SP Energy Networks
community support

Short guide to solar PV installation

A high-level guide to rooftop and ground-mounted solar PV systems for community energy groups.

SP Energy Networks

About this guide

About SP Energy Networks

SP Energy Networks is a UK Transmission and Distribution Network Operator, responsible for delivering electricity to homes and businesses across Central and Southern Scotland, North and Mid Wales, Merseyside, Cheshire and North Shropshire. It operates three regulated network businesses – SP Transmission plc, SP Distribution plc and SP Manweb plc. As the only network operator serving all three UK governments, SPEN plays a key role in supporting the country's transition to net zero, with targets set for 2045 in Scotland and 2050 in England and Wales.

About Regen

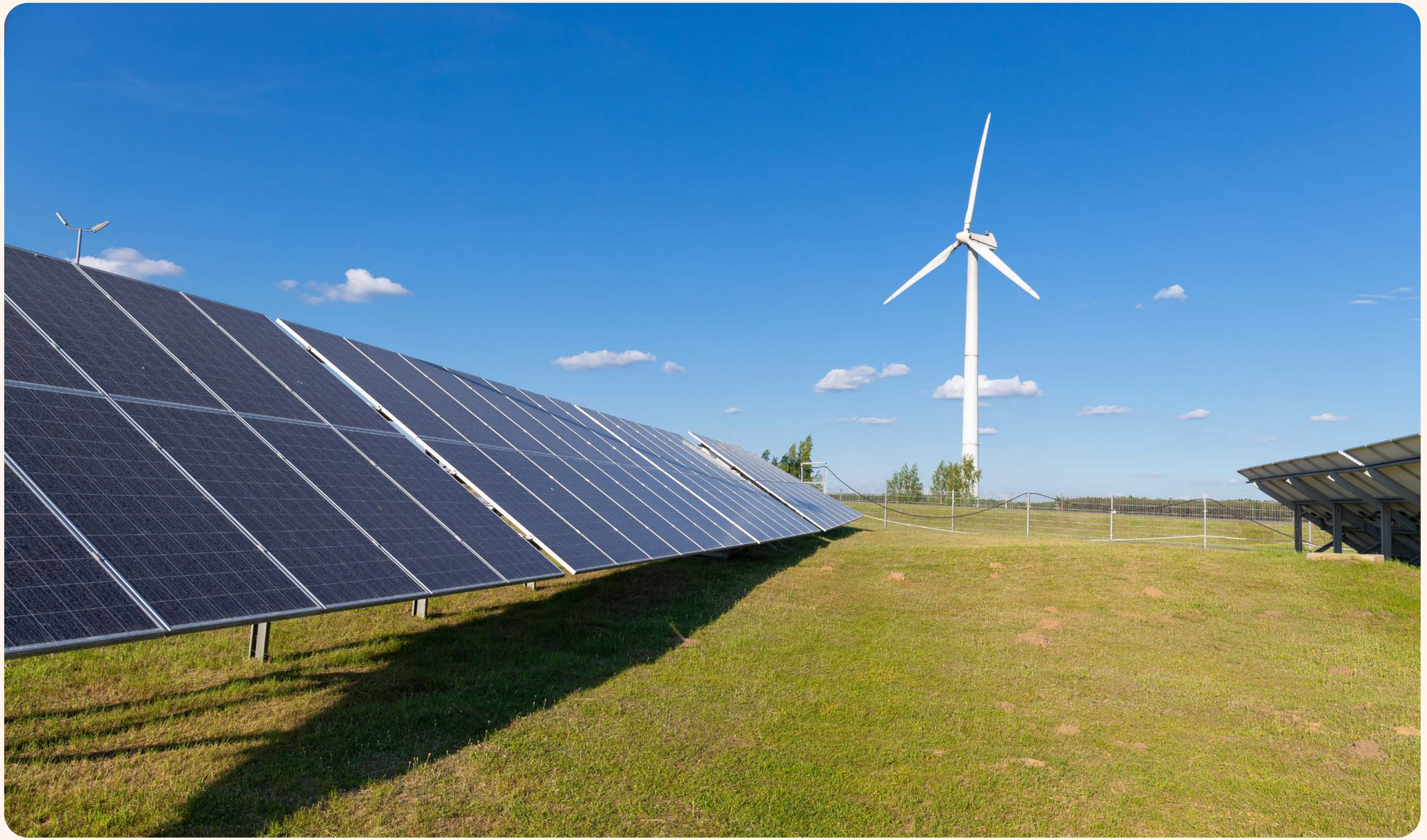
Regen provides independent, evidence-led insight and advice in support of our mission to transform the UK's energy system for a net zero future. We focus on analysing the systemic challenges of decarbonising power, heat and transport. We know that a transformation of this scale will require engaging the whole of society in a just transition.

About Community Energy Scotland

Community Energy Scotland is an independent Scottish charity and membership organisation. They work with communities and partners to support, promote and represent the community energy sector. They do this by providing technical assistance, knowledge sharing and championing the role of community-led action in the transition to a low-carbon future.

Acknowledgements

We would like to express our sincere appreciation to all those who contributed to the successful completion of this report. This work benefited greatly from the support and assistance of Jim Lee from Energy4All, whose extensive experience in delivering community solar projects provided invaluable insights.



Purpose of this guide

Navigating the process of delivering a solar PV project can seem challenging, whether you're planning installations on local rooftops or something ground-mounted.

This guide is designed to simplify the journey for community energy groups, outlining the key steps from finding a suitable site to connecting your system to the grid. It covers topics including:

- Site identification
- Finding an end user
- Securing sites
- Conducting feasibility studies
- Navigating planning permissions
- Grid connections
- Raising finance
- Construction and installation
- Operations and maintenance
- Planning for end-of-life.

The focus is on actionable advice and resources to support community-led projects in today's changing energy landscape.

Who is this guide for?

This guide is aimed at community energy groups across the UK who are interested in developing solar PV projects. Whether you're exploring opportunities or already progressing with project development, this guide provides a useful foundation for informed planning and effective delivery.

Key practical steps involved in installing solar PV (rooftop and ground-mounted) are detailed throughout. While presented in a logical sequence, every project is different, and steps may occur in a different order or run in parallel. Whatever the case, each step is critical to project success. We also assume that your group has already established a vision for the project, including that solar PV is the best option for your goal, and how you will engage the local community throughout.

Why solar PV?

Solar PV has become a well-established option for generating clean electricity. Because it can be installed on either roofs or land, solar PV makes for a versatile option for communities seeking to develop their own energy projects.

Since 2010, solar PV has also become much cheaper and more efficient as a technology, making it an affordable yet profitable prospect.

What is solar photovoltaics (PV)?

Solar panels, or solar PV, capture the sun's energy and convert it into electricity. They can be installed in various locations, such as on roofs (known as rooftop solar), on the ground (known as ground-mounted), or on canopy structures over car parks (known as solar canopies or carport solar).

Acronyms used in text

As you navigate through different sections of this guide, we have compiled a comprehensive list of all acronyms used throughout. Many of these terms are explained in greater detail in our glossary section.

