

CAN PROJECT

Financial Innovation Report 2

T3 – Energy Local

Community shared Generation - A game changer for the energy market.

Energy Local is a business model for a local energy market for local renewable generation.

- The model seeks to change the energy market from the bottom up
- To keep more income from local generation within a community to cut energy bills and increase economic resilience.
- To use the local energy to increase social cohesion

Implementing the Energy Local model triggers a number of different benefits.

- Retention of wealth within the local economy
- Direct action on fuel poverty
- Matching supply and demand provides an environment to evaluate smart grid and active network management solutions at the local level
- It will enable investment in new, local generation
- Supports action on energy efficiency
- Supports local social enterprise

A solar site such as the college campus in Ore Valley could generate 250,000 kWh of electricity per annum. Any generation not used by the college would enter the grid and receive 5 pence/kWh. If an Energy Local club is established local residents will be able to use the generation and pay 8 p – 10 p /kWh instead of the current market price of 15 p/kWh.

A number of these clubs in the Ore Valley would have the potential to significantly reduce Ore's current annual electricity bill of £ 5 million – most of which leaves the area.



How it works

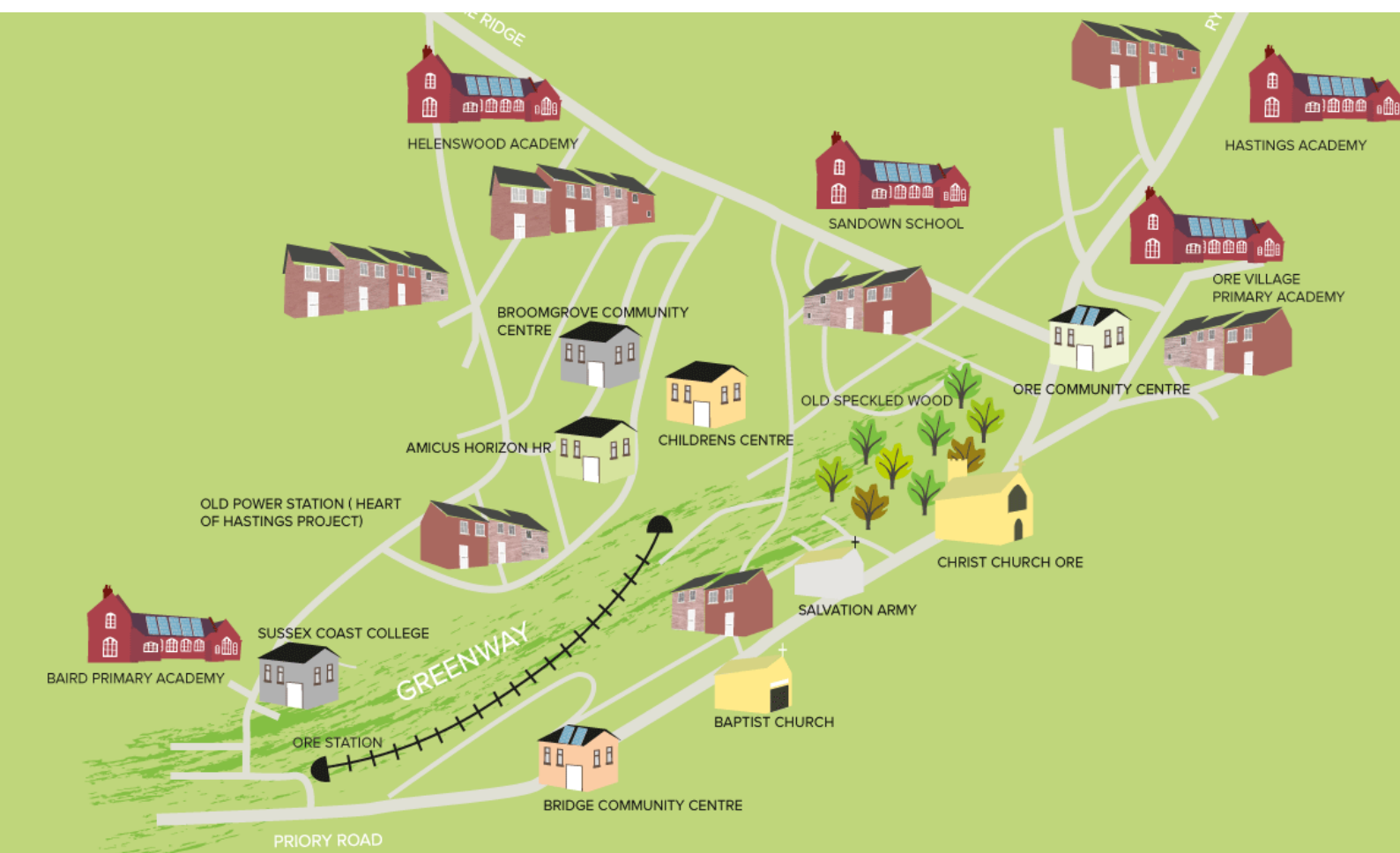
Currently in the UK domestic electricity market consumers are charged a flat price per unit, irrespective of when the electricity is used. However, suppliers buy electricity at different prices at different times of day depending on the level of demand and generation available.

