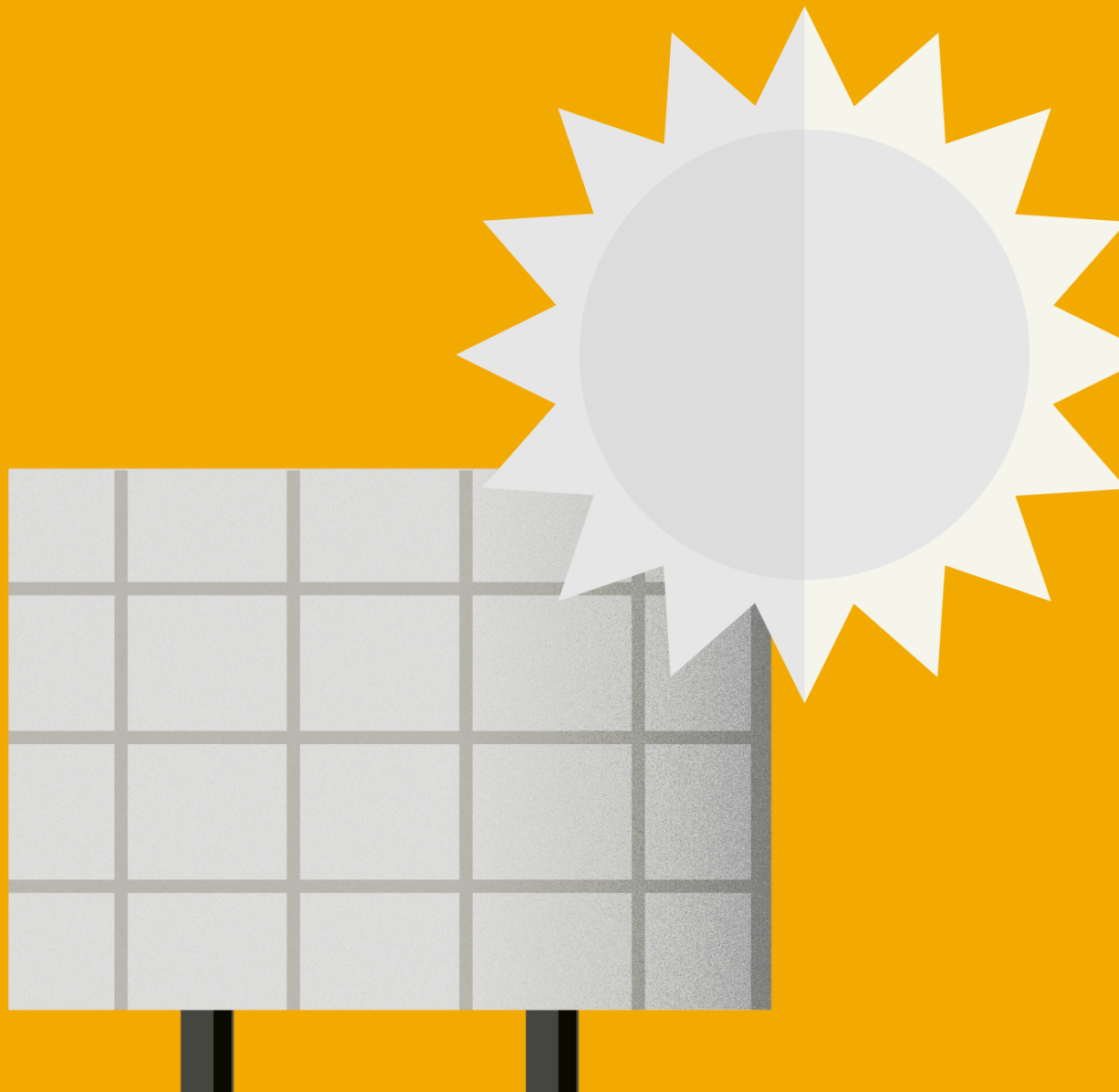
An introduction to solar energy for community organisations



Carbon Co-op

Version 1 - February 2026

This guide was supported by:

MANCHESTER CITY COUNCIL

Contents

Important!

This is general guidance and your circumstances will require specific advice.

This guide does not advise about your specific building, financial viability and particular products or suppliers. It is an introductory guide to allow you to pursue a potential solar project with more confidence.

To progress to feasibility, design and install stages you should always engage an appropriately qualified person (such as a certified installer - and possibly other professionals like surveyors etc depending on the scale of your project). They can give you advice that is appropriate for your circumstances.

