RYEDALE DISTRICT COUNCIL

PART A:	**MATTERS DEALT WITH UNDER DELEGATED POWERS**
REPORT TO:	**COMMUNITY SERVICES**
DATE:	**25 MARCH 2010**
REPORT OF THE:	**HEAD OF ENVIRONMENTAL SERVICES PHIL LONG**
TITLE OF REPORT:	**BOILER REPLACEMENT PROGRAMME AND ENERGY EFFICIENCY IMPROVEMENTS**
WARDS AFFECTED:	**All**

EXECUTIVE SUMMARY

1.0 PURPOSE OF REPORT

1.1 Initial findings indicate that the costs of a bio mass installation at Ryedale Pool are likely to exceed the agreed budget and increase revenue costs. The report seeks approval to take this opportunity to widen the scope of investigation into other potential renewable technologies for the replacement of the boiler.

2.0 RECOMMENDATIONS

2.1 It is recommended that:

(i) Officers investigate the potential of alternative renewable energy technologies that may be more appropriate or offer better and more cost-effective outcomes, regarding their suitability for this particular installation;

(ii) A detailed feasibility study be commissioned regarding two of the main alternatives, which may be suitable for this site (solar thermal and ground source heat pumps); and

(iii) Proposed investment in renewable technologies is linked to the arrangement with CLL in order to provide an appropriate mechanism for the Council to receive financial benefit for the level of proposed investment.

3.0 REASON FOR RECOMMENDATIONS

3.1 Following a detailed feasibility study regarding the installation of a bio mass boiler at Ryedale Pool, it is apparent that this option, though technically possible, is unlikely to offer the best technical and financial solution for this site. Renewable technology has moved on and in the light of new and emerging information this presents the Authority with the opportunity to explore alternative solutions.

3.2 Studies indicate that the cost of installation of a biomass boiler is likely to exceed the

agreed budget for the original biomass proposal and additional capital and revenue expenditure would be required:

- Potentially there would be increased capital costs of £70K upwards
- Based on current prices, it is unlikely that the savings on fuel (as originally envisaged) would be realised
- Potentially there would be increased costs regarding maintenance and annual servicing

3.3 Early proposals had not fully taken into consideration how the site operated from a staffing and management perspective. This would give a number of problems with respect to the attendance required for de-ashing, cleaning, stoking and accepting fuel deliveries etc and maintenance.

3.4 The findings are timely in that they allow the Authority to consider opportunities, previously unavailable. Initial research regarding the potential availability of grant assistance for this type of work, has highlighted other considerations which may offer a better financial outcome for the Authority, but which would need to form part of the formal agreement with CLL.

3.5 The recent publication of the consultation document on the Renewable Heat Incentive scheme changes the financial case for a range of renewable technologies, which may be suitable for this application. This also affects their viability and appropriateness in consideration of whether to apply for grant assistance.

4.0 SIGNIFICANT RISKS

4.1 There is a time limit on the submission of applications for grant assistance and also a limit on the overall amount of funding under each source, which is allocated on a “first come, first served” basis. However, applications must have a specific nature and therefore be based on a specific proposal.

4.2 Not all the information currently under consideration is finalised and could therefore be changed, such that the levels of financial incentives for renewable schemes may not be realised (either fully or in part) although it seems likely that some form of incentive will be available.

4.3 Renewable technologies are still currently relatively young and there may be unforeseen problems with the technology leading to interruption of service to customers or costly repair / remedial work required.

4.4 Proceeding with the biomass scheme could mean that the Authority misses the opportunity to install a more appropriate, suitable and financially beneficial solution using an alternative renewable technology(ies).

4.5 Installing the biomass scheme might result in financial penalty with regard to the agreement with CLL due to increased fuel costs, required attendance and training of staff, and increased maintenance costs of this installation.

REPORT

5.0 BACKGROUND AND INTRODUCTION

5.1 As part of the *Boiler Replacement Programme & Energy Efficiency Improvements* proposals referred to at Item 214 in the minutes of the Community Services Committee meeting of 25 September 2008, it is recorded that preferred options for replacement of boilers at Ryedale House, Ryedale Pool and Derwent Pool were to be taken forward in line with recommendations in the circulated Property Services Manager's report of that date and the agreed financial provisions for the scheme under *Energy Efficiency Improvements to Council Property*.

