



Research Paper

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# THE IMPLEMENTATION OF THE ENVIRONMENTAL IMPACT ASSESSMENT DIRECTIVE AND A BACKGROUND TO OFFSHORE ENERGY GENERATION IN NORTHERN IRELAND

**Aidan Stennett**

This paper provides an overview of the *Implementation of the Environmental Impact Assessment Directive for Offshore Electricity Developments in Northern Ireland* consultation document, alongside the proposals which seek to reduce the threshold of wind and water generation developments requiring an impact assessment from 10MW to 1MW. The paper will also consider the implications of these proposals. Further information, outlining the potential energy sources available within Northern Ireland waters and proposed developments, is also provided.

Research Papers are compiled for the benefit of Members of The Assembly and their personal staff. Authors are available to discuss the contents of these papers with Members and their staff but cannot advise members of the general public.

## SUMMARY OF KEY POINTS

Northern Ireland's current renewable energy target is to have 12% of electricity generated from indigenous renewable sources by 2012.

The Environment Impact Assessment Directive enables a systematic assessment of potential environmental effects, helping to ensure that predicted effects and adverse effects are understood by both the public and regulatory authority before a decision to grant or deny planning permission is made.

*The Implementation of the Environmental Impact Assessment Directive for Offshore Electricity Developments in Northern Ireland* is designed to transpose the Directive onto offshore electricity developments.

The Department of Enterprise Trade and Investment is proposing a reduction in the threshold of offshore energy generating developments requiring departmental consent from 10MW to 1MW. The Department believes that this will increase the number of developments caught by the regulations, resulting in increased levels of environmental protection in the NI offshore area.

The regulations will mean that offshore developments between 1MW and 10MW will now have to apply for departmental consent. The cost of which is a £350 non-recurring application fee.

This move would also bring Northern Ireland in line with the rest of the UK. The Electricity Act 1989 (Requirement of Consent for Offshore Wind and Water Driven Generating Stations) (England and Wales) Order 2001 reduced the threshold from 50MW to 1MW.

The three main types of offshore renewable energy are wind, wave and tidal. Taken together, wave and tidal energy are generally known as marine energy.

The following possible impacts of offshore energy generation have been identified by the Energy Research Centre:

- Habitat disturbance during commissioning, operation, maintenance and decommissioning;
- Changes in seabed morphology, both removal and expansion through device installation, removal and associated cabling;
- Noise and vibration impacts on marine mammals;
- Collision, injuries and fatalities of fauna in contact with offshore devices both above and below the surface;
- Changes in wave energy and dynamics during device operation;
- Disturbance of navigation and migration by electromagnetic radiation in both pelagic fish and marine mammals;
- Ecotoxicology of anti-fouling agents.

In 2003 a report, commissioned by DETI and Northern Ireland Electricity, was conducted to identify the *most promising areas for the future cost-effective development of tidal stream energy resources in Northern Ireland waters*. Of the three sites analysed during the 2003 study only at one, Strangford Narrows, has any development been pursued. The project was granted development consent but construction is yet to begin. The site has received some criticism from both environmental and non-environmental stakeholders.

Offshore wind energy has considerable potential in Northern Ireland. Based on figures presented in a report entitled *Assessment of Offshore Wind Energy Resources in the Republic of Ireland and Northern Ireland*<sup>1</sup> and DETI's estimate that Northern Ireland's total energy consumption is approximately 9,000 gigawatt hours per annum, it is possible to calculate the following results:

- Offshore wind energy, using 1.65MW turbines and at 500 metre spacing could potentially provide (assuming every km<sup>2</sup> of available territorial water was used) up to 144% of Northern Ireland's energy needs (1 gigawatt equals 0.001 terawatt);
- If 3MW turbines are used to generate offshore wind energy and if exploited to its total capacity, could provide approximately 168.5% of Northern Ireland's energy needs.

There are currently no offshore wind farms in operation in Northern Ireland waters but a project is being considered for Tunes Plateau. This project has again received a mixed reaction.

A large wind farm off the coast of Arklow, Co Wicklow has the capacity to provide power to an estimated 16,000 households.