The world of renewable technology, retrofit and support models are also fast changing, and this guide should be considered ‘Edition 1’ and subject to change. We welcome your feedback by emailing info@carbon.coop

Find out more

Useful links are marked by turquoise boxes
There’s a lot of great stuff out there already covering solar PV. We don’t intend to duplicate that here! We’ve included links to external sources of information from trusted and impartial organisations. You can find these by clicking on the link.

What is solar PV?

Solar photovoltaic (PV) panels generate electricity, made from layers of photo-electric material (usually silicon). In sunlight this generates a current, turning sunshine into power. Producing your own electricity on your community building is an appealing idea but there is a more to consider than simply 'plugging in' some panels.

Most systems are connected to the mains electricity grid, so that whatever energy you don't use is 'exported,' though variations including batteries are also possible.

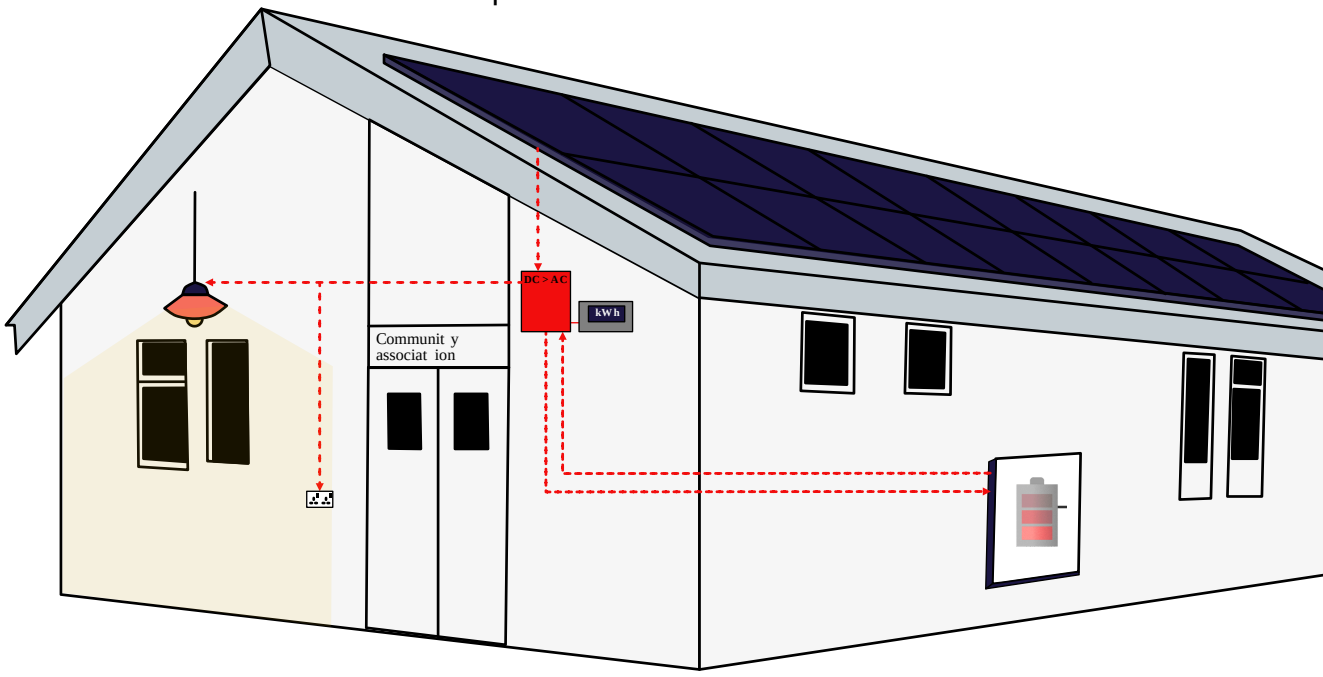
Wiring - from the panels to the inverter, which connects to the rest of the electrical system.

Inverters - safely convert the electricity from direct current (DC) into alternating current (AC). Some systems include multiple inverters - this can improve efficiency where you have a solar array over different parts of a roof, or where shading may affect some panels.

Metering - keep track of how much electricity you generate and send back into the grid.

Other monitoring systems - these may be added or offered by an installer. These can help monitor ongoing performance, and inform optimisation strategies.

Panels - most commonly on the roof, though may also be on land or over areas like car ports.



Battery - if this makes sense for your building.

