

Vulnerable Customers and Energy Efficiency

Low Carbon Networks Fund

Project Progress Report – January to June 2014



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1 Executive Summary

This report details the progress of UK Power Networks' Low Carbon Network Fund project, Vulnerable Customers and Energy Efficiency (VCEE) from successful award of funding through to June 2014.

1.1 Project background

Distribution Network Operators (DNOs) are forecasting increasing and uncertain demands on their electricity networks as a result of the electrification of heat and transport, and increased usage of micro and distributed generation. To help mitigate these substantial challenges, DNOs are exploring flexible alternatives to manage demand on the network through the introduction of demand side response (DSR) and the benefits from wider energy efficiency measures where they reduce peak demand. To date there has been little direct research and operational attention directed at supporting and investigating the extent that residential customers who are in fuel poverty, a group with significant overlaps with those who are vulnerable, can be engaged in shifting demand and achieving energy savings.

The VCEE project therefore aims to enhance insights into the needs of fuel poor customers, and to explore the means to engage with them to facilitate increased participation in energy efficiency and DSR. The project will demonstrate the extent to which this residential customer group are able and willing to engage in such activities, the benefits that they can realise from their participation and consequently how reductions in demand and changes in their demand away from network peak demand periods can benefit the network by deferring or avoiding network reinforcement. The project was awarded funding of £3.3 million by Ofgem, under the Low Carbon Networks Fund (LCNF) scheme in December 2013 and will last four years, from January 2014 to December 2017.

The project aims to demonstrate and provide DNOs and the industry with evidence-based learning on how to work with third party agencies to deliver energy efficiency and DSR campaigns to assist DNO management of increasing and uncertain demands on the network.

1.2 Summary of Progress

On 10 January 2014 the project held a kick off meeting with the project partners and the project supplier. This meeting was intended to set the vision for the mobilisation phase, namely to reach contractual agreements and data sharing arrangements, and ensure that the whole team were clear about the challenges ahead regarding the tension between research and interacting with residential customers in a real-life situation.

The core project team is now resourced at a satisfactory level, with a lead in place for all workstreams (WS). The core team was fully established at the end of March 2014. Currently for the role of WS1 lead, an interim resource is in place with representation from one of the project partners, CAG Consultants. The recruitment process for a permanent WS1 lead has commenced.

Appropriate governance and control processes have also been developed and implemented based on those in existing UK Power Networks' LCNF projects for consistency. These are documented within the project's handbook.

The project is split organisationally into workstreams, four in total. WS1 is dedicated to recruiting and maintaining the involvement of trial participants; WS2 is dedicated to coordinating the smart meter installs and associated time-shifting and saving products; and WS3 is dedicated to analysing the research of the trials which feed into the assessment of benefits for the customers and the DNO. A final workstream, WS4, is concentrating on communicating the findings.

Within the current reporting period, the workstreams have made good progress. WS1 designed and submitted to Ofgem a Communications Plan and Data Privacy Strategy for a planned focus group consultation in June 2014 with residential customers to gather feedback on the project's key messages and recruitment materials. This was approved by Ofgem on 24 April 2014 and the document can be found following the link:

<http://innovation.ukpowernetworks.co.uk/innovation/en/Projects/tier-2-projects/Vulnerable-Customers-and-Energy-Efficiency/>.

WS1 has also made considerable development on the Communications Plan and Data Privacy strategy for the project trials. This involved consultation with a number of external experts to ensure that the plan follows best practice.

The project will be recruiting trial participants using appropriate and trusted local organisations. The team of local project partners (two social housing landlords plus an innovative local community centre) that will be responsible for delivering the recruitment and engagement of trial participants is now in place, with the recruitment of a team of dedicated Customer Field Officers underway.

WS2 and WS3 has made considerable progress in the development and refinement of the trial design of the project with design workshops being held with relevant project partners and the project supplier to develop and refine the customer, technical and research framework.

Looking ahead to the next reporting period the Customer Field Officer team will be in post. Recruitment and engagement materials will have been produced; influenced by the feedback received at the June focus group. Also, an alternative external name / brand of the project will have been selected as the project depends on the successful engagement with the local community, and it was decided that the current name, Vulnerable Customers and Energy Efficiency (VCEE), would not be appropriate when communicating with residential customers. The research and technical design of the project will have been delivered along with the process for selecting the trial participants, formalised in the first Successful Delivery Reward Criteria (SDRC) 9.1. Most notably in December the project will have concluded a significant element of the recruitment of trial participants.

1.3 Risks and Issues Summary

At the end of this year, the project will run a pilot study with credit metered customers that require standard communications installation. This pilot study will test three things: the response rate of fuel poor customers to sign up to the project; the projects' communications materials; and the operational coordination between the Customer Field Officer Team and British Gas Smart Energy Expert to gain access to the customer's home for installation.

The project will commence customer recruitment and installation from January 2015, with it completing latest by July 2015. Trial 1 would run either as planned from March 2015 – February 2016 or at the latest from August 2015 – July 2016 dependant on the availability of prepayment functionality and fuel poor recruitment rates. If the later start to finish is realised then trial 2 would run from November 2016 – October 2017 compared to the earlier running of July 2016 – June 2017. In both scenarios the project will conclude December 2017 to allow delivery of the SDRCs.

Recruitment Risks and Issues

The Customer Field Officer team is critical to build the capacity within the local partner delivery structure to recruit residential customers onto the project trials. There is a risk that the recruitment and the appointment of the team is delayed due to insufficient candidates of the right calibre applying for the roles. If this were to occur then this would reduce the team's capacity to recruit and deliver a phase of face-to-face recruitment, which could lead to both under-recruitment and poor response rate of trial participants. To mitigate against this the job descriptions for the roles were developed in collaboration with the local project partners and widespread advertising of the positions via several available local partner channels. For example, twitter, LinkedIn, websites, newsletters etc. The total number of applications received for the Customer Field Officer team was 51.

Procurement Risks and Issues

The communications solution for installing smart meters and In Home Displays in complex Multiple Dwelling Units (MDU) with challenging meter arrangements will be selected through a tender that is being run by the project partner, British Gas. British Gas is looking to run the tender and subsequent contractual agreements in the next reporting period. The risk is that the solution procured does not work, which at the moment the project views as minimal but will manage with the project Partner, British Gas aiming to complete both soak testing and system integration by the end of 2014, in order to test that the solution works and for it to be approved for installations to take place from January 2015.

Installation Risks and Issues

The project aims to install smart meters at both credit and prepayment customer dwellings. Credit smart meters have been developed, whilst prepayment smart meter functionality is currently under development and as such presents an external dependency to the project. Smart meters with prepayment capability are a prerequisite for including prepayment metered customers onto the trials therefore if the functionality is not delivered on time the project will be unable to install smart meters to prepayment customers. The project is actively monitoring the progress of the smart prepayment readiness in order to identify and flag any early warning signs of delays early that may impact the project's timescales through continued engagement and monitoring with British Gas.

Other Risks and Issues – Core Team Recruitment

While the project has made good progress in recruiting the core team, recruitment activities occurred later than anticipated. This has mainly impacted the development of the detailed WS plans, which will now be completed in July 2014. To mitigate any risks to other key deliverables, the project partner CAG Consultants was appointed within the current reporting period and has supported progress remaining on track for key milestones on the engagement with the project's customers.

Other Risks and Issues – Trial Intervention

The project had planned in trial 1 for control group trial participants to install a smart meter without an in-home display to log the half hourly electricity consumption profile (with the in-home display then being provided in trial 2). However during the design activities, the project identified that for prepayment customers, the introduction of a smart meter would present itself as an intervention. This is in terms of change of behaviour due to new top-up methods and self-disconnection procedures; creating a hybrid customer group that is not representative of current prepayment customers, compromising a control group for robust research findings. The project is assessing whether any risk to the trial results warrants any additional cost associated with secondary meeting.

1.4 Learning and Dissemination Summary

The following key dissemination and communication activities have taken place to date to raise the profile of the project internally and externally, plus partner awareness on key project items / deliverables:

External	Internal	Project Partners
-Circulation to all DNOs of the LCNF Survey that captured learning from previous/current LCNF projects that had recruited or engaged with residential customers -National Energy Action London & South East Fuel Poverty Forum	-Two Future Networks events to publicise the project -Operational Telecommunications Roadshow	-Research workshop hosted by University College London -British Gas Training Centre visit in Leicester

As part of WS4, which is dedicated to learning capture, dissemination and stakeholder engagement, a Knowledge Dissemination Roadmap has been developed in order to outline the project's strategy for learning capture and dissemination. This can be issued on request.

