

Energy and Environmental Audit

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Faiths4Change

**People of faith and goodwill, working
in partnership to help grow communities**

Partnership working

- **Ecotricity**
 - Green energy and reduced tariff for faith buildings in NW
- **Environment Agency**
 - Flood risk workshops
- **Merseyside Waste Disposal Authority**
 - Love food, hate waste
- **United Utilities**
 - Water saving devices distribution to 5000 householders
 - Water audits in Mosques

Energy & Environmental Audit

- Assessment of environmental impacts
- Better understanding of your church's consumption of resources – water, waste, energy etc.

Pre Audit Questionnaire

- Age, size and type of building
- Main source of heating and any currently known problems i.e draughts
- Billing data for 2 years
- Weekly meter readings for 2 months
- Lighting information for hard to reach areas.
- Policy and practice – who sets the controls, how is this managed?

Walk around



Walk around



Walk around



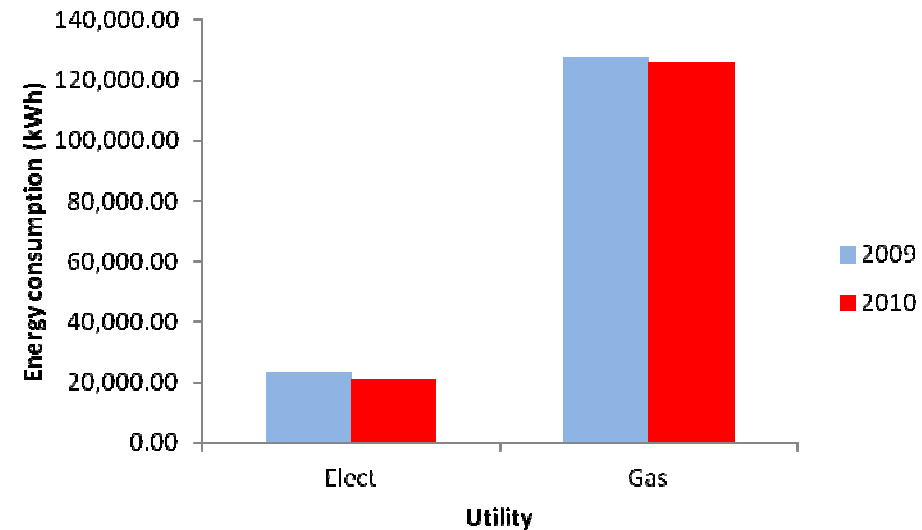
Energy profile

Energy Profile 2010					
Fuel Source	Energy Consumption		Financial Breakdown		CO ₂ emissions (tonnes)
	kWh/year	%	£	%	
Electricity	20,730.10	14.12	2,828.40	43.62	11.30
Gas	126, 037.65	85.88	3,655.09	56.38	23.35
Total	146, 767.75		6,483.49		34.65

