



Orkney Islands Council

A Sustainable Energy Strategy for Orkney

Final Draft December 2009



A SUSTAINABLE ENERGY STRATEGY FOR ORKNEY

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FOREWORD

Energy supply and climate change issues have risen to the top of the international and national agenda in recent times. These issues are crucial to the future sustainability and survival of the world and to communities everywhere. They are crucial to Orkney, where sustainability and survival are key aspects of the Community Plan. In recognition of this, Orkney Islands Council, and its Community Planning partners, have been working for some considerable time on the development of a Sustainable Energy Strategy. In early 2007, and again in mid 2008, there were major consultation events involving a wide

range of stakeholders. From these events, from wider consultation, and from the work which has taken place around them, this Final Draft Strategy has been developed.

A Sustainable Energy Strategy is a non-statutory document, but it is closely linked to a number of statutory strategies and plans. It is intended that the strategy set out in this document will guide the Council and other Community Planning partners in undertaking a wide range of actions in future years. The strategy will be subject to review in the future, on a 3-5 year basis.

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1. Introduction to the Strategy

Why a Sustainable Energy Strategy?

Such a strategy is not a standard part of the range of statutory, or even non-statutory, strategies for local authorities in the UK. But the growth in the importance of a range of energy issues in recent years is clear – the rising price of fossil fuels, the growing interest in renewable energy, the increasing concerns over climate change and the need to reduce carbon footprint, all of these related issues underline the key importance of energy to society now and in the future. Energy issues pervade every aspect of modern life. There is a great deal of sense, then, in a strategy which addresses all these linked issues.

Whose strategy is it?

This is a strategy not just for the Council but for the whole community of Orkney. Community Planning, which brings together all agencies and organisations, provides an appropriate ‘host’ for this strategy. By virtue of its lead role in Community Planning, the Council has taken a lead in the development of this strategy. But it should be seen as a strategy for the whole of the Orkney community, and its overall aims have been endorsed by the Community Planning Steering Group.

What are the overall aims?

There are three linked overall aims of the strategy which are designed to capture all the themes relevant to energy in Orkney:

- a) To ensure Orkney uses energy as efficiently as possible, and has a secure and affordable energy supply to meet its future needs.

Given increasing scarcity of fossil fuels globally, the resulting high prices and possible restrictions on availability will exacerbate already high levels of fuel poverty in Orkney, with consequent effects on social welfare and health.

- b) To add value to Orkney’s renewable energy resources, for the benefit of the local economy and local communities, whilst minimising damage to the environment.

Orkney has very extensive renewable energy resources of wind, wave, and tide, and developing these resources will help sustain the economy of the islands in the future.

- c) To reduce Orkney’s carbon footprint.

Global warming makes it increasingly important that every community, no matter how small, makes a contribution to reducing carbon emissions.



2. Background

Energy is a particularly important issue for Orkney. Perhaps the most visible symbol of this is the oil terminal at Flotta, which has played a significant part in the economic and social development of the islands over the last 30 years. Underlying the visible symbols there are a number of key facts about energy use and production (actual and potential) in Orkney.

2.1 Orkney as Energy User

Orkney is, proportionately, a heavy user of energy, and of fossil fuels in particular. As an island archipelago, we rely heavily on fossil-fuel powered transport, i.e. ferries and aircraft. Our key industry, agriculture, is heavily mechanised, and the volume of red diesel in the Orkney energy use mix is striking. Figures on energy use are compiled periodically by the Energy Efficiency Advice Centre, the most recent data referring to 2004.

Given the Orkney climate, domestic households are heavy energy users, for space-heating throughout most or all of the year. The consequence of this (and of price, see below) is that many households in Orkney are classified as being in fuel poverty, in other words more than 10% of their income goes on domestic energy consumption. Orkney has one of the highest levels of fuel poverty in Scotland.

