

**INTERIM PLANNING POLICY GUIDANCE
DOMESTIC & COMMUNITY AEROGENERATORS
AND SOLAR ENERGY**



SHETLAND ISLANDS COUNCIL

November 2004

1. Background

The need for the production of electricity through non-polluting sources of renewable energy has become more apparent than ever due to the threat of global warming, which is caused in part by the burning of fossil fuels for power generation. For example one quarter of all the UK's carbon dioxide emissions come from the household use of fossil fuels.

The UK's climate change programme, published in 2000, brought about a commitment from the UK government to increase the amount of energy generated from renewable sources, and to cut levels of greenhouse gases. Under the Utilities Act 2000, the Scottish Ministers were granted devolved powers to set a separate renewables obligation for Scotland. It was decided to set a target of 18% of power to be produced by renewable sources by 2010 and 40% by 2020. At present, approximately 11% of Scotland's electricity is generated from existing hydro schemes and it is envisaged that the remaining 7% will be generated principally through the use of on-shore wind power, until alternatives such as wave and tidal power or biomass realise their full potential.

The production of renewable energy through devices such as domestic aerogenerators and solar panels/photovoltaics can play a worthwhile role in contributing to a reduction in greenhouse gases. In addition to this, domestic scale aerogenerators and solar energy can lead to increased public awareness of the possibilities of small-scale renewables as an alternative, environmentally friendly, source of energy.

Shetland is no stranger to harnessing the power of the wind to produce electricity. The first experimental wind turbine to be used in Shetland dates back to the early 1900s. Further developments occurred in the 1930s when turbines were used to charge batteries in order to supply lighting for houses.

At present a variety of domestic turbines is manufactured by a relatively small number of suppliers in the UK. Depending upon their size, they can be utilised to supply heating and meet the electricity needs of a dwellinghouse.

There is less history of the use of solar energy in Shetland. However, houses in Shetland have traditionally been positioned to face south to maximise solar gain. Advances in solar energy, and in particular the development of photovoltaic panels, have resulted in this becoming an important renewable energy technology.

2. Introduction

In the time since the Local Plan Policy on Domestic Scale Aerogenerators was drawn up (Policy LP ENG 9) there have been considerable developments in the design of and demand for domestic-scale aerogenerators. It was therefore felt that it would be beneficial to both prospective applicants and their agents if interim policy guidance was produced which addressed these changes.

This policy guidance has been prepared in response to these developments and will be used to supplement the policies contained within the Shetland Structure Plan and the Shetland Local Plan. The guidance is consistent with national planning policy and advice.

Scottish Planning Policy 1 – The Planning System states that “Supplementary guidance is useful where: there is a need for an urgent policy response to an emerging issue” (Paragraph 41). Following consultation and adoption by the Council this guidance will be used as a material consideration when determining planning applications. In the longer-term the intention of the Planning Authority is to include these policies within the Local Plan once it is amended and to replace the existing Policy LP ENG9

2.1 Existing Development Plan Policy

Policy LP ENG 9

This policy, which is contained within the Shetland Local Plan, is currently used when assessing planning applications for domestic scale aerogenerators, which are not connected to the grid. The policy was formulated to encourage the use of domestic renewable energy for aerogenerators serving individual crofts or houses, where they can be readily accommodated within the landscape. It was created with the intention of assessing domestic aerogenerators that provide heating and power to a dwelling where connections to the national grid do not exist. An aerogenerator not connected to the grid is referred to as a “stand-alone” system.

Policy LP ENG7

Policy LP ENG 7 of the Local Plan was formulated to control potential nuisance from energy generators. It conforms to the guidance contained within NPPG6 (Renewable Energy) and PAN 45 (Renewable Energy Technologies).

Policy LP NE10

Policy LP NE10 of the Local Plan is concerned with ‘Development and the Environment’. It states that applications for planning permission for the exploitation of natural resources will normally be permitted provided the proposal by virtue of its location, scale or duration of operation would not have an unacceptably significant adverse effect on the natural or built environment.

