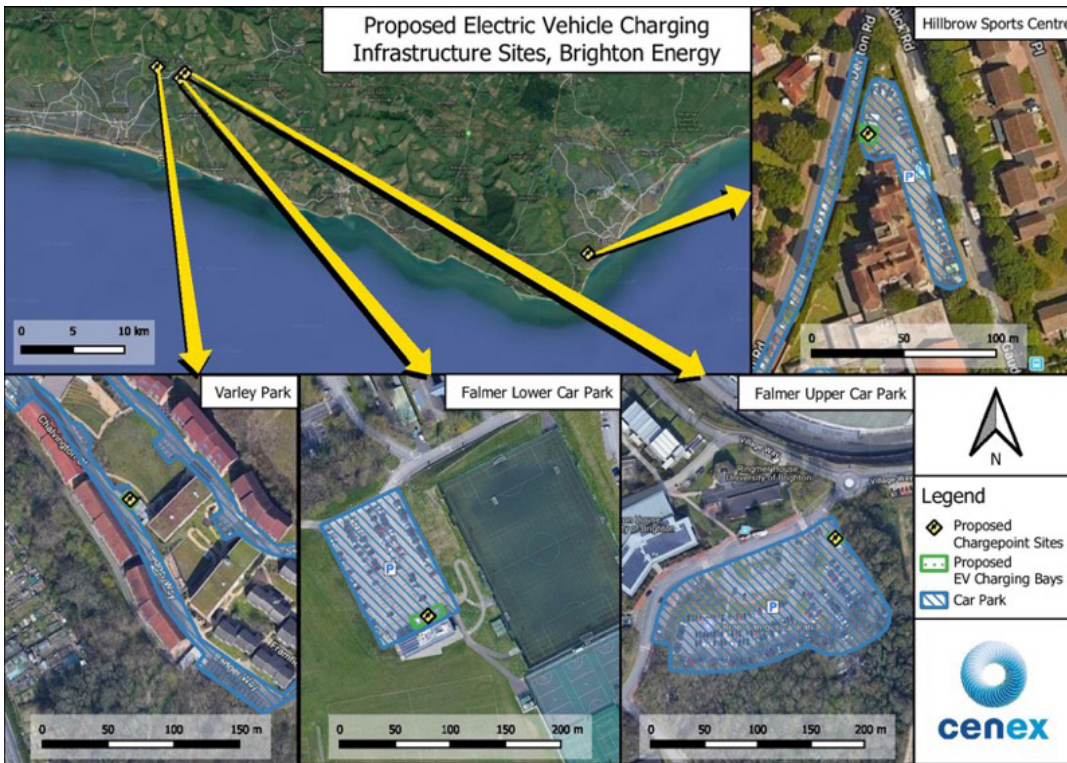




Next Generation case study: Brighton Energy Coop – Finding good locations for Electric Vehicle chargepoints June 2020



About us:

Brighton Energy Coop has over 700 members with about 70% in the Brighton area and has more than 60 solar arrays at 32 locations in the South East. Income from selling this solar electricity gets distributed between interest to our members, capital repayment and also goes into our community fund. Every year, our members vote to allocate community fund cash to local renewable energy and energy efficiency projects in the BN postcode area. We've been looking at EV charging as an alternative way of generating revenue from solar panels, potentially making community-owned solar viable after the end of the Feed in Tariff. Next Generation innovation funding from Power to Change is enabling us to pilot the installation of EV chargepoints linked to our existing solar arrays and to consider the potential for linked PV+EV investments at future sites.

Key points for Community Energy groups:

It's early days so we don't yet know how viable EV chargepoint investments will be for us, or how far they will support post-subsidy investment in solar arrays by us or other Community Energy groups. We will share findings on this in a future case study.

