

**17 September 2012****Agenda Item: 9****REPORT OF GROUP MANAGER, PROPERTY – STRATEGY, COMPLIANCE  
AND PERFORMANCE****RENEWABLE HEAT BOILER REPLACEMENT PROGRAMME****Purpose of the Report**

1. To seek an increase of £1million to the 2012-13 capital investment programme, and a further £1 million allocation in the capital programme for 2013-14, to enable the Council to establish a Renewable Heat Boiler Replacement Programme (RHBRP) in order to benefit from the Government's Renewable Heat Incentive (RHI) scheme.

**Information and Advice**

2. On 16 April 2012 the Cabinet Members for Finance & Property and Environment & Sustainability approved a report that recommended further work be undertaken to develop potential delivery models for the Council's utilisation of the Government's Renewable Heat Incentive (RHI).
3. The Council currently only replaces heating boilers at the point of failure, which is disruptive to the site and does not provide value for money in terms of procurement or staff utilisation. There are over 60 Council sites that currently operate old, inefficient coal or oil boilers that are in poor condition and expensive to operate and maintain. The Council's current planned maintenance programme is under significant pressure to deliver priority health and safety projects, which suffer when this programme's budget is used for reactive boiler replacements.
4. On 9 July 2012 a business case was presented to the Corporate Asset Management Group (CAMG) setting out a range of options that would enable the Council to create a boiler replacement programme, the costs of which would be met through the RHI. The preferred option, which provides maximum financial return to the County Council, the best degree of flexibility and the best model for replacing boilers in schools, is presented for approval in this report.
5. The RHI is funded directly from Government spending and has been assigned annual budgets for the four years of this Spending Review (SR) period. The total available funds for the RHI are £70m in 2012/13, £251m in 2013/14 and £424m in 2014/15. The RHI pays producers of renewable heat a tariff for every unit of heat that they generate. The tariff rates are guaranteed for 20 years and will be adjusted annually for inflation in line with the Retail Price Index (RPI). A range of renewable heat technologies are supported under the RHI, including solar thermal water heating, ground and water source heat pumps, biomass and biogas boilers, geothermal energy and energy from solid biomass in municipal waste. The current tariff rates are shown in Table 1, Appendix 1.

6. Once an installation is registered with the RHI scheme, any changes that the Government makes to the terms and conditions of the scheme cannot be applied retrospectively. It is planned that the scheme will be open to new applications until 2020. The current tariff levels are established for this financial year and will be subject to regular Government review. It is anticipated that reviews will result in tariff rates being reduced, therefore prompt action will maximise the Council's return on investment.
7. The proposed RHBRP will afford the Council the opportunity to remove the liability of a proportion of these old boiler systems before the point of failure, through a managed programme of biomass boiler installations, where the capital and other associated costs can be repaid from guaranteed external revenue. At the same time the Council will also be providing cleaner, greener heating, reducing its emissions of carbon dioxide and potentially delivering benefits to the local economy through the supply chains associated with biomass heating.
8. The proposed RHBRP follows the Council's successful investment programme in photovoltaic (PV) panels that have now been installed on a range of Council properties as part of its Sun Volt scheme. To date c£600,000 has been invested in over 1,300 PV panels on non-school buildings, including Worksop library and the new Highways depot at Bilsthorpe.
9. The Sun Volt programme, taken together with the proposed RHBRP and the Council's existing biomass boiler portfolio (c70 sites and the largest portfolio of any local authority in the country), represent a significant contribution to the local low carbon economy, which is a priority theme for D2N2, the Local Enterprise Partnership.
10. In addition to the above, the proposed RHBRP complements the Council's strategic objectives, reduces the Council's carbon emissions from its own buildings, and provides a good deal for schools that may otherwise be forced to pay high costs for oil-based heating and inconvenienced by unplanned boiler replacement works.

### **The Preferred Option**

11. The preferred option establishes a programme that will provide, install, maintain and fuel biomass boilers at Council sites, including schools. Sites will only be charged for the heat that they consume. At school sites the boiler systems will be leased to the school and the cost of the heat will be based on individual circumstances, providing value for money and linked to the price of wood pellets.
12. A business case will be developed for each proposed installation, where it is both technically and economically feasible to install biomass heating, and presented to each site's representative(s) for approval.
13. Table 2, Appendix 1, sets out a business case for the installation of biomass heating. This shows that the combination of income from the RHI scheme and the sale of heat to school sites will not only cover the capital and maintenance costs incurred by the Council over the 20-year period, but also produce a net financial saving of £3.2 million. This is equivalent to a rate of return of investment of 162%. Compared to gas, the proposed £2 million investment in the 2012-13 and 2013-14 financial years could save the Council c£10 million over 20 years, or nearly £14 million compared to oil.

