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The Scottish Government Riaghaltas na h-Alba



Our Ref: 022/OW/SEM - 10

3rd May 2013

Dear Mr Garry

CONSENT FOR THE CONSTRUCTION AND OPERATION OF THE FIFE ENERGY PARK OFFSHORE DEMONSTRATION WIND TURBINE ON THE NORTHERN SHORE OF THE FIRTH OF FORTH AT THE FIFE ENERGY PARK, METHIL.

The Application

I refer to the application made by Scottish Enterprise ("the Company"), received 30th July 2012 for:

consent under Section 36 of the Electricity Act 1989 ("the Electricity Act") for the construction and operation of a demonstrator wind turbine on the northern shore of the Firth of Forth at Methil in Fife, with a generation capacity of up to 7 MW. The consent is for construction, operation and testing of turbines for a **maximum of 5 years** following commissioning of the original turbine.

At this time, the Company also applied for two Marine Licences under Part 4 of the Marine (Scotland) Act 2010. These applications are being considered and determinations will be issued in due course.

In this letter, "the Development" means the proposed wind turbine demonstrator for which the Application is made and is described in Annex 1 to this letter.

STATUTORY AND REGULATORY FRAMEWORK

The Electricity Act 1989

Consent under section 36 of the Electricity Act is required for any proposal to construct, extend or operate a generating station situated in the territorial sea with a







permitted generation capacity in excess of 1 megawatt. A section 36 consent may such include conditions as appearing to the Scottish Ministers to be appropriate.

Paragraph 3 of Schedule 9 to the Electricity Act places a duty on operators of generating stations to have regard to the desirability of preserving natural beauty, of conserving flora, fauna and geological or physiographical features of special interest and of protecting sites, buildings and objects of architectural, historic or archaeological interest. Operators of generating stations are statutorily obliged to do what they reasonably can to mitigate any effect the proposals may have on these features.

Paragraph 3 of Schedule 9 to the Electricity Act also provides that the Scottish Ministers must have regard to the desirability of these matters and the extent to which operators of generating stations have complied with their duty to mitigate the effects of the proposals. The Scottish Ministers must also avoid, so far as possible, causing injury to fisheries or to the stock of fish in any waters.

Under section 36B of the Electricity Act the Scottish Ministers may not grant a consent in relation to any particular offshore generating station activities if they consider that interference with the use of recognised sea lanes essential to international navigation is likely to be caused by the carrying on of those activities or is likely to result from their having been carried on. The Scottish Ministers, when determining whether to give consent for any particular offshore generating activities, must have regard to the extent and nature of any obstruction or danger to navigation which, without amounting to interference with the use of such sea lanes, is likely to be caused by the carrying on of the activities, or is likely to result from their having been carried on. In determining this issue the Scottish Ministers must have regard to the likely overall effect of the activities in question and such other offshore generating activities which are either already subject to section 36 consent or activities for which it appears likely that such consents will be granted.

The Scottish Ministers are required to obtain the advice of the Scottish Environment Protection Agency (SEPA) on matters relating to the protection of the water environment. SEPA's advice has been considered by the Scottish Ministers and due regard has been given to the Water Environment and Water Services (Scotland) Act 2003 and to the Water Environment (Controlled Activities) (Scotland) Regulations 2011.

Under Schedule 8 to the Electricity Act and the Electricity (Applications for Consent) Regulations 1990, notice of applications for section 36 consent must be published by the applicant in one or more local newspapers and in the Edinburgh Gazette to allow representations to be made to the application. Under Schedule 8 the Scottish Ministers must serve notice of application for consent upon any relevant Planning Authority. Fife Council is the 'relevant Planning Authority' in terms of the Electricity Act.

The Scottish Ministers are satisfied that they have considered all the necessary tests set out within the Electricity Act when assessing the application and that all procedural requirements have been complied with.



Paragraph 2(2) of Schedule 8 to the Electricity Act provides that where a relevant planning authority notifies the Scottish Ministers that they object to an application for section 36 consent and where they do not withdraw their objection then the Scottish Ministers must cause a public inquiry to be held in respect of the application. In such circumstances before determining whether to give their consent the Scottish Ministers must consider the objections and the report of the person who held the public inquiry.

A portion of the foundations of the proposed Development would be above the Mean Low Water Mark of ordinary spring tides, therefore the statutory control of this part of the project would be under the Town and Country Planning (Scotland) Act 1997. Fife Council, as the relevant Planning Authority, has not objected to the Application. The Scottish Ministers are not, therefore, obliged under paragraph 2(2) of Schedule 8 to the Electricity Act to require a public inquiry to be held.

The Scottish Ministers are, however, required under paragraph 3(2) of Schedule 8 to the Electricity Act to consider all objections received, together with all other material considerations, with a view to determining whether a public inquiry should be held in respect of the application. Paragraph 3(2) of Schedule 8 to the Electricity Act provides that if the Scottish Ministers think it appropriate to do so they shall cause a public inquiry to be held either in addition to, or instead of, any other hearing or opportunity of stating objections to the Application.

Marine (Scotland) Act 2010 and the Climate Change (Scotland) Act 2009

The Marine (Scotland) Act 2010 regulates the territorial sea adjacent to Scotland for marine environment issues.

Subject to exemptions specified in subordinate legislation, under Part 4 of the Marine (Scotland) Act 2010 licensable marine activities may only be carried out in accordance with a marine licence granted by the Scottish Ministers.

Under Part 2 of the Marine (Scotland) Act 2010 the Scottish Ministers have general duties to carry out their functions in a way best calculated to achieve the sustainable development, including the protection and, where appropriate, the enhancement of the health of the area. The Scottish Ministers when exercising any function that affects the Scottish marine area under the Marine (Scotland) Act 2010, the Climate Change (Scotland) Act 2009 or any other enactment must act in a way best calculated to mitigate, and adapt to, climate change.

Also of relevance to the Application is that under the Climate Change (Scotland) Act 2009 annual targets have been agreed with relevant advisory bodies for the reduction in carbon emissions.

The Scottish Ministers are satisfied that in assessing the Application they have acted in accordance with their general duties.







Environmental Impact Assessment Directive and the Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2000

The Environmental Impact Assessment Directive, which is targeted at projects which are likely to have significant effects on the environment, identifies projects which require an environmental impact assessment (EIA) to be undertaken. The Company identified the proposed development as one requiring an Environmental Statement in terms of the Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2000.

The proposal for the Development has been publicised, to include making the environmental statement available to the public, in terms of those regulations. The Scottish Ministers are satisfied that an Environmental Statement has been produced and the applicable procedures regarding publicity and consultation all as laid down in those regulations have been followed.

The Scottish Ministers have, in compliance with those regulations consulted with Scottish Natural Heritage (SNH), SEPA, the Planning Authority most local to the Development, and such other persons likely to be concerned by the proposed Development by reason of their specific environmental responsibilities on the terms of the Environmental Statement in accordance with the regulatory requirements. Marine Scotland has also consulted a wide range of relevant organisations including colleagues within the Scottish Government on the Application and on the Environmental Statement.