Acronym	Stands for
CARES	Community and Renewable Energy Scheme
COSS	Community Ownership Support Service
DNO	Distribution Network Operator
EST	Energy Saving Trust
EV	Electric vehicle
kW	Kilowatt
kWp	Kilowatt peak
MCS	Microgeneration Certification Scheme
MOU	Memorandum of Understanding
PDR	Permitted Development Rights
PPA	Power Purchase Agreement
PV	Photovoltaic
SPEN	Scottish Power Energy Networks
SSSI	Site of Special Scientific Interest
UNESCO	United Nations Educational, Scientific and Cultural Organisation

Contents

Steps to installing solar PV 07

Step 1: Find your site and electricity user 07

Step 2: Set up a legal entity 09

Step 3: Secure the site(s) 10

Step 4: Feasibility study. 11

Step 5: Planning permissions 12

Step 6: Grid connection. 13

Step 7: Raising finance 14

Step 8: Build management and installation. 15

Step 9: Operations and maintenance. 16

Step 10: End-of-life planning. 17

Glossary 18

Additional resources. 19

SP Energy Networks

The checklist

Before you start

- Establish a clear project vision with community input and confirm solar PV is the right choice (this is likely to include engagement with your community alongside some preliminary technical and/or financial feasibility studies of your local area).

Step 1: Find your site and electricity user

- Identify suitable site (orientation, shading, access)
- Make contact with potential property owner/electricity user. If interested, build a relationship with them
- Complete pre-feasibility check (estimate system size, installation costs, electricity generation, on-site usage, and export potential)

Step 2: Set up a legal entity

- Choose an appropriate legal structure for your community organisation and the partnership with your end user

Step 3: Secure the site(s)

- Negotiate terms with property/roof owner
- Sign legal agreement (lease or purchase) for long-term access

Step 4: Feasibility study

- Select a qualified contractor/consultant
- Complete a comprehensive feasibility study confirming technical and financial viability

Step 5: Planning permissions

- Check Permitted Development Rights (PDR) eligibility
- Obtain planning permission or PDR confirmation

Step 6: Grid connection

- Engage with the Distribution Network Operator (DNO) and submit a connection application

Step 7: Raising finance

- Identify funding mix (equity, debt, grants)
- Secure all necessary funding agreements

Step 8: Raising finance

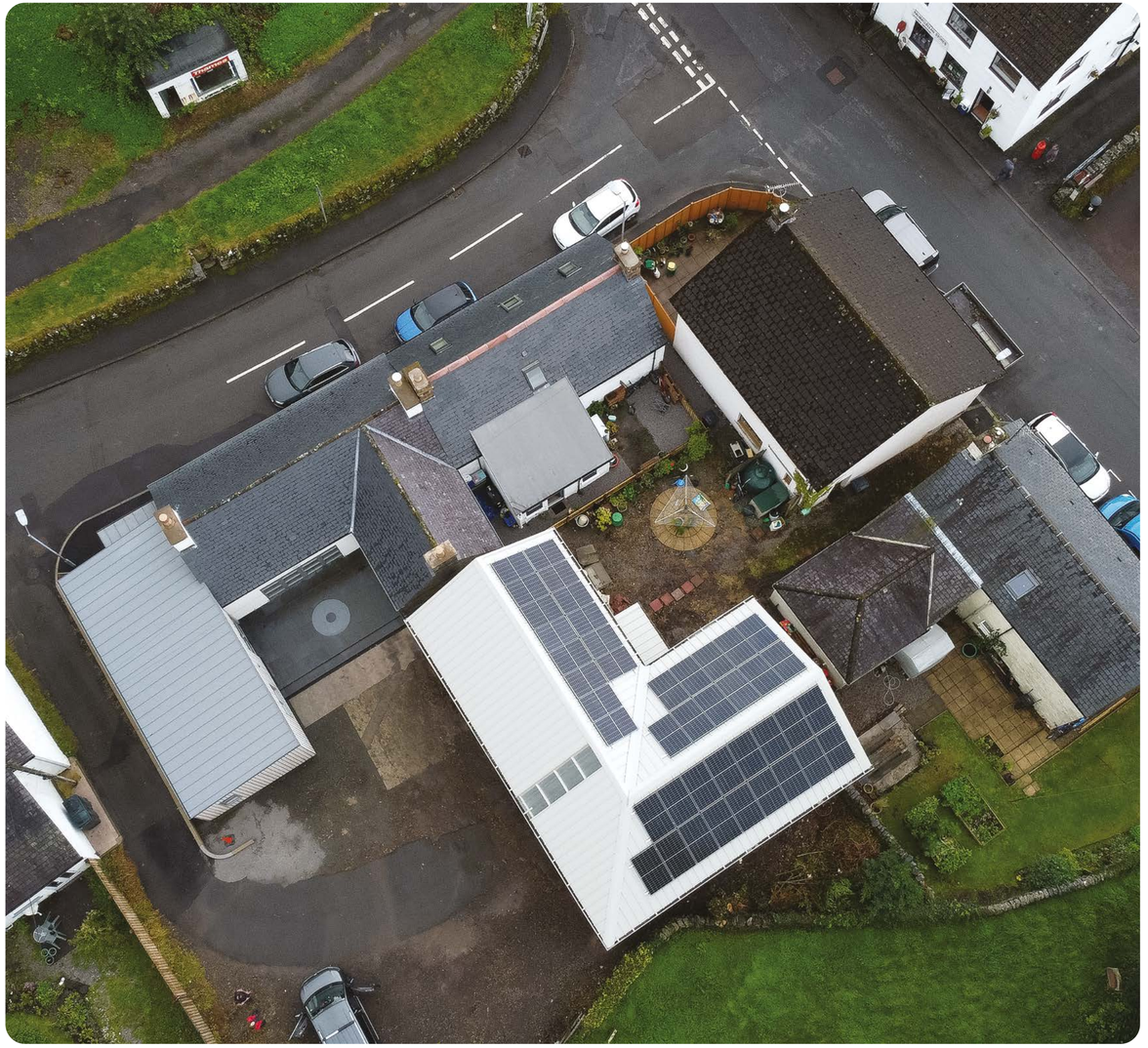
- Select certified contractors using competitive tenders
- Complete installation with all certifications and warranties

Step 9: Operations and maintenance

- Set up monitoring and metering systems
- Establish payment processes and maintenance contracts

Step 10: Operations and maintenance

- Plan decommissioning costs and timeline
- Check lease and planning permission durations



SP Energy Networks

Steps to installing solar PV

Step 1: Find your site and electricity user

Already have a site and end user in mind? You might still want to review this section before Step 2.

The importance of a local user

Finding a local electricity user may be key to making your community solar project financially viable. While you can export to the grid, payments for your energy are typically quite low, which means you'll usually earn more by selling to a local user of that electricity. Most direct sales to local users are via a PPA or similar, which sets the price per unit of electricity, the length of the deal, the payment terms and the responsibilities of those listed in the contract.

Steps to finding your site and energy user

1. Identify potential sites
   - Survey your local area for suitable locations. Use satellite imagery (e.g. Google Maps or aerial photos).
   - Talk to key local people (e.g. local businesses, industry or the local authority) who might know of, or own, high-potential sites like roof space or vacant land.