## **Reliability of biomass heating systems**

14. Over the nine years that the Council has been operating biomass heating systems they have shown themselves to be as reliable as any traditionally fuelled heating system, such as oil or gas. All evidence available from the Council's mechanical engineers suggests that biomass systems are no less reliable in use than conventional systems. This view is supported by local boiler suppliers, who supply biomass, oil and gas systems (and as such have no real preference for any particular type). When asked if, from their experience, biomass systems were any less reliable than other boiler systems, the response was an emphatic 'no'.
15. A study published in July 2010 by the Forestry Commission (Wales), which reviewed 58 biomass heating schemes in Wales found that all the major problems experienced by end users were the direct result of poor design, planning and inadequate support. The Council's experience of designing, installing and operating biomass systems for the last nine years will militate against the common issues that can cause problems with biomass heating installations, and its experience of biomass fuel procurement (through contracts that include quality, price and volume criteria) provide assurance of fuel supply and suitability.
16. The Council already maintains a wood pellet supply contract on behalf of both the corporate and school estate. This provides wood pellets of the highest quality, specified through consultation with the boiler manufacturers and the Council's mechanical engineers. The proposed RHBRP will only allow fuel from the Council's wood pellet supply contract to be used in the RHBRP's boilers. This will militate against plant failures due to poor quality fuel, which has traditionally been the largest cause of plant failure with biomass heating systems. Expanding the use of the wood pellet supply framework is also likely to have the effect of allowing the RHBRP to benefit from more competitive fuel prices.
17. In addition, all proposed RHBRP installations will feature the ability for remote monitoring and control, and will be registered with the Council's boiler maintenance framework to ensure that they are serviced twice every year.

## **Strategic fit**

18. The use of renewable biomass heating contributes to the Council's strategic plan priority 'to promote the economic prosperity of Nottinghamshire and safeguard our environment', and the objective 'to have improved reductions of carbon dioxide emissions including those from our own estate and operations.' It also contributes to the priority 'to be financially robust and sustainable', wherein one of the objectives is to have, by 2014, 'extracted maximum value from all of our assets including our buildings and land and from our use of energy and fuel.'
19. A comprehensive review of the Council's experience with biomass heating by a Member-led Biofuel and Wood Heat Scrutiny Group reported to the Overview Committee in April 2010. Its recommendations were taken to Cabinet in June 2010 and subsequently endorsed by the Portfolio Holder for Environment and Sustainability in August 2010, and were very positive about biomass heating. The report encouraged the further use of this technology within the Council's buildings subject to an analysis of the benefits of the RHI.

## Summary

20. In summary the benefits of the RHBRP are:

- That it provides a cost effective and planned approach to the replacement of aging and inefficient boiler systems.
- Lower running costs for those sites that do not have access to the natural gas grid as wood pellets are significantly cheaper than oil or liquefied petroleum gas (LPG),
- Reduced exposure to volatile energy markets as wood fuel prices have historically been more stable than fossil fuels.
- Minimisation of disruption due to potential site closures resulting from reactive, rather than planned, boiler replacements.
- A reduction in emissions of carbon dioxide (CO<sub>2</sub>), resulting in a reduced costs associated with the Government's Carbon Reduction Commitment (CRC) scheme, which currently imposes a £12 per tonne charge on these emissions.
- Benefits to the local economy from the growing of wood fuel, the processing and manufacture of wood pellets and wood chip, and the storage and distribution of wood fuel have all become features of the Nottinghamshire economy. About 90% of County schools heated by biomass use pellets derived from Nottinghamshire based pellet mills. The value of this to the local economy is c£400k per year and likely to increase.
- Further opportunities for boiler manufacturers in Nottinghamshire and Leicestershire, who have adapted their products to meet the growing demand for biomass heating products. These have been developed in direct response to this Council's use of this technology.

## Other options considered

21. A range of different options has been discussed by Corporate Property and Energy & Waste Management officers, based on options tabled by the Council's officers and models used by other Councils and private sector companies that have approached the Council offering "boiler for free" schemes. These included an option where a school would just pay the cost of the wood pellet; a 50:50 option where the Council shares the RHI income with the school; and an option that financially 'piggy backed' on the current planned maintenance budget. These were distilled into a range of five options that were presented to the CAMG, including a 'do nothing' option.