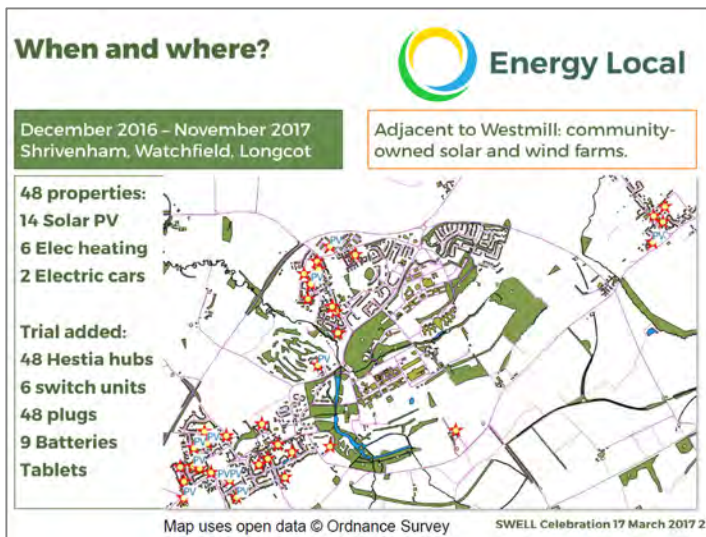
Large energy users who are on 'half-hourly settlement' can have a 'time of use' tariff (TOU) that offers cheaper prices at times of the day when suppliers can purchase electricity more cheaply. TOU's are not currently available to domestic customers.

Although smart meters can record how much electricity domestic customers use each half-hour, the market is not yet set up to use this information for their benefit.

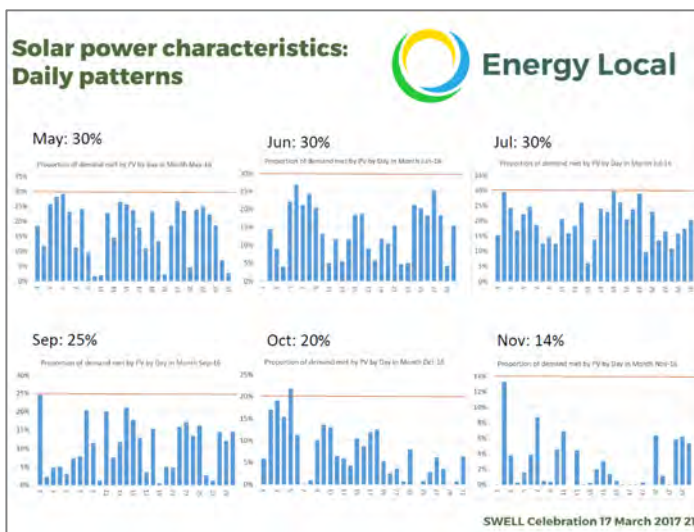
Energy Local allows a local group of domestic customers to form themselves into new type of organization, an Energy Local Club (ELC).

ESC has identified several Energy Local "hubs" in the CAN project area that would enable the forming of Energy Local clubs. Hubs include churches, schools and community centres. This step (solar generation) is essential prior to rolling out the EL model.





The SWELL pilot project established that the model worked in a sample of 48 homes.



The slide shows the % of demand met by the shared solar generation is high.

CAN Activity

ESC is a partner in the Energy Local trial project in Oxfordshire (SWELL) and is observing the second trial in Bethesda in Wales.