When assessing suitability, consider the following (see Table 1):

a. Orientation and shading
South-facing roofs or open areas will receive the most sunlight throughout the day. Avoid sites with shading (e.g. from trees/ neighbouring buildings), especially in winter when the sun is lower.

b. Access
Safe and easy access is needed to install and maintain the solar panels. Most sites are straightforward, but larger/more remote sites may need special permissions or temporary access routes. Limited roof access can also add installation and maintenance costs.

c. Proximity and wiring
Panels should be close to the building's electrical system, as longer or complex wiring increases costs

d. Grid connection (see also Step 6)
Most solar PV projects will need to connect to the electricity grid. It's a good idea to speak to your local network operator early, as they can explain the application process and give an estimate of connection costs. At SP Energy Networks, we've created a step-by-step connections guide for community energy groups.

e. Planning considerations (see also Step 5)
Consider a few questions, such as:

- Do you need planning permission?
- Is the building listed, in a conservation area, a protected site (e.g. National Landscape), or near an airport?
- Would the system be visible or raise local concerns?
- Are there planned or competing future uses for the site?

Check your local authority's website to begin answering these questions. Spotting issues early doesn't mean your project won't work, but will help you know who to speak with. Early discussions with planning officers and the local community can also flag potential concerns.

Table 1. Ideal site characteristics for solar PV

Technology	Ideal characteristics
Rooftop solar	• South-facing (or potentially east-west facing) with little shade • Roof angle around 30° - 40° (flat roofs can use angled frames) • Strong and safe structure (survey may be needed for older roofs) • Enough space: Roughly 8m² per kWp for sloped roofs (assuming that a typical panel is 1.1m x 1.7m and weighs about 21kg). Flat roofs need more space to avoid panels shading each other. See BRE's guidance for more.
Ground-mounted systems	• South-facing (or potentially east-west facing) with little shade • On unused or underused land near where the electricity will be used (e.g. vacant, derelict or brownfield sites) • Ground conditions suitable for foundations
Solar canopy	• Distribution Network Operator

SP Energy Networks

Steps to installing solar PV

Step 1: Find your site and electricity user (cont.)

2. Finding potential partners
- Once you've found potential sites, contact the property owners or the on-site electricity users.

3. Start conversations early
- Once you've found potential sites, contact the property owners or the on-site electricity users.

4. Pre-feasibility check

Once an end user has agreed in principle, carry out early analysis to see if the site is suitable. Consider:

- Size: estimate how many panels could reasonably fit based on space/orientation
- Cost: estimate the investment needed to buy and install the panels
- Energy and income: estimate how much electricity could be generated, used on-site and exported.

Many suppliers can provide a preliminary estimate if you give them the location, approximate system size (kW) and installation type (rooftop or ground-mounted). Using MCS-certified installers is recommended to ensure quality and industry standards.

Use tools like Energy Saving Trust's Solar Calculator to get a rough idea of how the system might perform, including how much electricity could be used on-site or exported.

You'll also need to compare costs with potential income to see if the project makes financial sense. At this stage, a simple balance sheet can help decide whether the project is viable, needs redesigning or should be stopped altogether.

Costs may include:

- Feasibility studies, community consultation, project development
- Architects' drawings, structural surveys, planning
- Operational costs (ground rent, insurance)
- Equipment and installation, roof work
- Grid connection and commissioning
- Ongoing maintenance and replacement of parts
- Community benefit payments (if applicable)
- Repayment of loans or returns to investors.

Income may include:

- Selling the electricity to the end user (usually the main source of income for community energy projects)
- Payments for surplus electricity exported to the grid (typically paid by an energy supplier, and lower return than selling to an end user).

Tips on finding potential end users

Do your research
- Target organisations that use a steady amount of electricity (especially during the day) and have suitable roof or land space for solar panels.
- Focus on local councils, research institutes, small businesses or non-profits with visible sustainability goals.

Leverage your personal networks
- Informal conversations and word-of-mouth are often more effective than cold emails. Talk to people locally, you never know who's looking for a solution like yours.

Use media and publicity to spark interest
- Local press and social media can help spread the word – e.g. Energy4All's Dundee Solar Co-op gained early interest through a well-timed article in The Courier, leading to conversations with potential electricity users.

Example considerations/ questions to ask a potential end user

End user interest
- Has your organisation tried to install solar panels before?
- If so, is there any feasibility work that could be built on?
- How much does the site currently pay for electricity?

Legal feasibility
- Are there any limits on how the property can be used or developed? For example, who owns the building, and are you the main decision maker?
- Are you already committed to energy contracts that would prevent this project?

Planning considerations
- Are there any known planning restrictions for this site (e.g. conservation areas, listed buildings)?
- For rooftops: Are there any structural concerns or planned roof work?
- For ground-mounted: Are there any competing uses for this land planned or considered?