The Scottish Ministers are satisfied that the regulatory requirements have been met.

They have taken into consideration the environmental information, including the Environmental Statement, and the representations received from the statutory consultative bodies.

The Habitats Directive

The Habitats Directive on the conservation of natural habitats and wild fauna and flora has, in relation to the marine environment, been transposed into Scots law by the Conservation (Natural Habitats, & c.) Regulations 1994 ('the 1994 Regulations') and the Offshore Marine Conservation (Natural Habitats, & c.) Regulations 2007.

The key mechanism for securing compliance with the Directive is the carrying out of an Article 6(3) Appropriate Assessment under regulation 48 of the 1994 Regulations. Developments in, or adjacent to protected sites, or in a location which has the potential to affect such a site, must undergo what is commonly referred to as a Habitats Regulations Appraisal. The appraisal involves two stages, and if the proposal is likely to have a significant effect on a protected site, then an Appropriate Assessment must be carried out.

The Scottish Ministers, as a competent authority under the Habitats Directive, have complied with their EU obligations in relation to the Development. They have, following the undertaking of an Appropriate Assessment, ascertained that the Development will not adversely affect the integrity of any European protected sites







and have imposed conditions on the grant of the consent ensuring that this is the case. This is confirmed by the consultation response received from SNH. The Appropriate Assessment will be published and available on the Marine Scotland's Licensing Operations Team website.

Applicable Policies and Guidance

Marine Area

The UK Marine Policy Statement 2011

The UK Marine Policy Statement 2011 prepared and adopted in accordance with Chapter 1 of Part 3 of the Marine and Coastal Access Act 2009 requires that when Scottish Ministers take authorisation decisions that affect, or might affect, the marine area they must do so in accordance with the UK Marine Policy Statement 2011.

The Statement which was jointly adopted by the UK Administrations sets out the overall objectives for marine decision making. It specifies issues that decision-makers need to consider when examining and determining applications for energy infrastructure at sea, namely— the national level of need for energy infrastructure as set out in the Scottish National Planning Framework; the positive wider environmental, societal and economic benefits of low carbon electricity generation; that renewable energy resources can only be developed where the resource exists and where economically feasible; and the potential impact of inward investment in offshore wind energy related manufacturing and deployment activity. The associated opportunities on the regeneration of local and national economies need also to be considered.

Chapter 3, paragraphs 3.3.1 to 3.3.6, 3.3.16 to 3.3.19 and 3.3.22 to 3.3.30, of the Statement are relevant and have been considered by the Scottish Ministers as part of the assessment of the Application.

The Scottish Ministers have had full regard to the Statement when assessing the Application. It is considered that the Development accords with the Statement.

Terrestrial Area

Existing terrestrial planning regimes generally extend to mean low water spring tides. The marine plan area boundaries extend up to the level of mean high water spring tides. The UK Marine Policy Statement clearly states that the new system of marine planning introduced across the UK will integrate with terrestrial planning. The Statement also makes it clear that the geographic overlap between the Marine Plan and existing plans will help organisations to work effectively together and to ensure that appropriate harmonisation of plans is achieved. The Scottish Ministers have, accordingly, had regard to the terms of relevant terrestrial planning policy documents and Plans when assessing the Application. In addition to high level policy documents regarding the Scottish Government's policy on renewables (2020 Renewable Route Map for Scotland - Update (published 30 Oct 2012) and Scotland's Offshore Wind Route Map 2010), the Scottish Ministers have had regard to the following documents.



Scottish Planning Policy

Scottish Planning Policy sets out the Scottish Government's planning policy on renewable energy development. Whilst it makes clear that the criteria against which applications should be assessed will vary depending upon the scale of the development and its relationship to the characteristics of the surrounding area, it states that these are likely to include impacts on landscapes and the historic environment, ecology (including birds, mammals and fish), biodiversity and nature conservation; the water environment; communities; aviation; telecommunications; noise; shadow flicker and any cumulative impacts that are likely to arise. It also makes clear that the scope for the development to contribute to national or local economic development should be a material consideration when considering an application.

The Scottish Ministers are satisfied that these matters have been addressed in full both within the Application and within the responses received to the consultation by the closest onshore Planning Authority, SEPA, SNH and other relevant bodies.

National Planning Framework 2

Scotland's National Planning Framework 2 (NPF2) sets out strategic development priorities to support the Scottish Government's central purpose, namely sustainable economic growth. Relevant paragraphs to the Application are paragraphs 65, 145, 146, 147 and 148. NPF2 provides strong support for the offshore wind sector in Scotland and specifically identifies the Fife Energy Park at Methil which demonstrates the potential for adapting coastal facilities created to support the oil and gas industry to new uses related to the development of renewable energy.

The Fife Structure Plan 2006-2026

The Fife Structure Plan is the major policy document concerning land use planning across Fife. One of the Plan's development strategies is growing Fife's economy and its population. South Fife is identified as a strategic concentration of business activity. It is envisaged that Fife will play a key role in developing the knowledge economy links based upon business research, especially in the energy sector. The Plan states that a lead is being established with the pursuit of the Fife Energy Park at Methil with a focus on growth. Scottish Ministers consider that the Development would be in accordance with the Structure Plan and its policies on growing the economy.

The Mid Fife Local Plan

The strategy of the Mid Fife Local Plan is to complement that of the Structure Plan establishing a detailed, site specific framework of polices and proposals for land use and other related matters.

The Local Plan recognises the Energy Park at Methil as a major development within the region. It suggests that it will provide a strong sector focused employment site capable of attracting high quality renewable manufacturers from across the world. The Plan suggests the development of environmental industries and green power







technologies will be a major source of new employment in Mid-Fife over the coming years. As such, Scottish Ministers consider that the proposal complies with the Local Plan.

Fife Supplementary Planning Guidance Wind Energy

Scottish Ministers have considered the terms of Fife Council's Supplementary Planning Guidance (SPG) on wind energy.

The SPG recognises the importance of demonstrator turbines to the offshore wind industry around the United Kingdom. It suggests that locating demonstrator sites in Fife would help promote the offshore wind industry in the area and allow Fife to develop strong relationships with turbine manufacturers to help attract future investment. Proposals for demonstrator turbines would be assessed in the same way as normal wind turbines; against the criteria in Fife's other Development Plan policies.

Policy R3 of the SPG states that Fife Council will support offshore renewable energy development provided that it does not have a significant adverse effect on local maritime activities, including shipping, fishing, leisure sailing, diving, on the natural environment including marine habitats and birds, on pipelines, on research activities and on the historic marine environment.

Scottish Ministers consider that the Development complies with the SPG.

Consultation

In accordance with statutory requirements, advertisements of the Application had to be placed in the local and national press. The Scottish Ministers note that these requirements have been met. Notice of the Application for section 36 consent is required to be served on any relevant planning authority under Schedule 8 to the Electricity Act.

