

Report of: Financial and Asset Business Manager**To: Executive Board****Date: 13th March 2006****Item No:****Title of Report : Wind Turbine – response to Council Motion**Summary and Recommendations

Purpose of report: To seek Executive Board approval to switch all electricity contracts to renewal energy suppliers and to research the use of alternative energy sources in serving the Council's energy needs

Key decision: No

Portfolio Holder: Councillor Alex Hollingsworth

Scrutiny Responsibility: Finance



Ward(s) affected: All

Report Approved by:

Councillor Alex Hollingsworth - Portfolio Holder
Penny Gardener – Financial and Asset Management
Lindsay Collett – Financial and Asset Management
Lindsay Cane – Legal and Democratic Services
Laura Goddard and Mark Jaggard – Planning
Paul Robinson – Sustainable Energy Officer

**Policy Framework:**

Making Oxford a more environmentally sustainable City

Recommendation: Members to note the progress made to date and to agree

- that Officers should continue to research wind turbine options and to provide a comprehensive report with fully evaluated and costed options in July/August 2006, utilising third party suppliers to provide the evaluation;
- that all current and future electricity contracts should be switched to renewable resourced suppliers, providing that the cost differential does not exceed 10%; and

that at this time investment in third party wind farm schemes should be put on hold.



1. On the 21st November 2005 Council adopted a Motion which stated that:-
 - There are a number of schemes, notably that run by 'Ecotricity', that enable large businesses and local authorities to provide land for wind turbines, the energy from which is then provided to the landowner.
 - The City Council is committed, in a number of different ways, to tackling the challenge of climate change.
 - The capital costs of a wind turbine scheme would be met entirely by the wind turbine provider, and the City Council would be provided with a new and entirely renewable source of energy.

Council believes that any possibility for using the purchasing power of the City Council to tackle climate change should be investigated.

Council therefore resolves to ask appropriate Officers to explore the possibilities for placing a wind turbine on Council owned land, and that an environmental impact assessment should be made so that environmentally sensitive areas like Port Meadow are considered with due caution, and to request that they report their findings to the Executive Board.”

2. In response to that Motion officers have been considering various options to achieve the aims of the Council and this report sets out progress to date. It has not been possible in the time available to fully evaluate these options, and this report is therefore only intended to be an interim update, before a more comprehensive study with full costing and options is provided.
3. The options considered to date have been:-
 - a) Construct wind turbine(s) on City land buildings for its own and third party use, or procure by a third party the construction of wind turbine(s) for partial use by the Council;
 - b) Purchase all of the Councils energy requirements from renewably resourced suppliers;
 - c) Invest in existing renewable facilities.
4. Each of these options is now considered in turn.
5. The City Council uses approximately 5.6 mega watt-hours of electricity per annum. This supplies the 16 major buildings and over 600 minor facilities occupied and managed by the Council.
6. This option suggests that it would be possible to construct on Council owned land or buildings of a suitably sized turbine(s) to generate sufficient

electricity to meet the Council's needs. Taking as a template the approved Westhill Farm Shrivenham project it would be possible to generate more than sufficient power (with surplus being sold to the National Grid) from one 49 Metres turbine with a 31 metre blade. The projected capital investment needed to build this turbine would be in the order of £1.25million with net income (after costs) of £2million over a 25 years period. Whilst superficially attractive there are 3 key obstacles:-

