

St Mary's Church Marlborough

Environmental Sustainability Policy:

1. St Mary's PCC will endeavour to ensure that the church directs waste materials to be recycled wherever reasonably practicable.
2. St Mary's PCC will educate and train its volunteer workers, employees and contractors not to waste resources. It will also encourage church members to invest their time and money in resource-saving at home and work.
3. St Mary's PCC will monitor the church's use of resources and investigate ways to reduce consumption of gas, electricity, car-fuel, water and paper.
4. St Mary's PCC will apply for grant aid to pay for sustainability improvements where they are available and cost-effective. It will normally approve expenditure from its own reserves to reduce consumption of resources provided there is a financial payback* on expenditure within 10 years; if necessary it will borrow money to carry out such improvements. Opportunities with payback times of more than 10 years will be considered carefully but not normally implemented unless it does not require borrowed money and other significant benefits arise.
5. Beyond projects covered by item 4 above, and apart from restrictive covenants with an instruction to spend them on sustainability, St Mary's PCC is compelled to devote its charitable funds to its primary task of promoting the Gospel of Christ within our community and the world.

* In calculating payback time, a simple cost/return basis will be used, ignoring bank interest, because it will be assumed that utility costs rise at the same rate as bank interest rates.

ST MARY'S CHURCH & CHURCH HALL, MARLBOROUGH – Green Audit

Fossil fuel and water consumption are monitored quarterly and annual usage plotted. Fossil fuel consumption is estimated to produce:

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| Church | about 13 tonnes of CO ₂ per annum. |
| Church Hall | about 7 tonnes of CO ₂ per annum. |

1. ST MARY'S CHURCH

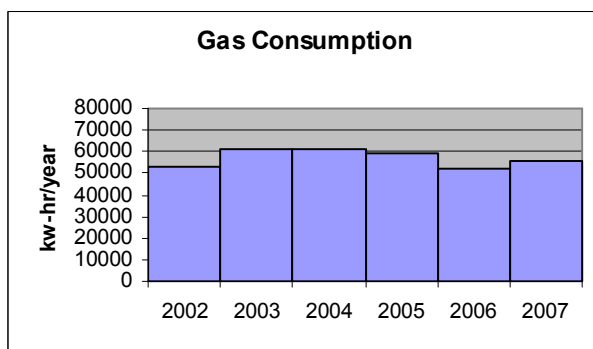
1.1 Gas

We burn 60000 kWhr of gas every year heating St Mary's Church. The boiler is about 10 years old and is a 300,000 BTU per hour cast iron boiler with estimated efficiency of 65%.

Background heating to 5°C is programmed from October to May to prevent frost damage. Additionally we pre-heat the church to a thermostat target of 17°C for about 10 – 15 hours per week, for events when more than a handful of people are at church. The program is updated on a weekly basis. The boiler produces 100 kW when firing but even so it takes several hours to raise the temperature to 17°C and if outside temperature is below 5°C it never reaches 17°C. No coat hooks are provided! The church building is the thermal equivalent of a swimming pool full of holes in the sides (like a colander) into which four large hot taps are running full bore. Once the boiler goes, off the temperature rapidly falls away over a couple of hours.

Because the ceilings are high and warmed air is more buoyant than cold air, warm air tries to escape through any leaks in the roof. When a door is open, cold air is sucked in to replace hot air leaking away and the temperature at congregation level rapidly cools. To combat this there is an inner glass door which can be kept shut whilst the outer door remains open to be welcoming. The inner door had draught-excluders fitted in 2006.

Continuously heating the church to, say, 10°C would, it is estimated, increase the gas consumption three-fold. Some churches do this.



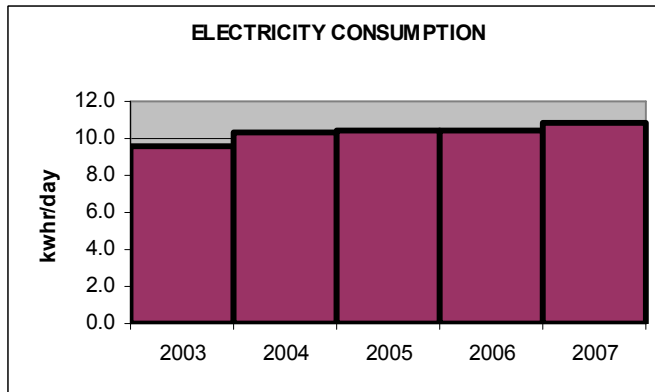
There do not appear to be any cost-effective improvements to reduce heat loss. The walls are solid stone and could not be insulated without moving many plaques because of grade 1 listing. The windows are single-glazed but secondary glazing is estimated to have a payback time of 50 – 150 years. The chancel roof is timber boarded un-insulated. We have inspected the nave loft and found some insulation - 75mm of U-foam partly shrunk back leaving gaps. Adding 4" of