2 Project Manager's Report

The project aims to demonstrate how DNOs, in collaboration with a supplier, charity groups and local community actors, can engage with fuel poor customers in order to facilitate their involvement in energy efficiency and demand side management. Several studies have demonstrated a 'technical capability' to reduce or shift energy based on studies of appliances in different types of household, and their usage. The project proposition is to show that residents are willing and able to achieve 10% of the fuel poor 'technical capability' for demand reduction and time-shifting services. The project started on 1 January 2014 and is due to complete on 31 December 2017.

This section describes the progress made by the project in the first reporting period (January 2014 through to June 2014), including the key milestones and deliverables met, any issues encountered, and provides a high level outlook into the next reporting period through to December 2014.

2.1 Progress in the current reporting period

2.1.1 Initiation, Mobilisation and Governance

Within the first period of the project, the initial focus following funding award was to appoint and mobilise the core project delivery team and develop and set-up the local partnership team.

The project has now appointed and mobilised the core project delivery team reflecting the workstream structure that was designed during the bid phase. A project team is in place to ensure the project is delivered efficiently, on time, within the budget and to the required quality.

Furthermore, the team of local project partners (two social housing landlords plus an innovative local community centre) that will be responsible for delivering the recruitment and engagement of trial participants is now in place, with the recruitment of a team of dedicated Customer Field Officers successfully underway.

The roles and responsibilities of the project team structure have been documented in the Project Handbook, along with the governance and reporting structures.

Where possible, individuals from the project bid team were transitioned into permanent full-time or part-time roles on the project from January 2014, including the project lead and key personnel from CAG Consulting. This has ensured some stability and continuity of project knowledge during the set-up phase.

Remaining roles of the project have been filled through new recruitment into UK Power Networks, and has resulted in three new members of staff in the team. Supporting roles have been mobilised through the appointment of existing UK Power Networks' employees as part of their existing business unit activities; for example support from legal and subject-matter-experts (SMEs) in Customer Services and Stakeholder Engagement.

All workstreams, with the exception of a permanent WS1 lead role have been resourced. The WS1 position is currently being managed by the team with project partner, CAG Consultants.

The following organisation chart, **Error! Reference source not found.** shows all the allocated resources within the project structure as of June 2014.

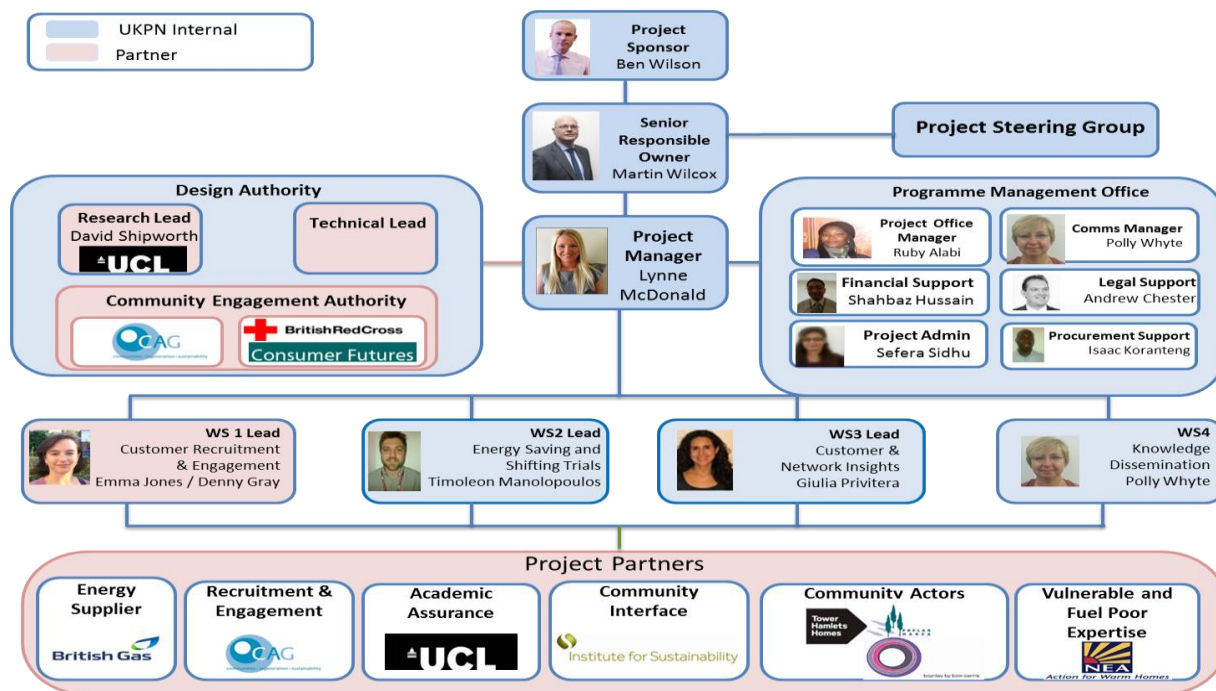


Figure 1: Vulnerable Customers and Energy Efficiency organisational chart

A gap in actual FTE numbers when compared to the estimated monthly values in the bid document has been observed in the first reporting period from months January to March. This has been mainly due to resources being slower to recruit and join the project team than assumed in the bid document. The project team was established at the end of March 2014. The project in April resumed the planned resource capacity, with an equivalent of circa 5 full time employees (FTEs) in the core delivery team (not including senior responsible roles).

The completion of legal contracts (project and collaboration agreements) with project partners has been a key priority. The contractual mechanism that UK Power Networks has chosen to implement is based on a separate contract with each project partner, whilst to the extent possible maintaining the same terms and conditions between UK Power Networks and the project partners. Alongside an overarching collaboration agreement that establishes the partnership principles between all project partners.

Although not explicitly declared within the bid submission, both gas and electricity smart meters will be installed for dual fuel customers participating in the project. The research focus of the project remains the electricity side only and the aim will be to determine only the electricity profile of the fuel poor customers.

The decision was taken by the project on the advice of British Gas to carry out the installation of both meters in the engineer same visit for dual fuel customers as this would reflect the real world scenario during the enduring phase of the Smart Meter Implementation Programme. It would also provide the best customer experience and avoids duplicating costs for two visits. As such the project feels this approach would enhance the integrity of the project replication model.

The project consulted with University College London representing the research authority of the project and considering that the highest proportion of the fuel poor customers in Great Britain are dual fuel customers (within the context of the smart meter roll out), it is reasonable to install both electricity and gas smart meters in order for the project results to be replicable in 2018.

The completion of legal contracts (Project and Collaboration Agreements) with project Partners has been a key priority. Namely the collaboration agreement as this is a document that requires sign-off by all project Partners.

The contractual mechanism that UK Power Networks has chosen to implement is based on a separate contract with each project Partner, whilst to the extent possible maintaining the same terms and conditions between UK Power Networks and the project Partners. Including an overarching collaboration agreement that establishes the collaboration principles between all project Partners.

Table 1 below illustrates the current status of the project’s Partner Project and Collaboration Agreements.

Project Partner	Project Agreement and Collaboration Agreement Status	Comments	Target Date
British Gas	Contract tracker in place. Several meetings held to progress contractual agreements.	Both parties are working together in order to reach agreement on the contracts.	July 2014
University College London	Contract tracker in place. Several meetings held to progress contractual agreements.	Both parties are working together in order to reach agreement on the contracts.	
Bromley by Bow Community Centre	Contract review has been undertaken.	The project is focusing on agreeing the Collaboration Agreement with project Partners, British Gas and University College London. This is to reduce the number of variations and agreement iterations that would require to be reviewed by project Partners with smaller legal arms.	
Tower Hamlets Homes	Contract review has been undertaken in parallel with Poplar HARCA. Review and position on initial terms and conditions have been discussed and responded.		
Poplar HARCA	Contract review has been undertaken in parallel with Tower Hamlets Homes. Review and position on initial terms and conditions have been discussed and responded.		
Institute for Sustainability	Contract review has been undertaken.		
CAG Consultants	Contract review has been undertaken.		

Table 1: Project and Collaboration Agreement Status

Looking ahead to the next reporting period, the project’s priorities are as follows:

- Ensure all contractual agreements are in place with project Partners.
- The hosting the focus group consultation run in June 2014 and analysing the output from them.
- Selection of an alternative external name / brand of the project.
- Submission and approval of the Communications Plan and Data Privacy Strategy for the project trials.
- Delivery of the research and technical design of the project along with the process for selecting the trial participants formalised in the first Successful Delivery Reward Criteria (SDCR) 9.1.

