

BIOMASS FUELLED POWER PLANT
Land off Ballyvannon Road, near Glenavy, County Antrim

PRELIMINARY ARTICLE 6 ASSESSMENT
TEST OF LIKELY SIGNIFICANCE

November 2008

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1.0 INTRODUCTION

1.1 The Conservation Designations and Protection Directorate within Northern Ireland Environment Agency (NIEA) requested that an Article 6 assessment as outlined in the Habitats Directive be completed for the development of a biomass fuelled power plant near Glenavy, Co. Antrim. Rose Energy Ltd engaged MARENCO Environmental Consultants to complete the assessment. The output from this Article 6 assessment is a 'Test of Likely Significance'. This document seeks to address this Test of Likely Significance. The statements contained within this Test of Likely Significance are not new in themselves but are a drawing together of the information and conclusions presented within the Rose Energy Environmental Statement¹ and supporting documents, as provided with the Planning Application for the proposed biomass fuelled power plant at Glenavy.

2.0 BRIEF DESCRIPTION OF THE PROJECT

2.1 Rose Energy Ltd proposes to develop a 100 Megawatt (Mw) thermal input, 30 Mw electrical output power plant, primarily using poultry bedding as a fuel supplemented with meat and bone meal (MBM). It is proposed to develop the biomass fuelled power plant on a 5 hectare area of land off Ballyvannon Road, 2km to the south west of Glenavy, Co. Antrim. The site lies immediately to the west of the industrial rendering plant of Ulster Farm By-Products Limited. The main elements of the power plant are:

- Fuel reception building
- Fuel handling and storage building, sufficient for four days supply
- Meat and bone meal silo
- Boiler house (42m high)
- Turbine hall and switchgear
- Ash bag filtration and silo
- Cooling towers (a bank of three, approximately 15m high)
- Chimney (80m high and 2.9m external width)
- NIE metering and switch yard
- Waste water treatment building
- Surface water and temperature attenuation lagoon (SuDS)
- Access roads (ingress and egress) and internal circulatory route

¹ Rose Energy Proposed Biomass Fuelled Power Plant. Environmental Statement. The Graham Bolton Planning Partnership Ltd. May 2008.

- Marshalling and manoeuvring area outside the fuel reception building and associated vehicle wash down area
- Gas oil tank
- Emergency generator
- Sprinkler tanks and pump house
- Office and parking area
- Weighbridge and associated office and access control point
- Landscaping with 2.4m security fence

2.2 The proposed power plant development is situated on 5 ha of agricultural grassland. The grassland, scattered trees and scrub, and approximately 250m of native species-rich hedgerow will be removed to accommodate the development proposals. A construction and materials compound will be set up on 2.5 ha of agricultural grassland adjacent to the site. This grassland will be restored following construction of the plant.

2.3 A narrow strip of broadleaved woodland separates the site from the Glenavy River. This river discharges into Lough Neagh approximately 1km west of the site.

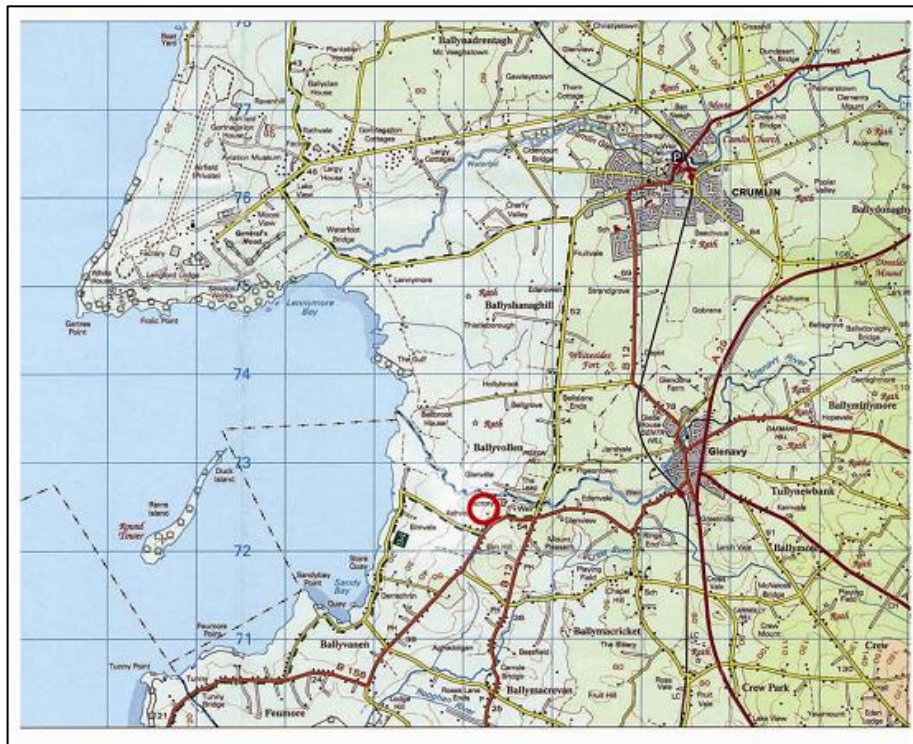


Figure 1: Site Location
(OSNI Licence No 2412)

3.0 BRIEF DESCRIPTION OF THE NATURA 2000 SITES

Lough Neagh Special Protection Area (SPA):

- 3.1 Lough Neagh is situated approximately 1km west of the proposed development site. It is a large, shallow, eutrophic lake contained within Counties Antrim, Down, Londonderry and Tyrone. Lough Neagh is the largest freshwater lake in the UK and is one of the top ten sites in the UK for wintering waterfowl (based on annual mean numbers). The SPA also includes the smaller lakes, Lough Beg (24 km to north west of proposed development site) and Portmore Lough (3 km south of proposed development site). The main habitats within the SPA are open water with beds of submerged aquatic vegetation, species-rich wet grassland, reedbed, islands, swamp, fen and carr woodland. The SPA supports internationally important numbers of wintering waterfowl and is internationally important for a number of wildfowl species including Whooper Swan, Bewick' Swan, Pochard, Tufted Duck, Scaup and Goldeneye. It is also internationally important for breeding Common Tern.
- 3.2 Numbers and population data for the SPA qualifying species, as sourced from the NIEA Citation for Lough Neagh Special Protection Area (SPA) is presented over page in Table 3.1.

