

## Energy Statement for Stoney Court Proposal

The proposed photovoltaic cells are estimated to produce 6.39 kWh, and on present estimated consumption projections, will lead to a reduction of 48% on energy consumption. Based on discussions with radiator companies, and taking into account increased modern heater efficiency, and increased time the radiators will be on producing heat to give a more homeostatic control of temperature, it is estimated that an extra 28% energy will be used, so in absolute terms this will lead to overall energy consumption reduction of 37%, and even more in monetary value as the battery system can be charged on the lower night time Economy 7 tariff.

Presently, the house is heated with Economy 7 storage heating, which is not effective enough, and is the only thing affordable by drawing on power at night time when the tariff is substantially less. As the proposal involves storing energy in the battery, the house can then be heated more at night when the temperatures drop and the damp forms.

Two surveyors who are experts in historic buildings have stated that the increasing damp issues would be made significantly worse if the building were not allowed to breathe, and they have been involved in remedial action when historic houses have been 'over-sealed'.

They both agree the solution to the worsening damp and mould problems, which pose a genuine risk to structural integrity and human health, is to increase heating such that there is a consistent temperature of 15 degrees with smaller diurnal variation. Presently areas of the house regularly drop to 5 degrees during winter months. When this occurs water condenses out and some mornings all surfaces are wet to touch. The plaster is now significantly peeling off the northern facing ground floor walls. We already do all our laundry in the barn to avoid exacerbating this further.

We have consulted several surveyors, alternative energy companies, heating companies and their salient points are:

- A Ground Source Heat Pump would not be possible to install as there are too many places where air could escape, and the infrastructure would involve installation which would disrupt the fabric of the building.
- We explored ground mounted PV panels in the garden, but the infrastructure would be prohibitively expensive, involve digging up a lot of established garden, be poor ecologically as we have a lot of wildlife that visits the garden, involve cutting down shading trees, impact more on the aesthetics of the immediate surroundings to the house, and would be less reversible once installed.
- The main source of heat loss for the house is the poor doors and glazing. As a grade 2\* listed building we cannot change the windows to double glazed as the windows themselves are historically significant, dating back with an etching dated 1502. Secondary glazing would completely ruin the inner aesthetic of the house, with panelling and muntin screen mentioned in the supporting documentation and a significant part of the Listing. Installation would involve disrupting the cob walls and need structural support. In many spaces, secondary glazing would be physically impossible to install. Significant gaps in doorways could not be resolved as the doors

themselves are many hundred years old, are essential to the character of the house, and would not be replaceable.

- The roof cannot be insulated more as it is the roof space itself that is the most significant thing about the house gaining it its 2\* listing. There are old marks where the original open fire rose up into the rafters, and the support structure for the rook is remarkably in tact and rare. To some extent the thatch is already providing a degree of insulation too, however.
- The stone floors are extremely cold and source of heat loss, and it would not be possible to install insulation, underfloor heating etc as the head clearance is already extremely low with heads being regularly banged on the ceiling beams