Case Study

SOUTH DOWNS NATIONAL PARK

Energy Improvements to Historic Buildings

Background

The South Downs National Park has a target of Net Zero by 2040 which means negating the amount of greenhouse gases produced by human activity.

Consuming Energy carries both a financial and a carbon burden but efficiency improvements to buildings can help to cut energy bills and reduce or remove carbon emissions.

In 2024, five popular Culture & Heritage Visitor Attractions across the National Park were keen to assess and improve their energy efficiency:

- Petersfield Museum
- Lewes Castle
- Anne of Cleves House
- Gilbert White's House & Gardens
- Monk's House

These are all sited in historic buildings, falling within categories of significant historical and architectural interest through a variety of local or national designations.

These buildings, therefore, have additional restrictions to navigate when considering alterations.

The South Downs National Park Authority (SDNPA) contracted specialists Lucion Delta-Simons to undertake Energy Audits for the five sites, each varying in size and type.

DeltaSimons
Protecting people and planet

Petersfield Museum, Hampshire. Photo credit SDNPA / Richard Chivers

The project

The audits concluded that implementing energy saving measures across the five sites needed investment, but on average, the cost would be repaid in 3.5 years.

Additionally, carbon saving of over 60 tonnes/year was estimated across the five sites.

Below are the efficiency measures identified alongside the planning considerations that would need to be met:

1. Lighting:

Measure: Upgrade to LEDs and integrating sensors (daylight, presence).

Planning: Subject to wiring/switch alterations and this impact on fabric. Details on the location of sensors and wiring would be required. New holes through fabric will require listed building consent. Avoid further fixings and holes to the timbers as these are the most significant structural fabric.

2. Energy Monitoring:

Measure: Implement non-intrusive smart metering with Energy / Building Management System (EMS/BMS)

Planning: Details on the impact on historic fabric from insertion and removal of any existing services would be needed to determine the need for listed building consent.

"This report will undoubtably help us to understand, and action, further measures towards greater sustainability across the site."

Flair Kitching, House Manager, Gilbert White's House & Gardens

3. Heating:

Measure: Historic England recommend replacing boilers with energy efficient condensing boilers.

Planning: Subject to the additional works and impact on fabric; materials should be sympathetic and breathable; no foam fillers and holes. Flues or fixings (methods of installations) are likely to require listed building consent.

Radiators and oil fed radiators can sometimes be of historic significance and as features of the listed building would need to be retained in situ, even if no longer in use.

4. Renewables:

Measure: Explore the installation of solar Photovoltaic (PV) solutions (freestanding, rooftop).

Planning: The location should be of a minimal visual impact and preferably screened/ not fronting the public realm. The additional associated works may involve impact on archaeology and the siting would need to justify the impact. Natural native planting for screening is suggested by Historic England's latest guidance.

5. Building Enhancements:

Measure: Install secondary glazing, insulation and integrate systems to improve energy efficiency.

Planning: Prior to large scale, costly and impactful methods a building should be surveyed for air tightness. Draught-stripping windows and doors and increasing natural breathable insulation in the roofs within safe parameters, without the risk of interstitial condensation are practices that would have a major reduction in the carbon emissions for heating.

The South Downs National Park Climate Change Adaptation Plan

Climate Change is shaping up to be one of the main causes of environmental change for the National Park in the future. Its impacts on the landscape are likely to be significant and profound – though there are many potential opportunities over the longer term. It is necessary for the National Park Authority to plan ahead in relation to potential climate change impacts. A Climate Change Adaptation Plan is the best way to achieve this.

Read the SDNPA Climate Change Adaptation Plan online

Further Resources

Historic England has produced an Advice Note to provide clarity and support consistent decision-making for proposals to reduce carbon emissions and improve the energy efficiency of historic buildings whilst conserving their significance and ensuring they remain viable places to live in the future.

Follow the link below to access their technical advice and guidance on climate change mitigation and adaptation for resilience, including energy efficiency, retrofit, and Net Zero.

Energy Efficiency and retrofit in Historic Buildings

The South Downs Local Plan is the statutory development plan for the whole National Park and is used in the determination of planning applications.
This document outlines policy relating to the historic environment of the National Park.

South Downs Local Plan

For more information on this project, please contact:
chris.fairbrother@southdowns.gov.uk

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