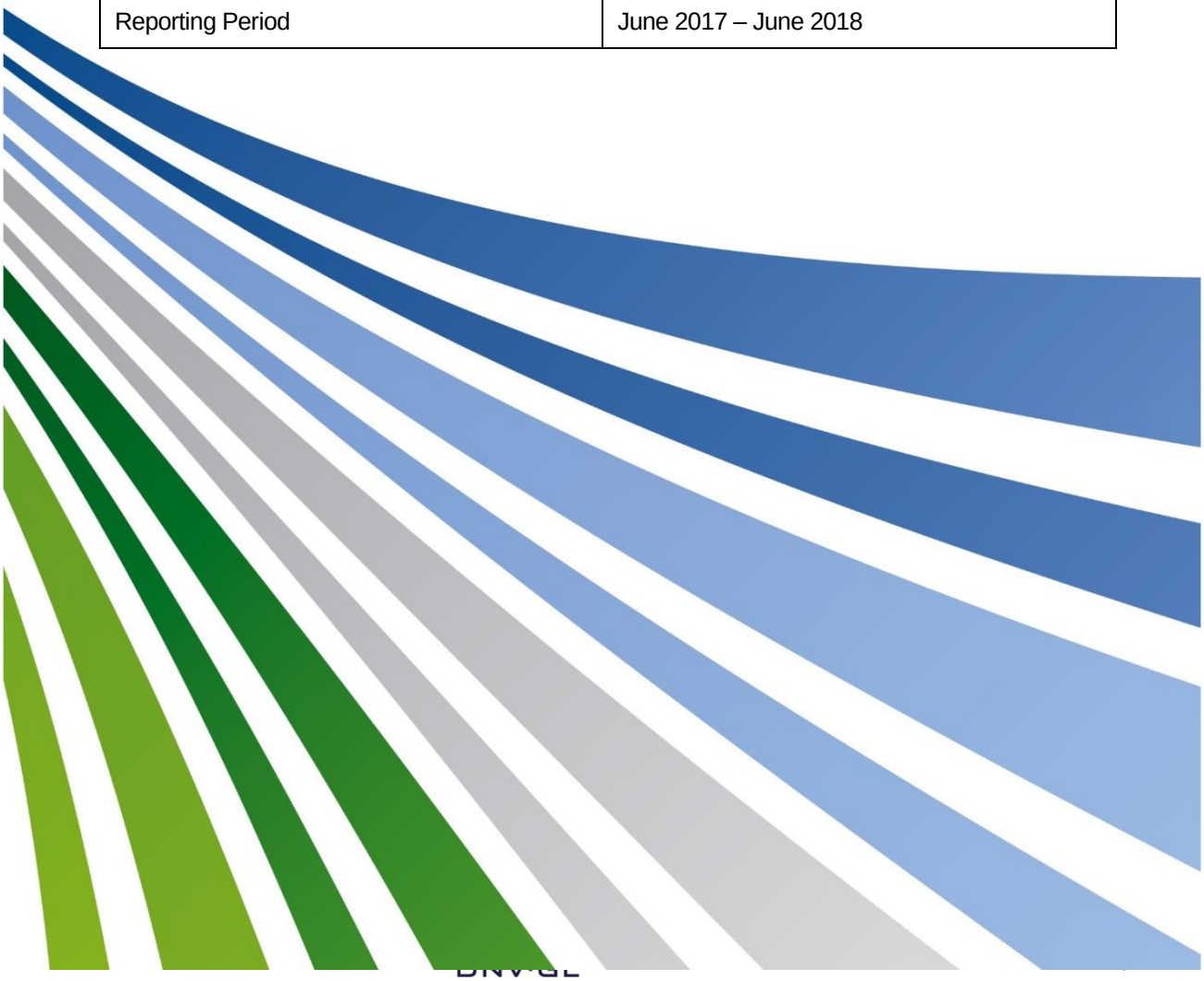
SAVE (Solent Achieving Value from Efficiency)

Project Number	SSET206
DNO	Southern Electric Power Distribution Ltd
Reporting Period	June 2017 – June 2018



Scottish and Southern Electricity Networks (SSEN) is the new trading name of Scottish and Southern Energy Power Distribution (SSEPD), the parent company of Southern Electricity Power Distribution (SEPD), Scottish Hydro Electricity Power Distribution (SHEPD) and Scottish Hydro Electricity Transmission. SEPD remains the contracted delivery body for this LCNF Project.