Table 3.1 SPA Qualifying Species

Species	Number of Individuals	Population (5 year peak average 1989/90 to 1993/94 unless stated)
Common Tern breeding population	200 pairs in 1995	7.5% of the breeding population in Ireland in 1995
Great Crested Grebe breeding population	500 pairs	New feature since designation
Great Crested Grebe passage population	2440	(1995 max count)
Bewick's Swan wintering population	251	10% of Irish population 1.5% of Western and Central Europe population
Whooper Swan wintering population	923	6.5% of Irish population 5.4% of Icelandic population
Great Crested Grebe wintering population	741	24.7% of Irish population
Pochard wintering population	32,165	80.4% of Irish population 9.2% of North-west European population
Tufted Duck wintering population	23,476	58.7% of Irish population 3.1% of North-west European population
Scaup wintering population	2,557	85.2% of Irish population
Goldeneye wintering population	12,479	~ 100% of Irish population 4.2% of North-west European population
Little Grebe wintering population Assemblage species	390	26% of Irish population
Cormorant wintering population Assemblage species	781	3.9% of Irish population
Greylag Goose wintering population Assemblage species	129	3.4% of Irish population
Shelduck wintering population Assemblage species	165	2.3% of Irish population
Wigeon wintering population Assemblage species	3,447	2.8% of Irish population
Gadwall wintering population Assemblage species	114	19% of Irish population
Teal wintering population Assemblage species	1,868	2.9% of Irish population
Mallard wintering population Assemblage species	4,982	10% of Irish population
Shoveler wintering population Assemblage species	173	2.7% of Irish population
Coot wintering population Assemblage species	6,676	26.7% of Irish population
Mute Swan wintering population Assemblage species	1,375	22.9% of Irish population
Breeding bird assemblage: Great Crested Grebe, Gadwall, Pochard, Tufted Duck, Snipe, Redshank, Common Gull, Lesser Black-backed Gull, Black-headed Gull, Shelduck, Teal, Shoveller, Lapwing and Curlew.		

4.0 DESCRIBE THE INDIVIDUAL ELEMENTS OF THE PROJECT LIKELY TO GIVE RISE TO IMPACTS ON THE NATURA 2000 SITE

Information relating to individual elements of the Rose Energy Project is described below which could typically be perceived to have the potential to give rise to impacts on the Natura 2000 site. This information is presented here to allow NIEA to easily refer to summarised detail of the project elements in order to understand the source and reasoning behind the descriptions provided in Sections 5.0 to 8.0 of the Test of Likely Significance.

4.1 Construction and operation of the Power Plant

4.1.1 It is expected that the construction period will last approximately two and a half years. This would encompass the actual construction period but not initial paving works, such as setting up the construction compound, nor subsequent restoration works.

4.1.2 The proposed power plant development is situated on 5 ha of agricultural grassland. The grassland, scattered trees and scrub, and approximately 250 m of native species-rich hedgerow will be removed to accommodate the development proposals. A construction and materials compound will be set up on 2.5 ha of agricultural grassland adjacent to the site. This grassland will be restored following the construction of the plant. The proposed development site is located approximately 1 km from the eastern boundary of the SPA.

A wintering bird survey² submitted with the ES noted that the project site is located well outside the potential disturbance limits for wintering wildfowl and waders. A breeding bird survey³ conducted on the site during 2008 found no SPA feature breeding species using the site. Breeding waders are not known to breed within the proposed site and buffer zone (RSPB and NIEA *pers. comm.*). **There will be no impact on any feature species listed in the Lough Neagh SPA citation. The nearest suitable habitat is more than 2 km away.**

² Rose Energy Project, Winter Bird Survey, March 2008, Clonaog Environmental

³ Rose Energy Project, Breeding Bird Survey, June 2008, Clonaog Environmental

4.1.3 Further extensive investigation and research (see environmental statement) has identified that there will be no direct impacts resulting from the development itself, apart from the removal of a hedgerow along the eastern boundary, provided that appropriate care and attention is undertaken. Replacement planting for the hedgerow will be undertaken and further mitigation measures are recommended to create habitats, such as around the proposed SuDS/attenuation lagoon where a suitable habitat for snipe may be formed. The review of potential impacts due to emissions from the chimneystack indicates that adverse impacts are unlikely based upon the use of conservative assessments of deposition.

4.1.4 Studies submitted with the environmental statement to date include:

- Lough Neagh – desktop review August 2007, MARENCO
- Winter Bird Survey, March 2008, Clonaog Environmental
- Breeding Bird Survey, June 2008, Clonaog Environmental
- Potential Impact on Flora, Fauna and Soils, April 2008, Agri-Food and Bio Sciences Institute (AFBI)
- Assessment of the Impacts on the Aquatic Ecology of the Glenavy River and Lough Neagh, April 2008, Dr Chris Harrod, School of Biological Sciences, Queen's University Belfast
- Provisional Fisheries Impact Assessment (March 2008), Glenavy River, Paul Johnston Associates Fisheries Consultants
- Terrestrial Ecology Assessment, February 2008, MARENCO
- Air Quality Impact Assessment, May 2008, The Airshed
- Effluent, May 2008, Engreen Environmental Consultants Ltd

In addition, the following paper has also been provided to NIEA:

- Milk and dioxins from Rose Energy, July 2008, AFBI

4.2 Overhead power cables.

4.2.1 The proposed power plant will be connected to the Northern Ireland electricity grid initially via an underground cable for the first 1 km and thereafter by 14 km of 33 kv transmission lines erected on poles. No pylons for transmission of generated electricity are proposed.

4.2.2 **A wintering bird survey conducted on the site and the nearby shores of Lough Neagh noted that the site does not appear to be a flyway zone for any of the birds recorded.** The 14 km of overhead cables will be assessed as part of a separate Northern Ireland Electricity (NIE) Planning Application and it is expected that as a minimum, line marking based on best current practice will apply in order to prevent bird collisions.

4.3 Discharge to Glenavy River

4.3.1 The waste cooling waters will be treated along with other effluent and passed to the SuDS lagoon which will also be used to allow the heated water to cool before discharge to the Glenavy River under a discharge consent issued by the NIEA. The water treatment building is located at the northern end of the main site. The SuDS and temperature lagoon is at the northernmost extremity and extends to approximately 90 m by 35 m at its widest point.