5.2 To date, boilers have been successfully replaced at Ryedale House and Derwent Pool, with new energy efficient gas condensing boilers. This will have resulted in savings of 20 to 30%, meaning a financial saving in the order of £3 - £4K and a corresponding reduction in CO_2 of 20 – 30 tonnes for Ryedale House and slightly more at Derwent Pool which typically has a higher gas usage. However, an alternative scheme was proposed for Ryedale Pool, which involved the potential for installing a biomass boiler with a gas boiler as back-up. This proposal has now been investigated further and the purpose of this report is to set out the current findings.

6.0 POLICY CONTEXT

6.1 The Council's Climate Change Strategy and Action Plan was adopted in 2006 and forms part of the Council's overall environmental policies, corporate objectives and values, and financial management policies.

6.2 Community Plan – Landscape and Environment Action Plan - Safeguarding environmental air quality including air, land and water.

6.3 The performance framework for local government includes several indicators relating to climate change and CO_2 emissions, one of which, National Indicator (NI) 185 specifically relates to the percentage of CO_2 reduction from local authority operations. Renewable technologies will assist in meeting our targets for CO_2 reduction.

6.4 Council Plan 2009-13 – Corporate Aims – To have a high quality, clean and sustainable environment and to Transform the Council. These aims are underpinned by 3 strategic objectives, Objective 5 - Reducing Waste and CO_2 emissions Objective 6 - Planning to adapt to Climate change and Objective 7 - To Improve the quality of our local environment.

7.0 CONSULTATION

7.1 The biomass proposal followed an Energy Review undertaken by Halcrow Yolles in April 2008, referred to within the Property Services Manager's report to the Community Services Committee meeting of 25 September 2008. The Halcrow Yolles report in 2008 recommended gas CHP (Combined Heat & Power) installation, and biomass boiler(s) to provide heat energy to the pool complex. No other renewable technologies were considered within the Halcrow Yolles report.

7.2 Following this initial "concept stage" report by Halcrow Yolles, the Council commissioned a more detailed feasibility study by an independent Mechanical and

Electrical Consulting Engineer (2-Can) and has undertaken additional research in-house.

7.3 The outcome of the feasibility study is that the existing proposal is technically possible in meeting most of the outlined requirements. However, it is suggested that the capital cost of the installation is likely to be in excess of the available funds of approximately £130,000.

8.0 REPORT DETAILS

8.1 To date, boilers have been replaced at Ryedale House and Derwent Pool, with new energy efficient gas condensing boilers. However, an alternative scheme was proposed for Ryedale Pool, which involved the potential for installing a biomass boiler with a gas boiler as back-up.

8.2 **The Halcrow Yolles report:** The initial Halcrow Yolles report refers to the Council's express concerns regarding CHP and preference for a biomass only solution to reduce carbon emissions. It was proposed that the biomass boiler would be fuelled with wood chip and this was reported in the Property Services Manager's report of September 2008 as potentially offering a saving on fuel costs in the order of £6,000 – 8,000 per year and significant CO_2 reduction in operation. The provisional budget for the capital cost of the installation was outlined as £120,000 - £150,000.

8.3 The report suggests that a biomass installation would be feasible, but that this would require the relocation of some electrical equipment and the steel staircase to provide the required space for the fuel store. It also suggests that the store could potentially hold enough fuel for 10 days supply and that it would be expected that deliveries would be weekly. The report also suggests the following points briefly outlined below;

- Without CHP the biomass boilers would need to be larger and therefore increased demand for fuel (resulting in the requirement for bigger storage / more deliveries);
- Major modifications to plant hall required for the construction of a new delivery hopper and roof canopy to provide shelter to hopper;
- Biomass boiler likely to produce IRO 1 Tonne of ash per year, possibly done by hand in bags;
- New personnel access / egress to be formed in external wall;
- Operative to be trained and available to accept deliveries (open doors, guide vehicle, operate filling screw, sweep up overspill etc);
- Ladder access to fuel store for occasional cleaning and unblocking of auger screw;
- Training in reactive maintenance for the feed mechanism and boiler equipment to be provided as part of commissioning procedure.

