Vulnerable Customers & Energy Efficiency
Knowledge dissemination – SDRC 9.6

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Delivering your electricity

"I just wanted to reiterate what a fantastic event it was. Truly outstanding. So useful to our current project, and brilliantly organised and run. The team clearly put a lot of hard work into making this happen, and it is very much appreciated".
Attendee at the final dissemination event

"Smart meters have really helped us to visualise what we are using."
energywise participant

"What I enjoyed most… is that I learned when to operate various electrical devices to save energy."
energywise participant

"This (on the ground experience of service delivery) is not often presented at conferences and it brought a lot of humanity to the project presentation."
Attendee at the final dissemination event

"This was one of the best events I have ever attended. It was 100% useful from beginning to end with no 'filler' whatsoever. Brilliantly organised and run. Tight agenda and spot-on timekeeping."
Attendee at the final dissemination

"I thought it was a fantastic and informative event, with enthusiastic and knowledgeable speakers which made it very engaging for us as delegates."
Attendee at the final dissemination event

"I wouldn't change a thing (about the project) – people worked hard!"
energywise participant

Quotes are taken from participants at the final **energy**wise dissemination event (July 2018) and participants attending the thank you and learning events (April 2018).

This report addresses the Successful Delivery Reward Criteria 9.6 "Knowledge Dissemination" set out for the Vulnerable Customers and Energy Efficiency project, also known as **energy**wise, in its licence direction: https://www.ofgem.gov.uk/sites/default/files/docs/2014/01/vcee_project_direction.pdf

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Definitions

Term	Description
Bonus Time	The time-of-use tariff offered to prepayment **energy**wise participants, which operates as a Critical Peak Rebate. It provided customers with notice of 'Bonus Time' periods during which time, for every unit of electricity they reduced their consumption by (compared to their average for that time), they were refunded the cost of ten units
Control group	The group that received all interventions in trial 2. It was used for comparison to the intervention group to see if the interventions had any effect in trial 1
Customer Field Officer (CFO)	The intermediary hired by the project to be the contact for participants, and the 'face' of the project. The customer field officers' duties included recruiting and engaging participants along with gathering data
Critical Peak Rebate (CPR)	When energy utilities observe or anticipate high wholesale market prices or power system emergency conditions, they may call critical events during pre-specified time periods. The price for electricity during these time periods remains the same but the customer is refunded at a predetermined value for any reduction in consumption relative to what the utility deemed the customer was expected to consume
DNO	Distribution Network Operator, responsible for managing one or more of the fourteen electricity distribution networks in Great Britain, delivering electricity to customers
DSR	Demand Side Response is a change in electricity consumption in response to a signal (e.g. financial incentives)
EPC	Energy Performance Certificate
Energy Social Capital (ESC)	Context-specific social capital: purposively seeking information from people known to the respondent on the topic of energy efficiency in a home
External control group	A group that does not receive an intervention as part of the project, but has had a smart meter installed previously. The external control group enabled generalisations to the wider population and allowed understanding of influence of external factors on energy consumption, for example fuel price changes
HEFT	HomeEnergy FreeTime – the trial 2 time-of-use tariff offered to credit participants, providing free electricity from 9am to 5pm on their choice of either Saturday or Sunday
Intervention Group	This is the group exposed to the treatments (interventions) in trial 1
LCNF	Low Carbon Networks Fund, administered by Ofgem. Designed to support projects sponsored by DNOs to try out new technology, operating and commercial arrangements. The aim of the projects is to help all DNOs understand how they can provide security of supply at value for money as Britain moves to a low carbon economy
LED	Light-emitting Diode
Loop monitor	The electricity monitoring equipment installed in prepayment control group households. It consists of a clamp connected to the standard meter tracking the electricity consumption. It is configured to return half hourly readings intervals
MDU	Multi Dwelling Unit, defined by the Smart Meter Programme as a building housing more than one premises with physical disparate metering such that a wireless MDU Communication Infrastructure is required
MDU Communication Infrastructure	The wireless communication infrastructure that was tested, installed and commissioned in the MDU building
Pilot study	A small scale preliminary study that usually takes place before full investigation in order to test certain elements of the main study e.g. a research design

Term	Description
Smart Energy Monitor	The display unit that accompanies the smart meter and displays the energy consumption and cost of energy unit. It is also known as In Home Display (IHD)
Smart Energy Expert	The appropriately trained engineer of British Gas tasked to install smart meters according to the Smart Meter Installation Code of Practise (SMICoP) and internal British Gas processes
Smart meter	The advanced meter offered by British Gas as part of their business as usual activities offering advanced functionality compared to a traditional meter
SMETS	Smart Meter Equipment Technical Specifications
Time-of-use (ToU) tariff	A tariff that encourage consumers to use electricity at times when it is available cheaply. This can support a more flexible and sustainable electricity system
VCEE	Vulnerable Customers and Energy Efficiency, the official title of this project as registered with Ofgem

1 SDRC 9.6 Evidence and Sections

The report is structured as follows:

- Introduction and description of the project;
- Knowledge dissemination objectives;
- Summary of lessons from the project;
- Summary of dissemination material;
- Details of the knowledge dissemination activities;
- Appendix contains the full set of lessons from the project

The table below illustrates how each evidence item for the Successfully Delivery Reward Criterion 9.6 has been addressed in this report. In addition to the SDRC evidence, we have also used this report as an opportunity to present all the project learnings in a single document.

Table 1 – SDRC 9.5 evidence items

Criterion (9.6) : Knowledge dissemination	
Evidence Item	**Report section (s)**
1x external learning event carried out for SDRC 9.1 – 9.5, and presentation materials shared	6.3
2x internal learning events carried out per SDRC, and presentation materials shared	6.2
2x thank-you events carried out for trial participants	6.2
1x end of project customer learning event completed for trial participants, and presentation materials shared	6.2
Presentation of the project at least twice a year at external seminars/workshops, with presentation materials shared	6.4, 6.5, 6.6

2 Introduction

2.1 The Project

Figure 1: Project brand.

The Vulnerable Customers and Energy Efficiency (VCEE) project also known as **energy**wise is a partnership between nine organisations, led by UK Power Networks. Ofgem awarded the project £3.3 million of funding, under the LCNF competition scheme in December 2013.

energywise explores how residential customers who may be struggling with fuel bills can better manage their household energy usage and consequently their energy bills by changing the way they use electricity. The project undertook a research study across two trials with households who may be struggling with their energy bills in the London Borough of Tower Hamlets. The trials tested different ways of helping households better understand and control their electricity spending, enabling them to make changes which may save them money on their energy bills.

Firstly, the project explored whether households benefit from smart metering solutions (smart meter and smart energy display) and from energy efficiency technologies such as energy efficient light bulbs, an eco-kettle and a standby shutdown device.

Secondly, the project worked to understand households' appetite to change their behaviour when on a 'time-of-use (ToU)' tariff or rebate targeting electricity, with favourable rates or payments within specific time windows. The project focuses on understanding:

- The extent to which this residential customer group is able and willing to engage in energy saving campaigns and a ToU tariff or rebate;
- The benefits that they can realise from their change of behaviour in household energy management;
- The challenges and best approaches to engaging with these groups of customers to achieve these aims; and
- Whether their reduction in demand, and shifting demand away from network peak periods may benefit the electricity network by deferring or avoiding network reinforcement.

This report addresses the potential changes in household energy management behaviour, and the associated network benefits, that can be realised by customers that may struggle with their energy bills when provided with smart metering solutions, energy saving interventions and new electricity tariffs that enable time-shifting of energy demand. It also illustrates key insights into the demographics of trial participants, the way they use energy and their attitude towards energy saving technologies and ToU tariffs; as a result, the report provides a greater understanding into i) this customer base that will inform best practices to engaging hard-to-reach customers in the smart meter roll-out, in similar energy efficiency campaigns and in Demand Side Response (DSR) opportunities, and ii) the potential for shifting demand away from network peak periods.

2.2 Project partners

energywise is a partnership between nine organisations led by UK Power Networks (Table 2).

Table 2 – energywise partners

Project Partner	Role in Project
UK Power Networks	UK Power Networks owns, operates and manages three of the fourteen electricity distribution networks in Great Britain, delivering electricity to over eight million customers in London, East and the South East of England. UK Power Networks own the licensed distributors London Power Networks plc, Eastern Power Networks plc and South Eastern Power Networks plc. UK Power Networks is a network operator and does not generate or buy electricity nor does it sell to end customers. UK Power Networks operates in the most challenging, fastest growing, and highest cost part of the country. As a DNO, UK Power Networks takes electricity at high voltages from the National Grid and transforms it down to voltages suitable for commercial and domestic use.
British Gas	The role of British Gas in the project is related to technical enablement and involved provide the smart meters, smart energy display (SED), and ToU tariff required for the targeted customer group to engage with demand side response. British Gas also installed (in cooperation with its contractors) the appropriate communication infrastructure required at households that require a communications solution for installing smart meters and smart energy displays in complex Multiple Dwelling Units (MDU) with challenging meter arrangements. Please note British Gas are providing considerable in-kind funding to the project.
UCL	Since its foundation in 2009 University College London-Energy has developed a strong national and international reputation for research in energy demand and energy systems. University College London is the research authority of the project and its aim is to ensure that the results of the trials are statistically rigorous and the findings could be replicated in future.
Tower Hamlets Homes	Tower Hamlets Homes is the arm's length management organisation of the London Borough of Tower Hamlets, managing the council's housing stock on its behalf. Tower Hamlets Homes has provided a list of eligible tenants, along with insights into the area and local intelligence that has shaped the customer engagement strategy.
POPLAR HARCA	Poplar HARCA is a registered social landlord that operates as an independent non-profit charity in the London Borough of Tower Hamlets, separate from the local authority. Poplar HARCA provided a list of eligible tenants. They also provided insights into the area and local intelligence that has shaped the customer engagement strategy.

Project Partner	Role in Project
bromley by bow centre	Bromley by Bow community Centre is a local charity established in 1984 by Andrew and Susan Mawson and has built up considerable goodwill in the area. They are the employer of the project's customer field officer (CFO) team, which is going to be a team dedicated to the recruitment and engagement with the trial participants (prospective and actual).
CAG CONSULTANTS	CAG Consultants is a sustainability, climate change and community engagement consultancy which is going to represent the voice of the customer in the project. CAG Consultants provided specialist support, guidance, mentoring, training and evaluation of recruitment and engagement with vulnerable and fuel poor customers.
NEA Action for Warm Homes	NEA is the national fuel poverty charity which aims to eradicate fuel poverty and campaigns for greater investment in energy efficiency to help those who are poor and vulnerable. NEA provided expertise in energy efficiency and customer focus due to its continuous engagement with fuel poor customers.
elementenergy	Element Energy is a strategic energy consultancy specialising in the intelligent analysis of low-carbon energy across the sectors of power generation and distribution, transport and buildings. Element Energy provided the analysis of the network impacts of the energy saving and energy shifting interventions through network modelling within the trial area.

2.3 Project overview

The project has engaged fuel poor customers who may be struggling with fuel bills to understand how they can benefit from energy efficiency measures[1] and whether they can reduce their electricity consumption at peak times through a ToU tariff or rebate (known as 'DSR'), generating both customer and network benefits. The overall timeline of the project is presented in Figure 2. It in involves two trials, as shown in Figure 3.
Upon signing up to the project, participants were randomly split into one of two groups:

- The intervention group (group 1) who received their smart meter, Smart Energy Monitor and devices at the start of Trial 1, and were then offered a time-of-use (ToU) tariff or rebate as part of Trial 2; or
- The control group (group 2), who did not receive the interventions in Trial 1 (in order to be used for comparison to the intervention group to see if the interventions had any effect). They received their devices at the start of Trial 2.

Both groups were merged together in the second trial by which time they had all received the same interventions. Participants also had temperature monitoring equipment installed as a customer protection measure.

[1] In this report, the term 'energy efficiency' also encompasses 'energy conservation'.

At Trial 2 completion, there were 265 participants actively involved in the project, which were all social housing tenants in the London Borough of Tower Hamlets apart from one leaseholder. Out of 265 active participants, 189 were credit and 76 prepayment customers and 231 consented to Trial 2 tariffs.

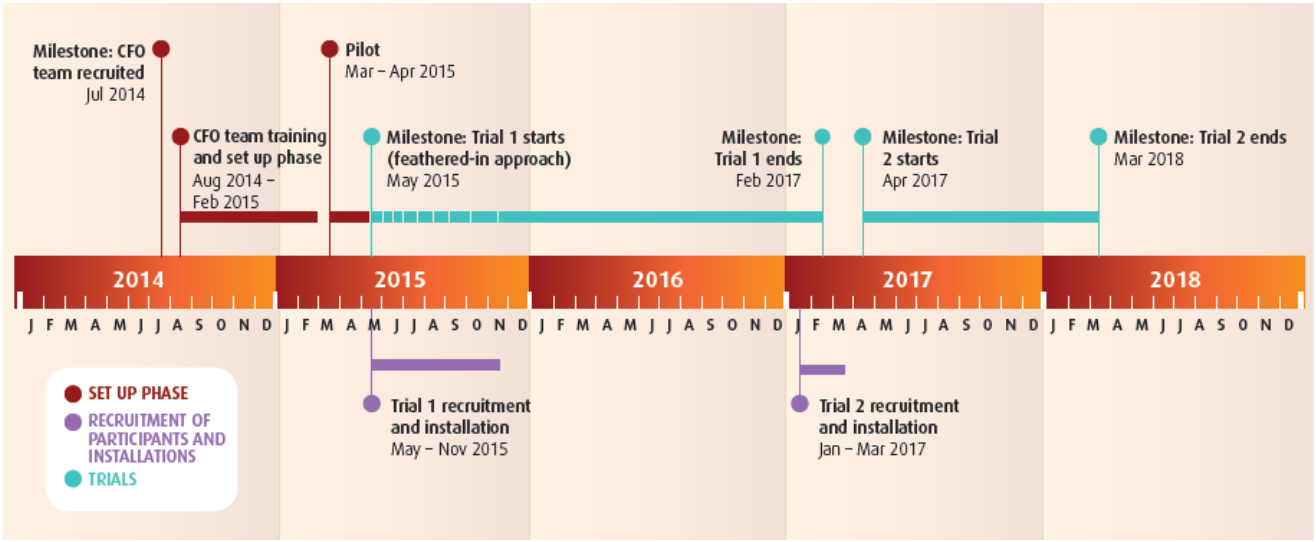


Figure 2: Overall project timeline showing the set up phase (including the project pilot), Trial 1 and Trial 2.

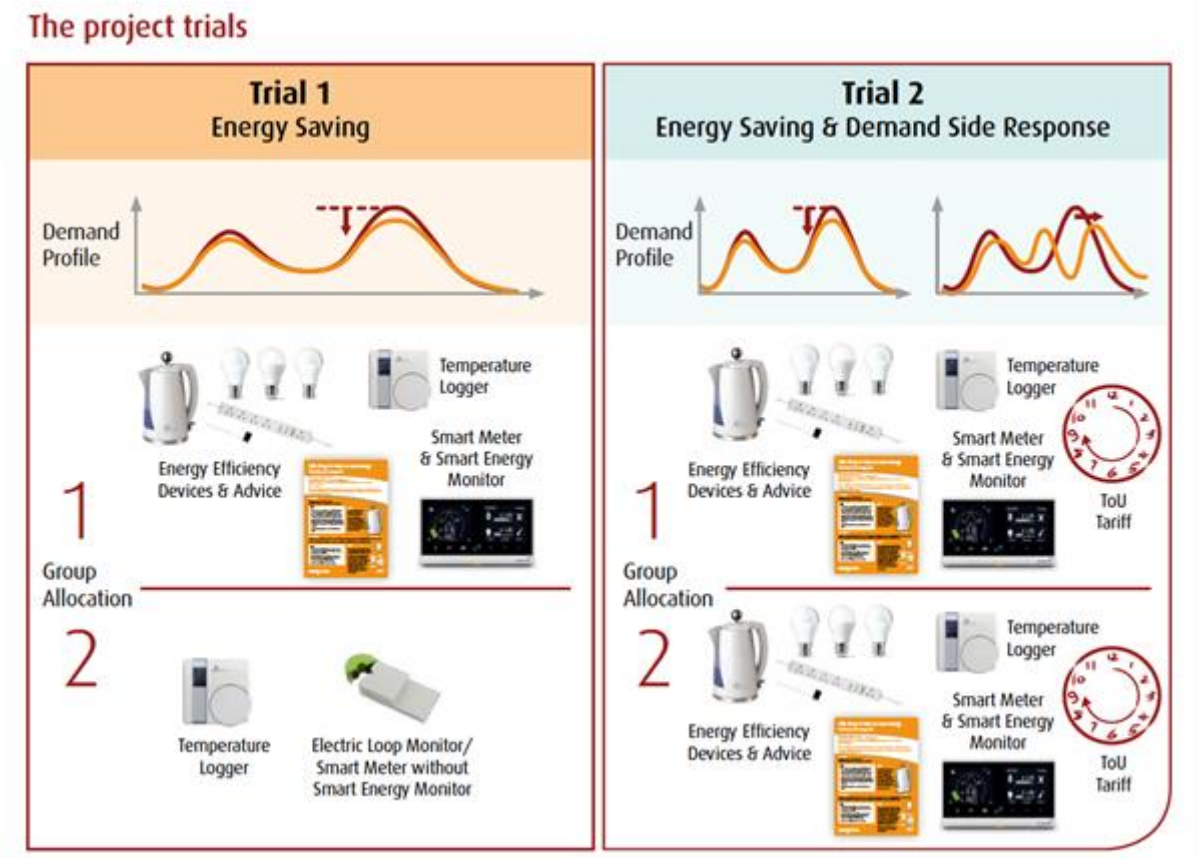


Figure 3: The project trials.

2.4 Project aims and objectives

The project aimed to understand how fuel poor households can benefit from smart meters, smart energy displays and energy efficiency appliances, and also how they respond to ToU electricity tariffs and rebates. The project had three specific objectives:

- **Engage fuel poor customers to understand how they can benefit from energy efficiency and participate in demand side response.** Reducing electricity consumption may result in lower bills and could thus assist in reducing the likelihood of these households being in fuel poverty or the depth of their fuel poverty.
- **Quantify the demand reduction and time-shifting that these customers could provide.** Quantification is vital if initiatives like **energy**wise are to attract similar status to other proven interventions such as cavity wall insulation and low energy lightbulbs. The peak time for electricity consumption in the UK is typically between 5 and 8pm for domestic customers[2]. Limited direct research has been conducted in the electricity profile of the fuel poor domestic customer group and one of the project aims is to improve understanding of the demand profile of this domestic customer group in Trial 1 and based on this understanding develop an appropriate ToU tariff(s) for use in Trial 2.
- **Understand the challenges and best approaches to engaging with this group of customers.** It is frequently argued that fuel poor customers require additional help and support to engage with smart meters and energy efficiency devices in order to enable them to access the benefits of these. UK Power Networks found that in the London Carbon London[3] trials, those living in areas categorised as being 'Inner City Adversity' were the most likely to refuse a smart meter, stating that they felt it was too technical or confusing. The project is investigating how existing social networks, which fuel poor households trust, can be identified and used to effectively engage these customers in the adoption and use of smart metering technologies. It also investigates what engagement materials and communication channels are most effective in engaging with and supporting these customers.

The project provided DNOs and suppliers with evidence-based learning on how to work with third party agencies to deliver energy efficiency and demand side response campaigns to fuel poor customers. It also determined the extent to which fuel poor customers are willing and able to provide demand reduction and time-shifting services to alleviate network constraints and whether this is material.

The LCL project found that there are sizeable opportunities for lower income households to reduce energy use, particularly at peak times, through changes to their lighting and appliances, particularly in households of three or more people. Moreover, research carried out for DECC and Defra, using data from 250 households, estimates that fuel poor households have the technical potential to reduce their demand by an average of around 650 kWh per year[4]. Analysis of these figures suggest that a peak shift for fuel poor households of up to 200 MVA across Great Britain is technically possible[5]; this is the equivalent to the output from a small-to-medium sized power station. These figures were based on owner occupiers whereas **energy**wise focuses on social housing tenants; this project is contributing to fill this gap in data. They are also based on assumptions about occupant behaviour rather than observations and thus are not comparable with the findings of field trials.

[2] Elexon 2013 'Load Profiles and their use in Electricity Settlement" https://www.elexon.co.uk/wp-content/uploads/2013/11/load_profiles_v2.0_cgi.pdf
[3] http://innovation.ukpowernetworks.co.uk/innovation/en/Projects/tier-2-projects/Low-Carbon-London-(LCL)/
[4] Source: DECC, Defra and the EST (2012), Household Electricity Survey: A study of domestic electrical product usage
[5] Low Carbon Networks Fund submission from UK Power Networks – Vulnerable Customers and Energy Efficiency, 28th November 2013

2.5 How is the project breaking new ground?

The project is breaking new ground in a number of areas:

- **Customer insights:** Exploring how fuel poor customers can respond to energy efficiency measures, smart meter information and price signals in order for them to reduce their energy bills. The project is also investigating what opportunities can be created for the customers through an end-to-end coordinated approach between different parties in the value chain. Also, the needs of the fuel poor were further analysed, identified and profiled and such learning can tailor services offered..
- **Network insights:** Investigating the ability of fuel poor customers to reduce and shift their electricity consumption away from peak times and establishing whether the impact of this is significant enough to defer network reinforcement. The project supported suppliers and DNOs in realising this potential contribution in a sustained manner, thus helping DNOs to manage the increasing and uncertain demands on the network.
- **Customer recruitment & engagement:** Establishing how best to engage with fuel poor customers on energy efficiency and demand response including the most effective messages and approaches. In addition, the project provided insights on the challenges faced and best practises identified when recruiting and engaging with fuel poor customers and this learning will be used in order to tailor the services offered from the DNO and other stakeholders participating in the project.
- **Innovative partnerships:** Exploring the effectiveness of DNOs and energy suppliers working with trusted local organisations who support those in fuel poverty and whether and how this can result in fuel poor customers being better served. The project lessons learnt will provide recommendations on how DNOs can work collaboratively with electricity suppliers and community actors to better identify, understand the needs, assist and deliver services to the fuel poor, within existing obligations.
- **Non-punitive time of use tariffs:** One key area of innovation in the project is trialling both credit and prepayment non-punitive time of use tariffs with fuel poor customers. Trial 2 will provide learnings on the efficacy and consumer acceptability of this class of tariff for this customer segment. Before the **energy**wise project, only punitive tariff structures had been trialled in LCNF projects to date (e.g. CLNR and LCL). Having quantitative and qualitative data on fuel poor customers' responses to such non-punitive tariffs is critical to the understanding and evolution of this class of tariffs in Great Britain.

As part of the project, the energy supplier British Gas has also explored the effectiveness of working with local and trusted third parties such as the housing provider and community centre in order to carry out a locally targeted, community-led installation programme of smart meters.

2.5.1 Smart meter roll-out insights

The project also involves testing key parts of the smart meter infrastructure, including prepayment smart meters and the benefits they can bring to customers (such as remote top up) and how best to roll out smart meters in multiple dwelling units (which present a number of technical challenges):

- **Prepayment smart meters:** As part of **energy**wise, British Gas is testing its first SMETS1[6] compliant smart meters with prepayment functionality, outside their trial environment (with 93 prepayment smart meters installed as part of this project). This is providing an opportunity to gain valuable early learning as to the extent prepayment customers engage with smart meters and how they use their smart energy displays to manage their consumption and their budget. Smart prepayment will also open up new, more convenient payment options to customers (e.g. over the telephone, online of via their in-home display), meaning they no longer have to worry about losing their key card.
- **Multiple Dwelling Units (MDU):** Communications between meters in basements and displays in the home – in Trial 1, British Gas installed a communications backbone into a block of flats where the meters are contained in a communal meter room in the basement, remote from the flats in which the residents themselves live and will be using their in-home displays. Within the Smart Metering programme, these are referred to as Multi Dwelling Units (MDUs) and are a known challenge for the roll-out. This

[6] SMETS1 are the first version of the Smart Meter Equipment Technical Specifications.

communications backbone enabled the smart meter Home Area Network (HAN) services to be received by the recruited households located on different floors of the building. These households would not otherwise have been able to fully access the benefits of the smart metering solution. This provided valuable technical learning, but also gave insight into the cost of this type of infrastructure as well as the commercial arrangements required between energy supplier, landlord and customer. At the time of testing, this was something that had not yet been fully resolved as part of the smart meter implementation programme and the demonstration carried out in Trial 1 resulted in the UK's first end to end installation of residential smart meter sets operating across a MDU/tall and difficult building solution, thus informing the market.

Project innovation is summarised in Figure 4.