Maximising solar PV benefits

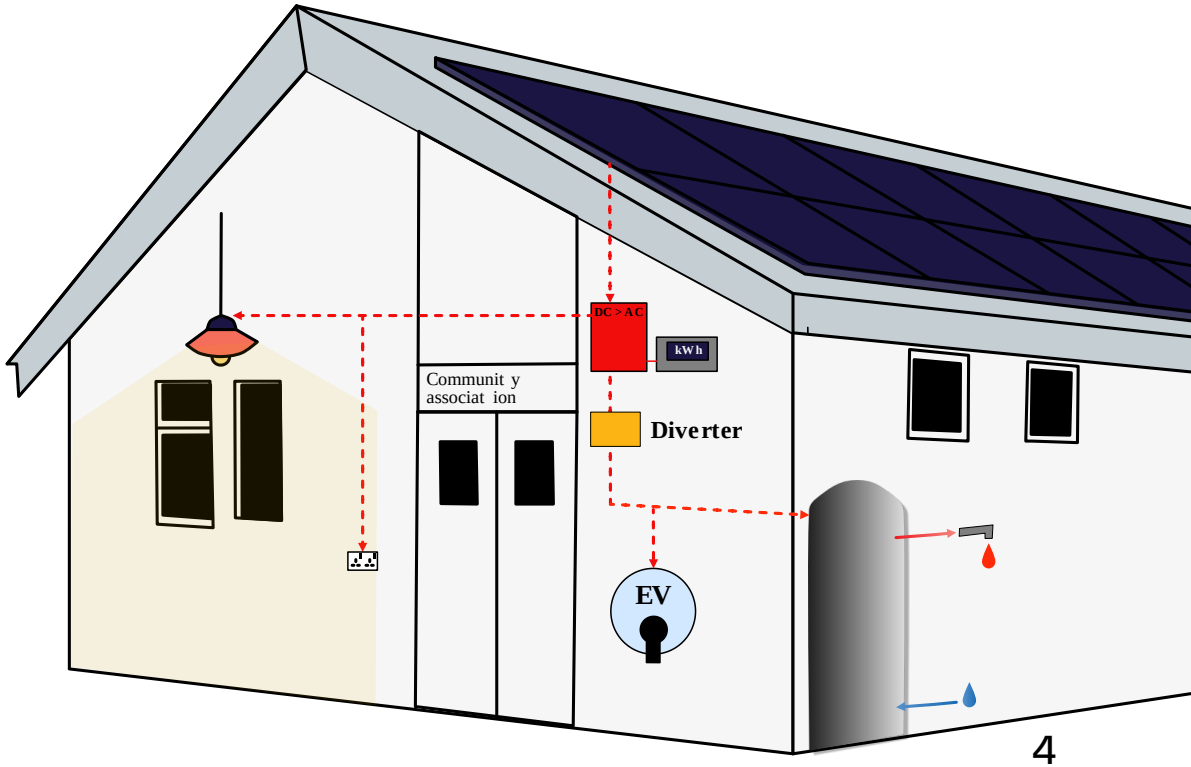
CSE's page on making the most of your panels is a good summary of key considerations: www.cse.org.uk/advice/making-the-most-of-your-solar-pv-panels/

Currently, the amount you can be paid for exporting electricity is often less than the amount you pay for buying it. This is why it's best to maximise how much you use on-site. This can be done through:

- **Moving electricity usage** (where possible) to periods where your panels are generating the most energy - for example by changing settings on immersion heaters, certain appliances and equipment, using timers.

- Using it for **electric vehicle charging, or running a heat pump.** However, it depends on the size of your solar system - in some cases your solar PV may only make a contribution to their energy needs. Your heat pump usage is also likely to be much higher in winter, when solar PV systems generate less energy.

- **Adding a diverter to the system** - this can allow you to divert electricity you don't use to a heat store (e.g. for hot water).



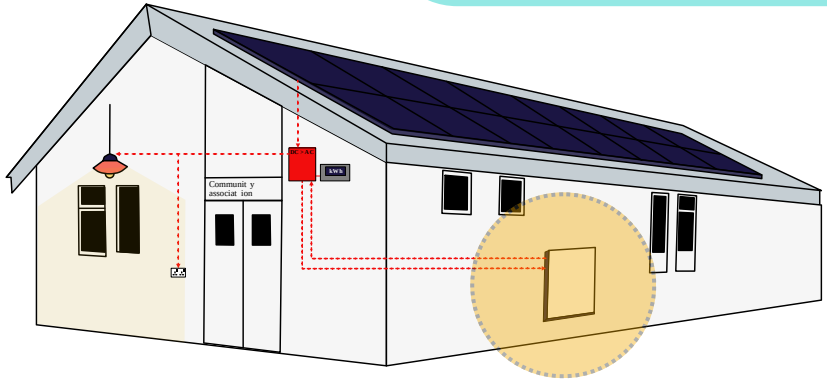
How solar can work with battery storage

CSE's battery storage page is a good summary of key considerations: www.cse.org.uk/advice/battery-storage

Batteries can be used alongside solar panels to store electricity to use later. This may be useful if the way you use your community building doesn't align well with times when the most electricity is generated. However, the decision to add batteries requires some careful weighing up of the costs and benefits:

- There are safety considerations with batteries due to fire risk. Ideally they will be located outside the building. Guidance around this is still emerging, and includes *PAS 63100:2024: Electrical installations. Protection against fire of battery energy storage systems for use in dwellings*. This is targeted at homes, but principles may also have applicability to similar sized systems on community buildings.