8.4 **The 2-Can detailed feasibility report:** Prior to implementing the Bio Mass Installation the Council commissioned a more detailed feasibility study by an independent Mechanical and Electrical Consulting Engineer (2-Can), in addition to research in-house.

8.5 The feasibility study suggests that likely installation costs for the biomass would be significantly in excess of £200K and more probably £300K, although these costs are indicated only for budget purposes. However, quotes have been obtained for the supply of the appropriate boiler equipment, and this represents a capital spend of approximately £120K without full installation costs or the cost of undertaking any of the alterations outlined above.

8.6 This would seem to support that likely costs of carrying out the full installation of the system including creating fuel storage, relocation of electrical control equipment and other associated installations will exceed £200K. The current budget available for the proposal is approximately £130K. It is also unlikely, as based on current prices, that the previously proposed savings on fuel, outlined in 8.2, can be realised.

8.7 To aid comparison, the Council has recently installed new energy efficient gas condensing boilers at Derwent Pool, which represented an installed cost of approximately £20K and a similar installation at Ryedale Pool (taking into account the slightly larger pool and internal floor area) is likely to be achievable for approximately £25 – 30K.

8.8 There would also be issues from a staffing and management perspective with respect to the attendance required for de-ashing, cleaning, stoking and accepting fuel deliveries etc.

8.9 The latest biomass boilers have been designed with minimising general attendance / maintenance, with many automatic functions built in. However, there will still be a need for a suitably trained person to deal with de-ashing, accepting fuel deliveries and to be available in case of mechanical stoppages connected with fuel blockages etc. Therefore there will be an additional cost in administering this type of installation. If CLL provide this, assuming they were amenable to the proposal, there would certainly be some cost implication.

8.10 In addition to the significantly increased capital costs of the biomass installation, the costs of regular maintenance and annual servicing are considerably more expensive than for natural gas, where a large and experienced resource of engineers is available. (Current annual service is in the order of £400 for the 2 existing gas boilers, while potential annual servicing costs for a biomass boiler of this size is advised as approximately £4,500).

8.11 Due to the recognised cost differential for these types of technology, there are currently grants available to assist in the capital costs of this type of installation and currently 2 sources of grant funding have been investigated. Details of these, and of the Renewable Heat Incentive scheme, which also affects the financial viability of any proposals are contained in Annex B of this report.

9.0 IMPLICATIONS

9.1 The following implications have been identified:

a) Financial

- Availability of grant assistance will soon be withdrawn.
- The existing capital budget will be used to fund recommendation (ii) re the detailed feasibility study into alternative technologies suitable for the site i.e. solar thermal and ground source heat pumps.
- The capital expenditure involved in installing renewable energy technologies is high, and the “payback” for using these technologies (in terms of reduced reliance on fossil fuels and the fluctuating prices, which are likely to increase in the future), would largely be to the benefit of CLL under current arrangements.
- Support and incentive for the installation of renewable energy technologies (apart from potential grant assistance) is by way of the proposed RHI scheme, which is only currently at consultation stage, although initial figures

have been published. The various types and sizes of renewable energy installation supported under this scheme could have a significant impact on payback and could potentially enable the Authority to install a technology different from the proposed biomass to better financial and practical effect.

b) Legal
- The formal agreement (grant / lease etc) with CLL must be engineered to provide for the Council to realise some or all of the expected financial benefits in terms of energy savings to offset the significant capital expenditure.

c) Other (Equalities, Staffing, Planning, Health & Safety, Environmental, Crime & Disorder)
- The scale and type of renewable energy installation selected will have an influence on the environmental benefits / impacts as a result of the installation. There will be varying degrees of CO_2 emission savings, air-quality issues, potentially ground water extraction and geothermal implications depending on the selected solution.
- The criteria defining the proposal will have an impact on the final solution and needs clarification in terms of the importance and priority of CO_2 emissions against the financial implications of any such proposal.

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Background Papers:
Report to Community Services and licensing Committee by David Summers, Property Services Manager, dated 25 September 2008.

Background Papers are available for inspection at:
www.ryedale.gov.uk