SP Energy Networks

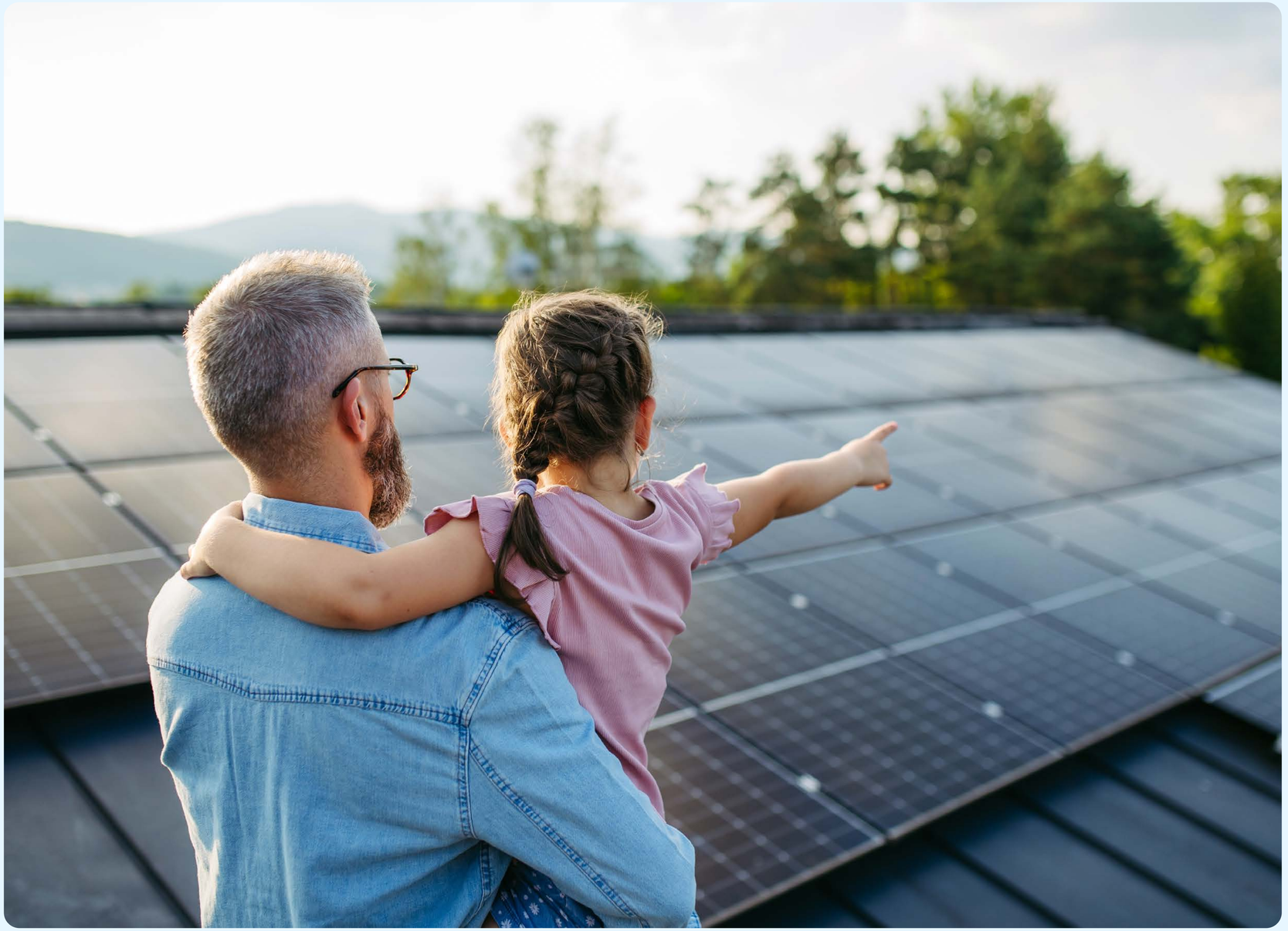
Step 2:
Set up a legal entity

Your project will need a formal legal entity to apply for funding, open a bank account, sign contracts (e.g. for a site) and manage finances. Even if your group already exists, check whether it's suitable for this project. For example, the type of legal entity you choose can affect funding options, so review finance routes early.

For guidance on choosing and registering an appropriate structure, see:

- Across the UK: Community Energy England's guide
- Scotland: Community Ownership Support Service (COSS) and Local Energy Scotland's guidance
- Wales: Welsh Government's module on Establishing a Community Group.

It's strongly recommended that you seek legal advice from a solicitor experienced in this type of project before finalising any arrangements.



SP Energy Networks

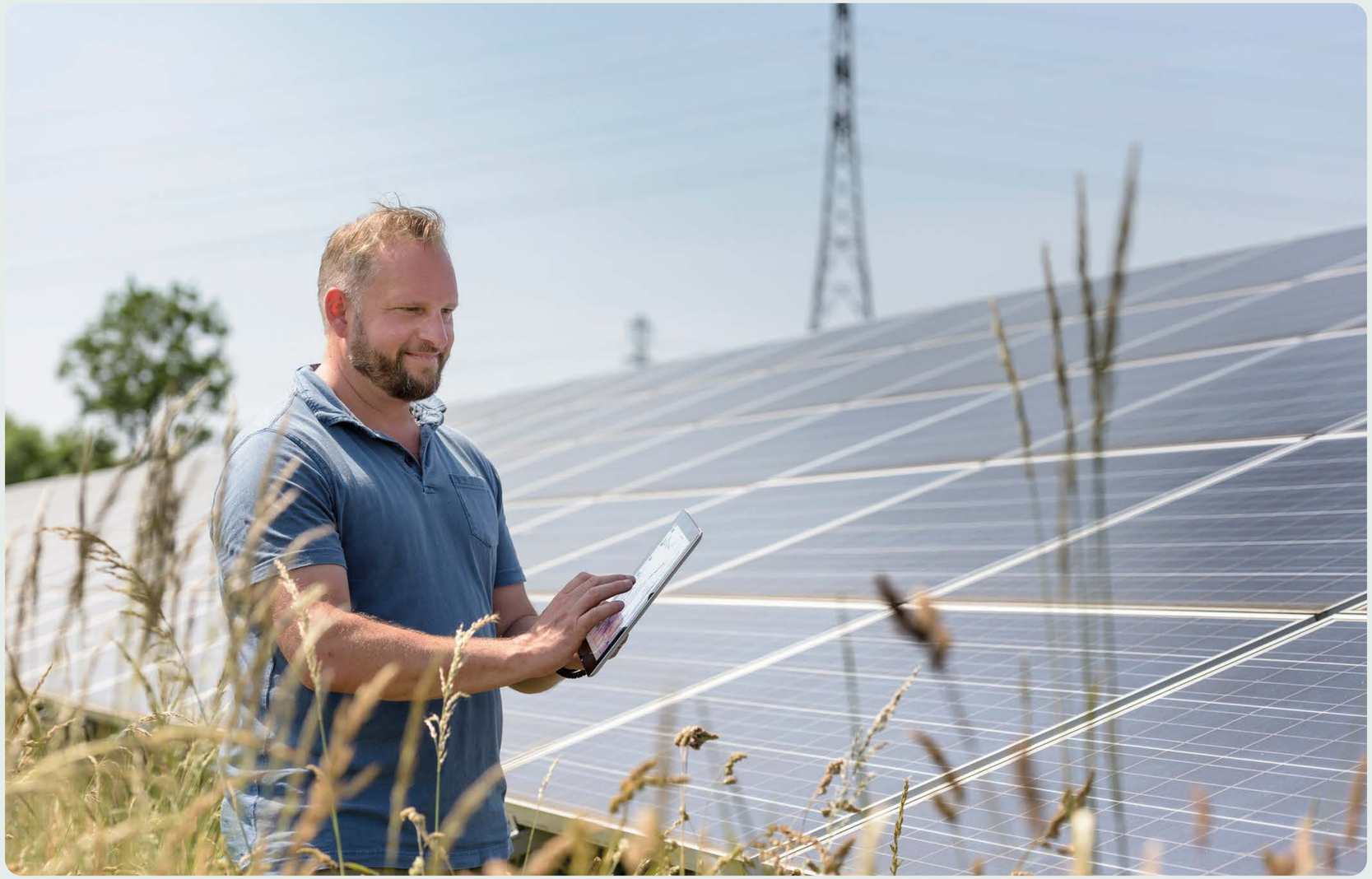
Step 3:
Secure the site(s)

Once the pre-feasibility checks are done and your legal entity is in place, the next step is to secure access to the site(s). This is a crucial step to ensure your project can proceed, but the approach can vary depending on your risk appetite and legal advice.

At this stage, you might consider options ranging from a simple MOU to a full legal agreement with the property or roof owner (who may also be your end user). An MOU is a high-level agreement with the site owner showing that they are happy to commit to the project in principle, helping to protect your project without committing you to formal obligations before feasibility is fully assessed. Having this in place may also strengthen your funding applications. A complete legal agreement could provide stronger security if you are confident in the site's viability, but it may also carry financial or legal risks.

Regardless of the approach, it's important to get appropriate legal advice before making any commitments.

SP Energy Networks



Step 4: Feasibility study

A feasibility study checks whether a site is suitable for your chosen technology. For solar PV, this includes technical factors, such as space, shading, energy use and regulations. It also includes a financial analysis to estimate savings and return on investment. This will support subsequent funding applications, planning permission applications and agreements with contractors.

The feasibility study can be done speculatively by the installer/supplier, a paid consultant or by the community energy group. When hiring someone, use established frameworks where possible, as these list vetted suppliers and may offer better value. If you're unsure where to find frameworks, begin by asking the contacts below* for guidance and recommendations. For example, Local Energy Scotland has a supplier list of contractors to help communities, including legal, technical and installation companies.