2.2 WS1 - Customer Recruitment and Engagement

WS1 is responsible for recruiting trial participants on to the project trials and sustaining their engagement throughout. The WS will produce all necessary communication strategies and plans of how the project and project partners will engage and impact upon Relevant Customers. Moreover, it is responsible for defining the eligibility criteria of the project for trial participants.

Within the current reporting period, WS1 has focused on defining the local partner delivery structure and producing the key documents to gain Ofgem approval to enable the project to commence recruitment / engagement with its Relevant Customers. To support these activities, discrete plans were developed and agreed with project partners, namely the local project partners. For example a plan for recruiting the Customer Field Officers has been developed and the process for finalising the Communications Plan and Data Privacy Strategy for the project trials was circulated to all local partners. Furthermore, from mid-April, the local partners have met/spoken with the WS1 lead on a weekly basis to progress and coordinate key tasks.

Key activities undertaken included:

Identification of Fuel Poor Customers and Fuel Poverty Indicator

To inform the process for deciding which householders are eligible to take part in the project trials, a discussion document was prepared which was circulated to project partners for comment. This explained how fuel poverty is defined and listed the eligibility criteria used by other programmes targeting fuel poverty. Following discussion with partners, the eligibility criteria are being finalised. The project has worked closely with the social housing landlords to align this with the available data sets.

Communications Plan and Data Privacy Strategy

In this reporting period it was determined that two Communications Plans and Data Privacy Strategies would be submitted to Ofgem for approval. This was on the grounds that two distinct recruitment and engagement activities were taking place. One a focus group consultation at the end of June 2014 and the second the start of recruitment and engagement for the whole project trials at the end of 2014.

Focus Group Consultation

A focus group will be held at the end of June 2014, to test the project's key messages and recruitment materials with representatives from the trial area community, selected on the basis that they are representative of the project's target customer group. A Communications Plan and Data Privacy Strategy were developed, in consultation with relevant project Partners, for this focus group. This plan was submitted to Ofgem on 20 March 2014 and was approved by Ofgem on 24 April 2014 following a Question and Answer (Q&A) process. The project is now in the process of developing the agenda and run-sheet for this event; local partners have identified and have begun inviting suitable participants.

Project Trials

Considerable development on the main Communications Plan and Data Privacy Strategy for the project trials has been undertaken. A number of project partner workshops were organised to inform the development of the plan; these also involved the project supplier and National Energy Action (NEA). The project has also consulted with eleven expert stakeholders, through a thirty minute telephone interview, to seek their guidance on the planned recruitment and engagement approaches. These stakeholders included academics, practitioners and policy makers. The documents will be submitted to Ofgem imminently.

Customer Field Officer Team

Recruitment is now well underway for the dedicated team of Customer Field Officers that will be responsible for recruiting and engaging trial participants. Job descriptions and person specifications were developed for four different posts in total; a Customer Field Officer Manager (FOM), two Customer Field Officers (FO), a Customer Field Officer Assistant (FOA) and three Recruiters. The recruitment process commenced with job advertisements going live on the 8 May 2014 on Bromley by Bow Centre's website; the roles are also advertised via numerous other channels – some as an example, Poplar HARCAs and Tower Hamlets Homes websites, LinkedIn, twitter, council services, East London Advertiser. Applications closed on 28 May 2014. The FO, FOA and Recruiters are due to be in post by August 2014, the FO Manager by the end of July 2014. By Thursday 28 May 2014 when applications closed, the project received 51 applications for the Customer Field Officer team.

2.3 WS2 – Energy Saving and Shifting Trials

2.3.1 WS2 progress

WS2 is responsible for the technical design and implementation of the Energy Saving and Energy Shifting trials. In cooperation with WS3 which incorporates the research assurance of the project, WS2 is responsible for:

- defining the package of interventions (smart meters, In Home Display (IHD), energy saving advice, etc.) that will be provided at trial 1;
- the Time Of Use Tariff and energy shifting technologies that will be deployed within trial 2;
- the temperature monitoring solution that will be provided at the trial participants' premises; and
- also deals with monitoring of network at substation level.

WS2 is focused on the technical aspect of the trials and the feasibility of the technological solutions. It is responsible for the Multi Dwelling Unit (MDU) Communications Infrastructure that will be deployed and for monitoring of the development of the prepayment smart meter functionality that will be utilised at prepayment customers.

Within the current reporting period, WS2 has focused on defining the scope of services and discussing the project plan over the four year period with the main operational project partner, British Gas. At the time of reporting, the project plan submitted as part of the bid submission is being used for planning activities and tracking progress. The detailed project plan will be developed by the end of July and the following activities have been progressed already:

- The plan for the tender of the MDU Communication Infrastructure has been developed.
- High level milestones able to track progress have been proposed and were discussed at the project plan workshop on the 27 May 2014.
- The scope of involvement of British Gas has been agreed in principle and key milestones are currently being refined between the two parties in order to finalise the Project Agreement.
- The project plan for selecting the energy saving and energy shifting devices has been determined and is expected to conclude to the final list of selection of devices; this will be communicated in the next reporting period..
- The detailed project plan including forecast of activities for the whole duration of the project.

Key activities undertaken included:

MDU Communication Infrastructure

In this reporting period, British Gas has undertaken a visual inspection of housing stock in the project area with both Poplar HARCA and Tower Hamlet Homes. They identified 4 Multi-Dwelling Units (MDU) that would be suitable to trial a communications backbone infrastructure enabling smart meter Home Area Network (HAN) services in buildings with challenging metering arrangements. The MDUs were categorised by the following use cases, with category D indicating suitability for the trial.

A	Meter in Dwelling unshielded
B	Meter in Dwelling in Steel cabinet
C	Meter in cupboard on communal landing
D	Meter In ground floor cupboard

In June British Gas will be launching a Request for Quotation (RFQ) inviting suppliers to respond with a turnkey MDU communications backbone solution that can be integrated into British Gas smart metering infrastructure, in Foundation stage of the Smart Metering Implementation Programme.

British Gas expects a number of vendors to respond to the RFQ and is confident they will be able to appoint a supplier that could deliver a turnkey solution that would integrate with British Gas' smart metering infrastructure with little to no change to British Gas' existing systems.

In July British Gas hopes to select a provider in order to begin full technical assessments of potential category D buildings in August 2014. Between October to the end of 2014, British Gas aims complete both soak testing and system integration testing in order to approve the MDU solution for installations to take place from January 2015.

Smart Meters

With over 1.3 million smart meters installed by British Gas to date, the installation of smart meters for credit customers is very much business as usual. British Gas hopes to work with the project Partners to maximize access rates for installations and deliver an integrated customer experience with the project. However, British Gas' capability to install smart meters with prepayment functionality is a prerequisite for including prepayment metered customers in Trial 1 and is considered essential to the project from a research point of view.

Smart Prepay is an integral part of British Gas' Smart Metering Trial Programme and is subject to a number of interdependencies within their business; as such the timetable of smart prepayment functionality is outside the scope of influence of the VCEE project. Progress on prepayment therefore continues to be treated by the project as an external project dependency.

The British Gas project team continue to engage and monitor progress of the smart prepayment trials in order to identify and flag any early warning signs of delays that may impact the project timescales.

High Level Technical Design

The high level principles for the technical solution of trial 1 and 2 are being developed. This provides an overview of the technical solution of the trials that will be implemented within the project. It covers aspects such as equipment that will be installed in each group of trial participant's homes, advice that will be provided by the British Gas Smart Energy Experts and Customer Field Officers and overall experience that the trial participants will receive. It also includes the design of the temperature logger solution that will be installed within the trial participant premises to ensure that no confusion has arisen and turn-down of heating has taken place. The final principles of the high level design are subject to the solution selected to manage the issue encountered with trial interventions, where the project is exploring the installation of secondary metering to the control group in trial 1 rather than a smart meter without an IHD plus the potential for remote temperature logging.

2.4 WS3 – Customer & Network Insights

2.4.1 WS3 progress

WS3 is responsible for the development of qualitative and quantitative research methods that will enable the project to gain insights of the impact of the trials' intervention measures on customer behaviour and potential to reduce peak demand on the network. The resources required by WS3 in order to coordinate the work and carry out the research activities and analysis were put in place in the beginning of the reporting period with the WS lead joining the project at the end of March 2014. This resulted in some of WS3 key activities (i.e. detailed workstream project planning, agreement of specific University College London (UCL) services and deliverables, trial design, etc.) being postponed until March. However, this delay has been recovered with prompt and good engagement of all the different WS3 components.