Policy SP ENG3

This policy, which is contained within the Structure Plan, encourages proposals for the generation of power from renewable sources subject to other relevant policies in the Structure and Local Plans. Appendix A provides a list of relevant policies.

2.2 National Planning Guidance and Advice

Scottish Executive planning guidance for renewable energy is covered by the following guidance:

- National Planning Policy Guideline (NPPG) 6: Renewable Energy Developments (Revised 2000)
- PAN 45 – Renewable Energy Technologies (Revised 2002)

Although both documents have essentially been drawn up with large-scale projects in mind, reference is made to stand-alone and small scale developments such as individual wind turbines and where appropriate, they should be considered against the principles set out in the NPPG (Para 6). These same principles apply to PAN45.

2.3 Scottish Natural Heritage Policy on Renewable Energy

SNH's policy statement on renewable energy (01/02) makes reference to accommodating small-scale aerogenerators. "Small-scale developments serving individual farms or houses can usually be accommodated in most landscapes with sensitive siting. Developments of any scale may not be easily accommodated within undeveloped landscapes valued for their wildness or other intrinsic qualities".

2.4 Shetland Renewable Energy Forum

The principal aim of the Shetland Renewable Energy Forum is "To ensure that Shetland maximises the economic and community benefit of developing its renewable energy resources while minimising the impact on the environmental, social and visual amenity of the islands."

2.5 Shetland College

It is the aim of Shetland College to develop a renewable energy skills unit, that will be utilised to provide courses and training in the installation and maintenance of small-scale renewable systems. The College intends to meet the growing demand in domestic renewable energy systems by training a work base of engineers who can offer renewable packages for households, community projects and small businesses.

3. Proposed Policy - Domestic & Community Aerogenerators

The policies set out in this chapter will be applied to all proposals for domestic and community aerogenerators.

The type and size of aerogenerator will usually depend upon available resources and the energy requirements of a dwellinghouse, for example whether the user requires the aerogenerator to meet all of the dwelling's electricity demands, or whether they require the aerogenerator to supplement power supply and reduce electricity bills. The aerogenerator's height and design may also be influenced by wind speed, topography, land availability and the character of the surrounding area.

The choice may also depend upon the lifestyle and values, or social responsibility, of the user. For example, the user may wish, as a matter of principle, to reduce CO2 emissions and his or her reliance on fossil fuels as a source of heat and power.

An understanding of energy efficiency will help the user decide whether to install some form of renewable energy generation and how best to use it. It should not be forgotten that it may be much more cost effective to conserve energy than to generate it. This can be achieved through such measures as increased insulation, draught-proofing, buying more efficient appliances or simply using less energy. However, once the decision to install an aerogenerator has been taken, it will make sense to use more power when the weather is windy and less when it is calm.

Whilst it is recognised that the impacts of smaller developments, such as domestic aerogenerators, will not be as significant as a large-scale commercial wind farm, these policies have been devised to provide guidance of what the Council believes to be appropriate development for domestic and community aerogenerators.

**Local Plan Interim Policy – LP ENG 12
Domestic Aerogenerators**

Proposals for domestic aerogenerators will be permitted provided that the following criteria are met:

- a) the development does not have an unacceptable impact on the character and appearance of the landscape;**
- b) the development does not have a demonstrable adverse effect upon local residents or occupiers of neighbouring land by reason of visual impact, noise, shadow flicker or safety;**
- c) if electromagnetic disturbance is likely to be caused to any existing transmitting or receiving systems by the development, the proposal includes measures to remedy, or satisfactorily mitigate, any disturbance;**
- d) the development would not significantly increase the risk of driver distraction;**
- e) the development does not have an unacceptable impact upon biodiversity;**
- f) the development will not have a significant adverse effect on the underlying objectives and overall integrity of notified areas, including National Scenic Areas, Sites of Special Scientific Interest, Special Protection Areas and Special Areas of Conservation;**
- g) the development will not have an unacceptable impact on the integrity or character of Listed Buildings, Conservation Areas, Historic Gardens or Designed Landscapes;**
- h) the proposal does not conflict with any other Structure Plan or Local Plan policy.**

Justification:

The Council continues to encourage the use of domestic renewable energy because such developments contribute to lower CO₂ emissions and to the development of an island economy less dependent on fossil fuels.