Our learning to date has mainly focused on how to choose the best locations for EV chargepoints. Things to think about are:

- Proximity to the nearest electricity supply, with adequate voltage
- Convenience of location for EV users
- Length of time that EV users may want to park at this location
- The voltage of chargepoint required (7-22kW or more)
- Potential competition from other EV chargepoints nearby

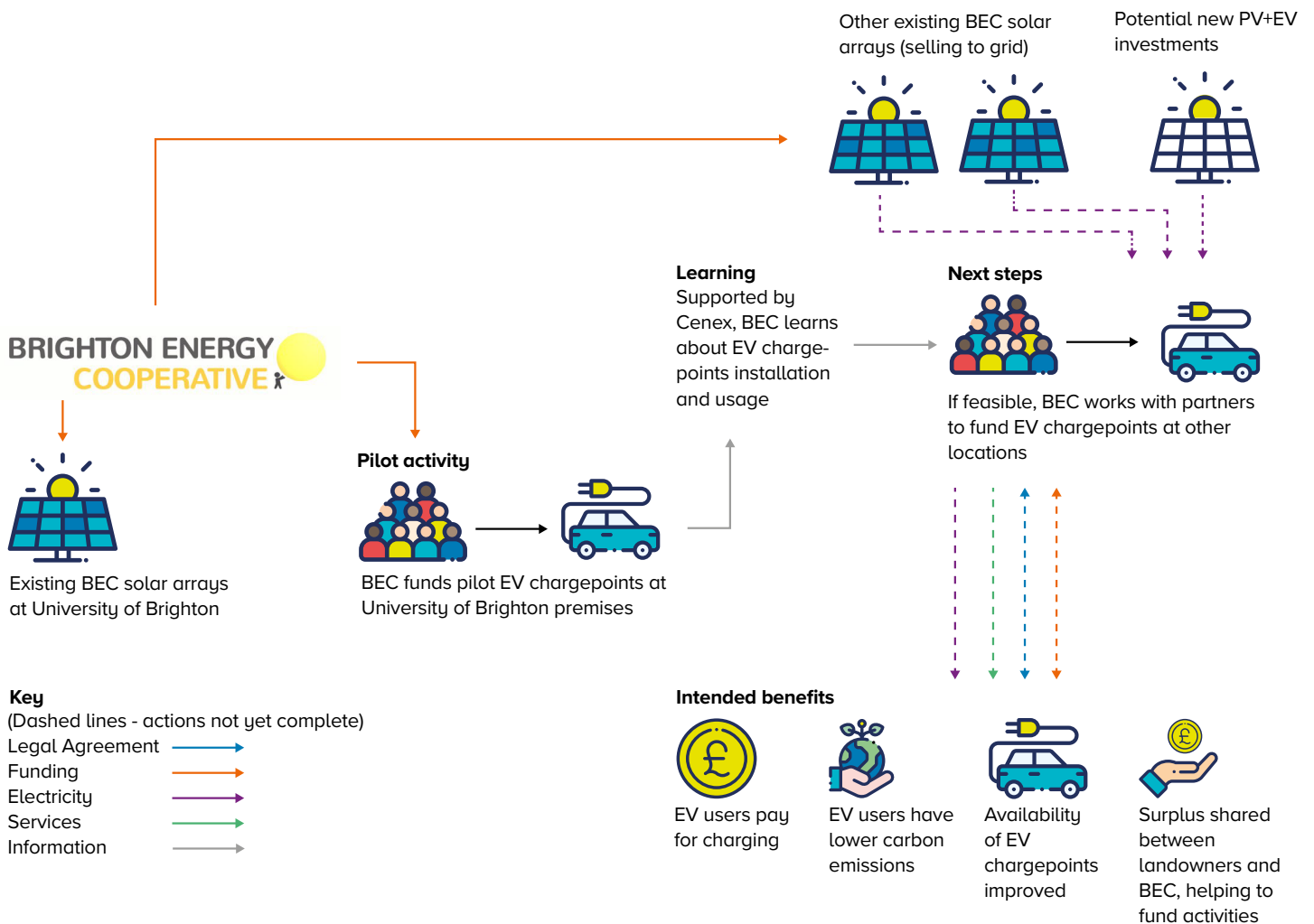
We are also learning about EV users in and around Brighton, and the feasibility of different types of chargepoints. Find out more in the sections below.