4.3.2 The control of pollution is central to the operation of Integrated Pollution Prevention and Control (IPPC) and the proposed power plant will require a Permit to be issued by NIEA under the IPPC regime. **An IPPC Permit will only be issued if it can be demonstrated by Rose Energy that there will be no detrimental impact to the environment from the Power Plant operations.**

4.3.3 Appropriate arrangements to control all potential polluting activities and pollutants will form part of the Permit. The following provides a brief synopsis of the potential polluting substances and type of arrangements which will be implemented.

- Substances that have the potential for water pollution are the auxiliary fuel, lubricating oils, insulating and cooling oils of the transformers, auxiliary agents for the treatment of the water, chemicals used for flue gas cleaning and effluent streams.
- The gas oil storage tank will be insulated within a bund or be self-bunded; such an arrangement provides primary and secondary containment. Delivery of gas oil would be via tankers, with the oil pumped directly into the storage tank equipped with an overflow prevention device. The receipt and off-loading of oil will be on a concrete surface including

slopes and catching barriers on the circumference and incorporating a mineral oil separator with automatic closing.

- The oil supply system to the turbine/generator set will be installed in an oil retention trough. The same precautions for off-loading of oil will be in force except for the transfer, which would be by vacuum rather than pumped means. Similar arrangements will be made for the installation of other items of equipment involving oil usage, with installations designed to be set within oil troughs and full containment of potential spillages and off-loading arrangements.
- Conditioning agents for the water and steam cycle will be delivered within suitable containers and stored in compliance with the appropriate regulations in the machine hall. The respective dosing pumps will be installed in the immediate vicinity to preclude unnecessary movement of containers and the potential for spillage. All activities will be carried out on concrete surfaces within an enclosed building.
- All human and industrial effluent will be controlled at all times within primary and secondary containment. The effluent will be treated before discharge to the Glenavy River under a discharge consent issued by NIEA. For expanded information on effluent treatment and discharge see Rose Energy supporting document on effluent⁴. It is anticipated that an effluent treatment system based on bio-treatment and membrane separation will be installed to achieve the necessary effluent discharge quality.
- As part of the IPPC application stage, a full BAT assessment will be undertaken to assess the various technologies and determine which combination and particular system design represents BAT for this facility and the receiving environment. This BAT assessment will include the use of a detailed H1 assessment of the impact of the discharge on the river. Current design estimates are that the discharge will be approximately 60m³/hr. The effluent will be treated to a sufficiently clean standard to allow it to be discharged to a salmonid river. All the target values will be determined and set by the NIEA prior to issuing of the IPPC

⁴ Rose Energy Proposed Biomass Fuelled Power Plant Effluent Report, Engreen Environmental Consultants Ltd, May 2008.

Permit. The H1 assessment will also involve modelling the spread of the discharge through the river using a recognised plume spreads model. Average and peak impact concentrations will be compared to the relevant water quality standards and assessment to ensure that BAT is being achieved.

4.3.4 All operations will be strictly controlled as part of the site Environmental Management System.

4.3.5 Rapid surface water run-off from the site during construction and operation will be controlled by developing the site and suitable attenuation measures to restrict the potential run-off to the maximum level from a green field site. A Drainage Assessment⁵ was commissioned from Doran Consulting Ltd and the report is a supporting document to and forms part of the Environmental Statement. It is proposed to include a generic drainage system to drain the site and construction compound. The SuDS proposed is a lagoon which would be constructed at the lowest part of the site adjacent to the river. This would have capacity to accommodate 1100 m³ and would include a controlled discharge to the river. The lagoon would be constructed at the outset to accommodate surface water run-off from the construction compound and also to use it to settle silt carried during the construction phase. It is proposed to adopt the SuDS scheme to assist with the attenuation of heated water and effluent which will need to be cooled before it can be discharged to the Glenavy River under the NIEA discharge consent.

4.3.6 Two reports were commissioned to assess potential impacts of the proposal to discharge treated waste water and effluent to the Glenavy River^{6&7}. The discharge of heated effluent is only likely to have a detrimental ecological effect at extremely low flow rates, that is between 95th and 99th percentiles of temperature. If there are extended periods of low flow it is assessed that many sensitive taxa will face considerable ecological stress and, if capable, will attempt to move downstream. Other less mobile taxa will be unable to do so and will be adversely affected by the consequences of reduced dissolved

⁵ Rose Energy Project, Drainage Assessment, Doran Consulting Ltd

⁶ Rose Energy Project, Provisional Fisheries Impact Assessment (March 2008), Glenavy River, Paul Johnston Associates Fisheries Consultants

⁷ Rose Energy Project Assessment of the Impacts on the Aquatic Ecology of the Glenavy River and Lough Neagh, April 2008, Dr Chris Harrod, School of Biological Sciences, Queen's University Belfast

oxygen concentrations under such low flow conditions. However, it is proposed that with respect to the thermal effluent, that a more restrictive discharge policy could be employed to minimise any potential impact. **It is to be noted that the proposed development and discharge to the Glenavy River is approximately 1 km from Lough Neagh, and that the effects of thermal discharges on the lough and SPA will be negligible.**

4.4 Air Emissions

4.4.1 The proposed power plant not only requires planning permission but also a Permit under the Integrated Pollution Prevention and Control Regulations (NI) 2003. To obtain the IPPC Permit it must be shown that the proposed plant is fully compliant with the mandatory emissions standards under European and UK and Northern Ireland law. Those mandatory requirements are The Air Quality Limit Value Regulations (NI) 2002, updated by the policy and air quality objectives and standards of The Air Quality Strategy for the UK and Northern Ireland, and the emissions' limits imposed under the Waste Incineration Directive (2000/76/EC). The air quality standards look to the future and require that all proposed new plant meet the standards which are scheduled to become statutory requirements, initially in 2010. With the exception of exempt plants, all new power plants including that proposed by Rose Energy must meet WID emission limits now; those emission limits include for dioxins and furans.

4.4.2 The Rose Energy biomass fuelled power plant has been designed to comply with the air quality standards and WID emission limits; in practice it is expected that emissions will be significantly lower than those standards and limits. These standards and emission limits are considerably tighter than those under which coal and oil fired power stations in the United Kingdom and Northern Ireland currently operate. Without full compliance with the air quality and emission limits, which will be continuously monitored and regulated by the NIEA, no IPPC Permit will be issued and maintained. Without the IPPC Permit the proposed Rose Energy plant cannot operate.