The Council believes that a domestic aerogenerator should be the correct size for its proposed location and should not unnecessarily dominate nearby buildings or the landscape. For this reason domestic aerogenerators will be permitted provided they do not result in unacceptable harm to landscape, visual amenity and designated or protected sites, or interfere with the amenities enjoyed by neighbours or landowners

Local Plan Interim Policy – LP ENG 13

Community and Non-Domestic Aerogenerators

Provided the Policy Requirements of LP ENG12 are met, the Council will support in principle aerogenerators that directly benefit a community or community resource, for example a housing association, a village hall or a school. The Council will also support in principle proposals for non-domestic aerogenerators, for example those serving businesses and non-domestic properties.

Justification:

The Council wishes to encourage aerogenerators that have a direct and measurable community benefit for non-commercial and non-profit organisations. The Council also encourages the use of renewables for business premises and non-domestic property. However, proposals should be sited and designed to have minimal impacts upon landscape, residents, landowners, notified sites and listed buildings.

This policy takes account of the current demand of applications for community aerogenerators that may be eligible to receive funding from the Scottish Community Renewables Initiative.

4. Further Guidance to be Taken Into Consideration

The following guidance elaborates **Policy LP ENG 12** and explains what may constitute an adverse effect upon landscape or local residents/adjacent landowners, when the Council considers an application for a domestic/non-domestic or community aerogenerator:

Guideline 1 Noise

At present, the majority of applications for domestic aerogenerators are accompanied by a noise assessment. Noise is a material consideration when determining planning applications, so the proximity of a proposed aerogenerator to residential development and the possible noise impact upon residents will be carefully assessed.

Noise

In cases where it is considered that a proposal may give rise to a noise nuisance to local residents, applicants will be required to provide a noise assessment, which will be taken into consideration when processing the planning application. Applicants are advised to contact the Council's Environmental Health Service at an early stage when considering a development, to ascertain whether a noise assessment will be required.

Guideline 2 Shadow Flicker

With a certain combination of geographical position, time of day and time of year, aerogenerators can cause a phenomenon known as 'shadow flicker'. This occurs

when the sun passes behind the rotor blades of an aerogenerator and casts a shadow on neighbouring properties which flicks on and off.

Beyond a certain distance shadow flicker ceases to be a problem because the ratio of blade width to the sun's diameter becomes small. There is no generally accepted value for this minimum distance. Whilst each application will be determined on its own merits, the Council will take account of national planning advice (PAN 45), which recommends a separation of 10 blade diameters between the aerogenerator and neighbouring properties to ensure shadow flicker does not occur.

Shadow Flicker

The Council will assess the potential effects of shadow flicker on properties within 10 blade diameters of proposed domestic, non-domestic and community aerogenerators. This assessment will take into account the position of the proposed turbine and the orientation of window openings of dwellings that fall within the criteria.

**Guideline 3
Electromagnetic Interference**

Some aerogenerators produce electromagnetic radiation that can interfere with broadcast communications and signals, such as TV, radio and microwave. In addition to this the reflection or deflection of electro-magnetic transmission from turbine blades can also cause interference.

Whilst such interference is normally only present with commercial-scale systems, the following guideline has been included for the avoidance of doubt:

Electromagnetic Interference

In order to safeguard against interference with communications and signals the Council will determine that:

- It has been demonstrated that there is no significant disturbance to television and radio reception or other broadcasting transmissions. If disturbance is likely to be caused the proposal must include measures to remedy or mitigate such disturbance;
- The proposed aerogenerator conforms to British Design Standards.

The Appropriate Design and Location of Aerogenerators

The Council will try to ensure that all domestic and community aerogenerators are appropriately designed and located so that they have minimum visual and landscape impact. Visual and landscape impact will therefore be a key factor when assessing planning applications.

