

Sunshine Tariff: Webinar FAQs

Feasibility

What's in it for Tempus (or another energy supplier) to take part in a flexible tariff?

A cheaper off-peak tariff is viable for the supplier if it is able to take advantage of lower wholesale costs and use of system charges. See section 3.3 of the [Feasibility Report](#) for further information.

If the DNO isn't in control/has sight of demand, how can it allow for optimising decentralised generation?

In this case we were exploring whether a DNO could allow a solar farm to connect on the basis that demand customers on the same section of the network could shift demand to when the solar was generating. So a key research question was whether the DNO could have confidence in the demand shift and what monitoring, if any, was required. This question is explored in section 5 of the [Feasibility Report](#). The conclusion was that the DNO would not be rolling out the offset connection due to the difficulty in recruiting customers and the large number of customers required.

Trial design

Where did the idea for the project originate?

WREN and WPD were in discussions about how WREN could connect a solar farm to the distribution network, which was already at capacity. WPD came up with the idea of an offset connection agreement alongside a time of use tariff and proposed a trial to WREN.

How was the tariff designed? Was there a standing charge?

The tariff was 5p from 10:00-16:00 and 18p from 16:00-10:00. There was no standing charge. See the Tariff Structure section (p.6) of the [Summary Report](#).

Were there any heat pumps on the trials?

None of the customers had heat pumps. Some of the customers had electric heating, but they were not used much as the trial took place in the summer months.

What kinds of automation technologies were used?

Timers were fitted to hot water immersion systems and smart switches were attached to electric vehicle chargers, which were controlled via the internet by the supplier. Smart switches were also installed in homes with PV that could intelligently switch excess generation to water heaters and electric vehicles throughout the day.

Were there any regulatory constraints/challenges? I.e. did WPD declare the study region as a Load Managed Area?

There were no regulatory constraints and no derogations were required for the trial. It used business as usual processes for the DNO, as there were no changes to use of system charges or generation connections to be managed. The supplier was able to provide a location specific tariff to provide the incentive and the customers were free to switch away from the Sunshine Tariff at any time.

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What were the challenges from working in partnership with an organisation focused on community energy or community engagement, e.g. WREN?

There were many benefits from working with a local community energy group. These included tailoring the marketing to the local context, using their local contacts and networks, providing a familiar face for customers and having a local team available if there were any problems. There could be challenges from working with a less well-established group, however, WREN had been established since 2010, it had a high street shop and a number of employees.

Why was the Sunshine Tariff only available for 6 months?

WPD provide an alternative connection agreement called a 'timed connection' that stops generators from exporting power between 10:00-16:00 from April to September. This is not suitable for solar farms as this is their most productive time of year. We were testing the concept of an 'offset connection' where solar PV could continue generating during these hours on condition that the additional generation is offset by an increase in demand at these times, hence the 6 month tariff. The shift in demand was incentivised by the Sunshine Tariff.

Why did you limit the recruitment area?

The recruitment area was limited to households electrically connected to Wadebridge primary substation. This was to mimic the real-life situation of offsetting the power generated from a solar farm connected to the same section of the distribution network. To avoid constraints on the wider network, demand would need to be connected electrically to the same section of network as the new generation.

Smart meters

Why was a smart meter used in this trial?

A smart meter was used to monitor the customer's real-time use of electricity so that they could be appropriately billed for the power they used during the 10:00-16:00 and 16:00-10:00 time periods. The supplier, Tempus Energy, already used smart meters for all its customers and had the IT systems in place to receive smart meter data and bill customers appropriately.

Did you have to take out the smart meters at the end of the trial?

No, the meters were left in place at the end of the trial. In most cases, the new suppliers took on the meters but treated them as standard meters that required manual reading rather than being smart meters that could be read remotely. In a small number of cases we understand that the new supplier removed the meter and put in place their preferred model.

Batteries

Was a lack of domestic scale battery storage the 'missing link' in providing enough of a shift in power consumption?