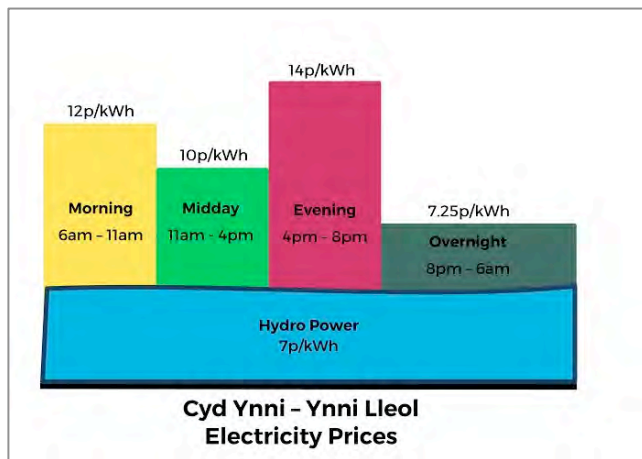
In the SWELL trial savings were calculated and the energy supplier Co-op Energy rewarded participants with Co-op supermarket vouchers.

In the Bethesda trial smart meters were fitted to 60 homes and the project was “live” with participants able to view a web based screen showing the availability of hydro power and different prices during the day. Energy Saving tips were also shown on the monitor. Savings of between 5% and 30% of annual bills are expected.

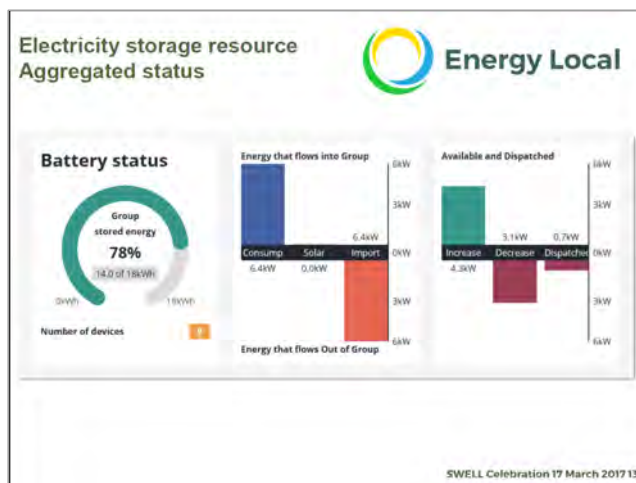
ESC is tasked with supporting the roll out of Energy Local in Sussex and the SE.

ESC has launched a 1066 energy campaign and set up a new community energy co-op to fund and install solar generation in the area.

As there have been many changes to the subsidy regime the challenge is to set up solar PV installations that are fundable *on their own* first before setting up Energy Local clubs as this will follow later. New installation must be future-proofed so that Energy Local can be added.



The Energy Local tariff in Wales shows 4 different price bands with an underlying price and availability of the locally generated hydro power. Members who check their energy dashboard will be invited to use more energy when the stream is flowing strongly or to wait till the tariff drops. This model in Hastings would be similar but the underlying tariff would be a solar tariff.



Some properties in the SWELL trial in Oxfordshire were given battery storage units. These were useful in enabling some residents to save energy and reduce costs. The batteries were built and installed by Moixa Technology, a company which has its factory in Hastings. As battery costs reduce and the number of EVs in the market increases there will be opportunities for smart micro grids to match demand, generation and storage. This will create further opportunity for Energy Local clubs.

In the SWELL trial many project participants were informed and knowledgeable and some were shareholders in a nearby Energy Co-op Energy (Westmill solar and wind farm). For deprived neighbourhoods with low income homes the benefits will need to be communicated very clearly and the organisations promoting the scheme must be trusted.

We believe the partnership between Citizens Advice, ESC, Amicus and Hastings Council will be important here.