**Guideline 4
Visual & Landscape Impact**

All wind energy projects, large or small, are likely to have some visual or landscape impact. The reaction to the appearance of wind turbines is very much a personal matter. Some people perceive wind turbines as eyesores that harm the landscape. Others welcome turbines and value them as objects of interest and because they use a natural, environmentally friendly, resource to provide electricity.

Landscape and visual considerations that will be taken into account when assessing applications will be:

- The height, blade diameter, colour and design of the turbine
- The topography of the site and its surroundings
- The proximity of the turbine to those who will see it
- The capacity of the landscape to accommodate aerogenerators
- The cumulative impact of aerogenerators

Domestic/non-domestic and community aerogenerators should be well sited within the landscape. When siting an aerogenerator beside an existing building the Council will consider how well the turbine relates to the building:

- Visually** **The size of hub height and blade diameter as well as the design and colour of the turbine determine the appearance of the turbine. The Council will seek to ensure that proposed aerogenerators have the minimum of visual impact, taking into account the building the aerogenerator will serve.**
- Proportionately** **The aerogenerator should be the correct size and scale for its location and should not unnecessarily dominate nearby buildings or landscape features.**
- Functionally -** **The proposed aerogenerator should be related to the energy requirements of dwellinghouse. The Council may seek justification of the choice of a particular aerogenerator.**

Guideline 5
Safety Considerations

Detailed consideration should be given to the safety implications when considering the location for a domestic/non-domestic or community aerogenerator, so that any possible consequences can be minimised in advance.

The safety issues surrounding domestic aerogenerators should be assessed in advance of an application being submitted and will be taken into consideration when an application is being determined. Damage to people, property or animals is unlikely but it is a potential risk and must be considered.

Developers are required to contact their local electricity supply company, if the aerogenerator is to be constructed near live overhead lines (less than 9 metres

away). They should also check for utilities or underground services prior to any excavation on the site.

Guideline 6 Road Safety

There may be instances where the proposed location of a domestic aerogenerator could be a distraction to road users and cause a road safety issue.

Road Safety

The Council's Roads Department will be consulted where the proposed siting of a domestic aerogenerator has the potential to distract drivers. Their technical advice will be used when assessing the application.

5. Additional Guidance

Hybrid Systems

Some users will wish to consider hybrid systems as an alternative to reliance on a single source. Hybrid systems use several sources of power, such as solar, wind, and heat pumps, to provide renewable energy.

- The Council will encourage the use of hybrid systems to produce renewable energy.

Justification: Hybrid systems, such as the combination of a small-scale aerogenerator with solar panels, can provide a back-up supply of electricity when there is no wind. They can also provide an alternative method of providing energy to a dwelling or community resource.

Solar Energy

No specific policy on solar energy is currently contained within the Shetland Local Plan. Solar energy provides heat and energy using active solar panels to heat water or photovoltaic cells can generate electricity. They can provide a useful addition or alternative to wind power and are generally a low-impact technology.

Local Plan Interim Policy – LP ENG 14

Solar Energy

The use of solar or photovoltaic energy panels or units will be permitted, provided the following criteria are met:

- a) The installation does not unacceptably harm the setting or appearance of the associated building;
- b) the development will not have a significant adverse effect upon the integrity or character of Designated Sites, Listed Buildings, Conservation Areas, Scheduled Ancient Monuments, Historic gardens or Designed Landscapes;
- c) the proposal does not unacceptably affect local residential amenity;
- d) the installation does not have an unacceptable impact on the character or appearance of an area;

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|--|
| e) the proposal does not conflict with any other Structure Plan or Local Plan Policy |
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Justification: The Council wishes to encourage the use of all types of domestic renewable energy. Accordingly, solar panels and photovoltaic tiles will be permitted on buildings, or on land adjacent to buildings, where there are no adverse effects upon the appearance or character of the building, residential amenity and designated sites.