***Secure initial funding for feasibility**

Consider contacting the following for funding options:

- England: Local Net Zero Hubs
- Scotland: CARES (Community and Renewable Energy Scheme)
- Wales: The Welsh Government's Energy Service
- DNOs often have small funds that can help support feasibility studies (e.g. see SP Energy Networks' community funding)
- Local authorities/combined authorities may have their own community energy funds or can signpost to regional opportunities.

SP Energy Networks

Step 5: Planning permissions

Planning permission, which is typically granted by your local authority, ensures land is used and developed appropriately, though not all renewable projects require it. Some smaller installations may be covered by PDRs, which allow certain types of development to go ahead without formal planning permission.

Checking early whether your project qualifies for PDR can save time and costs (see Table 2). Note that conditions apply, and some sites may be excluded (e.g. listed buildings, conservation areas or National Landscapes (previously known as Areas of Outstanding Natural Beauty)). Even if your project qualifies under PDR, you may still need to notify your local planning authority or obtain prior approval.

Community engagement is also key. Involving locals from the start can help identify concerns, shape the project to local needs and build support, strengthening your planning application.

Tips for planning applications

Table 2. Permitted development (at time of publication)*

Technology / Installation	Permitted development regulations in England and Wales	Permitted development regulations in Scotland
Rooftop solar (domestic)	✓ Usually permitted if not higher than the highest part of the roof and <0.2m protrusion on sloping roofs or <1m on flat roofs from the house to which they are attached.	✓ Usually permitted if panels are <1m protrusion from the house to which they are attached.
Rooftop solar (non-domestic building)	✓ Usually permitted if <0.2m protrusion on sloping roofs or <1m above flat roofs from the building to which they are attached, >1m from roof edges. Prior approval process may be needed in some circumstances.	✓ Usually permitted if panels are <1m protrusion from the building to which they are attached.
Ground-mounted solar (domestic)	✓ Usually permitted if under 9m², <4m in height. In England, it must also be >5m from a boundary. In Wales, if within 5m of a property boundary, it cannot be >2 m in height. Only one per house. Subject to design and visibility restrictions.	✓ Usually permitted if at the rear of the house, <3m in height, and at least half of the front/rear garden remains undeveloped. Not allowed in conservation areas or within the grounds of a listed building.
Ground-mounted solar (non-domestic)	✓ Usually permitted if under 9m², <4m in height and >5m from a boundary. Only one per building. Subject to design and visibility restrictions.	✓ Usually permitted within land near the non-domestic building if the total surface area does not exceed 12m².
Solar canopies	✓ In England, usually permitted on non-domestic off-street parking, if it is <4m in height, >10m from a house or block of flats, and must not be on land used under temporary use rights nor include advertising. Prior approval may be required for siting, design, glare and visual impact. ✗ In Wales, there is no permitted development for solar canopies.	✓ Usually permitted on qualifying parking areas. Total combined size (including any battery storage, which must not exceed 29m³) must be less than 58m³; <4 m (and < 3m for parts other than the canopy) above the parking surface. Must be located >5m from roads, >10m from dwellings/flats and > 3km from airports.

*Restrictions may apply to listed buildings, conservation areas, World Heritage sites, sites near airports, etc.

SP Energy Networks

Step 5:
Planning permissions

Planning permission, which is typically granted by your local authority, ensures land is used and developed appropriately, though not all renewable projects require it. Some smaller installations may be covered by PDRs, which allow certain types of development to go ahead without formal planning permission.

Checking early whether your project qualifies for PDR can save time and costs (see Table 2). Note that conditions apply, and some sites may be excluded (e.g. listed buildings, conservation areas or National Landscapes (previously known as Areas of Outstanding Natural Beauty)). Even if your project qualifies under PDR, you may still need to notify your local planning authority or obtain prior approval.

Community engagement is also key. Involving locals from the start can help identify concerns, shape the project to local needs and build support, strengthening your planning application.

Tips for planning applications

Table 2. Permitted development (at time of publication)*

Technology / Installation	Permitted development regulations in England and Wales	Permitted development regulations in Scotland
		✓ Usually permitted if panels are <1m protrusion from the house to which they are attached.
		✓ Usually permitted if panels are <1m protrusion from the building to which they are attached.
		✓ Usually permitted if at the rear of the house, <3m in height, and at least half of the front/rear garden remains undeveloped. Not allowed in conservation areas or within the grounds of a listed building.
		✓ Usually permitted within land near the non-domestic building if the total surface area does not exceed 12m².
	siting, design, glare and visual impact. ✗ In Wales, there is no permitted development for solar canopies.	✓ Usually permitted on qualifying parking areas. Total combined size (including any battery storage, which must not exceed 29m³) must be less than 58m³; <4 m (and < 3m for parts other than the canopy) above the parking surface. Must be located >5m from roads, >10m from dwellings/flats and > 3km from airports.

*Restrictions may apply to listed buildings, conservation areas, World Heritage sites, sites near airports, etc.

Tips for planning applications

To avoid delays, speak to your local planning officer early. Many welcome informal discussions.

- Check if similar projects have been approved locally to spot common concerns.
- Always check with your local planning authority to confirm current rules and whether prior approval is required.

For more information, see (as amended):

- England:
  - General PD Order 2015
  - England planning portal
  - Need Guidance? See England's planning portal.
- Scotland:
  - The Town and Country Planning (General Permitted Development) (Scotland) Amendment Order 2024
  - Need guidance? See Scotland's planning permission information or CARES module on planning.
- Wales:
  - General PD Order 1995
  - Need Guidance? See Wales' planning portal.

SP Energy Networks

Step 6: Grid connection

Connecting your project to the electricity grid is an important step. Even if most of your electricity is used on-site, a grid connection is usually needed to export any extra power and help balance the local network. Apply through your local DNO to secure a connection. The process depends on the size of your solar installation and the site's electrical setup.

It's a good idea to talk to your DNO early. Informal conversations can help you understand local network limits and guide the best way to make your application.

Connecting a solar project to the grid involves several stages. The exact timing depends on your project size, location and the capacity of the local network. See Table 3 for a summary of what to expect if SP Energy Networks is your DNO.

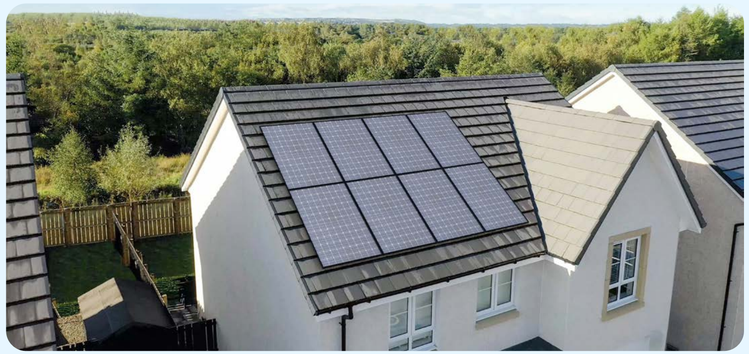


Table 3. Key activities and information checklist for each stage of the connections process

Stage	Key activities
1. Start planning your project	• Use this guide and the other resources signposted throughout to learn about the connections process and ensure you understand the proposed connection size for your project(s). • We have several online tools designed to empower and inform community groups. You can use our heatmaps to check where there is capacity on the network for you to connect in your local area. You can also use our Budget Estimate tool to see what the potential connection cost of your project might be before you start a formal application.
2. Pre-application	• Engage with us and speak to our network planning team about your project so we can talk to you about potential connection options and answer any questions you might have about the process. The best way to get in contact with us in the first instance is via our dedicated email address for communities: communityenergy@spenergynetworks.co.uk • At this stage, you can also talk to us about our two other quote options for your project(s): a feasibility study and our Quote+ option if you'd like a more detailed assessment of the potential cost to connect your project to the grid. • You can also check if you will be charged for your connection application and whether this is affordable. • Key information you will need at this stage: - Site location and layout plan - Estimated load or generation capacity - Planning status (e.g. submitted, approved) - Land ownership or Heads of Terms agreement.
3. Formal application	• Complete and submit the relevant application form, and we will use the information you provide to make a detailed assessment of the impact your project will have on the network and then prepare your connection offer. • Key information you will need at this stage: - Completed SP Energy Networks' application form - Single-line diagram (for generation projects) - G99/G98 documentation (more details in the Generation connections section on page 12) - ICP engagement (if using contestable works).

