

 Executive 3 September 2008		Agenda Item No.
Title	Biomass Boiler Replacement Scheme	
For further information about this report please contact	Mark Perkins - Energy Manager 01926 - 456037 mark.perkins@warwickdc.gov.uk	
Service Area	Housing and Property Services	
Wards of the District directly affected	Kenilworth Abbey	
Is the report private and confidential and not for publication by virtue of a paragraph of schedule 12A of the Local Government Act 1972, following the Local Government (Access to Information) (Variation) Order 2006	No	
Date and meeting when issue was last considered and relevant minute number	N/A	
Background Papers	Biomass Report to Environment And Economic Policy Committee of 6 th September 2006 Biomass Report to Executive of 23 rd October 2006	

Contrary to the policy framework:	No
Contrary to the budgetary framework:	No
Key Decision?	No
Included within the Forward Plan? (If yes include reference number)	Yes – Ref 112

Officer/Councillor Approval		
With regard to officer approval all reports <u>must</u> be approved by the report authors relevant director, Finance, Legal Services and the relevant Portfolio Holder(s).		
Officer Approval	Date	Name
Relevant Director	12.08.08	Mary Hawkins
Chief Executive		
CMT		
Section 151 Officer		
Legal	14.08.08	Simon Best
Finance	14.08.08	Mike Snow
Portfolio Holder(s)	14.08.08	Cllr Mrs Grainger
Consultation Undertaken		
Please insert details of any consultation undertaken with regard to this report.		
Joan Hicks – Supporting People Services		
Final Decision?		Yes
Suggested next steps (if not final decision please set out below)		

1. RECOMMENDATIONS

- 1.1 To approve the installation a biomass boiler to serve the hot water and space-heating requirements of Tannery Court sheltered housing complex, for the net budget cost of £120,000.
- 1.2 To delegate authority to the Energy Manager, and Strategic Director (Housing & Development), to procure the work in accordance with the Code of Contract Practice.

2. REASONS FOR THE RECOMMENDATIONS

- 2.1 In 2005 it was recognised that the heating plant serving all five of the VSH (Very Sheltered Housing) complexes was nearing the end of its useful working life, becoming increasingly difficult and expensive to maintain, with the added penalty of inherently poor energy-efficiency compared to modern alternatives.
- 2.2 This has led to a rolling programme of boiler replacement that has seen Acorn Court (06/07) and Chandos Court (07/08) re-fitted with gas burning plant.
- 2.3 WDC is fortunate to benefit from fixed-price gas contracts that have just over two years left to run, (in the year since they were signed, the wholesale cost of gas has risen by 104%) but unless an alternative to natural gas can be found to provide heating, large increases in cost would seem inevitable when these contracts expire. As these costs are the basis of the service charge, they must eventually be met by the Tenants.
- 2.4 An additional factor that must now be considered whenever heating systems are assessed is Carbon Emissions.
- 2.5 The report on Climate Change Strategy presented to the Executive of 22/10/07 set our total CO₂ emissions for the baseline year of 2006/7 at 2766 tonnes.
- 2.6 By far the biggest single contributor to this was the 2167 tonnes (78%) resulting from our operation of gas-fired heating plant, with the VSH complexes responsible for 20% of this sub-total.
- 2.7 Corporate Strategy CS4iv targets a 269 tonnes reduction in emissions under our direct control in 2008/9; gas heating at Tannery Court contributes approximately 110 tonnes.
- 2.8 Since October 2007, we have successfully operated a pilot biomass heating scheme at Oakley Woods Crematorium that offers a very effective and practical means of addressing both problems.

3. ALTERNATIVE OPTIONS CONSIDERED

The following alternatives were considered, but not favoured:

- 3.1 Not to install the biomass boiler, instead re-fitting the building with modern gas-burning plant for a budget cost of £60,000.
- 3.1.1 This would see the site benefit from improved reliability and efficiency over the existing plant but would not allow the long-term financial benefit forecast from use of wood versus gas as the principal heating fuel.

3.1.2 The very considerable Carbon reduction detailed would not be realised, jeopardising our ability to meet the target set in CS4iv.

3.2 Continue with the existing plant.

3.2.1 This would risk worsening reliability and continued poor efficiency in addition to the points raised at 3.1.1 & 3.1.2.

4. **BUDGETARY FRAMEWORK**

4.1 The Cost of the proposed scheme is £120,000. Half of this, £60,000 will be funded from the rolling programme of boiler replacement

4.2 The additional £60,000 cost of the proposed scheme can be financed from within the existing Housing Investment Programme (HIP).

5. **POLICY FRAMEWORK**

5.1 The proposal accords with the Council's commitment to energy efficiency and sustainability.

6. **BACKGROUND**

6.1 BUSINESS CASE

6.1.1 In the ten months it has been operational, the Oakley Woods boiler has delivered some 83 MWh of heat to the crematorium, for fuel costs of £1920, with zero CO₂ emissions; as the woodfuel used is considered Carbon Neutral.

6.1.2 Initially the economics do not seem attractive as this equates to 2.312p/kWh as opposed to the 1.8528p/kWh which gas supplied to Tannery Court presently costs.

6.1.3 However, this is misleading as were we to renegotiate now, a realistic gas price is 3.5p/kWh and all indications are that even this will have risen in the order of 50% - to somewhere about 5.25p/kWh - when the present deal expires in September 2010.

6.1.4 As we have the offer to fix our woodfuel cost for the next five years at 2.35p/kWh, a total running costs comparison for this period is forecast to be:

Fuel	Capital Cost of New Plant	Annual Fuel Use	Fuel Cost for 24 months to Sep 2010	Fuel Cost for further 36 months	Projected 5Year Total
Wood	£120,000	591 MWh	£27,700	£41,700	£189,400
Natural Gas	£60,000	591 MWh	£21,900	£93,000	£174,900

This illustrates that until Sep 2010 - during the period when the particularly favourable fixed-price gas contract remains active - the biofuel powered plant would operate at a financial disadvantage.

However, during the remaining three years that the woodfuel fixed-price deal is available, (accepting the gas price forecasts) the biomass system demonstrates very appreciably lower fuel costs, and achieves near parity by the end of the fifth year.

It is to be expected that during the sixth year of operation such a system would recover the initial extra capital investment and would then deliver financial savings for the remainder of its working life; at least a further ten years.

6.2 TECHNICAL OUTLINE

- 6.2.1 The space needed on-site at Tannery Court for the boiler and fuel store is greater than can be accommodated within the existing plantroom, so this proposal includes for the construction of a new room, sympathetic to the existing architecture, adjacent to the entrance driveway bin-store; as depicted on the accompanying layout drawing (Appendix 1). Also shown is the line of an underground insulated heat-main that would be the means of connecting the new plant into the building's existing "header".
- 6.2.2 This arrangement would allow the retention of the existing gas-boilers as "back-up" and, further, would allow the installation of the new plant to take place with the building in full operation.
- 6.2.3 The location of the plantroom/fuel store is ideal to facilitate the easy delivery of fuel.
- 6.2.4 On-site fuel capacity would be 50m³ with replenishment being via a tanker lorry in 33m³ loads; the chips being "blown" into the store by compressed air.
- 6.2.5 Annually, the 160 tonnes that the boiler is predicted to use, represents 27 deliveries; fortnightly deliveries in winter, peaking at weekly deliveries in the coldest weather.
- 6.2.6 Fuel has been successfully delivered to the Crematorium boiler by similar means without disruption or nuisance to the day-to-day operation.