6. Pre-Application Discussions and Advice

It should be noted that some forms of renewable energy do not require planning permission. However, all proposals should be discussed with the planning department well in advance of any development. It is the intention of the Planning Authority to produce an Advice Note on renewable energy options for householders in the near future, which will provide information on permitted development for renewables and provide in-depth information on a range of renewable options.

It is recommended that all potential applications for domestic and community aerogenerators, and any other forms of domestic/non-domestic or community renewables, are discussed in detail with the Planning Service. If you would like advice, or application forms, please write or telephone the Section. Our address is:

Planning Service
Shetland Islands Council
Infrastructure Services Department
Grantfield
Lerwick
Shetland
ZE1 0NT

Tel: 01595 744800
Fax: 01595 695887

APPENDIX A – DEVELOPMENT PLAN POLICIES

Policy LP ENG9

Domestic-Scale Aerogenerators

Proposals for small (<20kW) domestic-scale aerogenerators not connected to the electricity grid will normally be permitted provided that the proposal:

- a) does not have an unacceptable adverse effect on local residents or occupiers of neighbouring land;
- b) is appropriately designed and located, and is not sited on the skyline if other suitable locations are available;
- c) is located as close to the associated dwelling house as is safely and technically possible;
- d) does not conflict with any other Structure Plan or Local Plan policy.

Justification

The Council wishes to encourage the use of domestic renewable energy. Accordingly, aerogenerators serving individual crofts or houses will normally be permitted where they can readily be accommodated within the landscape. However, hilltop and skyline sites should be avoided, and the aerogenerator should be located as close to the building being served as is safe and technically possible. A long transmission cable will cause power loss and so reduce the efficiency of the generating system.

This policy conforms to:

- NPPG6 (Renewable Energy)
- PAN 45 (Renewable Energy Technologies)
- Structure Plan policies GDS4, SP ENG3

This policy supports:

- Development Plan aim 3
- The Corporate Plan

Background information:

The Energy Working Paper

Policy LP ENG7

Control of Potential Nuisance from Energy Generators

Proposals for energy generation and its associated infrastructure will normally be approved if all the following criteria are met:

- a) **Commercial aerogenerators are not located within 400 metres of occupied schools or permanently occupied houses;**
- b) **the development will not unacceptably affect the amenities of neighbouring occupiers by reason of noise emission, visual dominance, shadow flicker or reflected light;**
- c) **if electromagnetic disturbance is likely to be caused to any existing transmitting or receiving systems by the development, if disturbance is caused the proposal includes measures to remedy or mitigate any such disturbance;**
- d) **the proposal would not significantly increase the risk of driver distraction;**
- e) **the development would not interfere with aircraft activity;**
- f) **the development would not interfere with the migratory paths of wild birds and other animals;**
- g) **the development, including associated buildings and infrastructure, permanent access roads and tracks, is sensitively designed and sited to have minimum impact;**
- h) **aerogenerators are sited at least five times the diameter of the rotor blade away from the site boundary, public roads and well-used footpaths;**
- i) **the proposal does not conflict with current government guidance and any other Structure Plan or Local Plan policy.**

Where appropriate, agreements under Section 75 of the Town and Country Planning (Scotland) Act 1997 and a financial bond will be entered into for the purpose of restricting or regulating the development or use of the land.

Justification

Experience has shown that noise is unlikely to be a significant problem for residents of property situated further than 350 to 400 metres from the nearest aerogenerator (see Planning Advice Note PAN 45 paragraph A27). Shorter separation distances may be acceptable depending on the particular aerogenerator(s) used and the specific conditions at the proposed site.