Notifications were sent to Fife Council as the nearest onshore Planning Authority, as well as to the City of Edinburgh Council and East Lothian Council. Notifications were also sent to Scottish Natural Heritage and the Scottish Environment Protection Agency.

The Company notified the Scottish Ministers that due to progressions in engineering design, they were amending the pile size and hence the size of the borehole. This increased the size of the boreholes to up to 3 metres in diameter and up to 37 metres in depth to allow for the installation of a pile of up to 2.7 metres in diameter and 37 metres in depth. There was no change to the installation method or construction timescale as stated within the Company's Environmental Statement. As this increase in size was within the Environmental Statement's design envelope, Scottish Ministers did not request a Supplementary Environmental Statement from the Company; however they notified all of the Consultees to the changes and instructed the Company to place advertisements in the local press to notify the public.







Representations and Objections

A formal consultation process was undertaken by the Scottish Ministers. The consultation upon the section 36 application and Environmental Statement, along with the Marine Licence applications was conducted in August/September 2012, and a second consultation, which related to a minor amendment to the Application, was conducted in March/April 2013.

The public consultation generated five valid responses in total with three objecting to the Development and two not providing a definitive view. One of the objections was received from Largo Area Community Council.

The main views contained within the representations related to the potential noise and visual impact of the Development. Beyond these, issues such as the suitability of the location of the site and the cost of construction were raised.

Material Considerations

In light of all the representations received by the Scottish Ministers in connection with the Application, they have carefully considered the issues and identified the following matters as material considerations, for the purposes of deciding whether it is appropriate to cause a public inquiry to be held or for making a decision on the Application for consent under section 36 of the Electricity Act:

- The proposed location of the Development
- Cumulative impacts
- The visual impacts of the Development
- Operational Noise
- Shadow flicker
- Archaeology and Cultural Heritage
- Climate change and carbon balance
- Contribution to local and national economic development
- Impacts on fishing activity
- Impacts on birds
- Impacts on marine mammals
- Impacts on the environment
- Impacts on water and coastal hydrology
- Impacts on recreation and tourism
- Impacts on shipping and navigational safety
- Impacts on aviation
- Impacts on communications

Public Local Inquiry

Paragraph 2(2) of Schedule 8 to the Electricity Act provides that where a relevant planning authority notifies the Scottish Ministers that they object to an application for section 36 consent and where they do not withdraw their objection then the Scottish Ministers must cause a public inquiry to be held in respect of the application. In such circumstances before determining whether to give their consent the Scottish







Ministers must consider the objections and the report of the person who held the public inquiry.

Fife Council, as the relevant planning authority did not object to the Application.

The Scottish Ministers are, however, required under paragraph 3(2) of Schedule 8 to the Electricity Act to consider all objections received, together with all other material considerations, with a view to determining whether a public inquiry should be held with respect to the Application. If the Scottish Ministers think it appropriate to do so, they shall cause a public inquiry to be held, either in addition to or instead of any other hearing or opportunity of stating objections to the Application.

The Scottish Ministers have received objections to the Development as outlined above. In addition, a number of other matters were raised which constitute material considerations the context of considering whether they should decide to hold a public inquiry into this case. In summary, and in no particular order, these objections related to the following issues:

- (i) Inappropriate siting;
- (ii) Size of the turbine;
- (iii) Operational Noise;
- (iv) Visual impact;
- (v) No identified developer for the demonstrator project;
- (vi) No prospect of employment in the area.

Inappropriate Siting

The site at Methil was chosen for this test facility Development for reasons such as its existing infrastructure, marine environment and meteorological conditions. There is also an existing consent granted by the Scottish Ministers for a similar scheme at the site. The test site will provide easy access to the installed turbine to allow it to be monitored for certification, and for improvements to be made in turbine design and reliability. This will, in turn, provide increased certainty in the delivery of the energy generated from these turbines when they are installed in an offshore environment.

Demonstrator turbines sites are vital to the development of the Offshore Wind industry around the United Kingdom. In order for a wind farm developer to secure funding for a site they must be able to prove the reliability and performance of the turbines they may use. Demonstrator sites allow manufacturers to test, optimise and prove the performance of their turbines before large scale production.

Locating the test turbine just offshore from the Fife Energy Park provides a close approximation of the required marine conditions to test the machines whilst allowing the access for testing monitoring and maintenance.







The Scottish Ministers consider that they have sufficient information available on the siting of the development to reach a conclusion on the matter, and do not consider that it is appropriate to cause a public inquiry to be held to further investigate this.

Size of the turbine

The turbine to be installed on the site is a single, three bladed demonstration wind turbine with an installed capacity of up to 7 MW. The turbine tower is up to 110 metres tall, from Mean Sea Level (MSL) including the base jacket. The turbine has a maximum rotor diameter of 172 metres, giving a maximum level from the MSL to turbine tip of up to 196 metres. The size and capacity of this turbine is larger than most onshore turbines. However, the size is typical of an offshore turbine.

The Scottish Ministers consider that they have enough information on the size of the turbine, and its potential impacts to make a decision on this matter and do not consider it appropriate to cause a public inquiry to be held to further investigate this.

Operational Noise

Concerns were raised from four of the five respondents regarding the potential noise from the Development. Fife Council also raised concerns regarding construction and operational noise.

Scottish Ministers have considered the Application and accompanying documents and all relevant responses from Consultees. Scottish Ministers consider they have enough information to make an informed decision on the Application without the need for a public inquiry.

Visual impact

Adverse visual impact of the Development in its proposed location was raised in the outstanding objections to the Development. The Company have indicated that the turbine will have a significant effect on a number of visual receptors in the area. These effects are considered to be negative, as they will not result in any benefit to the landscape or view.

Scottish Natural Heritage have stated that as the proposal is for a demonstration turbine, and is operational for five years, its landscape and visual impacts will be more temporary than those of a commercial wind farm. Consequently they do not object to the proposal on landscape and visual grounds.

The Scottish Ministers agree with this and consider they have enough information to make an informed decision on the Application without the need for a public inquiry.

No identified developer for the demonstrator project

The Scottish Government, last year, announced that Samsung Heavy Industries chose Methil as the test site for their 7MW turbine.



The Scottish Ministers consider they have enough information to make an informed decision on the Application without the need for a public inquiry.

No prospect of employment for the area

It is estimated that the Development may directly create a small number of job opportunities in the areas of project management, legal and accountancy services, in addition to generating opportunities for potentially up to 60 local workers to establish site facilities, office, workshop and grid connection cabling and buildings during the estimated four month development and construction period.

For the supply of different components of the turbines, which is a significant part of the project, there may be opportunity for numerous companies to supply parts and materials that will be utilised within the turbine. Owing to the nature of the project requirements, local and regional businesses are also well positioned to be suppliers for the project which will be advantageous to the process of tendering for contractors. Examples of direct opportunities for local and regional contractors and companies include supplying various building materials (e.g. fencing, concrete, cement, stone, etc.) and mechanical, electrical and supervisory services.