22. These options included looking purely at corporate sites, looking purely at school sites and different models for working with schools, including the concept of selling heat to the sites. A further option was to undertake all future boiler replacements on Council owned sites with fossil fuel systems, but all the potential benefits of the RHI scheme were negated if this option was chosen and the Council would be left with the cost of having to fund boiler replacements from its planned maintenance budget.

23. The Council could enter into an agreement with a private sector partner whereby the partner undertakes to perform all of the functions within the proposed RHBRP instead of the Council: an external Energy Service Company (ESCO) approach. This would remove the need for the Council to invest in the provision of biomass heating systems, saving the associated capital cost and removing any risk associated with defaulting lessees, equipment problems, etc. Whilst notionally attractive, these types of options provide little long term financial benefit to the Council. The heat is often supplied at a cost higher than the current cost of the wood pellets (and in some cases oil) and none of the other financial benefits can accrue to the Council or the affected sites.

## **Reasons for Recommendation**

24. The preferred option was chosen by CAMG as it maximises the return on investment to the Council whilst providing the greatest flexibility to establish the best price to the end user. By selling heat to the site and receiving RHI payments, the Council is able to cover off the capital cost, borrowing cost, the cost of maintaining and fuelling the systems, generate a surplus and still provide heat to the site at a competitive rate.
25. CAMG agreed that any funding for this programme should be additional to the existing planned maintenance budget, which does not contain specific funding for these boiler replacements.
26. CAMG endorsed the preferred option subject to replacements being undertaken on a priority basis and site-by-site business cases being developed showing sufficiently high returns. It was agreed that a report requesting approval for an initial £1m in 2012/13, and a further £1m in 2013/14, should be submitted to Finance & Property Committee in September.
27. It must be noted that these projects will have a long lead-in time due to the feasibility, site engagement, legal and procurement processes involved, in addition to the need to install the equipment at suitable times during school holidays. The delivery of the initial £1 million will, therefore, be completed by October 2013 and the subsequent £1 million by October 2014.

## **Statutory and Policy Implications**

28. This report has been compiled after consideration of implications in respect of finance, equal opportunities, human resources, crime and disorder, human rights, the safeguarding of children, sustainability and the environment and those using the service and where such implications are material they are described below. Appropriate consultation has been undertaken and advice sought on these issues as required.

## **Legal implications**

29. The legal implications of the proposed RHBRP have been fully considered and steps identified to mitigate potential risks associated with it, including the development of an agreement that the Council and a school can enter into that seeks to provide protection for the Council's investment should transfer to Foundation and/or Academy status occur.

## **Financial Implications**

30. This project requests to increase the planned capital spend by £1 million for the 2012-13 capital programme and a further allocation of £1 million in the 2013-14 capital programme. This funding will deliver approximately 20 schemes to be completed by October 2013 and October 2014 respectively, with an estimated negative Net Present Value of £3.252 million over 20 years. The savings to the authority over a 20 year period for installing biomass boilers in approx 20 buildings compared to the provision of gas boilers could be £9.7m with the saving compared to oil boilers potentially being £13.9m.
31. It should be recognised that the RHBRP is scaleable and should the committee feel that a project costed at £2 million cannot proceed it is requested that a lower capital amount is allocated to enable it to proceed on a smaller scale. Prior to any spend being committed a

separate feasibility and costing schedule will be drawn up for each school or corporate property to have a biomass boiler installed.

32. The calculations assume a set RPI increase of 3% per annum for fuel costs and maintenance charges, currently the purchase costs for gas and biomass are just over 3p per kilowatt hour with oil at 6p. The project would initially look at upgrading oil boilers to biomass on a planned replacement schedule.
33. The Council will procure biomass fuel on behalf of schools and recover all fuel, maintenance and borrowing costs by the RHI income from Government and by charging schools a cost for heat.

## **RECOMMENDATION**

It is recommended that Finance and Property Committee endorses an additional £1 million funding in the 2012-13 capital programme to enable the establishment of the Renewable Heat Boiler Replacement Programme and allocates a further £1 million towards the RHBRP in the 2013-14 capital programme.

