



The Diocese of
Southwark

Assistant Secretary to the DAC

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To: Mr Martyn Brown
Sent via email: martynjb@yahoo.co.uk

27th March 2024

Dear Martyn,

**SELSDON, ST JOHN
HEATING SCHEME**

I hope you are having a good week.

This is in response to the parish's response regarding the letter from the DAC, to give you some context and background.

We would like to reiterate that - as in the letter- the DAC has not rejected the proposal, as we are an advisory body and cannot 'reject' or 'approve'. However, the intent of the letter was to ensure that the heating scheme would not be refused upon its final hurdle. Part of the Secretary and Assistant Secretary's duty is to summarise the salient points raised at each DAC and to communicate these with each parish.

The letter that was sent laid out comprehensively what was discussed at the DAC meeting itself, and is a refined version of the Minutes, more suitable for circulation. Ordinarily, not much is ever redacted, aside from some sentences to avoid duplications of points, so sending over the extract from the Minutes relating to your case would only be a rough-and-ready version of the letter you have already received.

I would like to reassure you that due diligence and care was taken by the Committee in assessing this case. The DAC letter was sent on the basis of the discussion of the scheme at the Committee, as well as individual members who paid close attention to the details of the scheme. Our membership is comprised of a broad selection of architects, surveyors, heritage experts, engineers, and specialists (you can find them listed on the Diocesan DAC website page). In a case such as this, we don't directly attribute feedback to individuals, where their advice is offered to and endorsed by the DAC. Martin Dow is indeed a much valued advisor, but had to be excluded from giving direct advice to the Committee on this occasion, as this would represent a conflict of interests. Alongside Martin, in our panel of experts, we have another building services engineer who has a depth of expertise in heating for historic spaces and places of worship (specialising in low-carbon and sustainable options). We also have another DAC architect member who specialises in sustainability and low-carbon options. This is in addition to the cohort of knowledge represented by the professionals on the Committee who have a collective experience and sympathy with parishes and to the myriad challenges of church heating and Net Zero Carbon goals.

Undoubtedly, we are currently at a challenging time for heating systems in churches. The changes to the guidance in 2022 is now coming to fruition, with many parish's heating systems needing fully replacing. Dioceses - including us in Southwark - are anticipating tranches of all-new heating system applications (similar to yours), where full scrutiny to Net Zero Carbon goals will have to be undertaken. Luke and I have had many discussions about

this over the past few months, and we are fully aware and sympathise with parishes who will be - perhaps before their preferred timing - having to consider technologies that are uncharted waters for them, be they heat pumps, solar panels, or otherwise.

St John's is one of these parishes, where there is a scheme to replace the entire heating system. It is very clear in the guidance that like-for-like should be discouraged, even if it is a superlatively more efficient boiler. The DAC want to ensure that when this scheme goes before the Chancellor, he will be able to approve it. This scheme is such a one he will be paying close attention to, and we want to ensure we have done all we can. The Chancellor of each Diocese has judicial independence, and therefore has discretion over how he/she interprets the law (legislation and statutory guidance) in order to reach a decision. We do not know how our Chancellor would decide this case, but it would be better to avoid that additional legally-driven process (which is slow and time-consuming).

With this in mind, the cases you referred to should be acknowledged:

- **In Southwark Diocese** - all three listed cases were only for replacing the boiler(s) or equivalent (a gas warm air heater at Gipsy Hill); not installations of complete brand new systems. This is notably different to Selsdon's proposal for a significant capital investment into a new gas-powered heating system.
- **St Mary's, Oxted** predates the new Faculty Rules that require PCCs to have 'due regard' to CBC net zero guidance (and which now places a duty on DACs and Chancellors to assess whether PCCs have done so).
- **St Mary's, Dedham** and **All Saints, Scotby** (not in Southwark Diocese, so we have limited background) were both rejected by their DACs. In both these cases, the respective Chancellors required the PCCs to pay a 'green gas tariff' i.e. a carbon offsetting charge. For Scotby, the Chancellor took a couple of months to reach a decision (5 April 2023 to 30 June 2023). For Dedham, the parish applied on 29 November 2021 but the judgment is dated 23 May 2022. We don't know how our Chancellor would decide such a case, but we would prefer to be able to recommend your scheme to the Chancellor.

Picking up on your query regarding considering technological advances, this was meant more in assessing existing technologies in other parishes and comparable buildings (as well as 'new' products). 'Advances' relate to technologies having been used in 'real world' situations over time, not just more 'cutting-edge' in terms of scientific or industry research and development.