The Scottish Ministers consider that they have enough information to make an informed decision on the Application without the need for a public inquiry.

Determination

In the circumstances, the Scottish Ministers are satisfied that-

- (1) they possess sufficient information upon which to determine the Application; and
- (2) an inquiry into the issues raised by the objectors would not be likely to provide any further factual information to assist Ministers in determining the Application; and
- (3) the objectors have been afforded every opportunity to provide information and to make representations.

Accordingly, having regard to all material considerations in this Application and the nature of the outstanding objections, the Scottish Ministers have decided that it is not appropriate to cause a public inquiry to be held.

The Scottish Ministers' consideration of the environmental information

The Scottish Ministers are satisfied that an Environmental Statement has been produced in accordance with the Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2000 ("the 2000 Regulations") and the applicable procedures regarding publicity and consultation laid down in the 2000 Regulations have been followed.







The Scottish Ministers have taken into consideration the environmental information, including the Environmental Statement, Addendum letter, and the representations received from the consultative bodies, namely SNH and SEPA, and from Fife Council.

In terms of paragraph 3(1)(a) of Schedule 9 to the Electricity Act, the Company, when formulating a proposal to construct the generating station, must have regard to the desirability of preserving natural beauty, of conserving flora, fauna, and geological or physiological features of special interest and of protecting sites, buildings and objects of architectural, historic, or archaeological interest. Paragraph 3(1)(b) of Schedule 9 to the Electricity Act requires the Company, when formulating such proposal, to do what it reasonably can to mitigate the effects that the generating station would have on these features.

In considering the Application, the Scottish Ministers have had regard to the desirability of the matters mentioned in paragraph 3(1)(a) and the extent to which the Company has complied with the duty under paragraph 3(1)(b). The Scottish Ministers consider that the Company has fulfilled the requirements of Schedule 9 to the Electricity Act and, by virtue of the Scottish Ministers undertaking an appropriate assessment in terms of the Habitats Directive based on the evidence, the requirements of Schedule 9 to the Electricity Act are capable of being met.

The Scottish Ministers' consideration of the possible effects on a European Site

When considering an application for section 36 consent under the Electricity Act which might affect a European protected site, the competent authority must first determine whether the Development is directly connected with or necessary for the beneficial conservation management of the site. If this is not the case, the competent authority must decide whether the Development is likely to have a significant effect on the site. Under the Habitats Directive, if it is considered that the proposal is likely to have a significant effect on the site, then the competent authority must undertake an Appropriate Assessment (AA) of its implications for the site in view of the site's conservation objectives.

With regards to the Development, SNH advise that the turbine could have a significant effect upon the qualifying interests of two Special Protection Areas (SPAs) and one Special Areas of Conservation (SAC). As the recognised competent authority under European legislation, Scottish Ministers have considered the relevant information and undertaken an AA. The AA concluded that the Development would not adversely affect the integrity of any of the designated sites if the mitigation measures outlined were implemented by means of enforceable conditions attached to any consent. The changes to the Development brought about by the Addendum did not necessitate a revision to the Appropriate Assessment.

The Scottish Ministers' consideration of the Application

The Scottish Ministers' consideration of the Application and the material considerations mentioned above is set out below.



Location of Development

The site at Methil was chosen for this test facility Development for reasons such as its existing infrastructure, marine environment and meteorological conditions. The test site will provide easy access to the installed turbine to allow it to be monitored for certification, and for improvements to be made in turbine design and reliability. This will, in turn, provide increased certainty in the delivery of the energy generated from these turbines when they are installed in an offshore environment.

Locating the test turbine just offshore from the Fife Energy Park provides a close approximation of the required marine conditions to test the machines whilst allowing the access for testing monitoring and maintenance.

Landscape and Visual

Scottish Natural Heritage (Scottish Ministers statutory advisors on visual impacts on designated landscape features) was consulted and did not object to the proposed Development on the grounds of visual impacts. This conclusion was reached due to the fact that the proposal is for a demonstration turbine and only operational for up to five years, therefore its landscape and visual impact will be temporary in comparison to a commercial wind farm. SNH were also satisfied that the Company had extended the Zone of Theoretical Visibility (ZTV) in the Seascape, Landscape and Visual Impact Assessment to included visuals from the Lothian coastline.

Fife Council supports the general principal of the proposal and highlighted to Marine Scotland in their response to the Environmental Statement consultation that they had a number of areas of concern. These related to factors which could have significant negative effect upon residential amenity and to the visual and landscape impact in the local area. Fife Council's Supplementary Planning Guidance on Wind Energy concludes there is some capacity for single turbines of 100+ metres in height to be built in the Fife landscape. This turbine is new technology which is planned to be utilised for the emerging offshore wind farm developments. Testing and proving of innovative technologies such as larger capacity (7MW) turbines will result in fewer turbines being installed in larger wind farm developments.

Edinburgh City Council was consulted and raised no objections and agreed with the Environmental Impact Assessment's findings that no significant adverse landscape and visual effects were predicted on Edinburgh City's backdrop of the Firth of Forth, from Calton Hill within the World Heritage Site.

East Lothian Council was consulted and did not object to the proposal, recognising the need for the facility and the short time period for which consent is sought. The Council recommended that in order to minimise and mitigate the visual impact of the project, expert opinion should be sought to select the most appropriate colouration and lighting of the turbine for the Firth of Forth area. Consequently the opinion of the Civil Aviation Authority, Defence Infrastructure Organisation and Northern Lighthouse Board has been sought for the marking and lighting of the turbine.





Ecology and Ornithology

SNH was consulted and considered that the deployment and operation of the demonstrator turbine and associated infrastructure, including the periodical replacement of the turbine, can be implemented without serious adverse effects on natural heritage. SNH recommended that in any consent, an appropriate, detailed and agreed Project Environmental Monitoring Programme and Construction Method Statement be put in place to minimise any potential impacts.

Otters are not known to inhabit the site of the proposed Development. To be certain a condition of consent will be imposed on the Company to carry out a preconstruction otter survey to confirm no otters use the site.

SNH advised the nearest known seal haul-out site is sufficiently far away from the proposed development for disturbance impacts at the haul-out site to not be of any concern.

Considering the proposed small-scale and limited duration of the Development and the chosen option to drill and grout the pile foundations, SNH advised that there would be no significant disturbance to cetaceans provided mitigation measures were followed. Use of a Marine Mammal Observer (MMO) prior to and during noisy activities will be enforced through the inclusion of appropriate conditions. If adopted, an application for a European Protected Species Licence will not be required.

SNH consider that if appropriate mitigation measures are undertaken then the proposal shall not adversely affect the Favourable Conservation Status of qualifying features of the one SAC and two SPAs relevant to the proposed development. Owing to the view of SNH that the proposal is likely to have a significant effect on the qualifying interests of the Firth of Forth SPA, Forth Islands SPA, and Firth of Tay & Eden Estuary SAC, the Scottish Ministers, as "the competent authority" in terms of the Habitats Directive and Habitats Regulations carried out an Appropriate Assessment. The Scottish Ministers ascertained with sufficient confidence that the proposed Development will not have an adverse impact on the integrity of these SPAs and SAC, therefore it was concluded that impacts on site integrity could be avoided.

