

## CABINET ITEM COVERING SHEET PROFORMA

**AGENDA ITEM**

**REPORT TO CABINET**

**17 DECEMBER 2009**

**REPORT OF CORPORATE  
MANAGEMENT TEAM**

### **CABINET DECISION**

***Environment – Lead Cabinet Member – Councillor Mrs Jennie Beaumont***

#### **RENEWABLE ENERGY STRATEGY**

1. Summary

The stability of energy supplies derived from fossil fuels can no longer be relied upon due to price volatility, an overall substantive increase in grid electricity and gas prices and the requirement to contribute to Government carbon reduction budgets. The use of renewable energy supply therefore needs to become an important part of the Council's approach to meeting future energy demands.

Under the carbon management programme Stockton-on-Tees Borough Council has committed to a 25% reduction in carbon emissions by 2013 whilst central Government have set greenhouse gas reduction targets of 34% by 2020 and 80% by 2050. These levels of carbon emission reduction will only be achieved by a move away from carbon rich fossil fuels towards renewable and other sustainable energy supplies

To this end a Renewable Energy Strategy has been developed for Stockton-on-Tees Borough Council that explains the drivers for renewables, the practicable means of introducing renewable energy supply and the technologies and routes to reducing the council dependency on fossil fuels.

The Renewable Energy Strategy supports the Climate Change Action Plan, Local Authority Carbon Management Programme, Sustainable Construction and national policies on carbon emissions reduction. The strategy focuses upon the authority's own use of energy and is not a planning policy document. Policies relating to renewable energy are being dealt with through the Local Development Framework and associated planning policies.

This strategy is concerned with energy use in buildings and identifies potential means of delivering both renewable electricity and renewable heat by a variety of means including significant input from off-site renewable energy generation.

This document provides a route map to Stockton-on-Tees Borough Council becoming increasingly self sufficient in low carbon energy supply providing increased security of supply and cost as well as reducing the carbon emissions associated with Council operations.

## 2. Recommendations

It is recommended that:

1. Members note the content of the Renewable Energy Strategy as attached at appendix.....
2. Members agree the Renewable Energy Strategy as a delivery mechanism to reduce carbon emissions derived from the Council's energy consumption.

## 3. Reasons for the Recommendations/Decision(s)

1. Stockton-on-Tees Borough Council has committed to carbon reductions of 25% by 2013.
2. Government targets for 34% reduction in carbon emissions by 2020 rising to an 80% reduction by 2050 will be passed onto the Council through National Indicators such as NI185 which currently forms part of the Local Area Agreement.
3. The Renewable Energy Strategy provides clear guidance for the implementation of sustainable energy supply for Council buildings.

## 4. Members' Interests

Members (including co-opted Members with voting rights) should consider whether they have a personal interest in the item as defined in the Council's code of conduct (**paragraph 8**) and, if so, declare the existence and nature of that interest in accordance with paragraph 9 of the code.

Where a Member regards him/herself as having a personal interest in the item, he/she must then consider whether that interest is one which a member of the public, with knowledge of the relevant facts, would reasonably regard as so significant that it is likely to prejudice the Member's judgement of the public interest (**paragraphs 10 and 11 of the code of conduct**).

A Member with a prejudicial interest in any matter must withdraw from the room where the meeting considering the business is being held -

- in a case where the Member is attending a meeting (including a meeting of a select committee) but only for the purpose of making representations, answering questions or giving evidence, provided the public are also allowed to attend the meeting for the same purpose whether under statutory right or otherwise, immediately after making representations, answering questions or giving evidence as the case may be;
- in any other case, whenever it becomes apparent that the business is being considered at the meeting;

and must not exercise executive functions in relation to the matter and not seek improperly to influence the decision about the matter (**paragraph 12 of the Code**).

**Further to the above, it should be noted that any Member attending a meeting of Cabinet, Select Committee etc; whether or not they are a Member of the Cabinet or Select Committee concerned, must declare any personal interest which they have in the business being considered at the meeting (unless the interest arises solely from the Member's membership of, or position of control or management on any other**

**body to which the Member was appointed or nominated by the Council, or on any other body exercising functions of a public nature, when the interest only needs to be declared if and when the Member speaks on the matter), and if their interest is prejudicial, they must also leave the meeting room, subject to and in accordance with the provisions referred to above.**

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#### **SUMMARY**

The stability of energy supplies derived from fossil fuels can no longer be relied upon due to price volatility, an overall substantive increase in grid electricity and gas prices and the requirement to contribute to Government carbon reduction budgets. The use of renewable energy supply therefore needs to become an important part of the Council's approach to meeting future energy demands.

To this end a Renewable Energy Strategy has been developed for Stockton-on-Tees Borough Council that explains the drivers for renewable energy, the practicable means of introducing renewable energy supply and the technologies and routes to reducing the council dependency on fossil fuels.

