SITE GUIDE: ENERGY OPTIONS FOR COMMUNITY BUILDINGS

LOCAL ENERGY SCOTLAND

This guide outlines considerations for those in control of community buildings looking to make a change in their energy use and carbon emissions. It applies to a single building, or to a closely associated small group of buildings, requiring energy for heat, power or transport.

IDENTIFY AND PRIORITISE CHALLENGES

Where practical, solutions should always prioritise energy efficiency. The following issues are common to this type of site and are followed by brief notes on some typical or appropriate initial actions.

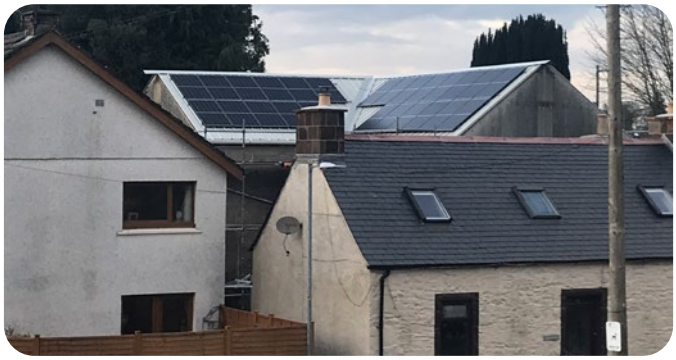
Significant heat losses through the building fabric

The level of building fabric insulation is often related to the building's age. An Energy Performance Certificate (EPC) from the Scottish EPC Register, and a report from Business Energy Scotland can help identify measures that could improve the building fabric performance.

Reducing heat losses can be the most effective way to save energy. Support can be sought from Business Energy Scotland, the Scottish Government's Community and Renewable Energy Scheme (CARES), or by participating in projects included in the Local Authority's Local Heat and Energy Efficiency Strategy (LHEES).

Poor equipment efficiency

The types of equipment most commonly replaced in order to achieve efficiency benefits are lighting, non-electric heating, motorised plant and vehicles. Equipment efficiency information should be available through the manufacturer; it is often related to equipment age, fuel and the technology used.



To quantify the benefits of replacement, you will need to identify:

- ✔ the current equipment efficiency
- ✔ the frequency of use and/or total energy used in a typical year
- ✔ the efficiency of the replacement equipment
- ✔ the planned use pattern and fuel costs associated.

Support for replacing some equipment may be provided through through the Scottish Government's SME Loan. Vehicle use, type and analysis can be supported by Transport Scotland.

Did you know?

- ✔ Using efficient lighting can make immediate energy savings of up to 80%
- ✔ Heat pumps are more efficient than other heating systems because the amount of heat they produce is more than the amount of electricity they use. There are different types to choose from to best suit the building.
- ✔ The Product Characteristics Database holds information on boiler and equipment efficiencies

Energy Saving Trust provides vehicle efficiency data and fuel price comparison information.

Lack of system controls and inability to manage time of use

A lack of control results in energy being used when it is not required. A wide variety of sensors and programable timing controls are available; these should be a high priority when retrofitting and in new installations.

Out of date distribution systems

It is important that the system transporting energy is fit for purpose. New systems may involve changes to temperature and/or capacity. New controls may require alternative wiring or pipework configurations. It is important to prioritise an early distribution system assessment as costs can be high.

Significant heating and hot water requirements

More than half the energy use in a building can be for heat and hot water; consider fuel options as cost, convenience and carbon vary significantly. Heating systems are not replaced frequently, so consider if your next system replacement will allow you to achieve net-zero by 2045. You should also check if your council has a Local Heat and Energy Efficiency Strategy.

Significant electrical demand requirements

The viability of generating electricity on site depends on demand. Assess the current demand, time of use and consider any future requirements. Consider monitoring, or installing a smart meter, to obtain current data. Talk to your Distribution Network Operator – generating electricity, or new uses such as transport and heat, may involve a new connection.