Stage 1-3 Stage 4-5

SP Energy Networks

Step 6: Grid connection

Connecting your project to the electricity grid is an important step. Even if most of your electricity is used on-site, a grid connection is usually needed to export any extra power and help balance the local network. Apply through your local DNO to secure a connection. The process depends on the size of your solar installation and the site's electrical setup.

It's a good idea to talk to your DNO early. Informal conversations can help you understand local network limits and guide the best way to make your application.

Connecting a solar project to the grid involves several stages. The exact timing depends on your project size, location and the capacity of the local network. See Table 3 for a summary of what to expect if SP Energy Networks is your DNO.

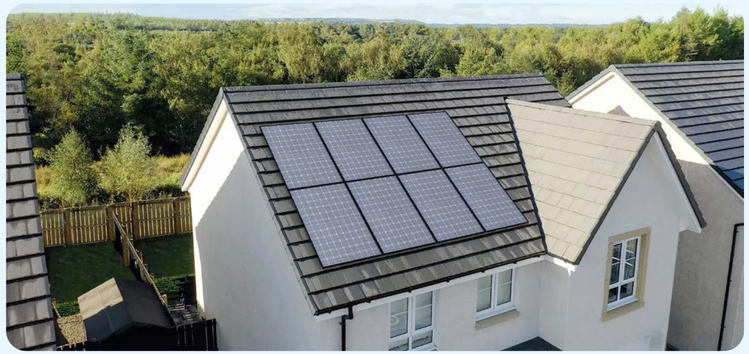


Table 3. Key activities and information checklist for each stage of the connections process

Stage	Key activities
4. Receiving your connection offer	• The time it takes to receive your formal connection offer depends on the type of project and the work required to make the connection. In line with Ofgem's guaranteed standards, you will receive your offer between 5 and 65 working days after submitting your application for demand connections and between 45 and 65 working days for generation connections. (Timescales are dependent on the type of connection and you can find more information here). • You will need to review your offer, with external advice if necessary. Your connection offer will be valid for a period of three calendar months from the date of the offer, and you will need to decide whether to accept the offer within this timeframe. • At this stage, you'll need to consider the elements of contestable and non-contestable work and put an adoption agreement in place if appropriate. (Contestable works are the parts of the construction work required to connect your project that is open to competition whereas non-contestable work can legally only be carried out by the Distribution Network Operator). • Key information you will need at this stage if you decide to accept the offer: - Payment of deposit - Legal agreements (wayleaves, easements, etc) - Final design approval - Construction schedule confirmation.
5. Construction and commissioning	• Work with us to negotiate the land rights for any equipment you want to install. • Ensure you have metering arrangements in place. • And, finally, for generation technologies, you'll need to provide us with the data we need on the final parameters of the equipment. • Key information you will need at this stage before energisation: - Metering arrangements confirmed (Half-Hourly (HH) or Non-Half-Hourly (NHH)) - Export limitation scheme (if required) - Witness testing (if applicable) - Commissioning certificate.

SP Energy Networks

Step 7: Raising finance

Community energy projects typically require funding up front. There are three main sources of finance available to community energy groups: equity, debt and grants.

Need guidance? Community Energy England has guidance on obtaining funding. Always seek professional financial and legal advice before committing to any funding arrangements.

1. Equity

This includes money the community already has or can raise directly:

- Existing community funds: cash reserves from previous activities or fundraising
- Community share offers: crowdfunding from local supporters who become members and may receive modest returns
- Asset-backed equity: taking out a loan against community-owned assets to fund the community's equity contribution to the project.

Want support for running a share offer? Speak to organisations like:

- Ethex: a crowdfunding platform. See their handbook.
- Energy4All and Share Energy: provide end-to-end support for community renewable energy cooperatives, from development through ongoing operational management.

Examples of traditional lenders

- Triodos Bank: specialises in lending to renewable energy projects
- Santander Renewables: have supported renewable energy projects in the UK and have explored community-scale investments
- The Charity Bank: provides loans to social enterprises and community organisations
- Social Investment Scotland: provides business loans to third-sector organisations (Scotland).

Other lenders:

- Thrive Renewables: provides bridge funding and co-development finance.

2. Debt (loans)

Money borrowed from banks or specialist lenders, usually secured against the solar project and its future income:

- Project finance: non-recourse loans secured against the solar assets and revenue stream
- Commercial bank loans: traditional lending from banks experienced in renewable energy
- Specialist social lenders: organisations focused on community and social enterprises.

Note: Getting loans can be challenging for smaller projects, as financial institutions often prefer larger investments. It's recommended that you speak to support organisations (e.g. CARES, Local Net Zero Hubs) in your area for advice before commencing this process.

3. Grants

Public or charitable funding to support community energy projects:

- Government grants: national, devolved and local authority funding schemes
- Foundation grants: charitable trusts and lottery funding
- Utility company funds: energy companies offering community energy grants.

Who to speak to about funding and support

- England: Local Net Zero Hubs
- Scotland: CARES (Community and Renewable Energy Scheme)
- Wales: The Welsh Government's Energy Service
- DNOs often have small funds (e.g., see SP Energy Networks' community funding)
- Local authorities/combined authorities may have their own community energy funds/can signpost to regional opportunities
- Younity: supports community energy groups with funding opportunities, PPAs and volunteer matching services.

SP Energy Networks

Step 8:
Build management and installation

Contractors and suppliers

Selecting experienced contractors and suppliers is key to a smooth installation. Consider using vetted lists, such as Local Energy Scotland's list of contractors and suppliers, EST's Renewables Installer Finder or MCS' Find a Contractor. Check for references, certifications and track records, especially for community-scale projects. Your funder may also have requirements, such as that the installation must be carried out by an MCS-certified installer using MCS-certified products.

Get competitive quotes and consider more than the price of the panels, such as warranty terms, annual maintenance costs and other parts of a solar project (see right*). Some suppliers include installation in their panel price. If not, get separate quotes for installation services, but note that using a different installer could affect warranties.

Construction

Once permits and planning requirements are in place, construction can begin, including installing the solar panels and connecting to the grid.

As the project developer, your community group is responsible for managing the schedule, protecting the environment, ensuring worker safety and considering the impact on the general public (e.g. timing of construction and noise). Understand your legal obligations and follow best practice guidance. Hiring professional, certified installers helps ensure compliance with electrical regulations and safety standards.

