Heating Systems Options Appraisal

THE CHURCH OF ENGLAND
DIOCESE OF DURHAM

A heating system is a huge investment for your church and it is important that you choose the right system for your church context. The lowest carbon or lowest cost system is not always the best. You need to choose a system that meets the heating needs of your building, whilst minimising carbon output within an achievable budget. The table below will help you compare the options. Please note that details below are an example of how to fill out the sheet and the figures presented should not be seen an indicative costs for a system in your church.

Type	System	Installation Cost	Annual Costs*	Carbon Output	Pros	Cons	Notes
Existing System	*Add details of your current system for comparison.* Current gas boiler is approximately 35 years old and has rated output of 80Kw		Based on 4 hrs use of building (heating on 9 hrs) £2500	6.2 Tonnes from EFT			
New Gas Boiler	Condensing High Efficiency Boiler 60Kw Connected to the existing cast iron system via a heat exchanger	£23,000	£1000 + £250 Servicing	3.3 Tonnes	Provides the same type of heating as we are used to. Only work in boiler room required.	Existing heating system takes a long time to heat up (4 hrs). Potential ongoing problems with leaks.	Same system so will be no more effective than current boiler at heating the church
Air Source Heat Pump	Air Source Heat Pump and new radiator system throughout the building	£95,000	£5100	3.9 Tonnes	Provides heat to building throughout the week.	We only need to heat the building for 4 hours. Installation will be disruptive to the whole building	Provides heat all week which we do not need at present.

Type	System	Installation Cost	Annual Costs*	Carbon Output**	Pros	Cons	Notes
Infrared	Infrared Chandeliers in Nave & Chancel and panel heaters to vestry and toilet. (Far infrared heating – no visible light)	£50,000	£1000 (Assuming only half of building heated for most services £550)	0.8 Tonnes	Can be easily zoned. Existing pipework can remain. Quick heat up time. Simple control	Not all of the building will be heated all of the time. Heat from above. Building fabric is not heated.	
Pew Heating	Pew heaters to all pews in Nave & Chancel and electric convector heaters to vestry and toilets. 3 zones within the nave.	£20,000	£1000 (Assuming only half of building heated for most services £550)	0.8 Tonnes	Can be easily zoned. Existing pipework can remain. Quick heat up time. Heat focussed at people not the space. Simple control	Not all of the building will be heated all of the time. Areas without pews may not get warm enough.	For most services only small parts of the building need to be heated saving further costs.
Infrared	Infrared wall heaters in Nave, Chancel, vestry and toilet. (Near infrared heating – bright orange glow)	£24,000	£900 (Assuming only half of building heated for most services £480)	0.8 Tonnes	Can be easily zoned. Existing pipework can remain. Very quick heat up time. Simple control	Not all of the building will be heated all of the time. Building fabric is not heated. Glow may be distracting	

*Annual costs include, fuel costs, servicing, maintenance, etc.

** Your heating contractor should be able to supply you with this, see notes below

As a very rough estimate 1KW of Electricity = 0.207kg CO2e and 1KW of Gas = 0.204kg CO2e. If you are on a Green Electricity Tariff the CO2e will be significantly less. To calculate the Carbon Output (kg) = System output (KW) x hours of use per year x Carbon factor above.

Notes

- *The current Carbon Output for your church can be found on the Energy Footprint Tool that you completed as part of your Parish Return.*
- *All reputable heating contractors should be able to calculate the expected heat requirements for your building and provide details of the carbon output of the proposed system.*