- The environmental impacts of battery production, transport and disposal can be considerable. The Centre for Sustainable Energy have a good summary of these issues. Note the potential negative impacts can be social too (related to extraction of natural resources and supply chain/labour conditions overseas).



- Your building can become a visible example and educational tool for local residents on sustainability and climate action.

- A battery may save on the amount of energy you need to import/buy from the grid. However, the payback from cost savings will depend on lots of variables.

You might see battery systems referred to with the acronym BESS. This stands for Battery Energy Storage System.

The Centre for Alternative Technology for more on the lifespan, carbon and environmental impact of solar panels: tinyurl.com/5bfpwjux

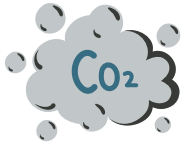
Ethical Consumer for information on forced labour in solar supply chains: www.ethicalconsumer.org/energy/shopping-guide/ethical-solar-panels

Why consider solar?

The benefits

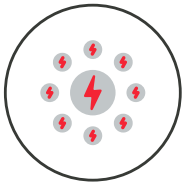
Generating your own electricity can reduce the amount you need to buy from a supplier. This is because you'll generate some energy and use it yourself. But it depends how much you're able to take advantage of energy as it's generated, or if you divert some to a heat store or battery. Money you save on electricity could help you re-invest in your building, programmes and activities.

You might find a solar and/or battery system gives you a sense of security against future price hikes, which can be affected by many things worldwide.



Electricity produced from solar has far fewer carbon emissions, which is essential as we move our communities away from burning fossil fuels - one of the biggest contributors to destructive climate change.

Solar projects are a great talking point! Many community organisations use energy projects like this to engage with their communities around energy, health & wellbeing and climate justice issues. **A community solar project can be the catalyst for something much bigger.**



In generating energy you will be contributing to a cleaner energy system. While big renewable energy projects are vital, more decentralised energy (lots of energy production by smaller producers) plays a role too.

This all means we're shifting from being passive consumers of energy (drawing it from a plug and paying our bill), to being more active participants in the energy system - generating energy, 'selling' it back to the grid, shifting our energy use to different times and sometimes getting paid for that too.

Excess energy production is exported to the grid. There are payments for this, but the amounts can be variable. If you have a battery you will still export excess electricity, but this is likely to be less than a straight PV system.

Why consider solar?

Context matters

How might solar align with your organisational priorities?

Before diving in, it's worth mapping out your priorities at a number of scales. Clarifying these can help you determine whether this is the right project for you to pursue at present, or whether you want to prioritise other building improvements first.

Being clear on priorities helps because:

- You can agree with colleagues, boards and your users why you are doing this and what you hope to achieve.
- You can communicate to the people who will help you complete the project (installers, other building professionals), so they are clear on what you are trying to achieve.
- It helps you make key decisions on things like linked building improvements and budgeting when these come up.

When considering scale, your priorities at a building level are the obvious one. But the spaces around your building may impact on a potential solar project. For example:

- Are they spaces that could host panels or other infrastructure?
- Might plans for other structures, extensions or planting cast shade on panels or affect access?

Beyond your building, how might your project strengthen your community links, such as through using a community energy model or partnership, or educational projects?

A good question to ask is: "what is it worth to us?" This encourages thinking beyond simple financial payback, to all of the other benefits that may be important to your organisation.

Another good question to ask is: "what other repairs and maintenance work are we planning?" If you're likely to do roof works (or other works that require scaffolding), planning solar alongside this may deliver cost and disruption savings.

Why consider solar?

Context matters

Would you benefit from a whole building energy assessment?

There are different tools to help you plan improvements to your community building, but they can vary a lot in the level of detail and accuracy.

- At the most basic level online tools or a non-domestic Energy Performance Certificate (EPC) can give you a starting point, but the recommendations will be very general. The energy models that sit beneath these tools are often based on limited data inputs and a number of assumptions, so they will lack detail and accuracy.