Energy consumption comparison

	Electricity	Gas
2009	23,486.70	127,604.71
2010	20,730.10	126,037.65

Utility	2009	2010
Electricity	15.50%	14.12%
Gas	84.50%	85.88%

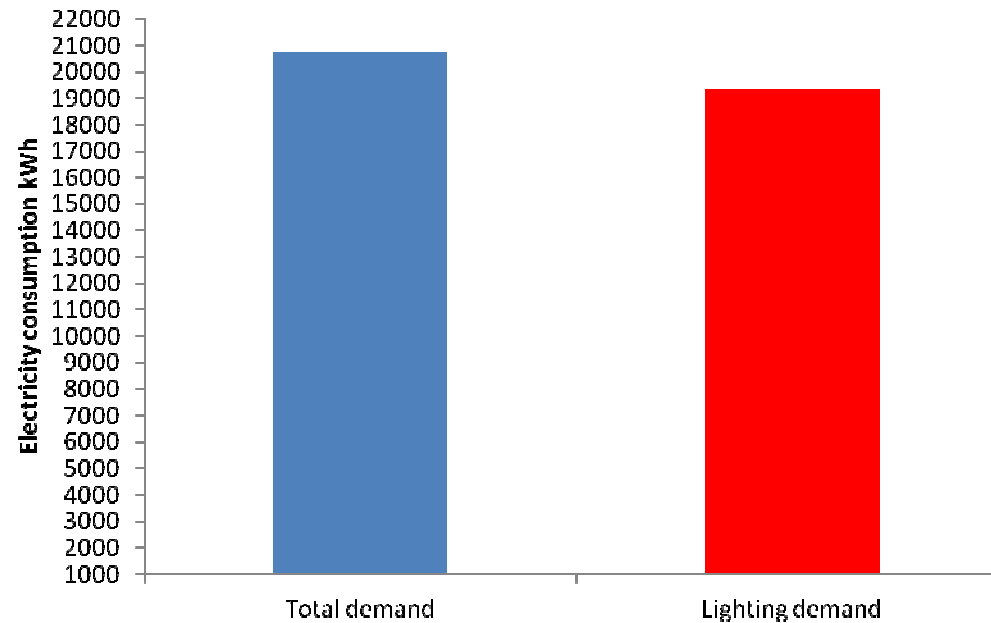


Electricity consumption

- Lighting audit
 - Types
 - Power
 - Number
 - Frequency of use

Demand

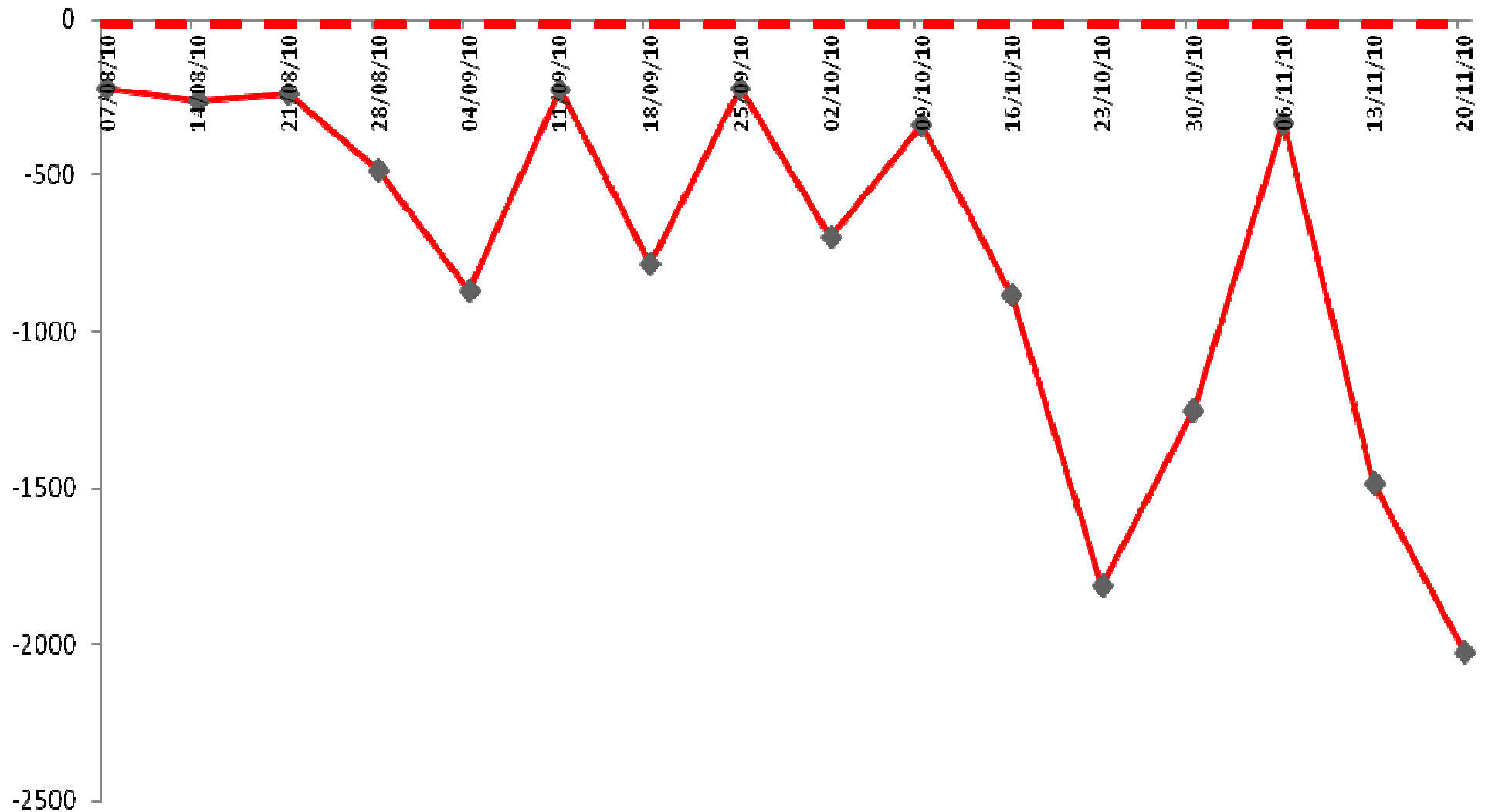
- Total electricity demand: 20,730 kWh
- Lighting demand: 19,335 kWh (96%)

