



*“Managing increasing electricity demand, driven by decarbonisation of transport and heat is critical challenge facing the transformation of the energy system...”*

## Introduction

Digital services and platforms are critical to unlocking value from decentralisation, maximising the use of renewables and enabling more efficient operation of the whole energy system. Evergreen Smart Power is developing domestic virtual power plants to help consumers benefit from their electric vehicles providing the flexibility to balance a decarbonised grid.

Energy Systems Catapult is offering expertise in Consumer Insight and domestic energy services, scoping the competitor landscape and assessing partnering opportunities.

## The challenge

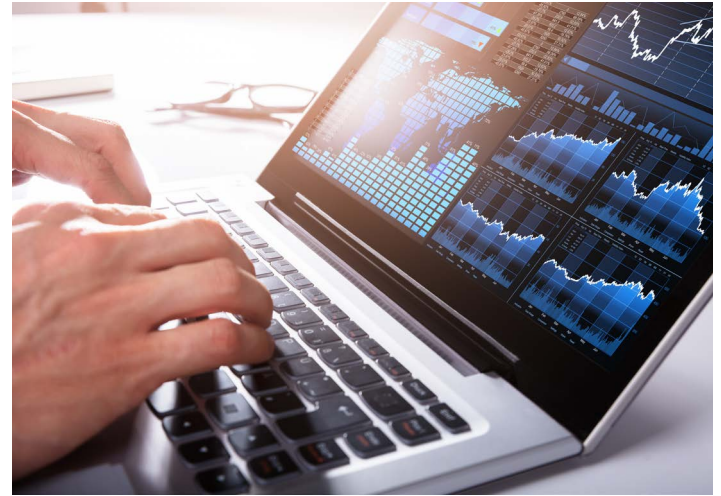
Managing increasing electricity demand, driven by decarbonisation of transport and heat is critical challenge facing the transformation of the energy system.

Accessing flexibility behind the meter using digital services and platforms are critical to unlocking value from decentralised assets - such as solar and batteries - to enable more efficient operation of the whole energy system at least cost by minimising peak demand by shifting loads away from peak periods.

## The innovation

Manchester-based Evergreen Smart Power are an innovative Virtual Power Plant (VPP) business, aggregating and controlling domestic energy loads resulting from the decarbonisation of transport and heating to suit specific customer, market, generation and grid conditions.

Evergreen’s solution for electric vehicles (EVs) can respond to grid conditions, to spread charging over off-peak hours, reducing the 7kW load of chargers that would otherwise put strain on the network at peak times, while ensuring that EVs are sufficiently charged when needed. The solution also optimises other loads, such as heat pumps and electric heaters.



Evergreen’s Smart Power solution enables:

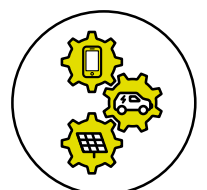
1. Consumers to gain maximum benefit from energy generation, storage and consumption;
2. Access the flexibility around domestic loads to address the challenges faced by the industry for the mutual benefit of energy stakeholders, domestic users and society.

However, VPPs are complex, cutting across systems integration, energy trading and consumer engagement models, as well as the need to work with District Network Operators and EV manufacturers. So, to overcome resource limitations and explore wider opportunities in the market, Evergreen needed additional expertise.

## Our approach

Selected as part in the first intake of the Catapult’s [Innovator Support Platform \(ISP\)](#), Evergreen Smart Power was able to access value-added expertise and skills in which many start-up business struggle for resource.

The ISP draws on Catapult capabilities and assets, along with those of our partners. The ISP provides innovators with tailored incubation and acceleration support to selected SMEs to help address systemic barriers, de-risk innovation, help businesses scale and secure investment.



# CASE STUDY: EVERGREEN SMART POWER



The Catapult focused on helping Evergreen develop their future roadmap through competitive landscaping, consumer insights/trial and detailed business model analysis.

Evergreen worked with Catapult partner Gemserv on *Competitor Landscaping* to identify competitors, key strengths and potential blind spots to help refine their target market and strategy (which informed their next work package: Business Modelling).

We then explored their Value Proposition with our *Business Model Innovation* team to help Evergreen develop their business model using insights from Competitive Landscaping work. This examined alternative target markets and revenue streams. Outputs were developed to be used for pitches to future investors.

**Consumer Insights:** As part of a separate Flexibly-Responsive Energy Delivery project our Consumer Insight team are helping Evergreen Smart Power test their main proposition with 50-100 consumers. Insights will help to refine the proposition.

## The impact

**Evergreen Smart Power Co-Founder Andy McKay** said: "This has been a high-level exercise that's allowed us to break down the key areas of focus, and identify new product and revenue streams. In the short-term, this means that we now know the three minimum viable products and services that we want to offer.

"Prior to this piece of work, we had one main product. In effect this has identified two new product variants that address innovative opportunities and other areas that will move quicker than our long-term market. This will translate into three separate platforms requiring separate teams (one or more that could be outsourced)."

As a result of their work with the ISP, Evergreen has said they are more likely to spend more money on R&D in the future:

"The ISP activity has been used to provide rigour and external review for the short-, medium- and long-term focus. It's allowed us to ensure that other industry experts have validated our focus and helped crystallised the market opportunities that we're seeking external

funding for. It's been a very useful exercise that's clarified what we want to do and when. It's also produced material that we'll use to support (efforts to) raise funding.

"It has allowed us to tap into a wide range of energy sector industry expertise with a support package tailored to our specific needs. It's an opportunity every energy start-up would benefit from."

## About Evergreen Smart Power

Evergreen Smart Power is an innovative virtual power business controlling aggregated domestic energy loads to balance electric vehicle charging, support the decarbonising of heating and integrate domestic storage into the smarter grid. They aim to reduce consumer energy bills while delivering a smarter energy system; making it easy for customers to raise or lower their energy use at certain times to help to balance the electricity network and simultaneously drive savings.

## About Energy Systems Catapult

Energy Systems Catapult was set up to accelerate the transformation of the UK's energy system and ensure UK businesses and consumers capture the opportunities of clean growth. The Catapult is an independent, not-for-profit centre of excellence that bridges the gap between industry, government, academia and research. We take a whole systems view of the energy sector, helping us to identify and address innovation priorities and market barriers, in order to decarbonise the energy system at the lowest cost.