Document Owner(s)	Project/Organisation Role
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Version Control

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0.1	19/5/18	Charlie Edwards	Initial draft for review
0.2	24/5/18	Charlie Edwards	Management Review
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1.0	8/6/18	Charlie Edwards	Final Version

1 Executive Summary

Ofgem guidance: Executive Summary (This section should be no more than 4 pages) this section should be able to stand alone and provide a clear overview of the project's progress and any significant issues over the last period. All stakeholders, including those not directly involved in the project, should be able to have a clear picture of the progress. The DNO should describe the general progress of the project and include any notable milestones or deliverables achieved in the period. The Executive Summary should also contain two subsections: one for the key risks and one for the learning outcomes.

The SAVE (Solent Achieving Value from Efficiency) project is a £10.3m project which is primarily funded by Ofgem's Low Carbon Networks (LCN) Fund, aiming to assess the use of energy efficiency measures as an alternative to traditional reinforcement. The Project involves a cross-section of domestic customers which are representative of much of the UK. Organisations collaborating as partners with Southern Electric Power Distribution (SEPD) to manage and deliver the Project include the University of Southampton (UoS), Future Solent, Neighbourhood Economics Ltd (NEL) and DNV GL. The Project involves approximately 8,000 customers across 4 methods of intervention: using media campaigns linked to the electrical consumption of individual households; adding a financial incentive to these campaigns; deploying LED lighting (methods 1-3); and using community energy coaches (method 4).

The end of the last reporting period highlighted the completion of the projects 1st trial period (methods 1-3 and 2nd trial period for method 4) in addition to initial analytical findings. Key challenges were noted with regards project attrition and communications, these such issues continue to require pro-active engagement and ongoing engagement in order to maximise project participation. Approaches of postal, phone and face-to-face engagement/recruitment are being procured and accurately logged by project partners to understand response rates, with stringent budgetary forecasting regularly being reviewed. Where possible the project has sought efficiencies through wider work packages in order to maximise the project population.

Throughout the last reporting period the project has submitted 4 Successful Delivery Reward Criteria (SDRC) reports. An Overview, alongside reference and subsequent progress to these reports is detailed throughout the body of the report. Three of the SDRC's submitted related to the project's modelling package of work, previously put on hold following re-installation of equipment (Change Request 2) this package of work has been a key focus of the past 12 months. Section 2.3 of the report provides an overview of the three key models which make-up the project's Network Investment Tool; namely: The Customer/Community Model, The Network Model and The Pricing Model. With trial period 1 (TP1) data available, these models have evolved and a programme of collaboration workshops/meetings have ensured effective interlinks between the models, maximised accuracy and ensured scalability for the DNO.

With regards project trials, the period June-September 17 saw planning and organisation prior to live trials commencing in October 17. This included:

- Creative and analytical design for ‘data informed engagement’ and ‘data informed + price signal’ trials,
- Pilot engagement for the LED trial group,
- A series of open days to finalise the evolution of the CEC trials as they moved into their final trial iteration.

October 17-March 18 was characterised by the start and close of TP2 for methods 1-3, and TP3 for Community Energy Coaching (CEC) trials (October 17- December 17). Across this time over 6000 bulbs were installed in 882 properties (76% of trial population). Four events have been run with data informed and data informed + price signal trial groups of varying intensity, duration and reward levels. Positive peak demand reduction was experienced on targeted feeders in the CEC trials final event.