4.4.3 The power plant will use fluidised bed technology as an efficient form of combustion. Combustion gases will be held at above 850°C > 2 seconds to ensure complete combustion of the fuel. Gases from the process will be passed through a flue gas treatment process to control emissions of toxic

gases, vapours and particles before being discharged from a 80 m high stack. The proposed methods for combustion and abatement measures are well proven.

4.4.4 Emissions from the incineration of any material, whether classified as a fuel or waste can be a matter of concern as all combustion produces pollutants which, in sufficient concentration, may be harmful to flora and fauna. In response to the need to assess emissions to air and their potential impact, an Air Quality Impact Assessment (AQIA) was commissioned from The Airshed⁸. Two aspects of the impact upon sensitive receptors were considered:

- The impacts from air concentrations of SO₂ and NO₂ on sensitive ecosystems; and
- The effect of acid deposition on the receiving environment in terms of critical loads

4.4.5 The AQIA demonstrated that the emissions from the proposed installation are unlikely to result in any air quality objective or limit value being exceeded.

4.4.6 AFBI were commissioned to conduct an analysis of the potential impacts to soils, flora and animals from emissions to the atmosphere^{9&10}. The assessment covered impacts to freshwaters including Lough Neagh and Portmore Lough. **Despite using worst case assumptions, no significant adverse impacts from heavy metal emissions were detected by the impact analysis and no exceedance related effects of acidity on freshwaters were detected.**

4.4.7 Relatively small amounts of dioxin will be produced. The projected maximum dioxin emission of 6.8×10^{-9} TEQ g/s equates to an annual emission of 0.215 TEQ g year⁻¹. These amounts are small in comparison to an atmospheric emissions inventory total for the UK for 2005 of 200 TEQ g year⁻¹.

⁸ Air Quality Impact Assessment, May 2008, The Airshed

⁹ Potential Impact on Flora, Fauna and Soils, April 2008, AFBI

¹⁰ Milk and dioxins from Rose Energy, July 2008, AFBI

4.4.8 In conclusion, the emissions from the proposed installation are unlikely to result in any air quality objective or limit value being exceeded. **Ecological impacts from air emissions are therefore not likely to be significant.**

5.0 DESCRIBE ANY LIKELY DIRECT, INDIRECT OR SECONDARY IMPACTS OF THE PROJECT ON THE NATURA 2000 SITE

5.1 Size and scale

5.1.1 The proposed project is situated on 5 ha of grassland. An additional 2.5 ha of grassland will be used as a temporary construction and materials compound. The project is located approximately 1 km from the eastern boundary of the SPA.

5.2 Land-take

5.2.1 There will be 5 ha of grassland developed as part of the project. None of this land is within the boundary of the SPA.

5.3 Distance from the Natura 2000 site or key features of the site

5.3.1 The project is located approximately 1 km from the eastern boundary of the site and well outside of potential disturbance limits for key feature species.

5.4 Resource requirements

5.4.1 Not applicable to this project

5.5 Emissions

5.5.1 Construction works are likely to involve the handling and use of several potential contaminants of which fuels are likely to be the most significant. Contaminants can, if improperly managed, pose a risk to surface watercourses. Dewatering during construction can result in water containing high concentrations of suspended solids (and potentially other contaminants) being discharged to nearby streams or rivers, which could potentially have a detrimental effect on water quality in the SPA. A comprehensive site drainage system incorporating settlement lagoons (SuDs) will be developed to control runoff from the site during construction activities prior to discharge to the Glenavy River under a Discharge Consent issued by NIEA.

- 5.5.2 During operation cooling waters will be treated along with other effluent and passed to the SuDS lagoon, which will also be used to allow the heated water to cool before discharge to the Glenavy River under a Discharge Consent issued by NIEA. Initial design estimates are that the discharge will be approximately 60m³ per hour.
- 5.5.3 The power plant will use fluidised bed technology as an efficient form of combustion. Combustion gases will be held at above 850°C > 2 seconds to ensure complete combustion of the fuel. Gases from the process will be passed through a flue gas process to control emissions of toxic gases, vapours and particles before being discharged from a 80 m high stack.
- 5.5.4 It is considered that the implementation of a construction Environmental Management Plan and an operational Environmental Management System guided by PPC requirements will address any potential risk from construction and operational activities and emergency situations.
- 5.5.5 Relevant documents for ensuring environmental protection during contractor works will apply which will take regard of the general guidance provided in the appropriate NIEA Pollution Prevention Guidelines.

5.6 Excavation requirements

- 5.6.1 There will be no excavation requirement within the boundary of the SPA.

5.7 Transportation requirements

- 5.7.1 MBM will be supplied predominately from the adjoining rendering plant while poultry bedding will be imported to the site on 27.5 tonne capacity tipper trucks over a five and a half day week; with approximately 40, 000 tonnes of ash needing to be removed from the site based upon 20 tonne loads due to the lower density of ash. It is expected that incoming poultry bedding will arrive from across Northern Ireland but it is intended that the main route to the site will be via the A26 Nutts Corner roundabout to the north and Moira roundabout to the south, with local access via existing routes from the A26 to Ballyvannon Route.
- 5.7.2 During construction there will be movement of various plant and an increase in vehicular movement will occur on existing roads in the vicinity of the

proposed project. However, it is unlikely that transportation will impact on bird species using the SPA, as the project location is removed from Lough Neagh.

5.8 Duration of construction, operation, decommissioning etc.

5.8.1 It is expected that the construction period will last approximately two and a half years. This would encompass the actual construction period but not initial paving works, such as setting up the construction compound, nor subsequent restoration works. The operational lifetime of the project is expected to be over 30 years.

6.0 DESCRIBE ANY LIKELY CHANGES TO THE SITE

6.1 Reduction of habitat area

6.1.1 The project will not lead to a reduction in habitat area within the SPA, or of habitats important for feature species of the SPA.

6.2 Disturbance to key species

6.2.1 The project will not cause disturbance to key species of the SPA during the construction or operation phase as the project site is well outside of potential disturbance limits. The Breeding Bird Survey submitted with the ES in June 2008 noted that breeding waders are not known to breed within the proposed site and buffer zone (RSPB and NIEA *pers. comm.*). There will be no impact on any feature breeding bird species listed in the Lough Neagh SPA citation. The nearest suitable habitat is more than 2 km away.