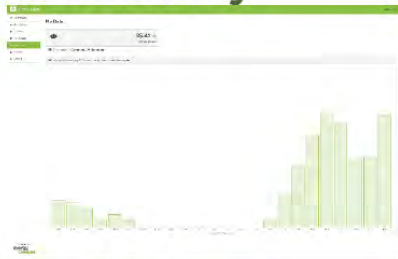
Participant displays ... and control

Live feeds

Consumption and generation


Individual


Community



Shaping signal

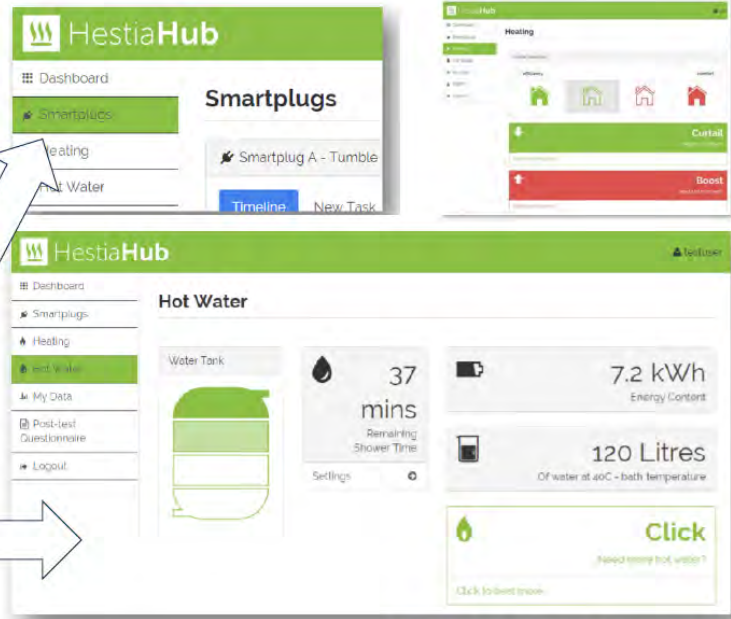
Tariff forecast





Energy Local

Created by
exergy devices



SWELL Celebration 17 March 2017

Further information for participants

Reports

Monthly summary

Welcome Pack

Guidance @ install


Newsletter

Information events


LED advice surgery

Energy game

Pub quiz



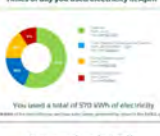
Our community power in April



£85.00


90%

Times of day you used electricity in April



You used a total of 270 kWh of electricity


Your earnings in April



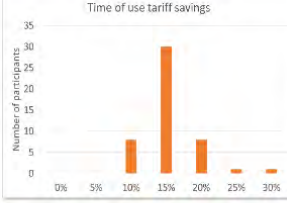
In April you earned £215.7 of Co-op vouchers. You've now earned £33 in total.

SWELL Celebration 17 March 2017


Savings by participant



Time of use tariff savings



Savings from local PV



Median time of use saving 13% (n=48) Median saving local PV 6% (n=34)

We are very grateful to Cooperative Energy for providing vouchers

Total savings to participants: £5,967 (average of £124 per participant)

Tariff savings ignores standing charges, VAT Additional income for PV generating properties
Baseline standard tariff; actual Economy 7 tariffs

SWELL Celebration 17 March 2017

CHALLENGES – current focus

- Solar generation sites need to be viable to fund without the inclusion of Energy Local clubs. This creates a slight paradox. The sites will be viable if they use most of the solar electricity generated but if they do that there will be less for local residents to share.

Solution – We see a dynamic market where several Energy Local clubs (or one large town-wide club) will see the value in adding more generation to meet demand.

- Current smart meters (SMETS 1 & 2) may not have the capacity to be calibrated for Energy Local and Category 2 smart meters will need to be installed at a later date.

Solution – As long as the nucleus site has a smart meter with 100 kWp capacity to future proof the scheme then individual smart meters can be upgraded. This is happening in the market anyway.

- Local Grid operators may not be able to reduce the Balancing and Settlement charge in domestic energy bills (currently £ 74/ per annum in Sussex) to reward Energy Local for balancing generation with demand and reducing the need for grid balancing.

Solution – by helping the DNO avoid the costs of grid reinforcement and lobbying Ofgem EL may access lower use of grid costs if all consumers are seen to benefit from the scheme.

- EL clubs require a “facilitator” role who can help set up multiple clubs in a region and manage governance and contractual issues and negotiations with suppliers (supported by the national Energy Local “hub”). This requires a part time staff member funded by another regional organisation.

Solution – Hastings Council are interested in hosting this role and Housing Associations may see the facilitation of Energy Local as an opportunity.

- The two trials have used co-op energy as a partner. Is Energy Local bound to one energy supplier or can other suppliers tender for the supply contracts? This is a key part of the EL project, that it is not tied to a specific company.