- a) Provision of capital resources to fund the scheme;
 - b) Securing of planning permission. There are likely to be local concerns regarding the visual impact of a turbine, however, there is also likely to be considerable local support. There are a number of issues that would be taken into consideration when judging a planning application for a large-scale wind turbine(s). These include visual impact (on natural and historic landscape and the openness of the Green Belt); ecological habitats; radar; and noise (turbines of this size generally need to be located a minimum of 400 metres from the nearest dwelling to reduce noise impact). A degree of visual impact is inevitable but it is against the need for renewable energy that proposals will need to be assessed.
 - c) Identifying a suitable site. A thorough assessment would need to be undertaken by an expert/consultant but sites will need to be considered for their suitability in terms of wind speed, grid connection, access for turbine construction, distance from neighbouring dwellings and topography. Wind speed and distance from dwellings are likely to be the main constraining factors in Oxford, however, the wind turbine recently constructed at Green Park in Reading had a lower than average wind speed. Also, if a site was close to a noisy road, and therefore had high background noise levels, there may be opportunities for turbines to be located closer to dwellings than 400m. Initial investigations suggest that there are very few sites which are suitable, although further investigations should be undertaken to ascertain site suitability.
7. The alternative to a large turbine would be to consider smaller sized or a series of building based turbines. This option presents a series of challenges to be overcome e.g. noise, vibration, health and safety matters, in addition to planning permission, but seems to be [from a planning perspective] capable of some progress. Members should note, however, that the higher proportion of days when the average wind speed is insufficient to generate electricity from smaller and lower turbines, reduces the amount of energy produced very significantly. There may also be opportunity to site small-scale turbines on roundabouts as these are likely to have high existing background noise. A small-scale wind turbine has gained planning permission on a roundabout in Bristol Temple Meads and is due to be installed in March 2006. There are also turbines being installed within school grounds in Brill (installed) and Berensfield (planned).

8. Thus one large or a series of smaller turbines are technically capable of supplying the Council's total energy needs however, substantial further investigations are needed to establish whether this theory can be achieved in practice.
9. It is possible to use third party specialists to source, provide and manage contracts on the Council land. Similar planning constraints would apply, However, by identifying potential sites and then via a simple tender process, seeking responses from suitably experienced companies asking them to identify specific proposals in respect of the sample sites (based on a 15 year contract with them) would mean that the very substantial investigation time and resources would not fall on the Council. It is therefore suggested that if the Board were to consider promoting a scheme on Council land this is the approach to be adopted.
10. Current total electricity costs are approximately £300k per annum (of which £228k are currently from sustainable sources). The energy contract for the major buildings is to be renegotiated in November and will now be tendered on the basis of both standard and green electricity supplies. The 600 smaller supplies, which are purchased without the requirement for a tender process, could be acted upon immediately, subject to the Boards approval. We are advised that moving to fully green sourced energy suppliers will at the this time not increase these costs.
11. The final option would be to encourage use of wind energy by investing in established or planned wind farms. One example is the project at Westhill Wind Farm near Shrivenham. This co-operative venture was offering shares in this enterprise investment based scheme with a closing date of 28th February 2006. Having already obtained planning consent the share offer is intended to secure the funding for this £6m scheme, which intends to produce approximately 12 giga watt hours of energy from five 1.3mw turbines. Each turbine will be 49 metres tall with a 31 metre blade. Maximum investment permitted by the prospectus is stated at £20,000 and is forecast to produce a return of 11.8% over the 25 year life of the project. As with all schemes of this type, no guarantees are given and Members should consider any investment in this or similar schemes as they would apply to property purchases. Attention of members is specifically drawn to the footnote to the report in respect of the Strategic Director of Finance and Corporate Services who has associations with this particular project.
12. Finally Members will appreciate that the most cost effective and environmentally friendly approach to energy is to reduce energy use at source. To this end Members attention is drawn to the Energy Emissions from Council Buildings report considered by Environment Scrutiny Committee on the 23rd January, together with the Oxford Climate Change Action Plan report considered by Executive Board on the 20th February copies of which have been placed in the members room.
13. Members are therefore asked to note the progress to date, and

- A. Agree that Officers should continue to research the wind turbine options and provide a comprehensive report with all evaluated options in July/August 2006, ideally using third party suppliers to evaluate the options;
- B. To agree that all current and future electricity contracts should be switched to renewable resourced suppliers, providing that the cost differential does not exceed 10%;
- C. That at this time investment in third party wind farm schemes should be put on hold

Footnote

Members should note that the Strategic Director for Finance and Corporate Services Mark Luntley has both personally invested in, and featured in publicity material for the Westhill Farm project. He has therefore not been consulted on, or been involved in the writing of this report, and thus has not approved the contents.

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Background papers: None