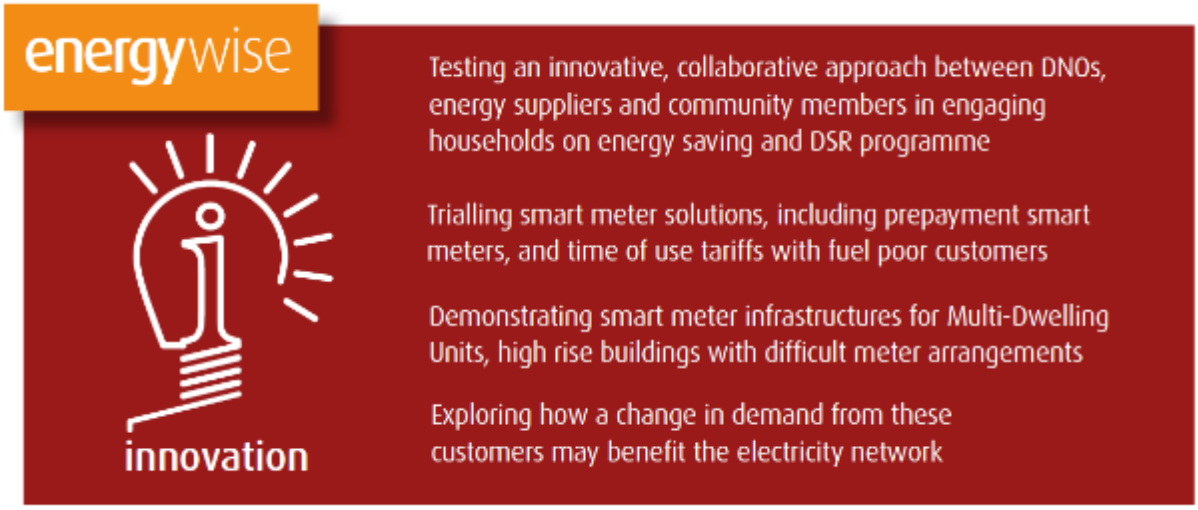


Figure 4: How energywise is innovative

3 Knowledge dissemination objectives

In disseminating the learning from the project, the intention was to ensure the provision of appropriate and reliable information to stakeholders, with the most appropriate methods and channels to maximise the effectiveness of dissemination activity and clear and consistent messaging provided to all audiences.

3.1 Internal communication objectives

The **energy**wise project engaged with and gained commitment from internal stakeholders to ensure the project received the necessary support to achieve its objectives and key delivery milestones.

Table 3 – Internal knowledge dissemination objectives

Action	Objective
Provide all key stakeholders with a good understanding of the project and what it means to UK Power Networks	Ensure key stakeholders have a clear understanding to relay to their teams
Ensure all of the key stakeholders are engaged and committed to contribute to the successful delivery of the energywise project	Successful delivery of the **energy**wise project
Communicate to UK Power Networks employees how the project fits into the Smart Network Strategy and the RIIO-ED1 Business Plan	Employees are aware of the project and understand the potential implications and opportunities for their own role and the business if the **energy**wise approach becomes 'business as usual'
Continuous engagement with key players	Ensure support to achieve objectives and milestones
Continuous, clear and consistent messages using internal communications channels such as Wired, Cable, Intranet News etc.	To ensure continuous engagement throughout the lifecycle of the project
Share information and lessons learned at appropriate project milestones through learning events, reports and documents and training material	Ensure that the project successes are easily able to be absorbed into 'business as usual' activity
Introduce internal 'project champions' to help embed the learning	To ensure that the knowledge iw embedded throughout the business and to get their views to inform effective implementation of project learnings for future developments building on energywise.

3.2 External communication objectives

The **energy**wise project also created significant learning opportunities for a number of key external stakeholders, particularly the wider DNO community, electricity suppliers, charitable bodies, and third sector organisations.

The following table outlines the actions and objectives related to raising the profile of the project at key touch points thus ensuring that appropriate stakeholders were regularly updated with the appropriate level of information through the correct communication channels.

Table 4 – External knowledge dissemination objectives

Action	Objective
Ensure that project partners have a full overview of the project and fully understand timescales and their delivery responsibilities	Project partners are engaged, contribute to learning dissemination and can help to support delivery of learning outcomes
Ensure all communications have clear and consistent messages regardless of channel	External stakeholders receive good quality, consistent information about the project and that key messages are effectively communicated
Choose the best channel of communication for the audience and the information that is being shared	Ensure that information reaches the target audience and to maximise the effectiveness of dissemination activity
Ensure a joined up approach to dissemination with the other Innovation projects	Maximise the use of resources and demonstrate collaborative working between LCNF, NIA and NIC innovation projects to enhance UK Power Networks reputation as an innovation leader
Provide support and information about the project to relevant industry working groups	Contribute to the development of the industry and promote the project, the Innovation Team and UK Power Networks

3.3 Stakeholders

An initial stakeholder profiling exercise was undertaken to identify the key people/groups that the project will need to communicate with in order to support the delivery of the project and to share the knowledge and learning gained.

Contact details of all stakeholders were kept securely and shared only within UK Power Networks and its project partners.

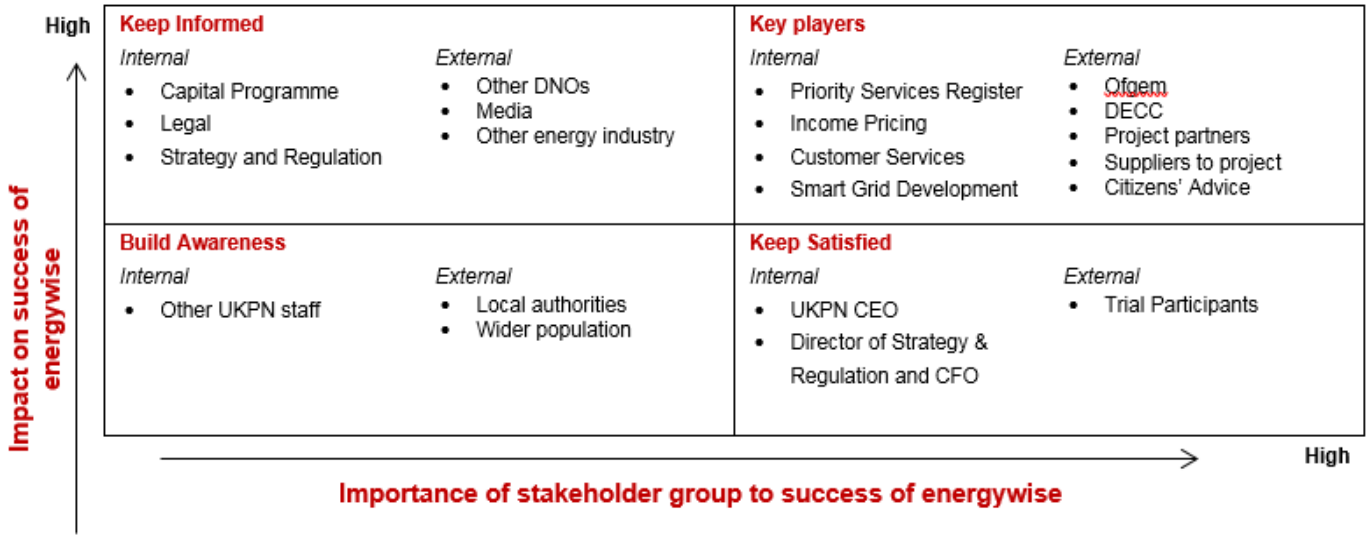


Figure 5 – Stakeholder mapping

The initial stakeholder mapping was revised at the end of the project to make sure all relevant internal and external stakeholders were engaged for the final dissemination event and for final internal dissemination activities, as shows in Figure 5

At an organisational level, the target audience for knowledge dissemination is as follows:

- Ofgem;
- BEIS (formerly DECC);
- Other DNOs;
- Local and regional government;
- Academia;
- Research/Innovation Centres (e.g. Energy System Catapult)
- The energy industry;
- Charities and non-profits;
- Project partners;
- UK Power Networks Executive team and relevant directorates/teams; and
- The wider population.

4 Lessons learned

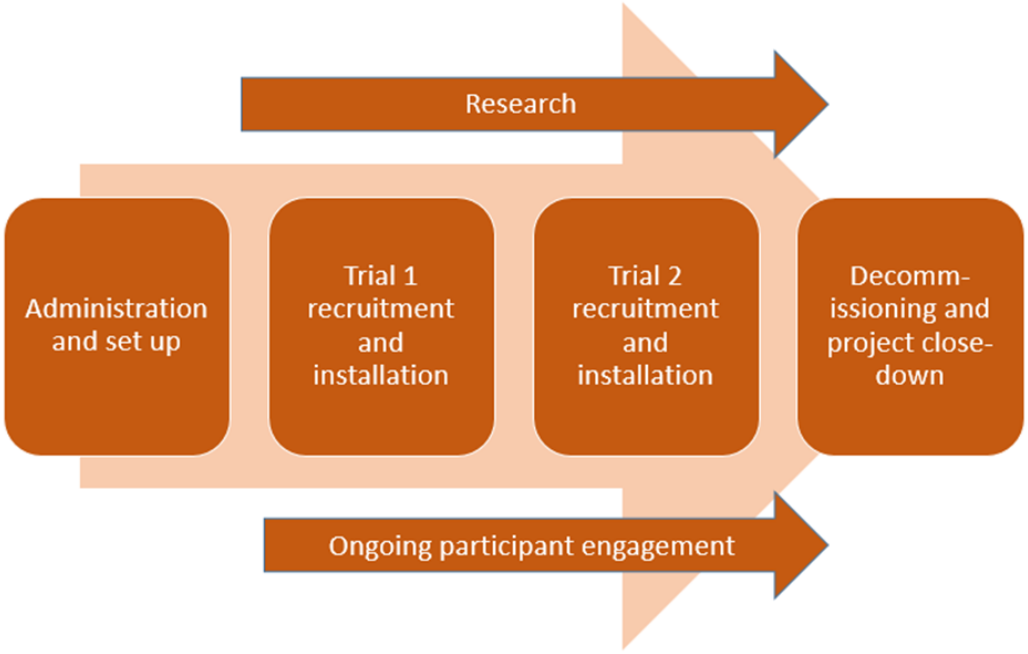


Figure 6 - Summary of energywise project

To enable effective knowledge dissemination, lessons from the project (the different stages for which are summarised in Figure 6) have been systematically captured and categorised in a spreadsheet. These have been reported in the individual SDRC reports as well as in the biannual reports.

Figure 6 summarises the key project stages. Following the completion of recruitment of **energy**wise participants and the installation of all equipment, an evaluation was undertaken of the recruitment and installation processes to identify and capture key learnings. This involved analysis of recruitment data, a non-participation survey, and telephone interviews with a sample of participants, participant panels involving a sub-set of participations and a workshop with project partners, recruiters and installers. A repeat of this evaluation exercise was carried out following completion of recruitment of participants onto Trial 2 of the project, with a further partner workshops held at the end of the project to review learnings related to the overall project.

A full set of learnings is presented in Appendix A. These are summarised in Figure 7 below.

Figure 7: Project learnings

The following sections summarise the key lessons for different categories.

4.1 Measures to help identify eligible participants

- Where public data on income and fuel bills is not available, proxies can be used to identify fuel poor customers such as social housing tenants living in lower efficiency homes in areas of high deprivation.
- Minimise exclusion criteria to maintain the biggest possible pool of potential participants.
- Issue clear expectations to partners at the project outset about the data required and the format of this..
- Allow for high numbers of drop-outs after sign up. For long duration projects, take into account that people may change supplier or move home.

4.2 Ensuring effective recruitment[7]

Staffing:

- Locally based field officers with knowledge of local culture and languages can be very effective in recruiting hard to reach groups. Involving housing providers in engaging their tenants can also be effective.
- Having recruiters working in pairs, involving a diverse team, is effective. (For example, some customers are more comfortable talking to a woman.) Having a field officer working alongside a British Gas engineer worked well in terms of persuading people to sign up. Where possible, have recruiters throughout the recruitment period in the same neighbourhood so they can develop a rapport with their targeted households.
- In addition to project badges, use of uniforms can increase recognition and trust.
- Bringing in specialist recruitment organisations can be effective in getting people to sign-up. However, the local team may have a deeper understanding of the community and may result in more effective long term customer engagement. Where specialist recruiters are employed, it is important to ensure coordination between the local CFOs and the recruiters as well as consistency of key message.

[7] For a detailed overview of learnings related to customer recruitment and engagement, please see: http://innovation.ukpowernetworks.co.uk/innovation/en/Projects/tier-2-projects/Energywise/Project-Documents/SM_Learnings_Energywise+Report.pdf

- Keep the team of recruiters small with regular refresher training, meetings to share learning and quality assurance of the door knocking.
- Staff should be well briefed on the project and trained in engagement techniques.
- Door knocking is effective but time consuming, particularly when a project is not area-based. Evenings and weekends work particularly well.
- The recruitment partner should have excellent data management and analytical skills to enable high levels of data accuracy and the ability to amend the recruitment schedule as necessary based on the success of different approaches.
- An appropriately skilled field officer manager should be in post for the full duration of the recruitment and installation phases to ensure effective management of these crucial phases, including efficient coordination between team members and consistency in the communication of key messages.

Message and materials:

- Low income customers are likely to be primarily motivated by the prospect of saving money on their bills. The offer of free energy saving devices and shopping vouchers can also encourage people to take part. In the case of smart meters, better visibility of energy costs and easier top up methods for prepay customers are the key features that make them attractive.
- Professional, well designed materials are essential. Customers in this group like highly visual materials with limited text.
- Clear indication about an energy supplier's involvement will limit any misconceptions that a project is about energy switching. The choice of an appropriate name for the project may also help.
- Test the message and materials through focus groups before finalising.

Recruitment onto Trial 2:

- Communicating Critical Peak Rebates to customers can be challenging, particularly in the case of vulnerable participants and/or those with limited English. Some participants really benefit from face to face communication. A video explaining the process would be beneficial.
- Call scripts should be kept as short as possible.
- Customers are more likely to respond to a mobile number that appears on their screen than to an 0800 number.
- Minimise interactions with customers by limiting the need for them to speak to more than one person as part of the signup process.
- Where different organisations are involved in the process, instituting daily calls helps ensure everyone is up to date in terms of the status of individual participants.

4.3 Ensuring effective installation

- Involving a community partner can increase appointment booking success rates.
- Pilot the installation phase before rollout.
- Having the energy supplier manage the installation process will ensure that customers have a single point of contact.
- Minimise customer disruption by liaising with third parties to ensure meter access (where necessary) and coordinating installation and equipment delivery into one appointment if possible. (The latter was challenging for **energy**wise as a different organisation was responsible for installing the temperature monitoring equipment.)
- Urge household members present at the point of install to brief others living in the household about the smart meter and smart energy monitor, otherwise the benefits from the smart meter technology will be limited.
- For complex projects involving different installation partners, provide clear information to participants about what will be installed, by whom and how long it will take.
- Train up the CFO team to install and demonstrate equipment where possible (e.g. the eco-kettle and standby shutdown).
- Planning should take into consideration any locally relevant festivals or traditions such as Ramadan.
- CFOs can aid access to properties and can provide translation where necessary.

4.4 Equipment and data issues

- At the planning stage a project should build in additional contingency in the project timeline to make sure that unexpected issues that involve third parties can be addressed without having an impact on key project milestones.
- Contingency in the project budget is also fundamental to resolve key issues.
- For data-based trials, regular checks have to be embedded in the project plan to make sure all data is coming through correctly or to identify any potential issue at early stage.

4.5 Ongoing engagement and minimising dropouts

- Provide very clear messages about what is involved in the project, possibly including a video, and ensure consistency of messages across different recruiters to effectively manage participants' expectations.
- Avoid equipment that it outside the scope of the project, which may cause further disruption to the participants. In the case of **energy**wise, issues with the temperature monitoring equipment cause unwelcome disruption for some participants.
- Streamline the installation process to reduce the number of interactions with customers.
- Keep participants as a whole informed of what is happening in the project.
- Provide participants with an opportunity to get together to share their experiences and learn from each other. Listen to participants about their experiences and take action based on their feedback.
- Keep in regular communication with participant to remind them of how useful their involvement is and to thank them for their time – with vouchers where appropriate (e.g. where participants have faced disruption).

4.6 Customer impacts

Customer engagement on energy efficiency:

- Some **energy**wise customers felt electricity is an area that can be economised and have some tolerance for spending time and effort to understand how a smart meter and Smart Energy Display can help them to save energy and money. Nonetheless, there continues to be some confusion amongst some participants about how electricity is used at home and how they can or are making savings.
- In addition to written information, face-to-face advice and demonstrations may help to support energy efficiency behaviour amongst a low income demographic. These communication channels were appreciated by **energy**wise customers; some of whom also suggested videos would be helpful (although this medium was not in general used by the project and may not be suitable for all).

Trial 1 – electricity consumption and savings:

- **energy**wise customers achieved electricity savings of 3.3% which shows the potential for this lower income demographic to save similar amounts of electricity proportionate to their average annual electricity consumption to other demographic segments in society when presented with a smart meter and Smart Energy Display and given support on using these.
- Participants saved an average of £14 annually.
- The average annual consumption of **energy**wise participants was considerably lower than observed amongst more affluent customer groups in previous research trials (such as Low Carbon London and Customer Led Network Revolution). This confirms that household income appears to impact on electricity consumption.
- Participants with prepayment meters benefited from easier top-up options.

Trial 2:

- Critical Peak Rebate (Bonus Time) customers earned an average rebate of £27 per year with the top 10% of households achieving average demand reductions of 18.7%.
- Time of Use Tariff (HomeEnergy FreeTime) customers on average shifted 0.92 kWh per week into the free time, saving 12p/week or £6.24 per year. The highest shifting from the paid to the free time was 8kWh per week.
- Some loads were easier to shift than others (e.g. washing).

- Participants found the Time of Use Tariff easier to understand than the Critical Peak Rebate[8].
- Participants found the six hour Critical Peak Rebate periods (5-11pm) to be challenging (too long) in terms of trying to reduce their electricity consumption between these hours.
- Ability to respond is a function of electrical loads, time flexibility and knowledge/motivation. It is likely that the first two of these can work in opposition to limit the available DSR. That is, households with large electrical loads are likely to have more occupants and less flexibility as to when the appliances are on; households with more control over the timing of their electricity use may be single person households with small loads.
- DSR both depends on and affects women. Women are currently responsible for the bulk of domestic labour in the UK related to flexible loads (machine washers, dryers). However, in most cases the bill-payer or trial consentee is not the same person as chore-doer (probably a relative e.g. husband) and DSR may currently place greater demands on women changing their schedule than men. Therefore, for DSR to be successful and reach its full potential, women must be engaged.

4.7 Network impacts

- Trial 1 achieved a 5.2% reduction in average evening peak per participating household.
- Trial 2 achieved the following reduction in peak demand:
  - Time of use tariff (HomeEnergy FreeTime) - 2.2% reduction in evening peak but a 22.2% increase in weekend peak.
  - Critical Peak Rebate (Bonus Time) – 1.5% reduction in evening peak demand.
- UK Power Networks is currently considering the implications of these findings to the GB network in terms of a cost benefit analysis.

Table 6 below[9] sets out the network impacts that could be achieved if the **energy**wise Trial 1 energy savings and Trial 2 Bonus Time peak reductions were realised by all households classified as fuel poor within the UK Power Networks licence areas:

Table 5 – Potential network impacts associated with the energywise interventions if rolled out across all fuel poor customers in the UK Power Networks licence areas.

Licence area	Number of fuel poor customers in licence area	Reduction in annual electricity consumption: Intervention devices	Reduction in network load during evening peak: Intervention devices	Reduction in network load during evening peak: Bonus Time	Reduction in network load during evening peak: Total
		GWh/year	MW	MW	MW
Eastern Power Networks	413,619	39	9.5	2.7	12.2
London Power Networks	248,684	23	5.7	1.7	7.4
South Eastern Power Networks	258,113	24	5.9	1.7	7.6
Total	**920,416**	**86**	**21.1**	**6.1**	**27.2**

[8] Our assumption about why is that HEFT did not require participants to do anything, whereas Bonus Time required active participation therefore the project team spent more time explaining what it was and what they needed to do. It's possible that this was an assumption the Customer Field Officer team brought with them, and did not challenge it i.e. we assumed HEFT was simple to understand and that people got it, and we assumed that Bonus Time was harder and that we needed to do more to make people understand it.

[9] From SDRC 9.5 report http://innovation.ukpowernetworks.co.uk/innovation/en/Projects/tier-2-projects/Energywise/Project-Documents/VCEE+SDRC+9.5+v1.0+PXM+2018-07-30.pdf

4.8 Learning for the smart meter rollout[10]

The smart meter offer:

- The smart meter offer should explain to a customer in easy-to-understand language a) what the smart meter is and b) how it will directly benefit them. Amongst the **energy**wise customer base, messaging about the potential benefit to have greater control over energy use and, as a result, the potential to reduce a customer's usage and therefore bill was well received.
- The offer should make it clear that the customer is not being sold anything and that while all energy bill payers are contributing to the cost of the smart meter roll-out there will be no additional cost to the customer if they have a smart meter installed.

Multiple interactions:

- Customers may require several interactions (in writing, by phone or face-to-face) before they accept the smart meter offer. It is important to persevere as customer may not understand the offer the first time or have doubts, whilst also respecting the customer's choice to refuse the offer when clearly stated.

Involving third parties in roll-out:

- Partnering with community based organisations that are well-known and accepted in a local area helps increase consumer trust and acceptance of the smart meter offer.
- Using or setting up a customer field team to carry out customer engagement on smart meters and act as a trusted intermediary works well.

Installation journey:

- The role of third parties (e.g. community partners) should be centred on step one of the smart meter journey: hearing about and saying yes to a smart meter. The energy supplier should manage the installation process and be the key point of contact to address the technicalities of installation.
- The installation journey and required access to homes may be an unwanted hassle amongst some customers which may lead to smart meter refusals and aborted installations.
- To help minimise refusals and aborted jobs, the installation journey should be made as simple as possible. Streamlining should consider:
    - Minimising the number of interactions required between a customer and supplier to book an installation appointment (whether written, by phone or in person).
    - Coordinating and consolidating the delivery of all equipment, information and advice into one home visit, including liaising with third parties (e.g. landlords) ahead of time to ensure meter access, where applicable.
    - Minimising the time between sign-up, appointment booking and installation.
    - Piloting the end-to-end installation journey with a sample of target households will help identify issues early, which can then be addressed to minimise aborts.

Installation appointments:

- If targeting areas or communities that may be harder-to-reach for reasons such as language barrier, CFOs employed by a local partner (e.g. a community organisation) can aid access to properties and help with customer engagement and understanding.
- Offering installations outside of standard working hours (in particular Saturdays) is popular with customers and allows suppliers to complete installs quickly and in volume although at a premium (as the labour costs for non-standard working hours are more expensive).
- If installing on an area basis, installation planning should take into consideration locally relevant events e.g. Ramadan in majority Muslim areas.

Installations in social housing:

- In social housing properties, some meters are in locked rooms or cupboard and require landlord access. Suppliers should anticipate and plan for these access issues.
- The installation process in social housing properties can be facilitated by:

[10] For a detailed overview of learnings related to the smart meter rollout, please see: http://innovation.ukpowernetworks.co.uk/innovation/en/Projects/tier-2-projects/Energywise/Project-Documents/SM_Learnings_Energywise+Report.pdf

- The social housing provider sharing a list of property addresses with the energy supplier which require landlord access.
- Early engagement by the energy suppliers with the social housing provider to agree the appropriate staff member to contact (e.g. a caretaker) and the minimum notice period required for installations which require a representative from the housing provider present to secure meter access.
- Suppliers and social landlords working together to brief staff members (e.g. caretakers) responsible for providing access. This may boost staff cooperation and therefore installation success rates.

Using and benefiting from the Smart Energy Display:

- Customer response to the smart meter and Smart Energy Display was observed to be largely positive and a number of customers make ongoing and active use of the Smart Energy Display to monitor energy use. In some cases, this leads to increased energy literacy, higher levels of energy salience and some behaviour change to reduce energy consumption.
- Some low income and vulnerable consumers may be keen to benefit from the Smart Energy Display but may be confused how to make best use of it and may be fearful of 'messing things up'. The following may help these customers to achieve meaningful energy savings.
  - Help to set up the Smart Energy Display.
  - A comprehensive demonstration at point of install on how to use the Smart Energy Display.
  - Follow up support on using the Smart Energy Display, potentially face-to-face or using video.
- It is fundamental that information about using the Smart Energy Display is shared amongst all household members in order to maximise benefit. Suppliers should encourage the household member present at install to disseminate knowledge and learnings.

Smart prepayment

- It is very important for prepayment customers to receive a comprehensive explanation and demonstration at point of install about the top-up options available to them via smart prepay. In particular, how to top-up manually using a code if remote (online or phone) top-ups do not communicate with the meter and Smart Energy Display.
- Prepayment customers should be shown during the installer's demonstration how to access emergency credit through the Smart Energy Display or smart meter.

Customer feedback:

- Suppliers should consult with customers on their post-installation smart meter experience using methods such as focus groups and telephone surveys. This post-installation engagement will help pick up any issues (including technical ones) that customers have not proactively reported to suppliers.
- Learnings based on customer feedback should be used to improve installation-phase and post-installation support approaches and materials for future smart meter installations.