During the reporting period WS3 has worked in collaboration with the project partners in order to define the research methods that will be used during the course of the project to ensure academic rigour and statistical significance to the project findings, and has been reflected in the low level detailed description of all project activities. These activities have included a series of workshops with project partners to finalise the trial design. Good progress was made towards the resolution of the main outstanding questions for WS3, such as customer selection criteria, sampling method and

participant allocation to Intervention and Control groups. This has led to a more accurate definition of the services and activities that University College London will carry out for VCEE.

In order to ensure the effective management of WS3, internal weekly meetings have been conducted between UK Power Networks and UCL. Project partner meetings, held in conjunction with the Project Manager, the other workstreams and local partners, have been also conducted regularly with the aim of coordinating the efforts of the different project components toward the successful delivery of the individual specialist products. Finally, WS3 has contributed to three workshops, which have been crucial for the identification and resolution of the fundamental challenges related to the development of recruitment and engagement strategy and the design of VCEE trials. All the generated knowledge relevant to WS3 is being captured by UCL in a Research Trial Design Report, which includes a low level detailed description of all the research details associated with both the participant selection and trials. To date, a comprehensive Research Trial Design Strawman has been produced and the report is now in progress and is on track for completion by October. For this purpose, UCL has identified the key research questions and hypothesis related to each SDRG, together with a range of potential methods to be used to address such questions and verify such hypotheses.

Key activities undertaken included:

Eligible participants' pool size assessment

Prior to project commencement, UCL determined the appropriate number of people to recruit into the randomised control trials (550 in total) in order to maintain a level of significance that will ensure good internal and external validity. Internal validity refers to the ability to say how likely it is that the effects of the interventions trialled by the project are real, i.e. the capacity to distinguish between intervention and control groups; external validity refers to the ability to say how likely it is that the energy savings and shifting observed in the project apply to the wider fuel poor population for project replication. Given the final target of recruiting 550 participants, it was originally planned that to randomly select a pool of 1,100 participants out of British Gas customers who fit the project eligibility criteria, assuming a recruitment success rate of 50%. Nevertheless, as stated in the bid, a 50% success rate would have been extremely ambitious, and this was reassessed after a literature review and consultation with experts in the field, in anticipation of factors such as potential non-response at recruitment stage and attrition during trial 1. Therefore, UCL has now suggested to select 1,650 eligible customers to be invited to sign up to the trial (assuming a 1 in 3 successful response), in order to ensure higher statistical confidence to the successful recruitment of 550 trial participants by the end of the year, in line with the project plan. The target remains ambitious but will be led by trusted local project partners. As recruitment progresses, the effect on the external and internal validity of the trials will continue to be monitored.

Identification of Fuel Poor Customers and Fuel Poverty Indicator

A thorough review of fuel poverty definitions and indicators was conducted by WS1, and further literature was examined by UCL. It was found that there is no single method of identifying those in fuel poverty. However, the Hills Review conducted in 2013 has suggested a new definition of fuel poverty in the UK, i.e. 'low income, high costs', and this has informed the definition and related indicators used in this project. There are many variables and factors that determine whether a person is living in fuel poverty or not. According to the 'low income, high cost' definition, part of the calculations are based on standard building models (i.e. BREDEM). Initially, the project aimed to be very specific about who was in fuel poverty, based on characteristics of people's homes and other indicators related to income, age, number of people in a household, etc. In line with the basis of the Hills Review's reliance on modelled data, the project will concentrate on the publically available data on Energy Performance Certificates (EPCs). The lower the EPC, the lower the efficiency of the building, which means householders may pay more for their overall gas and electricity bill than those in buildings with higher EPCs. This means there is a greater risk of fuel poverty in lower EPC buildings.

2.5 Key issues encountered

Within the current reporting period, the negotiations of the Memorandum of Understanding (MoU), project and collaboration agreement have taken longer than expected. After discussion with each relevant key project Partner (WS1 – British Gas and WS3 – University College London), it was decided to drop the MoU negotiations with each in order to avoid duplicating effort and focus on the collaboration agreements which will be the main document governing the collaboration of the partners for the entire project period. Negotiations on the agreements are still in progress. For details of the delay in concluding Project and Collaboration Agreements – please refer to *Section 2.1.1*.

2.5.1 WS1: Customer Recruitment and Engagement

Mobilisation Issue

A key issue has been getting sufficient time input from the local partners, resulting in delays in getting responses to queries and getting documents signed off. This is being managed by working to agree a detailed budget with the local partners as quickly as possible, so that they are clear on the time they need to be able to commit to the project and clear when they will be paid for this. This includes the Customer Field Officer team salaries and overheads, the local partner time input, and all the costs associated with the recruitment and engagement such as developing the project brand, producing the communication materials and running events.

2.5.2 WS 2: Energy Saving and Energy Shifting Trials

Installation Issue

An issue with monitoring the trial 1 control group's half hourly consumption profile was identified. The project had planned in trial 1 that the control group trial participants would have a smart meter without an in-home display installed to log their half hourly electricity consumption profile (with the in-home display then being provided in trial 2). However as part of project design activities, the project identified that for prepayment customers, the introduction of a smart meter would in itself constitute an intervention because it would alter top-up methods and changes the self-disconnection nature/ action that pre-payment meters introduce for the customer; which could influence the customer's behaviour. The project requires the control group to be representative of the current customers in Great Britain i.e. a prepayment customer should only be capable of topping up via a key card to derive valuable and robust research findings. The project is assessing whether any risk to the trial results warrants any additional cost associated with secondary meeting.

2.6 Project outlook onto the next reporting period

A critical milestone that will be reported and met within the next reporting period will be delivering the project's first SDRC (SDRC 9.1), the 'Trial Design and Identification of Customer Participants'.

2.6.1 WS1: Customer Recruitment and Engagement

The next reporting period is critical to establish an appropriate and skilled customer recruitment and engagement workforce for the project. This includes:

- Ofgem approval of the Communications Plan and Data Privacy Strategy for the project trials.
- The Customer Field Officer team is due to be in place by 1 August, with the manager starting a week earlier on 24 July 2014.
- The Customer Field Officer team will undertake a training and induction programme during the month of August, getting familiar with the key contacts at the local partners and being trained to give energy advice as well as in research skills. They will also introduce themselves and the project to local community groups and networks. The project is in the process of developing the training and induction programme for the team.
- The focus group will be held at the end of June. A report will be written on the findings, and the recruitment messages and materials will be refined and finalised shortly thereafter. Materials will be designed and printed by 1 August, ready for the Customer Field Officer team to work with.
- The recruitment process is planned to take place from September 2014. At the beginning of September, the initial invitation letter will be sent out by the Customer Field Officer team to all potential trial participants, with a follow up letter and further follow up by phone and door knocking, plus some local sign up events. Installations will be booked in as the participant signs up. This will follow the process as submitted in the Communications Plan and Data Privacy Strategy for project trials; which will have been submitted and the project hope to receive approval within the next reporting period.

2.6.2 WS2: Energy Saving and Energy Shifting Trials

The next reporting period is of crucial importance as it is focusing on ensuring the technical feasibility of the project trials and development of specialist products. This includes:

- The completion of the tender selection for a MDU Communication Infrastructure provider by July 2014.
- By the end of the year, British Gas aims to have completed both soak testing and system integration testing in order to approve the MDU solution for installations to take place from January 2015.
- Determination and identification of a solution to the issue identified in this reporting period on the trial interventions – please refer to *Section 1.3*.
- Continued monitoring of the external dependency for prepayment smart meter functionality to be ready for trial 1.

2.6.3 WS 3: Customer and Network Insights

The next reporting period is of crucial importance as it includes guidance on key activities and the preparation and approval of the UCL research activities for the project. This includes:

- Development of a survey to understand where customers go and who they trust for advice within their social networks.
- Development of an exit survey to understand why participants drop out.
- UCL Ethics review and approval of UCL's research activities.
- Statistical analysis on the recruitment success rates and reasons for non-participation.
- Determination of the level of confidence in research findings that the project will deliver against the number of trial participants recruited.