This strategy is concerned with energy use in buildings and identifies potential means of delivering both renewable electricity and renewable heat by a variety of means including significant input from off-site renewable energy generation.

#### **RECOMMENDATIONS**

It is recommended that:

- 1 Members note the content of the Renewable Energy Strategy as attached at **Appendix 1**.
- 2 Members agree the Renewable Energy Strategy as a delivery mechanism to reduce carbon emissions derived from the Council's energy consumption.

#### **DETAIL**

##### Background:

- 1 Gas and electricity prices are showing significant volatility against a longer term upward trend as fossil fuel supplies become more difficult to exploit or are sourced from Europe and further afield as the home supply declines.
- 2 There is also a requirement to reduce carbon emissions substantially with the Stockton-on-Tees Borough Council Carbon Management programme requiring a 25% reduction by 2013 and government targets of a reduction of 34% by 2020 and 80% by 2050 requiring strong action beyond energy efficiency improvements. Whilst the Renewable Energy Strategy has a focus on Council buildings there is also a benefit to transport, particularly electric vehicles

that would be charged from a renewable electricity supply thus potentially providing zero carbon transport.

- 3 Means of supplying low and zero carbon energy to the Council buildings are therefore required and these sources may be grouped under the heading of renewable energy supply. Such supply would not be confined to technologies mounted on or adjacent to buildings but could include provision of renewable electricity from a remote source beyond Stockton-on-Tees Borough Council boundaries, through a 'Power Purchase Agreement'. The process enables a long term contract for renewable electricity supply at a stable price to be entered into with a third party. This commitment then enables the third party to secure funding to provide a large scale renewable electricity supply, typically at present a wind farm, at a suitable location within the British Isles with guaranteed provision of renewable electricity generated to Stockton-on-Tees Borough Council.
- 4 This strategy provides information on available and practicable renewable energy technologies and maps out the means by which Stockton-on-Tees Borough Council would achieve an increase in proportion of its energy requirement from these renewable and sustainable sources. This would result in a reduction in carbon emissions and greater price stability. In the long term renewable energy supplies are likely to be at a lower cost to the Council than conventional, fossil fuel based energy supplies.
- 5 The table below summarises the benefits and consequences of adopting renewable energy supplies:

<b>Performance Measure</b>	<b>Impacts</b>
Carbon Management Programme	Renewable electricity and heat reduces Council carbon emissions thus aiding the achievement of targets
NI 185 Council CO <sub>2</sub>	On site renewables not claiming Renewables Obligation Certificates provide carbon saving thus improving NI 185 position.
Carbon Reduction Commitment (CRC)	Carbon reduction only counts for building mounted renewables that reduce conventional consumption but do not secure other financial benefits such as Feed In Tariffs
Power Purchase Agreement for renewable energy	Long term electricity supply contract enabling large scale renewable source (eg wind farm or hydro scheme) to be financed in another part of the UK. Provides price stability and long term lower prices than fossil fuels but can't count against CRC carbon allowances. Avoids need for Council investment.
Finance	Price stability, long term lower prices than fossil fuels. Feed In Tariffs aid payback but can't count against CRC carbon allowances

Baseline:

- 6 The baseline energy consumption taken from the 2008/09 data are as follows:

Electricity consumption	34,391,683 kWh	17,986 tonnes CO <sub>2</sub>
Gas consumption	56,788,330 kWh	10,504 tonnes CO <sub>2</sub>
- 7 Our total carbon emissions from energy consumption were 28,490 tonnes and although our carbon management programme will see a significant reduction in this over the next few years we have to look to taking the carbon out of the energy supply at source and to do so we will need to shift towards renewable energy generation that is practical and affordable.

### Options:

- 8 Renewable energy technologies to reduce the energy related carbon emissions include the following:
- Wind turbines – most available and affordable current technology but does require planning permission. There are a limited number of available sites within the Borough but school based wind energy has attractions and provides additional educational benefits.
  - Solar Energy – in the form of heat through solar hot water panels this can provide around 60% of annual hot water demand but needs careful matching to Council buildings to be effective.
  - Solar Electricity – in the form of photo-voltaic (PV) panels and tiles provide a source of electricity, around 1kW output from 7m<sup>2</sup> area but is costly though Feed In Tariffs to encourage installation from April 2010 will provide around 8% return on investment. Technology breakthroughs are expected over the next decade that could see current costs of this technology substantially reduced.
  - Biomass – typically wood and waste materials to provide heat with appropriate boiler plant but requires fuel stores and regular delivery which can be problematic in urban areas, or using anaerobic digestion to produce a fuel oil or gas that could be used for transport as well as space heating of buildings.
  - Hydro-electricity – limited opportunity but an Archimedes screw generator is to be installed as part of the Tees Barrage white water course upgrade by Tees Active.