4.9 Multiple dwelling unit (MDU) learnings

- The project has made valuable commercial learning regarding landlord engagement and authority to install in tall and difficult buildings. Tower Hamlets Homes' preference was to draw up a separate 'license agreement' (maintenance contract) with the tall and difficult building solution supplier pre-installation in addition to the original collaboration agreement signed by all project partners.
- More engagement and understanding amongst social landlords is required for the larger smart meter roll out as landlords have to be mindful about tenant benefits as well as about the commercial agreements. Due to the nature of these contracts direct communication and agreements between the landlord and the solution supplier would be best suited.

4.10 Energy Social Capital (ESC) findings

Resources – findings:

- Energy social capital resources have consistently increased over the project.
- The family has been the most important ESC resource for both groups over the whole project.
- The number of people stating they had at least one person to ask about various energy saving and shifting issues increased throughout the project to 90%.

Information seeking – findings:

- The proportion of respondents having had at least one conversation about electricity in the last six months rose over the project. These conversations are still largely amongst family members.
- Between the second and third ESC surveys, there was been an increase in conversations about changing the times of using energy.
- Between the first and second ESC surveys, there was a decrease in the number of respondents who would first turn to an organisation to find out about electricity and an increase in turning to a person known to the respondent.
- For those respondents who would first turn to an organisation, they would turn to British Gas i.e. their supplier.

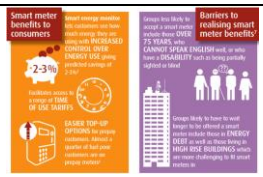
Key learnings:

- Notable increases over the project were the number of people reporting that they have at least one ESC resource, the proportion of people who can explain the pros and cons of having a smart meter installed, the proportion of people who would turn to someone they know to ask about energy issues and the number of people discussing electricity with at least one person. These changes could indicate that being involved in the project, or receiving smart meters, advice and devices has generated more awareness about energy within the household.
- Notable constants over the project are the role of the family as the most important source of information about energy.
- The level of awareness about the PRS amongst the participants is still low but improved over the project.

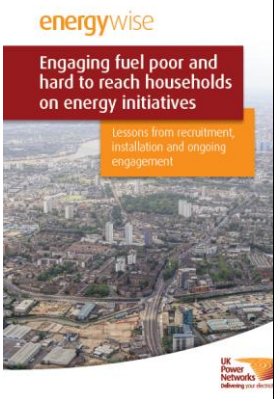
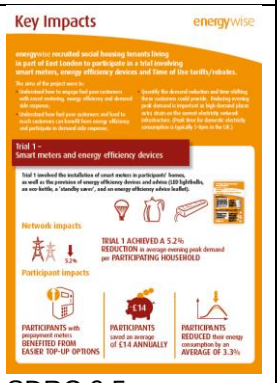
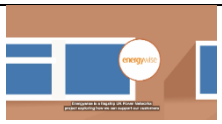
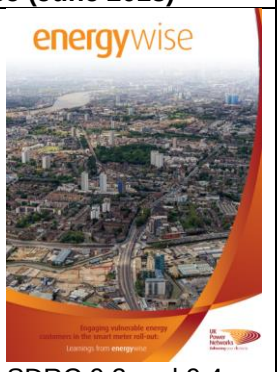
5 Dissemination materials

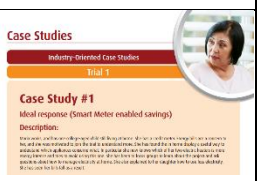
Lessons from the project have been shared via the SDRC and biannual reports which are available on the project website[11], as well as through presentations and briefings, social media and media coverage (as outlined in section 7 below). To facilitate this knowledge dissemination, the following materials have been produced as part of the **energy**wise project.

Table 6 – Knowledge dissemination materials

Audience	Purpose	Dissemination routes	Relevant SDRC
Engaging fuel poor and hard to reach households on energy initiatives; Lessons from trial 1 recruitment and installation; illustrated booklet (October 2016)			
Those involved in engaging with vulnerable households on energy-related initiatives. The report has been designed to be accessible to a non-technical audience, with the use of icons and infographics to illustrate key points.	To share learnings from the participant recruitment and installation phases of trial 1.	Available on the project's website and paper copies have been distributed at all dissemination events from October 2016 onwards. They have also been distributed to stakeholders engaged in various one-to-one meetings.	 SDRC 9.1 and 9.2

[11] http://innovation.ukpowernetworks.co.uk/innovation/en/Projects/tier-2-projects/Energywise/

Audience	Purpose	Dissemination routes	Relevant SDRC
Engaging fuel poor and hard to reach households on energy initiatives. Lessons from recruitment, installation and ongoing installation; illustrated booklet (July 2018)			
Those involved in engaging with vulnerable households on energy-related initiatives. The report has been designed to be accessible to a non-technical audience, with the use of icons and infographics to illustrate key points.	An updated version of the booklet cited above; to share learnings from the participant recruitment and installation phases in both trials as well as ongoing participant ongoing engagement throughout the project.	Available on the project's website with paper copies distributed at the final **energy**wise dissemination event.	 SDRC 9.1, 9.2 and 9.4
Key Impacts (July 2018)			
The energy industry Those involved with engaging with households on energy matters.	To share the key impacts from **energy**wise in terms of both participant and network impacts	Available on the project's website with paper copies distributed at the final **energy**wise dissemination event	 SDRC 9.5
Video animation summarising the key challenges addressed by energywise, the innovative approach and the savings achieved by trial participants across the first trial (December 2017)			
Wider audience	To provide a simple explanation of the objectives of **energy**wise in an accessible format	Shown at the final event as well as to a number of bilateral meetings. https://vimeo.com/265536672?from=outro-embed	 SDRC 9.3 and 9.4
Engaging fuel poor customers in the smart meter rollout; learning from energywise (June 2018)			
Those involved in the smart meter rollout	To share learnings from the project in terms of how best to engage fuel poor households	Available on the project's website with paper copies distributed at the final **energy**wise dissemination event	 SDRC 9.2 and 9.4

Audience	Purpose	Dissemination routes	Relevant SDRC
Case studies (July 2018)			
Those involved in the smart meter rollout and any Time of Use tariffs or Critical Peak Rebate offers	To share learnings from the project in terms of how different participants have responded to the project	Available on the project's website and distributed at the final **energy**wise dissemination event.	 SDRC 9.5
Participant videos/ testimonials (April 2018)			
Those attending the final dissemination event	To share experiences of participants	One video was shown at the final dissemination event	SDRC 9.4 and 9.5
Posters and flyers provided to participants at the end of the project (April 2018)			
Participants attending the thank you events	To share key findings from the project	Provided at the final thank you event and used to sharing learning at an internal roadshow for UK Power Networks staff (June 2018)	 SDRC 9.4, 9.5 and 9.6

6 Knowledge dissemination activities

6.1 Commitments

The following table outlines the **energy**wise dissemination commitments as set out in the project direction.

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Table 7 - energywise dissemination commitments as set out in the bid documents

Description – what we said	What we did
1x external learning event carried out for SDRC 9.1 – 9.5, and presentation materials shared	One external learning event was carried on 12 July 2018 out for SDRC 9.1 – 9.5 – within these event individual sessions were held per SDRC. The event agenda is enclosed in Section 6.2.5.
2x internal learning events carried out per SDRC, and presentation materials shared	UK Power Networks project team organised a series of internal briefings to inform the business about the project, its objectives and progress, with at least two events carried out per SDRC. For details, see Section 6.2.1
2x thank-you events carried out for trial participants	Two thank-you events were held at the Bromley by Bow Centre on 28 April 2018, see details in Section 6.2.3
1x end of project customer learning event completed for trial participants, and presentation materials shared	The customer learning event formed part of the thank you events described above as a separate dissemination session, see details in Section 6.2.4
Presentation of the project at least twice a year at external seminars/workshops, with presentation materials shared	This target was exceeded by far, see details in Section 6.4

6.2 Internal knowledge dissemination within UK Power Networks and between partners

The project partners have taken a flexible approach to dissemination, capitalising on opportunities to share learning with relevant partners as they arise.

6.2.1 Knowledge dissemination to stakeholders within UK Power Networks

The **energy**wise project team organised a series of internal briefings to inform the business about the project, its objectives and progress. The majority of them were organised at the start of the project (2014/15) and towards the completion of Trial 2 (2018).

Table 8 - Overview of internal UK Power Networks' meetings

SDRC	Event	Period
SDRC 9.1	**April** – Operational Telecommunications Roadshow	H1[13] 2014
	August – Presentation at the Strategy and Regulation Directorate monthly meeting	H2 2014
	September – Future Networks team[12]	H2 2014
	October – Future Networks team brief	H2 2014
	December – Future Networks team brief	H2 2014
	May -– Future Networks team brief	H1 2015
	August – Presentation at the Strategy and Regulation Directorate monthly meeting	H2 2015
	July – Presentation to Director of Customer Services	H2 2016
	January -– Presentation to Head of Innovation	H1 2017

[12] The Future Networks team became the Innovation team in 2017
[13] H1 = first six months of the year, H2 = second six months of the year

	April -– Presentation at the Strategy and Regulation Directorate monthly meeting	H1 2017
	June -– Community training event in Fore Hamlet (Ipswich)	H1 2018
	July -– presentation to Stakeholder Engagement and Customer Services team at close down event	H2 2018
	September -– presentation to Customer Engagement team (Customer Services)	H2 2018
	September -– presentation to Income Pricing Team (Finance)	H2 2018
	September -– presentation to Priority Services Register Team (Customer Services)	H1 2018
SDRC 9.2	**May** -– Future Networks team brief	H1 2015
	July – Presentation to Director of Customer Services	H2 2016
	January -– Presentation to Head of Innovation	H1 2017
	April -– Presentation at the Strategy and Regulation Directorate monthly meeting	H1 2017
	June -– Community training event in Fore Hamlet (Ipswich)	H1 2018
	July -– presentation to Stakeholder Engagement and Customer Services team at close down event	H2 2018
	September -– presentation to Customer Engagement team (Customer Services)	H2 2018
	September -– presentation to Income Pricing Team (Finance)	H2 2018
	September -– presentation to Priority Services Register Team (Customer Services	H2 2018
SDRC 9.3	**July** – Presentation to Director of Customer Services	H2 2016
	January -– Presentation to Head of Innovation	H1 2017
	April -– Presentation at the Strategy and Regulation Directorate monthly meeting	H1 2017
	June -– Community training event in Fore Hamlet (Ipswich)	H1 2018
	July -– presentation to Stakeholder Engagement and Customer Services team at close down event	H2 2018
	September -– presentation to Customer Engagement team (Customer Services)	H2 2018
	September -– presentation to Income Pricing Team (Finance)	H2 2018
	September -– presentation to Priority Services Register Team (Customer Services	H2 2018
SDRC 9.4	**April** -– UK Power Networks' Strategy and Regulation monthly meeting – presentation by Bromley by Bow Centre team	H1 2017
	June -– Community training event in Fore Hamlet (Ipswich)	H1 2018
	July -– presentation to Stakeholder Engagement and Customer Services team at close down event	H2 2018
	September -– presentation to Customer Engagement team (Customer Services)	H2 2018
	September -– presentation to Income Pricing Team (Finance)	H2 2018
	September -– presentation to Priority Services Register Team (Customer Services	H2 2018
SDRC 9.5	**July** -– presentation to Stakeholder Engagement and Customer Services team at close down event	H2 2018
	September -– presentation to Customer Engagement team (Customer Services)	H2 2018
	September -– presentation to Income Pricing Team (Finance)	H2 2018
	September -– presentation to Priority Services Register Team (Customer Services	H2 2018

6.2.2 Knowledge dissemination between partners

Three partner workshops were held over the course of the project to discuss and identify learnings from the different phases of the project, as follows:

- May 2016 – a two day workshop involving representatives from all partners as well as the recruiting organisations focusing on learnings related to participant selection, recruitment and installation.

Figure 10 – Thank you events

- May 2017 – a partner workshop involving representatives from all partners to discuss learning related to Trial 2 recruitment as well as ongoing engagement through Trial 1.
- June 2018 – a final partner workshop involving representatives from all partners (except Poplar HARCA whose representative was unable to attend but was invited to feed in to the workshop separately). This focused on identifying learnings related to ongoing engagement through Trial 2, the project closedown process and final project party, and the overall impacts of the project.

The workshops were held at Bromley by Bow Centre and facilitated by CAG Consultants. The outputs from these workshops were incorporating into the learning booklets listed in table 7.

6.2.3 Thank-you events

Two separate thank you events were organised on Saturday 28 April 2018 at the Bromley by Bow Centre: a morning event for prepayment customers and an afternoon event for credit customers. It was decided to have two events, split by meter type rather than group, as these participants had different customer journeys and received different tariffs (whereas the intervention and control groups were merged together for trial 2). This ensured that participants' discussions and project learning remained focused around the type of tariff experienced by participants, and helped to avoid confusion.

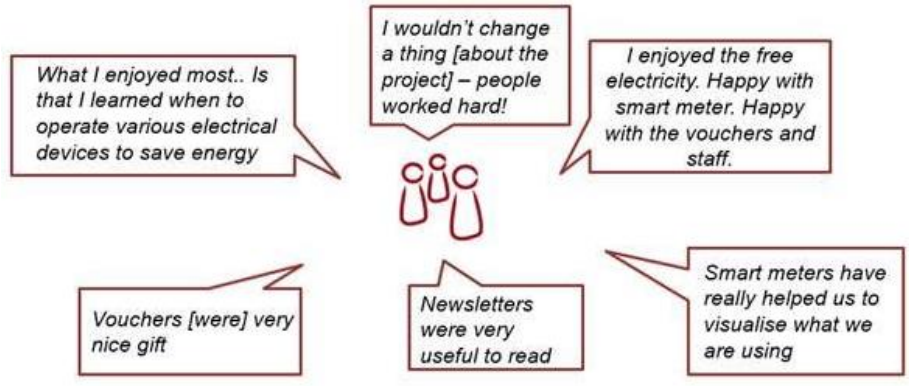


Figure 11 – Participants' feedback captured at thank you events

The events were organised on Saturday to maximise attendance of participants usually working/unavailable on weekdays. Both events were successful in terms of participation, with final numbers displayed in Table 9. Discussions were facilitated around key topics and a translator was available to support participants with little English.

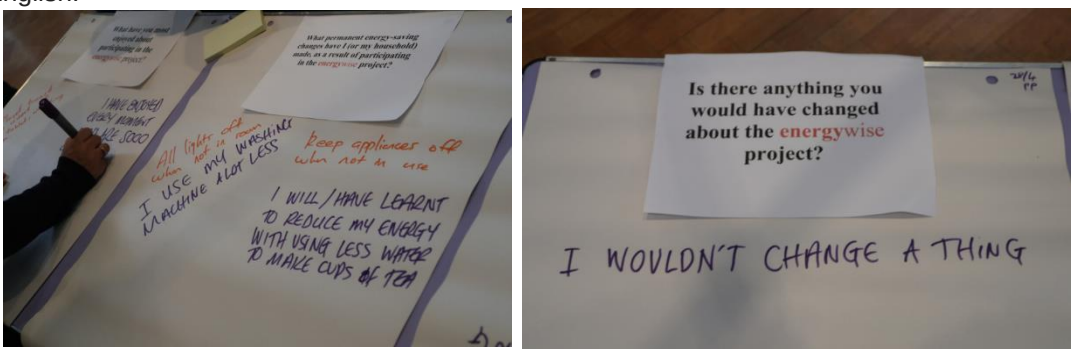


Figure 12 – Participants giving feedback

Some of the feedback provided by participants at the event is presented below.

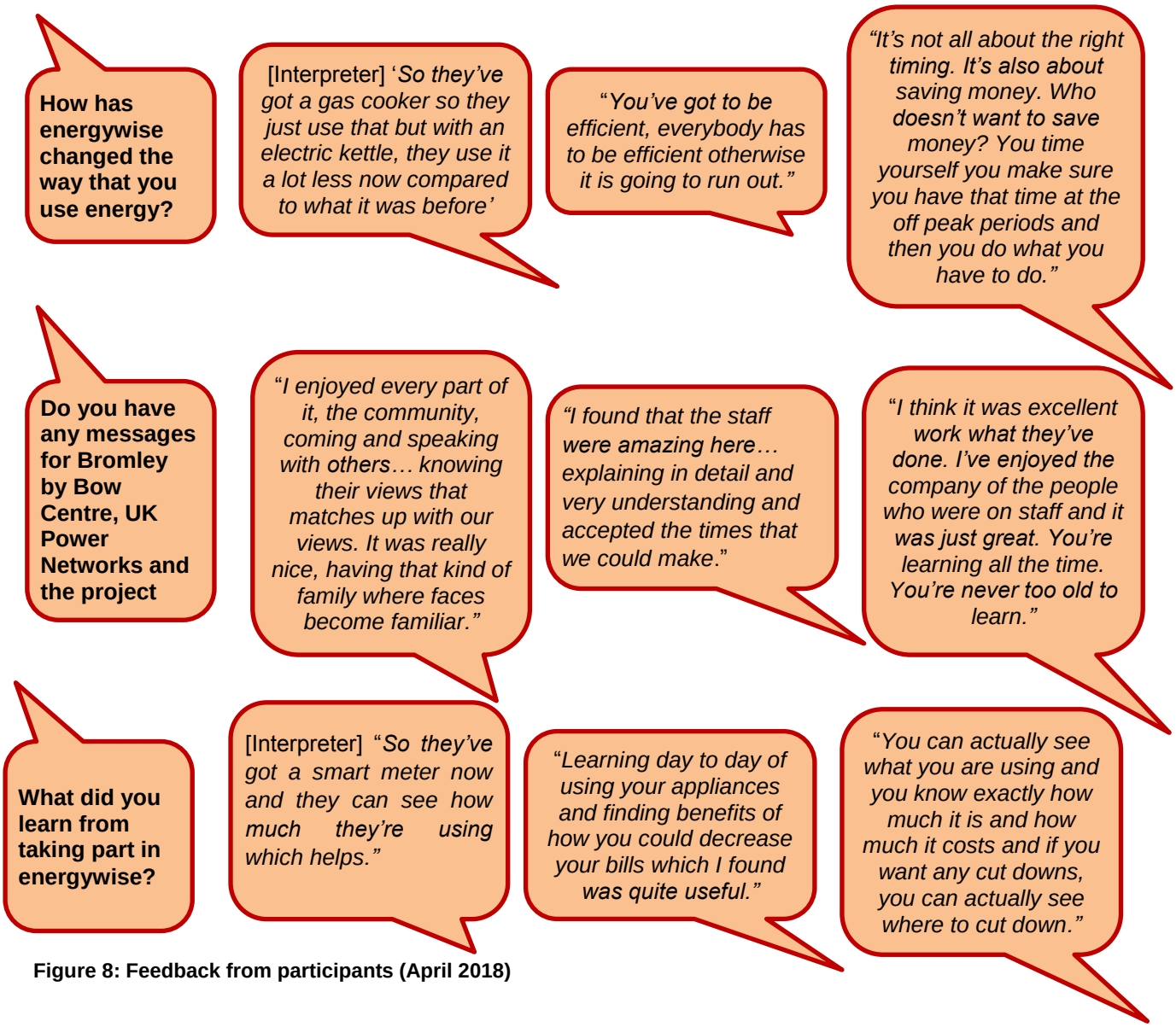


Figure 8: Feedback from participants (April 2018)

UK Power Networks, National Energy Action, Bromley by Bow Centre and CAG Consultants worked on a detailed event planning strategy for the dissemination events. Various activities were arranged for the day, including competitions and prizes for participants, children's entertainment, giveaways and goody bags. The competitions were designed to test knowledge on energy with two prizes (provided by project partners) offered at each event.

Several partners attended including representatives from Bromley by Bow Centre, University College London, British Gas, Tower Hamlets Homes and National Energy action. Feedback on project experiences was captured from a number of participants. All partners found it a very rewarding and insightful event to meet participants directly, hear their stories and learn even more about their experiences.

Table 9 – Participants at the thank you events

	Credit customers	Prepayment customers
Number of participants and guests	14 participants plus 8 guests plus 8 children ***30 in total***	4 participants plus 2 guests plus 4 children ***10 in total***

6.2.4 End of project customer learning event:

Within the thank you events, a customer learning event was organised. This was kept clearly separate from the 'fun part' but it was decided to combine on the same day to maximise attendance and reach the highest number of participants to share the learning[14]. This session included an introduction from the Bromley by Bow Centre field officer team, followed by an overview from UK Power Networks. University College London presented learnings from both the trials. A translator (from the Bromley by Bow Centre) was on hand to assist participants with little or no English and to provide support with the interviews that were conducted by National Energy Action. Presentations were kept simple to allow all participants to follow them.

UK Power Networks in collaboration with National Energy Action produced content for posters and flyers to be distributed to project participants on the day. There were four different flyers produced, namely: project overview, customer engagement and two separate ones covering the trials, distinguished between prepayment (Bonus Time) and credit (HomeEnergy Free Time) (see Figure 13, below). The flyers were given away to all participants as part of their goody bags. These materials were designed to be highly visual and project learning was explained with simple language.

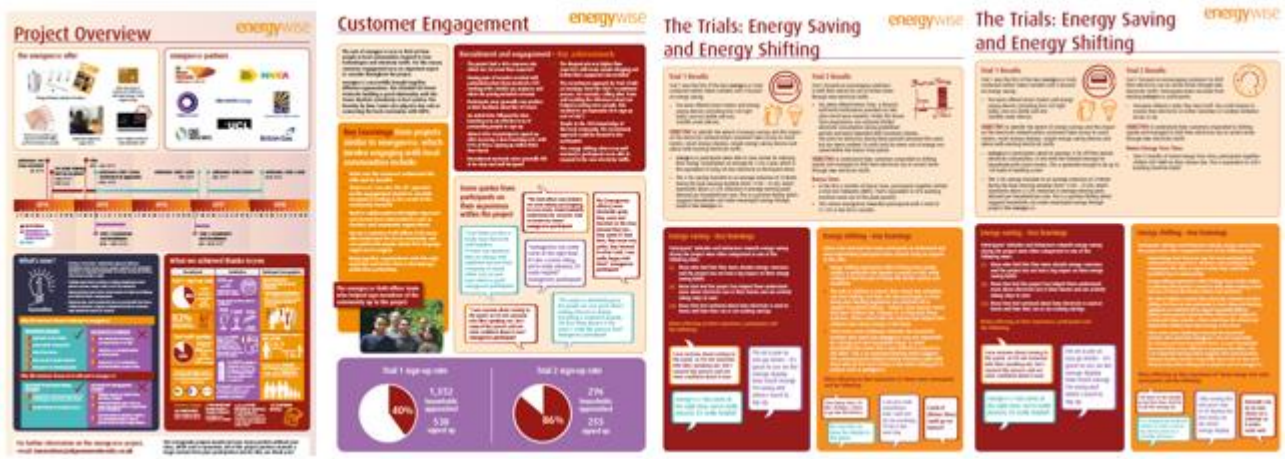


Figure 13 – Flyers handed to participants at the thank you events

6.3 Final dissemination event

In July 2018, a final dissemination event was held. Hosted at the Institution of Engineering and Technology, it included presentations from a range of project partners and a panel discussion, hosted by NEA and involving representatives from British Gas, Smart Energy GB, UK Power Networks and the Bromley by Bow Centre.

[14] Partners agreed that this was the preferred option to maximise attendance and response rate to both types of events, while minimising the burden on trial participants (in terms of time taken to travel to and attend the event. This was decided following customer feedback and project lessons regarding the importance of minimising the number of interactions and burden to trial participants in order to increase customer retention and participation where required.

It was attended by over 85 participants from a range of sectors including local national government, charities, academia and the energy industry. It featured 11 sessions/presentations including a panel discussion led by NEA. Speakers included: Director of Consumer Vulnerability, British Gas; Financial Inclusion Manager, Bromley by Bow Centre; Programme Manager for Distribution System Operator Readiness, UK Power Networks and Director of Policy and Communications, Smart Energy GB. A number of the speakers from the day also joined the panel. The session focused on how the organisations represented by the panel members are working to help and support vulnerable customers respectively. Themes addressed within the session included community energy, methods deployed to effectively engage with vulnerable customers, benefits and potential savings from time-of-use tariffs and demand-side response issues, as well as issues surrounding the smart meter installation deadline and the development of smart prepayment meters.

Overall, the dissemination event was very well received. When asked to rate the event on a scale of 1 to 5, 1 being 'poor' and 5 'excellent', respondents gave the event an average rating of 4.06. Almost all participants (97%) felt the event was 'good', with three quarters (75%) rating it as 'very good' or 'excellent' (37.5% respectively).

Respondent observations were also largely positive, with the comments reflecting the high levels of satisfaction. Participants highlighted that the event itself was informative and engaging with speakers felt to be well-informed and enthusiastic. The venue location, facilities and event organisation were also cited as being "*excellent"*. A selection of the positive comments given by participants is presented below.