mineral wool has a payback time of 60- 80 years. NB payback times assume that utility bills rise at the same rate our bank would pay interest on savings (about 4% p.a.).

If the boiler could be replaced by a 90% efficient condensing boiler costing about £5000, the payback time would be about 15 years. We are investigating segregating the heating circuits into perhaps, chancel, nave and tower room to permit more effective direction of heat energy. [The tower room is heated by electric fan heaters when used as a meeting room without the church in

use] We are also investigating changing the programmer to a 7-day temperature-timer unit that would optimise the pre-heat start-up time by monitoring the temperature in the church over several hours before the heating is needed. No net change in consumption arises but it makes the heating more consistent.

1.2 Electricity



We use about 4000 kW hr of electricity in St Marys in a year. Increase in 2007 was due to the art exhibition lighting. The lobby, tower room, vestry and nave lighting uses low energy lamps, saving us about £200 p.a. There are however 2 x 300 watt floodlights at the front of the nave and these could be changed to an equivalent low energy system; there do not appear to be equivalent lamps available to simply replace the existing ones. Also there are 4 x 300 watt

floodlights in the chancel which could also be changed. It would be cost-effective over 10 years to change these lamps if they could be replaced for less than £100 each. NB It is possible that the floodlights provide a modicum of additional warmth to the areas heated and this might be missed if low energy lights were used.

A Saunier electric hot water heater is on continuous standby to provide instant hot water for washing. It is located under the stairs and could be put on a timer provided that times when it was not required could be predicted. It seems quite well insulated and may not draw much power when on standby.

The tower clock lighting (4 x 65 watts fluorescent) is on a 365/24 timer which adjusts for the daylight automatically.

Three welcoming lobby ceiling lights (15 Watts each) are usually on when the church is open 10 hrs/day, 7 days/week.

The altar light is on 10 hr/day 7 days /wk. It has recently been changed from a 30 watt tungsten to a 6 watt mini fluorescent light saving

1.3 Car Fuel

Miles travelled not known but not expected to be very significant. Clergy are reimbursed. No company cars or car allowance so no incentive to drive unnecessarily. Car sharing where practicable. Public transport not of much use.

1.4 Waste/recycling

Considerable amounts of paper is used for weekly and monthly notice-sheets and weekly readings. There are about 8 service sheets for different festivals and standard Sundays and these sheets are re-used for several years for all relevant services.

Returned papers are collected up and recycled via the church hall caretaker.

Flowers displays are arranged for most Sundays and weddings and funerals. Flower waste is collected and recycled via a church member's garden compost heap.

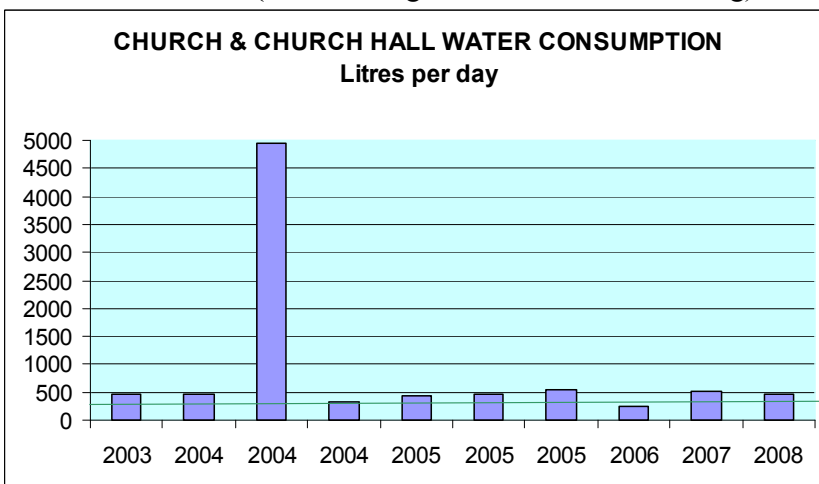
Communion wine bottles are mostly recycled via church members' homes

"Aumbrey" 7-day candle holders cannot be recycled; Vanpoules, the supplier will not accept empties for recycling. We could reuse if re-wicked and refilled but this would be time consuming.

