



Roof Spotter's Guide

This guide has been designed to help BWCE members and supporters identify and propose potential solar projects for us to develop. Having 'spotters' spread across our area will be very helpful, lending us lots of eyes out and about looking for sites to support the programme.

Who would make good building owners for us to talk to?

- Local decision makers (rather than a distant head office) with a proactive approach to carbon reduction and interest in community are ideal.
- Building users able to secure permission to enter into a long term arrangement to have solar on their roof

What sorts of buildings are we looking for?

- Farms
- Secondary schools
- Colleges
- Universities
- Private hotels
- Private care homes
- Hospitals
- Police and Fire Stations
- Local authority buildings
- Libraries
- Companies with high cooling or refrigeration
- Engineering firms with machinery use year-round
- Food manufacturers
- Office buildings

What attributes do these buildings need to have?

- Southerly facing pitched roofs or are facing directly East/West and are not shaded.
- Roofs in good condition (typically less than 20 years old) and that can bear the weight of solar panels.
- A minimum area of 280m² for pitched roofs (slightly more than the size of a tennis court) and at least 650m² for flat roofs.
- Buildings with good access
- Buildings which use a significant amount of electricity all year round, particularly during the summer

We can consider listed buildings or buildings in protected areas but for the first phase of development we will be focusing on roofs which do not need planning permission.

To help you with this we have described these qualities and illustrated further in the rest of our guide.

What do I do if I find a potential solar roof?

- Please find out the contact name, telephone number and email of an owner/manager/director and the address, including postcode, of the building.
- If possible please provide a photo of the building and the roof you are proposing.
- If you have time you could try to identify the roof on Bing or Google Earth and even try measuring the roof.

● **Send details or questions to our solar development team at**
communitysolar2020@bwce.coop

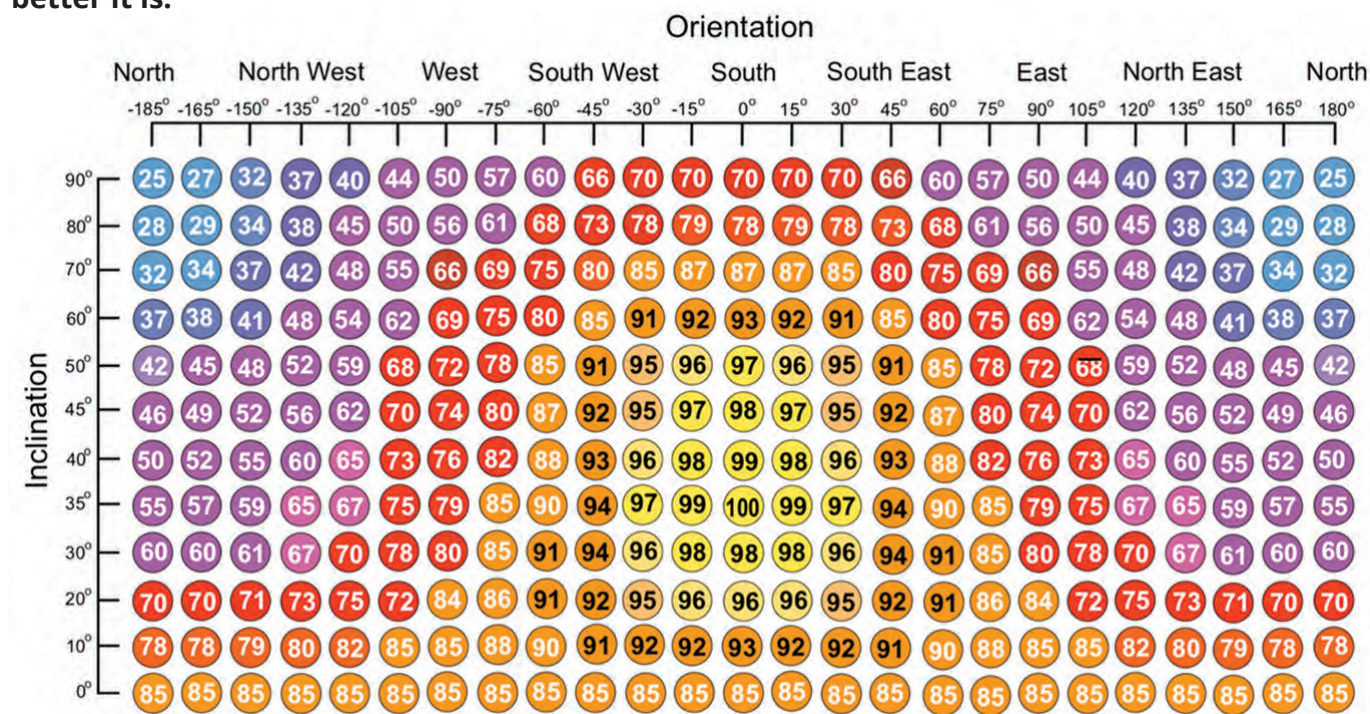
- If you are able to have a conversation with the owner of the site you can refer them to our webpages at
www.bwce.coop/community-solar-2020 where they will be able to read through some Frequently Asked Questions and complete an online survey to express interest.