RSPB Scotland was consulted and had no comments to make given the low collision risk figures they calculated and the relatively short period of time that the turbine will be operational for (a maximum of 5 years after commissioning). The low collision risk figures calculated for breeding populations of fulmar, shag, cormorant, kittiwake, sandwich tern and common tern equates to negligible change when applied to the Forth Islands SPA populations.

SNH was consulted on Benthic ecology and consider that the proposed site of the Development is unlikely to host any benthic features that are of particular value or aren't widely available in surrounding areas. SNH advised that none of the habitats notified as part of the Firth of Forth SSSI are present at the Development site. This was confirmed by a pre-construction benthic survey carried out for the construction of the Development's associated offshore Met Mast under a separate Marine Licence application.



Marine Scotland Science was consulted and had no comments to make on Benthic Ecology. Marine Scotland Science agreed with the findings of the associated Met Mast pre-construction benthic survey, that there are no species or habitats to be found that have any value in the area of the proposed Development.

Cumulative Impact

Landscape and Visual

As the turbine is a demonstration turbine, only operational for a maximum of five years, any potential cumulative impact will be temporary in nature. The Development will have limited capacity for additional cumulative effects as the addition of this single turbine Development will not significantly increase the local wind farm influence.

Ecology and Ornithology

The Scottish Ministers are in agreement with SNH that any potential cumulative, and in combination, effects will not adversely effect the integrity of the one SAC and two SPAs relevant to the proposed development. This is due to the localised, modest and time-limited nature of potential impacts associated with this proposal and current knowledge of other developments likely to occur during the life-time of the Development.

Water Resources and Coastal Hydrology

The Scottish Environment Protection Agency (SEPA) was consulted and raised no objection to the proposed Development.

Marine Scotland Science had no comments to make on coastal processes associated with the proposed Development.

SNH concluded that any impacts upon Coastal Processes would be highly localised, time-limited and unimportant considering the site is already a highly altered area of coastline.

Archaeology and Cultural Heritage

Historic Scotland was consulted and raised no objection to the proposed Development.

Operational Noise

Through a condition imposed by Scottish Ministers in the consent, the Company must monitor the operational noise of the turbine. If the operational noise should exceed the acceptable levels set by Fife Council, the operator of the turbine must cease its operation until such time as adequate mitigation measures have been put in place. Fife Council will use ETSU-R-97 standards on noise levels until such time a new updated standard is available.







Shadow Flicker

Through the inclusion of a condition within the consent, the Company will require to monitor and respond to incidents of unacceptable levels of shadow flicker by use of appropriate mitigation.

Aviation and Telecommunications

The Civil Aviation Authority (CAA) was consulted and the Company and operator of the turbine must adhere to aviation industry standards and procedures by the inclusion of conditions to the consent.

The National Air Traffic Service (NATS) was consulted and raised no safeguarding objection to the Development.

The Defence Infrastructure Organisation was consulted and raised no objection to the proposed Development. Requests for appropriate lighting of the structure and notices to update flying charts will be met by conditions included in the consent.

BT Network Radio Protection was consulted but submitted a nil return.

The Joint Radio Company considered the Application with respect to radio link infrastructure operated by Scottish Power and Scotia Gas Networks. No problems are foreseen by it based upon known interference scenarios on the data provided in the Environmental Statement.

Navigation

The Maritime and Coastguard Agency (MCA) was consulted and raised no significant concerns as the Development is unlikely to have an adverse impact on safety of navigation. Standard consent conditions provided by the MCA will form part of the consent for the Development.

The Northern Lighthouse Board (NLB) was consulted and requested that standard conditions form part of the consent for the Development.

Royal Yachting Association (Scotland) was consulted and raised no objection to the proposed Development as there is not expected to be any adverse impacts upon navigation.

Socio-economics, Recreation & Tourism, Land-Use and Commercial Fishing

Due to the relatively short term lifespan of the project the Socio-economics and Land Use factors whilst important were not raised as particular concerns. The potential of the project in terms of inward investment and also the relatively short time period for which consent is sought is considered to outweigh any negative impacts on these considerations. Locating this demonstrator facility in Fife will help to promote the offshore wind industry in the area. It will allow Fife to develop strong relationships with turbine manufacturers and help attract future investment.



The surrounding land is brownfield, and as such, is part of Fife Council's regeneration objectives. Fife Council endorses the regeneration of the area, calling it the 'Fife Energy Park'. The park includes the Fife Renewables Innovation Centre which has exceeded its occupancy targets by 18% with 38% of units leased against a target of 20% by March 2013.

Royal Yachting Association (Scotland) was consulted for recreational sailing purposes and raised no objection to the proposed Development.

The Scottish Canoe Association was consulted but no response was received.

The Scottish Ministers note that attitudes of tourists towards wind farms have been assessed in many studies. The results of stated preference studies have found that generally the majority of tourists were positive towards wind farms. Omnibus Research, commissioned by Visit Scotland in 2011, found that 80% of the survey respondents stated that a wind farm would not affect their decision to visit an area.

Marine Scotland Science was consulted on commercial fisheries and they had no comments to make on the proposed development due to the low fishing effort in the area. Marine Scotland Compliance was also consulted and no response was received.

The Scottish Fisherman's Federation and the Scottish Fisherman's Organisation were also consulted and no responses received.

Climate and Carbon Balance, Healthy and Safety and Traffic Management

Due to the nature of the test facility, and the unknown performance data for the new turbine designs it is not possible to predict the exact amount of energy which will be produced by the Development over its lifespan and therefore a calculation of the displacement of CO2 cannot be made. It can, however, be stated that any energy generated from the site will result in the displacement of CO2 generated from non-renewable sources and that the aim of the project, to further the development of the UK offshore wind industry, will contribute to the reduction of CO2 emissions from UK power generation in the long term.

The Health and Safety Executive was consulted and had no comments on the Environmental Statement. The Health and Safety Executive's principle concerns are the health and safety of people affected by work activities. The Company will be responsible for managing the site in compliance with all relevant Health and Safety Regulations.

Transport Scotland was consulted and had no comment to make as the proposed Development is likely to cause minimal environmental impact upon the trunk road network. JMP Consultants Ltd shared the views of Transport Scotland that the information provided within the Environmental Statement on the traffic associated with the proposed development will have no significant impact on the trunk road network and its adjacent receptors in terms of Noise and Air Quality.







Consideration of other material issues

The Scottish Ministers consider the following issues material to the merits of the section 36 consent application made under the Electricity Act.

The Company has provided adequate environmental information for the Scottish Ministers to judge the impacts of the Development.

The Company has identified what can be done to mitigate the impact of the Development.

The matters specified in paragraph 3(2) of Schedule 9 to the Electricity Act have been adequately addressed by means of the Environmental Statement and the Scottish Ministers have judged that the likely environmental impacts of the Development are acceptable.

