Braunton Parish Council

Rural Community Energy Fund

Stage 1 assessment

wrap

Braunton Parish Council

Energy Analysis

Summary

Cost Saving Options

There are limited energy efficiency measures that are applicable for the site. Additional draught proofing around windows and doors may raise comfort levels slightly. However the constant flow of visitors results in high levels of air exchange in the lower part of the building.

Any unfilled cavity walls being insulated would reduce heat loss through the walls. If there is a chance to add to loft/ceiling insulation then this would reduce heat loss through the roof of the building. Adding to the ceiling insulation would be expensive.

Solar PV is an option for the building, though the system would be small. Costings and savings are given in the financial appendices.

Building and Site

The building can be seen highlighted in the ‘Bing Maps’ satellite image below, Figure 1.

The building is located at the northern end of the Caen Street car park.

The museum was built in the early 1990s. The building has south facing roof space and is on a single phase electrical supply. The museum is open all year.

The client has installed LED lighting throughout the building which will help to reduce energy demand.

Figure 1 Braunton Museum

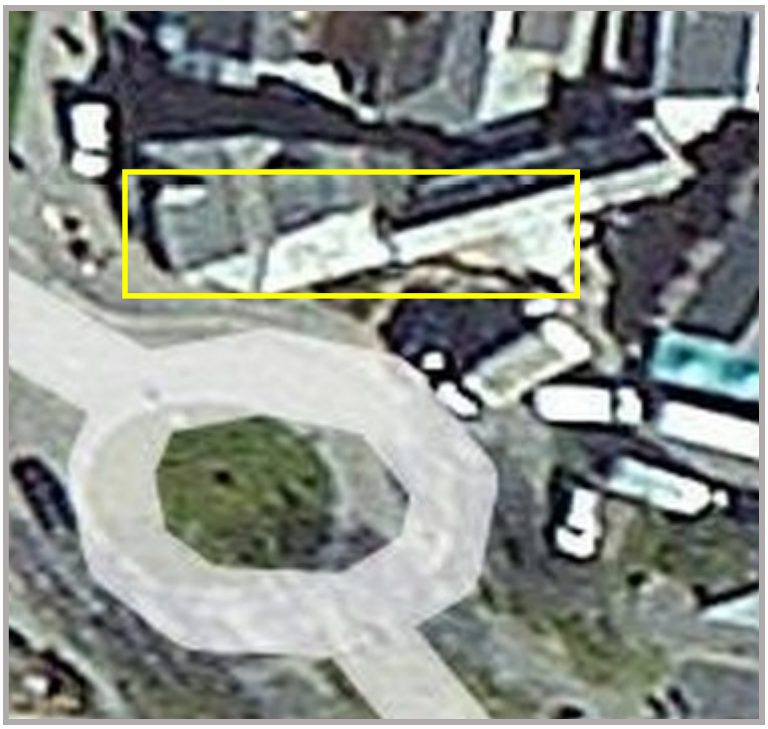

Figure 2 Museum south facing aspect

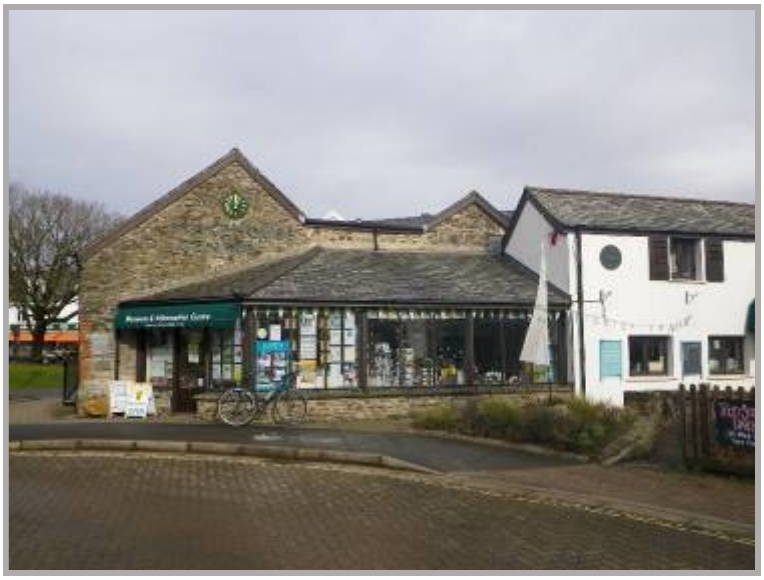

Figure 3 Showing the Museum and adjacent London Inn pub.

The pub is owned by a brewery.

Energy Use

The building's current energy demand is split into mains gas for heating and hot water and electrical demand for lighting and appliances. The main energy costs come from electrical demand. This is likely due to the large amount of lighting. The lighting has been switched to LED lighting, to reduce costs. The change to LED lighting should see an improvement in electrical performance.

Figure 4 Museum energy use

Fuel	kWh – p/a	CO^2 emissions Kg – p/a	Cost p/a – inc standing charge and VAT £	MPAN	Connection
Electricity	20,000	8975	2815	/	Single phase grid
Mains Gas	10800	1836	512		Mains gas network

The heating for the building is supplied from a new gas fired boiler unit. The heating system is a mix of radiators and underfloor heating (which at the moment is not operational).

Building Improvements

The building was built in the early 1990s and therefore should have cavity walls. These could be filled to reduce heat loss from the walls. The loft insulation for the building could also be upgraded to reduce heat loss through the roof of the building. These measures would reduce heat loss and therefore demand for heating from the mains gas boiler unit.

Electrical System Improvements

The lighting has already been upgraded to LED units. This is the best option for reducing electrical demand from the building.

Renewable Generation

Solar PV

The building does have a south facing roof space suitable for the installation of roof mounted solar PV.

With a single phase grid connection the maximum that will be allowed is 16 amps per phase, so just under 4 kWp for the building. However there is only a small amount of roof space available, supporting the installation of approx. 2 kW of solar PV.

Wood Fuel Heating

The museum site would not support the installation of a wood fuel heating system as there is insufficient space. The building also has a cost effective mains gas boiler unit. The building could feasibly be connected into a Caen car park district heating scheme. This would require the installation of a wood chip or pellet boiler elsewhere on the site though.