More details of what we are looking for

Orientation of roof

Best if facing somewhere between south east and south west. The higher the numbers – the better it is.



Source: Guide to the Installation of Photovoltaic Systems

Directly East-West could work and although the overall yield per kW installed will be lower, it will enable more panels to be installed and it will generate more electricity at either end of the day and outside of the summer months, which can be helpful in matching demand. See the graph at the end of this guide for an illustration.

Type of Roof

Preferably a pitched roof between 10 and 40 degrees. The example shown below is from Ralph Allen School.



A flat roof is also possible but it will need twice the area to generate the same amount of electricity. Below is a flat roof showing an east-west solar array on Lewis House in Bath.



Size of Roof

Preferably 280m² or larger. This is just a bit bigger than a tennis court. This is similar in size to this section of a stand at Bath Rec.



Or the roof of Magnet in Bath



Note that image below of Weston All Saints Primary School shows a good example of access for scaffold. Work would be carried out during holidays to avoid construction near children.



To give an idea of the space we need, this is Mead School which BWCE installed in 2012. It is a 50kw system. However, with today's panels we don't need the space marked with the yellow Xs.



We don't need as many panels because they have become more efficient since this system was installed. We now get about a third more power from the same panel size.

Condition of Roof

The state of repair of the roof is important. Below are some poor roof examples to look out for.



We would not be able to consider an asbestos roof (see below). To avoid asbestos ask if the building was built post 2000.



Here are some good condition roofs:

Cement Fibre



Concrete Tile



Slate



Standing Seam



Shading

Avoid shading such as tall trees or other buildings over-shading the roof.



Listed Buildings

Many buildings in Bath are listed so if you can check this with the owner please do so. Listed buildings tend to be longer term projects with heritage planning considerations. Due to the timescales they may need to be considered in later rounds of the Community Solar 2020 project.