3 Consistency with full submission

The project is on track to deliver the learning outcomes consistent with the bid submission. The following has been noted to have changed since bid submission:

Memorandum of Understanding (MoU): The project declared that it would conform to LCNF IPR requirements, and a MoU will be put in place and signed with each project partner that reflects acceptance of these arrangements in full. The signing of the Memorandum of Understanding between UK Power Networks and British Gas plus UK Power Networks and University College London had taken longer than expected and coincided with the negotiation of the collaboration agreement between the respective two parties. Due to the fact that both documents were dealing with the treatment of IPR, it was agreed between UK Power Networks and each British Gas and University College London to cease working on the MoU and focus on the IPR treatment within the context of the collaboration agreement. This decision was taken on the grounds on achieving resource and time efficiency. An official letter has been provided by both British Gas and University College London stating the above and declaring that the discussions on the Treatment of IPR will continue within the context of the collaboration agreement. The loss of the MoU will have no impact as the IPR arrangements will be covered off in full within the collaboration agreement.

Focus Group: The project had set out in the full bid submission that it would run 'a set of focus groups'. The project instead will host one focus group in June 2014 to consult with community members on the recruitment and engagement materials. Over and above this the project has consulted with external specialists on the planned approaches of recruitment and engagement. The single focus group formed part of the communications plan submitted to and approved by Ofgem during this reporting period.

Customer Recruitment: In the full bid submission the project outlined that in order 'to ensure the robustness of the research, and minimise self-selection bias, British Gas customers who fit the project eligibility criteria will be identified and a sample of 1,100 drawn. Recruitment will then target those 1,100 customers. The sample of 1,100 assumes a recruitment success rate of 50% (response rate of 1;2 i.e. 2 participants will be contacted and 1 will respond positively) thus giving the sample size of 550. Post bid award and within the period for the trial design, the project has been exploring the response that would be achievable, acknowledging that a 1:2 response rate is ambitious. The project took the decision to increase the number of the eligible participant population from 1,100 persons to 1,650, allowing for a

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response rate of 1:3. The project will test and explore the response rate of 1:3 through the pilot study that is now planned for end of 2014. This will enable the project to determine if it will achieve the 1:3 response rate and if not allow the project to make an informative decision of how to operate the recruitment process for the project trials e.g. if we observe within the pilot study instead a response rate of 1:10 then the project would explore sending an invitation letter for the trials to a larger customer sample; in the case of 1:10 it would be 5,500 customers.

4 Risk Management

The project has established a risk management process, as described in detail in the VCEE Project Handbook. It allows for the communication and escalation of key risks and issues within the project, and defines where decisions will be made and how these will be communicated back to the workstream where the risk or issue has arisen. Risks are reviewed weekly at workstream level and fortnightly at project level by the Project Board. Key project risks are then escalated to the Project Steering Committee for review and approval of the mitigation on a monthly basis.

4.1 Full Submission (BID Risks) – update

Ref#	Risk & Impact Description	BID Mitigation	Mitigation (update)	Status
BID-R001	At the bid stage the appropriate UK Power Networks' staff does not engage adequately or in a timely manner with the project. Resulting in poor engagement and delays in getting internal buy in for the project.		Internal buy-in during the bid stage was successfully obtained.	CLOSED
BID-R002	Final Funding may not be awarded. Therefore, the project would not be able to be carried out in 2014.	Ensure quality bid submission through regular review, clear differentiation and stakeholder engagement.	The project successfully secured funding from the LCNF competition run by Ofgem in November 2014.	CLOSED
BID-R003	Project partner(s) withdrawing their participation at the start of the project, leading to delays.	<ul style="list-style-type: none"> (a) Letter of intent from British Gas and in discussion on MoU (b) Letters of support from each local community actor (c) Other partners engaged and attended two project partners meetings (d) Project partner sessions during evaluation process to invite local community actor partners on to partner meetings (e) MoU discussions with all partners during evaluation process 	<ul style="list-style-type: none"> (a) British Gas letter of intent was received. (b) Letters of support from the local partners were obtained. (c) Project partners and supplier have attended the project partner meetings in 2014. (d) Local partners as project partners have attended the partner meetings. (e) An MOU or Collaboration Agreement is in place with all project Partners and the project Supplier with the 	

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Ref#	Risk & Impact Description	BID Mitigation	Mitigation (update)	Status
		(f) NDAs in place for most partners, need to get an NDA in place with local community actors	exception of CAG Consultants who have a Consultancy Agreement in place. Please refer to section 3.0 (f) NDAs are in place with all project Partners and project Supplier. Please see section 2.2.1 summarising the contract status.	
BID - R008	Recruitment and engagement strategy not adequately tested with wider industry. Therefore not fit for customer audience.	(a) Advanced invite to review workshops, following UK Power Networks stakeholder processes (b) Invite representatives who deliver and interface directly with vulnerable and fuel poor (c) Draw upon the learnings from literature review and LCN Fund factsheet (d) Expert partner secured to lead on recruitment and engagement (e) Appropriate pre-engagement testing included in plan	(a) and (b) Acknowledging time constraints of external experts, consultation conducted via phone interviews rather than workshop. (c) Strategy based on literature review and LCNF factsheets to ensure recruitment and engagement approaches follows best practice. (d) Project partner, CAG Consultants is leading on the project recruitment and engagement strategy, harnessing all of the skills and valuable inputs from the project partner team through workshops and reviews. (e) Focus group will be undertaken in June 2014 with the trial area community to test messages/recruitment literature taking place before recruitment commences.	
BID - R009	Poor response to energy social capital surveys. Therefore dilutes quality of findings.	(a) Application of best practice survey administration ("Dillman method") (b) Use of trusted intermediaries to deliver follow-up survey reminders (c) Face to face reminders through engagement events	Compensation payments for effort involved in the survey completion are planned to be given to trial participants e.g. in the form of a book of stamps. This will be issued together with the survey.	
BID -	Poor turn-out rate to focus group	(a) Use of trusted intermediaries to host focus groups	(a) Local partners are recruiting	

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Ref#	Risk & Impact Description	BID Mitigation	Mitigation (update)	Status
R010	trailing customer acceptability of recruitment materials. Therefore communication materials have a higher likelihood of not being well received by customer audience and not being effective.	(b) Use of non-trial vulnerable and fuel poor to participate in focus groups	<p>participants to the focus group that will be held in June 2014. This may prevent a poor turn-out rate as the invite is coming from a trusted and known organisation that the focus group participants have contact with.</p> <p>(b) The project is encouraging participation by offering incentives (£30 voucher or a hamper), transport to and from the focus group, food and drink, and childcare if necessary</p> <p>(c) The project is hosting the focus group at a time likely to be most convenient to the participants (late morning). This has been supported through the steer and advice from the local project partners.</p>	
BID - R011	Poor response to non-participation questions during recruitment process. Therefore, limited understanding / learning for recruitment strategy not being effective.	<p>(a) Follow-up a sample of non-participants with telephone interviews</p> <p>(b) Invite non-participants to engagement events and discuss reason for non-participation</p> <p>(c) Discuss reasons for non-participation with community leaders and key members of trusted intermediary groups.</p>	<p>Written exit survey will be provided in order to capture the reasons for non-participation at first before proceeding with (a).</p> <p>Invitation to engagement events (b) can be included in the exit survey.</p>	
BID - R012	High attrition to successive waves of energy social capital survey. Therefore, limited understanding / learning for where the customer audience looks to for energy advice.	<p>(a) Application of best practice survey administration ("Dillman method")</p> <p>(b) Use of best practice in panel survey maintenance</p> <p>(c) Use of trusted intermediaries to deliver follow-up survey reminders</p> <p>(d) Face to face reminders through</p>	<p>Compensation payments for effort involved in the survey completion are planned to be given to trial participants e.g. in the form of a book of stamps. This will be issued together with the survey.</p>	

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Ref#	Risk & Impact Description	BID Mitigation	Mitigation (update)	Status
		engagement events		
BID - R013	Poor participation in interviews by trial participants during the trials. Therefore, limited understanding / learning of customer journey.	(a) Use of data from social capital surveys to identify participants' trusted parties for energy advice and engaging trusted parties in interviews enrolment. (b) Piggy-backing interviews onto wider participation engagement events to minimise participant disruption.	The mapping of trusted parties might be carried out in parallel to the social capital surveys, not as part of them. The possibility to engage trusted parties in interviews enrolment will be assessed. Plus a written exit survey will be provided in order to capture the reasons for non-participation/attrition before proceeding with phone interviews.	
BID - R014	Poor response to reasons for attrition questions when participants' elect to leave the trial. Therefore, limited understanding / learning of their drop in interest.	(a) Follow-up a sample of trial leavers with telephone interviews (b) Invite trial leavers to engagement and thank-you events and discuss reasons for leaving the trial (c) Discuss reasons for trial attrition with community leaders and key members of trusted intermediary groups.	The project also plans to develop a written exit survey in order to capture the reason for drop out.	
BID - R015	Differential attrition between the within-trial intervention and control groups. Therefore, could bias findings.	Telephone interviews with participants who withdraw from the trial for their reasons. Analysing these interviews to see if there are substantial differences in reasons for withdrawal from the intervention and control groups. Mapping these reasons onto existing explanatory theories of energy demand to see if they are likely to bias the findings from the study. Estimating the magnitude of any such potential biases from the findings of previous studies.	Written exit survey to be sent to those who withdraw from trial survey in order to capture the reason for drop out.	