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<sup>1</sup> A joint report commissioned on behalf of the Department for Enterprise, Trade and Investment Northern Ireland and the Department of Public Enterprise in the Republic of Ireland (now the Department of Enterprise, Trade and Employment)

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## 1 Introduction

The current target for usage of renewable energy in Northern Ireland is to have 12% of electricity generated from indigenous renewable sources by 2012. This target is in line with the indicative 2010 target of 10% for the UK as a whole provided for in Directive 2001/77/EC. Currently approximately 3% of electricity consumed in Northern Ireland is generated from indigenous renewable sources<sup>2</sup>.

The potential of offshore energy, particularly offshore wind power is well documented. In a press release dated October 2007 Friends of the Earth stated:

*Offshore wind could provide UK electricity demand several times over. Turn the North Sea into an offshore powerhouse by championing finance and regulatory support for a massive European electricity grid which could harness this power<sup>3</sup>.*

This paper will provide an overview of the *Implementation of the Environmental Impact Assessment Directive for Offshore Electricity Developments in Northern Ireland* consultation document, alongside the proposals which seek to reduce the threshold of wind and water generation developments requiring an impact assessment from 10MW to 1MW. The paper will also consider the implications of these proposals.

Further information, outlining the potential energy sources available within Northern Ireland waters and proposed developments, is also provided.

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<sup>2</sup> [http://www.detini.gov.uk/cgi-bin/get\\_builder\\_page?page=2213&site=5&parent=21&prepage=53](http://www.detini.gov.uk/cgi-bin/get_builder_page?page=2213&site=5&parent=21&prepage=53)

<sup>3</sup> [http://www.foe.co.uk/resource/press\\_releases/friends\\_of\\_the\\_earth\\_anger\\_23102007.html](http://www.foe.co.uk/resource/press_releases/friends_of_the_earth_anger_23102007.html)

## 2 The Environmental Impact Assessment Directive

### 2.1 The Directive

The Environmental Impact Assessment Directive 85/337/EEC (EIA), which came into force on 3 July 1988 and was subsequently amended by Directive 97/11/EC, aims at ensuring the authority giving primary consent for a particular project (known as the 'competent authority') makes its decision in the context of any likely significant effects on the environment. To achieve this, the directive, sets out procedures which must be followed before 'development consent' can be granted to a particular project<sup>4</sup>.

The EIA procedure enables a systematic assessment of potential environmental effects, helping to ensure that predicted effects and adverse effects are understood by both the public and regulatory authority before a decision to grant or deny planning permission is made. The Department of Enterprise, Trade and Investment is named as the 'competent authority' for offshore electricity developments covered by the directive in Northern Ireland<sup>5</sup>.

Projects requiring an EIA must complete a three stage procedure<sup>6</sup>:

- The developer must compile an Environmental Statement (ES), containing detailed information about the likely environmental effects of the project;
- The ES must be published and the both the public and relevant public authorities must be given an opportunity to express their views on the project;
- The 'competent authority' must take the ES and any other comments made on it into account when deciding whether or not to give consent to a project.

### 2.2 The Draft Offshore Electricity Development (Environmental Assessment) Regulations 2008

The EIA Directive has already been applied to particular types of offshore development in Northern Ireland. The draft Offshore Electricity Development (Environmental Impact Assessment) Regulations 2008<sup>7</sup>, will, if passed, transpose the Directive solely in respect of offshore electricity developments for the:

- construction, extension or operation of generating stations which require the Department's consent under Article 39 of the Electricity (NI) Order 1992, known as *Article 39 consents* (equivalent to *Article 36 consents* in Great Britain);
- the installation or keeping installed above ground of electric lines which require the Department's consent under Article 40 of the Electricity Order, (*Article 40 consents*).

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<sup>4</sup> Consultation on Implementation of the Environmental Impact Assessment Directive ("EIA" Directive) <http://www.detini.gov.uk/cgi-bin/downutildoc?id=2061>

<sup>5</sup> *Ibid*

<sup>6</sup> *Ibid*

<sup>7</sup> *Ibid*

If brought into force the regulations will introduce a non-discretionary system which will require an EIA to be carried out upon any proposed development where *significant effects on the environment are likely*<sup>8</sup>.

