



BEIS Innovative Domestic Demand-Side Response Competition – Summary Project Details (Phase 1)

- Feasibility studies;
- 20 projects;
- Total value of grants awarded: £0.55m

Lead Company	Partners	Project Title	Brief Project Description	Grant Award
geo - Green Energy Options Ltd	Upside Energy Ltd, National Energy Foundation, UK Power Networks	Core4Grid	Managed by geo, a rapidly growing tech business focused on the digitisation of consumer energy, Core4Grid will advance geo's home energy management system (Core) by embedding an automatic external grid signal response module, thus enabling domestic DSR for affordable new homes.	£29,938
Upside Energy Ltd	EDFE, Procure Plus, GMCA, Salford University	TRADDAS: Trading Domestic Demand at Scale	The TRADDAS project will explore options to trade domestic DSR on energy markets, similarly to the way commercial generation is currently traded. This opens a much deeper market for domestic DSR, and thus the ability to deploy it at scale.	£29,820
Energy Local CIC	NFPAS, The Megni Partnership	Flexibility through communities	The project enables communities to offer demand flexibility and to be rewarded for participation. Key elements are already in place in a pilot community of 100 households. This includes: half-hourly settlement metering, time-of-use tariff, personalised web pages to help users match their demand to local generation or lowest tariff, back-office calculation of tariff and savings from local renewable power.	£17,516
Clean Energy Prospector	N/A	Demand response within community heat+power microgrids	This project is testing the application of demand response technology and a new local supply business model to strategically control heat pumps, heat networks & thermal storage across all homes on a single substation. Partners include heat pump integrators ICAX and smart building controls provider MiniBEMS.	£29,708
Energy Trading Ireland Ltd	Choice Housing Association, Energy Systems Catapult, CSIT, PRR Associates Ltd	Identification of low cost, reliable and commercially viable technology to enable aggregated control and trading of domestic DSR	There is a great untapped potential from DSR in the domestic market, however the volume and installation costs required to provide reliable DSR capacity has meant aggregators have avoided this particular section of the market, in favour of the larger industrial loads. By the end of the project, ETI will have	£28,307



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			developed a cost effective, controllable, site installation which will integrate with and aggregate in SCADA system. The signals will be available to the DNO to provide control of diversity and or network constraint management.	
Evergreen Smart Power	SPECIFIC, Myenergi, Energy Systems Catapult, Snowdrop Energy	Integrated and co-ordinated DSR control of electricity hungry devices and appliances in the home.	Evergreen Smart Power, Myenergi, Snowdrop Energy, SPECIFIC IKC and the Energy Systems Catapult propose to evaluate the potential to control domestic loads such as immersion heaters, heat pumps and EV chargers in an aggregated fashion such that they can address electricity generation fluctuations.	£30,000
SmartKlub Ltd	Smart Innovations Grid Ltd, University of Nottingham, Limejump Ltd	The Smart Prosumer	“The Smart Prosumer” is a two phase project that will demonstrate how Demand Side Response works best by performing it at community level with community engagement. We will take two existing communities and work with them to get the best financial results for them and the energy industry.	£29,628
Powervault Ltd	Sustainable Ventures	Whole house energy management for DSR	This project will undertake a Phase 1 feasibility study to establish the customer and commercial drivers for adoption of domestic DSR, drawing on the energy consumption profiles of Powervault’s existing customer base. Phase 1 will also assess the macro-UK domestic DSR opportunity and draw conclusions on the appropriate business models.	£30,000
Energise Barnsley	Oxford Brookes University, Sonnen, Upside Energy,	DSR for homes with air source heat pumps in Barnsley	This project aims to use the thermal stores installed in the homes with the air source heat pumps’ to shift the peak demand of the homes away from peak national electricity demand, and to further flatten the profile spikes of electricity demand from these houses, whilst incentivizing the tenants to react to a price based demand side response through the installation of a smart battery.	£22,356
Sunamp Ltd	OVO Energy Ltd	Micro-Aggregator for Flexibility on Thermal Energy Stores (MAFTES)	To develop a novel micro aggregator architecture that has easy deployment characteristics and can be built into every DER device at very low cost. To do this it leverages the “app” paradigm (one easy-to-	£27,440