- A more detailed assessment will cover lots more, including things like condition and repairs, and may collect much more information from you about how you heat and use your building, and your current energy usage. Taking up a more holistic assessment like this can allow you to see where solar panels might fit alongside other parts of building maintenance and upgrades.

Above all else, it's hard to understate the importance of condition and repairs (i.e. general building maintenance). If your building is in good condition, any improvement you make (small or big) will be better for it.

Some funding programmes for community buildings can help with sourcing and funding an energy assessment. But we recommend completing the priorities exercise first (see previous page) so that you're clear on what you want and need from this assessment - so that it can be of maximum use to your organisational strategy and planning. It's also worth doing your research, as assessments can vary considerably in their scope and depth.

An example of funding and support with energy audits is the Energy Resilience Fund www.sibgroup.org.uk/fund/energy-resilience-fund/

Why consider solar?

Case study

‘The Fuse’ community and events building, Partington

The Fuse is a multi-purpose venue, used for conferences, events, weddings etc. It is managed by ROC (Redeeming our Communities), a Manchester-based charity that supports community work nationwide. They moved to the site in 2014.

The FUSE partnered with Community Energy Group ‘Greater Manchester Community Renewables’ (GMCR) to install solar panels across the roof of their three buildings. GMCR lease the roof space from FUSE and install and manage the solar panels, selling electricity at a discounted rate to the centre.

GMCR raised funds for the solar through a community share offer. Shareholders tend to receive a small return on their investment (>5%) and any surplus funds go into a community fund for local eco-friendly projects.

About the solar system

- 50 kWp (kilowatts peak - this is the peak power that a system is expected to generate at peak performance)
- Panels are mounted on frames across each of the three roof areas.
- Switched on in February 2017

Based on data from January 2026:

- Energy generated to date 280 MWh
- Average annual energy generation 31 MWh
- CO2 emissions saved 54,000 kg CO2e.

Live data on the GMCR sites, including The Fuse, is available by following the links at: www.gmcr.org.uk/our-sites

Why consider solar?

Case study

422 Community Hub, Longsight

422 is a community hub and a project of Manchester Vineyard, a local church. An older building, 422 had previously been a youth centre (but over a decade ago), and back in 1850 was one of England's first free public libraries.

The organisation brought it back into use with a long lease from Manchester City Council. It has undergone wider renovation works - you can read about their inspiring story here:

422manchester.org

The 422 Hub hosts a community cafe, a variety of free programmes and spaces to hire for like-minded organisations that offer opportunities, boost well-being and tackle poverty.

The system was a direct purchase, using grants from Manchester City Council and donations.

About the solar system

- 92 panels are mounted on a pitched roof
- 23 kWh battery
- Switched on in March 2024

Based on data from March 2024 onwards:

- Energy generated to date 63 MWh
- Average annual energy generation 31 MWh (31,000 kWh)
- Export back to the grid to date 26 MWh
- CO2 emissions saved 12,346 Kg CO2
- Significant savings on electricity in summer and gas bill is reduced by 97% (through switching to heat pumps).

Key considerations

Your building

If you've already gone through a Community Asset Transfer (where land and buildings are transferred from public ownership to be owned or managed by community organisations), or taken on a long repairing lease on a building, you've likely had a condition survey at some point. Having an up-to-date picture of condition, alongside any energy assessments or audits, is a solid place to start.

Before you get solar panels, some essential checks are needed. This may lead to repairs or upgrades before panels can be fitted. For solar, this usually relates to the electrics and roof.

