, Table 1-9 and Table 1-10 of the No Significant Effects report show the potential effects of NO_x, nitrogen and nitrogen acidity on the most sensitive receptor of Crymlyn Bog SAC; this is more sensitive than the features listed for Crymlyn Bog Ramsar . Section 1.5.4 – 1.5.7 states that the process contributions are extremely small for nitrogen (<0.01kgN/ha/yr) and the current background levels for nitrogen are in exceedance of the critical loads for the most sensitive receptor at the site the increase is concluded not to have a LSE on the site due to the extremely low level of increase. Section 1.5.9 states that the process contribution for nitrogen acidity deposition is zero.
- b.** Table 1-7 and Sections 1.6.3 – 1.6.5 provide a summary of the projects and plans provided by the local authority for an in-combination assessment. One project that was refused planning has point source emissions; the promoter has stated they do not intend to resubmit the application or to appeal against the refusal. There is a point source emitter within the Local Development Plan; however there is no information on the plan since it is a preferred location only and as such it is not possible to obtain air quality data. It is concluded that there are no point source emitters that would contribute to an in-combination effect with the emissions from the proposed Project.

HRA Screening Matrix 3 Crymlyn Bog Ramsar

Name of European site and designation: Crymlyn Bog Ramsar						
Ramsar designation has no EU Code, [SAC] EU Code for this site is: UK0020020						
Distance to NSIP: 6.7km						
European site features	Likely effects of NSIP					
Effect	Air quality			In combination effects		
Stage of Development	<i>C</i>	<i>O</i>	<i>D</i>	<i>C</i>	<i>O</i>	<i>D</i>
Topogenous fen		xa			xb	
Slender cotton-grass (<i>Eriophorum gracile</i>)		xa			xb	
Peatland invertebrate assemblage, including fen raft spider (<i>Dolomedes plantarius</i>)		xa			xb	
Plant species assemblage		xa			xb	

Evidence supporting conclusions:

- a. Table 1-6, Table 1-8, Table 1-9 and Table 1-10 of the No Significant Effects report show the potential effects of NO_x, nitrogen and nitrogen acidity on the most sensitive receptor of Crymlyn Bog SAC (bog and transition mire); this is more sensitive than the features listed for Crymlyn Bog Ramsar. Section 1.5.4 – 1.5.7 states that the process contributions are extremely small for nitrogen (<0.01kgN/ha/yr) and the current background levels for nitrogen are in exceedance of the critical loads for the most sensitive receptor at the site the increase is concluded not to have a LSE on the site due to the extremely low level of increase. Section 1.5.9 states that the process contribution for nitrogen acidity deposition is zero.
- b. Table 1-7 and Sections 1.6.3 – 1.6.5 provide a summary of the projects and plans provided by the local authority for an in-combination assessment. One project that was refused planning has point source emissions; the promoter has stated they do not intend to resubmit the application or to appeal against the refusal. There is a point source emitter within the Local Development Plan; however there is no information on the plan since it is a preferred location only and as such it is not possible to obtain air quality data. It is concluded that there are no point source emitters that would contribute to an in-combination effect with the emissions from the proposed Project.

HRA Screening Matrix 4 Burry Inlet SPA

Name of European site and designation: Burry Inlet SPA						
EU Code: UK9015011						
Distance to NSIP: 8.6km						
European site features	Likely effects of NSIP					
Effect	Air quality			In combination effects		
Stage of Development	<i>C</i>	<i>O</i>	<i>D</i>	<i>C</i>	<i>O</i>	<i>D</i>
Pioneer, low-mid, mid-upper saltmarshes		xa			xb	
Acid grassland		xa			xb	
Calcareous grassland (using base cation)		xa			xb	
Freshwater		xa			xb	

Evidence supporting conclusions:

- a. Table 1-6, Table 1-8, Table 1-9 and Table 1-10 of the No Significant Effects report show the potential effects of NO_x, nitrogen and nitrogen acidity on the most sensitive receptor of Burry Inlet SPA. Section 1.5.2 – 1.5.3 states that the process contributions are extremely small for nitrogen (<0.01kgN/ha/yr) and the current background levels for nitrogen are within the critical loads for the most sensitive receptor at the site the increase is concluded not to have a LSE on the site. Section

1.5.10 states that the process contribution for nitrogen acidity deposition is so low ($<0.01\text{keqH}^+/\text{ha}/\text{yr}$) that it will not cause an exceedance of the critical load for nitrogen acidity at the site.

- b.** Table 1-7 and Sections 1.6.3 – 1.6.5 provide a summary of the projects and plans provided by the local authority for an in-combination assessment. One project that was refused planning has point source emissions; the promoter has stated they do not intend to resubmit the application or to appeal the refusal. There is a point source emitter within the Local Development Plan; however there is no information on the plan since it is a preferred location only and as such it is not possible to obtain air quality data. It is concluded that there are no point source emitters that would contribute to an in-combination effect with the emissions from the proposed Project.

HRA Screening Matrix 5 Burry Inlet Ramsar

Name of European site and designation: Burry Inlet Ramsar						
Ramsar designation has no EU Code, [SPA] EU Code for this site is: UK9015011						
Distance to NSIP: 8.6km						
European site features	Likely effects of NSIP					
Effect	Air quality			In combination effects		
Stage of Development	<i>C</i>	<i>O</i>	<i>D</i>	<i>C</i>	<i>O</i>	<i>D</i>
Tidal flats		xa			xb	
Salt marshes		xa			xb	
Estuarine waters		xa			xb	
Sand/shingle shore (including dune systems)		xa			xb	
Rocky shores		xa			xb	

Evidence supporting conclusions:

- c. Table 1-6, Table 1-8, Table 1-9 and Table 1-10 of the No Significant Effects report show the potential effects of NO_x, nitrogen and nitrogen acidity on the most sensitive receptor of Burry Inlet Ramsar. Section 1.5.2 – 1.5.3 states that the process contributions are extremely small for nitrogen (<0.01kgN/ha/yr) and the current background levels for nitrogen are within the critical loads for the most sensitive receptor at the site the increase is concluded not to have a LSE on the site. Section 1.5.10 states that the process contribution for nitrogen acidity deposition is so low (<0.01keqH⁺/ha/yr) that it will not cause an exceedance of the critical load for nitrogen acidity at the site.

- d. Table 1-7 and Sections 1.6.3 – 1.6.5 provide a summary of the projects and plans provided by the local authority for an in-combination assessment. One project that was refused planning has point source emissions; the promoter has stated they do not intend to resubmit the application or to appeal against the refusal. There is a point source emitter within the Local Development Plan; however there is no information on the plan since it is a preferred location only and as such it is not possible to obtain air quality data. It is concluded that there are no point source emitters that would contribute to an in-combination effect with the emissions from the proposed Project.