6.3 Habitat or species fragmentation

6.3.1 There will be no habitat or species fragmentation as a result of this project.

6.4 Reduction in Species Density

6.4.1 It is unlikely that there will be a reduction in species density as a result of this project.

6.4.2 The control of pollution is central to the operation of Integrated Pollution Prevention and Control (IPPC) and the proposed power plant will require a Permit under the IPPC regime. Appropriate arrangements to control all potential polluting activities and pollutants will form part of the Permit. Air emissions from the proposed installation are unlikely to result in any air

quality objective or limit value being exceeded and ecological impacts are therefore likely to be insignificant. Despite using worst case assumptions, no significant adverse impacts from heavy metal emissions were detected by the impact analysis and no exceedance related effects of acidity on freshwaters were detected.

6.4.3 Cooling waters will be treated along with other effluent and passed to the SuDS lagoon which will also be used to allow the heated water to cool before discharge to the Glenavy River under an effluent Discharge Consent issued by NIEA. It is to be noted that the proposed development and discharge to the Glenavy River is approximately 1 km from Lough Neagh, and that the effects of thermal discharges on the lough will be negligible.

6.4.4 The implementation of a construction Environmental Management Plan and an operational Environmental Management System guided by PPC requirements will address any potential risk from construction and operational activities and emergency situations. **Subject to the control and monitoring by NIEA it is considered that there is unlikely to be any direct impact to feature species from emissions and discharges; or indirect impacts due to detrimental impacts to habitat or feeding species of importance to feature species.**

6.5 Changes in key indicators of conservation value

6.5.1 It is unlikely that there will be any changes in key indicators of conservation value as a result of this project. Potential impacts of the project on Natura 2000 selection features are assessed as insignificant. The justification for this reasoning for individual feature species is outlined over page in Table 6.1

Table 6.1 Potential Impacts of Project on Natura 2000 selection features

Species	Potential Impact	Justification
Bewick's Swan wintering population	Insignificant	The site is not used by Bewick's or Whooper Swans and there are no known swan fields within disturbance limits of the site.
Whooper Swan wintering population	Insignificant	The site does not appear to be on a fly-way zone for these species. As a minimum, marking of overhead powerlines associated with the project based on best current practice will apply
Great Crested Grebe wintering and passage population	Insignificant	The project is well outside the potential disturbance limits for these species. Subject to the control and monitoring by NIEA it is considered that there is unlikely to be any direct impact to feature species from emissions and discharges or indirect impacts due to detrimental impacts to habitat or food sources of importance to these species The site does not appear to be on a fly-way zone for these species. As a minimum, marking of overhead powerlines associated with the project based on best current practice will apply.
Pochard wintering population	Insignificant	
Tufted Duck wintering population	Insignificant	
Scaup wintering population	Insignificant	
Goldeneye wintering population	Insignificant	
Little Grebe wintering population	Insignificant	
Assemblage species	Insignificant	
Cormorant wintering population	Insignificant	
Assemblage species	Insignificant	
Greylag Goose wintering population	Insignificant	
Assemblage species	Insignificant	
Shelduck wintering population	Insignificant	
Assemblage species	Insignificant	
Wigeon wintering population	Insignificant	
Assemblage species	Insignificant	
Gadwall wintering population	Insignificant	
Assemblage species	Insignificant	
Teal wintering population	Insignificant	
Assemblage species	Insignificant	
Mallard wintering population	Insignificant	
Assemblage species	Insignificant	
Shoveler wintering population	Insignificant	
Assemblage species	Insignificant	
Coot wintering population	Insignificant	
Assemblage species	Insignificant	
Mute Swan wintering population	Insignificant	
Assemblage species	Insignificant	
Common Tern Breeding population	Insignificant	There is no suitable breeding habitat for these species within the vicinity of the site. Subject to the control and monitoring by NIEA it is considered that there is unlikely to be any direct impact to feature species from emissions and discharges or indirect impacts due to detrimental impacts to habitat or food sources of importance to these species
Great Crested Grebe Breeding population	Insignificant	
Breeding bird assemblage: Great Crested Grebe, Gadwall, Pochard, Tufted Duck, Snipe, Redshank, Common Gull, Lesser Black-backed Gull, Black-headed Gull, Shelduck, Teal, Shoveller, Lapwing and Curlew.	Insignificant	

6.6 Climate change

- 6.6.1 Over the next 80 years average annual air temperatures in Britain are predicted to rise by 2-3.5°C and by the 2050s, typical spring temperatures will occur 1-3 weeks earlier than at present. Summers will become drier and hotter, with an increased frequency of droughts. Winters will become shorter, warmer and wetter, extreme winter precipitation will become more frequent, and very cold winters will become increasingly rare. Sea levels are predicted to rise between 9-69 cm by the 2080s¹¹.
- 6.6.2 Climate change is a complex issue and to identify changes that can be attributed to it requires careful monitoring of physico-chemical parameters in addition to temperature.
- 6.6.3 It is considered that there are no climate change issues related to this project. The NIEA will strictly control and monitor all emissions from the power plant **All aspects of the plants operation which could contribute to climate change or which could impact further upon any receptors in the SPA sensitive to the affects of climate change will be controlled under the IPPC permit.**

¹¹ Fisheries Society of the British Isles (2007). Climate Change and the Fishes of Britain and Ireland: Briefing Paper 4

7.0 DESCRIBE ANY LIKELY IMPACTS IN THE NATURA 2000 SITE AS A WHOLE IN TERMS OF INTERFERENCE WITH KEY RELATIONSHIPS THAT DEFINE THE STRUCTURE AND OR FUNCTION OF THE SITE