2.2 Energy Prices in Orkney

Whilst Orkney is part of a national electricity supply and pricing system, with access to national electricity prices in a competitive market, the pricing of fossil fuels is on a

different basis. There is an area pricing system, such that fuel prices (at the petrol pump, or for heating oil, the two easiest bases of comparison) are consistently higher in Orkney than in mainland centres of population – often 10% or more higher. In the smaller islands the differential is significantly greater than this.

The reasons for this differential have been investigated, without much success, on various occasions over the past years, and currently HITRANS (the regional transport agency) is conducting another investigation. The adverse consequences of a higher price for economic and social development in the islands are obvious.

2.3 Energy Resources in Orkney

The presence of the Flotta terminal is evidence of Orkney's strategic importance in the energy production process over the last 35 years. Throughput of oil at the terminal is now declining, although it is anticipated the flow will be maintained past 2030. For the future, Orkney possesses very significant sources of renewable energy. These are already being tapped by a number of wind turbines, in which technology Orkney has for long been a pioneer, but they exist to an even greater extent in the waves and tidal streams around Orkney's shores.

The resource has been quantified by Aquatera in their study 'Renewable Energy Resource Assessment for Orkney and Shetland', (2004), and the results for Orkney are summarised in the table below. The three different columns in the table relate to different levels of planning acceptability: ranging from high levels of acceptability

TABLE 1
Renewable Energy Potential, Orkney (in MW installed capacity)

ENERGY SOURCE	High	Medium	Low
Tidal current	1462	2443	3571
Offshore wind	0	385	986
Offshore wave	101	226	226
Onshore wind (1 MW units)	0	46	256
Tidal head	1	6	7
Coastal wave	0	0	0
Energy efficiency	19	33	47
Micro-renewables	16	29	47
Biomass crops	3	7	14
Biomass harvest	2	3	3
Bio-digestion	0.1	0.4	0.7
Energy from waste	0	0	0
Total installed capacity (MW)	1603	3177	5158
Annual power production (GWh)	5580.1	11057.6	17951.3

Source: Aquatera



barriers, to low levels of barriers, where greater development is acceptable.

Given that Orkney's current electricity consumption is equivalent to around 35 MW at maximum, the levels of potential renewables development shown in this table are very substantial, particularly with respect to tidal currents.

2.4 Climate Change Impact on Orkney

The impact of climate change is likely to be particularly significant for an island community, especially as a result of rising sea temperatures and levels, and increasing

strength of storms. The effect of rising temperatures has already been detected in changes in marine life which form the food chain for Orkney's sea bird colonies, leading to a series of poor breeding seasons for some species. Rising sea levels would impact coastal communities, and the marine terminals on which inter-island transport relies. Coastal erosion has become more noticeable in Orkney. All of this means that Orkney has a special stake in the reduction of global carbon emissions, as a means of mitigation of climate change, and in adaptation, to cope with the most damaging impacts, such as flooding.

3. The National and EU Context

The need for a sustainable energy strategy is driven and shaped not just by key local energy aspects, but also by the emerging policy framework at national level.

The Scottish Government supports the development of renewable energy, and is an integral part of the UK Government's Climate Change Programme, to make an equitable contribution to the UK's obligation to reduce greenhouse gas emissions under the Kyoto Protocol.

The Government's target for renewable energy production has recently been raised from 40% to 50% of

electricity to come from renewable resources by 2020.

The UK's target for the reduction in carbon emissions is for a 60% reduction by 2050, although a possible increase in this target to 80% is under discussion.

The EU is considering setting mandatory targets for renewable electricity generation, as a proportion of total energy usage, not just electricity usage.

None of these targets are applied at a regional or local level, but every region should aspire to at least match these targets, and to better them if possible.

4. Level of Renewable Energy Production in Orkney

Perhaps the important key issue in Orkney, and certainly the most pressing one, is the question of how much renewable energy Orkney should aim to produce.

Given that Orkney is rich in renewable energy sources of wind, wave and tide, there is clearly scope for Orkney to be a major renewable energy producer in the future. Developing local natural resources has always been the key pathway to economic development in the islands, enabling the development of industries which export to markets outside the islands, so earning revenues to pay for goods and services imported to the County. Rather than self-sufficiency, the traditional goal has been to maximise production and profit, selling into export markets in the UK and beyond.