2.3 The Electricity (Offshore Wind and Water Driven Generating Stations) (Permitted Capacity) Order (Northern Ireland) 2008

In addition to introducing the above regulations the Department is also proposing to reduce the threshold of offshore wind-and-water powered generating systems requiring departmental consent from 10MW to 1MW. Such an amendment would bring threshold limits in Northern Ireland's offshore areas in line with Great Britain. The amendment would be achieved by introducing the Electricity (Offshore Wind and Water Driven Generating Stations) (Permitted Capacity) Order (Northern Ireland) 2008<sup>9</sup>.

The significance of such a move is summarised in DETI's consultation document as follows:

*... the suggested change, proposals for offshore generating stations with an anticipated capacity of over 1MW (rather than 10MW) may also require an EIA to be carried out as part of the Article 39 consent process. This will increase the number of offshore generating developments caught by the Regulations and result in increased levels of environmental protection in the NI offshore area*<sup>10</sup>.

In its consultation document the Department outlines the following possible impacts of the threshold reduction<sup>11</sup>:

- the regulation will affect electricity generating companies seeking to operate in the offshore area;
- that although it is not possible to put any monetary value on the proposed order it will ensure parity with the rest of the UK and ensure future offshore wind and water driven generating stations likely to have a significant impact on the environment will be subject to an EIA, helping to mitigate the impact on the surrounding environment of such developments if they proceed;
- reducing the threshold as proposed will mean that offshore developments between 1MW and 10MW will now have to apply for departmental consent – a £350 non-recurring application fee;
- no significant increase in departmental cost is foreseen.

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<sup>8</sup> *Ibid*

<sup>9</sup> *Ibid*

<sup>10</sup> *Ibid*

<sup>11</sup> *Ibid*

### 3 The Reduction of offshore threshold to 1MW in Great Britain

The proposed reduction in the threshold of offshore wind and water powered generating systems requiring departmental consent is designed to bring Northern Ireland's legislative system in line with Great Britain's. What follows provides a background to the reduction in threshold levels in Great Britain and a brief overview of the reductions impact.

#### 3.1 Legislative Background

The reduction in the threshold for offshore wind and water power generating systems requiring departmental consent in Great Britain came into force with the passing of the Electricity Act 1989 (Requirement of Consent for Offshore Wind and Water Driven Generating Stations) (England and Wales) Order 2001<sup>12</sup>.

Prior to the introduction of the order Section 36 of the Electricity Act 1989 required that the construction, extension or operation of a generating station with a capacity of over 50MW could not occur without prior consent from the Secretary of State. The 2001 order substituted references to 50MW, contained in section 36 of the Electricity Act 1989, with 1MW<sup>13</sup>.

According to the British Wind Energy Association (BWEA)<sup>14</sup> this change was in response to the increased, and at the time new, interest in offshore energy generation, rather than being designed to enable offshore generation *per se*<sup>15</sup>.

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<sup>12</sup> <http://www.opsi.gov.uk/si/si2001/20013642.htm>

<sup>13</sup> *Ibid*

<sup>14</sup> Both the BWEA and Friends of the Earth UK have been asked to comment on the tangible impact(s) of this legislative alteration. At the time of writing both responses remain outstanding.

<sup>15</sup> Telephone conversation with BWEA 07/12/07



## 4 Offshore Energy Generation in Northern Ireland

### 4.1 Offshore Energy

Offshore renewable energy falls into three broad categories – wind, wave and tidal. Taken together wave and tidal energy are generally known as marine energy<sup>16</sup>. The Carbon Trust estimate that marine energy has the potential to supply 20% of the UK's energy needs by 2020<sup>17</sup>.

Offshore wind turbines operate using similar technology to their smaller onshore counterparts. The turbines, again like their onshore counter parts have an expected life-span of 20 years. Offshore wind turbines are usually installed in shallow waters, up to 30 metres, and although deep water installation is possible it is deemed too costly at present<sup>18</sup>. According to studies carried out by the British Wind Energy Association, offshore wind energy has a generation potential of close to 1,000 terawatt hours (TWh) per year (subject to environmental conditions), equivalent to several times the UK's total electricity consumption<sup>19</sup>.