Different funding sources may have their own rules about how and when money is released. Make sure your procurement plan matches these schedules, so funds are available when you need to purchase equipment or services.

***Key parts of a solar project you may need to get quotes for include:**

- Solar panels: the equipment that converts sunlight into electricity
- Inverters: devices that convert the solar panels' DC electricity into AC electricity compatible with the grid
- Mounting systems: structures that secure panels to the ground or roof
- Cabling and wiring: connect panels to your end user or the grid
- Monitoring systems: allow you (and potentially your funder) to track the system's performance over time
- Meters: such as generation meters and export meters are needed to measure electricity production and usage.

SP Energy Networks

Step 9: Operations and maintenance

Community groups typically manage solar installations for 20 - 25 years. Key responsibilities include monitoring, financial management and maintenance.

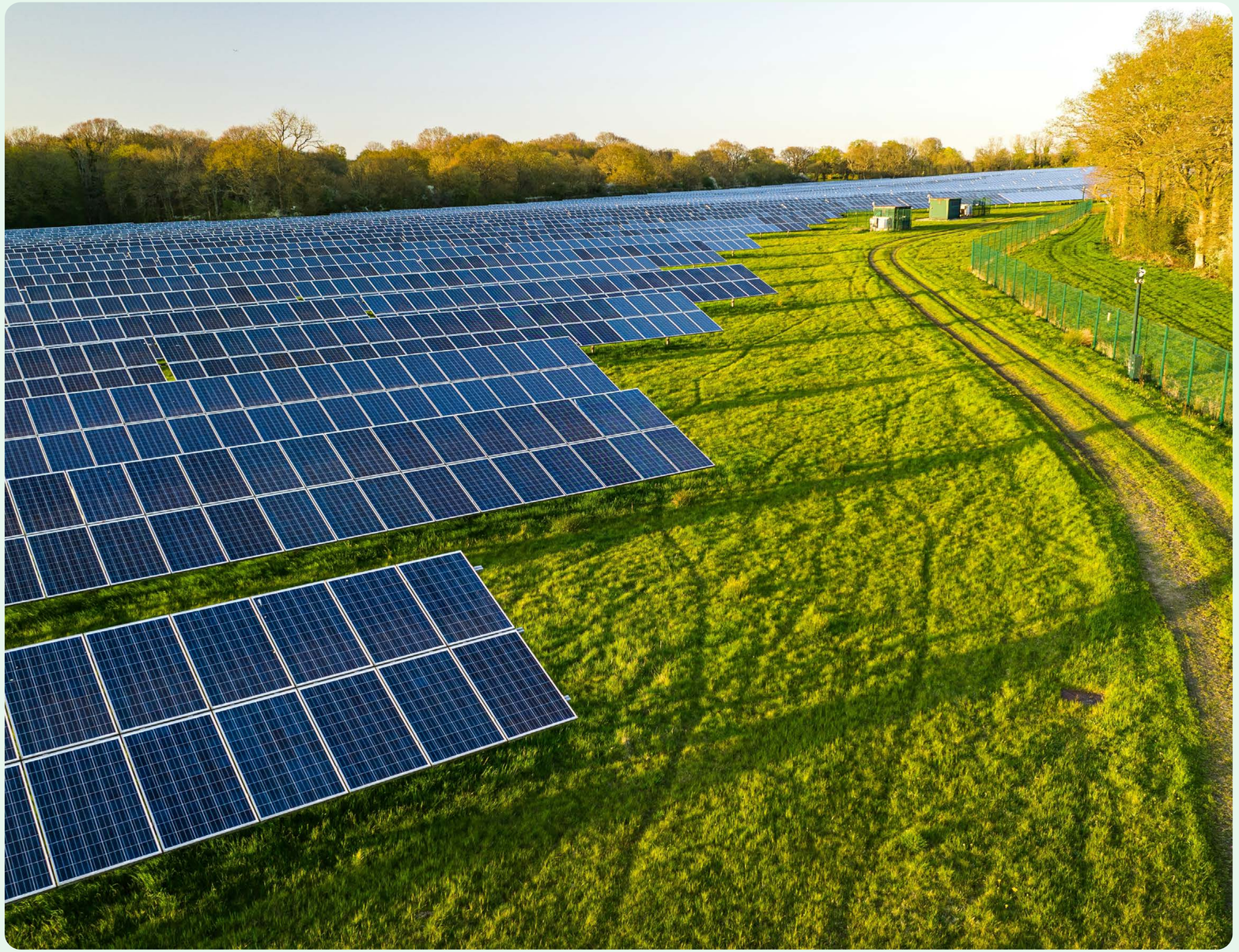
Monitoring
All Solar PV systems have an electricity generation meter. You will also want to install export meters to track on-site consumption. Use monitoring software to regularly track this data, determine payments from site owners, record historical performance trends and identify technical problems early. This historical data can help you learn to use electricity more efficiently over time and may be required by funders for reporting purposes (see Community Energy London's guide on Monitoring and Evaluation for further advice for community groups reporting to their stakeholders).

Financial management
Establish systems to collect income, pay fixed costs (loans, maintenance, land rent) and distribute remaining profits to shareholders or into community benefit funds. Groups should also apply for applicable support schemes, like the Smart Export Guarantee (a UK government initiative that pays small-scale generators for excess electricity exported to the grid).

Maintenance
Solar PV requires minimal maintenance over its 25-year lifespan. Panels may need occasional cleaning (though avoid sponging down or touching panels), and inverters typically need replacement once during the system's life.