The Scottish Ministers are satisfied that the Development can be satisfactorily decommissioned and will take steps to ensure that any decommissioning programme required under the Energy Act 2004 is prepared in a timely fashion by imposing a condition requiring the submission of a draft decommissioning plan before construction of works can take place.

The Scottish Ministers have considered fully and carefully the Application and accompanying documents and all relevant responses from consultees and the five public representations received.

The 7 MW Development 35 metres off the coast of Fife has the potential to annually generate renewable electricity equivalent to the demand from approximately 3,400 homes. This increase in the amount of renewable energy produced in Scotland is entirely consistent with the Scottish Government's policy on the promotion of renewable energy and its target for renewable sources to generate the equivalent of 100% of Scotland's annual electricity demand by 2020. Scotland requires a mix of energy infrastructure in order to achieve energy security at the same time as moving towards a low carbon economy. Due to the intermittent nature in the generation of electricity in many types of renewables, a balanced electricity mix is required to support the security of supply requirements. Scotland has the capability and the opportunity to generate a level of electricity from renewables by 2020 that would be the equivalent of 100% of Scotland's gross electricity consumption. This does not mean an energy mix where Scotland will be 100% reliable on renewables generation by 2020; but it supports Scotland's plan to remain a net exporter of electricity.

The Scottish Ministers aim to achieve a thriving renewables industry in Scotland, the focus being to enhance Scotland's manufacturing capacity, to develop new indigenous industries, and to provide significant export opportunities. The Scottish Ministers have considered material details of how this proposal can contribute to local and national economic development priorities.



The Scottish Ministers' Determination

Subject to the conditions set out in **ANNEX 2** to this Decision, the Scottish Ministers **GRANT CONSENT** under section 36 of the Electricity Act for the construction and operation of the Development, consisting of 1 turbine with a permitted capacity of up to 7 megawatts (as described in **ANNEX 1**).

The Scottish Ministers direct that this consent is to lapse on the expiry of a period of 2 years from the date of this direction if Commencement of the Development has not taken place within that period.

The Scottish Ministers direct that within 2 months of the date of this consent (and within 2 months of the final commissioning if there has been any variation on the original approved plan), the Company must provide a detailed plan showing the site boundary and all turbines in a format compatible with the Scottish Government's Spatial Data Management Environment (SDME), along with appropriate metadata to the Scottish Ministers.

The SDME is based around Oracle RDBMS and ESRI ArcSDE and all incoming data must be supplied in ESRI shapefile format. The SDME also contains a metadata recording system based on the ISO template within ESRI ArcCatalog (agreed standard used by the Scottish Government); all metadata should be provided in this format.

In accordance with the Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2000 (as amended), the Company must publicise this determination for two successive weeks in the Edinburgh Gazette and one or more newspapers circulating in the locality of the Development.

In reaching their Decision they have had regard to all objections and relevant considerations and, subject to the conditions included in this consent, are satisfied that it is appropriate for the Company to construct and operate the generating station in the manner as set out in the Application.

Copies of this letter and the consent have been sent to Fife Council. This letter has also been published on the Marine Scotland website.

The Scottish Ministers' decision is final, subject to the right of any aggrieved person to apply to the Court of Session for judicial review. Judicial review is the mechanism by which the Court of Session supervises the exercise of administrative functions, including how the Scottish Ministers exercise their statutory function to determine Applications for consent. The rules relating to the judicial review process can be found at Chapter 58 of the Court of Session rules on the website of the Scottish Courts –

http://scotcourts.gov.uk/rules-and-practice/rules-of-court/court-of-session-rules

Your local Citizens' Advice Bureau or your solicitor will be able to advise you about the applicable procedures.







Yours sincerely

[Redacted]

JAMES MCKIE

Leader, Marine Scotland Licensing Operations Team A member of the staff of the Scottish Ministers 3rd May 2013

Annex 1

DESCRIPTION OF THE DEVELOPMENT

The consent covers the construction and operation of the Fife Energy Park Offshore Demonstration Wind Turbine situated approximately 35 metres offshore from Mean High Water Springs (MHWS). It should be noted that consent is for the construction and operation and, if appropriate, removal and replacement of the turbine for a **maximum of 5 years** after commissioning of the original turbine. If during this timescale testing is completed on the original turbine, it will be removed and replaced with a new turbine (within the same design parameters and subject to the original section 36 consent, and all of the conditions attached thereon) for testing. Only one turbine will ever be installed at any one time. The section 36 consent will cover the construction, operation and removal of all turbines tested at the site.

The principal components of the Scheme comprise of the following:

- A single, three bladed demonstration wind turbine with an installed capacity of up to 7 MW. The turbine tower is up to 110 m tall, from Mean Sea Level (MSL) including the base jacket. The turbine has a maximum rotor diameter of 172 m, giving a maximum level from the MSL to turbine tip of up to 196 m;
- A personnel bridge connection between the Fife Energy Park (FEP) and turbine tower;
- Construction of an onshore crane pad and Control compound on the FEP (which is subject to Town and Country Planning legislation, application for which has been made to Fife Council and not, therefore, covered by the section 36 consent); and
- · Offshore cabling.





Annex 2

CONDITIONS OF THE SECTION 36 CONSENT

Part 1 Conditions of Section 36 Consent

The consent granted in accordance with section 36 of the Electricity Act 1989 is subject to the following conditions:

1. The consent is for a period from the date the consent is granted until the date occurring 5 years after the Final Commissioning of the turbine. Written confirmation of the date of the Final Commissioning of the turbine must be provided by the Company to the Scottish Ministers, the Planning Authority and Scottish Natural Heritage no later than one calendar month after the Final Commissioning of the Development.

Reason: To define the duration of the consent.

The Commencement of the Development must be a date no later than 2 years from the date the consent is granted, or such other date from the date of the granting of the consent as the Scottish Ministers may hereafter direct in writing.

Reason: To ensure the Commencement of the Development is undertaken within a reasonable timescale after consent is granted.

3. Commencement of the Development must not proceed until after the Company has submitted to the Secretary of State a decommissioning programme in compliance with a notice served upon the Company by the Secretary of State following consultation with the Scottish Ministers, pursuant to Sections 105(2) and (5) of the Energy Act 2004.

Reason: To ensure that a decommissioning plan is submitted to the Secretary of State following consultation with the Scottish Ministers before any construction commences.

4. In the event that for a continuous period of 12 months or more the wind turbine installed fails to produce electricity on a commercial basis to the National Grid, then unless otherwise agreed in writing by the Scottish Ministers and after consultation with any advisors as required at the discretion of the Scottish Ministers, the wind turbine, associated foundations and fitments shall be deemed by the Scottish Ministers to cease to be required. If so deemed, the wind turbine and its ancillary equipment must be dismantled and removed from the Site by the Company within the period of 12 months from the date of the decision to deem the wind turbine as ceasing to be





required and the Site must be fully reinstated by the Company to the specification and satisfaction of the Scottish Ministers after consultation with any advisors as may be required at the discretion of Scottish Ministers.