The following possible impacts of offshore energy generation have been identified by the Energy Research Centre<sup>20</sup>:

- Habitat disturbance during commissioning, operation, maintenance and decommissioning;
- Changes in seabed morphology, both removal and expansion through device installation, removal and associated cabling;
- Noise and vibration impacts on marine mammals;
- Collision, injuries and fatalities of fauna in contact with offshore devices both above and below the surface;
- Changes in wave energy and dynamics during device operation;
- Disturbance of navigation and migration by electromagnetic radiation in both pelagic fish and marine mammals;
- Ecotoxicology of anti-fouling agents.

The Collaborative Offshore Wind Research into the Environment group (COWRIE) identifies the following impacts, specific to offshore wind generation:

- Potential effects of electromagnetic fields (EMF) on fish;
- Baseline methodologies for aerial and boat based surveys;

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<sup>16</sup>

<http://www.ukerc.ac.uk/ResearchProgrammes/EnvironmentalSustainability/ESOffshoreEnergySystems.aspx>

<sup>17</sup> <http://www.carbontrust.co.uk/technology/technologyaccelerator/meal>

<sup>18</sup> [http://www.bwea.com/pdf/briefings/offshore05\\_small.pdf](http://www.bwea.com/pdf/briefings/offshore05_small.pdf)

<sup>19</sup> *Ibid*

<sup>20</sup>

<http://www.ukerc.ac.uk/ResearchProgrammes/EnvironmentalSustainability/ESOffshoreEnergySystems.aspx>

- The displacement of birds (especially Common Scoter) from benthic feeding areas;
- Potential effects of underwater noise and vibration on marine mammals;

#### 4.1.1 Marine Current Energy - Northern Ireland

In 2003 a report, commissioned by DETI and Northern Ireland Electricity, was conducted to identify the *most promising areas for the future cost-effective development of tidal stream energy resources in Northern Ireland waters*<sup>21</sup>.

The report identified three areas considered to hold potential for providing usable tidal current resources. A summary of the findings is outlined below<sup>22</sup>:

- Strangford Narrows – which has a capacity to host up to 30MW at a generating cost of around 3.5p/kWh subject to environmental considerations;
- Off the Copeland Islands – a less energetic location than Strangford Narrows this site was found to have an initial capacity to host up to 27MW with a generating cost of around 4.9p/kWh. However, the study also concluded that there remained a possibility of extending this to 45MW, although at a higher generating cost of 5.7p/kWh.
- The North East coast of Northern Ireland (covering an area stretching from Fair Head to Runabay Head) was found to have an *exceptional energetic flow*. However, the majority of fast moving water is found in waters around 40 to 100 metres deep and therefore unsuitable for the application of *first generation* tidal turbines which operate at a maximum depth of 40 metres. Where fast-moving waters do flow at a suitable depth it is estimated that the area has a potential for developing around 67MW of electricity at 3.5 to 4.5p/kWh.

Of the three sites analysed during the 2003 study only at one, Strangford Narrows, has any development been pursued. The details of this project can be found in the section that follows.

The 2003 study also identified a number of factors influencing the efficiency of marine current energy generation in Northern Ireland waters (these factors were used in the identification of the three sites outlined above)<sup>23</sup>:

- Exposure to oceanic weather conditions, which influences the accessibility of the site both from the point of view of installation and for future maintenance and repairs;
- Distance from the grid and grid strength which influences the cost of grid connection and of any cost relating to interconnection such as grid strengthening on-shore;

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<sup>21</sup> [http://www.actionrenewables.org/uploads\\_documents/DETImarineCurrentEnergy.pdf](http://www.actionrenewables.org/uploads_documents/DETImarineCurrentEnergy.pdf)

<sup>22</sup> *Ibid*

<sup>23</sup> *Ibid*

- Potential conflict with other marine activities such as marine traffic fishing and naval activities; and
- Environmental impacts, the report stating that *sensitivity is needed over assessing any such impacts whether real or potential, especially in locations which are perceived as being sensitive from the point of view of environmental impact issues.*

#### 4.1.2 Strangford Lough – Marine Current Turbine

In November 2003 Marine Current Turbines Limited (MCT) applied to the Environment and Heritage Service (EHS) for permission to install a prototype tidal stream energy system in Strangford Lough Narrows. The prototype device is intended for pre-commercial and environmental development purposes<sup>24</sup>.