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### **Constitutional Comments (NAB 14.08.12)**

34. The Finance and Property Committee has authority to approve the recommendations set out in this report.

### **Financial Comments (DJK 16.08.2012)**

35. The financial contents are identified within the context of this report.

### **Background Papers**

- *AN ASSESSMENT OF THE RENEWABLE HEAT INCENTIVE AS AN INVESTMENT OPPORTUNITY FOR THE COUNCIL AND AS A MEANS OF REDUCING FUTURE ENERGY AND CARBON COSTS*, Report to Cabinet Member for Finance & Property and Cabinet Member for Environment & Sustainability, 16 April 2012.
- *Scrutiny of Woodheat*, Report of the Chair of the Overview Committee to Cabinet, 9 June 2010.

Except for previously published documents, which will be available elsewhere, the documents listed here will be available for inspection in accordance with Section 100D of the Local Government Act 1972.

### **Electoral Division(s) and Member(s) Affected**

ALL

## APPENDIX 1 – Associated tables.

<b>Table1. showing current RHI technologies and support tariff rates.</b>			
<b>Tariff Name</b>	<b>Eligible Technology</b>	<b>Eligible Sizes</b>	<b>Tariff Rate (p/kWh)</b>
Small Biomass	Solid Biomass, MSW (incl. CHP)	Less than 200 kWth	Tier 1: 8.3
			Tier 2: 2.1
Medium Biomass		200kWth to 999 kWth	Tier 1: 5.1
			Tier 2: 2.1
Large Biomass		1000kWth and above	1.0
Small Heat Pumps	Ground source heat pumps, water source heat pumps, geothermal.	Less than 100kWth	4.7
Large Heat Pumps		100kWth and above	3.4
Solar Thermal	Solar thermal	Less than 200kWth	8.9
Biomethane	Biomethane injection and biogas combustion, except from landfill gas	Biomethane all scales, biogas combustion <200kWth	7.1

## APPENDIX 1 – Associated tables (continued).

Table 2: Costs / Benefits of biomass heating compared to fossil fuel systems*			
	RHBRP	Non-RHBRP	
	Biomass	Gas	Oil
		Capital cost of replacement	
<b>(A) Capital Investment (£) =</b>	<b>£ 2,000,000</b>	<b>£ 1,152,000</b>	<b>£ 1,200,000</b>
<b>On-going costs</b>			
Total Maintenance Cost 20-years (£) =	£ 644,889	£ 343,941	£ 429,926
Fuel Cost 20-years (£)	£ 4,565,334	£ 4,695,359	£ 8,668,356
Borrowing costs - 40 years (£)	£ 1,696,500		
20-year CRCEES costs	£ -	£ 245,175	£ 309,695
<b>(B) Total ongoing costs 20-years (£) - at 3% per year increase</b>	<b>£ 6,906,723</b>	<b>£ 5,284,476</b>	<b>£ 9,407,977</b>
<b>20-year income</b>			
RHI income	£ 7,629,466	£ -	£ -
HEAT income @ 4p/kWh	£ 4,529,270		
<b>(C) Total Income for 20-years (£) - RPI at 3% per annum =</b>	<b>£ 12,158,736</b>	<b>£ -</b>	<b>£ -</b>
<b>Revenue Balance (C - B)</b>	<b>£5,252,013</b>	<b>-£5,284,476</b>	<b>-£9,407,977</b>
<b>Total Capital + revenue balance (A+B-C)</b>	<b>£3,252,013</b>	<b>-£6,436,476</b>	<b>-£10,607,977</b>
Annual ROI (% , year 1)	11.15%		
Total ROI (20-year) (%)	162.60%		
<b>Biomass saving</b>		<b>£9,688,489</b>	<b>£13,859,990</b>

- \* The data behind this table is based on known capital and operating costs for biomass installations completed by the Council three years ago, with the following values and assumptions applied:
- Fuel costs, based on current contract rates, are 3.16p/kWh for biomass, 3.25p/kWh for gas, and 6p/kWh for oil. These are inflated equally over the 20-year RHI period at 3% per annum.
  - It is assumed that an equivalent number of existing systems would have failed and needed replacement, as the number of biomass systems installed.
  - Capital costs use the actual cost of the biomass boiler installations, which were then inflated at 5% per annum to bring to current levels. Gas installation costs use a current notional cost of £72k per installation; oil is calculated at £75k per installation.
  - The heat income from schools is set at 4p/kWh initially and inflated at 3% per annum, whilst the heat income from corporate sites is set to be equivalent to the cost of biomass fuel.
  - The CRCEES tax costs are set at the current rate of £12 /tCO<sub>2</sub> for the 20-year period.