No plastics recycled. No tins used normally.

2. ST MARY'S CHURCH HALL

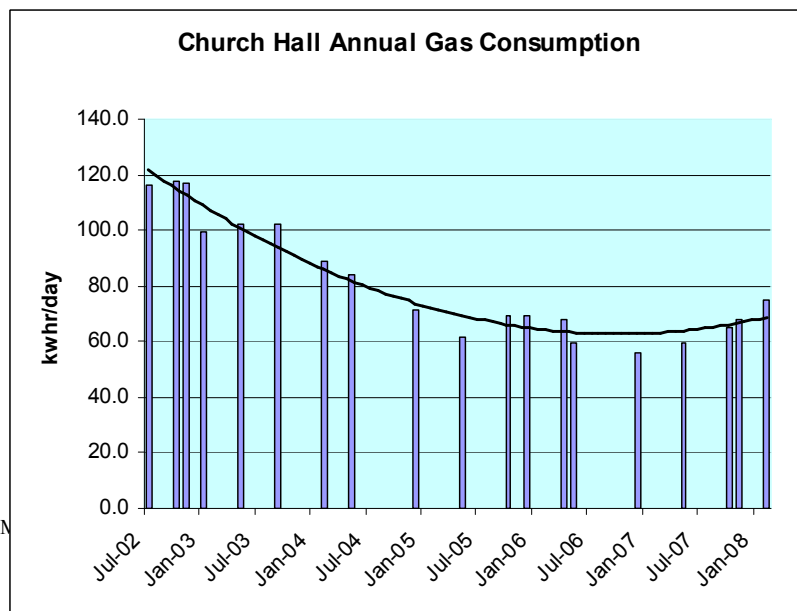
2.1 Water (Water also goes to the church building).



Apart from a major leak in 2004, water consumption is stable.

2 disabled W/Cs < 10 years old.
2 normal W/Cs > 10 years old.
None seem to be low volume flush.

2.2 Gas



We burn about 20000 kWh of gas every year heating St Mary's Church Hall. The boiler is 4 years old and is a non-condensing wall-hung boiler with estimated efficiency of 85%.

The boiler has anti-frost protection but this is thought to operate very rarely. There is no other background heating.

The hall is pre-heated from October to May according to the bookings program, updated on a weekly basis. The boiler produces 25 kW (80,000 BTU per hour.) when firing and it takes about an hour to raise the room temperature to 20°C. There are room-stats in the main hall and upstairs meeting room which are adjustable within $\pm 5^{\circ}\text{C}$ and sometimes left high by users. The stats are reset to 20°C on an ad hoc basis. It would be beneficial to get the caretaker to check/reset these daily.

A 40% saving in gas has arisen from two improvement made in recent years:

- Segregating the main hall heating circuit from the upstairs room circuit
- Inserting room-stats into command wiring
- Replacing a cast iron boiler and separate 'Ascot' water heater by a single combi boiler.

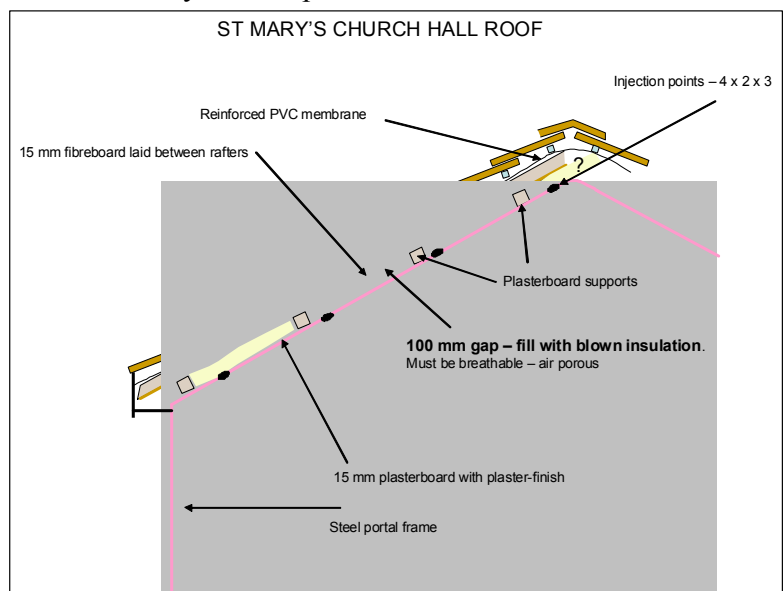
The upturn in gas consumption in 2007-8 is probably due to adding a radiator in the modernised disabled W/C which was previously unheated.