- "*I just wanted to reiterate what a fantastic event it was. Truly outstanding. So useful to our current project, and brilliantly organised and run. The team clearly put a lot of hard work into making this happen, and it is very much appreciated".*

- "*This was one of the best events I have ever attended. It was 100% useful from beginning to end with no 'filler' whatsoever. Brilliantly organised and run. Tight agenda and spot-on timekeeping. The fantastic location, facilities and delicious food were all a bonus! I really liked the opportunity to submit questions to the panel online. It's really good for inclusivity ... Thanks for an absolutely brilliant, top-notch event*".

- "*I thought it was a fantastic and informative event, with enthusiastic and knowledgeable speaker which made it very engaging for us as delegates*".

- "*A very useful, informative event that got the right balance between information and interaction*".

- "*Very well organised event – especially impressed with the range of speakers from different areas of expertise*".

A minority of participants had suggestions about how the event could potentially have been improved, with some expressing the opinion that more time for discussion or further time for the panel to respond to questions would have been useful. For example:

- *"Further information on the background to fuel poverty and its importance to the UK from the NEA would've been useful."*

- *"We could have done with more time for discussion/debate but other than that it was great"*

The dissemination event consisted of nine individual sessions, presented in Figure 16. As Figure 14 illustrates, the sessions were well-received by participants and when asked to rate the sessions from 1 to 5, 1 being 'poor', 2 'fair', 3 'good, 4 'very good' and 5 'excellent'.

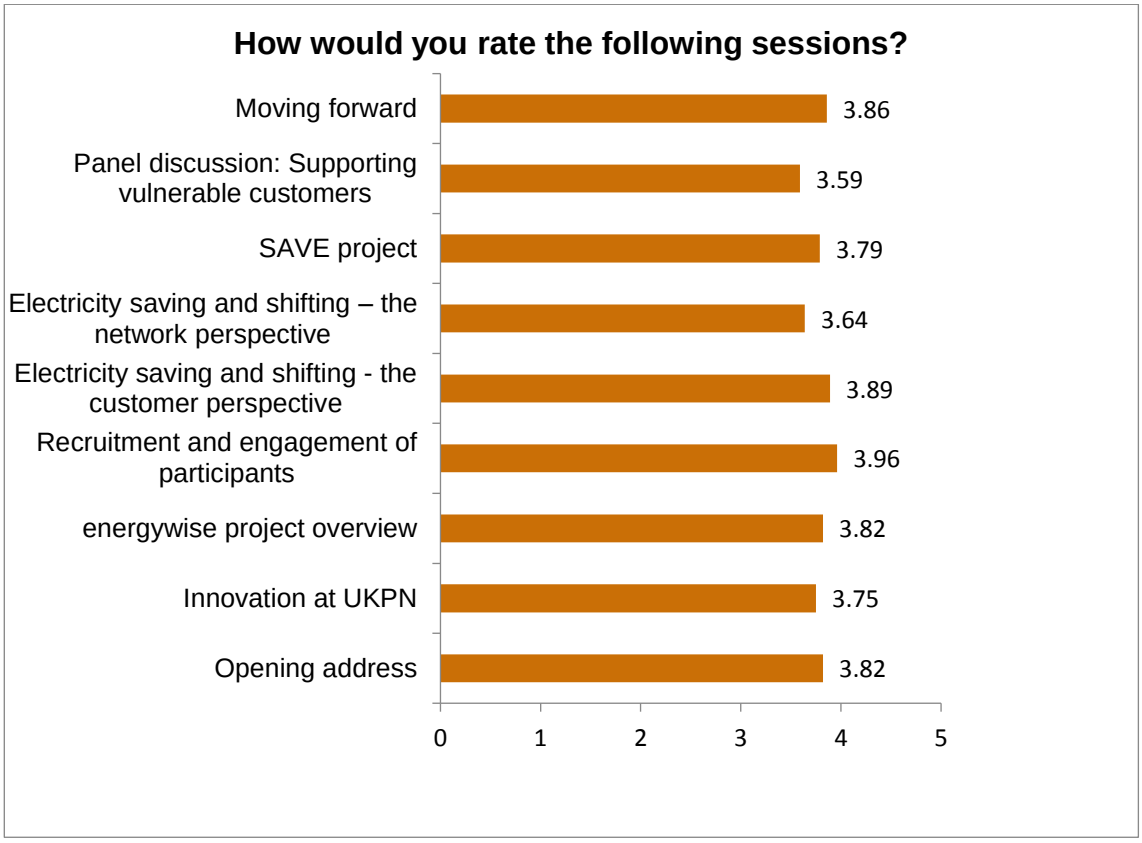


Figure 14 – Delegates' rating of sessions at the final energywise dissemination event

Evaluation respondents were also asked to identify which parts of the dissemination event they found most useful and why. Whilst some highlighted particular sessions, as discussed above, others felt it was difficult to pinpoint specific parts of the event due to them feeling that all aspects of provided them with useful information and insight.

A significant proportion of participants cited the information and discussion around engagement was of particular use. This information was largely seen to be useful due to it presenting the challenges the programme had encountered in engaging vulnerable households and how these had been overcome but also because it included changes in customer behaviour which had derived from the project and the benefits this achieved. The reason this was most useful was largely a result of it being relevant to the projects and work currently being undertaken by delegates and provided examples of best practice; "*It was full of practical useful information on what did and didn't work and why*".

Additionally, participants highlighted that the networking opportunities the event provided as being most useful. This was cited not just in terms of hearing from different organisations with disparate perspectives, but also discussing projects that delegates currently have in operation or were being planned.

A number of participants also cited finding the opportunities to hear about the 'on the ground' experiences of service delivery as being particularly useful. One participant commented that, "*This is not often presented at conferences and it brought a lot of humanity to the project presentation*".

Figure 15: Selected photos from the close down event (from the left – the energywise project team; Q&A with project partners; panellists from British Gas, Smart Energy GB, National Energy Action and UK Power Networks)

energywise

Supporting vulnerable customers, changing behaviour, reducing demand

Agenda

09:30	**Registration and refreshments**
10:00	**Welcome and introduction** *Director of Policy and Research, NEA*
10:05	**Opening address** *Director of Customer Services, UK Power Networks*
10:20	**Innovation at UK Power Networks** *Low Carbon Technologies Delivery Manager, UK Power Networks*
10:40	**energywise project overview** *energywise Project Lead, UK Power Networks*
11:10	**Refreshment break**
11:30	**Recruitment and engagement of participants** *Partner, CAG &* *energywise Field Officer team Bromley-by-Bow Centre*
12:00	**Electricity saving and shifting – the customer perspective** *Research Associate, UCL Energy Institute*
12:30	**Electricity saving and shifting – the network perspective** *Director, Element Energy*
13:00	**Lunch break**
13:45	**SAVE project** *SAVE project manager, SSE*
14:05	**Panel discussion: Supporting vulnerable customers** Moderator: *Director of Policy and Research, NEA* Panellists: *Director of Consumer Vulnerability, British Gas* *Director of Communities, Health and Wellbeing, Bromley by Bow Centre* *Director of Policy and Communications, Smart Energy GB* *Programme Manager, UK Power Networks*
14.45	**Moving forward** *Professor of Energy and the Built Environment, UCL Energy Institute &* *Director, Element Energy*
15.05	**Closing remarks** *Head of Innovation, UK Power Networks*

Figure 16 – Final dissemination event agenda

6.4 Industry recognition and awards

The project has won or been shortlisted for a number of industry awards, as shown in Figure 17.

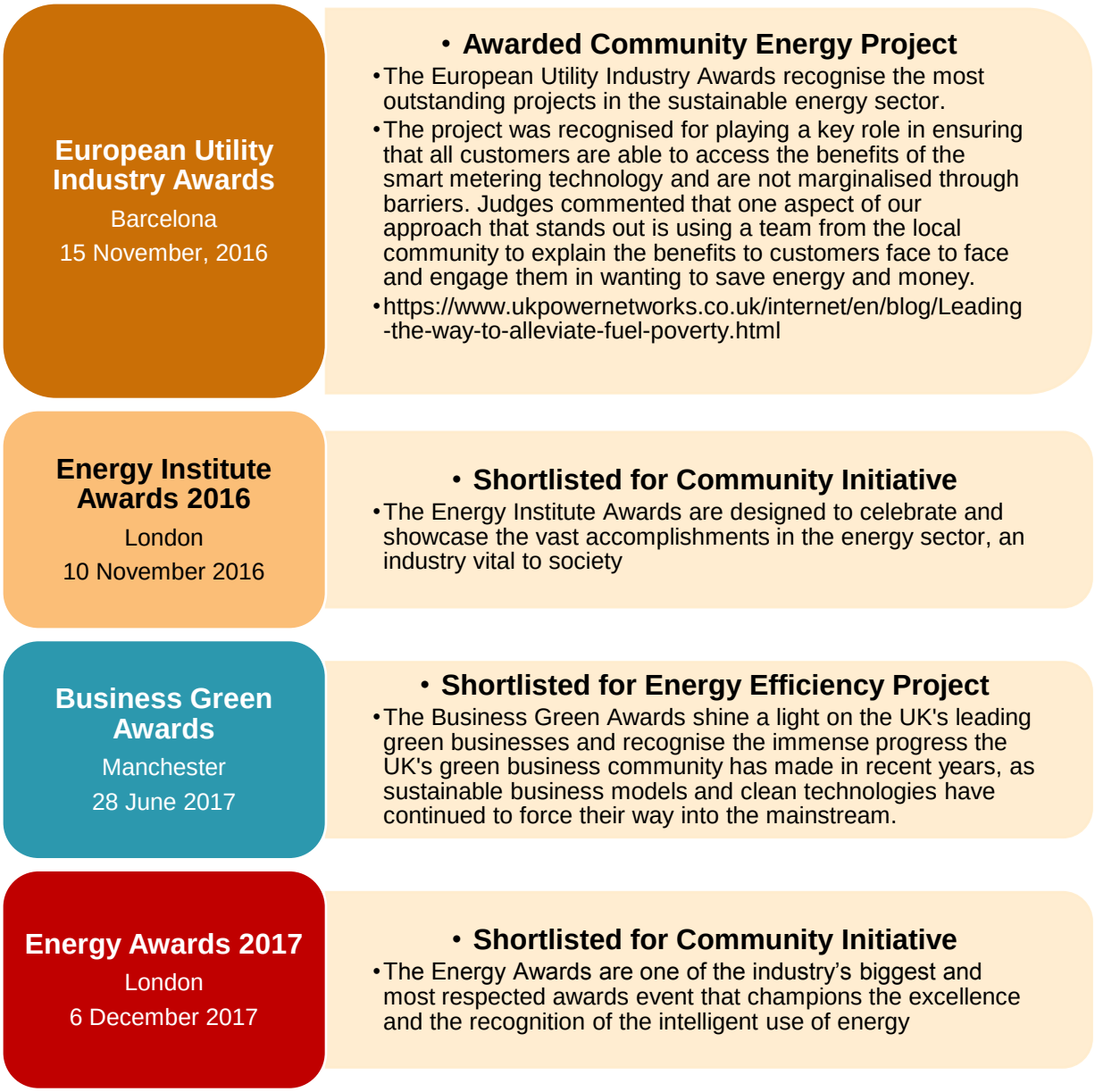


Figure 17 – Industry awards

6.5 Media coverage including web based and social media

The project has received coverage in a range of media, both printed and through social media, as outlined in tables 14 and 15.

Table 10 – Media coverage

Media	Coverage
UK Power Networks press release about the project, December 2013	**"£9.8M BOOST FOR PIONEERING ELECTRICITY PROJECTS"** https://www.ukpowernetworks.co.uk/internet/en/news-and-press/press-releases/9.8m-boost-for-pioneering-electricity-projects.html
NEA Focus (September 2016 Issue)	**"ENGAGING HARD TO REACH HOUSEHOLDS IN THE SMART METER ROLL-OUT"** National Energy Action published an article on **energy**wise in NEA Focus (September Issue) entitled 'Engaging with hard to reach households in the smart meter roll-out and energy saving campaigns – Learnings from the **energy**wise project' Members only; not available online
Engerati press release, November 2016	**"LEADING THE WAY TO ALLEVIATE FUEL POVERTY"** Following the Community Energy award at the European Utility Industry Awards, Engerati, who hosted the award ceremony, highlighted in their press release that the project was recognised for playing a key role in ensuring that all customers are able to access the benefits of the smart metering technology and are not marginalised through barriers. They also said that one aspect of the project approach that stands out is using a team from the local community to explain the benefits to customers face-to-face and engage them in wanting to save energy and money. They have also published a video interview taken with the Project Lead at the European Utility Week in Barcelona on 16 November. Press release: https://www.engerati.com/blogs/reaching-scale-feels-so-good-european-utility-week-day-3
UK Power Networks press release, 10 August 2017	**"PIONEERING COMMUNITY PROJECT HELPS CUT ENERGY USE"** This highlighted the key project outcomes, particularly the response rate to trial 1 recruitment and to the DSR offerings, and the savings achieved on average by the participating households in the energy saving trial. http://www.ukpowernetworks.co.uk/internet/en/news-and-press/press-releases/Pioneering-community-project-helps-cut-energy-use.html
Utility Week, August 2017	**"HUNDREDS BENEFIT FROM SMART ENERGY PROGRAME"** Article about **energy**wise based on above press release, illustrating how hundreds of households have benefitted from the smart energy interventions.

'Networks' September 2017 issue (No 015)	**"WISING UP IN TOWER HAMLETS"** **energy**wise was mentioned as part of an article on fuel poverty - http://read.networks.online/h/i/364946396-network-september-2017[15]
UK Power Networks Wired magazine, Spring 2017 issue	**"ENERGYWISE LEADING THE WAY IN ENERGY SAVING"** Wired magazine published an article about energywise after the project received the community energy award at the European Utility Week 2017 in Barcelona. The article included a quote from the energywise Project Lead who highlighted the project collaborative and innovative approach in engaging and supporting vulnerable and hard to reach customers.
Networks magazine, September 2017 issue (No 015)	**"BEATING THE FUEL POVERTY TRAP"** This article focused on fuel poverty and provided insights on the work undertaken by the Energy Systems Catapult. The article mentioned energywise as an example of DNOs involvement with supporting vulnerable and hard to reach customers and in particular the development and trialling of Time of Use tariffs.
NEA focus article September 2017	**"EXPLORING HOW NEW ELECTRICITY TARIFFS CAN SUPPORT PEOPLE IN FUEL POVERTY"** Members only; not available online

Information on the project has been shared through a variety of websites and social media platforms including: UK Power Networks' Yammer.

[15] Visitors to the website have to register (free of charge) to be able to access content.

Table 11 – Social media coverage and web posts

Article	Link
UK Power Networks blog post on the end of project parties (April 2018) published and disseminated via LinkedIn	**"COMMUNITY COMES TOGETHER TO CELEBRATE ENERGYWISE"[16]**  Community comes together to celebrate Energywise Posted on 17 May 2018 10:37 AM by Angeliki Koulouri UK Power Networks recently hosted a party for more than 50 Tower Hamlets residents who took part in our flagship innovation project energywise. The event at the Bromley by Bow Centre was a chance for us to thank some of the many local residents who had made the effort to join the project and helped us along the way. We had an energy quiz and games with prizes, as well as a children's entertainer. It was great to hear how positive they found the project and how it has benefited them. Working with the Bromley by Bow Centre as a trusted local partner, we got to know the local community by meeting them on their terms. We recruited local people from within the community to work as field officers in an area with a lot of ethnic diversity. As a result, over 500 people signed up to take part in the project and more than 250 stayed with us for three years until the very end. showing 1 of 4 - click to enlarge https://www.ukpowernetworks.co.uk/internet/en/blog/party-blog.html
Youtube video on **energy**wise (published February 2018)	**"UNDERSTANDING THE NEEDS OF OUR VULNERABLE CUSTOMERS"** https://www.youtube.com/watch?v=VJTDA5Mi_Sc

[16] To encourage attendance at the thank you events in April 2018, project partners decided to combine the learning event with a 'party' as an appropriate way to celebrate the end of the project and thank customers for taking part in the project.

Article	Link
UK Power Networks post on Yammer (July 2018)	**"MARKING THE END OF OUR FLAGSHIP PROJECT"**

All Company

Angeliki Koulouri – July 19 at 03:11 PM

More than 90 people from local national government, charities, academia and the energy industry joined us last week for an event to mark the end of our flagship community energy project Energywise. The project demonstrated our commitment to helping most vulnerable and hard to reach customers. It was the first time that an electricity network worked with an energy supplier, British Gas and a local trusted party to support residents. For more information see: http://innovation.ukpowernetworks.co.uk/innovation/en/Projects/tier-2-projects/Energywise/

UK Power Networks - Energywise
Energywise homepage
innovation.ukpowernetworks.co.uk

LIKE REPLY SHARE EDIT

and 12 others like this

Seen by 398

3 shares

Add Topics

– July 24 at 04:40 PM

Fantastic event - well done Angeliki Koulouri in organising an event where stakeholders spoke very highly of the day! Shout out to the energywise team.

cc: Angeliki Koulouri

UNLIKE REPLY SHARE

Article	Link
UK Power Networks post on Yammer (August 2018)	**"NEW PROJECT HELPS CUSTOMERS IN DEPRIVED AREAS SAVE MONEY ON ENERGY BILLS"** 
UK Power Networks blog post on Time of Use tariffs, published on the NEA website disseminated via LinkedIn (December 2017)	**"ENERGYWISE EXPLORES HOW NEW ELECTRICITY TARIFFS CAN SUPPORT PEOPLE IN FUEL POVERTY"** https://www.nea.org.uk/energywise-explores-new-electricity-tariffs-can-support-people-fuel-poverty/
An article about UK Power Networks wining a European Utility Industry Award for **energy**wise (January 2017)	**"UK POWER NETWORKS PROJECT BAGS EUW AWARD"** https://www.metering.com/features-analysis/uk-power-networks-project-bags-euw-award/

Article	Link
UK Power Networks post on Yammer (August 2017)	**"TENANTS MAY BE ABLE TO SAVE 3.3% OF THEIR ANNUAL ELECTRICITY CONSUMPTION"**

All Company

Giulia Privitera – August 16, 2017 at 04:30 PM

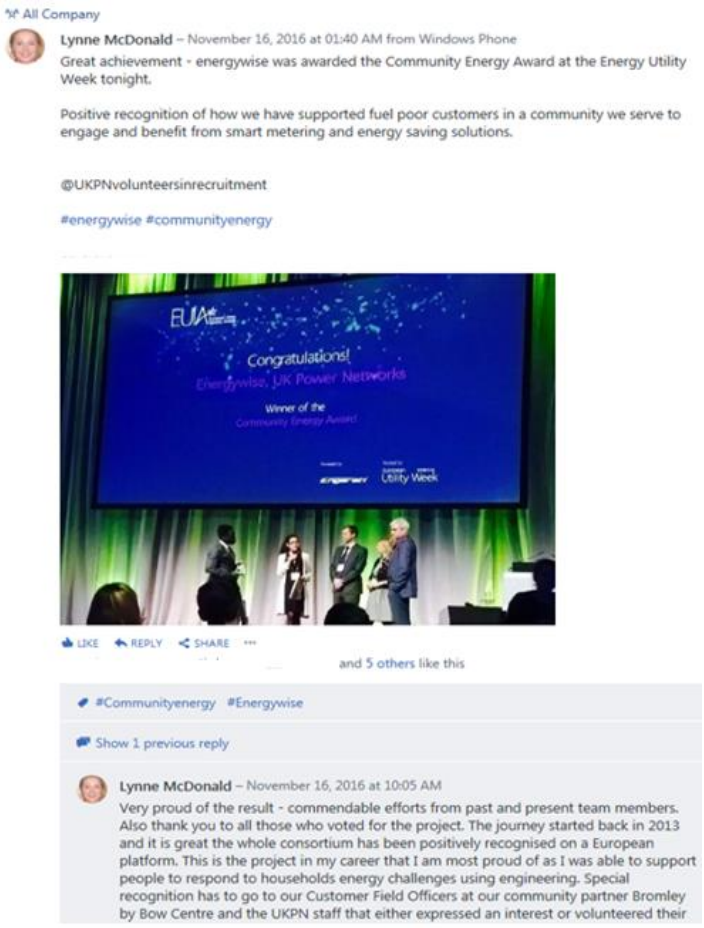
Hundreds of tenants who may be struggling with their energy bills were able to save on average 3.3% over their annual electricity consumption through our innovation project energywise. Building on the first successful energy saving trial, we are now exploring how they can benefit from Time of Use tariffs, and pioneering one of the first trials of Critical Peak Rebate tariffs in Britain.

Critical Peak Rebate (CPR) tariffs are a no-lose proposition: rebates are paid to customers for using less electricity relative to a baseline during a number of peak events per year. CPR tariffs have received little attention in the UK so far. However, due to their customer-friendly design and proven impact on peak demand in the US, they have been identified by bodies including Citizen Advice Bureau as a potentially attractive candidate for demand side response in the domestic sector.

We are very excited about the learning we can gather through the energywise Demand Side Response trial and our findings will inform the industry and policy makers on the extent to which customers in GB are likely to respond to such tariffs.

Utility Week – Hundreds benefit from smart energy programme
goo.gl

LIKE REPLY SHARE

Article	Link
UK Power Networks post on Yammer (November 2016)	**"ENERGYWISE AWARDED COMMUNITY ENERGY AWARD"**  All Company **Lynne McDonald** – November 16, 2016 at 01:40 AM from Windows Phone Great achievement - energywise was awarded the Community Energy Award at the Energy Utility Week tonight. Positive recognition of how we have supported fuel poor customers in a community we serve to engage and benefit from smart metering and energy saving solutions. @UKPNvolunteersinrecruitment #energywise #communityenergy LIKE REPLY SHARE and 5 others like this #Communityenergy #Energywise Show 1 previous reply **Lynne McDonald** – November 16, 2016 at 10:05 AM Very proud of the result - commendable efforts from past and present team members. Also thank you to all those who voted for the project. The journey started back in 2013 and it is great the whole consortium has been positively recognised on a European platform. This is the project in my career that I am most proud of as I was able to support people to respond to households energy challenges using engineering. Special recognition has to go to our Customer Field Officers at our community partner Bromley by Bow Centre and the UKPN staff that either expressed an interest or volunteered their
UK Power Networks blog post on **energy**wise (December 2016)	**"LEADING THE WAY TO ALLEVIATE FUEL POVERTY"** https://www.ukpowernetworks.co.uk/internet/en/blog/Leading-the-way-to-alleviate-fuel-poverty.html
Information on **energy**wise on the University College London website featuring a video of an interview with Dr Charlotte Johnson about her work on the project.	**"REDUCING THE EVENING PEAKS"** https://www.University College London.ac.uk/bartlett/energy/research/research-groups/pace-research-group-people-adaptability-comfort-and-smart-energy/projects

6.6 Other dissemination activities

The following tables lists all the dissemination events carried out in relation to **energy**wise, listing the audience, what was disseminated and which SDRC this related to. Where the events involved presentations, the presentation materials were shared with delegates.