To maintain a clear focus on the successful management of the various packages of work, the Project has held 12 Project Partner Review Board (PPRB) meetings, enabling all partners to meet at least once a month to discuss progress and plan activities. Representatives from suppliers BMG and Navetas have been present at the majority of these meetings in order to provide updates on equipment and industry expertise.

1.1 Risks

Ofgem guidance: The risks section reports on any major risks and/or issues that the DNO encountered, including any risks which had not been previously identified in the Project Direction. The DNO should include a short summary of the risk and how it affects (or might affect) delivering the Project as described in the full submission. When relevant, the DNO should group these key risks under the following headings:

a. recruitment risks – describe any risks to recruiting the numbers of customers to take part in the Project as described in the full submission and how these will impact on the Project and be mitigated;

b. procurement risks – describe any risks to procuring the equipment and/or services needed for the Project, as described in the full submission, and how these will impact on the Project and be mitigated;

c. installation risks – describe any risks to the installation of the equipment (including in customers’ homes, and/or large scale installations on the network) and how these will impact on the Project and be mitigated; and

d. other risks.

Project risk management is considered in detail in section 4 of this report; a high level summary is shown below:

Risk Description	Further details and impact	Controls
Recruitment		
Attrition/Comms of project participants	Offline communications on the project continue to grow, largely as a result of ‘offline clamps’ caused by people unplugging their units and forgetting to plug them back in. This has adverse impacts on level of reduction needed in order to achieve statistical significance and customer model profiling.	The project is carrying out regular reviews to identify any potential new causes of comms failure. The project has been analysing different engagement approaches to bring comms back on-line and procuring cost-effective work throughout TP2. A subset of budget has been retained to boost comms/project population before TP3 to ensure engagement levels are high enough so trials potentially achieve statistical significance.
Incomplete recruitment surveys	Surveys are used to categorise customer types within the customer model. Without	Surveys have been carried out on the ground alongside re-engagement, re-

	these the UoS cannot anticipate how different customers react to SAVE interventions.	recruitment and LED field work to boost numbers where phone engagement unsuccessful. The impact on customer model is understood and customer categories have been carefully analysed to ensure they are representative (hence not subject to anomalies).
Trials Re-design of TP3 has un-anticipated costs	The introduction of un-tested and more complex price signal trials results in un-anticipated implications could be costly in time and budget.	The project plan for TP3 has been built with some slack to allow for potential delays/re-design. Weekly project calls, monthly PPRBs and bespoke dedicated interaction with all partners have been held to understand capabilities and roles of all involved. Costs have clearly been communicated and agreed upfront.
Complexities in customer engagement as a result of TP3 re-design	A banded tariff is a completely new mechanism, as a result communications for this have not been tested previously. Due diligence must be applied to ensure communications are simple to understand and customers are assigned to the correct 'groups'. Potential opt in could be low resulting in little visible impact from TG3 households.	Customer engagement experts 'behaviour change' are supporting customer engagement trials to ensure communications are simple and understandable. This is being supported by SSEN internal comms review. Mapping processes and group labelling will then be applied to customers to ensure grouping is correct. Cross-checks on this process to be applied.
Issuing incentive levels to customers under TP3	Setting an incentive level that drives customers, isn't too easy (or already above their peak consumption) and is achievable needs careful analysis.	In order to set targets the project have divided customers into three categories (low, medium and high consumption). This allows more motivating targets to be set than an overarching band. Analysis has then been carried out to set banded limits for each customer category detailing no. of passes/fails if consumption remained constant as the banding changes.

1.2 Learning Outcomes

Ofgem guidance: The learning section reports on the learning outcomes outlined in the Full Submission. This section should include, but is not limited to:

a. a summary of the key learning outcomes delivered in the period;
b. a short overview of the DNO's overall approach to capturing the learning;
c. the main activities towards third parties which have been undertaken in order to disseminate the learning mentioned in a.; and
d. the DNO's internal dissemination activities.