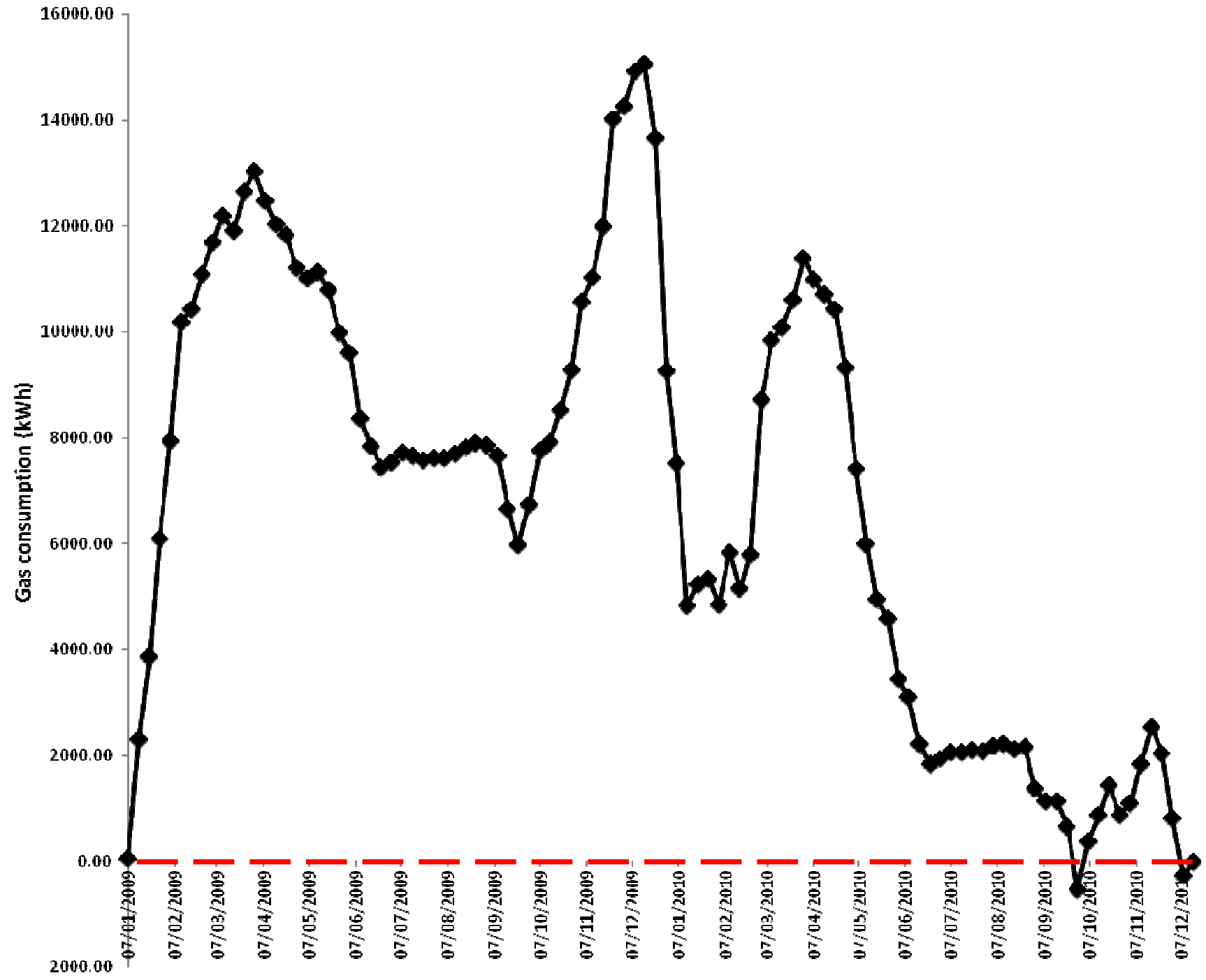


Space heating performance

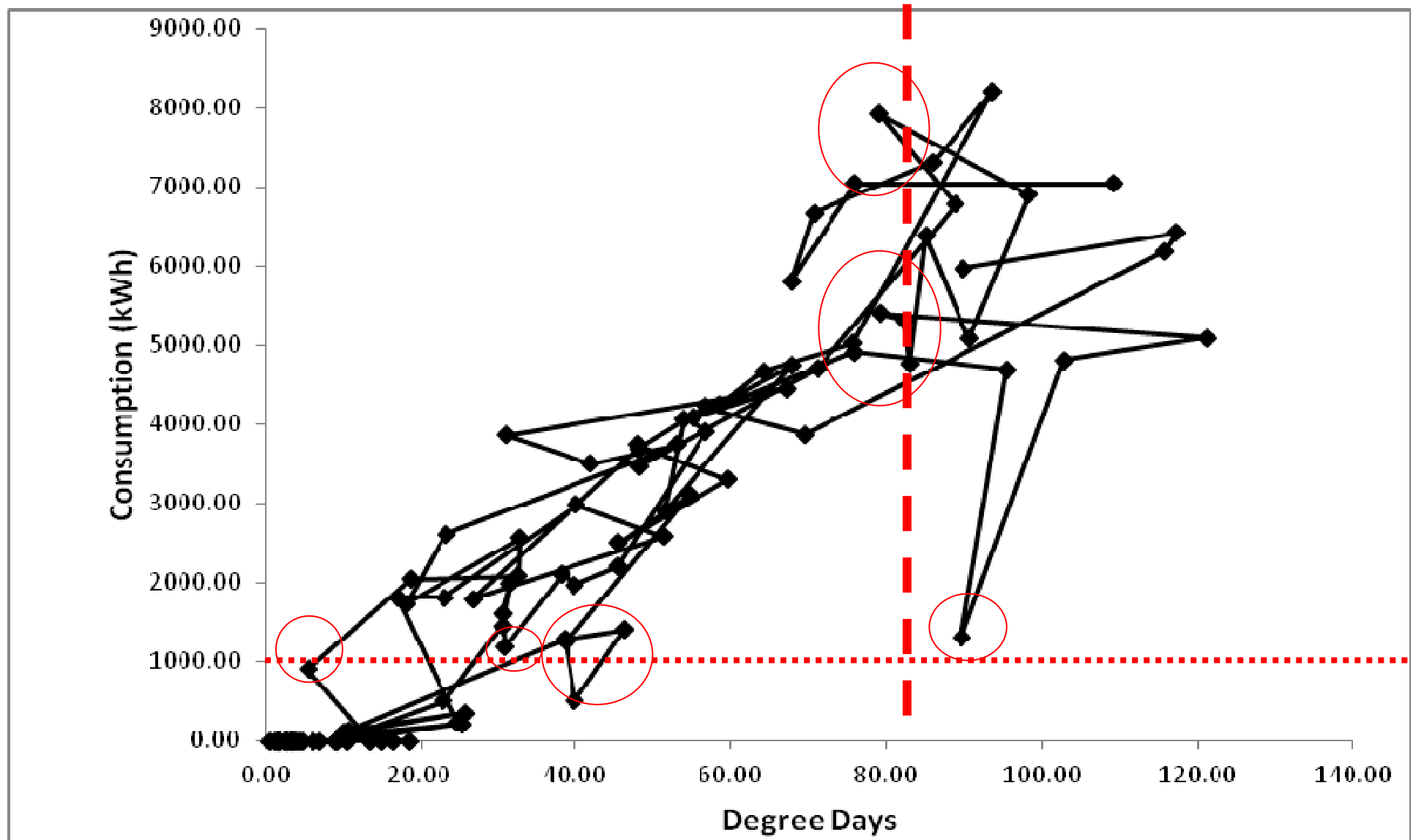
- Weekly meter readings for space heating utility
- Degree days
 - A measure of the severity and duration of cold weather
 - Rate of heat loss is directly related to inside-outside temperature difference and the energy consumed for space heating is directly related to degree days (Carbon Trust, 2007).