Reason: To ensure that a redundant wind turbine and ancillary equipment is removed from the Site in the interests of safety, amenity and environmental protection.

5. The Company is not permitted to assign the consent without the prior written authorisation of the Scottish Ministers. The Scottish Ministers may grant consent (with or without conditions) or refuse such authorisation as they may, in their own discretion, see fit. The consent is not capable of being assigned, alienated or transferred otherwise than in accordance with the foregoing procedure.

Reason: To safeguard the obligations of the consent if assigned to another company.

6. If any serious health and safety incident occurs on the Site requiring the Company to report it to the Health and Safety Executive then the Company must also notify the Scottish Ministers of the incident within 24 hours of the incident occurring.

Reason: To inform the Scottish Ministers of any serious health and safety incident occurring on the Site.

7. The Development must be constructed and operated in accordance with the terms of the Application, the accompanying Environmental Statement and Addendum letter, except in so far as amended by the terms of the Section 36 consent and any direction made by the Scottish Ministers.

Reason: To ensure that the Development is carried out in accordance with the application documentation.

- 8. Prior to the Commencement of Development a Construction Method Statement (CMS) must be submitted by the Company to the Scottish Ministers and approved, in writing by the Scottish Ministers, following consultation with the Planning Authority, Scottish Natural Heritage, the Scottish Environment Protection Agency, and any such other advisors as may be required at the discretion of the Scottish Ministers. Unless otherwise agreed in writing by the Scottish Ministers, construction of the Development must proceed in accordance with the approved CMS. The CMS must include, but not be limited to, information on the following matters:
 - a. Commencement dates;
 - Working methods including the scope, frequency and hours of operations;



- c. Methods of installation;
- d. Pollution prevention measures including contingency plans; and

The Scottish Ministers must be notified of any proposed turbine exchange three months prior to the commencement of such works. This notification must include a revised CMS detailing methods for the exchange of turbines.

Reason: To ensure the appropriate construction management of the Development, taking into account mitigation measures to protect the environment and other users of the marine area.

9. No work shall commence on the Development until the Scottish Ministers, following consultation with the Maritime and Coastguard Agency (MCA), has specified in writing that they are satisfied that the Company has taken into account and adequately addressed all of the MCA recommendations in the current Marine Guidance Note "Offshore Renewable Energy Installations - Guidance on UK Navigational Practice Safety and Emergency Response Issues" and annexes that may be appropriate to the Development, or any other relevant equivalent document which may, from time to time, supersede said Guidance.

Reason: To minimise the impact of the development on navigational interests.

10. The turbine must be fitted with a 2000 candela omni-directional red light at the highest practicable point and the turbine must be painted yellow up to 15 metres above the highest astronomical tide. The remaining parts of the structure above this point (rotor blades, nacelle and supporting mast) are to be painted entirely white, unless otherwise agreed in writing by the Scottish Ministers

Reason: To minimise risk to marine and air traffic by ensuring high visibility of turbine.

11. No later than three months prior to the Commencement of Development an appropriately targeted Project Environmental Monitoring Programme (PEMP) must be submitted to, and approved by, the Scottish Ministers in consultation with the Planning Authority, SNH, and any other ecological advisors, or such other advisors as required at the discretion of the Scottish Ministers. The PEMP must set out the specific monitoring and mitigation measures required to be undertaken by the Company associated with construction and operational noise, marine mammals, birds, basking sharks, migratory fish, shellfish and seals. The PEMP must also set out the requirements for monitoring and, where appropriate, the agreed mitigation of the potential impacts of the turbine onshore, namely – construction and operational noise, shadow flicker, television reception and ice build up. The Company must, when directed by the Scottish Ministers, provide the data received, and information regarding mitigation measures, under the PEMP to the Scottish



Ministers.

Reason: To ensure that appropriate and effective monitoring of the impacts of the Development is undertaken.

12. The Project Environmental Monitoring Programme (PEMP) is a living document that is reviewed and updated by the Company as and when data from the demonstrator turbine is analysed. A copy of the updated PEMP must be submitted to, and approved by, the Scottish Ministers, with the first copy being submitted to the Scottish Ministers for approval no later than one year after the final commissioning of the turbine and thereafter on an annual basis, until the Development is decommissioned.

Reason: To ensure that appropriate and effective monitoring of the impacts of the Development is undertaken.

13. The operational noise of the turbine must not exceed the limits set out in the first table in Annex 3 to this consent at the stated times, wind speeds and locations. If the monitoring of the operational noise through the Project Environmental Monitoring Programme (PEMP) shows that the noise of the turbine exceeds those limits, at those times, wind speeds and locations, then the operation of the turbine must cease immediately until such time as the Company has satisfied the Scottish Ministers, in consultation with Fife Council, that adequate mitigation measures have been put in place.

Reason: To minimise the impact of the Development.

14. Prior to the Commencement of the Development, a Construction Noise Management Plan must be submitted to, and approved by, the Scottish Ministers, in consultation with any such advisors from Fife Council, as identified at the discretion of the Scottish Ministers.

The Company must implement the approved Construction Noise Management Plan in full, unless otherwise agreed in writing by the Scottish Ministers.

Reason: To ensure the proper environmental control in respect of noise, and to safeguard the amenities of the nearest residential properties.

15. Within 12 months of the Final Commissioning of the turbine, any claim by any individual person regarding television picture loss or interference at their house, business premises or other building, which they claim is attributable to the operation of the turbine must be investigated by a qualified engineer appointed by the Scottish Ministers in consultation with the Planning Authority. The Company is liable for any reasonable expenses incurred by any investigation. The results of the investigation must be submitted to the Scottish Ministers. Should any impairment to the television signal be







attributable to the Development, the Company must remedy such impairment as soon as practicable to provide that the standard of reception at the affected property is equivalent to the baseline TV reception.

Reason: For the protection of the local amenity.

Three months prior to the Commencement of the Development a preconstruction otter survey must be undertaken by a suitably qualified ecologist.
The survey must include the Development footprint (i.e. access roads, turbine
location, temporary construction areas etc.) and an appropriate buffer
(maximum 500 metres) around each of these. In the event that an otter is (or
otters are) observed or signs of breeding or resting otter (or otters) be
discovered during construction works then works within 100 metres radius of
the site of the observation or signs must cease until a survey determines
whether there is a holt. If a holt is discovered, construction cannot resume
unless suitable mitigation measures have been agreed by SNH and carried
out by the Company.

Reason: In the interest of the protection of species of European importance.

17. The works must be maintained by the Company at all times in good repair.

Reason: To ensure the works do not become a risk to Navigation.

- 18. At a time to be agreed by the Scottish Ministers, in consultation with the Civil Aviation Authority (CAA), the following information must be provided by the Company to the CAA for aviation charting purposes:
 - a. Precise location of the turbine;
 - b. Maximum blade tip height;
 - c. Construction start and end dates;
 - d. Confirmation the turbine is lit in accordance with Article 220; and
 - e. Confirmation that the colour of the turbine is as directed.