Please note that these two subsections should only give an overview of the key risks and the main learning. They should not replace the more detailed information contained in the "Learning outcomes" and "Risk management" sections of the progress report.

Learning outcomes are considered in detail in Section 6 of this report.

There have been four SDRCs completed within this reporting period, lessons learned have been captured both within these reports and through ad-hoc/process related means. Key learning includes:

- Proactive LED engagement has seen an uplift from a 0.4% of households participating in the trials under TP1 to 76% participation in TP2.
- The project has identified four potential mechanisms through which a DNO could pay price signals to customer that fall within (Distribution Connection and Use of System Agreement) DCUSA and three mechanisms outside of DCUSA (see SDRC 4).

- Limited data with regards to certain specific customer demographics may cause problems/erraticism in modelling processes. This can be particularly problematic for heat profiles where some sources of heating such as heat pumps, oil/gas and electric (non-storage) are relatively ‘rare’, however (particularly where clustered) can significantly impact consumption in an area. Dummy profiles and wider LCNI project data is being explored as a potential solution.
- When carrying out engagement/open days with different communities, tailored engagement methods may need be adopted in each area to optimise and incentivise attendance. It was seen that rather than using incentives to encourage participation using the budget for a themed evening better attracts attendance i.e. a ‘wine and cheese evening’.
- A Unique Selling Point (USP) like pink envelopes and ‘Can It Wait Til After 8’ straplines were seen as particularly memorable elements of the data informed trials at open day events.
- Items that ‘stick around the home’ i.e. stickers, fridge magnets, notebooks etc. cited as useful engagement material.
- The CEC trials have found that engaging households around the benefits of shifting cooking patterns through potential time savings as opposed to energy saving has a greater impact in changing people’s behavior. An additional benefit to this can be sought by running community events with a ‘cooking’ theme that can then be linked to a time saving/energy saving message attracts far more attention than other themes trialed due to the universal interest from different members of the household in cooking/food.
- The CEC trials note that energy usage in the home needs to be understandable and relatable. There is no point talking about kW/kWh as the majority of the population don’t relate. In addition if information can be made graphical, and ‘understood within seconds’ people are more likely to digest the information.

Approach to learning capture

The approach to learning capture is focussed on capturing both structured learning in the forms of SDRC reports, and unstructured learning via lessons learned reviews and ad-hoc recording of insights. This aims to capture results drawn out from data analysis and reviews of activities, and also tacit knowledge that may not typically be captured in formal documents.

Summary of Headline Third Party targeted dissemination

- SAVE event at Houses of Parliament- Intro presentation on DSO given by Head of DSO and Innovation. Labour Shadow Energy Minister, Alan Whitehead discussed relevance of SAVE in evolving energy markets. SAVE overview by project partners and feed-in to industry given by PM.
- LCNI Conference 2018- SAVE project exhibited throughout the event. Presented on topic of: Low Carbon Technology, Distributed Generation.
- Project Feed in to SSEN response to BEIS’s call for evidence around Energy Efficiency.
- Open Days 7 and 8- Presentation to TG3 and TG4 project participants to gain feedback on TP2 and TP3 trial design.

- The project has engaged suppliers through a random stratified sample of small (<250k customers), large (>250k customers) and big six energy suppliers to understand their stand-points on dynamic pricing.

Summary of internal targeted dissemination

The Project uses organised events such as Steering Boards and Team Briefs as a means of internally disseminating progress and information in a structured manner, with informal communications between colleagues and departments also acting as a means of raising awareness of the Project and progress towards delivering learning.

In order to best develop a network investment tool of value to network planners the project team have held a series of meetings with SSEN's network planning department; including a face-to-face with the Head of Planning and Investment, ongoing support of a dedicated network planner and two dissemination roadshows (South and North) to provide an update on SAVE to planners and connections teams.