Battery storage could have enabled Sunshine Tariff customers to shift further power away from the peak period and into the cheap 10:00-16:00 period. We know that customers with hot water immersion timers (heat storage) were able to shift more than those without. Therefore, customers would be able to save more money on their electricity bills with battery storage and less customers

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would be required for an 'offset connection' agreement. The addition of new flexible loads (such as storage) was identified as one of the key future enablers of domestic demand side response.

Was utility scale battery storage considered to extend the time in which the cheaper tariff was available?

No, this was outside the scope of the project as the focus was on a domestic demand side response.

Recruitment

Did you feel that the participants really understood their energy use patterns before they started this trial?

WREN went through a questionnaire with each customer as part of the sign-up process that asked questions about the household energy use patterns and assessed whether they would benefit or not from the tariff. Many households chose not to sign up based on this, or their own, assessment, for example, if they were on Economy 7 or already had their own solar PV system and could not shift enough consumption into the middle of the day. However, many customers chose to sign up purely based on wanting to support WREN or to be involved in an innovation trial.

Were there any social landlords in the locality and if so, did you work with them on recruitment?

Yes, WREN spoke to social landlords in the area, and they decided to leave it to the tenants to decide if they wanted to sign up. In some cases it was not technically possible for social tenants to sign up due to not having a private sub-meter.

What made it hard to recruit people? And if you were to run the trial again, would you do anything differently?

See the [Customer Recruitment Learning Report](#) for a full analysis of the recruitment challenges and lessons learnt.

WREN's degree of embeddedness and position as a trusted local facilitator seemed important to bring about behaviour change on the part of customers. Is the scheme replicable in other areas without a similar community organisation? Could the DNO take on this role?

WREN's position in the Wadebridge community was extremely helpful in both recruiting and retaining customers. Evidence suggests that trust is an important factor when customers are considering switching suppliers. See the [Customer Recruitment Learning Report](#) for further information. However, other trials have had success with recruiting customers through the supplier, especially when recruiting from within their existing customer base. It is unlikely that the DNO would take on this role.

Analysis

How much money did the Sunshine Tariff customers save?

Due to difficulties with the smart meters and the lack of half hourly consumption data, Tempus Energy decided to only charge customers the off-peak rate of 5p/kWh. Therefore the cost saving was not calculated. However, the tariff was designed to be cost neutral with Tempus' standard tariff of 13.4p/kWh when customers shifted 10%. Therefore, we can assume that the average customer would have been cost neutral, but that the customers without automation would have made a loss (they shifted 5% on average) and customers with automation would have made a saving (they shifted 13% on average).

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Were there benefits to the customer, other than financial?

Customers were keen to learn more about their consumption patterns, which was unfortunately not possible due to problems with the smart meters. However, they did report that they became more aware and talked more with others in their household about their energy consumption.

Do you believe this behaviour change is sustainable?

See section 3.3 of the [Customer Response Report](#) for analysis of consumption patterns over time. The section concludes that there is a decrease in the proportion of electricity used between 10:00-16:00 for customers without automation technology during the last month of the trial period (July). This is likely due to reverting back to previous demand habits over time. This is in contrast to customers with automation technology that maintain consistently high electricity use during the sunshine period in the last two months, suggesting that the automation technology supported a more consistent approach.

How did participants respond to learning that their perceived savings were higher than actual savings?

Generally they accepted the results and the explanation that it is hard to shift demand using just washing machines etc. We got more feedback where the customer had done particularly well – excited that their effort had been worthwhile.

Is the offset connection agreement a real solution for community energy groups wanting to connect to a constrained network?

The project concluded that demand side response from domestic customers based on a time of use tariff is not yet a sufficiently sizable, predictable or robust response to overcome a specific local network constraint. Therefore, WPD would not be rolling out offset connection agreements as business as usual. For further information, see the conclusions of the [Summary Report](#).

What implications does this trial have for other community energy groups?

Despite the offset connection agreement not proving successful at this time, the trial did demonstrate the value of community energy groups in engaging local people in subjects, such as switching suppliers, smart meters and time of use tariffs. See the [Customer Recruitment Learning Report](#) for more information, particularly section 3.4 on the value of trusted local advice.