Developing Orkney's renewable energy resources will benefit the islands economically, and indeed the development that has already taken place has brought jobs (OREF calculate of the order of 150), skills and expertise that can be used locally and exported, and income for landowners and for community groups that have an involvement. The European Marine Energy Centre, which tests marine energy devices, and the International Centre for Island Technology (Heriot Watt's Orkney campus and the base for its postgraduate renewable energy courses), are part of a marine renewables cluster. This cluster also encompasses a number of private sector firms which have developed

considerable renewables expertise, and which are attracting funds to Orkney and selling their expertise abroad.

Thus development of renewables in Orkney will serve all three strategy aims, adding value to a local resource for the benefit of the county, securing Orkney's energy supply in the future, and reducing and compensating for Orkney's carbon footprint from energy use.

Given these aims, target levels of renewables generation in Orkney can best be linked to levels of electricity and energy usage. Target options defined on this basis are set out in Table 2 below. These are based on the notion of 'equivalence' – producing an amount of renewable energy which is equivalent to different levels of usage.

'Equivalence' is used in preference to 'self-sufficiency', since the latter terms implies, unrealistically, that Orkney could operate an electricity supply system independent of the National Grid.

The following table indicates the amount of renewable energy capacity which would be required to meet these equivalence goals, based on a 40% efficiency level. Currently, local renewable energy production is already equivalent to about one half of Orkney's consumption of electricity. *Electricity use equivalence* would require a doubling of the current installed capacity for renewables, to 50 MW. *Energy use equivalence* would require installed



TABLE 2
Renewables Targets: Options

<i>Target</i>	<i>Installed renewables capacity required</i>	<i>Level/type of electrical infrastructure required</i>
Present production – 50% electrical capacity	25 MW	No change
Electricity use equivalence	50 MW	Active management of existing grid
Energy use equivalence	160 MW	New 200 MW grid connection
Total carbon emissions offset (includes non energy activities)	230 MW	Active management of new grid connection

Source: Aquatera

capacity of 160MW, i.e. an additional 135 MW above current installed renewable capacity of 25MW. This amount of new capacity would require, and would be sufficient to justify (under current regulations), the installation of a new cable under the Pentland Firth. To completely offset Orkney's carbon footprint (excluding that derived from the oil terminal at Flotta) would require a further 70 MW of installed capacity.

In the context of the aims of the strategy, *electricity usage equivalence* is an incomplete long term goal, since Orkney remains an intensive user of other forms of energy, i.e. fossil fuels, which will become scarcer and more expensive in the future. It seems likely that policy goals for renewables in the future will increasingly be cast in terms of all energy usage, not just electricity consumption. Thus a more logical goal would be to generate from renewable resources the energy equivalent of all forms of energy used in Orkney – *energy use equivalence*. This would secure energy supply, and also mean Orkney was compensating for its carbon emissions resulting from the use of fossil fuels.

In terms of the objectives of security and affordability of supply, a policy of *energy use equivalence* could be combined with greater reliance on electricity (domestic heating systems, electrical vehicles) and diminished usage of fossil fuels. It would be consistent with a long-term strategy of moving away from a fossil fuel economy, as such fuels become scarcer and more expensive, to a hydrogen economy, as that technology develops (see separate section below).

Achievement of these goals depends on a range of technical and regulatory issues. *Electricity use equivalence* could be achieved in Orkney in a relatively short time-scale, through active management of the grid. *Energy use equivalence* will require new grid capacity into Orkney, and depends on grid strengthening to main transmission lines to the south (especially the current plan for Beaully-Denny strengthening), which will take longer to achieve.

Moving beyond *energy use equivalence* will require even further grid strengthening on the mainland, beyond what

is currently planned. Orkney has the potential, as shown in Table 1, to develop more than 1 GW of energy, although this will require full commercial development of marine energy. In the long run this energy is likely to be required by Scotland and by the UK as a whole, and Orkney should aspire to provide it.