Alongside learning from the CEC trials the project team have been working closely with Customer and Community Advisors (responsible for 'on the ground' customer engagement) and stakeholder engagement teams more strategically. Specifically, this has looked at potential for cross-over in engagement with other utilities.

Communications teams have been central in the reviewing and sign-off of project design work, specifically under data informed campaigns.

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2 Project manager's report

Ofgem guidance: The Project manager's report should be a more detailed version of the Executive Summary. This section should describe the progress made in the reporting period against the Project plan. Any key issues should be drawn out and described in detail, including how these issues were managed. The DNO should also include details of deliverables and/or events, referring where necessary to other sections of the PPR. This section should also provide an outlook into the next reporting period, including key planned activities. It should describe any key issues or concerns which the Project manager considers will be a major challenge in the next reporting period.

This reporting period has seen substantial progress across each of the project's core work packages. Trial Period 2 (TP2) for the household monitored methods on SAVE has been initiated and completed. Mean whilst Trial Period 3 (TP3) for the community energy coaching (CEC) trials concluded in December 2017, final reporting of this trial is on track to be completed by June 18, one year ahead of schedule (namely due to the re-alignment of trials, see Change Request 2). The project has submitted four SDRC documents in the past 12 months, namely under the themes of: commercial requirements (1), modelling (2) and customer engagement (1). As project learning has progressed a strategic approach to dissemination has laid foundations for ongoing stakeholder interaction, knowledge sharing and linkage to the governments 'Carbon Plan'. Headline events can be found in section 6.3.

Planning has started early for TP3 on the domestically monitored methods. This excess planning time was required following the projects identification of added value through the re-alignment of trials (in order to adapt to industry direction since bid submission in 2013 and based on evolving project learning). Communication from clamps on the project continue to require close monitoring and cost-effective management to balance budget against project outcomes. SAVE has managed these challenges by restructuring budget across line items to maximise learning outcomes for industry, customers and wider stakeholders.

To provide readability and transparency within this report, alongside consistency with the reporting structure the SAVE project team relay to Ofgem project officers, Figure 1 shows how the subsections used in this section of the Project Progress Report relate to project's key work packages.

WP / Section	1-Project Management	2-Customer Model	3-Network Model	4-Recruitment, Surveys & Trials	5-Meter& Data Gathering	6-Knowledge Dissemination	7-LED Trial	8-xSmart Plugsx CR-2 CLOSED	9-DNO Price signals	10-Data Informed Engagement	11-Community Energy Coaching
2.1Project trials											
2.11Trial Period 1outcomes											
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2.12.2 Data informed and price signal trials											
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Wider Report											

Figure 1 Report Structure

2.1 Project trials

2.1.1 Trial period 1 outcomes

Within the project's last reporting period the project noted its completion and initial analysis of TP1. This analysis has since been built upon by the University of Southampton and submitted as part of their December SDRC (2.2- updated customer model). Crucially this analysis utilises varied analytical techniques to detect reasoning for the intervention effects seen in TP1, notably including: time-use diary analysis, portal/e-mail data and customer categorisation. To provide an introduction to this it is important to note the previously reported high-level findings from TP1:

- Minimal uptake of LED's following bulb discounts (0.04% of customers procured bulbs)
- 3.57% reduction in peak (4pm-8pm) electricity demand as a result of postal engagement alone (not statistically significant) on the projects event day.
- 3.33% reduction in peak (4pm-8pm) electricity demand as a result of postal and online engagement + price signals (not statistically significant) on the projects event day.