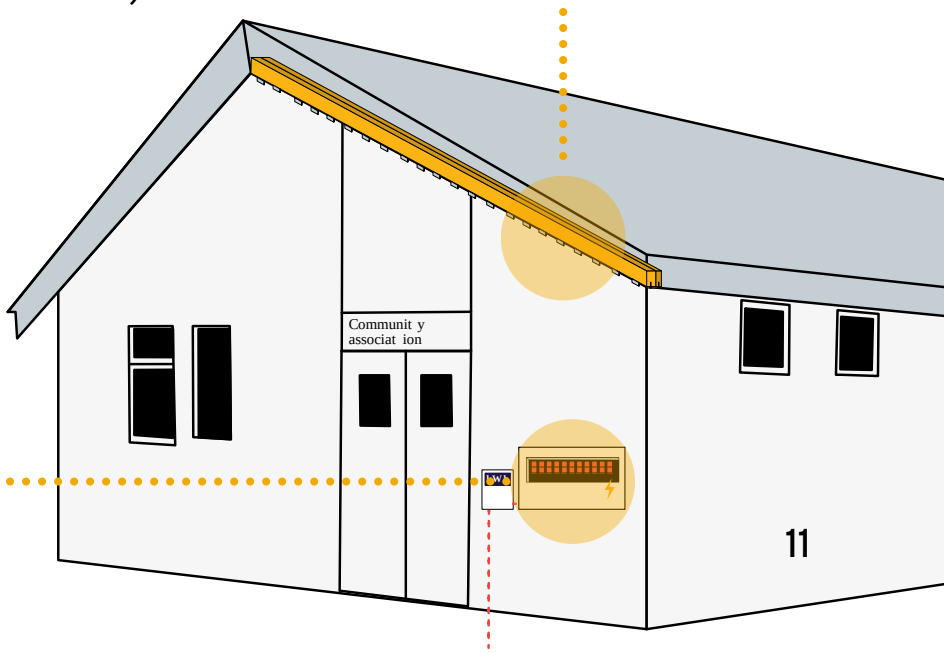
Electrical systems

The electrical board (which a lot of us are familiar with calling a 'fusebox') is at the heart of everything electrical in your building. Pretty much everything else connects to this, so it's important to ensure it has enough capacity and is up to current standards.

Roof structure and covering

The roof structure must be inspected to check it's capable of supporting the PV system. In some cases additional support will be needed. The roof covering may also need repairs.

A MCS Contractor must ensure that a competent professional, experienced in solar PV systems, ensures the building is suitable (and that works will not compromise compliance with Building Regulations).



Key considerations

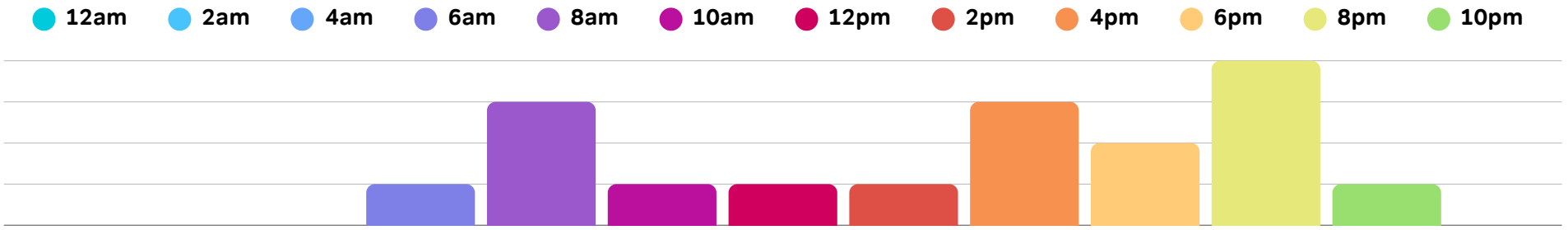
How you use the building

The amount of direct benefit you'll get from solar panels depends on when and how you use energy throughout the day. If your building is used during the daytime, then you will likely make use of the electricity produced for lighting, kitchens, plug loads (computers etc), mechanical ventilation and perhaps hot water and heating.

If your building is occupied sporadically, or perhaps not at all on certain days of the week, then you will either export more of the electricity to the grid, or store it in a battery. All of these things factor into the cost-benefit analysis, so it's important to think about them before diving in.

Good questions to ask include:

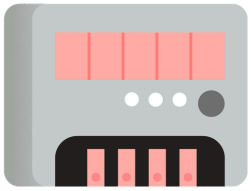
- When is energy currently used in the building? How is this taken into account?
- Is there an immersion tank for hot water? If so, diverting excess solar power to heat the water will often make a lot more financial sense than exporting to the grid.
- Are there large power draws such as an electric vehicle, heat pump or electric heating/air conditioning where the usage pattern could be modified to use power when it's available?



In this example, the building is used for a school breakfast and after-school clubs, and then hosts other groups in an evening. Their highest occupancy doesn't align that well with the hours of generation for a solar system. For many community buildings occupancy can be highly variable. However, occupancy is only part of the picture...

Key considerations

Understanding your energy use



As well as understanding how and when you're using the building, you'll want to have an idea of your current electricity use.

To assess the potential benefit from a solar system, more detailed data is better.

Detailed data (e.g. half hourly) is especially useful if you're looking at combining solar with a battery, where you might shift your usage to other times of the day.

It's important to consider the bigger picture here too. In most buildings the highest energy use will be from heating, but this may not be electrically powered (yet). This is why considering this technology as part of a holistic, whole building approach - is important.

If you don't currently have a good steer on how much energy you use, can you improve the metering? For example, by having smart meters fitted.

Smart meter installation is free, but it can take time, so it is worth arranging as soon as possible.

