

2 Solar Power in Northern Ireland

The sun provides energy to support life through photosynthesis and food supply but it also has the potential to provide a significant renewable source of heat and electricity. The sun releases vastly more energy in an hour than the world uses in an entire year.

There are two types of solar panel – Photovoltaic (PV) solar panels and solar water heating panels. PV panels or “photovoltaic cells” change sunlight energy into electricity using chemicals inside the panels. Solar water heating panels use the sun’s rays to provide hot water for direct use or for heating. The panels are usually black so that they can absorb more energy.

.Solar panels are fairly common on the roofs of homes in Northern Ireland, on some public buildings and on a variety of premises. A NI Renewable Obligation Scheme operated from 2005 to 2017 and it encouraged uptake of the technology.

Solar generation capacity in NI (in 2020) was 268 MW, 124 MW small scale and 144 MW large scale (www.soni.ltd.uk)

It is estimated by SONI that 1200 MW capacity would be needed (along with energy from other renewable sources) to achieve net zero greenhouse gases by 2050 and help avert the climate crisis.

Northern Ireland Community Energy (NICE), founded in 2015, is a Community Benefit Society which has installed PV panels ranging from 4kW to 12kW capacity, free of charge, on 18 premises belonging to charity or community organisations across the region. NICE funds came from investments made by its 100 members who continue to benefit from yearly interest payments. The recipient organisations benefit from getting the generated electricity at a low cost, freeing up money for their use in other ways. Some of the profits from NICE will go to other community benefit projects.

Some Solar power benefits:

- a renewable form of energy, freely available at no cost
- produces no greenhouse gases
- low maintenance technology
- even on a dullish day panels have some output
- solar panels last a long time
- if used for solar farms (many freestanding panels) the land underneath can still be used for grazing by some animals
- solar panels are good in remote areas where it is difficult to access the electricity grid

Some Solar power disadvantages:

- non renewable resources (eg silicon) are used in panel manufacture
- resource mining and processing can cause environmental damage
- sunshine amounts are variable and not exactly predictable
- panel positioning is important to “capture” the sun’s rays
- some people object to the visual impact of panels (especially large arrays in solar farms).



Home at Mallusk, Co Antrim with twelve PV panels (3 kW) and two solar water heating panels



Aerial view of 4.8 MW solar farm near Belfast International Airport (www.lightsourcebp.com/projects/crooked-stone-road-solar-project/)

Sample Output from a Domestic 4 kW PV installation (Co Antrim)

Monthly

January 2019	81 kW	July 2019	447 kW
January 2020	82 kW	July 2020	398 kW
January 2021	111 kW	July 2021	508 kW

Annual

Aug 2018-July 2019	3471 kW
Aug 2019-July 2020	3772 kW
Aug 2020-July 2021	3798 kW

Solar power opportunities

Buildings can be designed so that they make the most of the sun's light and heat, building them so that they face the sun, with large windows – this is extremely effective and is known as passive solar design.

Storage systems such as batteries can be used in conjunction with solar generation to provide energy when needed – even when it is dark.

Mirrors can be used to reflect the sun's rays and direct them to one place for efficient energy capture.