

## APPENDIX B

### WAVERLEY BOROUGH COUNCIL

### EXECUTIVE – 7 DECEMBER 2010

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#### Title:

#### **RENEWABLE ENERGY REPORT FOR GODALMING LEISURE CENTRE**

**[Portfolio Holders: Cllrs Roger Steel, Cllr Mike Band and Cllr Bryn Morgan]  
[Wards Affected: All]**

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#### Summary and purpose:

This report presents the options for renewable energies for the new Godalming Leisure Centre and seeks Members' agreement for officers to pursue the preferred option.

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#### How this report relates to the Council's Corporate Priorities:

Improving leisure opportunities is one of the Council's key priorities and the new build of Godalming Leisure Centre supports the achievement of this aim.

Reducing Waverley's carbon footprint year on year is also a Council priority and the Carbon Management Plan adopted in April 2010, commits us to achieve a 25% reduction by 2015 from our buildings and transport.

The incorporation of renewable energy measures into this project will have a higher capital layout but in the long term it will reduce the energy costs of the facility. It can deliver value for money as an "invest to save" project and it will also generate a long-term revenue income from the electricity and heat production.

#### Equality and Diversity Implications:

There are no equality and diversity implications identified.

#### Resource/Value for Money implications:

Value for money implications will include an initial capital cost, varying depending upon option, however the renewable energy choices will reduce the running costs of the leisure centre. The financial risk of future capital cost fluctuations has been mitigated as the figures included within the report are those received in the tendered price from the appointed contractors.

The governments newly introduced Feed-in-Tariff (FiT) and the Renewable Heat Incentive (RHI) about to be adopted in April 2011 will give the Council the opportunity to receive payment for generating electricity and heat, beyond the payback time of the chosen installation. If changes are made to the white paper with

reference to the government approach to RHI and or the application of FiT it will necessitate a review of the financial projections included within this report. However, both incentives are protected by the powers within the Energy Act and the chances of them being withdrawn after entering the agreement are very low. The FiT and the RHI, are two of the main vehicles for delivering the Government's 15% renewable energy generation target by 2020, set within the Act.

### **Legal Implications:**

There are no legal implications identified.

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### **Background**

1. In December 2009, the Council agreed to build a new leisure centre in Godalming. Members instructed officers to engage consultants specialising in renewable technologies and the environmental credentials of construction projects. The energy consultant has worked with officers to produce an energy strategy, which tenderers were instructed to comply with in their bids. This included the requirement to submit costed options for renewable energy technology in the new centre.
2. The aim of the energy strategy, attached as Annexe 1, is to detail the preferred energy options for the proposed redevelopment of Godalming Leisure Centre to ensure that the new building is designed, constructed and operated in an energy efficient and sustainable way.
3. The energy strategy demonstrates how the design intends to significantly reduce the carbon emissions of the development through the use of proved technologies, and quantifies the benefit of the low and zero carbon technologies that are proposed.
4. The development consists of a main pool, reception/cafe area, wet and dry change (including village and group change), fitness area and a dance studio.
5. Any reference to costs in this report should be considered preliminary only for comparison purposes and is subject to design development and confirmation by the specialist contractors and cost consultants.
6. Surrey County Council (SCC) have committed to reducing their carbon footprint by encouraging the use of biomass technologies. In order to achieve that they have adopted a policy where by the default position for any boiler replacement will be wood fuel burning. This includes all schools, and other public buildings.

### **Waverley Borough Council Requirements**

#### **Planning guidelines**

7. The South East Plan expects Councils to achieve:

- 10% renewable energy in all new developments of more than 1000m<sup>2</sup>
  - The integration of Combined Heat Power (CHP) into large scale schemes
  - The use of decentralized energy generation
  - The incorporation of energy efficiency measures to the highest standard in new developments.
8. The emerging LDF Core strategy aims to deliver sustainable development and at the same time address the causes and effects of climate change. Amongst other things, it promotes and encourages high efficiency measures in all new build, the use of CHP in large developments and the use of renewable sources of energy as a means of generating heat and power. The standards imposed are the same as the South East Plan.

### **Carbon Management Plan (CMP) 2010 – 2015**

9. Waverley's Carbon Management Plan was adopted in April 2010 and committed the Council to reduce carbon dioxide (CO<sub>2</sub>) emissions by 25% by April 2015, from 2008 levels and become a low carbon authority. This supports our corporate priority under Environment.
10. The five leisure centres alone account for 50% of Waverley's carbon footprint and therefore present the biggest opportunities for reduction. The new Godalming leisure centre is a fantastic opportunity to demonstrate our commitment to becoming a low carbon authority and showcase the highest levels of efficiency and renewable technologies while at the same time achieve the Council's leisure priorities.