- 7.1 The control of pollution is central to the operation of Integrated Pollution Prevention and Control (IPPC) and the proposed power plant will require a Permit to be issued by NIEA under the IPPC regime. Appropriate arrangements to control all potential polluting activities and pollutants will form part of the Permit. Air emissions from the proposed installation are unlikely to result in any air quality objective or limit value being exceeded and ecological impacts are therefore likely to be insignificant. Despite using worst case assumptions, no significant adverse impacts from heavy metal emissions were detected by the impact analysis and no exceedance related effects of acidity on freshwaters were detected.
- 7.2 Cooling waters will be treated along with other effluent and passed to the SuDS lagoon which will also be used to allow the heated water to cool before discharge to the Glenavy River under an effluent discharge consent issued by NIEA. It is to be noted that the proposed development and discharge to the Glenavy River is approximately 1km from Lough Neagh, and that the effects of thermal discharges on the lough will be negligible.
- 7.3 The implementation of a construction Environmental Management Plan and an operational Environmental Management System guided by PPC requirements will address any potential risk from construction and operational activities and emergency situations. Subject to the control and monitoring by NIEA it is considered that there is unlikely to be any direct impact to feature species from emissions and discharges; or indirect impacts due to detrimental impacts to habitat or feeding species of importance to feature species.
- 7.4 A negative impact for wintering wildfowl and waders is extremely unlikely. The development site is well outside of potential disturbance limits for feature species of the SPA. Feature breeding species are not known to breed within the proposed site and buffer zone. The nearest suitable habitat is more than 2km away. As a result, there will be no impact on any feature breeding bird species. The site does not appear to be on a flyway zone but as a minimum, any overhead cables associated with the project will be marked in accordance with best current practice.

8.0 DESCRIBE FROM THE ABOVE THOSE ELEMENTS OF THE PROJECT OR PLAN, OR COMBINATION OF ELEMENTS, WHERE THE ABOVE IMPACTS ARE LIKELY TO BE SIGNIFICANT OR WHERE THE SCALE OR MAGNITUDE OF IMPACTS IS NOT KNOWN

8.1 Loss

8.1.1 There will be no loss of habitat within the SPA, or of habitats used by any of the feature species of the SPA.

8.2 Fragmentation

8.2.1 There will be no habitat fragmentation as a result of the project.

8.3 Disruption

8.3.1 There will be no disruption to key species as a result of the project.

8.4 Disturbance

8.4.1 There will be no disturbance to key species as a result of the project.

8.5 Change of key elements of the site (e.g. water quality etc.)

8.5.1 The control of pollution is central to the operation of Integrated Pollution Prevention and Control (IPPC) and the proposed power plant will require a Permit to be issued by NIEA under the IPPC regime. Appropriate arrangements to control all potential polluting activities and pollutants will form part of the Permit. Air emissions from the proposed installation are unlikely to result in any air quality objective or limit value being exceeded and ecological impacts are therefore for likely to be insignificant. Despite using worst case assumptions, no significant adverse impacts from heavy metal emissions were detected by the impact analysis and no exceedance related effects of acidity on freshwaters were detected.

8.5.2 Cooling waters will be treated along with other effluent and passed to the SuDS lagoon which will also be used to allow the heated water to cool before discharge to the Glenavy River under an effluent Discharge Consent issued by NIEA. It is to be noted that the proposed development and discharge to the Glenavy River is approximately 1km from Lough Neagh, and that the effects of thermal discharges on the lough will be negligible.

8.5.3 The implementation of a construction Environmental Management Plan and an operational Environmental Management System guided by PPC requirements will address any potential risk from construction and operational activities and emergency situations. Subject to the control and monitoring by NIEA it is considered that there is unlikely to be any direct impact to feature species from emissions and discharges; or indirect impacts due to detrimental impacts to habitat or feeding species of importance to feature species.

9.0 CONCLUSIONS

9.1 Based on the findings of this Article 6 Test of Likely Significance it is considered that there is no potential for significant negative impact on Lough Neagh SPA selection features associated with this project.

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Appendix 1

Habitats Regulations Guidance Note

The Determination of Likely Significant Effect under The Conservation (Natural Habitats &c) Regulations 1994

1. Introduction

- 1.1 Consistency in applying the requirements of the Habitats Directive, and in interpreting the Conservation (Natural Habitats &c) Regulations 1994, is important for all the country agencies in their casework on international sites. One of the key procedures is under Regulations 48-53, the consideration of plans and projects affecting the Natura 2000 series. If a plan or project is not connected with or necessary for the management of the site **and is likely to have a significant effect**, the competent authority is required to carry out an appropriate assessment to determine whether it will have an adverse effect on site integrity.
- 1.2 This note provides guidance to staff on how to decide whether or not a plan or project “is likely to have a significant effect”. It applies also to the other parts of the Conservation Regulations where the same test is used (e.g. Regulations 20, 24 & 60).
- 1.3 Only the courts can provide authoritative interpretation of the Regulations, but these notes have been developed in the light of practical experience and a close examination of the Regulations, the Habitats Directive and central government guidance, particularly PPG 9.

2. The purposes of the test of significance

- 2.1 The ‘significance’ test acts as a coarse filter for all proposed plans and projects which are not directly connected with or necessary to the management of the site (whether or not the effect is likely to be adverse or beneficial) so directing attention to those which require further assessment. The importance of the international conservation interest of the site should be at the forefront of decision-making.
- 2.2 The attached flow chart provides a step by step approach to recording a decision on likely significant effect in all cases. It includes provision for a fuller consideration to justify the decision in cases where

the qualifying feature is directly or indirectly affected but the effect is not considered likely to be significant and therefore there is no need for an appropriate assessment.

Summary of principles in judging significant effect

- The test of significant effect (‘significance test’) must be made by the ‘competent authority’, but exchange of advice between the competent authority and the country agency is strongly encouraged.
- The ‘significance test’ is a coarse filter intended to identify which proposed plans and projects require further assessment. It is the first stage of the process, and is distinct from the appropriate assessment of ‘adverse effect on integrity’ that follows (see section 1).
- Consideration of ‘likely significant effect’ will have practical and legal consequences and must be based on sound judgement and bear scientific or expert scrutiny (section 2).
- Judgements of likely significant effect should be made in relation to the features for which the European site was designated and their conservation objectives - (Regs 20, 33 and 48); judgements should be made on a case-by-case basis (section 3).
- Proposals having no, or *de minimis*, effects can be progressed without further consideration under the Habitats Regulations although reasons for reaching this decision must be justified and recorded (section 4).
- Some cases require more systematic evaluation of risk, but if a clear judgement cannot be made on the basis of available information, then an appropriate assessment will be required (section 5).
- In all cases, the reasons for reaching the judgement must be recorded by the competent authority and by the country agency when advice is given (section 6).