The upstairs meeting room has 4" of glass fibre wool loft insulation and double glazing.

Options for further cost-effective improvements are being explored:

- Sealed unit double glazing is being installed as hall finances permit, in stages.
- Cavity wall insulation using with blown fibre to the main hall walls was done in July at a rate of £199 which we think was subsidised by one of the utility companies. It pays back in 3-4 years (25% p.a. return on investment, for ever)
- Further segregation of the heating circuits to make the Team Office a separate circuit including 7-day programmer. [The Team Office is heated by electric heaters with poor wasteful temperature control when the main hall is not in use] Expect small increase in gas consumption but big decrease in electricity consumption.

- Main hall ceiling insulation – there is only 15 mm of fibre-board insulation between the ceiling plaster and the roof tiles. We have asked potential contractors to fill the 100 mm space between the ceiling boards and the fibre boards with blown fibre, but contractors have stopped offering this service in recent years due to problems of not knowing what is in the void and with electricity cables. This pays back in about 7 years. A false insulated ceiling could

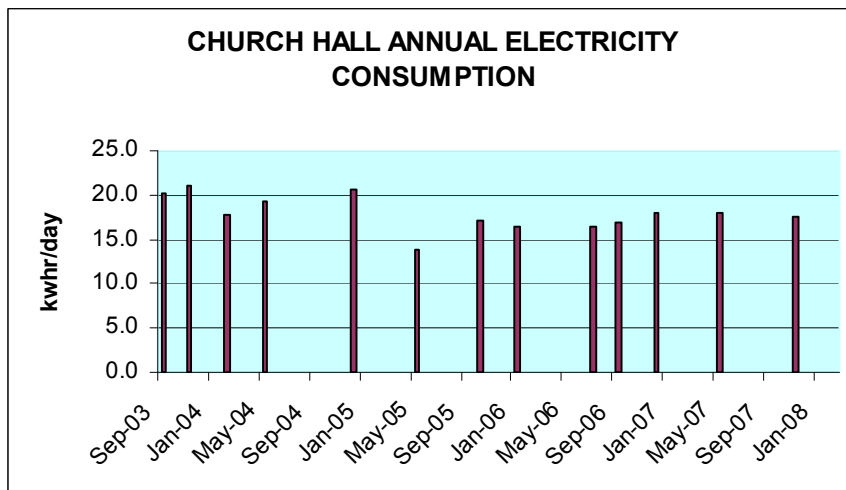


be added inside the existing ceiling but payback probably exceeds 20 years. Middle way of pulling down the ceiling boards, installing fibreglass in the gaps and renewing the ceiling boards, maybe with noise absorbing panels is being looked into.

A condensing boiler offer was rejected in 2004 because the non-condensing boiler offered was £1500 cheaper and was strongly recommended by the installer. To change now, the payback time for a condensing combi boiler is estimated at 25 years which is not considered economical and will be deferred until the existing boiler becomes life-expired or too expensive to maintain.

2.3 Electricity

Electricity consumption is fairly stable in spite of the space heating in the Team Office. [It is cheaper than gas-heating the main hall + team office circuit. See above for segregation plans.]



Three electric water heaters were removed from basins/sink and hot water taps fed from the combi boiler installed instead. This should reduce electricity consumption at the cost of a slight increase in water consumption due to quite long pipe runs back to the combi.

All lights are low energy, mainly strip fluorescents.

One outside light on a timer for security. Front and back doorstep lights are activated via P.I.R. detectors.

2.4 Waste/recycling

Paper is recycled by the caretaker. No plastics recycled. No bottles/tins used normally.