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Ref#	Risk & Impact Description	BID Mitigation	Mitigation (update)	Status
BID - R016	Participants being unwilling to be randomly allocated to intervention and control groups. Selection bias introduced.	Interviews with participants requesting allocation to either the intervention or control group to determine the reason for their request. Mapping these reasons onto existing explanatory theories of energy demand to see if they are likely to bias the findings from the study. Estimating the magnitude of any such potential biases from the findings of previous studies.	The project plans to manage this through delivering clear communications during the recruitment phase that outlines that there are two customer journeys within the trial and allocation will be made once sign-up has been complete so as to manage their expectations and, minimise the chances for participants to complain.	
BID - R017	Failing to meet recruitment targets for the intervention and control groups. Impacts generalisation of findings.	Use post-hoc statistical power estimation to determine the statistical confidence with which results can be generalised (see under-recruitment risk scenarios- Appendix E)	<ul style="list-style-type: none"> - Recruitment based on best practice, with key messages tested at a focus group and compensation payments included to encourage participation. - Ensure Customer Field Officers have necessary skills to persuade people to take part by including this in job description and testing at interview. - Ensure recruitment materials are persuasive and understandable by testing at the focus group that will be held in June 2014. - Employ additional recruiters to assist with signing up participants. - Reserve pool (taken from those not already selected from initial sampling frame) has been put in place to draw upon if recruited numbers do not provide enough statistical confidence. - Recruitment period might be extended if recruited numbers do not provide enough statistical confidence. 	

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Ref#	Risk & Impact Description	BID Mitigation	Mitigation (update)	Status
<p>BID - R018</p>	<p>Metering failures resulting in higher than expected levels of missing data for network modelling. Network model findings compromised. For the delivery of SDRC 9.4.</p>	<p>Analysis of missing data to check for systematic versus random errors. Imputation of missing values using expectation maximization (EM) methods. Estimation of the biasing effects of missings on network modelling findings.</p>	<p>(1) British Gas has been focused as part of their business as usual processes in improving the data integrity it is receiving from the smart meters and it confirmed that it has accomplished a suitably high rate. There are still going to be data gaps in the dataset received by the smart meters, but the number of gaps would allow for data imputation, on average.</p> <p>(2) British Gas is collecting both 48 half hourly data and 1 collective daily reading from each smart meter. In case data gaps exist within the dataset, the daily reading can be combined with the half hourly data for the purpose of filling any data gaps.</p> <p>(3) Define the scope of a data analysis that would look at the data at frequent intervals and detect gaps in the smart meter data. This action would result in early flags of big data gaps.</p>	
<p>BID - R019</p>	<p>Differential attrition between the two within-trial intervention and control groups in trial 2. Introduction of bias.</p>	<p>Telephone interviews with participants who withdraw from the trial for their reasons. Analysing these interviews to see if there are substantial differences in reasons for withdrawal from the intervention and control groups. Mapping these reasons onto existing explanatory theories of energy demand to see if they are likely to bias the findings from the study. Estimating the magnitude of any such potential biases from the findings of previous studies.</p>	<p>Use of written exit survey in order to capture the reason for drop out.</p>	

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Ref#	Risk & Impact Description	BID Mitigation	Mitigation (update)	Status
BID - R020	Significant participant dropout between trial 1 and trial 2 and its impact on sample sizes. Impacts generalisation of findings.	Use post-hoc statistical power estimation to determine the statistical confidence with which results can be generalised.	<ul style="list-style-type: none"> - Comprehensive programme of on-going engagement to minimise drop out. Includes compensation payment at end of trial. - Research the best customer engagement strategies that promote participant retention 	
BID - R021	Metering failures resulting in higher than expected levels of missing data for network modelling. Network model findings compromised. For the delivery of SDRC 9.5	Analysis of missing data to check for systematic versus random errors. Imputation of missing values using expectation maximization (EM) methods. Estimation of the biasing effects of missings on network modelling findings.	<p>(1) British Gas has been focused as part of their business as usual processes in improving the data integrity it is receiving from the smart meters and it confirmed that it has accomplished a suitably high rate. There are still going to be data gaps in the dataset received by the smart meters, but the number of gaps would allow for data imputation, on average.</p> <p>(2) British Gas is collecting both 48 half hourly data and 1 collective daily reading from each smart meter. In case data gaps exist within the dataset, the daily reading can be combined with the half hourly data for the purpose of filling any data gaps.</p> <p>(3) Define the scope of a data analysis that would look at the data at frequent intervals and detect gaps in the smart meter data. This action would result in early flags of big data gaps.</p>	
BID - R022	Poor turn-out rate at customer thank-you / learning events. Learning not disseminated	<ul style="list-style-type: none"> (a) Use of trusted intermediaries and communications channels to promote event (b) Instruct Customer Field Officers who have 	<ul style="list-style-type: none"> (a) Trusted intermediaries now in place to undertake this. (b) Customer Field Officers currently 	

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Ref#	Risk & Impact Description	BID Mitigation	Mitigation (update)	Status
	effectively to the customer audience.	built a trusted interface to rally customers for attendance (c) Send a thank-you and learning update leaflet at the end of each trial	being recruited.	
BID - R023i	Learning not disseminated effectively to all stakeholders as different parties will have different interests and learning styles. Leads to learning being lost.	(a) Design of a dissemination roadmap that identifies targeted stakeholders and their preference in style and interest (b) use pre-testing activities and customer focus group to test learning materials and discover their preference	Dissemination roadmap developed and attached in <i>Appendix A</i> .	
BID - R023ii	Due to the nature of the buildings in which the smart meters will be installed, communications difficulties are encountered	(a) Supplier project partner has already successfully completed trials of communications solutions specifically for difficult buildings (tower blocks) and has strong interest in further enhancing the solution to inform smart meter rollout (b) Significant time and effort allocated in the project plan to identify and resolve any difficult building communications issues prior to installation of smart meters	(a) British Gas Smart Commercial Expert accompanied by UK Power Networks completed a visual inspection of the housing stock in the trial area and identified a number of buildings candidate for a Multi Dwelling Communication Infrastructure solution (b) British Gas will be launching RFQ in June in order to select supplier for the MDU solution. (c) The selected MDU Supplier is going to undertake an engineering survey of the identified buildings of the housing stock in the trial area in order to determine the feasibility of the MDU solution in these buildings.	
BID - R024	Availability of smart metering equipment not realised, therefore delay to trial 1.	(a) Supplier project partner has confirmed that smart metering equipment with necessary functionality will be available by Q4'14, and installation planned for latter part of Q4'15	UK Power Networks engaging with British Gas to monitor progress of Prepay Change Programme for early warning signs. Also key milestones to be built in	

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Ref#	Risk & Impact Description	BID Mitigation	Mitigation (update)	Status
		and early part of Q1'15 to allow for some delay	the project plan as project has no influence on Prepay Change Programme delivery and should be treated as an external dependency	
BID - R025	MoU cover with all partners.	<ul style="list-style-type: none"> (a) Obtained the support and letter of intent from British Gas (b) Obtained the support from the other partners and all have been working collaboratively (c) Pursue the agreement of mutually acceptable contract terms with all partners 	<ul style="list-style-type: none"> (a) British Gas letter of intent was received. (b) Letters of support from the local partners were obtained. Project Partners and Supplier have attended the project Partner meetings in 2014. (c) An MOU or Collaboration Agreement is in place with all project Partners and the project Supplier with the exception of CAG Consultants who have a Consultancy Agreement in place. Please refer to section 3.0 	

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4.2 Risks that have arisen in the reporting period