Achieving in excess of 1 GW of production should be an aspirational goal for the long term, capable of being considered as a definite future target when this strategy is reviewed. For the medium term, the target of *electricity use equivalence* (i.e. 50 MW of installed renewables capacity) within 5 years, and energy-use equivalence (160MW) in 10 years, are considered to be realistic goals.

These goals will put Orkney on a par with other European Islands which have adopted similar goals. The most notable example is Samsø in Denmark, an island with a population of 4,400, which in 1997 became the focus of a government initiative, adopting and subsequently achieving, the target of renewable energy production equivalent to its energy use (some 30 MW), within 10 years. The larger Swedish island of Gotland (population 50,000) has adopted the target of reducing usage of fossil fuels to 50% of its energy usage by 2010, and a further target of carbon-neutral energy production by 2025.



5. Electricity Transmission

Active management can increase the capacity of the current grid in Orkney, including the connectors to the Scottish mainland, enabling some 15 MW of additional generation capacity to be developed in Orkney and connected to the grid. However, beyond this, substantial strengthening of grid capacity is required, including a new cable across the Pentland Firth. Thus development of substantial new renewables generating capacity in Orkney, including commercial development of marine energy on a significant scale, requires grid reinforcement.

Scottish Hydro-Electric Transmission (SHETL) is currently proposing to extend the high voltage (132kV) subsea connection with a new subsea electrical connection between Dounreay substation in Caithness and Orkney. The current plans include two 132kV subsea cables and associated electrical infrastructure (overhead transmission lines and/or underground cables and sub-stations on Orkney and the Scottish Mainland). This will provide up to 200MW capacity for new renewable energy development in Orkney. Consultants are currently employed on selecting a preferred route and undertaking an environmental assessment.

The Scottish Government's draft National Planning Framework (NPF) has identified a number of grid reinforcement projects required to support renewable energy developments as "national developments". These projects have been identified by the Scottish transmission owners, and include reinforcement of the sub-sea cable between Orkney and the Scottish Mainland.

The Scottish Government is committed to a strategic approach to electricity transmission with a focus on export to Mainland Europe and Ireland. Thus the draft NPF identifies a potential subsea cable running through the Pentland Firth linking the east and west coasts of Scotland with potential European markets. The Crown Estate has been undertaking studies of a sub-sea super-grid.

These developments are essential to enable Orkney to continue to develop its renewables resources, and to achieve the goals set out in Strategic Issue 1. ***This strategy therefore supports development of the grid, to overcome the current constraint on significant renewables development in Orkney.***

6. Planning issues for Renewable Energy Projects

As Planning Authority, the Council has a duty to develop a policy framework for renewable energy developments on land, taking into account the full range of planning issues raised by such developments, most obviously in the case of large-scale wind turbines. Accommodating such structures in Orkney's treeless low-lying topography, with its important cultural and archaeological heritage, constitutes a major challenge.

In parallel with this strategy, the Council has consulted on draft Supplementary Planning Guidance (SPG) for On-shore Wind Energy Development, and has now adopted a final version of the SPG. The SPG incorporates a spatial policy based on three different zones or Areas:

- ***Broad Areas of Search, those areas of least constraint to on-shore wind energy development in Orkney, including such developments of 20 MW or over;***

- ***Areas of Significant Protection, including Natura 2000 Sites, Ramsar Sites, Sites of Special Scientific Interest, and the World Heritage Site and its Zones of Visual Influence;***
- ***Areas of Potential Constraint, where planning applications will require to be supported by evidence concerning the level of impact on the Heart of Neolithic Orkney World Heritage Site and Buffer Zone; 2km Buffer Zones around towns, villages and rural settlements; Kirkwall Airport Safeguarding Area; Sites of Local Nature Conservation Interest; and Sites of Local landscape Character.***

In addition developers must satisfy nine Development Criteria set out in the SPG.