6.6.1.1 Low Carbon Network Innovation Conferences (LCNI)

	Partner	Audience	Purpose	Dissemination product	SDRC related
Aberdeen, 20-22 October 2014	UK Power Networks	DNOs, energy suppliers, wider industry	Presentation introducing the project	Presentation disseminated to delegates; (link no longer available)	9.1
Liverpool, 22-24 November 2015			Presentation introducing the project and findings from the pilot	Presentation disseminated to delegates; (link no longer available)	9.1, 9.2
Manchester, 11-13 October 2016			Presentation introducing initial findings from Trial 1	Presentation disseminated to delegates; (link no longer available)	9.1, 9.2
Telford, 6-7 December 2017			To provide information on the findings from Trial 1 and the first 6 months of Trial 2	Presentation disseminated to delegates; (link no longer available)	9.3, 9.4
Telford, 15-17 October 2018			Presentation summarising the project findings	Presentation will be disseminated to delegates	9.1, 9.2, 9.3, 9.4, 9.5

6.6.1.2 Briefings for policy makers and responses to consultations

Event	Partner	Audience	Purpose	Dissemination product	SDRC related
Department of Energy and Climate Change consultation; 'Cutting the cost of keeping warm', September 2014	UK Power Networks	Policy makers	Contribution to this consultation designed to help Government to prepare a new fuel poverty strategy	N/A	9.1, 9.2
Department of Energy and Climate Change (DECC) meeting, London, June 2015	UK Power Networks with University College London	Policy makers	Meeting with the benefits and evaluation team within the Smart Metering Programme	N/A	9.1, 9.2
Department of Energy and Climate Change (DECC) presentation, London, 17 March 2016	UK Power Networks with British Gas	Policy makers	To share early insights on delivering smart meters to diverse and vulnerable customers	N/A	9.1, 9.2, 9.3, 9.4

Event	Partner	Audience	Purpose	Dissemination product	SDRC related
Briefing for London's Deputy Mayor, 30 January 2017	UK Power Networks	London's Deputy Mayor	Targeted meeting to share key learning outcomes to inform the Mayor's growth and low carbon agenda. Briefing of **energy**wise key learnings and tangible benefits, delivered by UK Power Networks' CEO.	N/A	9.3, 9.5
Telephone briefing to inform London's fuel poverty action plan, on 21 March 2017	UK Power Networks	GLA policy makers	Fed into the research and policy report on fuel poverty in London produced by CAG Consultants which informed the development of the Mayor's Fuel Poverty Action Plan for London	N/A	9.4
Director's meeting with Deputy Mayor for Environment and Energy, 29 January 2018	UK Power Networks	London's Deputy Mayor	Targeted meeting to share key initiatives, particularly UK Power Networks' Central London Strategy, to inform and support the delivery of the London Plan. Briefing of energywise key learnings on energy saving (trial 1) by UK Power Networks' Director.	Presentation shared with Deputy Mayor	9.3
Workshop with the Greater London Authority on Low Carbon Innovation, 26 February 2018	UK Power Networks	GLA policy makers	Introduction of UK Power Networks' Low Carbon Innovation projects, with a key focus on energywise. Shared key learning outcomes from design phase, participant selection, recruitment and engagement, and trial 1.	Presentation shared with the GLA representatives	9.1, 9.2, 9.3, 9.4

Event	Partner	Audience	Purpose	Dissemination product	SDRC related
Consultation/Call for evidence	UK Power Networks	The learning outcomes and insights gained through **energy**wise have been shared in UK Power Networks' responses to consultations and calls for evidence. They have informed the government, Ofgem and other policy makers on a series of key industry topics including: • BEIS and Ofgem, A Smart Flexible Energy System, a call for evidence, January 2017 • BEIS's Call for Evidence on Building a Market for Efficiency, January 2018 9.2, 9.3, 9.4 • GLA's Consultation on the London Plan, March 2018, 9.2 9.3 9.4 • BEIS's Consultation on proposals regarding smart appliances, June 2018 9.2, 9.4, 9.5 • BEIS's Consultation on The Future for Small-Scale Low-Carbon Generation, August 2018, 9.2, 9.4			9.2, 9.3 9.2, 9.3, 9.4 9.2, 9.3, 9.4 9.2, 9.4, 9.5 9.2, 9.4

6.6.1.3 Presentations at international conferences/to international audiences

Event	Partner	Audience	Purpose	Dissemination product	SDRC related
'Frontiers of Engineering' event sponsored by Royal Academy of Engineering in Brazil, December 2014	UK Power Networks	International engineering audience	Introduction to the project	N/A	9.1
Natconsumers 3rd progress meeting, Naples, 25-26 May 2016	National Energy Action	From across the EU: energy suppliers; consumer representatives; charities; academics; technology developers; and researchers (non-academic)	Introduction to the project	http://natconsumers.eu/	9.6
BEHAVE 2016: 4th European Conference on Behaviour and Energy Efficiency, Coimbra, Portugal, 8-9 September 2016	University College London	The international energy and behaviour researcher community.	Introduction to the project and overview of findings to date	Elam, S.; & Shipworth, D. (2016) 'The Vulnerable Customers and Energy Efficiency project', BEHAVE 2016: 4th European Conference on Behaviour and Energy Efficiency, Coimbra, Portugal, 8-9 September 2016	9.1, 9.2, 9.3

Event	Partner	Audience	Purpose	Dissemination product	SDRC related
The International Utility Working Group, technical session on community energy, London, 4 April 2017	UK Power Networks	The International Utility Working Group, a forum formed in 2003 that brings together electricity utilities serving the world's major urban areas	Presentation of energywise at the Technical Session: Community Energy	Slide deck	9.1, 9.2
Quality Assurance of Smart Meter Data workshop of the Smarter Household Energy Data project, University College London, London, 10 March 2017	University College London	Project consortium members from the UK and South Africa	Presentation on data quality issues relating to the **energy**wise project	Elam, S. (2017) 'Data quality issues on the VCEE project' presentation to the Smarter Household Energy Data project's Quality Assurance of Smart Meter Data workshop, University College London, London, 10 March 2017 Link n/a	9.3
The International Energy Agency, Technology Collaboration Programme in Demand Side Management 'DSM Day', Dublin, Ireland, 10 May 2017	University College London	International audience of energy researchers, policy makers and industry engaged in demand side management.	Overview of project and presentation of key lessons and findings.	Shipworth, D.; Elam, S. & Johnson, C. (2017) 'The UK **energy**wise project and beyond: Smart metering as an enabling platform for changing consumers' relationship with energy', presentation to the International Energy Agency, Technology Collaboration Programme in Demand Side Management 'DSM Day', Dublin, Ireland, 10 May 2017	9.1, 9.3, 9.3

Event	Partner	Audience	Purpose	Dissemination product	SDRC related
'The Metered Home: Energy and equity in infrastructure changes' (May 2017) Domesticating Energy: Energy Environments Inside and Outside the Home. An international colloquium co-organized by Birkbeck College and the Joint Centre for History and Economics at Cambridge and Harvard University.	University College London	International audience of social and ethnographic researchers in energy demand	Academic presentation on issues of equity in the provision of smart metering infrastructure	Presentation disseminated to delegates; link n/a	9.4, 9.5
'Is Demand Side Response a Woman's work? Early results from a field trial of smart meters and flexibility offers in East London' at 'In search of good energy policy' seminar, CRASSH, University of Cambridge, 13 February 2018	University College London	European audience of social and ethnographic researchers in energy demand	Presentation of analysis of interviews and survey data on who in the household provides flexibility services.	Link n/a	9.5

6.6.1.4 NEA annual fuel poverty conference and fuel poverty forums

Event	Partner	Audience	Purpose	Dissemination product	SDRC related
London and South East Fuel Poverty Forum, London, February 2014	National Energy Action	Energy suppliers; energy networks; Ofgem; housing associations; community groups; charities; local authorities; health sector professionals; energy technology manufacturers;	Presentation introducing the project	Presentation disseminated to delegates. (No longer available online.)	9.1

Event	Partner	Audience	Purpose	Dissemination product	SDRC related
National Energy Action Annual Conference, Scarborough, September 2014	UK Power Networks	Representatives from a wide range of organisations interested in tackling fuel poverty; central government, local government, housing providers, advice providers, energy companies	Presentation introducing the project	Presentation disseminated to delegates. (No longer available online.)	9.1, 9.2
National Energy Action Annual Conference, Manchester, September 2016	UK Power Networks	Representatives from a wide range of organisations interested in tackling fuel poverty; central government, local government, housing providers, advice providers, energy companies	Presentation introducing the project	Presentation can be accessed here: http://www.nea.org.uk/wp-content/uploads/2016/09/NEA-Conference-2016_UK-Power-Networks_energywise.pdf	9.1, 9.2, 9.4
National Energy Action Conference, Nottingham, September 2017	National Energy Action	Local authorities, energy industry representatives, academics, health practitioners, community/voluntary groups (e.g. Citizens Advice Bureau).	Targeted dissemination of **energy**wise project to relevant stakeholders/ wider industry	Presentation disseminated to delegates. (No longer available online.)	9.6
London and South East Fuel Poverty Forum, London, November 2017	National Energy Action	Energy suppliers; energy networks; Ofgem; housing associations; community groups; charities; local authorities; health sector professionals; energy technology manufacturers;	Presentation introducing the project and emerging findings	http://www.nea.org.uk/wp-content/uploads/2017/03/London-Forum-November-2017.pdf	9.6
National Energy Action Business Supporters Group – 24 January 2018, Newcastle	UK Power Networks	Energy suppliers; energy networks; housing associations; community groups; charities; local authorities; health sector professionals	Presentation introducing the project and emerging findings	Materials were shared with participants following the workshop	9.1, 9.2, 9.3, 9.4

Event	Partner	Audience	Purpose	Dissemination product	SDRC related
National Energy Action Parliamentary reception, London, 7 March 2018	UK Power Networks	Members of the House of Commons and the House of Lords, Government officials, energy industry representatives, third sector representatives	As sponsors of this event, UK Power Networks presented some of the key findings to delegates	Copies of the Trial 1 recruitment and installation learnings booklet were handed out to participant	9.1, 9.2, 9.4

6.6.1.5 Energy industry briefings and presentations

Event	Partner	Audience	Purpose	Dissemination product	SDRC related
Presentation to Electric Ireland, May 2015	University College London	Electric Ireland	Presentation on learnings from the **energy**wise project	Presentation shared with delegates; link N/A	9.1, 9.3
University College London/EDF Energy workshop, 6 June 2016	University College London	EDF Energy	Presentation on learnings from the **energy**wise project	Presentation shared with delegates; link N/A	9.1, 9.3
ENA stakeholder workshop on DNOs' social obligations entitled 'Energy Networks: Working together to tackle vulnerability', London, 2 March 2017	National Energy Action	DNOs	Targeted meeting to share key learning outcomes. The project was mentioned by National Energy Action's Communications Director at this meeting	Presentation shared with delegates; link N/A	9.3, 9.4

6.6.1.6 Miscellaneous

Event	Partner	Audience	Purpose	Dissemination product	SDRC related
Big Energy Savings Week launch event, London, October 2014	UK Power Networks	Policy makers and other stakeholders	Event at the Houses of Parliament	Presentation introducing the project	9.1

Event	Partner	Audience	Purpose	Dissemination product	SDRC related
Community energy events organised by Regen SW in Manchester and Oxford; 19 and 26 October 2016	UK Power Networks	DNOs and community groups	Event was designed to link up community groups with DNOs. The team attending included one of the CFOs, who provided attendees with practical insights into some of the key lessons from the recruitment and installation phases)	Trial 1 recruitment and installation learnings booklet disseminated. **energy**wise was included in the booklet developed by Regen SW following the event. http://www.energynetworks.org/assets/files/news/publications/ENA%20Engaging%20Community%20in%20Network%20Innovation.pdf	9.1, 9.2, 9.4
Policy-UK Forum: 'Modernising the UK's Energy Network: Delivering the Smart Power Revolution', London, 1 November 2016	UK Power Networks	Policy makers, local government and other stakeholders	Key learnings shared from delivering smart meters and engaging with hard to reach customers.	Presentation shared by Policy-UK with attendees	9.1, 9.2
Regen SW-ENA Community Energy event, Electricity Networks Innovation, London, 1 November 2017 Regen SW-ENA Community Energy event	UK Power Networks	DNOs and community groups	Event was designed to link up community groups with DNOs. **energy**wise presented at the panel.	Materials shared at UKPN stand	9.1, 9.2, 9.4
Policy-UK Forum: 'Delivering the smart meter roll-out - Public Engagement, Meeting the 2020 Target & Building a Smart Energy System', London, 2 March 2017	UK Power Networks	Policy makers, local government and other stakeholders	Key learnings shared from delivering smart meters and engaging with hard to reach customers.	Presentation shared by Policy-UK with attendees	9.1, 9.2

Event	Partner	Audience	Purpose	Dissemination product	SDRC related
Community Energy South and Low Carbon South East (LOCASE) scheme workshop, Lewes, 3 March 2017	UK Power Networks	Community Energy groups	Community Energy Workshop to investigate innovation and future opportunities to help develop local community energy. Shared learning on how to	Presentation shared by Community Energy South with attendees	9.2
Ofgem's Future Consumer's Conference, July 2017	National Energy Action	energy industry professionals, the regulator, consumer representative groups	The event focused on opportunities and risks consumers are facing, and what will the challenges be for the regulations and market rules that govern industry	Link n/a	9.1, 9.2
Fuel Poverty Research Network Conference, Bristol, May 2018	National Energy Action	Local government, academics, community/voluntary groups	Targeted dissemination of **energy**wise project to relevant stakeholders/wider industry	Presentation provided to delegates, link n/a	9.1, 9.2, 9.3, 9.4

In addition to the events listed above, findings from the project were presented or discussed at the following events:

- Research workshop hosted by University College London, London, February 2014
- Representation of the project by British Gas at a workshop hosted by SmartGrid GB and Power Plus Communications on the subject 'How do we ensure that no customer gets left out in the smart meter roll-out?' September 2014
- Smart Grid forum workstream, London, October 2014
- Fuel Poor Network Extension Scheme review event hosted by Ofgem, London, December 2014
- Response to consultation conducted by SE2 as part of research undertaken on behalf of Citizens Advice, December 2014
- Response to consultation conducted by Frontier Economics as part of their research to inform a community based trial as part of SSE's SAVE project, December 2014
- Representation of the project by University College London at 'Behaviour, Energy and Climate Change', Washington DC December 2014
- Representation of the project by British Gas at the smart meter forum on 'High rise or remote: how can the hard to reach be incorporated into the rollout', December 2014
- Community energy event organised by UK Power Networks in Cambridge on 30 November 2016
- Citizens Advice Time Well Spent: Assessing the value of time of use energy tariffs, London, 10 July 2017; information was provided informally to the audience about the **energy**wise CPR trial

6.6.2 Engagement with local stakeholders

As part of University College London's mapping of 'trusted resources', 35 organisations were identified as key 'stakeholders' based on their willingness, expertise and value.

The results were communicated to the CFO team who started approaching these high priority stakeholders in November 2015. The rationale was that these stakeholders would be able to:

- **Relay the key message:** stakeholders do not have a significant role in relaying the key message of the project. However, by briefing other stakeholders about the project message and encouraging them to

relay this, the possibility was being increased that amongst the participants' social networks other people would be made aware of the project and confirm its value.

- **Raise confidence:** participants' confidence in the trial and their willingness to remain in the trial was a concern, as drop out numbers had risen. Participants may have turned to alternative groups for advice and if the project had briefed these stakeholders about the project, they could have played a role in building confidence.
- **Allay concerns:** having this feedback loop is valuable. Speaking to people at the outset of the project (rather than prior to the main recruitment drive) may have enabled early feedback on the project to be gathered, including information on any concerns or grumbles. This would have enabled the project partners to respond to these concerns, either via the stakeholder, or by reflecting on project processes that may have resulted in any adverse reactions or worries.

6.6.3 Website and videos

All published material related to this project is available via the UK Power Networks' energywise website.

In addition, a number of videos have been produced relating to this project, two of which were shown at the final event; see section 5 above (dissemination materials).

7 Conclusions

energywise has generated a large amount of useful learnings and the programme of knowledge dissemination has successfully reached a wide range of audiences including DNOs, energy suppliers, central, regional and local government, advice providers and a range of community groups and charities. The number of knowledge dissemination activities has far exceeded what was required by the SDR criteria.

The programme of activity has included:

- A full day dissemination event at the end of the project attended by representatives from over 85 organisations;
- Two thank you and learning events for trial participants held at the end of the project;
- Three workshops involving all the project partners;
- More than 30 presentations on the project and its learnings at a range of national and international events;
- Being awarded the Community Energy Award at the prestigious European Utility Industry Awards, as well as being shortlisted for a further three awards;
- A number of briefings and interviews to feed into policy-related research on fuel poverty;
- At least five pieces of print and online media coverage and at least ten social media posts[17]; and
- Numerous responses to industry/policy consultation informed by **energy**wise learning.

[17] Social media comprises LinkedIn, Twitter, Yammer, Youtube and blog posts

8 Appendix – full set of learnings

8.1 Administration and setup

8.1.1 Administration

Lesson title	Lesson	Reference
Administration/set up processes	In order to help charity and local authority partners to manage the resources required during contract stage and factor sufficient costs needed to review project material as it develops, set up a three month consultancy agreement with day allowances while final contracts are agreed and signed.	Biannual Dec 14
	When working on a subject matter such as fuel poverty, national statistics are updated frequently and the political framework can change rapidly. Therefore, it is fundamental for the project cohort to keep updated on the progress made in this area. This will ensure that the project is still addressing topical issues and that all citations and references in project reports are the most up-to-date.	Biannual Dec 14
Project mobilisation/ contracts	Allow sufficient time for documents and agreements to be reviewed and signed. Ensure all parties set aside a period of time, such as a three month agreement, plus necessary associated costs while final contracts are being signed.	Biannual Dec 14
	During the contract negotiation stage, projects should ensure that universal agreement items and commercial elements are discussed and agreed before the roles and the specifics of the contracts are detailed and finalised.	Biannual Dec 14

8.1.2 Partner skills

Lesson title	Lesson	Reference
Community initiative partnership	The project established the branded community initiative with local Partners that have not previously undertaken a similar research scope. The project has learnt of the critical local personnel skill sets that should be recruited as part of future community initiative schemes – strong project and performance management, project reporting and auditing capabilities, rota scheduling and data analysis. These were areas where UK Power Networks and other consortium Partners provided support to local Partners.	Biannual Dec 15
Partner skills	There are key capabilities and skills that need to be built by trusted third parties. Bringing in specialist consultants (such as recruiters) who have the project management skills, who are agile to change and offer strategic solutions, can be effective.	Biannual Jun 16
Partner skills	Having an effective on-site CFO manager is essential to the smooth operation of a project such as this.	Biannual Jun 16
Building partner skills	In preparation to the first customer panel, all four members of the CFO team attended a one day training session with CAG Consultants on how to design and facilitate participant panels, building their capacity and skills. This proved useful in helping the team to operate independently in terms of running the participant panels.	Biannual Dec 16

8.1.3 Stakeholder mapping

Lesson title	Lesson	Reference
Stakeholder engagement	Stakeholders were very willing to discuss and talk about this project, and offer names or organisations that would be good to contact. In some cases a long list of contacts has been provided without including any depth of information on the expertise, willingness to take part and value of each identified stakeholder. Gathering a rather shorter list of contacts but a much richer quality of data from initial stakeholders on the organisations they were recommending to contact may help the accuracy of the analysis and the prioritisation process.	SDRC 9.2, Biannual Jun 15
Duration of activity	The overall stakeholder mapping process may take longer than expected due to several reasons (set up of a Data Privacy Strategy for approaching stakeholders; concerns on management of expectations of those who are contacted; time taken for contacting people and arranging interviews, especially when face-to-face; etc.). As a result, the efficacy of the exercise may be reduced if the stakeholder engagement takes place during recruitment phase. Adopting a decentralised approach for managing some of the interactions with stakeholders may help speed up the process and engage with stakeholders earlier.	SDRC 9.2

8.1.4 Overall trial design

Lesson title	Lesson	Reference
Focus group	Focus groups with local community representatives testing the project name and developed materials were considered extremely useful and should be factored into future projects.	Biannual Dec 14
Community partner	Having one local community partner as the main contact point for the field officers was felt to work well by a couple of partners and seen as a trusted person by the field officer team and a good model for replication.	Biannual Dec 14
Timeline contingency	At the planning stage a project should build in additional contingency in the project timeline to make sure that unexpected issues that involve third parties can be addressed without having an impact on key project milestones. Contingency in the project budget is also fundamental to resolve key issues. For data-based trials, regular checks have to be embedded in the project plan to make sure all data is coming through correctly or to identify any potential issue at early stage.	Biannual Dec 16

8.1.5 Trial 2 set up

Lesson title	Lesson	Reference
Time of use tariff design	Through the project experience on designing trial 2 and ToU tariffs that are suitable for the customer base involved in **energy**wise, the following observations have been considered in order to increase the response to ToU tariffs: • Tariff structures for those that are most vulnerable and hard to reach should be easy to communicate and understand; • Non-punitive tariffs may be more suitable for fuel poor customers as they cannot be worse off when switching to ToU tariffs; • While energy efficiency advice is now very common and delivered through a multitude of channels, educational materials on how best to shift the energy consumption away from peak hours and access the benefits of different pricing signals should be developed and made available to customers on ToU tariffs	Biannual Dec 16
	The project has overcome a significant challenge through the design of a suitable CPR for prepayment smart meter customers. Throughout the project, there has been a considerable and enlightening internal dialogue with respect to both the capacities and constraints of this particular class of customer, the fuel poor, to engage with the smart metering programme. This dialogue has been hugely valuable, in allowing the project to identify potential ToU tariff solutions that are non-punitive and thus appropriate for people in both credit and prepayment meters who are in fuel poverty such as Critical Peak Rebate (CPR) tariffs. These non-punitive structures offer the potential to have both social and energy system benefits while remaining commercially viable to suppliers. This new class of ToU tariffs has significant potential to both deliver network benefits and alleviate potential adverse distributional impacts of the smart metering programme. Citizens Advice ran an event in July 2017 presenting their report (prepared for them by the Brattle Group and University College London) on time of use tariffs. This report identifies CPRs, "As a potentially attractive tariff design option for domestic GB customers" and states that "CPR tariffs have received relatively little attention as a tariff option in GB thus far". Those discussing CPR (including a representative from BEIS) at the event noted the lack of CPR trials in the UK, and were interested in knowing the findings from **energy**wise. **energy**wise is pioneering this tariff structure in the UK and the learning outcomes from the CPR trial are expected to inform the viability of non-punitive ToU tariffs for the GB's domestic customers.	Biannual Jun 17, Dec 17

Lesson title	Lesson	Reference
Time of use tariffs – adding additional DSR events	The updated CPR schedule covers a range of DSR events including: weekday evening, weekday morning, weekday midday and weekend. A number of lessons have been learned during the design and implementation of additional events: • The additional events should minimise any impact on the baseline. • It is useful to highlight non evening peak events as participants might get used to the same text message format and may not notice the change of time. As bold font is not possible in a text message, an effective way is to use "**" to highlight the time. For example: "**energy**wise: Your next Bonus Time is TOMORROW Sat 26 Aug, **12PM to 3PM**…"; • Sending the notifications two hours before an early morning event might be considered antisocial. As a result the initial notification continues to be sent on the morning of the previous day but the reminder notification has been changed from two hours before the event to 30 minutes before the event.	Biannual Dec 17
Selection of the CPR notification provider	Several lessons learnt have been gathered through the selection and procurement process of the CPR notification provider. First, the project learnt that the Information Commissioner's Office (ICO) provide a list of companies registered under Data Protection Register (https://ico.org.uk/). This will provide a direct search tool to find organisations and people registered with the ICO under the Data Protection Act. Therefore, it can turn out to be useful to speed up the procurement processes when Data Protection is a key requirement for a new vendor.	Biannual Jun 17
	When setting up a notification service (e.g. DSR communications) with a new provider, attention should be paid to the following: • There should be adequate public indemnities in place; • Identify the key specifications, policies and procedures relevant to the required service. For example, the project learnt that ISO 27001 is a specification for an Information Security Management System (ISMS). An ISMS is a framework of policies and procedures that includes all legal, physical and technical controls involved in an organisation's information risk management processes; • Make sure the customer data remains in the UK and captured in ICO registers; • Customer data must not passed to third party; and • Data handling process should be secure and transparent.	Biannual Jun 17

Lesson title	Lesson	Reference
Calculation of CPR rebates	Rebate calculations to date in trial 2 progressed well overall. For most households, there has been sufficient smart meter data available to appropriately determine consumption baselines and household responses for each CPR event, rebate calculations and customer communication proceeded to plan. If the response to a CPR event could not be determined for a household (due to lack of monitoring data), then the rebate was calculated according to the average response that was observed across other successful CPR events for this specific customer in the given payment period. (If that was not possible, then the reward was calculated according to group average performance). There has not been any negative feedback or dissatisfaction expressed by participants in relation to the rebate amounts either through the participant workshops or other communication options, as such, communications around the CPR rebates have not needed to be altered significantly from their original design at trial commencement.	Biannual Jun 18

8.1.6 Data quality

Lesson title	Lesson	Reference
Data quality issues	It has been observed that in cases where multiple organisations are involved in data exchange, issues with data integrity and quality are likely to arise. It is recommended that frequent calls are established between the parties directly involved in the data exchange in order to resolve data items as soon as they emerge.	SDRC 9.2
Data accuracy in project records	Over the installation phase of the project it was observed that Bromley by Bow Centre's records were not always accurate. Accuracy issues were found with the delivery of the energy efficiency kit (to intervention group) and the administration of the home energy survey (to intervention and control groups) during the installation visit. This was due to the fact that a centralised and consolidated database was missing as records were kept in different places by the individual field officers and this arrangement was introducing uncertainty in determining which households still had to be visited in the future to complete these activities. An installation visit checklist was therefore introduced in order to capture which field officer was attending the installation visit, which devices were delivered and when the home energy survey was administered (whether completed with the field officer and returned to University College London by Bromley by Centre or left for self-completion). As host of all the energy efficiency devices purchased by the project, the community centre was also requested to keep an asset register where all movements and volumes of project's equipment were recorded and cross-checked with the volumes in stock on a weekly basis.	Biannual Dec 15

8.1.7 Information security

Lesson title	Lesson	Reference
Information security	The project partners have different backgrounds and size of businesses and as a result not all policies or processes of the project are fit for purpose. One of these policies was related to the information security and arrangements that each organisation has in place. The project, through the Data Group, developed a project specific information security policy encompassing aspects from UK Power Networks, British Gas and University College London and reducing the requirements on some smaller organisations (in cases where the benefits outweigh the costs). This practice has worked well and it is recommended to be implemented in future projects.	Biannual Dec 14