Ref#	Risk & Impact Description	Mitigation (update)	Status
R0028	Delay in recruiting the Customer Field Officer team because insufficient candidates of right calibre apply. Would reduce the team's capacity to recruit customers resulting in knock on delays	Widespread advertising of the positions via all local partners channels including Bromley by Bow Centre website, LinkedIn page, Twitter, Tower Hamlets Homes website, Poplar HARCA's website, Local People Local jobs, and Poplar HARCA employment Team.	
R0029	High turnover of Customer Field Officers due to job dissatisfaction and/or not staying in post until end of fixed term contract. Potential disruption to on-going engagement; potential additional cost as replacement staff need to be trained up	Currently investigating options for incentivising staff to stay to the end of their contract.	
R0052	Insufficient budget to cover all the tools required to undertake effective recruitment. Customer Field Officer salary costs higher than anticipated as initial costs did not account for employer NI and pension contributions in the original estimates. Would reduce capacity to recruit customers	Detailed budget developed In consultation with Bromley by Bow Centre. In kind support secured for e.g. focus group and participant panel venues and translation costs.	
R0053	Insufficient Customer Field Officer resource to adequately support participants in trial 2 due to resource being frontloaded during initial recruitment phase. Could lead to delays in implementing trial 2 and/or increased drop out.	Contingency budget to be reserved for additional trial 2 Customer Field Officer resource if needed.	
R0054	Delays in signing contracts with local partners and/or uncertainty about how much of local partners' time input will be paid for by the project and what they are expected to provide in-kind. This results in reluctance by local partners to commit adequate resources to the project, and consequent delays in getting documents signed off.	Regular liaison with local partners to resolve these issues.	
R0048	Required project materials for University College London's Ethics Committee Chair's review may not be ready in time for the review to be completed timely for the project material to be printed out before the start of participant recruitment. Delays might occur and reflect on the timely start of trial 1.	(1) Prioritisation of UCL's project materials that have to be developed and reviewed by UCL Chair's before the start of participant recruitment. Even though it is advisable that project materials developed by UCL are reviewed all in once, materials not required at recruitment stage can be	

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Ref#	Risk & Impact Description	Mitigation (update)	Status
		<p>submitted to Chair's review at a later stage.</p> <p>(2) Develop a specific plan for project material printing and realise in order to align the material production and Chair's review to the printing timeframe requirements.</p>	
R0045	<p>If prepayment customers in control group have a smart meter installed, the research method won't be able to confidently identify the impact/ benefit of the interventions on the customers' consumption and cost.</p>	<p>(1) The project is exploring the solution of data loggers as secondary meters for the control group in order to collect the half-hourly electricity consumption data without introducing a change in prepayment customers' behaviour</p> <p>(2) Should the budget not be enough to cover the total cost of the data logging solution, the project can investigate the installation of data loggers only in prepayment customers and provide to credit customers a smart meter without the In Home Display. UCL has confirmed that this approach with credit customers won't impede the research results.</p>	

5 Successful Delivery Reward Criteria (SDRC)

SDRC	Criteria	Evidence	Date	Progress
9.1	<p><u>Trial Design and Identification of Customer Participants</u> Detailed design of energy saving and energy shifting trials incorporating definition and identification of fuel poor customers</p>	<ul style="list-style-type: none"> • Approved Trial Design Report • Agreed set of fuel poverty / vulnerability indicators and targeted customer pool. 	By end of October 2014	<p>SDRC 9.1 is on track for delivery on time.</p> <p>Completed:</p> <ul style="list-style-type: none"> • Agreed set of fuel poverty indicators have been identified • The research design principles are in progress, with the majority been completed and agreed, and will be delivered in line with the plan. • The high level assessment of the housing stock for the MDU Communication Solution has been completed. <p>In progress:</p> <ul style="list-style-type: none"> • The identification of eligible customer participants has made significant progress and will be delivered in time. • The high level technical design principles and report are in progress and will be finalised at the end of the current reporting period/ start of the following period. • Assessment of impact of smart gas meter installation on research findings
9.2	<p><u>Customer Recruitment</u> Effective recruitment of</p>	<ul style="list-style-type: none"> • A review of best practice in fuel poor 	By end of April	<p>Completed:</p> <ul style="list-style-type: none"> • Review of best practice in fuel poor

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SDRC	Criteria	Evidence	Date	Progress
	fuel poor customers	<p>customer recruitment.</p> <ul style="list-style-type: none"> • Identification of trusted intermediaries within the trial area community and their relationships with trial participants. • A quantitative mapping of participants' energy knowledge resources (energy social capital survey) within their social networks i.e. where they turn to, and who they trust, for knowledge about energy. • Findings from customer focus group testing of clarity and acceptability of recruitment communication materials. • Statistics on recruitment success rates and reasons for non-participation. • Qualitative evidence on the efficacy of different recruitment channels, strategies and materials. 	2015	<p>customer recruitment complete.</p> <ul style="list-style-type: none"> • Trusted intermediaries identified and contract discussions underway. • Focus group organised for June 2014 • Project partners workshop to define requirements for customer recruitment held; • Definition of communication messages during recruitment phase through the production and sign off of the Communication Plan and Data Privacy Strategy for project trials; <p>In progress:</p> <ul style="list-style-type: none"> • Assessment of the efficacy of different recruitment channels, strategies and materials; • University College London's support to WS1 in Focus Group to test the efficacy of the recruitment materials;
9.3	<p><u>Energy Saving</u> Impact of energy saving trial interventions – level of fuel poor participation and network impacts</p>	<ul style="list-style-type: none"> • Quantitative analysis of Trial 1 energy savings through within-trial intervention-group to control-group comparison. • Quantitative analysis of Trial 1 control-group contamination effects through within-trial control-group to external to trial control-group comparison. • Statistical generalisation of the energy savings to the wider UK Power Networks, and national fuel poor customer base. • Representation of network impacts 	<ul style="list-style-type: none"> • By end of June 2016 	<p>Completed:</p> <ul style="list-style-type: none"> • Assessment of best research design to construct an internal control group; <p>In progress:</p> <ul style="list-style-type: none"> • Selection and procurement of energy saving devices; • Identification of requirements to select the external control group; • Definition of data requirements for energy saving quantitative analysis and network modelling;

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SDRC	Criteria	Evidence	Date	Progress
		<p>through half-hourly network modelling within the trial area.</p> <ul style="list-style-type: none"> • Comparison of realised energy savings against previous estimates of technical potential energy savings in fuel poor customer group. • Insights on customer protection during the trial. 		<ul style="list-style-type: none"> • Customer Protection: temperature logger selection and temperature monitoring strategy;
9.4	<p><u>Customer Engagement</u> Effective engagement with fuel poor customers</p>	<ul style="list-style-type: none"> • A review of best practice in fuel poor customer engagement. • A review of best practice in trial panel maintenance (i.e. methods to minimise participant dropout), particularly in trials with vulnerable participants. • Quantitative analysis of longitudinal survey of participants' energy knowledge resources (energy social capital) within their social networks and how these have changed over time. • Findings from interviews with trial participants on the efficacy of different engagement activities conducted throughout the trials. • Statistics on participation attrition and reasons for participant drop-out. 	By end of August 2017	<p>Completed:</p> <ul style="list-style-type: none"> • Review of best practice in fuel poor customer recruitment. <p>In progress:</p> <ul style="list-style-type: none"> • University College London's evaluation of customer engagement strategy; • Assessment of the level of customer engagement that promotes participant retention, necessary for rigorous, statistically significant findings.
9.5	<p><u>Energy Shifting</u> Impact of energy shifting trial interventions – level of fuel poor participation and network impacts</p>	<ul style="list-style-type: none"> • Quantitative analysis of Trial 2 energy shifting difference between Group 1 and Group 2 through within-trial intervention-groups comparison. 	<ul style="list-style-type: none"> • By end of October 2017 	<p>In progress:</p> <ul style="list-style-type: none"> • Initial selection of energy shifting devices; • Definition of data requirements for energy shifting quantitative analysis

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SDRC	Criteria	Evidence	Date	Progress
		<ul style="list-style-type: none"> Quantitative analysis of Trial 2 energy shifting through pairwise comparison between intervention Group 1 and the external trial control-group, and intervention Group 2 and the external trial control-group comparison. Statistical generalisation of the energy shifting to the wider UK Power Networks, and national fuel poor customer base. Representation of network impacts through half-hourly network modelling within the trial area. 		<p>and network modelling;</p> <ul style="list-style-type: none"> Customer protection: temperature logger selection and temperature monitoring strategy.
9.6	<p><u>Knowledge Dissemination</u> Effective dissemination of new knowledge generated from the project's captured learning.</p>	<ul style="list-style-type: none"> 1x external learning event carried out for SDRC 9.1 – 9.5, and presentation materials shared 2x internal learning events carried out per SDRC, and presentation materials shared 2x thank-you events carried out for trial participants 1x end of project customer learning event completed for trial participants, and presentation materials shared Presentation of the project at least twice a year at external seminars / workshops, with presentation materials shared 	By end of December 2017	<ul style="list-style-type: none"> University College London's Abstract accepted for the BEHAVE conference, Oxford; Circulation to all DNOs the LCNF Survey that captured learning from previous/current LCNF projects that had recruited or engaged with residential customers; National Energy Action London & South East Fuel Poverty Forum; Two Future Networks events to publicise the Project; Operational Telecommunications Road show; Research workshop hosted by University College London; British Gas Training Centre visit in Leicester.