Space heating performance





Control issues - loops



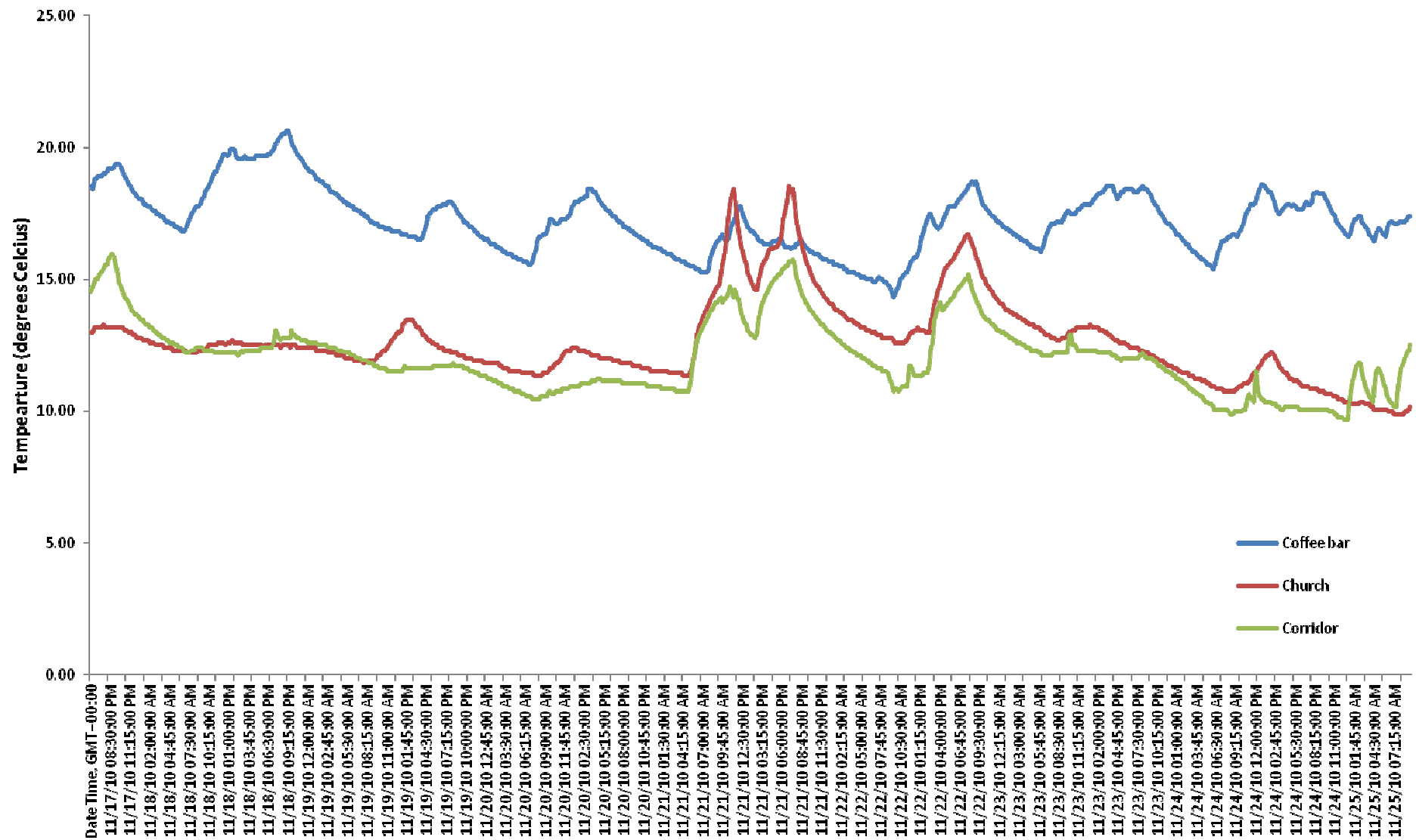
Temperature profiling