8.2 Participant recruitment and installations

8.2.1 Selection criteria

Lesson title	Lesson	Reference
Selection criteria – main trial	In addition to the inclusion criteria for eligible households reported in SDRC 9.1 and 9.2 reports[1]:	SDRC 9.4, SDRC 9.3, Final Energy Saving Report
	A series of additional criteria were identified by project partners for exclusion of households from the project, for example leaseholders, those with energy efficiency improvements since October 2013 or planned over the course of the project and those in homes scheduled for demolition (11 criteria in total). The purpose of these criteria was to ensure: a) that the project data would not be affected e.g. by energy efficiency improvements; b) householders were selected where there was smart metering solution available; c) the householder would remain eligible to take part in the trial; and d) where possible, customers who may be adversely affected by participating in the trial (such as those reliant on electrically operated medical equipment) were not invited to take part. An additional series of 11 exclusion criteria were applied by British Gas, including households with a theft history, those that had requested not to receive marketing materials and those with a change of tenancy in progress. The result of this was that the pool of eligible households from which to recruit was smaller than expected – 1,352 rather than the target of 1,650. Careful consideration needs to be given to the fact that each exclusion criteria will reduce the sample size, which can be critical in research projects. A balance is required between research purity and practicality.	SDRC 9.4 and SDRC 9.3

Lesson title	Lesson	Reference
Data on eligible participants	As the project relies on a dynamic dataset and not a static one, change in the number of eligible customers should be expected due to change of supplier or change of tenancy. It was evident the fact that a number of properties have had their ownership status changing from social properties to leaseholders' asset, and as a result these properties were no longer eligible for participation in the project.	Biannual Jun 17
	Another key lesson is that fact that social landlords provide properties to the so-called Property Guardians, which are persons that reside in the property in order to deter squatters from occupying the properties. The Property Guardians are not considered tenants from the social landlords, as they reside in the properties in impermanent basis and thus need to be removed from the list of eligible customers.	Biannual Jun 17
Measures to help identify eligible participants	Where public data on income and fuel bills is not available, proxies can be used to identify fuel poor customers such as social housing tenants living in lower efficiency homes in areas of high deprivation.	SDRC 9.4
	Minimise exclusion criteria to maintain the biggest possible pool of potential participants. (Restricting participants to tenants of two social housing providers limited the number of households who could be approached.)	SDRC 9.4
	Issue clear expectations to partners at the project outset about the data required and the format of this – reduce the number of iterations required.	SDRC 9.4
	If using EPC data, consider purchasing this rather than requiring partners to supply it, as they may not have it in an easily accessible format.[18]	SDRC 9.4
	Allow for high numbers of dropouts after sign-up. For long duration projects, take into account that people may change supplier.	SDRC 9.4
	Having the full list of eligible participants to approach at the outset of the recruitment would be better than getting this in a trickle.	SDRC 9.4
Identifying customers in fuel poverty	Almost all definitions of fuel poverty require data from several different organisations to be aggregated. The Low Income High Costs definition of fuel poverty involves both sensitive personal data (income of the household) and public data (EPC ratings of the property). Therefore, the identification of fuel poor customers can be challenging when it relies on sensitive personal data that cannot be used until receiving trial participant's informed consent.	Biannual Dec 14
Selection criteria – MDU	To ensure robust project learnings around innovative MDU solutions for tall and difficult buildings, the criteria for households in Padstow House were relaxed to include leaseholders to maximise response, since only ten eligible customers were identified in this property, six of whom were leaseholders.	SDRC 9.3, Final Energy Saving Report (FESR), Biannual Jun 16
External control group – timing of construction	British Gas hold historic half-hourly data for all smart-meter customers and (once consent is given) this historic data can be used for external control group purposes. Thus, the external control group can be constructed after the initial recruitment period, as the external control group data can be collected for the desired time period.	FESR

[18] Since this work was conducted, EPC data has been made freely available.

Lesson title	Lesson	Reference
External control group – required sample size	For the external control group a sample size of 680 in each region has been chosen. This sample size provides a 3.1% margin of error at the 90% level of confidence (exceeding the 5% margin of error requirement specified in the bid document). This larger sample size is necessary because of the need to allow for contamination effects; this sample size enables DNOs replicating the approach to be able to estimate their expected energy savings to within 100 kWh with 75% statistical power.	FESR

8.2.2 Participant recruitment

Lesson title	Lesson	Reference
Overall response rate	All the trials of smart metering and related DSR technologies of which the project is aware have recruited on an opt-in basis with an unbounded sample frame achieving low participation rates. The **energy**wise project achieved a 40% response rate which exceeded industry and academic expectations. This shows that the application of best practice social research and project management methods for the recruitment of participants can achieve good response rates in energy trials.	SDRC 9.3 & FESR
TRIAL 1 SIGN-UPS		
Method of sign-up to the project	The majority (82%) of participants signed up after receiving a door knocking visit with 81% of these signing up within three door knocks. This demonstrates the importance of introducing face to face interaction with potential participants (for instance, having CFOs interacting face to face at the door step or offering face to face support). Many said the invitation letter was an important precursor to this (though not enough, on its own, to persuade most to signup; only 17 signed up after receipt of the letter).	SDRC 9.4, SDRC 9.3, FESR (Latter 2 incorrectly state 79% signed up after door knock).
	Other sign-ups came from phone calls; out of the 175 participants signing up through this route 94 signed up after three or fewer calls. Only a handful of participants requested a booked home-visit, with only three sign-ups through this route, and no-one attended the drop-in event (despite, following experience on the pilot phase, the event being clearly advertised through a separate leaflet and marketed to those living closest to the venue).	SDRC 9.4, SDRC 9.3, FESR
	Door knocking was effective, but time consuming, particularly since the project was not area-based (i.e. potential participants were located throughout the borough rather than in one area). Evenings and weekends worked particularly well. This was particularly true for properties with door phone entry systems where it was not possible to leave a 'sorry we missed you' card; people were generally more likely to be home at these times. (Please note that a different approach was adopted for trial 2, since people were already engaged, with phone calls being used first and door knocking only when it was not possible to get hold of participants by phone. Phone calls are less resource intensive than door knocking.)	SDRC 9.4, SDRC 9.3

Lesson title	Lesson	Reference
Maximising sign-ups to the project	Having recruiters working in pairs, involving a diverse team, was effective. (Some customers are more comfortable talking to a woman.) Having a field officer working alongside a British Gas engineer worked well in terms of persuading people to sign up during the MDU recruitment phase. Where possible, have pairs working together throughout the recruitment period in the same neighbourhood so they can develop a rapport with their targeted households.	SDRC 9.4, SDRC 9.3, Biannual Jun 16
	When door knocking, field officers should: • Leave a 'sorry we missed you' card and leaflet when a customer is busy and unable to talk. • Be patient and wait for five minutes between door knocking and leaving the property (as some households may need some time to come to the door, e.g. those with mobility problems). • Reassure customers if concerns are raised about affiliation with any political party. • There were various challenges to the door knocking, including the logistics of planning visits to disparate addresses. To maximise efficiency, customers should be targeted in geographical clusters to minimise traveling time.	SDRC 9.4, SDRC 9.3, Biannual Jun 16
	Careful planning of recruitment, and particularly of any door knocking, around local festivals or traditions is important. In the case of **energy**wise, avoiding the Ramadan period would have made it easier to recruit participants more quickly.	SDRC 9.4, SDRC 9.3, Biannual Jun 16
	In addition to project badges, use of uniforms can increase recognition and trust.	SDRC 9.4, SDRC 9.3
	Highlighting the benefits for participants is key: the CFO should try to stress they are not trying to sell anything and should reiterate the benefits to taking part, whilst maintaining a non-intimidating tone.	SDRC 9.4, SDRC 9.3
	For trial 2, participants were found to respond better to calls from the field officer team (which appear on the phones as a local mobile number) than British Gas (which appeared as an 0800 number).	SDRC 9.4 and SDRC 9.3
	The door knocking activity was proven to be the most successful during Saturday afternoons, followed by 12:00 – 14:00 and early evenings during the weekdays.	SDRC 9.2
The CFO team	It is beneficial if the CFO team is chosen in line with the demographics of the targeted customer group (culture, ethnicity, background, local area knowledge, language etc.) as the customers may feel familiar with engaging with the team and achieve the level of trust required for effective engagement. Having CFOs who speak locally-spoken languages significantly supported participant recruitment. Feedback demonstrated that they responded positively to the CFO team and the use of locally spoken languages (particularly Bengali) was helpful in communicating successfully with participants, some of whom spoke little or no English.	SDRC 9.4, SDRC 9.3

Lesson title	Lesson	Reference
	Participants were generally very positive in their feedback about the CFO team. In order to be effective, the following skills have been identified as being required by the team members and manager: • Communication and influencing skills; • Sociological and psychological skills; • Experience with local demographics and culture; • Data analysis skills; • IT skills and experience with data privacy issues; • Management experience (for the CFO Manager).	SDRC 9.4, SDRC 9.3
	Successful engagement is supported by the CFO team ensuring that they put in place the following: • Let customers know about the range of partners involved; • Vary the approach to the customer; e.g. younger people generally want less detail and more opportunity to ask questions, whilst older people may require discussion over the project materials in more detail followed by a question and answer session; and • Vary the approach according to the customer, reading body language and adjusting approach accordingly.	SDRC 9.4, SDRC 9.3
	The following training is recommended for teams undertaking commercial campaigns related to energy efficiency and demand side response: • Relevant technologies; • Research methods; • Communication and facilitation skills; • Safety protocols and culture; • The recruitment approach, including role play shadowing for the recruitment approach; and • Data privacy and the Data Protection Act[19].	SDRC 9.4, SDRC 9.3, SDRC 9.2
	Trial 2 recruitment benefitted from the high levels of trust that had been built up between participants and the CFO team.	SDRC 9.4, SDRC 9.3
CFO Manager	Having an effective on-site CFO Manager is essential to the smooth operation of a project such as this. It was originally planned that an appropriately skilled CFO Manager would be in post for the full duration of the recruitment and installation phases, to ensure effective management of these critical phases, including efficient coordination between team members and consistency in the communication of key messages. The original **energy**wise Bromley by Bow Centre CFO Manager left in July 2015. Bromley by Bow Centre experienced delays in replacing the role and a new project manager was officially appointed in May 2016. This contributed to some delays in coordinating and implementing the project instructions, developing the required tools to capture and evaluate data, and to adjusting the recruitment strategy in real time based on experience. However, Bromley by Bow Centre demonstrated a positive attitude in offering extra support to mitigate this issue with the role of interim CFO Manager being shared amongst senior managers at the Centre with support from UK Power Networks.	SDRC 9.4, SDRC 9.3

[19] This would now need to be GDPR compliant.

Lesson title	Lesson	Reference
Participant database	It was originally intended that a participant database would be set up at the start of the project that would enable the accurate and detailed recording of information about those approached and those signed up to the project. It was intended that this would evolve with the project. However, the tracker that was set up initially proved not be fit for purpose and required improvements over the course of the trial 1 recruitment and installation phase with support from other partners with stronger data management skills. The recruitment partner should have excellent data management and analytical skills to enable high levels of data accuracy and the ability to amend the recruitment schedule as necessary, based on the success of different approaches. In addition, a database that enabled simultaneous updates by multiple users would have improved the team's efficiency, as would electronic capture on the doorstep. This can be difficult to set up when more than one organisation is involved in the process.	SDRC 9.4, SDRC 9.3
Recruiters	The project requirements for trial 1 recruitment phase were to scale up the core CFO team hiring three additional recruiters that could support the recruitment activities. Due to delays in scaling up the CFO resources required, the involvement of a wide range of individuals in the recruitment of participants was required – over twenty individuals in total from five different organisations (Bromley by Bow Centre plus staff from UK Power Networks and Tower Hamlets Homes and specialist recruiters Groundwork and Sustainable Home Survey Company.)	SDRC 9.4
	Bringing in specialist recruiter teams to sign-up customers was effective in securing sign-ups. However, these recruiters inevitably had less training on the project and processes than the CFO team and questions were raised by some partners about whether some of the accuracy of the messaging was lost resulting in some participants refusing access to PassivSystems (as they were not aware the installation was required). Although this was not ideal, Bromley by Bow Centre senior representative stepped in to coordinate the external recruiting agencies' activities with the internal CFO team's tasks. Having a smaller team of recruiters with regular refresher training and meetings to share learnings, organised by the CFO Manager, may have been more effective. Quality assurance of the door knocking could have helped to ensure accurate messages were communicated.	SDRC 9.4
Project website	The website can prepare the way for the door knocking activity and also support the trust-building exercise with the CFO team. As a project in the public domain, including the photos and names of the CFO team generate the impression of a legitimate exercise with commitments that will be met. It is recommended that a project website is designed and maintained for future customer-engagement projects. However, participants on this project did not choose to signup via the project website, and the CFO team indicated that internet access amongst the target audience was low. This was therefore not used as a recruitment tool in trial 2.	SDRC 9.4

Lesson title	Lesson	Reference
Interactions before sign-up to the project	When planning the recruitment phase, some participants will need to have several interactions with the CFO team before they are willing to sign-up. Therefore, in order to achieve high sign-up rates, projects should plan to have to interact with participants on several occasions. Whilst two thirds of participants had two interactions with CFOs before signing up and 90% of participants signed up after three of fewer interactions, 3% of participants required more than four interactions before they agreed to sign-up.	SDRC 9.4 and SDRC 9.3
Reasons for sign-up to the project	It is important to understand what messages resonate within a certain community and to have a trusted CFO team with local intelligence and customer engagement expertise who can communicate the benefits of taking part effectively. For a complex project of this nature, participants may have different reasons for taking part. For most participants, the main reason for taking part in the project was the chance to reduce their energy costs. For some, the main reason was better visibility of their energy use via a smart meter installation or the offer of free devices. Secondary reasons included the offer of free energy efficiency devices and taking part in an interesting project. Some customers also signed up to the project in order to receive a smart meter installation from British Gas.	SDRC 9.3 and 9.4
	Participants' comments about the CFO team were generally very favourable, commenting on their friendly and professional approach and the role the field officers played in persuading participants to take part in the project.	SDRC 9.3
Reasons for not signing-up to the project	It is also important to understand the reasons why some will not sign-up to a project of this nature; this provides useful learning for other energy-related projects. 43% of those invited to take part were either not interested in taking part in the project or were ineligible. 13% were ineligible (because they were moving house or changing supplier), while the primary reason given by those who did not want to take part was simply a lack of interest in the project (with primary sub-reasons being too much hassle, being sceptical of change or too busy). 5% stated they were not interested in having smart meter, and 4% said that they did not want to take part because their bills were already low.	SDRC 9.4
Communication message and materials	**Message** Low income customers are likely to be primarily motivated by the prospect of saving money on their bills. The offer of free energy savings devices and shopping vouchers can also encourage people to take part. In the case of smart meters, better visibility of energy costs and easier top up methods for prepayment customers are the key features that make them attractive.	SDRC 9.4
	Design Professional, well designed materials are essential. Some participants said they felt the messaging could have been made clearer with the addition of pictures or diagrams and information (for example in the welcome pack) about what would be installed and by whom. In addition, the CFO team suggested that the target population may prefer pictures and diagrams over text-heavy materials. This was taken on board for trial 2 recruitment and communication materials for this phase of the project were well received, particularly the shifting advice.	SDRC 9.4

Lesson title	Lesson	Reference
	Warm-up marketing Having some warm-up marketing from the housing provider before the invitation letter was sent may have resulted in higher sign-up rates.	SDRC 9.4
	Branding and project name Some participants felt that the branding was too corporate and could be mistaken for EDF Energy. Some assumed, from the project name '**energy**wise' that the letter was from another energy supplier and was about switching, and threw it away without reading it. Having a name without energy in it, or having British Gas's logo more prominently displayed, would have assured recipients that the project was not about switching.	SDRC 9.4
	Testing materials Testing the message and materials through focus group(s) before finalising will help to ensure that the final materials are clearly understood and well received.	SDRC 9.4
	Project envelopes During the pilot stage, some customers suggested they would only open a letter if it was clearly coming from their social housing landlord; the logos of the two social housing providers were therefore added to the envelope.	SDRC 9.4
	Key facts document The script for this was longer than ideal, but this was largely due to the research nature of the project and the different partners involved. Some customers did not have time to listen to the whole document being read out; instead, the key points were provided to customers who were also referred to the Terms and Conditions. The call scripts for trial 2 were longer than desired in order to accommodate the key facts of trial 2.	SDRC 9.4
	Explaining complex offers Some aspects of the project have proved quite difficult to communicate over the phone or in written communications. Feedback from the organisations involved in recruiting the customers onto the new tariffs suggested that in some cases it may be difficult to effectively communicate the new offer over the phone or in written communications, particularly when this requires a longer interaction. When communicating a novel or relatively complex offer such as Bonus Time to a vulnerable audience, text should be kept to a minimum and images used as much as possible. Face to face interaction should be offered where possible to explain the concept. Videos may also be helpful.	SDRC 9.4
	Terms and conditions During the pilot phase, customers were confused by the seven day cooling off period after consent, given that they could also leave the project at any time. This cooling off period was therefore removed.	SDRC 9.4
TRIAL 2 – TOU TARIFFS – SIGN UP		

Lesson title	Lesson	Reference
Trial 2 – phone calls versus door knocks	As part of trial 1 recruitment, it was identified that most participants would trust communications from their supplier. Given the nature of the DSR trial, British Gas led on the recruitment for Trial 2 but they required extensive support from the CFO team to get hold of hard-to-reach customers. Also, whilst door knocks were found to be very successful in getting sign-ups at the outset of the project, it appears that once participants are already engaged and know the team at Bromley by Bow Centre, phone calls are more time and resource effective in terms of getting hold of people (different from trial 1 recruitment). Door-knock still proved useful for those hardest to reach.	Jun 17 biannual, SDRC 9.5
Trial 2 recruitment – building on trial 1 lessons	Key findings from the lessons learnt capture workshop on trial 2 recruitment and installation phase included that: • Building on learning from trial 1, there is a smoother and more effective working relationship between British Gas and the CFOs. This included weekly update calls and, in latter stages of DSR recruitment, the ability to transfer participant phone calls directly to British Gas to enable sign-up; • The communication materials were well received by participants, particularly the shifting advice; • The complexity of having different offers and customer journeys for different groups, involving liaison with different partners, made the recruitment process quite resource intensive – though it was, overall, very successful; • The Bonus Time critical peak rebate is quite a complex offer and some participants required support to understand this from written communication alone; face to face communication is more effective in ensuring understanding; • Participants seemed to be more likely to respond to a call from the CFOs (whose number appears on their phone as either a local landline or mobile number) than to British Gas (whose number appears as an 0800 number).	Jun 17 biannual, SDRC 9.5
Method of sign-up to ToU tariffs	**HEFT** participants: 51% signed up through the initial call from British Gas whilst 49% signed up after support from the CFO team as well as a call with British Gas. Bonus Time participants: 66% signed up after talking to the CFOs while 36% signed up during the initial call with British Gas. (The process was simpler than for HEFT as participants could provide consent to either British Gas or the field officer team, whereas for HEFT they had to provide consent to British Gas).	SDRC 9.4, SDRC 9.5
Interactions before sign-up to ToU tariffs	The trial 2 recruitment process was resource intensive. The different offers (HEFT and Bonus Time) and groups (control and intervention) required different customer journeys and different levels of interaction with the field officers and British Gas. This resulted in some participants being contacted several times. Wherever possible, the customer journey should be streamlined. Where contact is needed from two partners, ideally there should be a system to transfer a customer straight from one to the other. (This was introduced on **energy**wise in the later stages of trial 2 recruitment.)	SDRC 9.4, SDRC 9.5

Lesson title	Lesson	Reference
	HEFT participants: 51% of those who signed up did so during the first three contact attempts by British Gas phone call; 18% during the first call, 15% on the second call and 18% on the third call. 20% of those who signed up did so after five contact attempts, with 5% signing up after 10 or more contact attempts (indicating the resource intensive nature of the sign-up process). 6% signed up after a door knock.	SDRC 9.4, SDRC 9.5
	Bonus Time participants: 45% signed up during the first three contact attempts with all participants signing up within nine or fewer contact attempts. (As mentioned above, the process was simpler than for HEFT as participants could provide consent to either British Gas or the field officer team, whereas for HEFT they had to provide consent to British Gas).	SDRC 9.4, SDRC 9.5
Reasons for signup to ToU tariffs	Those at the panel and interviewed said that they signed up to take part in trial 2 because: • It was an attractive offer (all participants, though credit customers generally felt they were more likely to save money through HEFT than prepayment customers did through Bonus Time; many of the latter felt the savings were likely to be small). • They liked the idea of being involved in something novel/challenging (some participants).	SDRC 9.4, SDRC 9.5
Reasons for not signing-up to ToU tariffs	Of those saying no to trial 2, the majority did not give a specific reason, but some credit customers said they didn't want to switch to HEFT either because their bills are generally low or they don't use much electricity. One said no because he believed the trial to be a trick. Of those saying no to receiving Bonus Time notifications, half (three) said no because they felt they were too busy to take part.	SDRC 9.4, SDRC 9.5
Engaging customers on ToU tariffs/rebates	Offering a non-punitive tariff was key to engagement. A static ToU easier for participants to understand than CPR; the simpler the DSR offer, the easier it is to engage people. Communicating Critical Peak Rebates to customers can be challenging, particularly in the case of vulnerable participants and/or those with limited English. Some participants really benefit from face to face communication. A video explaining the process would be beneficial. Testing the design before launching would be beneficial, e.g. investigating the impact of different pricing, event frequency, demographics, comms methods.	SDRC 9.5
Scope for improving the recruitment approach:	Some had initially thought the letter was about switching energy provider and had discarded it on that basis. Suggestions for improving the efficiency and cost effectiveness of the recruitment included: • Additional messaging with pictures and information what will be installed and by whom; • For door knocking, pair a CFO from Bromley by Bow Centre with someone from either their energy supplier or the housing provider to maximise take-up – and ideally also have a male/female pair; • Have a smaller team of recruiters with a higher level of training, including refresher training, and quality assurance of the door knocking to ensure accurate messages are communicated; • Electronic capture of data at the doorstep to improve efficiency and data accuracy to improve the efficiency and accuracy of data capture;	SDRC 9.4 and 9.3, Biannual Jun 15, SDRC 9.5

Lesson title	Lesson	Reference
	For trial 2 recruitment, where possible have flexibility in terms of who the participants can provide consent to or enable automatic transfer of participants from one partner to another where this is not possible. (In the case of HEFT, which constituted a tariff change, consent had to be provided verbally to British Gas.)	SDRC 9.4

8.2.3 Installations

Lesson title	Lesson	Reference
Appointments	The random allocation of participants, which is in place to ensure robust statistical findings, may slow the installation appointment booking process and affect the effectiveness of the CFO team, but the anticipated benefits in ensuring a statistical sound outcome outweigh the impact imposed on the CFO team. It is recommended that significant attention is paid to the research design in order to maximise the value generated through the project	SDRC 9.4
	The adopted approach is named as area-led installation approach, where effectively all targeted customers are co-located and is different to the BAU process followed by energy suppliers, where they could be installing consecutive smart meters at customers located in different areas (British Gas for example use a field resource optimiser to ensure the most efficient use of the Smart Energy Expert resources). The tested approach has logistical benefits which may result in increased cost efficiency and resource utilisation if the targeted customers are grouped appropriately and could be an effective method for installing smart meters in numerous homes as part of the smart meter roll out mandate.	SDRC 9.4
	The CFO team can target certain time intervals (i.e. weeks) in order to maximise the number of installations that can be undertaken by British Gas or their subcontractors and thus increase their resource (i.e. Smart Energy Expert) utilisation. Such benefit will be valuable for the smart meter roll out mandate where a resource intensive exercise is required in order to achieve the target number of smart meter installations in the GB.	SDRC 9.4
	Offering Saturday appointments can be helpful in getting installations completed within a relatively short period of time.	SDRC 9.4
Installation visits	While it was envisaged that participants would have received one single visit combining both British Gas' and PassivSystems' installations with CFO's visit (aimed at administering the home energy survey to all participants and delivering the energy efficiency devices and advice leaflet to intervention group), this proved impractical due to the levels of CFO resource required plus the different amounts of time required by different partners at the property. In addition, the smart meter installations required power to be disconnected which was not compatible with the temperature monitoring equipment installation that required the power to be on.	SDRC 9.4 and SDRC 9.3, Biannual Jun 16
	Over the course of the project, the team working between the CFOs, British Gas and PassivSystems improved greatly so things ran smoothly.	SDRC 9.4 and SDRC 9.3

