Mapping the UK's solar panels

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Where are all the solar photovoltaic panels in the UK? The answer is that no one exactly knows – there are no comprehensive records. This is a problem because, in order to predict how much solar energy will be generated and fed into the national grid, electricity providers need to know precisely where the solar panels are, as well as the cloud cover at that location. Without a good, short-term solar energy forecast, fossil-fuelled generators have to be kept running in the background, wasting resources.

While there is detailed UK government data on the location of solar farms, there is less information on smaller, domestic installations, which account for about one-third of the country's solar capacity. Now, researchers led by Turing Fellow Dan Stowell, in collaboration with National Grid ESO, are using the power of the crowd to fill in the gaps.

The team asked members of OpenStreetMap – a Wikipedia-style, editable map of the world – to look for solar panels in their local area, or in aerial imagery, and add them to the map. So far, around 350 volunteers have pinpointed over 300,000 solar installations across the UK, and the researchers have combined this information with other data to create an **open, geographic dataset** that covers an estimated 85 per cent of the country's capacity. Now, the team is developing an app that will help it to reach more volunteers, and it also hopes to run a machine learning contest to develop algorithms that can automatically detect solar panels in imagery. With around one million solar installations in the UK, there are still plenty to find!
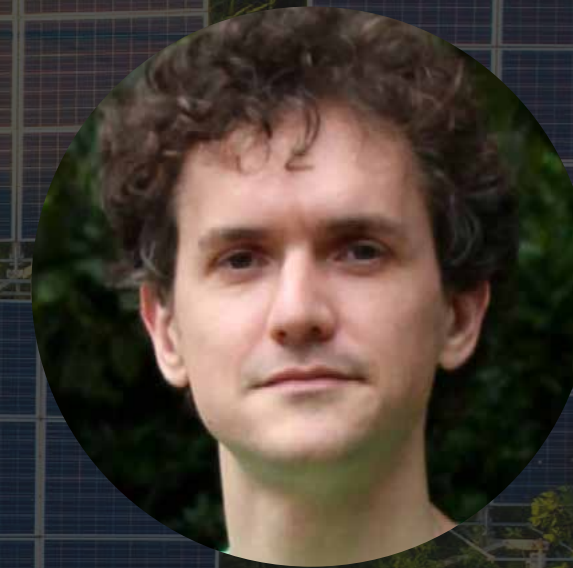
"To reduce our reliance on fossil fuels, we need high-resolution forecasts of solar energy generation. This crowdsourced map of solar panels will help to achieve that."

Dan Stowell
Project leader and Turing Fellow
The Alan Turing Institute

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