### **Opportunities**

11. The Feed in Tariff (FiT) became available in the UK in April 2010. Under this scheme energy suppliers make regular payments to customers who generate their own electricity from renewable or low carbon sources such as solar electricity (PV) panels or wind turbines. The scheme guarantees a payment for all electricity generated by the system, as well as a separate payment for any electricity exported to the grid. The payments are income tax free and are RPI linked. The FiT offers a benefit in addition to the bill savings made by the consumer by using the electricity generated on-site.
12. The Renewable Heat Incentive (RHI) is designed to provide financial support that encourages individuals, communities and businesses to switch from using fossil fuel for heating, to renewables such as wood fuel. As part of the recent Spending Review announcements, the Government has confirmed that the RHI will represent over £850 million of investment over the spending review period, aiming to move from 1% to 12% renewable heat generation by 2020.
13. As Waverley is a highly wooded area' if the decision is made to install a biomass boiler we have the opportunity to explore the potential to generate our own wood fuel from our own land management operations. Although

Waverley’s own wood supply is of variable quantity and quality, and would be insufficient to maintain full supply to the Leisure Centre. We could expect to receive up to 25% potential credits when our wood is supplied to a timber station for processing this will reduce running costs, although the exact savings are difficult to calculate at this present time.

**Preferred options**

14. In order to satisfy the above Waverley requirements and considering the available opportunities the following areas have been considered. It is proposed that this capital investment is funded from the Revenue Reserve in the first instance but will be a first call on any unspent contingency.

**Calculating the Baseline**

15. The predicted energy demand of the new leisure centre is calculated using guidance from the Chartered Institute of Building Services Engineer (CIBSE). The new Godalming Leisure Centre was best represented by the *Combined Centre* type. The predicted energy demand and carbon emissions of this type of building are shown in the table 1 below.

Baseline	Predicted Annual Energy Demand		Predicted Annual Carbon Emissions		Total Carbon Emissions
	Gas (kWh/year)	Electricity (kWh/year)	Gas (kgCO <sub>2</sub> /year)	Electricity (kgCO <sub>2</sub> /year)	kgCO <sub>2</sub> /year
	574,695	474,420	118,387	280,382	398,769

Table 1. Calculated site baseline energy demand and CO<sub>2</sub> emissions

**Energy Efficiency Measures**

16. The first stage in reducing the development’s carbon footprint is to use energy efficient measures that will exceed the requirements of the Building Regulations. All preferred means to achieve this are listed on page 11 of the energy strategy attached.

**Low and Zero Carbon Technologies Considered**

17. The use of Low and Zero Carbon (LZC) technologies should form an integral part of any new development with the potential to make significant carbon reductions. Consideration has been given to the following LZC technologies with a view to reducing energy and CO<sub>2</sub> emissions.

18. After thorough examination of each of the LZC technologies it was agreed that the following four options were to be considered further;

- i. CHP<sup>1</sup> gas (50kWe)
- ii. CHP gas (50kWe) & PV (34,000kWh)
- iii. Biomass (70kW)

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<sup>1</sup> Combined Heat and Power

iv. Biomass (70kW) & PV (34,000kWh)

19. The carbon and cost benefit from the low carbon technologies is summarised on table 2 below. The CO<sub>2</sub> reductions are calculated from the baseline predicted emissions. Negotiations will continue with the contractor to confirm the cost of the preferred option.

	Annual Carbon Reductions (kgCO <sub>2</sub> /annum)	% Reduction CO <sub>2</sub>	Capital Cost (£)	Estimated Annual operating Saving / (cost) for DC Leisure (fuel, staff etc)	Annual FiT & RHI benefit for Waverley	Annual Maintenance cost to Waverley	Payback (Years)	Waverley Discounted NPV
i. CHPgas	44,090	11.06%	£99,976	£8,763	£0	£3,700	*N/A	-£141,114
ii. CHPgas& PV	64,184	16.10%	£174,576	£11,374	£10,676	£3,700	*25.0	-97,014
iii. Biomass	66,950	16.79%	£72,770	(£4,077)	£22,090	£2,500	**4.7	£99,710
iv. Biomass & PV	87,044	21.83%	£147,370	(£1,466)	£32,766	£2,500	**5.1	£172,840

Table 2

Note. \*Payback assumes DC Leisure retain operating saving

\*\*Payback assumes DC Leisure are compensated by WBC for additional operating costs