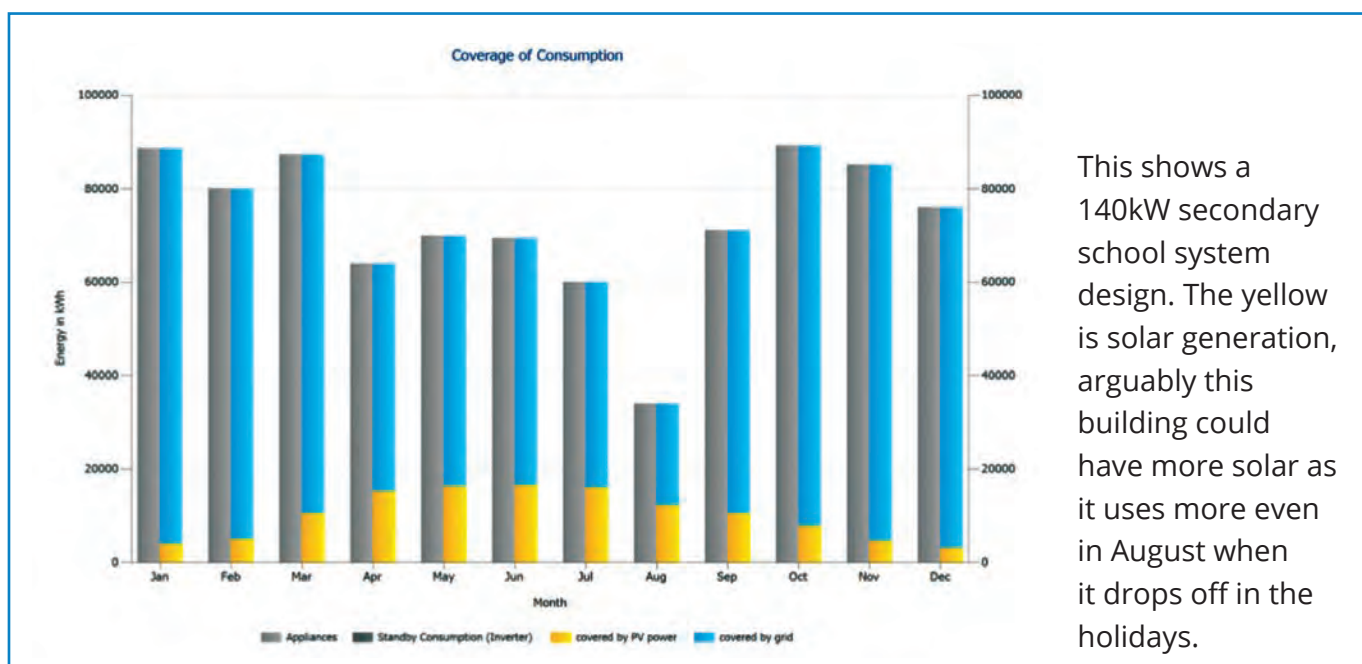
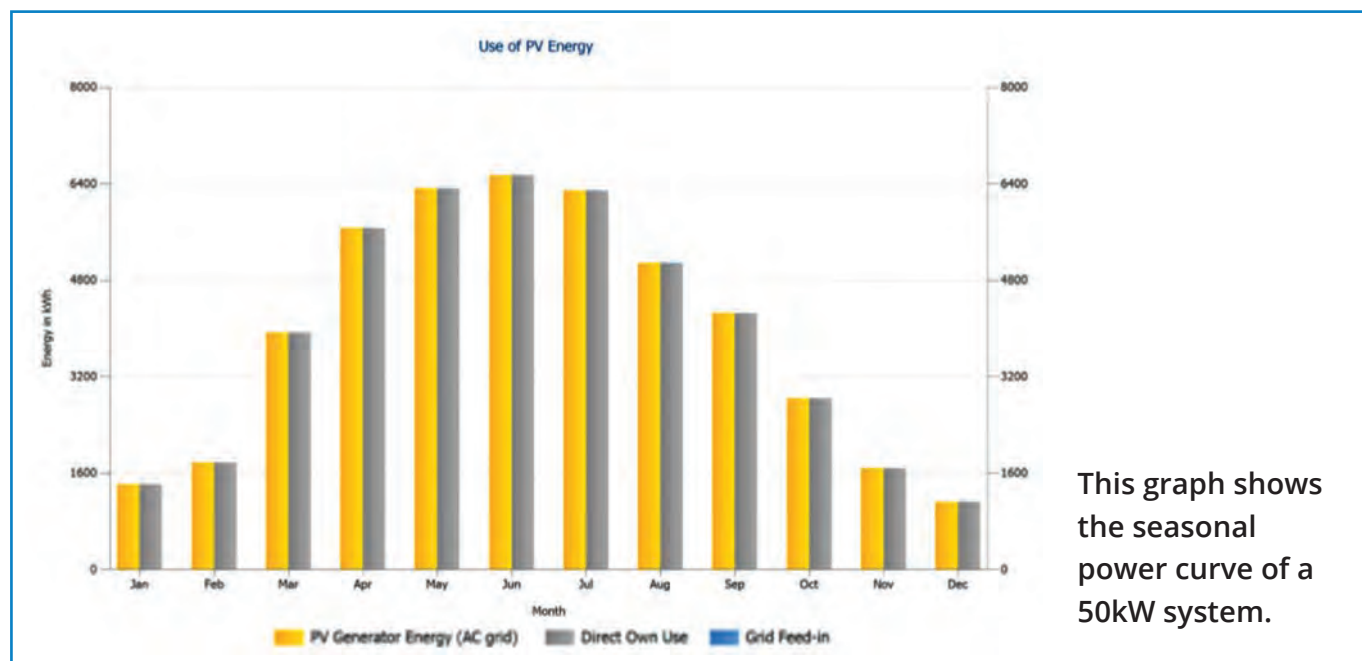
Electricity usage