You will also need a smart meter to be able to access the Smart Export Guarantee or favourable export tariffs, once solar is installed. The Smart Export Guarantee is a government backed initiative that requires some energy suppliers to pay small-scale generators for low-carbon electricity exported back to the grid.

Requesting a smart meter installation should take less than 5 minutes and is done via the Smart Energy GB site: www.smartenergygb.org

If you go on to install solar but do not have a smart meter, you will have:

- a solar generation meter - this tells you how much the system has generated.
- an export meter - this tells you how much has been exported back to the grid.

However, these are manual meters (i.e. you need to read them) and they will not allow you to access most tariffs (which require automated and very regular readings).

It's in your best interests to get smart meters fitted.

Planning a solar PV project

Feasibility

A feasibility study should provide you with all the information you need to determine if a project is viable, taking you through the various options that are most suitable to your specific requirements and circumstances. There are different routes:

- Installers (MCS) can do technical system feasibility studies. The scope of these will usually be quite tightly defined, as per the MCS guidelines.

- However, other types of feasibility study can be commissioned. These may be broader and bigger in scope. For example, also factoring in different delivery and funding models, and community engagement aspects. This may be particularly suitable if your building and/or management arrangements are more complex, and/or you have other plans afoot. This type of study might be led by a consultancy, architect, engineer or community energy organisation.

To find an installer - MCS technical expert:

mcscertified.com/find-an-installer

To generate a starting estimate of the solar potential of your community building it's worth using a free and easy-to-use solar and battery online tools. For example this one from the Centre for Sustainable Energy includes some non-domestic buildings too.

Solar Wizard: Building's solar potential: solarwizard.org.uk

Considering solar plus battery storage?
Your installer will recommend the ideal battery size and model by balancing your building's space, solar capacity, and energy usage against your future power needs and specific utility tariffs.

Batteries make the most sense when used with a 'Time of Use' or 'Dynamic' energy tariff. This allows you to store energy from the grid when power is cheap to cover more expensive periods.

- Installing your battery when you install solar will be cheaper than doing it separately.

- If you do plan to add storage later, ask your installer for hybrid inverter options.

- Consider how your battery will be controlled. Can it be automated to make the most of Time of Use tariffs?

Planning a solar PV project

From feasibility to installation

1. **Use solar online tools to get an approximate idea of the energy potential** that is possible for your building.
2. **Get written quotes** from a few installers for solar (and battery systems, where applicable). Make sure the installers you look at are MCS certified.
3. **Ask for examples** of their work and what **warranties** they offer.
4. **Look at any permissions you may need and connections to the grid** (MSC installers should help with this).
5. **Request smart meters** if you don't already have them, as you'll need these to access appropriate tariffs.
6. **Decide on the funding model** most appropriate to your organisation.
7. **Agree contracts** with an installer and book an installation date.
8. To install solar panels, **installers will need to access your roof safely.** This will require scaffolding - how much of this is required (and at what cost) will depend on your building.
9. **The installer will talk you through how it all works** and you can start using the system.
10. **Maintenance and servicing** will need to happen at specific intervals. This can be carried out by various solar companies on your behalf.

In addition to MCS, there are a number of trade body regulation schemes whose badges you'll see on installer websites, to reassure consumers that there is a body you can go to if you're unhappy with the standard of work.

For solar systems this includes:

- NICEIC (electrical): niceic.com
- RECC (Renewable Energy Consumer Code): recc.org.uk

Planning a solar PV project

Delivery models

Direct purchase
You pay in full for the installation with existing funds, apply for grants or low-cost loans to cover the costs.

Community energy organisation
Become a community energy organisation and utilise a community share offer model to raise the capital required for the project.

Community Energy London have information on this pathway: www.communityenergy.london

Community energy partnership
You partner with a community energy group who organise, fund and maintain the solar for you. They lease the roof space off you for the lifespan of the solar panels 25-30yrs. They then sell you back the electricity at a discount, while any extra profit is given out in grants via a community energy fund. We've highlighted some local community energy groups here.

Commercial leasing
An energy partner pays for the system and you lease the solar and battery system back off them.

There are currently several Community Energy Groups in the region that you could partner with. Some have a specific geographical focus, others operate Greater Manchester wide.

Carbon Co-op is an energy services and advocacy co-operative, supporting a number of community organisations with feasibility projects, and working on the development of the community energy sector in Greater Manchester.
www.carbon.coop

CORE work with communities across Greater Manchester through education, outreach, and community owned renewable energy solutions.
www.core-projects.org

Greater Manchester Community Renewables (GMCR) is a community benefit society. They have raised funds to install solar panels on 10 schools and a community centre, totally 1MW of capacity.
www.gmcr.org.uk

Middleton Community Energy (Middleton Co-operating) is a local energy group working with local schools, community owned buildings, and grassroots organisations to explore what renewable energy might look like for them.
middleton.coop/middleton-community-energy

Oldham Community Power was created to benefit the people of Oldham borough by installing community-owned renewable energy into community and council owned buildings:
oldhamcommunitypower.org.uk

Planning a solar PV project

Potential funders

Depending on your organisation and building, there are various sources of financial assistance for solar and battery systems.