20. A discounted cash flow exercise was also carried out on the 4 options using a 15 year lifecycle and assuming a discount rate of 4%. Option i was calculated to produce a net present value cost to Waverley of £141,114. Option ii was calculated to produce a net present value cost to Waverley of £97,014. Option iii was calculated to produce a net present value benefit to Waverley of £99,710. Option iv was calculated to produce a net present value benefit to Waverley of £172,840.
21. Combined Heat Power (CHP) gas – This technology is considered to be the most efficient way of burning gas to generate electricity and heat. This is because power generation is taking place very close to where it is consumed, minimizing energy loss. It is ideal for applications such as a leisure centre where there is proportionate demand for heat and electricity. However, it is still operating on fossil fuel, it has a significant cost and has the lowest carbon savings out of all the considered options for this project.
22. There is currently a CHP operating at the Spectrum leisure centre in Guildford and another in Woking town centre that powers offices, private housing and a hotel.
23. Biomass boiler – Wood fuel is considered to be a carbon neutral energy source, providing that the wood is sourced sustainably and within close

proximity of the site. This option will have a reasonable capital outlay and will deliver significant carbon reductions. More importantly this option will guarantee an income for Waverley under the RHI for 15 years, which makes its payback period considerably shorter. The size of boiler proposed is sufficient to cover the base load requirement of the leisure centre, back up gas boilers will only need to be used when routine maintenance is carried out or there is a large spike in demand.

24. Supply chains are becoming well established in Surrey. Harvest Wood Fuels produces wood fuel pellets in Tilford and LC Energy in Albury produce woodchip from local sources. Given that Waverley is the most wooded Borough in the country (31.5% woodland cover) located in the most wooded county in the UK, there is a major opportunity to utilise wood from local woodlands and our sites, many of which haven't been actively managed for wood/timber for many years.
25. The newly built Surrey Sports Park's wood chip biomass boilers have been providing all its heating and they have not yet had to use their additional gas boilers. Another large-scale wood chip boiler has been providing the bulk of the hot water and heating needs at Birtley House Nursing Home in Bramley. Such a boiler will also be installed in the new leisure centre in Reigate and Banstead.
26. Photovoltaics (PV's) – This technology generates electricity from a free resource; the sun. It is a reliable technology that works well in combination with other technologies. PV's have no ongoing maintenance costs. The initial cost can be relatively high, however the electricity it will generate will be free. The carbon emissions are extremely low and will also generate an income through the FiT. Once the capital cost has been paid back the PV's will continue to generate a revenue income for the Council.

## **Conclusion**

27. Given that fossil fuel prices are volatile and are likely to continue increasing in the years to come it is prudent to consider the most economic options over the lifetime of the leisure centre. The capital cost, even though very important, should not be the sole determining factors of the final decision on the energy technology for the Godalming Leisure Centre. This will be an invest to save opportunity and payback should be carefully considered.
28. By choosing renewable energy sources for the new leisure centre, the increased potential annual supply and maintenance costs will need to be reflected in our agreed management fee with DC Leisure Management Ltd.
29. The introduction of the FiT and RHI provide an opportunity for the Council to establish a long-term revenue income from generating energy. At the same time it will support the achievement of the targets and requirements of the Energy Act. Those that take advantage of the scheme early will benefit from higher, tax free rates before they gradually decrease after March 2012.

30. In order to comply with the South East Plan and the current planning policies this development will be expected to meet 10% of its energy generation from low carbon technologies. This requirement will only be met by choosing the Biomass boiler or the PV options.
31. This project gives Waverley a fantastic opportunity to showcase an exemplar building. It will demonstrate our commitment to reducing our carbon footprint and to promote the use of low carbon technologies to the community, without compromising the Council's leisure commitment. It is an opportunity to put policies into best use, to show potential developers how committed the Council is to address climate change and make it a unique facility for others to aspire to.

### **Recommendation**

It is therefore recommended that the Executive agrees:

1. to consider the four shortlisted options and confirm the preferred installation option to be included in the new leisure centre;
2. to delegate authority to the Chief Executive & Deputy Chief Executive to confirm capital costs for the preferred installation with the chosen contractor and ongoing maintenance costs DC Leisure Management, to the satisfaction of the Portfolio Holders for Leisure & Finance;
3. that the Council retains the income from the FiT and RHI for the lifetime of the scheme, as we are providing the capital investment for the renewable options; and
4. that by approving the recommended option the scheme will support the Council's leisure and carbon management commitments and notes that this is an invest to save opportunity.

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### **Background Papers**

Energy Strategy Report by VZDV

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