Providing for a current or future energy need for transport

Moving to a low carbon future in transport may require local provision – electric vehicle charging points at community buildings may be a first step. Energy Saving Trust offers advice and can support your assessment of your current and future needs.

Energy storage requirements

Energy storage helps to balance use and supply and can support efficiency. Some boilers operate more efficiently when heating thermal storage. Hot water storage can provide hot water all day from short periods of supply. Batteries store intermittent generation or electricity at cheaper rates. You must assess the viability, and tools and advice are available.

Availability of space in, on and around the building

Space for new generation or storage can be significant. Having access to space, and control of external space, will increase your choices. Assess the spaces that you control for access, available space and condition.

COMMON ACTIVITIES

(initial steps towards solutions)

Addressing many of the issues above can begin with the same initial steps. These include:

- ✔ sourcing historic energy data from supplier's bills or meter readings
- ✔ obtaining an up to date EPC for the building(s)
- ✔ contacting Business Energy Scotland for free support
- ✔ installing energy monitoring, or asking your supplier about smart meters
- ✔ asking users about performance and use of equipment or controls
- ✔ asking the local authority about their local plans and any local support
- ✔ identifying eligible funding support and any associated deadlines for applications.

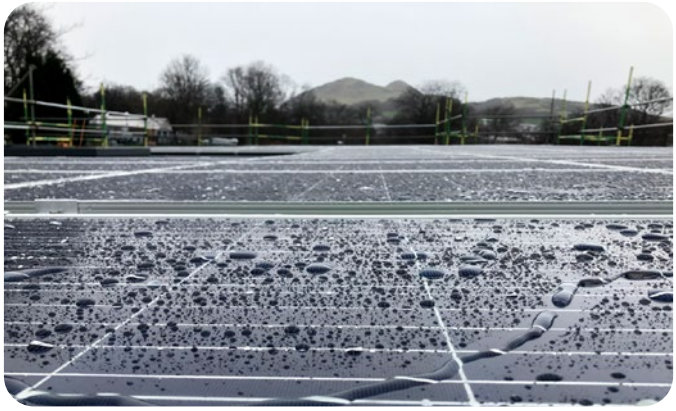
BENEFITS OF TYPICAL SOLUTIONS

Improving energy efficiency with an SME Loan and grant from CARES

- Allows immediate action, using a loan and/or grant from CARES that does not charge interest.
- Benefits begin immediately following installation.
- Insulation measures typically last for the life of the building.
- Equipment replacement typically lasts for 15 to 20 years.
- There can be a high level of confidence in the predicted savings.

Heating system replacement

- Most systems can be supported through a loan that does not charge interest.
- New control systems and distribution system (if applicable) should be considered as part of a heating system and should also be improved.
- Distribution system upgrades typically last for the life of the building.
- Integrate, where possible, with onsite storage and renewable electricity generation to maximise benefits.



Installing renewable energy generation

- Supports carbon reduction.
- Can provide energy bill savings.
- Benefits begin immediately following installation and commissioning.
- Can support anticipated electrical, heat and transport needs.
- When coupled with energy storage, it can increase on-site availability.

The Scottish Government is aiming for all non-domestic buildings to meet zero emission heating requirements by 2045 and publicly-owned buildings to meet zero emission heating requirements by 2038.

HOW LOCAL ENERGY SCOTLAND CAN HELP

- ✔ **ADVICE** – We have a network of Local Development Officers across Scotland to provide regional advice and support, wherever you are.
- ✔ **RESOURCES** – Our free online resources, tools and good practice guides will help you along every step of your journey.
- ✔ **FUNDING** – we help you access the Scottish Government's Community and Renewable Energy Scheme (CARES) support and funding.

For more information, call Local Energy Scotland on **0808 808 2288**, email **info@localenergy.scot** or visit **localenergy.scot**

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CARES

Net Zero Scotland
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