- 2.3 The country agencies must clearly distinguish their advice on likely significant effect, from that given on the effects on site integrity which competent authorities are

required to obtain during an appropriate assessment (Reg. 48(3)). The separate stages in this process are explained in other guidance such as PPG9, Circular 6/1995 (Scotland) and TAN5 (Wales). However, as explained in the flow chart (Annex A), there may be circumstances where a fuller, more in depth level of consideration may be needed in order to determine whether significant effects are likely.

3. Implications of the test of significance

3.1 All judgements about ‘significance’ need to be fully documented and dealt with in a systematic manner by all competent authorities including conservation agencies. A judgement that a plan or project is likely to have a significant effect can have financial implications for developers. For example it brings development which is otherwise permitted under the Town and Country Planning (General Permitted Development) Order 1995 (in England and Wales) and Town and Country Planning (General Permitted Development) (Scotland) Order, 1992 (in Scotland), under the scrutiny of the local planning authority. Conversely, the opinion (under Regulation 61(3) of the Habitats Regulations) of the country agencies that a permitted development is **not** likely to have a significant effect is conclusive and cannot be amended. Agencies will be held accountable for the advice given and will need to be able to justify decisions both for and against a ‘significant effect’.

4. Making judgements of “likely significant effect”

4.1 Likely significant effect is, in this context, any effect that may reasonably be predicted as a consequence of a plan or project that may affect the conservation objectives of the features for which the site was designated, but excluding trivial or inconsequential effects.

4.2 The likely scale of impact is important. In some cases the decision that no significant effect is likely will be obvious. Very short lived impacts would generally require only minimal further consideration under such conditions, provided there were no persistent, cumulative effects from repeated or simultaneous impacts of the same nature. Even here there will be exceptions, however. For example very brief disturbance to a seabird colony may have a lasting effect on the population (as determined by careful monitoring), even though activity may appear (through casual observation at the time) to return rapidly to normal.

4.3 At the other extreme, some cases will very clearly be likely to have a significant effect. Any proposal which would require an environmental assessment

under the Environmental Assessment Directive (85/337/EEC) (as amended) on account of its effects, among others, on a European site, can be judged as being likely to have a significant effect, although reasons for this must still be recorded. This will then require an **appropriate** assessment under the Habitats Regulations, which may be addressed by the competent authority alongside or as part of the wider environmental assessment.

4.4 In some cases the judgement about a likely significant effect will be less clear cut and it will be necessary to look particularly at the nature of the effect and its timing, duration and reversibility, taking into account any readily available information on the site, and especially its conservation objectives.

4.5 Permanent reductions in habitat area or species populations are likely to be significant unless they are very small scale. In the case of certain sites a loss of, say, a few square metres of the site area **may** not be considered significant (for example, there may be circumstances when this might apply in the case of estuarine SPAs which are selected for their bird interest), in others, such as limestone pavement, **any** further loss of the area of qualifying interest may be unacceptable. Any activity which affects the attainment of conservation objectives will probably be significant.

4.6 The following is a list of **examples** of types of effects which are likely to be significant and therefore need to be considered more fully as part of the consideration in the flow chart (Annex A). It is important to remember that they may result from either on-site or off-site activities and may need to be considered in combination with other plans or projects.

- Causing change to the coherence of the site or to the Natura 2000 series (eg presenting a barrier between isolated fragments, or reducing the ability of the site to act as a source of new colonisers);
- Causing reduction in the area of habitat or of the site;
- Causing direct or indirect change to the physical quality of the environment (including the hydrology) or habitat within the site;
- Causing ongoing disturbance to species or habitats for which the site is notified;
- Altering community structure (species composition);
- Causing direct or indirect damage to the size, characteristics or reproductive ability of populations on the site;
- Altering the vulnerability of populations etc to other impacts.

- Causing a reduction in the resilience of the feature against external change (for example its ability to respond to extremes of environmental conditions);
- Affecting restoration of a feature where this is a conservation objective.

5. When there is ‘no significant effect’

5.1. When it is clear that the plan or project is not likely to have a significant effect then only limited further consideration - to enable the reasons for reaching this decision to be justified and recorded - is required. After this, permission for the plan or project may be granted.

6. Use of evidence in judging likely significant effect

6.1 The judgement of whether a significant effect is likely should be based on the best readily available information. Where full information does not exist or is not readily available it will not usually be appropriate for further data (eg survey work) to be collected at this stage in the process although in some circumstances further information may be requested in order to clarify decision-making. Sources of information may include evidence of similar operations affecting sites with similar conservation objectives and the judgement of relevant specialists that an effect is likely, based on available evidence. However cases will always be different, and consideration must be given to the local circumstances. Early consultation between project promoters, competent authorities and country agencies is encouraged, in order that the best information can be made available to help to define the likely significance of effects.

7. Suggested process for documenting judgement of ‘likely significant effect’

7.1 Preliminary Considerations The competent authority should, with advice from the country agencies, first consider and record the features for which the site has been selected and the conservation objectives for the site. In all cases, the following should be recorded:

- What are the qualifying interest features?
- What are the conservation objectives?
- What other relevant site information is available? e.g. site (SSSI, NNR, SAC/SPA, European Marine site) management plans; list of operations which may cause damage or deterioration.

7.2 As a first step it is necessary to determine whether the proposal is connected with or necessary for the management of the site for its conservation objectives. A judgement then needs to be made as to whether to proceed to a fuller consideration or to state at this stage that an appropriate assessment is not needed (ie that there is no likely significant effect). The latter would be the case only when it was beyond doubt that the interest features would not be directly or indirectly affected.

7.3. Fuller Considerations Where there is not a clear cut case for there being no likely significant effect on the interest features or conservation objectives, you should carry out and record a brief risk assessment, e.g:

- The **potential hazards** of the plan or project and their likely consequences for the conservation objectives of the SAC/SPA features.
- For each hazard, the **probability** that the hazard will affect the SAC/SPA conservation objective in this case.
- For each hazard, the **magnitude**, likely duration and irreversibility or reversibility of the effect (recording briefly the assumptions made or evidence used in reaching that conclusion).

7.4 It may be possible to reach a decision as to whether a significant effect is likely at this stage, or you may wish to ask for further information - although not at this stage requiring an appropriate assessment. If such information is not readily available or if the results are inconclusive, then an appropriate assessment would normally be required.