Overview of our project:

We're preparing to install ten EV chargepoints linked to our existing solar arrays, at the University of Brighton and other locations that offer workplace and 'destination' parking. This is enabling us to learn about specifying tenders for chargepoints, putting the necessary legal

agreements in place and refining our estimates of costs and revenues. To maximise the social benefits of future chargepoints, in line with the ambitions of Next Generation funding, we hope to provide chargepoints for car clubs and community transport, which can be used by those who use but can't afford to own EVs. If feasible, we hope that EV chargepoints can potentially providing an additional revenue stream for future solar PV investments to boost revenues from selling power to local organisations and the grid. A sketch of our current plans is shown in the diagram below.

Brighton Energy Coop: EV chargepoint project





Our learning so far:

About EV users in Brighton

Brighton & Hove is a city with a relatively young population, a sunny climate and a pro-environmental stance. A community initiative 'Electric Brighton' is actively promoting use of EVs in the city, and Department for Transport statistics indicate that there were over 500 plug-in vehicles in Brighton & Hove in the third quarter of 2019. Electric Brighton's 'Hug a Plug' campaign has provided information on where EV owners would like chargepoints, while the [Sussex EV Users Facebook group](#) has provided insights on the capacity, cost and location of new chargepoints. Relatively high levels of EV usage, and expected future growth, provide an opportunity for us to develop a business model for community energy based on EV/PV. While there are a growing number of EV chargepoints in the city, with Brighton & Hove Council proposing to develop 200 lamp post chargepoints, we estimate that 40% of car owners don't have off-street parking. With lamp post chargers being limited in number and capacity, additional charging locations will be required. Our solar arrays tend to be in sub-urban and city-edge locations, enabling us to offer 'renewable and community-owned' electricity to EV users, EV car clubs and community transport providers.

Factors to consider when locating and choosing EV chargepoints

Next Generation funding has enabled us to access support from CENEX, which has helped us to specify and explore the feasibility of chargepoint investments. Our initial EV chargepoints will be bought rather than leased, as leasing is currently more costly. Our research suggests that we may be able to charge £0.20-£0.30 per kWh of electric charge. In exploring the feasibility of locating chargepoints at the University of Brighton and other solar installations, we have identified a number of critical factors.

Proximity to electricity supply

We have found that laying new electric cable is costly, particularly for higher voltage supplies. So we've found that proximity to an appropriate electricity supply is often one of the most important factors in locating chargepoints. This means chargepoints often need to be near a building, because that's where the electric cables are. Care needs to be taken that there is room for EV charging spaces as well as disabled parking spaces close to buildings. Equally proximity to buildings with sufficient electrical capacity mean less disruptive and costly groundworks.

Convenience and occupation times for EV users

Another critical factor is convenience for EV users, in terms of both location and occupation times. How long do EV users want to park in a particular location? While slower charging may be feasible at home or at work/study places, faster charging is needed by people making long journeys, or those wanting to charge while on shopping or leisure trips. Charging times of 3-4 hours are feasible for 'fast' (7kW) chargers, while shorter times (under 1 hour) can be achieved using costlier 'rapid' (22kW) or 'ultra rapid' (50kW+) chargers. There are many dependencies to explore in the pilot, such as charging times being longer during cold weather and some EV models being incompatible with certain types of chargers.

Access to parking spaces

We have initially focused on locations where we already have solar arrays. Some of these locations don't offer parking for the public, which restricts the types of EV users who will be able to use the chargepoints. If an EV/PV model is to provide sufficient revenue to justify new community investment in solar, it will be advantageous to choose locations with maximum potential occupancy, ideally open to the public and to car clubs/community transport as well as EV owners.

Potential competition

We're aware that supermarkets, councils and private sector providers are also considering installation of chargepoints. Some of these may offer free charging, to encourage visitors to patronise shops or services. It's therefore advantageous for us to choose venues that are not too close to potential free charging locations (e.g. supermarkets) so that we don't end up with 'stranded assets'.

What we're doing next:

We're progressing the pilot EV installations at University of Brighton and will use these to learn about user experiences and occupation levels. Working with partners, we are currently investigating the feasibility of installing EV chargepoints linked to our existing solar array and are exploring the potential for joint PV+EV investments at well-located sites.

If you want to know more:

Contact Damian Tow
(damian@brightonenergy.org.uk)