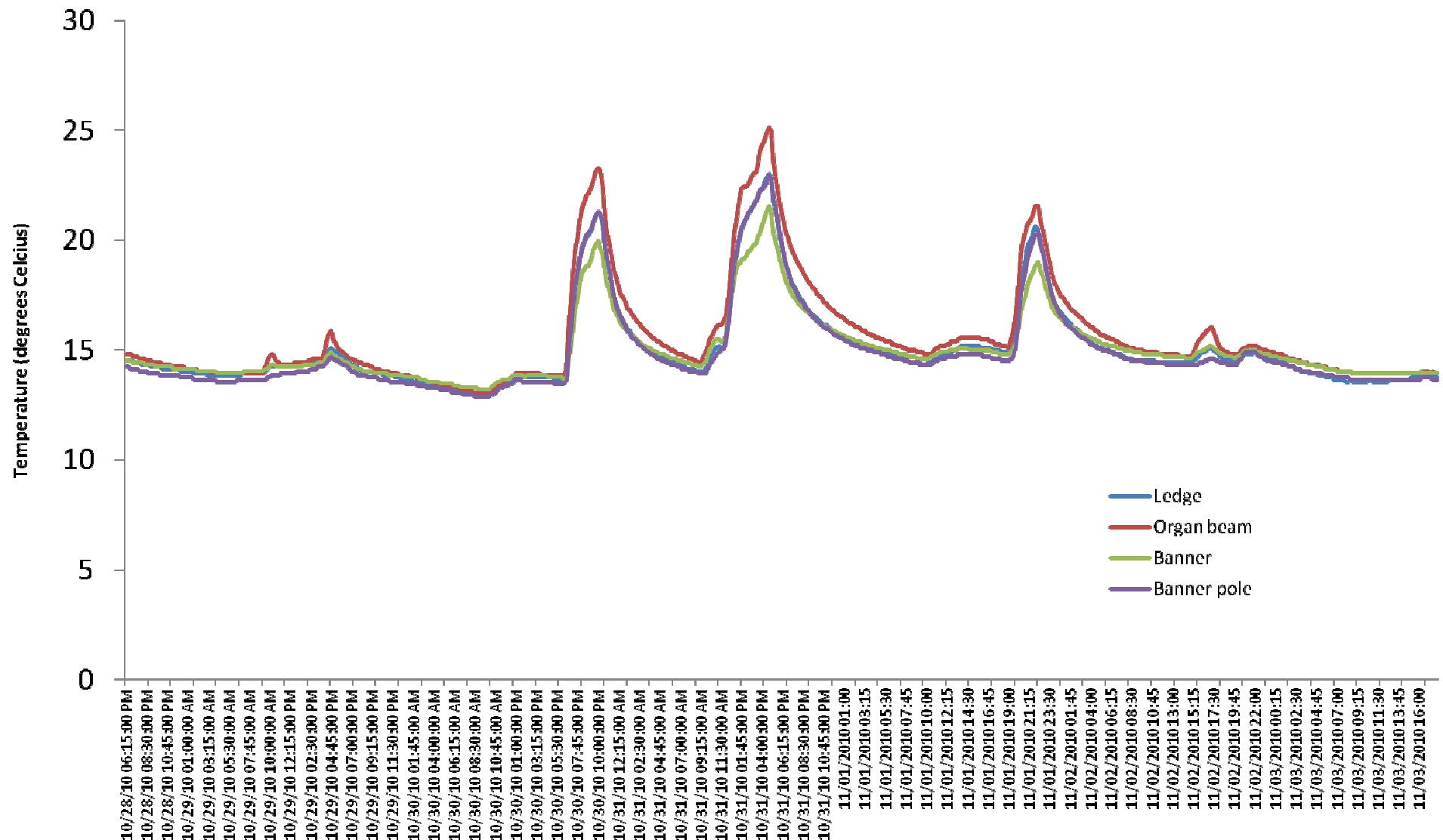
**Records inside temperature
at a fixed location and at
regular time intervals over a
period of time**