The application was subject to an earlier feasibility study conducted by MCT, Queen's University of Belfast (QUB) and engineering consultants Kirk, McClure, Morton (KMM) on behalf of the Department of Enterprise, Trade and Investment. The purpose of the study was to identify areas for the *future cost effective development of tidal stream energy* Northern Ireland waters<sup>25</sup>. The feasibility study concluded that Strangford Lough was the:

*... most attractive location due to the high level of energy available there, but clearly... the least attractive in terms of available space and the likelihood of conflicts arising with other users and interested parties<sup>26</sup>.*

The study added that theoretically the area could potentially house up to 20 turbine installations. However, the study was also of the opinion that the area's *important amenity value for leisure boating, tourism, and its designation as an area of Special Scientific Interest* should be considered when determining whether permission for development should be granted. With this in mind the study stated that:

*a key requirement if any tidal stream turbines are to be installed in this area is to balance the benefits with potential impacts and gain adequate assurances that commercial deployment will not significantly damage any natural processes or cause unacceptable impact<sup>27</sup>.*

The above was weighed against the following points<sup>28</sup>:

- That the technology proposed was considered to have a low environmental impact; and
- That the impact of a small deployment of turbines in Strangford could be managed to remain acceptable (with monitoring being carried out by the closely located QUB Portaferry Marine Biology Station).

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<sup>24</sup> [http://www.marineturbines.com/mct\\_text\\_files/051604%20News%20Letter%20V2.pdf](http://www.marineturbines.com/mct_text_files/051604%20News%20Letter%20V2.pdf)

<sup>25</sup> <http://www.detini.gov.uk/cgi-bin/downutildoc?id=55>

<sup>26</sup> *Ibid*

<sup>27</sup> *Ibid*

<sup>28</sup> *Ibid*

Based on this assessment the study concluded that a single experimental turbine could be installed. The purposes of prototype project were to provide a working environmental, engineering and scientific assessment of the technology and to determine the potential of extending the project to include further turbines<sup>29</sup>.

The Marine Current Turbine project has received consent from both the Environment and Heritage Service of Northern Ireland<sup>30</sup> and the UK government<sup>31</sup>. Construction work on the project was due to begin during autumn 2006, but is now expected to commence in 2008.

During the consultation period for the project, a number of stakeholders (both environmental groups and others) voiced concerns about the project. The Joint Marine Partnership (JMP), a group consisting of World Wide Fund for Nature (WWF) and the Ulster Wildlife Trust (UWT), commented:

*...the JMP [is] only supportive of this proposal if certain conditions were attached to the license to ensure that the internationally important wildlife of Strangford Lough does not deteriorate. We advocated an adaptive precautionary approach<sup>32</sup>.*

The Marine Conservation Society (MCS) was particularly concerned about the project's impact on the Basking Shark population:

*We would be concerned that their movements, behaviour, and possible migration through the narrows would be significantly effected by the presence of the turbine, with the sharks completely moving away from the entrance to the Lough<sup>33</sup>.*

Invest NI have also expressed concern that the project be managed correctly, stating:

*Although MCT does not expect Seagen to be a significant hazard to wildlife, there will be a comprehensive environmental monitoring program to verify that no harm is caused. This work has been underway for some time to set baselines for conditions prior to installation. If environmental problems arise then appropriate measures for mitigation can be developed<sup>34</sup>.*

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<sup>29</sup> *Ibid*

<sup>30</sup> <http://www.modernpowersystems.com/story.asp?storyCode=2037525>

<sup>31</sup> [http://www.investni.com/environment\\_and\\_energy\\_newsletter\\_autumn\\_07.pdf](http://www.investni.com/environment_and_energy_newsletter_autumn_07.pdf)

<sup>32</sup>

[http://monitor.isa/581371036/555130576T0712070911261538675.txt.binXMysM0dapplication/mswordXsysM0dhttp://www.dardni.gov.uk/joint\\_marine\\_partnership.doc](http://monitor.isa/581371036/555130576T0712070911261538675.txt.binXMysM0dapplication/mswordXsysM0dhttp://www.dardni.gov.uk/joint_marine_partnership.doc)