7. Community Benefit

As with any commercial or industrial development in the islands, development of renewable energy in Orkney must bring benefits to Orkney residents. There is an interest, shared by the Council and the wider community in Orkney, in ensuring that local benefits from the development of renewables in the islands are maximised. There are a number of ways in which this can be achieved, and there are some examples of these in Orkney and elsewhere in the Highlands and Islands. The principal means of deriving community benefit are:

a) Community benefit paid by private developer

These are annual payments made to community bodies or projects, which are now common, and which have been adopted as a matter of policy by some Councils. Several privately-owned developments in Orkney are making such payments.

It should be noted that councils have no power to compel a private developer to make such payments, but nevertheless such payments are common, as a means of ensuring local support, rather than opposition, to a project. Payments based on installed capacity are less attractive to developers, and perhaps less fair, than payments based on actual electricity generated, which can vary from year to year. A combination of the two is the best way to deal with this, as in the guideline adopted by Argyll and Bute Council.

Thus as a guideline, the Council proposes that the minimum annual community benefit payment by a wind turbine project to the local community, should be £2000 per MW installed capacity, plus £1000 per MW installed x actual efficiency in any given year.

b) Council equity participation in wind turbine projects

Investment by Orkney Islands Council in a private or community owned project would earn a direct return for the Council, which could be used for a variety of community projects. The Council established an investment fund of £2m for this purpose in 2007. Funds would come from the Strategic Reserve Fund, and dividends would go back into that Fund. The Council would not be the developer, and would not participate prior to planning consent being granted, to avoid conflicts. The guidelines for this scheme are attached as Appendix 1.

This scheme has an overall limit, and a guideline about investment limits in any one project. It is not geared to large scale projects involving several turbines or more. The investment requirements of such projects are much greater, running into many millions of pounds, and a significant Council share would involve sums beyond the limits of this scheme, putting substantial Council funds at risk. Given the prudent requirement for a diversified portfolio, it would be unwise for the Council to put a large proportion of its funds into one type of investment.

The Council needs to decide on an overall allocation of its funds between asset classes, the responsibility of its Investment Sub-committee. The current investment limit will be reviewed from time to time.

The Council is prepared to consider investment in wind turbine projects in Orkney, from a £2m Renewables Investment Fund established for this purpose.

c) Community-owned wind turbines

This is the development of one or more turbines by a community group, usually a not-for-profit development trust, with all surpluses being made available for other community projects in the locality. Such projects are able to maximise local support, can enable a community to realise other community projects, and thereby strengthen local communities.

Westray Development Trust has the most advanced project of this kind in Orkney. The Council has provided substantial assistance to the early stages of this project on a pilot basis. The Highlands and Islands Community Energy Company is playing a major role in fostering these projects.

Future community owned renewables projects could be considered for assistance or investment, through the Council's Renewables Investment Fund.

d) Local private investor-owned wind turbines

This is development undertaken by a group of local investors – an investors club – with profits being distributed as dividends to members of the club. The Burray wind turbine is the first project of this kind in Orkney. Such projects do have local benefits. The justification for public sector assistance a private renewables investors' club is limited, but Council participation through equity investment is possible.

The Council will consider participating in renewables projects by private investors' clubs, through equity investment from the Council's Renewables Investment Fund.

e) Council-owned wind turbine project

It would be possible for the Council to itself act as sole developer of a renewable project, on land which it owns or could acquire. This would mean the Council lodging the planning application, and providing the equity for all of the project cost (or some combination of equity and loan). One possible project is under investigation. The investment fund of £2m would probably be insufficient for this purpose, and therefore it would mean putting more Council funds at risk, although the rewards would potentially be greater.

The Council will consider developing renewables projects at its own hand, on land which it owns or can acquire for this purpose.



8. Fuel Poverty

Orkney's level of fuel poverty is one of the highest in Scotland. A secure and affordable supply is one of the overall aims of the Sustainable Energy Strategy. Fuel Poverty is the subject of a separate Council strategy, published in 2004 and currently under review. There will therefore be areas of overlap between the two strategies, and there will in due course be consultation on a new Fuel Poverty strategy. The two strategies will be aligned.