**e.g. every 15 mins for a week
= 672 data recordings per
logger.**

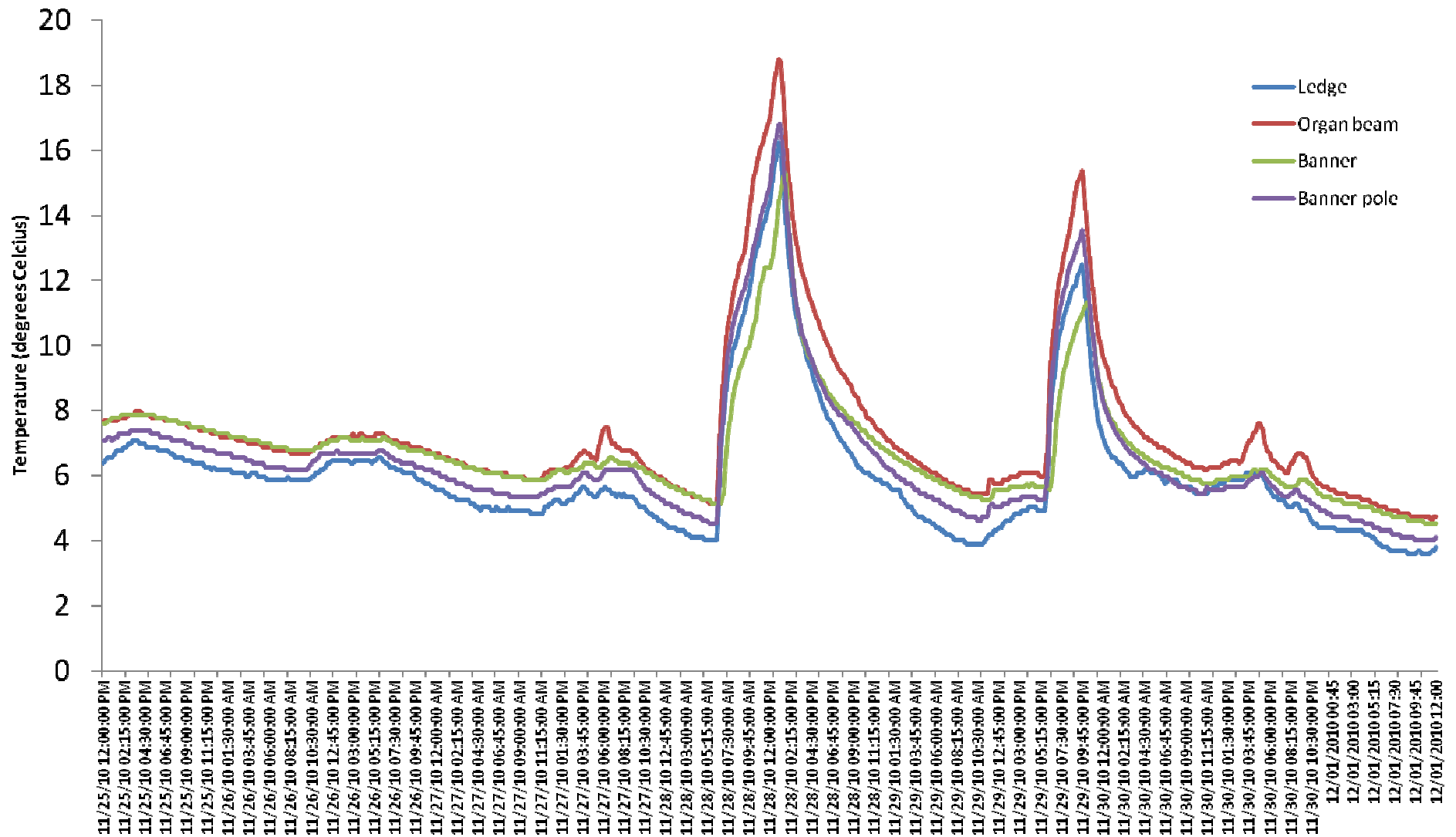
Zone system problems



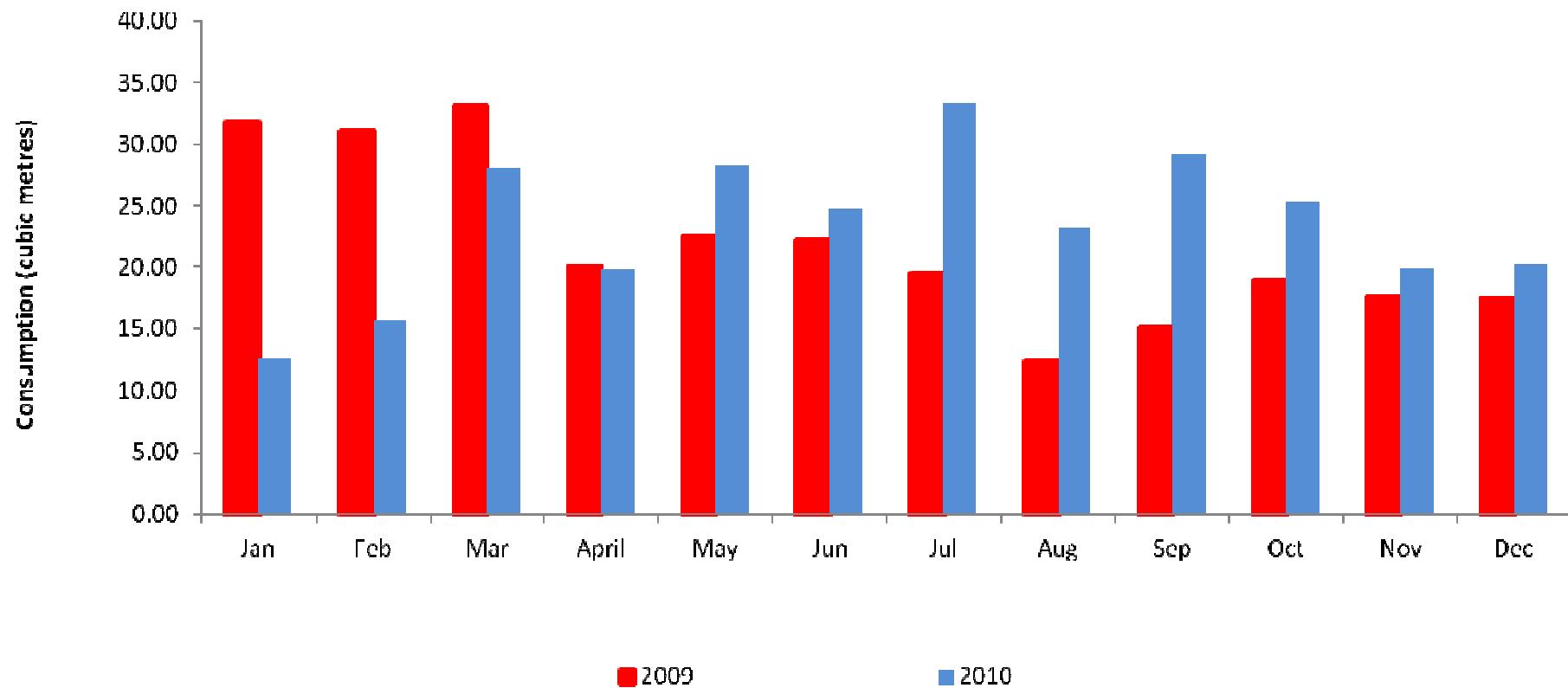
Grade II listed church: heat stratification



Grade II listed church: heat loss



Water consumption



Problems

- Meter readings
 - Not taken
 - Not recorded correctly
 - Not submitted
- Billing data
 - Not provided
 - Partial data provided - incomplete
- Access – all areas
 - Not taken
 - Not recorded correctly
 - Building functionality not understood (No. users/frequency etc).

What an audit, is not

Audit is not a magic bullet – it is often the first step for the church to understand its environmental impacts and to put measures into place to reduce those impacts.

Rationale:

If you cannot measure it, you
cannot manage it.



Faith buildings can benefit from a specially discounted Ecotricity tariff as well as only being subject to a 28 day rolling contract

- Domestic enquiries should use the code 'F4C1' and telephone 08000 302 302
- Non-domestic enquiries should use the code 'F4C2' and telephone 0845 230 6102

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