

## Initial Information Sheet

**Title** Speyside Community High School woodfuel proposal

**Group** The Moray Council (a local authority)

**Site Address** Speyside Community High School, Mary Avenue, Aberlour, AB38 9PN  
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### Background

Speyside Community High School is planned to be the first Moray Council school to be retrofitted with a woodfuel heating system. The school has a role of 506 and incorporates community use including a swimming pool. This note was prepared by Steven Watson after a meeting on site on 18 Nov 2008.



One of two existing oil boilers at Speyside High School

## Current Position of the Project

The Moray Council plans to replace the aging oil boilers. Extending gas to the site is a non-renewable option (recently used in the Buckie High School re-boiling.)

The Moray Council has a 'Stage 2 Report', dated Sept 08, from Highland Wood Energy, titled 'Feasibility Study – Incorporation of Wood Heating at Speyside Community High School, Aberlour'. (*the HWE report*). Comments on the HWE report from the Council's architect are currently being produced. The HWE report concludes with an estimated sum to supply and fit a (500kW Froeling Turbomat) woodchip boiler and woodchip storage of £358,172.

## Comment on the Highland Wood Energy Report.

- The report excludes any work to lay a gas pipe and provide a new gas top-up/standby boiler.
- The report includes the costs to remove the two existing oil boilers.
- The report details a below-ground woodchip store of 60cubic metres at 70% fill (equivalent to 85 cubic metres of space) but does not define its dimensions. See paragraph below. 'Woodchip Store'
- The report includes the cost of a new oil tank, and fencing it etc, but not any new oil standby boiler.
- The report excludes the costs of upgrading the general boiler house controls (which would be advantageous as it would be likely this would reduce energy consumption and effect boiler sizing)
- The report alludes to other energy efficiency measures which could be instituted in the school to effect a reduction on the historic load, but these actions are not listed.

## Woodchip store

The bigger the fuel store, the higher the price of construction.

The HWA report suggests a store that can hold 60 cubic metres when it is 70% full. (2.1 page 6)

This equates to a store (hole) that has a capacity of 86 cubic metres. (A hole five metres wide by four metres long and four metres deep has a capacity of 80 cubic metres.)

The HWA report (Page 15 top - Table 6) is predicated on bulk deliveries of **6** tonnes of woodchips.

Six tonnes of woodchips occupy around 17 cubic metres. An 86 cubic metre hopper with an effective capacity of 60 cubic metres (as per HWE Page 6) would accommodate up to 4 full deliveries.

For comparison's sake, Stevenson Bros. Avonbridge, [www.stevensonbros.co.uk/index.htm](http://www.stevensonbros.co.uk/index.htm) who deal in woodchips and transport using orange articulated lorries have tipping trailers carrying a maximum of 69 cubic metres (Stevenson's walking floor trailers are of 99 cubic metres capacity). Thus one of their tipping lorries could fill an 86 cubic metre store from empty to 80% full with one load of around 24 tonnes.

If the plan is however to use local suppliers and six tonne loads (HWE Page 15) using, for example, Marshall tipping trailers, eg QM12.

[http://www.marshall-trailers.co.uk/product\\_model.cfm?modelid=15](http://www.marshall-trailers.co.uk/product_model.cfm?modelid=15) then the volume of the store seems high, and the therefore over-costly to construct.

### **Summary Result of the Highland wood energy report.**

The report estimates £358k as the cost for a Froeling 500kW boiler with large underground hopper and 8,000 litre accumulator tank on the site of the current oil tank, feeding into existing controls / system.

### **Issues**

1. £358k is not the total cost of the project.
2. Moray Council has not allocated sufficient funds to meet even the £358k
3. Even with the maximum assistance currently theoretically available from CES, there is still a substantial shortfall.
4. **The CES report alone is not sufficient to define the project** as the standby boiler element and the upgrade of control systems are not costed-in and are an essential element of the whole.
5. The contingency of 15% (£43k) is applied to all costs, even those which are less susceptible to unforeseen site problems.

### **Review of Costs in light of shortfall.**

If the project is to proceed then either the cost must be reduced, or the funding allocated increased.

### **Reducing Costs**

The costs estimated include sums incurred by placing the new boiler on the site of the existing oil tank, within the existing building and removing and providing a replacement oil tank as a result. While any loss of space was not initially desired by Moray Council (HWE Page3), accommodating the boiler in a new boiler house to the rear of the existing

building could save money compared to the re-use of the area currently housing the main oil tank.

If woodchip deliveries of 6 tonnes (17 cubic metres) are to be the norm, some re-assessment of the volume of the fuel store to reduce its size may save money. (e.g. Constructing the proposed store is estimated to use 90 cubic metres of concrete (HWE Page 16 part 2, general works).

**Increasing contributions**

There is no base-line figure (rough estimate) for the Moray Council for a straight replacement of the boilers with new oil ones, nor a cost for replacement with mains gas (and the associated pipework). These figures would be an essential element in any calculation. It is the base cost related to the woodfuel costs which justifies any grant application to Community Energy Scotland.

**Re assessing the situation**

The HWE report is primarily a detailed estimate for them to supply and fit a Froeling Turbomat 500kw boiler. Moray Council could invite other suppliers to look at the proposal.



Additional photographs  
 (Left) Rear alleyway showing door to existing boiler house and LPG tank.  
 (Below) Side access showing two oil delivery vehicles and LPG tank



## **Conclusions of this note**

Issues require to be resolved include

1. Any comments (unseen by this writer) made by Moray Council Property Staff on the HWE report
2. The scope of the re-boilering and re-controlling project
3. The estimated base-line costs for a non renewable project
4. The basis of allocation of funds by Moray Council (linked to 3, above)
5. The issues around what backup boilers Moray Council wishes to retain / institute (not covered in the HWA report)
6. The size of the fuel store versus the size of deliveries anticipated
7. The possibility of siting the woodfuel boiler in another place where development costs may be lesser (e.g externally),and not within the existing building on the site of the current large oil tank, - even although space may be lost.
8. The scope of the energy efficiency measures which impact on the wood boiler output /sizing.

The foregoing said, Speyside Community High School, given its location, load and proximity to wood resource is a good prospect for conversion.

**Steven Watson CES 21Nov2008**