The promotion of energy efficiency and small-scale renewables devices is a key mechanism for addressing fuel poverty. The Council is involved in the provision of advice, the promotion and also implementation of schemes, through the Northern and Western Isles Energy Efficiency Agency and Keep Orkney Warm. The current contract with Energy Savings Trust is coming to an end, and restructuring of this sector is under examination, with a

view to reinforcing its work (see section 9 below). Action on Fuel Poverty would be a key driver of any new arrangements, which could see a consolidation of energy-related activities into a single agency.

It has also been suggested that the Council could establish an energy supply company, with a view to supplying energy at advantageous prices. This would need to comply with the legal requirements of the heavily regulated UK energy supply market and requires further detailed investigation. It would also require the commitment of substantial resources.

The Council will examine ways of strengthening its actions to reduce Fuel Poverty in Orkney, including through the establishment of an Orkney Energy Agency or Company.

9. Energy Efficiency and Micro Renewables

Promoting energy efficiency, particularly in domestic dwellings, but also in business premises and public buildings, is one of the most cost-effective ways of reducing energy consumption and costs, and carbon footprints. Increasingly it has been operating in tandem with the promotion of small-scale renewables devices, such as domestic wind turbines and ground or air source heat pumps, which achieve the same goals of reduction in imported energy and carbon emissions.

The Energy Efficiency Advice Centre and Keep Orkney Warm are the main public sector centres of expertise, advice, and assistance, to households (and in the case of the EEAC, businesses and other organisations), about energy efficiency matters and small-scale renewables devices. As noted above, the possibility of bringing these organisations together, to reinforce their work, is currently under examination.

The Council, like all other local authorities in Scotland, is a

signatory to the Government's Climate Change Declaration, committing itself to take action to reduce Orkney's carbon footprint. The Council is also a participant in the Carbon Trust's Carbon Management Programme, and has a programme for reducing its own carbon footprint, as part of that programme.

The Carbon Management Strategy and Implementation Plan commits the Council to a target of reducing CO₂ by 11% by 2014, and underpins potential financial savings to the Council of £ 1.6M.

The Council has an Energy Officer who advises the Council on energy efficiency improvements to its own estate. Travel and transport issues throw up specific problems which are addressed in section 10 below.

The Council will continue to support the drive for energy efficiency, as an important mechanism for tackling fuel poverty, and reducing fuel consumption and carbon emissions.



10. Travel and Transport

Orkney is currently heavily dependent on fossil fuels for the operation of its crucial transport links on and between the islands, and between Orkney and the Scottish mainland. This is one of the principal demands for fossil fuels in the islands. In addition, Orkney's dispersed settlement pattern on the Mainland, (and to some extent its weather), tends to favour the convenience of private transport over public transport. Alternative technologies to the fossil fuel-powered engine are currently underdeveloped. Travel and transport therefore does represent a particular problem area in relation to achieving the overall objectives of the strategy.

Orkney therefore has a special interest in the development of methods of transport which are not reliant on fossil fuels, especially through the use of hydrogen fuel cell technology, based around renewable electricity generation, or through the use of biofuels (for example the Westray biofuels car project) A demonstration project linked to public or demand-responsive transport would be especially relevant in Orkney, for example a minibus powered by alternative fuels.

The Council is investigating the possibility of European Regional Development Fund support for a demonstration project using alternative fuels.

The Council has put in place considerable improvements to the public bus services, in terms of frequency and accessibility of services, co-ordination with other forms of transport, and the provision of better information, in line with its Local Transport Strategy. It has developed the new Travel Centres in Kirkwall and in Stromness, offering much improved facilities to public transport users. It is

encouraging walking and bicycling as alternatives to short car journeys, and promoting public transport options for visitors and residents to explore all of Orkney. All of this is having an impact on the extent of public transport use.

In addition the Council has an active Travel Plan for its own travel and transport needs, particularly in respect of commuting by staff, and it is working in partnership with NHS Orkney to develop their own staff travel Plan, which will be aligned with the Council's. The Council is also encouraging other organisations to develop their own Travel Plans. A number of actions are being developed, in terms of encouraging Council staff to walk or bicycle to work, and discouraging the use of particularly sole-occupancy private car usage.

