

## **Council Offices Boiler Proposal**

For the purposes of this exercise, I have excluded heat pumps, due to their estimated cost (£50k+)

The easiest and cheapest heating method would be to remain on a gas fired system. There is no need to change any part of the system except for the boiler itself. Gas is also cheaper to buy.

The current programmer is old and lacks some functionality, but it works. Replacement programmer costs would be the same regardless of the method of heating.

There are pros and cons with both electricity and gas (see the simplified table enclosed)

Whilst the cost of replacing the gas boiler is known (I have three quotations), I have requested quotations for electric boilers. I have received one but am waiting on others.

It has been estimated by one company that we will require three 12kW single-phase electric boilers to replace the gas boiler. If the supply is converted to 3-phase, a single 3-phase boiler could be installed, but these are more expensive than single-phase boilers.

Whether we convert to a single 3-phase boiler or multiple single-phase electric boilers, the building will need to be converted from single-phase to 3-phase. This is due to the total required electrical load of c. 150A. The current building supply is fused at 100A.

Converting to 3-phase is estimated to cost at least £3k (internet source: [theecoexperts.co.uk](http://theecoexperts.co.uk)). This assumes that SSE's incoming supply cable is capable of supplying the required power. If it isn't, this will require a new electricity supply.

I have asked our current electricity supplier for an estimated cost and await their reply. Having recently upgraded the fuseboard at Burdwood, I can confirm that it will cost approx. £2.3k to do the same at the Council offices. That does not include upgrading to a 3-phase supply.

It may be necessary to install an additional fuseboard within the boiler room itself.

Electric boilers are considered to require less maintenance than their gas counterparts. A gas boiler will require an annual gas safety test and service (£130), and an annual fixed appliance test (£25) – total £155 per annum. They are generally more likely to breakdown, but the boiler would be new and covered by the warranty.

Each electric boiler will just require a fixed appliance test - £75 total per annum.

The main benefits of electric boilers are that they don't produce CO<sub>2</sub>, they have a longer lifespan (15-25 years), and are compatible with solar/renewable energy. The latter point has not been taken into consideration when obtaining quotations, and I assume that any associated costs would be borne by any such solar project.

I do not profess to be an expert in heating systems and I would welcome any critique to the information above.