### Financial Incentives:

- 9 Apart from the stability of pricing derived from generating on site renewable energy the government has announced that from April 2010 there will be Feed in Tariffs available for electricity generated from renewable sources. Although the price payable to the generator has not been finalised it will be dependent on the technology used so for wind turbines 4.5p to 23p/kWh is likely to apply whilst for solar electric (PV) 26p to 36p/kWh is proposed. This will mean that the payback periods for certain technologies such as photo-voltaic and small to medium sized wind turbines will be significantly reduced (see paragraph 2. below).

### The Strategy

- 10 The Renewable Energy Strategy is intended to provide a route to deliver an increasing percentage of this energy use from a mix of renewable energy technologies. The recommended hierarchy of renewable energy technologies for consideration by the Council is as follows:
- i. Wind Turbines – utilising council land including school grounds these provide an immediate renewable electricity supply subject to suitable locations and planning permission but will only provide a small proportion of current electricity demand. For example planning consent was granted for a medium sized turbine at Bishopsgarth school but has not been developed due to lack of available funding.
  - ii. Solar PV – in terms of available roof space has the potential to meet up to 20% of current electricity demand but is currently a very costly technology. However the introduction of Feed in Tariffs from April 2010 does change the economics of this technology, for example if we were to install PV panels on the roof of municipal buildings the capital cost would be £90,000 and they would supply around 17,000kWh electricity per annum and offer a payback period of 19 years with the feed in tariffs set at 28 pence per kWh.
  - iii. Renewable Heat – encompassing biomass boilers, solar hot water, ground source and air source heat pumps to displace natural gas as the space heating and domestic hot water supply. Ground source heat pumps have been successfully incorporated into Rosebrook and Conyers schools.

- iv. Power Purchase Agreement – This is a long term contract securing a fixed (plus inflation) price for energy supply that in this case is applied to renewable energy (electricity) supply. This long term, contractual arrangement, typically 20 to 40 years enables the development of large scale renewable energy schemes to be funded from capital raised against the guaranteed earnings from the supply contract. Such an arrangement could therefore be linked to a renewable energy supply remote from the borough area thus removing limits on supply capacity arising from a lack of suitable sites. This type of arrangement is being used by some of the larger companies such as Tarmac.
  - v. Solar hot water – although costly this does provide an alternative renewable energy supply to those buildings with south facing roofs.
- 11 The detailed Renewable Energy Strategy is appended to this report and forms a stand-alone document describing the opportunities for renewable energy supply to the Council.

## **FINANCIAL IMPLICATIONS**

- 12 Renewable energy supply technologies tend to be costly with long paybacks at present until the impact of volatile energy prices as seen in recent years and the longer term inevitable increase in fossil fuel energy prices are taken into account. The Feed in Tariff should also see a reduction in the payback periods for some technologies.
- 13 Power Purchase Agreements provide the opportunity to secure dedicated renewable energy supplies and price stability on a long term contractual arrangement without the need for initial capital outlay.
- 14 Grant funding to aid the implementation of renewable energy supplies is currently available through the Low Carbon buildings Programme whilst other grants may become available for specific applications from time to time.

## **LEGAL IMPLICATIONS**

- 15 Requirement for planning permission for certain renewable energy supplies

## **RISK ASSESSMENT**

- 16 Failure to adopt a clear strategy leading to the use of renewable energy supply may harm the Council's ability to meet future carbon emissions targets.
- 17 Long term reliance on fossil fuel sourced energy supplies such as grid electricity and mains gas will expose the Council to risks of price volatility and long term substantial price increases.

## **COMMUNITY STRATEGY IMPLICATIONS**

### **Economic Regeneration and Transport**

- 18 Renewable Energy Strategy provides opportunities for local businesses to supply and install specific technologies.
- 19 Renewable electricity supply for charging of electric vehicles provides zero carbon transport.

### **Environment and Housing**

- 20 Strategy implementation can provide a route to reduced carbon emissions.

## **Safer Communities**

21 No specific benefit or impact.

## **Children and Young People**

22 School mounted renewable energy supply has high educational and citizenship benefits.

## **Liveability**

23 No specific benefit other than overall reduction in emissions of greenhouse gases.

## **EQUALITIES IMPACT ASSESSMENT**

24 Not required.

## **CONSULTATION INCLUDING WARD/COUNCILLORS**

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### Background Papers

Renewable Energy Strategy

### Ward(s) and Ward Councillors:

Not ward specific.

### Property

Endorses the principles covered in the Asset Management Plan especially the asset management section 3 concerning efficient operation of buildings in terms of energy use.