<sup>33</sup>

[http://monitor.isa/551555476/536089576T0712070940471595371.txt.binXMysM0dapplication/mswordXsysM0dhttp://www.mcsuk.org/downloads/policy/marine\\_renewables/Posford\\_Haskoning\\_Ltd\\_MCT\\_Strangford\\_Lough\\_MCS\\_response\\_July\\_2004.doc](http://monitor.isa/551555476/536089576T0712070940471595371.txt.binXMysM0dapplication/mswordXsysM0dhttp://www.mcsuk.org/downloads/policy/marine_renewables/Posford_Haskoning_Ltd_MCT_Strangford_Lough_MCS_response_July_2004.doc)

<sup>34</sup> [http://www.investni.com/environment\\_and\\_energy\\_newsletter\\_autumn\\_07.pdf](http://www.investni.com/environment_and_energy_newsletter_autumn_07.pdf)

To date, the DTI's Technology Programme has provided around £4.27m in grant support to develop the Marine Current technology. The company has indicated that this has covered around half of the project cost. Marine Current Turbines has secured investment from EDF Energy, Bank Invest and Guernsey Electricity, and more recently, from Triodos Bank and AM2 (Bermuda Limited)<sup>35</sup>.

#### 4.1.3 Offshore Wind Energy Resources – Northern Ireland

In 2000 the Department for Enterprise, Trade and Investment Northern Ireland and the Department of Public Enterprise in the Republic of Ireland (now the Department of Enterprise, Trade and Employment) commissioned a joint report entitled Assessment of Offshore Wind Energy Resources in the Republic of Ireland and Northern Ireland. The report had three stated aims<sup>36</sup>:

- to assess (a) the total, (b) the feasible and (c) the practical offshore wind energy resource in the Republic of Ireland and Northern Ireland;
- to improve and update knowledge and understanding of offshore wind technologies;
- to examine the technical, economic, legal and other factors that may affect the development of offshore wind energy in the Republic of Ireland and Northern Ireland.

Table 1 shows the potential total energy resource available within the 12 mile nautical mile limit from 1.65MW turbines, based upon this report. The second column of the table identifies the area of Northern Ireland waters where certain wind speeds are available. It is evident that wind speeds of 7 – 8 m/s occur most frequently within the 12 nautical mile limit, covering a marine area of 3,025km<sup>2</sup>. The fourth column identifies the potential exploitable energy available from areas with specific available wind speeds with the total potential exploitable energy given in the bottom row. Based upon these figures, assuming that every available km<sup>2</sup> of water was used, offshore wind could provide Northern Ireland with up to 106.3 terawatts of electricity each year<sup>37</sup>. Table 2, provides similar information to table 1 but presents the figures calculated under the assumption that 3MW turbines are used. The table shows that almost doubling the output power of the turbines used in offshore energy production increases the potential exploitable energy available by approximately 80 terawatts of electricity per year<sup>38</sup>.

According to the DETI website, Northern Ireland's total energy consumption is approximately 9,000 gigawatt hours per annum<sup>39</sup>. Based upon these figures, and those presented in the tables below the following conclusions can be drawn:

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<sup>35</sup> [http://www.sd-commission.org.uk/publications/downloads/Tidal\\_Power\\_in\\_the\\_UK\\_Oct07.pdf](http://www.sd-commission.org.uk/publications/downloads/Tidal_Power_in_the_UK_Oct07.pdf)

<sup>36</sup> Assessment of Offshore Wind Energy Resources in the Republic of Ireland and Northern Ireland, DETI, DPE 2000 p.16

<sup>37</sup> *Ibid* p.37

<sup>38</sup> *Ibid* p.38

<sup>39</sup> [http://www.detini.gov.uk/cgi-bin/get\\_story?fold=2213&site=5&parent=&prevpage=&stid=4385&openbus=5&golive=14-07-2005](http://www.detini.gov.uk/cgi-bin/get_story?fold=2213&site=5&parent=&prevpage=&stid=4385&openbus=5&golive=14-07-2005)

- Offshore wind energy, using 1.65MW turbines, at 500 metre spacing could potentially provide up to 144% of Northern Ireland's energy needs (1 gigawatt equals 0.001 terawatt);
- If 3MW turbines are used offshore wind energy, if exploited to its total capacity, could provide approximately 168% of Northern Ireland's energy needs.