Please also see below a selection of case studies, pilot schemes, and research that I hope is helpful to you:

- The **radiant chandeliers in St Matthew's Bristol** is an example of a recent technology advance, in that the product uses technology in an innovative way for a church-specific setting. The case-study is backed by technical assessments of the solution for use in historic churches.
<https://www.churchofengland.org/about/environment-and-climate-change/towards-net-zero-carbon-case-studies/radiant-heating-bristol-st-matthew>
- Other innovations include a **pilot for heated cushions**:
<https://www.churchofengland.org/about/environment-and-climate-change/towards-net-zero-carbon-case-studies/marown-church-tries-new>
- In relation to heat pumps, see also the attached couple of zip files which have seven examples of air-to-air Source Heat Pumps in churches.

- Historic England technical research has been recently published (although the churches used were described as only 'small'):
<https://historicengland.org.uk/images-books/publications/air-source-heat-pumps-historic-buildings/>
- 51 churches are listed as having Air Source Heat Pumps (unfortunately we do not know which are Air to Air or Air to Water, or whether or not they have underfloor heating systems):
<https://facultyonline.churchofengland.org/renewables?grade=&type=%27Air%20Source%20Heat%20Pump%27&typeString=Air%20Source%20Heat%20Pump=1&dateFrom=&dateString=&dateTo=&diocese=>
- Some heat pump examples are listed here:
https://www.churchofengland.org/about/environment-and-climate-change/towards-net-zero-carbon-case-studies?search=%22Heat+Pump%22&sort_bef_combine=created_DESC
e.g. <https://www.churchofengland.org/about/environment-and-climate-change/towards-net-zero-carbon-case-studies/large-listed-church>

In further consideration of the application papers (particularly the Options Appraisal), we would propose further points for consideration (to explore or to take into account).

Incoming electricity supply:

What else is the 100A three-phase supply being used for?

The 'spare' electricity available for electrical heating should be further considered, to see whether a full heat pump system could be achievable with the current supply. If not, the options would be careful design so that the heat pump requirements could be adjusted/lowered accordingly, adopting a hybrid solution, or to include a supply upgrade in the scope of the project.

In seeking to reduce the carbon costs of burning fossil fuels, even a hybrid solution would be preferable: i.e. combining gas and heat-pumps, rather than a total gas solution.

The actual electrical upgrade costs should also be ascertained, and factored into the financial decision-making.

Comparable running costs:

Figures should be double-checked across different documents as regards assumptions, calculations and how they are presented.

Annual energy comparison should compare like-for-like and should ensure that future predicted use is being considered (rather than just invoiced use).

Based on an estimated running cost of £11.20 per hour for gas, using 10p/kWh (as per table in the EngStudy report) there would be 112kWh of annual energy demand. Using a heat pump with a 3:1 ratio with electric at 32p/kWh the running cost would be £11.94, at 4:1 £8.96.

In the Heating Options Study from EngDesign Ltd, the current boiler is a 275kW, but total heat output estimated at around 45kW and less than the calculated heat loss, with the total heat loss of the church estimated as 160kW.

Hydrogen-ready:

Hydrogen is now not advised as being part of 'Net Zero Carbon' (at least not this side of 2030): <https://www.churchofengland.org/resources/churchcare/advice-and-guidance-church-buildings/hydrogen-and-hydrotreated-vegetable-oils>

Destratification fans:

These are often not advisable in a church setting, due to temperature differentials, increased introduction of cold air, and challenges of maintenance access (scaffolding needed to access them at ceiling-level). They also require electricity to run them. Where the noise of fans in a church is considered acceptable, then it is generally preferable that these should be part of fan-heating units (i.e. blowing **hot** air around) such as would be the case for air-to-air source heat pumps.

Solar panels:

Solar panels can - and do - help with heating in the winter to an extent: the sunlight present in winter can still generate some energy. But the main point is that they help with energy generation across the year, so that the overall annual costs of the electrical supply are reduced by the generation of onsite electricity.

The contents of this email would be worth considering, both with the help of Martin Dow and also your Quinquennial inspector, to fully consider alternative options and move things forward.

If you would find it helpful, the DAC would be happy to consider a site meeting. However, it should be noted that to get the relevant DAC members and experts together, along with diocesan colleagues, may take some logistical preparation and some time. Do let us know if that is something you would want to consider. Regardless, we do hope that you can understand our process and rationale behind our advice.

We look forward to hearing from you.

With all good wishes,

Katie Jenner
Assistant Secretary - DAC

CC: The Revd Younis Francis
The Ven Greg Prior
Martin Dow