Lesson title	Lesson	Reference
Installation approach – customer feedback	Of 30 participants interviewed following the Trial 1 installation process, 27 were happy with the installation process though three were not. Four of 15 intervention group participants reported some kind of technical problems with their smart energy display, four expressed experiencing some form of delay with smart meter vends, and five reported problems with temperature sensors falling off. Again, some interviews demonstrated that not all problems are reported to the **energy**wise field officer team or to the energy supplier. Engagement activities might be useful to identify technical problems. The project partners worked collaboratively to resolve any customer queries and confirm understanding of the smart meter vend processes.	SDRC 9.3
	Overall (across both trials), the majority of participants interviewed were happy with the installation process, though a minority were not (five out of the 55 interviewed in total, of whom one was very unhappy, due to problems and delays).	SDRC 9.4, Biannual Jun 16
	British Gas got very positive feedback from customers.	SDRC 9.4
	However, several participants had had problems post installation; seven of the 15 interviewed reported experiencing problems with their energy display, particularly the gas data, which in some cases had caused problems topping up prepay meters, and five reported problems with temperature sensors falling off and having repeat visits to try to sort this out.	SDRC 9.3
Installation and capture of research data	The CFO team can be instrumental in research trials in terms of capturing valuable insights through customer engagement activities that can inform qualitative research if captured in a systematic and accurate way. In-depth training is required to enable the team to take on this role and all of their research activities need to be supported and quality-checked by an experienced researcher.	SDRC 9.4
Prepayment meters – customer training on how the vending process works	As there are several ways to top up a prepayment smart meter, the handover of knowledge from the Smart Energy Expert during the installation visit is key to the deployment of smart meters. For instance, it is important that customers are aware that they can always force this payment through to the meter manually if necessary. It is also fundamental that the information is shared among the different household members. It was observed through the participant interviews that for example in one case the person responsible for topping up the meter was not present at the install appointment and their partner, who had been present, did not share this information with them.	SDRC 9.4 and SDRC 9.3
Trial 2 installations – building on trial 1 learnings	Where installations need to be completed within a short timeframe, this can be facilitated by ensuring that plenty of weekend appointments are available (though this is cost and resource intensive as it required British Gas to offer their Smart Energy Engineers overtime).	SDRC 9.4
	British Gas provided the CFOs with appointment slots so they could book installs directly with the participants. (Having both organisations co-located would have further streamlined the process e.g. having a British Gas team member based at Bromley by Bow Centre for the duration of the recruitment and install period would have been ideal.)	SDRC 9.4
	Navetas equipment was decommissioned at the point of smart meter install, without needing to get PassivSystems involved, thus streamlining the process.	SDRC 9.4

Lesson title	Lesson	Reference
	The CFOs were provided with a van to deliver the devices, thus making this process much quicker than in trial 1 were they were relying on public transport. However, it might be challenging for some organisations to use a van for business purposes as they might not have the appropriate insurance.	SDRC 9.4
	Where smart meters are being installed in social housing, the installation process can be facilitated by: • The energy suppliers requesting a list of addresses from the housing provider for which a staff member (e.g. caretaker) will need to enable access; • The energy supplier then contacting the caretaker in advance to request they are present to enable this access at the appointed time.	SDRC 9.4
Scope for Improving Installation Process:	Partners identified the following options for improving the installation process in any replication: • Ensuring a dedicated CFO Manager was in post throughout the installation phase may have improved data accuracy issues and assisted with information capture relating to the delivery of energy efficiency devices; • Avoid temperature logging equipment if possible as it has generated many problems. For example, there were problems with equipment falling or being knocked off the wall or other alarms being triggered to indicate the equipment was not working properly (either because participants had moved it or switched it off or for other reasons). If this equipment is necessary, consider having the same organisation installing this as well as the smart meter, or at least brand the other organisation the same, and aim to minimise customer interactions. Also consider having an opt-out option for customers in relation to equipment that isn't core to the project's aims (an option taken up by 13 participants on the **energy**wise project), with consent for this being captured by the CFO team. • Co-ordinate all those involved with install/delivery so that they can attend a customer's house at the same time where possible, to minimise the number of customer visits required and the associated hassle (though it is recognised that this is challenging given the different time and other requirements of the different groups). Energy initiatives should assess the level of flexibility required from different organisations in order to maintain customer focus, while making sure that the overall approach is still replicable in the real world outside trial environment; • Firm up access arrangements, as there were sometimes challenges getting to meters which required caretakers to enable access. This may have been helped by providing more notice (as was done, successfully, in trial 2 installations); • Ensure communication is very clear about what will be installed, by whom and how long this would take. A video to illustrate the process may have helped with this; and • Pilot the installation process with a few households and then tweak the process as necessary	SDRC 9.4 and SDRC 9.3

8.2.4 MDU learnings

Lesson title	Lesson	Reference
MDU full shared infrastructure	A key learning through the project was that the MDU Communication Backbone supplied by Siemens will not offer 100% home area network coverage to the entire building/all residents as previously expected. Each flat requires an individual set of Zigbee radio equipment to ensure all Zigbee radio traffic is collected and extended through the MDU network. The equipment costs required for full building coverage depend on the number of flats within the building. Padstow House has 68 flats meaning the equipment costs are too high and would greatly exceed the project budget. Instead the MDU installation will resemble more of a point to point shared infrastructure solution. This is where equipment for only the recruited customers will be installed into the building, meaning only they will receive the extend HAN services (rather than all tenants). For example, for the two customers requiring the MDU solution, Siemens only install equipment that will collect and transmit data for their two meters within the meter room. If customers reside on building floors two and five, then the transmission equipment is only installed onto floors two and five.	SDRC 9.3, FESR, Biannual Jun 16
MDU installation process	Siemens require a list of all assets to be installed into the building pre installation in order to load these into their building control centre and enable Siemens to route the Zigbee radio traffic (containing smart meter data) accordingly to each customer.	SDRC 9.3, FESR
	The project learnt that Siemens are required to be on site for each smart meter installation due to the channel agility installation process British Gas uses when installing smart meters. Siemens are required to “sniff” or detect the Zigbee radio channel the meters are operating on and then commission their systems using the same channels for each customer. Upon commissioning the British Gas smart meter communications hub automatically searches and acquires the channel with the least “noise” to ensure the most reliable and sustainable HAN. The Siemens solution requires Zigbee channels to be fixed (“channel masking”) in order to perform the commissioning remotely.	SDRC 9.3, FESR
	It was found that the installation process for tall and difficult building solution requires less time for engineers to be inside customer properties which greatly benefits the customers. This is because the smart metering HAN can be created outside of the customer’s home (landings or hallways), meaning the meters and in home display are paired and communicating with each other before the engineer enters the property. The engineer only has to perform customer service processes inside the customer’s home, not any technical work.	SDRC 9.3, FESR

Lesson title	Lesson	Reference
MDU landlord engagement	The project has already made some valuable commercial learning regarding landlord engagement and authority to install in these tall and difficult buildings. Tower Hamlets Homes preference was to draw up a separate "license agreement" (maintenance contract) with the tall and difficult building solution supplier pre installation in addition to the original collaboration agreement signed by all project partners. More engagement and understanding amongst social landlords is required for the larger smart roll out as landlords have to be mindful about tenant benefits as well as about the commercial agreements. Due to the nature of these contracts direct communication and agreements between the landlord and the solution supplier would be best suited.	SDRC 9.3, FESR

8.3 Ongoing participant engagement and protection

8.3.1 Participant engagement

Lesson title	Lesson	Reference
Participant interviews as point of escalation for project issues	Participant interviews, designed to evaluate the effectiveness of the recruitment approach, have proved useful in flagging up a number of issues. The project learned that not all problems are reported to the **energy**wise CFO team. For example a few participants reported they were experiencing some problems with topping up prepayment gas smart meters whilst in the trial 2 interviews, it was identified that a couple of participants had misunderstood how the Bonus Time tariff worked. For the former, participants were referred to British Gas while the latter received a phone call from the CFO team to go through Bonus Time with them. In addition, a text was sent to all Bonus Time participants asking them to confirm their understanding of the tariff; this only elicited a response from a few participants, the majority of whom confirmed their understanding was correct. Two participant responses indicating they misunderstood the tariff and they also received phone calls from the CFO team to go through Bonus Time with them. Further explanation was provided in the **energy**wise newsletter.	SDRC 9.4, SDRC 9.3 FESR, Biannual Jun 16
Ongoing engagement: participant panel	It proved harder than anticipated to recruit participants to become members of the customer panels. An invitation to all participants in the Welcome Pack to apply to join the panel elicited no responses, and a considerable amount of CFO time was required to recruit customers to the two panels (intervention and control groups). This was despite a £30 voucher being offered to those attending. At most panel meetings, several participants who had said they would attend did not show up on the day, resulting in around six participants at each panel (versus a target of 10-12) – with the exception of the April 2017 credit group meeting which had 12 participants. However, despite these challenges, the panels have proved to be a very useful forum in gathering participant feedback.	SDRC 9.4, SDRC 9.3, Biannual Jun 16

Lesson title	Lesson	Reference
	Participant panels, which meet every three months, have been invaluable in identifying any issues or concerns faced by participants, enabling project partners to respond to these in a way that maximises engagement and minimises dropouts. They have also proved useful in testing out draft versions of planned communications and amending these in response to panel feedback before they are issued to all participants. It was identified in the July 2016 panel that the control group were frustrated at the lack of a firm date for the provision of their equipment and, as reported above, the delivery of energy efficiency devices to this group has therefore been brought forward.	Biannual Dec 16
Ongoing engagement – other mechanisms	Partners have identified a number of key learnings to maximise ongoing engagement of participants: • Keep in regular communication with participants to remind them of how important their involvement is (e.g. through a quarterly newsletter) and to thank them for their time – with vouchers where deemed appropriate (e.g. where many customers have faced disruption due to problems with temperature monitors); • Use learning from early stages of the project to improve the process later in the project; e.g. on **energy**wise, trial 1 learning in terms of equipment installs for the intervention group have been used to improve the experience of control group customers in trial 2 (for example by arranging caretaker access ahead of the installation visit, where necessary, to facilitate meter access); • Minimise customer interactions and 'hassle' to minimise dropout rates, e.g. by getting different parties to work together to attend a household at the same time where possible. • Don't wait too long to give the control group their devices. Participant panels held in late summer 2016 identified that control group participants were frustrated at having to wait so long between signing up to the project and receiving their energy efficiency devices. Therefore, the delivery of these devices was brought forward from the start of Trial 2 to December 2016.	SDRC 9.4, SDRC 9.3, FESR
Ongoing engagement – trusted intermediary	Some examples of the beneficial approach a trusted intermediary can offer: • Bengali speaking field officers were able to tackle language barriers throughout the recruitment phase: • The field officers are aware of locally relevant culture and customs: • Bromley by Bow Centre is well known for its work with the community and its open-door policy – participants find it comfortable and easy to visit or telephone for immediate assistance at the end of project Bromley by Bow Centre is ideally-placed to continue helping these people where necessary with, for example, support on budgeting, energy efficiency and accessing other support services.	SDRC 9.4, SDRC 9.3, FESR
Ongoing engagement – one to one engagement by field officers	Field officers can be successful in persuading participants to remain engaged with the project. For example, during trial 2, one participant contacted the field officer team asking to stop receiving Bonus Time notifications because the rebates he was earning were low. One of the field officers managed to persuade him to keep getting the text notifications but not the emails.	Partner meeting Dec 17, SDRC 9.5

Lesson title	Lesson	Reference
Customer engagement through project closedown	Participants were sent clear communication about the process for end of the project with a timeline provided as part of the end of project newsletter. This helped to ensure that participants knew what to expect. All information sent out was tested with participants at the final participant panel meeting, and refined based on their suggestions. Participants were contacted to arrange collection of their temperature monitoring equipment, with a £10 voucher offered as a thank you. Equipment was only collected from around half of participants; others no longer had the equipment or failed to respond to calls to schedule appointments. It would have been useful to update contact details between partners; many phone numbers held by the project (which had been gathered at the start of the project, up to four years earlier) were out of date. The social housing providers would hold more up to date details for participants.	SDRC 9.5
Thank you events	The participant thank you events were successful and managed to attract 40 people in total, including trial participants, guests and children. Having a communication strategy in place several months in advance helped with event planning and organisation. Also, having joint communication about the event whilst booking appointments for decommissioning the temperature monitoring equipment has proven very efficient and helped the field officer team to recruit more people. The events were both entertaining for the attendees, as well as a great opportunity to learn more about the project, meet with project partners and share insights from their customer journey. For **energy**wise project partners, the events were rewarding as they got to hear first-hand how the project has benefitted the participants and the local community.	Biannual Jun 18

8.3.2 Participant attrition

Lesson title	Lesson	Reference
Participant attrition	In contrast to the high response rate achieved the project experienced substantial dropouts prior to and during the trial 1 installation phase, with 258 confirmed dropouts reported to the project by 12 June 2017. These can be split into: • Customers asking to withdraw from the project (127 customers); and • Customers being disengaged by the project (135 customers, four of whom also asked to withdraw). Attrition was much lower in trial 2 with the total number of dropouts rising by an additional 15 to 273 by the end of the project. This was achieved through regular communication with participants, minimising customer interactions and 'hassle' and using the regular participant panels to identify issues and test communications, since May 2016, only one participant has chosen to leave the project through requesting that their smart meter be removed. (Others have left because they have change supplier, moved house or did not want a smart meter installed at the start of Trial 2). This suggests that the ongoing engagement strategy has been effective.	SDRC 9.4, SDRC 9.3, SDRC 9.5

Lesson title	Lesson	Reference
	For trial 1, around half of these customers dropped out after receiving the trial terms and conditions, with 1 in 7 dropping out upon confirmation of the installation appointment, 1 in 5 dropping out upon installation and 1 in 10 dropping out after installation. For trial 2, the majority of dropouts arose due to customers moving house or switching supplier.	SDRC 9.4, SDRC 9.3
	The single main reason for customers being disengaged by the project was that participants changed supplier. A range of problems associated with accessing homes and problems with installing smart meters and other project equipment contributed to the majority of other disengagements.	SDRC 9.4, SDRC 9.3
	The two main drivers for customers choosing to withdraw were customers changing their minds about the project and the perceived hassle of the installation process (linked to the disruption to participants caused by the difficulty in scheduling simultaneous installations of the smart meters and temperature loggers/Navetas loop monitor). This may be down to the success of recruiting process in that it was able to persuade some households to participate who were only marginally interested in trial, and who took the opportunity to withdraw when they were next contacted (for installations). Keeping the message consistent and coming from one single team of recruiters, all trained to the same level, may help in increasing retention.	SDRC 9.4, SDRC 9.3
Project drop-outs	In contrast to the high response rate achieved the project has suffered substantial dropouts during the installation phase. This is in part due to the requirement for installation of temperature monitors in living rooms and bedrooms; part due to the disruption to participants caused by the difficulty in scheduling simultaneous installations of the smart meters and temperature loggers; and in part due to the success of the recruiting process in that it was able to persuade some households to participate who were only marginally interested in trial, and who took the opportunity to withdraw when other circumstances (such as issues around installation) presented the opportunity.	FESR
	The single main reason for project disengagement was that participants changed supplier. A range of problems associated with accessing homes and problems with meters contributed to the majority of disengagements. The two main drivers for customers choosing to withdraw were not wanting a smart meter and the general hassle of the installation process (linked to the disruption to participants caused by the difficulty in scheduling simultaneous installations of the smart meters and temperature loggers). A third significant factor was that customers changed their minds about the project after signing up. This may be down to success of the recruiting process in that it was able to persuade some households to participate who were only marginally interested in trial, and who took the opportunity to withdraw when other circumstances (such as issues around installation) presented the opportunity. Project partners have identified three key actions that they believe would have reduced the numbers of households dropping out:	FESR
	In addition, at the start of trial 2, there were a number of disengagements due to customers not wanting to have a smart meter installed (12 participants) and one due to a customer having had a solar installation post smart meter install which made their smart meter inoperable	Dec 2017 biannual

Lesson title	Lesson	Reference
	Through regular communication with participants, minimising customer interactions and 'hassle' and using the regular participant panels to identify issues and test communications, since May 2016, only one participant has chosen to leave the project through requesting that their smart meter be removed. (Others have left because they have change supplier, moved house or did not want a smart meter installed at the start of trial 2).	Dec 2017 biannual, Jun 17 biannual
Minimising dropouts	Participant attrition can be minimised by: • Providing very clear messages about what is involved in the project, possibly including a video, and ensure consistency of messages across different recruiters to effectively manage participants' expectations. • Avoiding equipment that is outside the scope of the project, which may cause further disruption to the participants. In the case of **energy**wise, issues with the temperature monitoring equipment caused unwelcome disruption for some participants. • Streamlining the installation process to reduce the number of interactions with customers. • Minimising the number of unexpected interactions with customers in general. • Keeping participants as a whole informed of what is happening in the project. • Providing participants with an opportunity to get together to share their experiences and learn from each other. Listen to participants about their experiences and take action based on their feedback. • Keeping in regular communication with participants to remind them of how useful their involvement is and to thank them for their time – with voucher where appropriate (e.g. where customers have faced disruption).	SDRC 9.4
Ongoing engagement to minimise attrition	Partners have identified a number of key learnings to maximise ongoing engagement with participants: • Keep in regular communication with participants to remind them of how useful their involvement is. • Use learning from early stages of the project to improve the process later in the project; e.g. on **energy**wise, Trial 1 learning in terms of equipment installs for the intervention group can be used to improve the experience of control group customers in Trial 2; involvement is and to thank them for their time – with vouchers where deemed appropriate (e.g. where many customers have faced disruption due to problems with temperature monitors); • Minimise customer interactions and 'hassle' to minimise dropout rates, e.g. by getting different parties to work together to attend a household at the same time where possible; • Don't wait too long to give the control group their devices. Participant panels held in late summer 2016 identified that control group participants were frustrated at having to wait so long between signing up to the project and receiving their energy efficiency devices. Therefore, the delivery of these devices was brought forward from the start of Trial 2 to December 2016.	FESR, Biannual Jun 16, Dec 16,

8.3.3 Participant protection

Lesson title	Lesson	Reference
Disclosure board	As a result of the learnings from the operational phase of the project, the terms of reference of the Disclosure Board were reviewed. It was observed during the installation phase of the project that a faster and more direct escalation protocol may be required in specific circumstances (e.g. in case of technical matters). This was introduced into the revised protocol.	Biannual Dec 15
Temperature monitoring protocol	It has proved challenging to develop a protocol for taking action related to evidence of dangerously low temperatures in individual homes. Partners were in agreement that to accurately assess the risk to a household, a household visit would be necessary, but this was deemed too intrusive. A risk assessment system has been devised that uses all the information held by project partners, which is felt to offer the best approach, though is recognised as having limitations.	SDRC 9.3, FESR, Biannual Jun 16
Temperature monitoring equipment	Data loss was experienced due to sensors falling off the wall (requiring a different fixing system to be employed) and the communications hub going offline (related to customer behaviour).	Biannual Jun 16
	The purpose of the temperature monitoring equipment is to help ensure customer protection. However, its introduction to the project has presented a number of challenges: • The equipment itself is triggering some households to drop out, either because they don't want the hassle of another installation (on top of the smart meter install), and/or they don't want someone other than British Gas coming into their house, and/or because technical issues with the monitors are requiring multiple visits, which some customers may find particularly intrusive as they require an installer entering a customer's bedroom (not just the hallway/kitchen, which is all that's required for the smart meter install). • Technical issues with the equipment has limited the amount of useable data that has been received, with a high number of alerts from either sensors of the communications hub. Resolving these issues has required a substantial amount of the CFOs' and engineers' time and this has also meant the project has not been able to consistently monitor the temperature of all participants' homes. • Agreeing upon appropriate action to take based on the data has also proved challenging. It has now been agreed that the best action would be a friendly visit from the tenant's local housing officer to check that all is well with them and to see if they are having any problems heating their home.	Biannual Jun 16

Lesson title	Lesson	Reference
	It is recognised that temperature logging does not form part of the project replication model. Nevertheless, other projects may wish to include temperature monitoring and this project has some useful lessons to share with others, including: • If this equipment is necessary, then having the same company install both this and the smart meter would be preferred, as it would reduce both hassle and potential confusion for the customer. • If this is not possible, then branding both organisations as being from the same organisation would help increase customer acceptance, and organising for them to visit at the same time would reduce disruption for the customer (though it was recognised that this is challenging to schedule due to the different time requirements). • Clearer messaging to customers about what will be installed, by whom and when would also help to reduce disengagement at this stage, and having a solution that is less likely to fall off the wall would also help, e.g. by screwing the sensors into the wall (though it was recognised that the installers would need to be prepared to make good any damage caused through this when the equipment is removed). • If possible, other less intrusive and resource intensive options for ensuring customer protection should be considered.	Biannual Jun 16
Vulnerability	The project had committed to monitoring participants' vulnerability and to ensuring that those deemed 'too vulnerable' were excluded from the trial; specifically, it was anticipated that this would include: • Customers who are blind or visually impaired (at that time no Smart Energy Display suitable for these customers); and • Customers dependent on electrically operated medical equipment. These criteria were re-considered as part of the vulnerability review carried out in May 2016 and it was decided that customers in the above categories should, in the majority, be retained in the trial: • For customers who are blind or visually impaired, they should be retained as long as there are others in the households and as long as the CFO has observed that at least one householder can read the project literature. • After the smart meter is installed, it was agreed that customers with electrically operated medical equipment are at no greater risk of a power outage than they would be outside of the trial and, in fact, are afforded greater protection in the trial due to the field officer team and dedicated Freephone number. It was therefore agreed that they should be retained, but that CFOs should be sensitive to their situation when asking for participants to complete surveys.	SDRC 9.3, FESR
Role of local intermediaries in customer protection	Local partners play a key role in customer support and protection. Given the relationship established between many trial participants and the CFO team, they are best placed to investigate the customer circumstances and assess the level of risk the households might be exposed to. Through the partnership with the local intermediaries, the project can run unobtrusive risk assessments and intervene with high risk households when needed by liaising with the relevant social housing association that can provide the appropriate support services.	FESR

8.4 Equipment and devices

8.4.1 Equipment, including decommissioning

Lesson title	Lesson	Reference
Control group – secondary electricity meter installation	It was originally planned that control group participants would have a secondary electricity meter installed for the purpose of data collection in Trial 1. However, it was found that for in most cases, there was insufficient space for this. Instead: • Credit customers in the control group have had a credit smart meter(s) installed but the smart energy display will not be provided until Trial 2; and • Prepayment customers in the control group have had a (space efficient) Navetas electric loop installed (this is because certain prepayment functionalities are not accessible if a prepayment smart meter is installed without the smart energy display).	SDRC 9.3, FESR
Smart meter installations	When attempting to install smart meters into flats British Gas have learnt there are additional difficulties when compared to installing into houses. Some properties have locked meter rooms which require caretaker access. Locked meter rooms resulted in several aborted installations that required rebooking, in many cases two additional visits were required as often the caretakers did not attend and allow access to the meter rooms for the second installation visit. For the meter rooms where caretaker access was not required most meters were readily accessible. However some did require a Gerder key. These are instances where the meters are locked behind a cage or metal obstruction (Gerder). This again requires either council or landlord access in order to unlock the obstruction and exchange the meters.	SDRC 9.3, FESR, Biannual Jun 16
Temperature monitoring equipment	Reasons for temperature data loss: During the PassivSystems corrective action plan two major reasons for data loss from the temperature monitoring equipment were observed: the temperature sensors falling off the wall and the communication hub used to transfer the data going offline. **1. Temperature sensors falling off the wall:** The cause of the temperature sensors falling off the walls is believed to be either the fixing method and/or human interaction. A new fixing method was employed in July 2015, which has been shown to have good adhesion strength on most walls, with the exception of woodchip wallpaper. In addition, through supervision, the quality of installs has been improved. It is hoped that these two measures will reduce this problem. **2. PassivSystems' communication hub offline:** The PassivSystems temperature monitoring equipment uses a communication hub to collect and transfer data, via the internet. This hub has to remain powered on and connected to the internet at all times in order to do so. Through the PassivSystems corrective action plan it was found that a lot of customers were unplugging either the broadband or the power source from the hub rendering it unable to transfer data. Although this is an easily resolved issue it is inherent in customer behaviour.	SDRC 9.3, FESR

Lesson title	Lesson	Reference
Decommissioning of the temperature monitoring equipment	In terms of learnings from the decommissioning process: • There were a number of questions from participants around why the temperature monitoring kit was collected; • A lot of customers asked if there would be another project similar to **energy**wise and said they were sad to see it's over; • The CFO team are crucial to the decommissioning process as this requires gaining entry to participants' homes. Having Bromley by Bow Centre manage the whole process worked well thanks to existing knowledge on how to run this sort of activities. The field officer team was able to accurately schedule the number of collections per day based on resources available. This made the process smooth and orderly; • Making three calls to contact customers, plus a pre-collection reminder call helped maximise collection. However, equipment was only collected from around half of participants; others no longer had the equipment or failed to respond to calls to schedule appointments; • Out of the 257 participants, a total of 141 appointments were booked (101+ 40 for Passiv), having a 55% success rate overall; • The field officer team believed that some collections were not successful due to the fact that some participants didn't consider the kit as important and therefore did not consider as high priority to be at home to have it collected. Or simply, they no longer had the equipment or they didn't want to admit that they had already thrown it out; • Using a vehicle is much for efficient, cheaper and faster than using public transport; • Coordinating over Passiv collections, bookings etc. helped ensure that the field officer team was briefed and had a clear view of the progress. Customers were happy with the decommissioning work. A number of customers had taken the kit off themselves and awaited for collection. Many customers expressed enthusiasm for the project and were sad to see it's over. There were no complaints over the decommissioning process and they found the overall experience positive. Some customers took this as an opportunity to thank you the field officer team and the project in general.	Biannual Jun 18, SDRC 9.5
Siemens decommissioning	Direct engagement by Siemens with the landlord to make logistical arrangements to arrange decommissioning appointments would have been more efficient than liaising via a facilitator.	SDRC 9.5