Reason: In the interests of aviation safety.



Definitions

In this consent:

"the Application" means the Application and Environmental Statement submitted to the Scottish Ministers by the Company on 30 July 2012.

"Article 220" means Article 220 of The Air Navigation Order 2009.

"the Company" means Scottish Enterprise, New Lanarkshire House, Strathclyde Business Park, ML4 3AD.

"the Development" means the Fife Energy Park Offshore Demonstration Wind Turbine (FEPODWT), Methil, Fife.

"Commencement of the Development" means the date on which the first construction activity occurs in accordance with the Environmental Statement submitted by the Company on 30 July 2012.

"Environmental Statement" means the Environmental Statement submitted to the Scottish Ministers by the Company on 30 July 2012 as part of the Application as defined above.

"Final Commissioning of the turbine" means the date on which the first wind turbine generator constructed forming the Development has supplied electricity on a commercial basis to the National Grid, or such earlier date as the Scottish Ministers deem the Development to be complete.

"Habitats Directive" means Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora as amended.

"Planning Authority" means Fife Council.

"SEPA" means the Scottish Environment Protection Agency.

"Site" means the area of land outlined in red on Figure 1.2, attached to this consent.

"SNH" means Scottish Natural Heritage.



Annex 3 FIFE COUNCIL RECOMMENDED CONDITION ON NOISE LEVELS

Recommended Condition on Noise Levels

The rating level of noise emissions from the wind turbine generator, when measured and calculated in accordance with the Guidance Notes below shall not exceed the following levels at the stated wind speed at the named dwellings in Methil and Buckhaven (All measurements are LAF90.10min):

4	Wind Speed at 10m Height (mps)								
	4	5	6	7	8	9	10	11	12
Rear Boundary of 20 Well	esley Road	- v.,		e					
Night-Time Noise Limit	43	43	43	44.5	47.2	49.9	51.6	51.2	51.2
Day-Time Noise Limit	44	44.1	44.8	46.3	48.8	48.8	48.8	48.8	48.8
			43	43	43.4	46.7	49.1	49.9	49.9
Rear boundary of 94 Well Night-Time Noise Limit Day-Time Noise Limit	43 41.3	43 41.5	43 42.7	43 45.1	43.4 47.9	46.7 47.9	49.1 47.9	49.9 47.9	49.9
Night-Time Noise Limit Day-Time Noise Limit	43	43							
Night-Time Noise Limit	43	43							

THE GUIDANCE NOTES

The following paragraphs are based upon steps 2-6 specified in Section 2 of the Supplementary Guidance Notes to the Planning Obligation contained within pages 102 et seq of "The Assessment and Rating of Noise from Wind Farms, ETSU-R-97" published by ETSU for the Department of Trade and Industry. It has been adapted in the light of experience of actual compliance measurements.

NOTE 1

Values of the $L_{A90,10min}$ noise statistic should be measured at the affected property using a sound level meter of at least IEC 651 Type 1 quality. This should be fitted with a ½" diameter microphone and calibrated in accordance with the procedure specified in BS 4142: 1990. The microphone should be mounted on a tripod at 1.2 - 1.5 m above ground level, fitted with a two layer windshield wind shield or suitable equivalent, and placed in the vicinity of, and external to, the property. The intention is that, as far as possible, the measurements should be made in "free-field" conditions. To achieve this, the microphone should be placed at least 3.5m away from the building facade or any reflecting surface except the ground.

The L_{A90,10min} measurements should be synchronised with measurements of the 10-minute average wind speed and with operational data from the turbine control systems of the wind farm or farms.

The wind speed and wind direction and a note of all 10 minute periods when one or more of the turbines was not operating normally should be provided to the consultant to enable an analysis to take place.

The precise definition of "normal operation" should be agreed in writing with the local authority prior to the commencement of the development on the basis of data available





but should generally be taken to mean when the turbine power output is not significantly different from the reference power curve using the nacelle anemometer.

In the interests of commercial confidentiality no information is required to be provided for individual turbines or on the nature of any abnormality or for any period during which noise monitoring is not taking place.

NOTE 2

The noise measurements should be made over a period of time sufficient to provide not less than 100 valid data points. Measurements should also be made over a sufficient period to provide valid data points throughout the range of wind speeds considered by the local authority to be most critical. Valid data points are those that remain after the following data have been excluded:

- · All periods during rainfall
- All periods during which wind direction is more than 45 degrees from every line from each of the turbines and the measurement position.
- All periods during which turbine operation was not normal.

A least squares, "best fit" curve should be fitted to the data points.

NOTE 3

Where, in the opinion of the Local Authority, the noise immission contains a tonal component, the following rating procedure should be used. This is based on the repeated application of a tonal assessment methodology.

For each 10-minute interval for which L_{A90,10min} data have been obtained, a tonal assessment is performed on noise immission during 2-minutes of the 10-minute period. The 2-minute periods should be regularly spaced at 10-minute intervals provided that uninterrupted clean data are obtained.

For each of the 2-minute samples the margin above or below the audibility criterion of the tone level difference, ΔL_{tm} , is calculated by comparison with the audibility criterion given in Section 2.1 on page 104 et seq of ETSU-R-97.

The margin above audibility is plotted against wind speed for each of the 2-minute samples. For samples for which the tones were inaudible or no tone was identified, substitute a value of zero audibility.

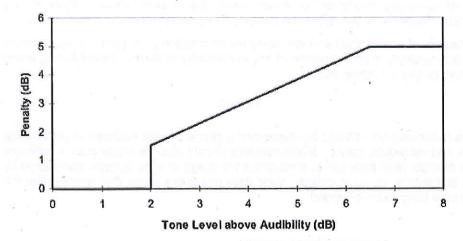
A linear regression is then performed to establish the margin above audibility at the assessed wind speed. If there is no apparent trend with wind speed then a simple arithmetic average will suffice.

The tonal penalty is derived from the margin above audibility of the tone according to the figure below.









The rating level at each wind speed is the arithmetic sum of the wind farm noise level, as determined from the best fit curve described in Note 2, and the penalty for tonal noise.

The rating level shall be determined for each wind speed. If the values lie below the maximum values of turbine noise indicated by the tables in the conditions then no further action is required.

NOTE 4

If the rating level is above the limit, a correction for the influence of background noise should be made. This may be achieved by repeating the steps in Note 2, with the wind farm switched off, and determining the background noise at the assessed wind speed, L_b . The wind farm noise at this speed, L_w , is then calculated as follows where La is the measured level with turbines running but without the addition of any tonal penalty:

$$L_W = 10\log\left(10\frac{L_a}{10} - 10\frac{L_b}{10}\right)$$

The Rating level is re-calculated by adding the tonal penalty (if any) to the wind farm noise. If the rating level lies below the values indicated from the tables in the conditions then no further action is required.

If the rating level exceeds any of the turbine noise levels in the tables then the development fails to comply with the conditions