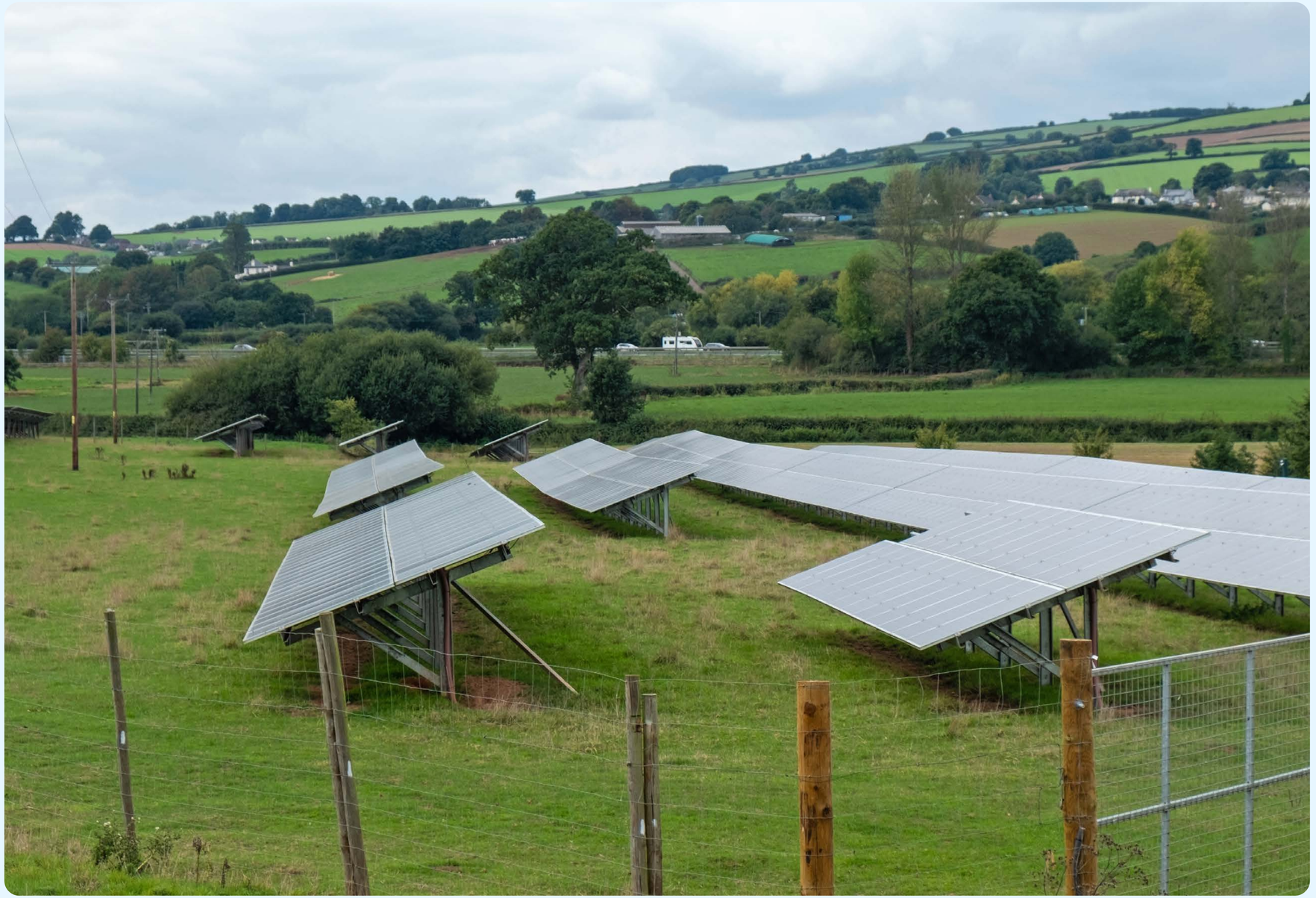
Annual servicing by the installer or certified providers is recommended, but check your warranties first to avoid voiding them.

SP Energy Networks



Step 10:
End-of-life planning

Solar panels typically last 25 - 30 years, though some may be able to operate for longer. Plan from the start for end-of-life costs and decisions - e.g. whether to replace with newer technology or decommission. Consider how long your land lease and planning permission last, as these may need renewal before the panels reach end-of-life. If decommissioning, most silicon-based panels can be recycled.



SP Energy Networks

Glossary

Key terms explained

National Landscapes: Designated areas of countryside in England, Wales and Northern Ireland that have been identified as having significant landscape value and are protected from inappropriate development. Formerly known as Areas of Outstanding Natural Beauty.

Battery storage: Technology that stores electricity for later use.

Brownfield site: Previously developed property that is vacant, underused or contaminated, often from past industrial or commercial activity, with potential for redevelopment.

Community share offers: A method for community energy groups to raise money by inviting investment from people, usually within the local area, with possible returns.

Connections: The point where an energy project links to the electricity network to supply homes and businesses.

Conservation area: A designated area of special architectural or historic interest where planning controls are stricter to preserve the character.

Crowdfunding: Raising funds from a large number of people, typically online, to support a project.

Decommissioning: Safely dismantling and removing equipment at the end of its operational life.

Distribution Network Operator (DNO): The company responsible for maintaining and operating the local electricity network in a specific area.

End user: The person/organisation who uses the electricity generated by a project.

Energy supplier: a company that sells electricity, gas or other forms of energy directly to consumers (residential, commercial or industrial customers).

Export: Electricity from an energy project that is sent back to the electricity grid to be used elsewhere, such as in homes and businesses.

Export meters: Devices that measure how much electricity is sent from a solar installation back to the electricity grid.

Feasibility study: A detailed analysis to determine whether a proposed solar project is technically possible and financially viable.

Financial close: The point when all funding arrangements are finalised and legally committed.

Generation meter: A device that measures the total amount of electricity produced by a solar system.

Grid: The interconnected network of power lines, substations and equipment that delivers electricity from energy projects to homes, businesses and other consumers.

Ground-mounted systems: Solar panels installed on frames placed directly on the ground rather than on buildings.

Inverter: Equipment that converts the electricity from the panels into the form used by homes and businesses.

kW (kilowatt): measures how much electricity something uses or produces at any moment, like a speedometer shows how fast you are driving. A kettle uses about 3 kW when running.

kWh (kilowatt-hour): measures energy use over time, similar to how kilograms measure weight. A kWh (kilowatt-hour) is what you see on your home electricity bill. If you run a 3kW kettle for 20 minutes, it would use 1kWh.

kWp (kilowatt peak): A measure of maximum electricity output a system can achieve under ideal conditions.

Listed building: A building officially protected because of its historical/ architectural importance.

MCS (Microgeneration Certification Scheme): A quality assurance scheme for small-scale renewable energy installations and installers in the UK.

Memorandum of Understanding (MOU): A non-binding written agreement outlining the intentions of parties involved in a project.

Metering arrangements: Systems for measuring and recording electricity created and used.

Network planning team: Specialists responsible for planning and improving the electricity grid.

Non-recourse loans: Financing where the lender can only claim against the specific project assets if repayment fails, not other borrower assets.

PDR (Permitted Development Rights): Planning regulations allowing certain types of development without needing planning permission.

Planning permission: Official approval from local authorities required before building, altering or changing land use.

PPA (Power Purchase Agreement): A contract between a generator and user of electricity, setting price and terms.

Retail electricity prices: The standard rates consumers pay for electricity from their energy supplier.

Return on Investment: The financial gain/loss from an investment, usually expressed as a percentage.

Solar canopy: A shelter for cars that also holds solar panels.

SSSI (Site of Special Scientific Interest): Areas in the UK protected by law due to their wildlife/geological/landscape importance.

Structural survey: An inspection to assess whether a building can safely support the weight of solar panels.

Warranty terms: The conditions and duration of manufacturer or installer guarantees covering equipment and workmanship.

World Heritage sites: Places recognised by UNESCO as having outstanding value to humanity, with special protection from development.

SP Energy Networks

Additional resources

Other guides on Solar PV:

Community Energy London's Guide to Solar PV
Guidance for solar PV projects in London. While specific to London, this resource could be helpful for community energy groups across the UK, providing tips, advice and additional resources.

CARES Toolkit – Module on Solar PV
Part of the CARES toolkit, this guide has four parts to guide community groups through the development of solar PV projects in Scotland: local energy support, project overview, project steps, and breakpoints and further information.

Sustainable Energy Authority of Ireland's Community Energy Toolkit for Solar PV
Community energy resource toolkit for communities interested in developing renewable electricity generation projects in Ireland.

Energy Saving Trust's Guide to Solar Panel Installation
Step-by-step guide to solar panel installation on homes.

Energy Saving Trust's article on Solar panels: costs, savings and benefits explained
Information on solar panel installation on homes – the costs, savings and potential benefits explained.

SP Energy Networks

SP Energy Networks
community support

Short guide to solar PV installation

spenergynetworks.co.uk

SP Energy Networks