6 Learning outcomes

6.1 Other key learning outcomes

WS1

Developing a local partnership: At the outset be clear with local partners about what the project will and won't fund and the expectations on local partners in terms of their time and resource input. This is helpful in maintaining a positive and productive partnership. If requiring local partners to provide evidence of their time on a project, agree the process for this with them up front, and provide a timesheet template to them at the outset. Provide plenty of notice to partners about meeting dates and, where possible, consult with partners to find a mutually convenient time and date.

Data: There is inconsistency between housing providers about what data they hold. If seeking to work with housing providers or local authorities, it would be useful to establish the data they hold and what they can share at the outset.

Initially, the intention was to pick a sample from those in the lowest EPC bands (e.g. E-G), however, the summary data from the social landlord indicated an insufficient number of properties in those bands. Therefore, EPC rating ranging from C to G have been identified as the indicator of fuel poverty for social housing tenants, given the new "low income high costs" definition of fuel poverty recently adopted by the government. Though there is no way to guarantee that a household will be in fuel poverty, the project hopes to have a better chance than if it were to include properties in bands A and B. After recruitment to the trial, the project can then ascertain fuel poverty status through questionnaires. Other possible proxies have also been investigated but they have been excluded as ascribable to one of the following categories:

- Sensitive data, such as income, number of people in the household and age (until consent given by customer); or
- Household characteristics (such as total floor area, wall insulation, etc.) that are already taken into account in the assessment of the energy and environmental performance of the dwellings, hence in the EPC rating itself.

WS2

Prepayment Smart Meters will influence customer behaviour: The prepayment smart meters are going to offer a significantly different customer experience due to the enhanced functionality offered compared to the traditional 'dumb' meters. Of particular importance is the enhanced payment functionality which moves away from the traditional 'top up' through a card at the post office and introduces methods that allow on the air 'top up' or addition of credit via the In Home Display.

Smart Meters Terms & Conditions & Energy Supply Contract: When a customer moves from a 'dumb' meter to a smart meter there is no need for a change in the terms and conditions as this move does not constitute a change in the supply contract. However, when a customer signs up to a Time of Use tariff, this change should be accompanied by new terms and conditions and it constitutes a change in the energy supply contract.

WS3

Recruitment learning outcomes: During the reporting period Workstream 3 has learnt how to engage with project partners and how crucial the effective management of their resources is for the successful delivery of the project milestones. It is clear that despite resources mobilization that has postponed some of WS3 activities, the time spent in building relationships with them has been valuable, as it immediately reflects into good and efficient team working.

Design learning outcomes: Workstream 3 has gained deeper knowledge in two key areas, which helped define the research components of the trial design. These areas are:

- Engagement with local partners: as intermediaries with social tenants, local partners can provide valuable advice on the best recruitment and engagement strategies suitable for fuel poor customers;
- Understanding the technical components of the trial design: a good understanding of the technical details of the interventions is required for workstream 3 in order to identify the right research methods to investigate the change of behaviour (i.e. energy savings and energy shifting) introduced by the given interventions. Small

technical details, such as a different interaction with smart meters for prepayment customers in control group, may have large impacts on research findings.

Therefore, a collaborative framework that promotes the interaction between the different project partners (e.g. organising regular project partner meetings, circulating meeting minutes for collective awareness of project progress and decision, etc.) is key to the successful delivery of the project.

Research learning outcomes: Within WS3 the project has gained knowledge of different academic methods to design a trial ensuring high statistical confidence, reproducibility and generalization of the research findings. Such methods include the assessment of sample size, random selection of trial participants, their post-recruitment random allocation to intervention and control groups and the construction of internal and external control groups. For each of these methods, the project has learnt what the associated benefits are for the project in terms of internal and external validity.

6.2 Learning and Dissemination activities in the next reporting period

The project has a dedicated workstream to share knowledge and learning captured from the project, and to create the Knowledge Dissemination Roadmap. The roadmap is a live document and contains a timetable of activity for knowledge dissemination through the life cycle of the project and will be regularly reviewed throughout the project's lifespan. The roadmap has been designed to set out both internal and external knowledge sharing activities with key stakeholders and target audience, outline the knowledge to be shared, based on outputs from the other three workstreams, and propose the appropriate channel that will be used. See Appendix A

The key learning delivered in this reporting period consist of developing a local partnership project partners; operating within a multi-disciplinary cohort; and set-up and process for a focus group consultation. Our approach to capturing the learning and dissemination for this project involves both internal and external learning dissemination activities:

Internal:

- Two Future Networks events to publicise the project in January and May 2014
- Operational Telecommunications Roadshow held on 30 April 2014
- Internal intranet site – [UK Power Networks - Vulnerable Customers and Energy Efficiency](#)

External:

- Circulation to all DNOs the LCNF Survey that captured learning from previous/current LCNF projects that had recruited or engaged with residential customers on 10 March 2014
- National Energy Action London & South East Fuel Poverty Forum on Thursday 27 February 2014
- British Gas Training Centre Visit in Leicester on 26 March 2014
- Research workshop hosted by University College London on 11 February 2014
- External internet site - [UK Power Networks - Vulnerable Customers and Energy Efficiency](#)

Lessons learned

- Openness and transparency with local partners from the outset about what the project will and won't fund and the expectations on local partners in terms of their time and resource input, is helpful in maintaining a positive and productive partnership.
- How to engage with project partners and how crucial the effective management of their resources is for the successful delivery of the project milestones.
- Engagement with local partners: as intermediaries with social tenants, local partners can provide valuable advice on the best recruitment and engagement strategies suitable for fuel poor customers.
- Knowledge of different academic methods to design a trial ensuring high statistical confidence, reproducibility and generalization of the research findings

Learning activities for the next reporting period

- Focus Group in June 2014
- National Energy Action Conference in September 2014

- University College London’s Abstract accepted for the BEHAVE conference, Oxford, September 2014
- Low Carbon Network Fund Conference in October 2014

7 Business case update

No changes to the business case have happened or have been forecasted at this stage.

In the last six months there have been several developments with the Smart Metering Implementation Programme. Changes to the programme will be monitored to determine if they affect the installation of smart prepayment meters. The learning generated from the project solution remains very relevant. The project has taken into account the timeline of the Smart Meter Roll out Programme in order to deliver the MDU Communication Infrastructure Solution and Prepayment functionality of the smart meters in time. The recent delay of the programme does not affect the project timelines, since British Gas had committed pre-rollout devices. In practice, it provides an additional year in which the findings about customer engagement and MDU communications infrastructure can be taken up by other utilities.

8 Progress against budget

This section is provided in Appendix B.

9 Bank account

This section is provided in Appendix C.

10 Intellectual Property Rights (IPR)

No IPR is declared within this reporting period.

The following IPR is forecasted to be registered in the next reporting period:

Workstream	IPR description (i.e. document)
WS1	High Level Assessment of the proxy indicators used in national schemes to identify fuel poor
WS1	Communications Plan
WS1	Customer Field Officer Handbook
WS1	Findings from June Focus Group
WS2	High Level Assessment of Housing Stock at Tower Hamlet Homes
WS2	High Level Assessment of Housing Stock at Poplar HARCA
WS2	Data Specification
WS2	High Level Database Design
WS2	Selection of Energy Saving and Energy Shifting Devices
WS2	Methodology for Design of Time of Use Tariff
WS2	MDU Contractual Arrangements/ Business Model
WS2	SDRC 9.1 Report
WS2	Technical Trials Report
WS3	Research Trial Design Report
WS3	VCEE fuel poverty indicators
WS3	VCEE sampling method
WS3	Criteria for Internal and External Control Group construction
WS3	Quantitative analysis and network modelling Data Requirements and Specifications

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11 Other

N/A

12 Accuracy assurance statement

We hereby confirm that this report represents a true, complete and accurate statement on the progress of the Vulnerable Customers and Energy Efficiency project in its first six months and an accurate view of our understanding of the activities for the next reporting period.

Signed

Date

Ben Wilson
Director of Strategy & Regulation and CFO
UK Power Networks

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Appendix A: VCEE Knowledge Dissemination Roadmap

Appendix B: Confidential Appendix – Progress against budget

Appendix C: Confidential Appendix – Bank account