Through its Local Transport Strategy for Orkney, the Council is seeking to improve public transport and other alternatives to use of the private car, and to encourage their use for commuting and other journeys.

Reducing the need to travel is another potential element of a strategy addressing the use of fossil fuels in transport. Planning has an important role here, by ensuring that land allocations for different land uses are made in a way that minimises the need to travel, and enhances access by walking, cycling, and public transport, by focusing development in areas close to facilities and amenities and on public transport routes. This is an issue which could be addressed in the current review of the Local Plan.

In reviewing the Local Plan, the Council will address the issue of reducing the need to travel.

11. Marine Renewables

Orkney has a strong interest in the development of marine renewables. The Resources Study showed that the potential for marine resources, particularly tidal power, is much greater around Orkney than the potential for on-shore wind turbines. On-shore wind turbine potential on Orkney is constrained by planning considerations. Thus there is a strong logic in looking to marine energy as Orkney's principal contribution to renewables in the future, and as the basis for a valuable leading-edge industry in the islands.

The establishment of the European Marine Energy Centre as the leading marine energy testing and accreditation centre, gives Orkney a lead in this area at the present time. EMEC has been strongly supported by national and local public sector agencies, including HIE Orkney Area, and the Council. The Council and HIE are also supporting Heriot Watt's International Centre for Islands Technology in its

EMREDS research project into aspects of marine energy.

Support for marine energy developments will continue in the future, to ensure that Orkney maintains and develops its lead in this area.

Tidal generation from existing or new fixed links between islands would have twin benefits for Orkney and is therefore a particularly attractive possibility.

The Council will investigate the possibility of tidal generation from fixed links.

The draft National Planning Framework identifies the Pentland Firth and the seas to the west of Orkney as having considerable "marine energy potential". Whilst the potential of the Pentland Firth for marine energy developments is well-known, research and development opportunities on both sides of the Pentland Firth need to be co-ordinated to ensure the full potential is realised.



12. Jurisdiction over Marine Projects

At present renewable energy installations at sea (off-shore turbines or tidal and wave devices) of over 1 MW capacity require permission from the Scottish Government. This contrasts with on-shore development of wind turbines, for which the Council is the relevant planning authority, except for wind farms of over 50MW, which instead require consent from the Scottish Government under the Electricity Acts.

In the Council's view it is an anomaly that, while planning control over marine fish farms is being transferred to local authorities, control of offshore renewable energy projects remains with the Scottish Government. This is especially

the case at a time when fish farming is a mature industry, and offshore energy development is in its infancy. It is not conducive to good planning of the marine environment to have planning control fragmented in this manner.

The Scottish Government intends to deliver a Marine Bill which will include amongst other things a system of marine planning to enhance the sustainable use of the marine environment. The Bill raises the possibility of regional management of the marine environment.

The Council will continue to make the case for local control of developments in the marine environment around Orkney.

13. The Hydrogen Economy

In the long term, development of the technology for production of hydrogen using electricity generated from renewable resources, would be of major assistance in the achievement of all three of this strategy's objectives. It would provide a way of phasing out the use of fossil fuels in transport in Orkney, so that renewable energy generated in Orkney was used locally, and contributed directly to reducing Orkney's carbon footprint. It would mean that Orkney would have a secure and local supply of energy, as well as a good local market for energy produced in the islands.

It would also provide another route for exporting renewable energy from Orkney. Coastal industrial sites

such as at Flotta or Lyness could be suitable locations for the necessary plant. Their potential for this purpose should be promoted.

At present the technology is a very costly one, and substantial resources are being committed by governments and major energy companies to develop it further, including reducing costs. Orkney does not have the resources to make new advances in this area on its own. Nevertheless, a demonstration project in Orkney, to increase technical knowledge and awareness, and show how the technology can be applied, would be beneficial.

Orkney should be promoted as an ideal location for such a hydrogen fuel cell demonstration project.