However, it should be noted that these figures refer to *potential* exploitable energy. According to the 2000 assessment the proportion of this potential energy that can be used will be *subject to a combination of climatic conditions, engineering feasibility, environmental and legislative considerations*. The report continues, stating:

*In addition, areas designated for other uses of the sea, for example aggregate dredging and commercial shipping, will reduce this resource further.*

In its conclusion the report notes the following environmental impacts of offshore wind farms, which the authors, after a period of consultation with stakeholders, believe should be considered during any Environmental Impact Assessment of any future offshore wind farm development<sup>40</sup>:

- offshore and seabed ecology;
- fisheries;
- recreation;
- birdlife;
- visual impact;
- underwater archaeology;
- noise;
- safety; and
- navigation.

A study conducted by Queen's University Belfast, has summarised the discourses that surround the issue of offshore wind farms for people in Northern Ireland<sup>41</sup>:

- In a case study of an offshore wind farm in Northern Ireland, a range of tangible issues were identified that could be verified empirically, such as how obtrusive the turbines will be and how they will affect wildlife.

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<sup>40</sup> Assessment of Offshore Wind Energy Resources in the Republic of Ireland and Northern Ireland, DETI, DPE 2000 p.57

<sup>41</sup> [http://www.esrcsocietytoday.ac.uk/ESRCInfoCentre/Plain\\_English\\_Summaries/environment/environmental\\_policy/index33.aspx?ComponentId=17576&SourcePageId=11676](http://www.esrcsocietytoday.ac.uk/ESRCInfoCentre/Plain_English_Summaries/environment/environmental_policy/index33.aspx?ComponentId=17576&SourcePageId=11676)

- The intangible issues, those that are more value-based, can be summarised for each side of the debate.
- Objectors include those who wholeheartedly oppose wind energy and those who support wind energy but not at the expense of landscape. Others believe wind energy companies are profit-hungry and not to be trusted, or object that the scale of the project is not good for the local economy.
- Supporters generally feel that local environmental impacts must be tolerated to tackle climate change. Some have an enthusiasm about wind energy that appears almost irrational, but it is not shared by all. Many are concerned about the effect on wild landscapes and naturally suspicious of developers.
- The two sides agree on two points - that climate change is a major, urgent issue and that the seascape is an important aesthetic asset.
- There are six key points of discord between the two sides. These include disagreement over whether wind energy can make a valuable contribution to energy needs and whether there is a local economic benefit.

To date no offshore wind farms have been constructed off the coast of Northern Ireland. However, two possible case studies do exist for comparative purposes, the proposed site of Tune's Plateau and the Airtricity wind farm at Arklow off the coast of Co. Wicklow.

Table 1 - Total Energy Resource within the 12 nautical mile limit from 1.65MW turbines at 500m spacing

Wind Speed (m/s)	Area NI (km2)	1.65MW Turbine MWh/km2	Energy NI (TWH/year)
5.0 - 6.0	149	7,640	1.2
6.0 - 7.0	1,070	11,650	12.5
7.0 - 8.0	3,025	15,810	47.8
8.0 - 9.0	2,264	19,770	44.8
9.0 - 10.0		23,300	
10.0 - 11.0		26,240	
<b>Total</b>			<b>106.3</b>

Table 2 - Total Energy Resource within the 12 nautical mile limit from 3MW turbines at 500m spacing

Wind Speed (m/s)	Area NI (km2)	3MW Turbine MWh/km2	Energy NI (TWH/year)
5.0 - 6.0	149	13,410	2.0
6.0 - 7.0	1,070	20,470	21.9
7.0 - 8.0	3,025	27,820	84.2
8.0 - 9.0	2,264	24,920	79.1
9.0 - 10.0		41,500	
10.0 - 11.0		47,400	
<b>Total</b>			<b>187.2</b>



#### 4.1.4 Tunes Plateau

Situated five kilometres of the coast of Portstewart, Tunes Plateau was specifically identified as a suitable site for a wind farm in the joint DETI and Department of Public Enterprise (Republic of Ireland) assessment in 2000. At present the site is in its pre-planning stages. However, the following prospective details are available. The proposed farm, to be developed by energy company B9, will house between 50 and 80 wind turbines with a combined power capacity of 150-250MW. If the farm is granted planning permission it could feasibly provide 7-9% of Northern Ireland's electricity needs<sup>42</sup>.