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			develop app per DSR type) running on “SunampOS”, an extended Linux (or possibly Android), within a sub-£5 Raspberry Pi Zero (separate from the DER’s own controller facilitating safety and security).	
Sero Energy Ltd	BRE Ltd, Minus7 Ltd, sonnen GmbH	FLATLINE (Fixed Level Affordable Tariffs Led by Intelligently Networked Energy)	The project will deliver typical domestic energy consumers with set price heat and power fuel bills through an innovative integration and management structure between the collaborators’ systems. Stable monthly bills will be possible by using a combination of domestic Demand Side Response and demand shifting (for both heat and electricity) across networked districts of homes, operating to control domestic appliances, heating, photovoltaic generations and battery storage in combination.	£22,246
Boxergy	Energy Systems Catapult	Boxergy Phase 1	Boxergy is a start-up company inspired by the need to decarbonise domestic heating and make it more affordable for all. Our systems combine highly efficient electric heating with energy storage. They perform better than gas boilers, cost less to run and allow our customers to reduce their carbon footprint without compromising their comfort. Our business model means those in fuel poverty are just as able to access our services as anyone else.	£24,144
Levelise Ltd	Baxi Heating UK Limited, Ecuity Consulting LLP	Ubiquitous Storage Empowering Response (USER)	The Ubiquitous Storage Empowering Response (USER) project will seek to widespread the prosumer role in the domestic sector by means of AI-led hot water tanks. Currently, there are 9 million hot water tanks, which if appropriately managed, represent realising a 27 GW demand response latent opportunity.	£29,996
Passiv-Systems	Energy Systems Catapult	No Regrets Renewable Responsive Heating Project	The No Regrets Renewable Responsive Heating Project brings together PassivSystems, EDF Energy, Newcastle City Council and Energy Systems Catapult in a project that seeks to test if new hybrid heating consumer propositions that incorporate value from DSR can find	£30,000



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			a viable high volume route to market.	
Electric Heating Company	Voltalis, Our Power, Delta EE	Power of Home Optimisation & Management of Energy (HOMEs)	Power of HOMEs, a joint project between Voltalis (European leader of residential demand-side management), Our Power (energy retailer), Electric Heat Company (manufacturer of electrical heating) and DeltaEE (consulting company), with ambitions to show how domestic properties can deliver demand-side services capacities and contribute to energy efficiency and cost optimization for consumers.	£28,986
Gengame Ltd	GridDuck, EnAppSys, Newcastle University, Teesside University, Ecotricity	Nudge Nudge, Switch Switch - Using Gamification and Behavioural Economics to deliver domestic DSR	GenGame, GridDuck, EnAppSys, Ecotricity Newcastle and Teesside Universities propose to evaluate the potential for a holistic approach to domestic demand-side response. We will investigate whether state-of-the-art techniques in digital marketing, consumer mobile application development, big data analysis, IoT technology, behavioural science and gamification can be combined to deliver a massively scalable and repeatable approach to deliver cost-effective DSR in the UK.	£23,280
Greater London Authority	UKPN, Moixa, RE:Powering	Home Response	Home Response is led by the Greater London Authority (GLA) and inspired by its project partners. This project has identified a specific set of London properties that are suitable for trials of new energy demand side management. The project aims to make use of a range of existing innovative technologies and services that are deployed in households, such as battery storage, and configure them in new ways to unlock the Demand Side Response (DSR) potential. Doing so will cut bills, reduce energy demand and reward domestic energy users for their flexibility.	£19,401



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CityWest Homes Ltd	Thames Heat & Power	Application of Demand Side Response to Domestic Hot Water Supplies	<p>It has been estimated that immersion heaters in UK homes have a total connected load of 20GW and are installed in domestic hot water (DHW) tanks offering an aggregated energy storage of 55GWh. On this scale domestic immersion heaters clearly offer an important opportunity for Demand Side Response (DSR).</p>	£7,000
Carbon Co-op	Community Energy Scotland, EV Parts Ltd, Megni	Developing an open and standards based approach to DSR	A partnership led by Carbon Co-op and Community Energy Scotland (CES) will deliver 'Open DSR' a project assessing the feasibility and demonstrating the real-world potential for an open source, standards-based approach to demand side response (DSR) management services.	£24,559
Mixergy Ltd	N/A	DDSR-HW	A consortium covering an electricity utility, an aggregator and a technology provider are collaborating to refine their market leading demand side response (DSR) smart home experience in 100 DSR enabled households. The key component within this system is Mixergy's (technology provider/device aggregator) proprietary intelligent hot water tank, based on leading innovations from the University of Oxford. This grant will enable these parties to optimise its proposition to domestic users, specifically regarding, 1. smart home interoperability (a key element for household iteration with domestic DSR) and 2. the commercial proposition to households and other electricity market stakeholders.	£0