Community Energy England have a list of ongoing and time-limited funding from a wide range of sources: communityenergyengland.org/funding-opportunities

Charities and social enterprises

The Energy Resilience Fund (ERF) provides a blended funding package of loan (60%) and grant (40%): www.sibgroup.org.uk/fund/energy-resilience-fund

The National Lottery Environment Grant: www.tnlcommunityfund.org.uk/funding

The VCSE funding list: vcse.uk/resources/funding-and-income

Sporting groups

Sports England green movement grants to address climate change, including renewable energy: www.sportengland.org/news-and-inspiration/new-fund-create-worlds-greenest-sports-industry

Bodies covering particular sports may also be able to provide direction on funding. For example:

www.englandrugby.com/run/club-management/club-support-tools/funding

footballfoundation.org.uk/looking-for-funding

www.ecb.co.uk/play/club-support/club-funding/county-grant-fund

Community energy

The Great British Energy Community Fund is a government programme which specifically funds community energy projects to do feasibility and development: communityenergyengland.org/great-british-energy-community-fund/

Heritage buildings

- **The Architectural Heritage Fund: ahfund.org.uk**
- **The Energy Resilience Fund (see above)**
- **National Lottery Heritage Fund: www.heritagefund.org.uk/funding**
- **Historic England: historicengland.org.uk/advice/grants**

Permissions

Securing permissions and consents can add time and costs to your project so it's important to do your research and get appropriate professional advice. While sometimes these represent extra steps, solar PV systems are now very common and there is plenty of help out there to navigate them.

Ownership considerations

If you hold a lease for your building then you will need to get permission from the landlord, freeholder or management company. Check the terms of your lease to understand restrictions, permissions or things like 'reinstatement clauses.' If you've taken on a building from the council, you will usually need to engage with the Estates team, but there may be others they need to consult with.

Grid connections

Because the majority of solar systems are grid connected, your installer will need to notify your network operator (such as SP Electricity North West). This is because they need to check the network can support the connection, and if they will need to reinforce it. Depending on the size of the system, this will either be 'notification' or 'permission.' A MCS installer can help you navigate this.

This guide from SP Energy Networks, while aimed at community energy group models in particular, has some useful information on grid connections and other steps: www.spenergynetworks.co.uk

Planning

Fitting solar panels to a non-domestic building is generally classed as 'permitted development' (i.e. doesn't require full Planning Permission). However, there are certain limits, and exceptions. For example, if it's a Listed Building, Scheduled Monument, in a Conservation Area or near a designated wildlife site. You should always check the Planning guidance from your particular Local Planning Authority.

Planning Portal - solar on non-domestic buildings: www.planningportal.co.uk/permission/common-projects/solar-panels-non-domestic/planning-permission

Historic and Listed buildings

It was once a widely held view that you can't do anything to Listed Buildings or places of worship, but this is not true! There are lots of great examples of how historic and Listed Buildings have incorporated technologies like solar panels. However, you will need specific consents to ensure this is sensitively done and doesn't compromise other aspects of a building or it's designated status. Planning Permission and Listed Building Consents will likely add additional time and costs to your project.

Historic England: consents and permissions: htinyurl.com/yvkyha4a

Other useful links

North West Net Zero Hub - support for community organisations: www.nwnetzerohub.org.uk/community-energy

Historic England - installing solar panels on historic buildings: historicengland.org.uk/advice/technical-advice/building-services-engineering/installing-photovoltaics/

Centre For Sustainable Energy - Improving community buildings: www.cse.org.uk/my-community/improving-community-buildings/#resources

Solar Wizard - considerations for larger scale PV: solarwizard.org.uk/about-rooftop-pv/considerations-for-larger-scale-pv

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An introductory guide to battery storage for Village Halls by Dr Freya Wise (Jan 2026): www.cumbriaaction.org.uk/what-we-do/community-buildings

Carbon Co-op

www.carbon.coop

This guide was made by Carbon Co-op.
This version: February 2026

We're a Community Benefit Society (not for profit) based in Manchester. We run projects and services that support people and communities around energy use and climate change.

The first version of this guide was developed in 2026, supported by a project with Manchester City Council.

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