Outlining the proposed project in 2002, B9 Energy made a commitment to carry out a range of environmental and technological studies:

- A landscape/seascape and visual impact study;
- An ornithological study;
- A marine ecology study;
- An acoustic study and vibration impacts study;
- An archaeology study and cultural heritage study;
- A coastal processes and seabed study;
- A water quality and flood defences study;
- A fishing and fisheries study;
- A shipping and navigation study;
- An electromagnetic interference study and air traffic study; and
- A healthy and safety study.

To date, it is clear that the company has conducted both environmental and technical feasibility tests, likely to include a number of the above studies. These feasibility reports are currently not within the public domain.

A number of concerns regarding the future site have been raised by environmental NGOs. The RSPB have stated:

*The RSPB is concerned to ensure that the environmental impact assessment prepared by the companies involved adequately examines the impacts of such a development on the many thousand migratory and breeding birds that potentially use the area<sup>43</sup>.*

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<sup>42</sup> [http://www.yes2wind.com/nonflash\\_details.php?Region=Co.+Londonderry+and+Antrim&SiteId=240](http://www.yes2wind.com/nonflash_details.php?Region=Co.+Londonderry+and+Antrim&SiteId=240)

<sup>43</sup> <http://www.rspb.org.uk/ourwork/conservation/sites/nireland/tunesplateau.asp>



The National Trust, working in conjunction with Coleraine Borough Council, has commented:

*We believe Coleraine Borough Council's Campaign plays a valuable role in highlighting the potential damage which a large scale wind farm at the Tunes Plateau could do to a highly valued coastal landscape. We support the Council's initiative in raising concerns and questions regarding the siting of the wind farm, and in commissioning further photomontages, which highlight the potential damaging impacts on the landscape which a wind farm of 50 turbines 5 km from shore could have<sup>44</sup>.*

Not all Environmental Groups have dismissed the proposed wind farm, Friends of the Earth in particular have stated:

*The Tunes Plateau proposal would go a long way towards meeting the Government's target for reducing emissions and it could be argued that, far from being an eyesore, a wind farm off the north coast would be an elegant solution to our energy needs<sup>45</sup>.*

The Tunes Plateau site was the subject of much debate throughout 2002 and 2003. Since then the proposal has received very little coverage. To date, an Environmental Impact Assessment has not been submitted.

#### 4.1.5 Arklow Wind Farm (Co.Wicklow)

Arklow Bank Offshore Wind Farm, located 10 kilometres off the coast of Arklow, was co-developed by Airtricity and GE Energy. Part of a two-phase project, the now completed first phase was at the time of construction Europe's largest offshore wind farm. Consisting of seven 3.6MW turbines, with a capacity to produce 25MWs of energy, the first phase of the farm can provide power to an estimated 16,000 households.

A second phase is planned, but has encountered difficulty particularly following the announcement of Republic of Ireland's Renewable Energy Feed in Tariff (REFIT) programme, which was introduced to enable the development of 400MW of renewable energy infrastructure<sup>46</sup>. REFIT, offers no support to offshore power generation and as such the Arklow project has suffered from a lack of support<sup>47</sup>.

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<sup>44</sup> [http://www.colerainebc.gov.uk/news/news\\_item.php?id=188](http://www.colerainebc.gov.uk/news/news_item.php?id=188)

<sup>45</sup> [http://www.foe.co.uk/resource/newsletters/northern\\_ireland\\_7.pdf](http://www.foe.co.uk/resource/newsletters/northern_ireland_7.pdf)

<sup>46</sup> [http://www.irbea.org/index.php?option=com\\_content&task=view&id=178&Itemid=44](http://www.irbea.org/index.php?option=com_content&task=view&id=178&Itemid=44)

<sup>47</sup> Telephone conversation with Airtricity representative Majella Walsh 06/12/07