Bath & West Community Energy
Generating local energy

Briefing Paper
July 2021
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SOLAR STREETS PILOT RESULTS

Solar Streets was a local community energy initiative run by Bath & West Community Energy (BWCE) in Maple Grove, the south side of Bloomfield Avenue and Bloomfield Road and Elm Place in Bath.

Headline Findings

1 **The Solar Streets project demonstrated the potential for householders to shift up to 20% of their electricity demand away from peak times of the day**

2 **The capital costs of the solar PV and battery installations will need to fall by over a third in order to make it viable for BWCE to roll the project out beyond the initial grant-funded pilot.**

Why was there a need for this project?

Peak electricity demand, usually between 6 and 8pm for domestic consumers, places the greatest stress on the electricity grid and requires the most expensive and carbon intensive electricity generation. The significant mismatch between the daytime generation from renewable solar schemes and the time of this peak demand hampers the UK's ability to expand the roll out of renewables further.

What was Solar Streets?

The Solar Streets project examined the role of community action in delivering domestic solar PV and battery storage and promoting ways of reducing electricity use during times of peak demand. This practical pilot was designed to test the degree to which a collective community approach can be successful in encouraging electricity demand management at a neighbourhood level. It integrated the use of domestic solar PV, battery storage and a simulated Time of Use electricity tariff (ToUT) for participating households.

The pilot was enabled with grant funding from the Friends Provident Foundation and Power to Change and was part of the Western Power Distribution, Open LV programme. Through the Open LV programme, collective electricity demand was monitored at the substation level and was displayed via a software app that was made available to households, alongside data from local solar PV systems and battery storage.

The provision of data at neighbourhood level was used to encourage a collective rather than just an individual response to electricity demand via community engagement, a series of one-off 'How Low Can You Go' (HLCYG) days and a short demand shifting campaign. This campaign also tested different approaches to optimising battery operation, including maximising PV storage and simulating a Time of Use Tariff (ToUT).

[1] See **https://openlv.net** for more information

What did Solar Streets tell us?

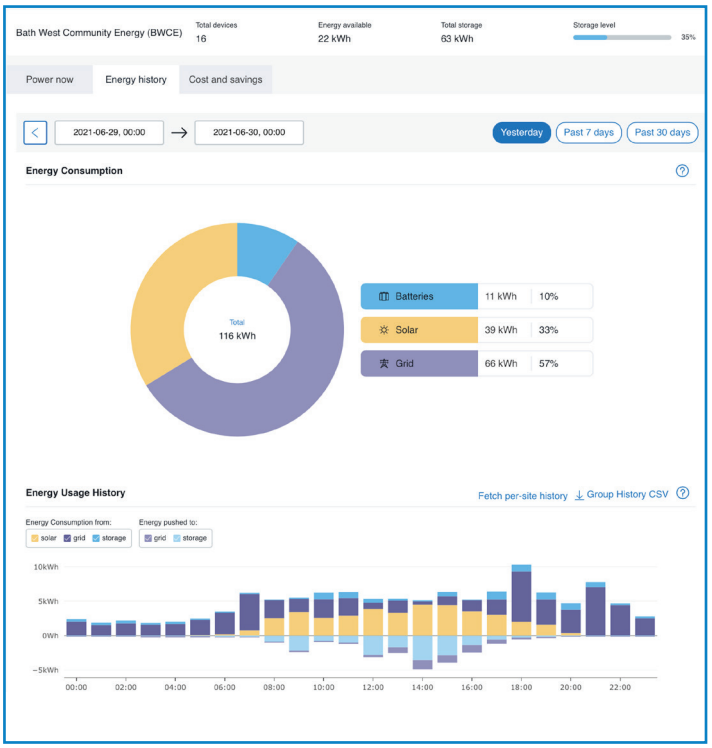
The pilot found that this approach was successful in increasing awareness about key issues relating to electricity demand management, and ultimately in producing a reduction in electricity demand.

The pilot showed an ability to encourage a reduction of up to 20% in peak time energy usage during short extended campaigns, and up to 6% demand reduction overall during short extended campaigns. It also highlighted that participants were motivated by the idea of positive community action almost as much as by financial savings, suggesting an appetite for collective action at a community level.

These results suggest that behavioural approaches to demand shifting can be effective. However, the pilot did not test whether any of these behaviours have been embedded and will last the test of time, making it difficult to draw long-term conclusions.

Since householders referred to the value of being involved in a specific project as a highly motivating factor, action may well drop away when the project is no longer active.

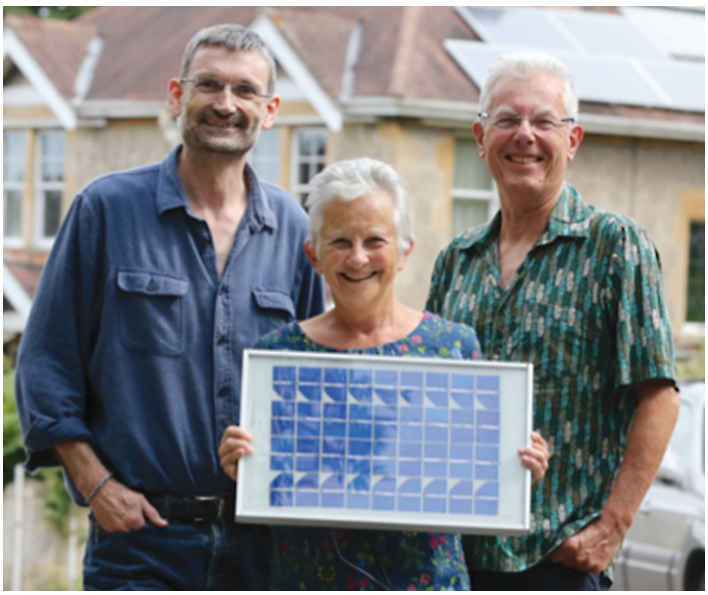
The findings also showed that the replication of this project within a community energy model would require capital costs of the battery technology in particular to fall by a third to half, making affordability the key barrier.



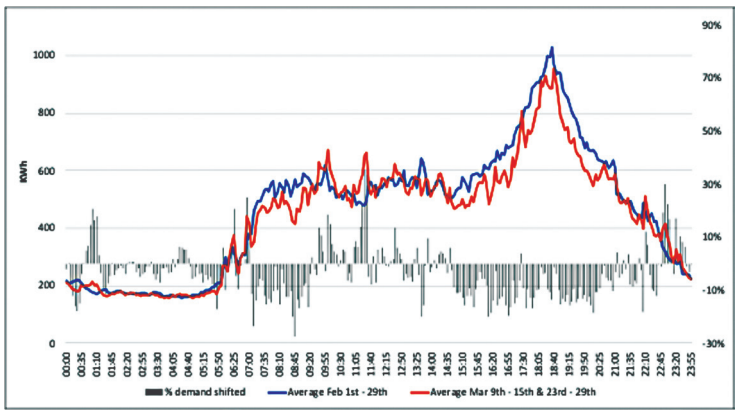
Solar PV and battery storage was installed and monitored in 20% of target households

The findings also showed that from a community energy perspective, simplifying complex contractual relationships, reducing transaction costs and enabling smart technology to automatically control some aspects of demand shifting, will be critical to designing viable delivery models.

The experience and knowledge gained from the Solar Streets project has directly led to BWCE securing new funding from Power to Change and the EU to develop a community-led demand side response programme that promotes smart technology, through a partnership with Stemy Energy, rather than relying purely on behaviour change.



Domestic solar PV as part of the Solar Streets project



Households shifted demand away from peak times by up to 20%