Lesson title	Lesson	Reference
Half hourly data	British Gas identified an error within the technical configuration of the head end system affecting half-hourly meter readings for 48% of the project's smart meter credit installations. This lay within a technical meter message and did not affect the customer experience, any of the customer journeys, or customer billing in any way. Upon installation, the half-hourly read schedule did not successfully update on some meters. This meant that the half-hourly readings for these meters was not returned to British Gas' read repository and could not be extracted for project analysis. British Gas discovered the issue in January 2016 and rectified it in February 2016. Therefore, the affected customers' half-hourly readings are missing from May 2015 to February 2016 (dependant on the smart meter installation date, as installations continued until November 2015). All credit customers are now set to half-hourly meter reading schedules and the data is successfully being returned to the read repository.	FESR
	A similar error existed within all 65 smart prepayment meters installed in the project, which equates to 52% of the project's total prepayment meter population. Here the meters were not returning the half-hourly reading schedule but had successfully received the configuration to do so. The meters were returning daily readings. Again, this error lay within a technical meter message and had not affected the customer experience, any of the customer journeys, or account balances in anyway.	FESR
	Following an investigation with British Gas' meter manufacturer and the head end service provider, a root cause was established and a solution was successfully developed. This solution was implemented to allow transfer of half-hourly consumption data along with the daily consumption data. British Gas also investigated a technical solution to recover the historical data stored within the meters; unfortunately, the error resulted in incorrect data being recorded and as such the historical data could not be recovered. Therefore, the project's smart prepayment meter customers' half-hourly readings were missing for part of Trial 1.	FESR
	At the planning stage a project should build in additional contingency in the project timeline to make sure that unexpected issues that involve third parties can be addressed without having an impact on key project milestones. Contingency in the project budget is also fundamental to resolve key issues. For data-based trials, regular checks have to be embedded in the project plan to make sure all data is coming through correctly or to identify any potential issue at early stage.	FESR

Lesson title	Lesson	Reference
Trial 2 smart meter data gap	A new data issue occurred during trial 2 so British Gas and the project research partners took immediate actions to investigate the problem and any possible mitigation. A fix was developed for all affected meters and was remotely deployed from 30 November 2017 with full resolution complete by 30 January 2018 for all three customer participant groups (credit and prepayment trial participants, and external control group). Some devices failed to upgrade in Nov due to technical reasons (e.g. WAN/network issues), however subsequent re-tries were successful. As mitigation, British Gas deployed additional resources to monitor the half hourly reads. Detailed gap analysis was completed and data quality was monitored on a daily, weekly and monthly basis to mitigate and resolve the issues until the end of trial 2. Partners also agreed to calculate the rebates for those affected in the prepayment group and offered to award a fixed amount of £5 to those participants who were affected by the data issue and included relevant communication in the January quarterly statement to ensure customers have been informed. This was considered as the best option in the interest of customers and for the data analysis.	Biannual Jun18
Qualitative feedback on equipment from participant Interviews	Interviews with a sample of the intervention group (15 participants) found that usage of the devices provided varied: • The smart energy display was the most widely used device with 13 out of 15 using this regularly, to monitor energy use and, where relevant, credit. Seven said they had changed their behaviour as a result. However, seven reported technical problems with their display. • The LED lightbulbs were popular, with 11 of the 15 were using their LEDs lightbulbs. Usage would have been increased if the CFOs had been able to fit the bulbs for customers (though partners felt that safety issues may make this impossible). • The kettle was being used by eight out of 15. Reasons cited for not using it included that it was too heavy, not needed, had insufficient capacity, had stopped working or was difficult to use. Feedback at later participant panels was that some participants had stopped using their eco-kettle because they find it heavy or awkward, or do not like the way it looks; and • Demonstrations of the equipment by the CFOs would have slightly increased usage. • The smart energy display was the most widely used device with 13 out of 15 using this regularly, to monitor energy use and, where relevant, credit. Seven said they had changed their behaviour as a result. However, seven reported technical problems with their display. Participant panel members reported that the display is particularly popular with prepay customers who use it regularly to check their credit levels, though some prepay customers had experienced problems with topping up; these customers were referred to British Gas. • Six of the 15 said they had read the advice leaflet, only one of whom said they had implemented any of the advice.	SDRC 9.3

Lesson title	Lesson	Reference
	Panel feedback shows that the smart energy monitor is proving particularly popular with prepay customers who use it regularly to check their credit levels. Some participants check their monitor several times a day while some others have stopped using it. Some of the prepay customers at the November panel reported problems with their display beeping continuously (not just when credit levels were low). Feedback shows that the engagement with the display and any associated behavioural change has to be sustained and maintained over time for customers to access the full benefits of the smart metering technology.	Biannual Dec 16

8.4.2 Energy efficiency devices and advice

Lesson title	Lesson	Reference
Operational difficulties by elderly people and problems with understanding equipment	Participant feedback suggests that some customers, e.g. elderly people, may have difficulties in setting up/operating the devices; therefore in some cases additional support in installing the devices may help to unlock their full energy saving potential. Feedback has also suggested that some participants are not using their equipment because they don't understand how to use it or they do not like the appearance (e.g. eco-kettle and standby shutdown) or are unable to install it (e.g. LEDs lightbulbs). Training up CFOs to install and demonstrate equipment where possible would increase the level of use of this equipment.	SDRC 9.2, 9.4
Operational difficulties	Even though instructions and simple tips on how to use the devices have been provided to participants, extra support from the CFO team may be required to show how to operate the devices correctly.	SDRC 9.2
Customers' preference	Participants may request devices with different specifications. In such cases, the CFO team will inform participants on how to best operate the devices they have received when their request cannot be accommodated.	SDRC 9.2
Light bulb fitting	LED lightbulbs are popular with most participants. In terms of light bulb fitting, bayonet (B22) cap has been observed to be more common compared to screw (E27) cap among pilot study participants.	SDRC 9.2, 9.4
Energy efficiency advice	The energy efficiency advices provided by the project consisted of an energy efficiency advice leaflet and the energy tips included in the Smart Energy Display, as envisaged by the research design. No additional energy efficiency advice (neither proactively nor reactively) by the Smart Energy Expert was required.	SDRC 9.2
Energy efficiency advice leaflet	The energy efficiency advice leaflet has been found very insightful; however participants have asked for further assistance regarding the eco kettle beyond the leaflet and the vendor instruction sheet. Therefore an induction at the home-install for the eco-Kettle is being explored.	SDRC 9.2
Uptake by participants	Delivery of devices by the CFOs was a challenge as they were quite bulky and the team were travelling by public transport. Providing a dedicated equipment manager with a van to deliver the equipment would make the delivery process more efficient. (This approach was adopted for the trial 2 installations.)	SDRC 9.4

Lesson title	Lesson	Reference
Administration	In order to keep record of all the distributed devices, as soon as participants have received the energy efficiency kit, they are asked to sign a sign-off sheet to acknowledge that they have received all the energy efficiency devices successfully. This was in response to when the project learnt that two households had reported they did not receive or had lost their Energy Social Capital survey that is accompanied by a first class book of stamps.	Biannual Jun 15

8.5 Research

8.5.1 Research aspect

Lesson title	Lesson	Reference
Research trials targeting fuel poor customers	The primary observation from the recruiting phase of the trial is that fuel poor customers seem as willing to participate in research projects as non-fuel poor customers. A direct comparison however is difficult because, to the project's knowledge, no other UK trial has so clearly defined its research population, participant selection criteria, and sample frame, and recorded nonresponse rates accurately enough to define the response rate of the trial in a comparable manner to **energy**wise.	SDRC 9.3.FESR, Biannual Jun 16
Trial 1 start dates	Originally the project partners envisaged to use the installation date as individual Trial 1 start date for each participant. However, given the differences between British Gas and PassivSystems installation dates and the delivery dates of the energy efficiency devices and energy efficiency advice leaflet, it was agreed that is was more appropriate to use the date of the first smart meter readings coming through as the start date for each individual household. This is because, from the participant's perspective, the receipt of the smart energy display and the interaction with the British Gas Smart Energy Expert constitutes what is likely to be the single largest intervention in energy savings terms. Local levels of trust are higher for households who have Bengali as their primary language.	SDRC 9.3, FESR
Qualitative customer insights	Learning includes: • Some participants don't use their central heating, for various reasons; including perceived cost and perceived health impacts. Some use additional heating at certain times, e.g. when they want to get warm instantly when getting home from work; • Several participants reported problems with their central heating and most of these use alternative electric heating to compensate for this; • Appliances move around with extended family members – e.g. visiting grandchildren bring electronic games consoles with them. Similarly, visiting family members may help with e.g. washing, which impacts on the timing of appliance use; • Generally, feedback on the surveys showed that the vast majority found them easy to fill in, with only one (out of 52) finding it time consuming and three raising concerns about confidentiality or sensitivity of data; and Two people mentioned that having a Bengali speaking CFO was a help.	SDRC 9.3, FESR

Lesson title	Lesson	Reference
Qualitative customer insights – trial 2 time of use tariffs	The participant panels provided some practical, anecdotal insights into how the **energy**wise participants are responding to their time of use tariff. In particular: • Some loads are easier to shift than others, such as washing; • Participants found it useful to share tips on how to get the most out of the offer; • Participants attending these panels are in general positive about non-punitive tariffs and therefore all have been favourable to the project extension; and • Feelings about punitive tariffs are mixed. Around 34 **energy**wise participants did not take part in trial 2. One of these was felt to be too vulnerable to take part in the DSR trial whilst the others said they did not want to take part (or would not respond to communications inviting them to take part). Where reasons were given for not taking part, these were either lack of time (particularly on Bonus Time) or existing low bills (particularly on HEFT). One customer stated that they believed the HEFT tariff was some kind of trick.	Dec 17 biannual, Jun 18 biannual, SDRC 9.5
Network insights, Trial 1	The main outcome of the analysis of the network data is that the load profiles of the trial participants align well with the load profiles of the secondary substations to which they are connected. This has potentially beneficial implications for any realised energy savings or peak demand shifting by the trial participants, since these load reductions and/or shifts are more likely to align with the reinforcement deferral requirements of the secondary substations.	SDRC 9.3 & FESR, Biannual Jun 17
	The Trial 1 results also indicate that the **energy**wise interventions were associated with an average reduction in evening peak demand (taken to be between 17:00 to 22:30) of 23 W per household. This represents about a 5.2% reduction in average evening peak demand per household, and reflects the capacity for meaningful engagement with energy savings by the trial participants.	FESR, Biannual Jun 17
Research insights, Trial 1	A statistically significant result of 3.3% energy saving for the (intervention group compared to the control group) is an important insight obtained from Trial 1. This is in line with reported energy savings from the installation of smart meters for other trials targeting different demographic sectors. This suggests that the fuel poor may respond to energy savings in a similar way to other sociodemographic sectors of society. The appropriateness of the 'difference in difference' method for comparison of pre and post trial data where there has been a change in measurement instrument (from conventional to smart meters) for Trial 1 analyses is a useful learning from a research perspective. Although this approach has been widely used, its robustness to variation in measurement instrument in randomised control trials is not widely noted.	FESR, Biannual Jun 17

Lesson title	Lesson	Reference
Contamination effects	Contamination effects are a significant threat to the conduct of randomised control trials. **energy**wise has undertaken significant testing to ensure that these have not effected the results. This has been done through careful tracking of reasons for withdrawn from the trial, allowing for case by case analysis and comparison of these between intervention and control groups to check for any systemic bias in withdrawal reasons. Additionally, through construction of external control groups across different DNO climate regions and statistical comparison with within trial groups has allowed for statistical analysis of any potential contamination effects. This shows that careful documentation and multiple sources of evidence provide valuable cross-checks in many aspects of ensuring robust trial design. These sources of evidence have provided strong evidence of no control group contamination effects within the **energy**wise trial.	FESR
Statistical generalisation	Generalisation involves drawing conclusions about the extent to which the finding within the trial are likely to hold in wider populations and settings. This is also knows as the external validity of the trial findings. Through construction of an external control group of participants recruited on the same criterial as those in Tower Hamlets in each of five different climate regions across Great Britain, **energy**wise has been able to show that the annual consumption profile shapes of these areas are not statistically significantly different from those in intervention group in the Tower Hamlets area. This, in conjunction with the lack of control group contamination effects supports the conclusion that the percentage savings found in the Tower Hamlets area are likely to hold in other DNO regions across Great Britain.	FESR
Potential to shift electricity use	Both participant interviews and the customer panels provided some insights into how the **energy**wise participants have started considering how best to reduce their electricity consumption and how they could shift the use of certain appliances into (or away from) the free periods (or the Bonus Time periods for prepayment customers). From the participants' anecdotal feedback, the level of energy awareness seems to have increased as a result of the project's involvement. Some participants are able to make independent considerations on how to save electricity and how they can change their behaviour when responding to a specific tariff. However, in one case it was also found that the participant has misunderstood how the scheme works. This is still a valuable learning for the project as it allow the partners to provide tailored support to this individual and consider what actions to take with the wider group to check they got the correct interpretation of the tariff.	SDRC 9.5

Lesson title	Lesson	Reference
Network Insights – Trial 2 (Bonus Time)	The Bonus Time offering was associated with a 1.5% reduction in average weekday evening peak demand for all households involved in this trial. The level of reduction observed from different households varied considerably, with the best performing households (top 10%) achieving average demand reductions of 18.7% during Bonus Time events, which is consistent with the high levels of demand reduction achieved in other international trials of Critical Peak Rebate schemes. The availability of sufficient flexible demand is an important aspect of customer response for Critical Peak Rebate schemes like Bonus Time and it was found that the presence of larger flexible appliance loads (such as tumble driers and electric cookers) had a significant impact on the level of demand reduction that was achieved by households during Bonus Time events. Customer understanding of the operation of the Bonus Time scheme is also important (with some participants mistakenly thinking they were supposed to increase demand during Bonus Time events rather than reduce demand). Much of the Bonus Time demand reduction was concentrated in the first three hours of the six hour weekday evening events most frequently tested (17:00 – 23:00). This front-loading of demand reduction aligned well with the average peak demand period (18:00 – 19:00) of the Bonus Time participants and the flexible nature of the Bonus Time approach means that events could easily be tailored to the specific peak time of each network asset.	SDRC 9.5
Network Insights – Trial 2 (HEFT)	The HEFT tariff was associated with an average 2.2% reduction in the weekday evening peak demand of the monitored households. However, this tariff was also associated with an average 22.2% increase in the peak demand for the weekend day containing the HEFT free period. This has important implications for local network assets. At high HEFT tariff uptake levels among domestic customers, analysis found that many of the secondary substations involved could be subject to an increase in peak demand centred around a new substation peak during the HEFT free period. This impact was less severe for higher voltage level assets (e.g. primary substations) in which the impact is less apparent due to the contribution of industrial and commercial loads at these voltage levels.	SDRC 9.5
Technical potentials	The energy saving observed in Trial 1 from the energy saving devices provided to **energy**wise participants (23 W peak demand reduction) compared well to that of the technical potential estimated from literature data (28 W when comparing on a like-for-like basis) reflecting the meaningful potential for engagement with energy saving devices among the fuel poor customers in this trial. The energy shifting observed in Trial 2 (1.5% average evening peak reduction across all Bonus Time participants) also aligned well with the technical potential estimate (1.5% based on a relevant large scale Critical Peak Rebate trial in the USA – appropriately scaled for the low incidence of domestic air-conditioners in the UK).	SDRC 9.5

Lesson title	Lesson	Reference
Potential network impacts	If the **energy**wise Trial 1 energy savings and Trial 2 Bonus Time energy shifting were realised by all households classified as fuel poor within the UK Power Networks licence areas, an estimated annual reduction in electricity consumption of 86 GWh/year (equating to a total saving to customers of approximately £11.2m/year[20]) and a network peak reduction of 27 MW (equating to a potential deferred network reinforcement cost of between £2.7m and £5.4m) could be achieved across the three UK Power Networks licence areas.	SDRC 9.5

8.5.2 Research surveys

Lesson title	Lesson	Reference
RESEARCH SURVEY – GENERAL		
Research surveys – general	The two surveys (the Home Energy Survey, and the Energy Social Capital survey) provide substantial and valuable early learnings from the project, for example: • Local levels of trust are higher for households who have Bengali as their primary language. • 45% of respondents had had a conversation about electricity in the last 6 months. • Some participants don't use their central heating. • Appliances move around with family members.	Jun 16 biannual
HOME SURVEY		
Duration	From early observations the Home Survey can take from half an hour up to one and a half hour to be completed.	SDRC 9.2
Survey design	Following feedback, two elements of the survey were redesigned to make it easier for field officers to complete quickly and accurately in the home. The first element was removing the requirement to record serial numbers of appliances. This decision was taken based on the partial data received in these fields and on feedback from the field officers that this was a time consuming and inconvenient task to carry out in participants' homes. The second element was to improve the clarity of the survey and the information being requested. The field officers and participants struggled to understand some of the appliances being asked about in the survey. In particular there was confusion over light fittings, TV types, hot water equipment, air conditioning and dehumidifiers. Additional training was provided to the field officers to explain these technologies and new images and descriptions were added to the survey to help with the data collection.	Dec 15 biannual
Survey administration	The approach of CFOs assisting customers with the completion of the HES during installation visits resulted in a good response rate to the survey, of 95%. 5% were left with participants for self-completion and they were all returned bar one.	SDRC 9.3, FESR
Successful engagement	It is important to engage with participants and explain the benefits of completing the survey in order to increase response rates.	SDRC 9.2
Role of CFO team		SDRC 9.2

[20] Based on 13p/kWh.

Lesson title	Lesson	Reference
	The support offered by the CFOs (who had received training from University College London on how to help participants complete the survey) is a key element for the successful completion of the Home Survey, with the field officer reading the questionnaire for the customers, explaining what the different appliances are and providing assistance on the identification of appliances around the house. When participants cannot complete the survey during the installation visit, they may request the CFO to arrange a separate appointment to support them with the survey. Therefore, the protocol for the Home Survey administration has been revised including the opportunity for an extra visit to be arranged only for those participants that refuse to being left with the survey for self-completion	
Shadowing and further CFO training	Field officers and buddies were shadowed on home visits and their approach to filing out the surveys was observed by a University College London researcher. Following this shadowing, an additional one hour training session was held by University College London to discuss some of the data accuracy concerns and hear feedback. The re-training focused on the need to accurately read out and answer the questions as written in the survey and to explain the technologies that were not well understood. The feedback raised the concern over the income related questions, which some participants found sensitive. The importance of the income related data to the research project overall was emphasized, but the voluntary nature of the survey was also confirmed. There was an improvement in the accurate recording of number of appliances.	Dec 15 biannual
Appliance model numbers	In most cases the appliance model numbers are out of reach or not visible anymore as on old appliances where the label has become worn out, therefore they cannot be captured.	SDRC 9.2
Language skills	The language skills of the CFO team are useful in cases to improve participant's understanding of the questionnaire.	SDRC 9.2
Response rate	The approach of CFOs assisting customers with the completion of the Home Energy Surveys during installation visits resulted in a good response rate to the Home Energy Survey, of 95%. 5% were left with participants for self-completion.	Jun 16 biannual
ENERGY SOCIAL CAPITAL SURVEY		
Energy efficiency questions	When the consented households were asked what would be the first thing they would do if they had a question on electricity in their home, 46% (5) said they would ask someone they know, 46% (5) said they would check media sources. 9% (1) said they would approach an organisation or group. These findings coincide broadly with the findings from the focus group undertaken by the project in June 2014.	SDRC 9.2
Response Rate	By Jun 2015, a 73% response rate to the Energy Social Capital Survey has been observed indicating that the method developed for administration of the survey is sound. Early observations show that the selected method which aims to create respondent trust, create reciprocity and overall tries to reduce survey error should be adopted when high response rates are key for the robustness of research findings.	SDRC 9.2, Biannual Jun 15

Lesson title	Lesson	Reference
Administration	The method consists of multiple points of contact with the recipient: a pre-notice letter, the questionnaire, a follow-up postcard and a reminder from the CFO team. The pilot study indicated that both the follow-up postcard and the CFO reminder are important steps to increase the response rate, with several surveys being returned after the third and some after the fourth point of contact. Additionally, one of the participants requested the CFO's support to complete the questionnaire showing that having a local team participants can refer to is not only a key element for customer recruitment and engagement but is also beneficial from a research point of view.	SDRC 9.2, Biannual Jun 15
	Survey administration: Linking the survey administration to the installation of the smart meter/temperature logging equipment proved problematic. Immediately following the end of the pilot and the start of the trial installation phase, not all installations were able to be attended by a field officer, meaning some households were not surveyed. Problems also occurred through the cancellation and rebooking of installations. On two occasions both aborted and rebooked installation were attended by different field officers leading to two home surveys being carried out for the same homes.	Biannual Dec 15
Self-completion and design	The majority of questions have been filled in correctly by all respondents who returned their surveys. This suggests the survey design was easy to understand and not too onerous to complete. Q. 6 'in future, if you had a question about electricity use in your home, what would be the FIRST thing you'd do to get information' proved the most problematic. Seven respondents left this blank, and nine ticked two options where the question specified ticking only one. More consideration of how to phrase this question, and its position on the page would be useful in future.	Biannual Jun 15
Administering surveys with field officer support	A 45% response rate was observed in the second round of the ESC survey. This is at the very top end of response rates expected for a self-completed survey (Dillman, 2000) indicating the method developed for administration of the survey is sound. The survey administration was based on the Dillman tailored design method (Dillman, 2000). It involved a pre-survey letter, the survey with an incentive, a follow up postcard and then a phone call reminder from the CFO team. The phone call allowed for lost or missing surveys to be replaced. The phone call demonstrated the usefulness of the CFO team's language skills. They could improve participants' understanding of the survey and encourage them to fill in and return the survey. In one or two cases the team provided verbal translations and filled in the survey with respondents. Projects should allow for replacement surveys to be issued where necessary, with a 'return address if undelivered'. This will ensure higher response rates and demonstrate customer focus.	SDRC 9.4

Lesson title	Lesson	Reference
	The field officers and buddies have valuable language skills and awareness of the community in which they are working. This helps them to negotiate access to the participants and interpret the survey in way the participant can understand. However their limited training in survey data collection has meant that data accuracy concerns remain around whether or not there is any electrical equipment being used to provide hot water or hot water pressure.	Biannual Dec 15
Qualitative notes	Qualitative notes: Collecting observational data, being able to build rapport and generate informal interactions that can be turned a set of qualitative data are skills which the field officers have only received very minimal training in. Furthermore the field officers have a limited understanding of energy technologies and how energy is used in the home themselves. Consequently the notes collected are dependent on which field officer was in the home, the rapport they established and their ability to interpret what they saw as significant or relevant to the project. Despite these limitations the material provides some basic themes that can be analysed and used to consider information collected in the next round of surveys (do we include something on routines for example), or topics to raise in a focus group setting.	Biannual Dec 15
Social capital	The second ESC survey found that the family is the main Energy Social Capital resource for participants. There are initial indications that the Field Officer team are becoming a trusted source of information about energy and an additional Energy Social Capital resource. Further research is needed to confirm. There are very low levels of awareness of the PSR amongst participants. Any opportunity such as energy initiatives should be used to promote the priority services offered by the DNOs and the energy suppliers if appropriate. Participants feel they have Energy Social Capital resources to help them respond to time-of-use tariffs. This will need to be explored further in a later iteration of the ESC survey The project observed a 64% response rate for the face-to-face survey carried out within participants' homes by the CFO team. This higher rate was achieved with significantly higher resources invested. Those replicating the project should evaluate the level of response required to generate meaningful results against the level of resource required to achieve it.	SDRC 9.4

Lesson title	Lesson	Reference
Energy Social Capital Survey Insights:	The findings from the second ESC survey indicates some level of information seeking about energy and a fair amount of 'energy social capital': • 146 out of the 179 respondents knew people in their social networks to whom they would turn for energy related advice; • 80 respondents (45%) had had a conversation in the last six months related to electricity; and • Trust varied through the sampled population, with a majority trusting people in the local area, while only 21% trusting people 'in general'. The findings suggest that electricity usage and energy related issues are not a specific or overwhelming concern for this group, but most have social resources they can turn to if there is an issue they'd like to discuss and many use the media or other organisations as sources of information and advice.	SDRC 9.3 & FESR