



Crichton Castle

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Free standing Photovoltaic System

Solar

What is the solution?

This project involved the installation of solar PV units on the upper part of a 16th C ruined castle in 2005, and subsequent upgrade with new panels in 2019. The array is 5 square metres, monocrystalline, installed in 2019. Power generated 1800 W. The angle of the array is 25 degrees, orientation 220 degrees. The heating load in the custodians office is 2000 W, and lighting 330W. The array charges a battery bank which can give a normal usage time of 26 hours; this is more than adequate as the building is only open 6 hours a day.

Why does the solution work in terms of compatibility with conservation and technical aspects?

The panels were mounted on the roof of the castle, mechanically fastened to a modern flat roof. Due to the parapet of the ruin still being quite high, the panels could not be seen from the ground. Historic fabric was not affected by the installation. Scheduled Monument Consent was required for this installation, but as it had no effect on the historic fabric that was granted back in 2005, and again for the new panels in 2019.

Description of the context:

The building is a ruin, but open to the public at ground floor level. The power demand was modest, but not being met by the PV panels put up in 2005, and a generator was occasionally required. Upgrading was needed. The cabling required from the roof down to the ticket office was low power. The cables were

surface mounted via existing routes within the ruin and were reused for the new units.

Pros and cons of the solution:

The new panels replaced ones first installed in 2005. This has proved to be reasonably simple to do, although crane access was needed to get the panels up. Existing power cabling was used, o no disruption inside the monument, and similar fixing points on the roof were used. The new batteries have given additional running time for the custodians in the event of low solar incidence.

Type of data available (level of information, simulation):

Estimated power generated was provided by the panel supplier - see attached data sheet.

Are there any related publications or pictures of the solution?



Installation of the PV panels © HES



Crichton Castle and the surrounding landscape © HES



View of the panels on one of the towers ©
HES

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