Turbines, because they are mechanical, cause a certain amount of noise. Aerogenerators generate mechanical noise from the gearbox and aerodynamic noise from the movement of the blades. The potential level of noise or vibration nuisance generated depends upon the location of the equipment and the local topography where landforms can absorb the sound. The sun passing behind the rotating blades and causes a flickering shadow effect and a similar effect may be experienced by television viewers as television signals are reflected by the moving blades, resulting in interference to the picture. Applicants should provide calculations to quantify this effect. In addition aerogenerators may cause electro-magnetic interference with communication systems e.g. air navigation, commercial communications and radio and television broadcasting. The Council expects applicants to demonstrate that their proposal will not give rise to any such problems, or to propose measures to alleviate any problems should they arise; agreements will be negotiated to achieve this. Wave and tidal power generation use relatively new technology and their potential problems are not as well documented as those of wind power. However, when considering any application the Council will have regard to the amenity of local residents and Shetland's natural environment. It is always advisable to discuss proposals with a Development Control officer prior to submission.

This policy conforms to:

- NPPG6 (Renewable Energy)
- PAN 45 (Renewable Energy Technologies)
- Structure Plan policy SP ENG3

This policy supports:

- Development Plan aim 3
- The Corporate Plan

Background Information

- The Energy Working Paper

Policy LP NE10

Development and the Environment

The Council will assess applications for planning permission for their impact on the environment. Applications for planning permission for the extraction and exploitation of natural resources will normally be permitted provided the proposal, by virtue of its location, scale or duration of operation, would not have an unacceptably significant adverse effect on the natural or built environment. When assessing development proposals, the following general considerations will be taken into account, namely:

- a) likely impacts, including cumulative impacts, on amenity and the environment as a whole;
- b) effects on nearby residents and the buildings they occupy;
- c) landscape character and visual amenity;
- d) water resources and the marine environment (particularly pollution of controlled waters by any contaminants associated with the land); biodiversity; archaeology and other land uses in the area;
- e) transport considerations, including the type and volume of traffic, including construction traffic, likely to be generated by the proposal;
- f) current Government guidance, other policies in the Shetland Structure and Local Plan and particularly those relating to the proposed type of development.

In particular the Council will refuse development proposals that would have a significant adverse effect on the integrity or character, as appropriate, of the following designated sites:

- g) Possible, candidate or designated Special Areas of Conservation, potential or classified Special Protection Areas, Ramsar sites, Sites of Special Scientific Interest, National Nature Reserves and Marine Consultation Areas and the National Scenic Area;
- h) Listed Buildings;
- i) Conservation Areas;
- j) Scheduled Ancient Monuments;
- k) Historic gardens or designed landscapes.

Justification

The Council wishes to encourage development, while at the same time protecting the natural and built environment, recognising the benefits development can bring locally and to the community as a whole. The aim of the planning system is to ensure that development and changes in land use occur in suitable locations and are sustainable. The system must also provide protection from inappropriate development. Its primary objectives are:

- to set the land use framework for promoting sustainable economic development;
- to encourage and support regeneration; and
- to maintain and enhance the quality of the natural heritage and built environment.

Development and conservation are not mutually exclusive objectives; the aim is to resolve conflicts between the objectives set out above and to manage change.

This policy conforms to:

- Scottish Planning Policy and National Planning Policy Guidelines
- The Shetland Structure Plan

This policy supports:

- The Corporate Plan
- Development Plan aims 1,2,3 and 4
- EU Water Framework Directive
- SIC Contaminated Land Strategy

Background Information:

- Distribution of Development Human Activity and Environment Supplements
- Aggregates Working Paper
- Energy Working Paper

Policy SP ENG3

Proposals for the generation of power from renewable energy sources will be encouraged subject to other relevant policies in the Structure and Local Plans

APPENDIX B – LIST OF CONSULTEES

All Shetland Community Councils
AB Associates
Atlantic Energy
British Wind Energy Association
Friends of the Earth (Scotland)
Hjatland Housing Association
National Trust for Scotland
RSPB
Scottish Environment Protection Agency
Shetland Enterprise
Scottish Executive Development Department – Planning
Scottish & Southern Energy
Shetland Islands Council - Community Services Department
Shetland Islands Council - Development Department
Shetland Islands Council - Infrastructure Services Department
Scottish Natural Heritage
Shetland Renewable Energy Forum
Shetland Wind Power Ltd
Shetland Heat Energy and Power Ltd