7.5 The outcome of this fuller consideration should be a fully justified decision that either:

- an appropriate assessment is not needed; or
- an appropriate assessment is needed, together with some guidance on the likely scope of this assessment.

If in doubt please seek advice from the relevant country agency specialist.

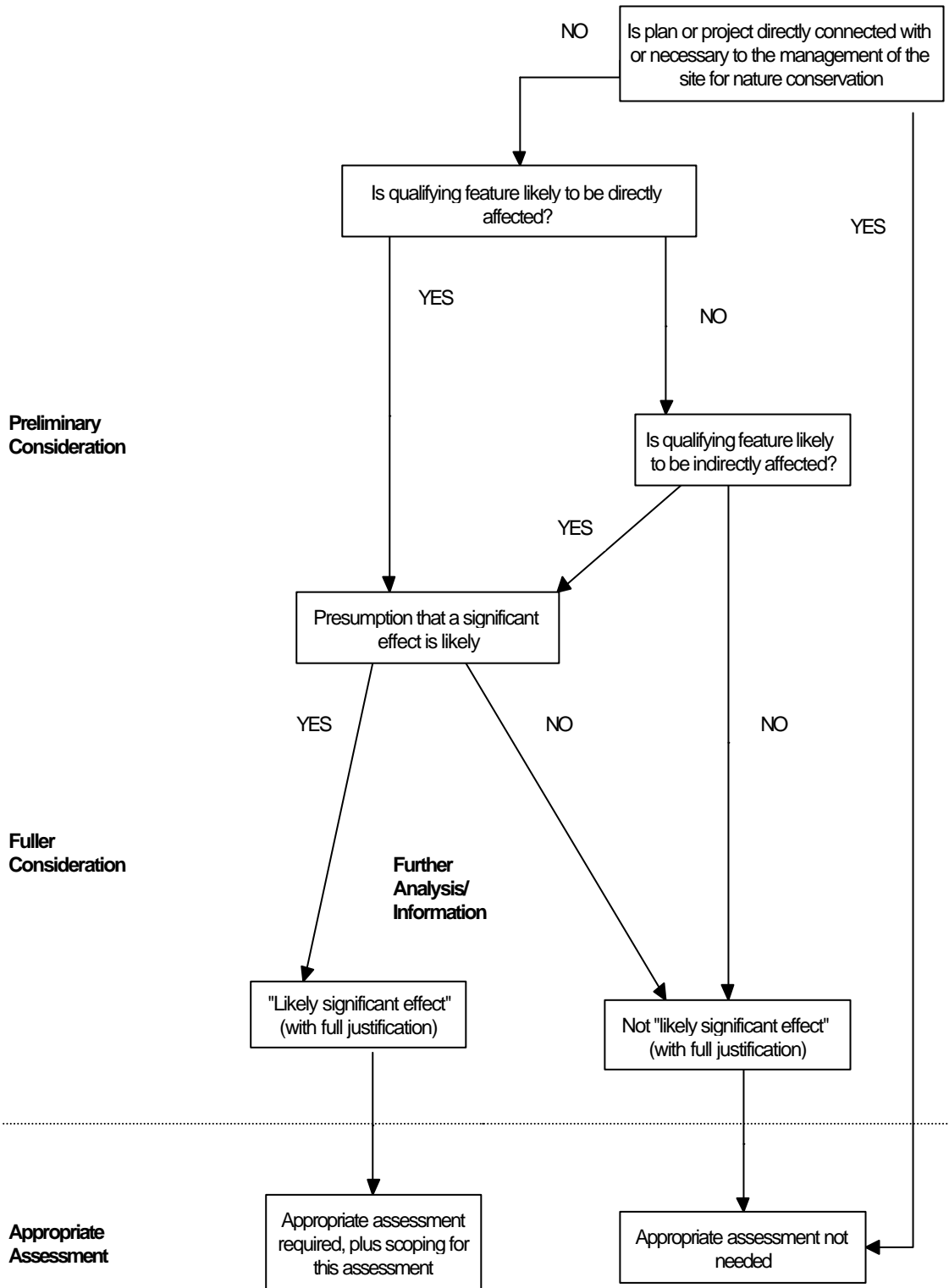
The text of this guidance note was developed by the country agencies for the Government’s inter-departmental steering group on the Habitats Directive and approved by it. It is the third in a series of guidelines which has been developed for

staff in the country agencies, but may also be useful for other competent authorities, and developers and promoters of projects to help their understanding of the key principles used in the decision making process. Further guidance notes are planned in the series which will cover the effects of plans or projects alone and in combination; adverse effect on integrity and the consideration of permitted developments affecting European sites.

The guidance notes supplement existing guidance available in PPG9 on Planning and Nature Conservation (in England) and Planning Guidance (Wales) (Planning Policy and Technical Guidance Note (Wales) 5: (Nature Conservation and Planning) and Circular 6/1995 (in Scotland).

A step-by-step approach to determining whether a significant effect is likely on a Natura 2000 site

ANNEX A



Appendix 2

Finding of no significant effects report matrix

Finding of no significant effects report matrix

Name of project or plan

Rose Energy Biomass Fuelled Power Plant

Name and location of Natura 2000 site

Lough Neagh SPA

Description of the project or plan

Biomass Fuelled Power Plant Development

Is the project or plan directly connected with or necessary to the management of the site (provide details)?

No

Are there other projects or plans that together with the project or plan being assessed could affect the site (provide details)?

No

The assessment of significance of effects

Describe how the project or plan (alone or in combination) is likely to affect the Natura 2000 site.

- potential bird collisions with overhead power cables associated with the project
- disturbance to bird species using Lough Neagh SPA

Explain why these effects are not considered significant.

The use of best working practices, the timings of the works, the distance to the SPA

List of agencies consulted: provide contact name and telephone or e-mail address.

NIEA Andrew Macintosh – 08453020008

Response to consultation.

Requirement for Test of Significance.

Data collected to carry out the assessment

Who carried out the assessment?	Sources of data	Level of assessment completed	Where can the full results of the assessment be accessed and viewed?
MARENCO Environmental Consultants	NIEA, Clonaog Environmental The Airshed AFBI QUB MARENCO Reports	Article 6 Assessment Test of Significance	Report No. 280.00/11/08/DEB/JEH