We can only take on projects which enable us to:

- Offer discounted solar power to the building owner
- Pay interest to BWCE members who have invested in building the projects
- Contribute to the community fund

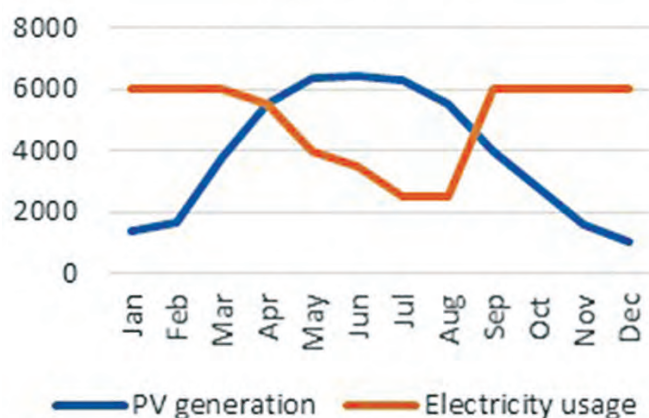
In order to make our figures work we need to make sure the site uses enough power.

If we are aiming for a 50kwp or 280m² roof, this means we are focusing on sites which use more than 6,000 units of electricity in each of the summer months. This would cover the power of a system this size and ensure the site uses all the power.



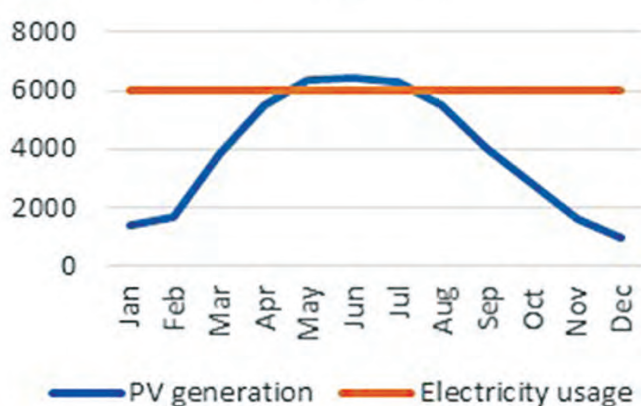
Below are some hypothetical examples:

Poor match



The gap between the blue and the orange line in the summer corresponds to the amount of electricity which is unsold to the site owner. This won't make the numbers work for us.

Good match



This shows a southerly facing roof which uses almost all the power that is generated. This is what we are looking for.

An East-West facing flat roof has an interesting generation profile that can be potentially attractive as there is a flatter generation curve throughout the day.

There is still a peak in summer months and at midday/afternoon during a typical day. What is slightly different is that at the beginning and the end of the day the generation will be slightly higher due to the panels facing sunrise and sunset.

This profile is useful as it means we can match the power to buildings better and ensure more of the power is used as well as generating more in the morning and evening compared to south facing.





Getting Involved in local energy

Investing in renewables • Cutting carbon • Building community



We have selected certain types of buildings in the list we gave at the beginning of this guide. This is because they are likely to have good power usage.

If you know the site owner and can ask them for 12 months of half hourly data from their electricity supplier this is ideal to help us work this out.

If you want more detail than this you can refer to our FAQs.

If you have any questions please email
communitysolar2020@bwce.coop

Good luck with your roof spotting!

Bath and West Community Energy Limited
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