14. Policy Formulation and Monitoring

The Council's desire to establish a Sustainable Energy Strategy for Orkney, a project which has been endorsed by the Community Planning Partnership, reflects a general public desire for Orkney to contribute to shaping its own energy future. Energy development is crucial to Orkney's development, as is shown by the overall aims of the strategy, which include energy security, future economic development, energy pricing, climate change, and other issues. The Council wishes to continue to take a lead in these matters, and to promote debate about, and awareness of, the issues, as well as engaging in national and regional policy debates. It will do this through its Sustainable Energy Subcommittee, and the Community Planning Partnership, and in liaison with Orkney Renewable Energy Forum.

Monitoring is essential to the understanding of issues and the development of policy. There is no single focal point in Orkney for monitoring of energy developments – the Northern and Western Isles Energy Efficiency Advice Centre, the International Centre for Island Technologies, and private developers, all collect and hold information in the areas in which they have a particular interest. Indeed there are too many aspects for any single body to monopolise the monitoring function. What is required is an active network amongst those with an interest and involvement in energy matters. Orkney Renewable Energy Forum performs this role, and its work should be supported and strengthened.



RELATED OIC STRATEGIES

- 1) The Council Plan, OIC, 2008
- 2) Supplementary Planning Guidance on On-shore Wind Turbines, OIC Sept 2008
- 3) Local Transport Strategy, OIC, 2007
- 4) Fuel Poverty Strategy, OIC
- 5) Carbon Management Strategy, OIC, 2007

OTHER REFERENCES

- 1) A Vision for Orkney's Sustainable Energy Strategy, Aquatera, 2007
- 2) Orkney Energy Audit, Energy Efficiency Advice Centre, 2004
- 3) Orkney and Shetland Renewable Energy Resource Study, Aquatera, 2004
- 4) Orkney Local Plan, OIC
- 5) HECA Report, OIC, periodic
- 6) Scotland's Climate Change Declaration, signed by OIC 2007
- 7) National Planning Framework (consultation draft), Scottish Government, 2008



15. APPENDIX 1

Orkney Islands Council - Renewables Investment Guidelines

The Council has set aside £2m of investment funds for investment in renewable energy projects in Orkney. Guidelines for investment are set out below:

1. Purpose

The purpose of Council investment in renewables is to earn a rate of return at least equal to the average return on the Council's principal investment fund portfolio obtained, at levels of risk commensurate with the rate of return (i.e. the higher the risk, the higher the required rate of return.)

2. Mode of Operation

The Council will act as a 'rational private investor' would act, so that no question of state aids arises.

3. Diversification

The investment fund will be spread over a number of different projects. No single project will receive more than 10% of the investment fund, i.e. a maximum of £200,000 in any one project.

4. Project Stage

The Council will not invest in a project prior to it gaining necessary consents, since investment at this stage involves higher risks than the Council's general investment guidelines permit, and could cause a conflict of interest with the Council's regulatory functions.

5. Extent of Investment

The Council will not become a majority shareholder in a project.

6. Investment Models

As there are a range of organisational and ownership structures for renewables projects, there is no single model for Council investment in such projects. Possible models are:

a) Private sector model

In this model, one or more private investors (companies or individuals) will invest in a renewables projects, by subscribing for equity to cover part or all of the project cost. The Council will consider subscribing for equity on the same terms and conditions as other investors. There should be no restriction on the Council selling its shareholding during the life of the project.

b) Community Project model

If such projects are developed and owned by a PLC, the private sector model can apply. However, it is anticipated that in most cases some other ownership structure may apply (e.g. cooperative or trust.) In such cases investment by way of loan or preference shares may be considered. The rate of interest, and repayment terms, should not be less attractive than those required by a commercial lender. The Council will seek appropriate security for any loan made by it.

7. Exit

There must be an exit route for the Council investment, either by unfettered sale of equity, or by repayment of loan or preference shares, over a similar period as a commercial investor might require.

8. Due Diligence

The Council will require to undertake due diligence prior to making an investment.

9. Discretion

Acting as a 'rational private investor' the Council shall have absolute discretion as to whether or not it invests in any particular project