The key additional findings (as reported in SDRC 2.2) following detailed TP1 analysis include:

- As would be expected there is a clear impact of temperature on electricity demand in electrically heated properties, where the impact on gas heated households is minimal. Less surprisingly the responsiveness of alternate heating sources to temperature (i.e. oil, heat pumps etc.) also show a strong correlation suggesting that additional heat sources are being used in these homes. This is important when categorising customers within the projects wider modelling work packages.
- Time-use diaries are used to record the activity of a project participant on SAVE's 'event days' and then compared to a 'normal day' an approach used to detect behavior change through qualitative data. These diaries show that participants in the projects data informed + price signal group (TG3) report fewer acts during the peak and pre-peak hours on the event day, although, this is not statistically significant. The results also provide evidence that the households in TG3 avoided energy consumption by being away from the home during the event days.
- Households in full-time or part-time employment show a higher and more distinctive morning peak in consumption, and greater separation of the daytime consumption profiles between weekdays and weekends. Households where the household representative person is retired appear to have a lower evening peak than other households. Households with unemployed Household Response Persons display the most variable daily profiles.
- Impact of children results in higher consumption, however analysis does not show these effects being any greater during 'half-term' weeks.

2.1.2 Trial period 2

Since last reporting, the project has completed a small LED pilot to test engagement (and predict the volume of LED bulbs required) with 100 TG2 households in August 2017. Full scale installation then took place between September 2017 and January 2018. In total, the project installed 6,135 bulbs across 882 properties (76% of the trial population).

For consumer engagement on the data informed (and price signal) trials, the SAVE project utilised a variety of messaging approaches through online and postal communication including a 'welcome pack' that included a booklet and other small promotional materials. The first half (October 2017 to December 2017) of TP2 focused on postal engagement as this is an approach currently available to DNOs in their 'business as usual' approach. The second half was a digital-only approach with all

communications sent through the Loop portal and email to test lower cost options that may be available in the future.

The consumer engagement trial also included specific 'event days' where participants were given a target reduction for a set period of time. Ramping up from TP1 these 'event days' grew in frequency and varied in intensity. Participants in TG3 were also offered monetary incentives to meet their targets.

2.1.2.1 LED Installations (TG2)

In TP2, SAVE offered to install LED bulbs in participants' homes at no cost to the consumer. While the first trial period (TP1) sought to test an 'opt-in' approach through direct mailers offering discounted LED bulbs, TP2 tested a 'opt-out' approach and participants' willingness to accept this free service.

All TG2 participants were sent a letter to inform them of the offer. Project staff followed up with phone calls and site visits to schedule an appointment when they could install the bulbs. While on site, staff installed the new LED bulbs in the most used areas of the home and aimed to replace the least efficient bulbs. The project allowed for up to 10 bulbs per household.[1] Project staff removed the old bulbs from each property to prevent them from being reused. Project staff recorded the number of bulbs installed, installation location, previous bulb type and wattage for each house visited.

Before LED installations commenced, all project staff completed a safety training class that addressed risks associated with home visits, bulb removal and installation. This training was provided by Proactive Technical Training, a company specialising in electrical training courses. The course included: a brief overview of electrical circuits and domestic lighting circuits, the effects of electricity on the human body and the types of injury detailed (shock, burns, secondary injuries), the framework of current UK legislation, including the Health & Safety at Work Act and The Electricity at Work Regulations, and understanding the correct procedures to inspect fittings and replace standard lamps in dwellings including not to touch or interact with any suspect fixtures or electrical work and to only change bulbs in fittings that were in good working order.

Staff were also trained to only work on fixtures when they were turned off or otherwise isolated from the power connection. Prior to starting work on any site staff performed risk assessments to identify any other site-specific risks or unusual hazards such as pets, high ceilings or uneven floor surfaces.

All bulbs were procured from RS Components.[2] Project staff had weekly calls with RS Components to discuss current stock levels and place orders as needed. The project opted to acquire bulbs in many smaller orders (as opposed to one or two bulk orders) to minimise wastage and costs. Install rates of each bulb type informed subsequent orders.

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[1] Unless this would create a visual discrepancy or other aesthetics issue, such as when there were more than 10 bulbs in a single room. To maximise satisfaction, in these cases project staff were advised to change all bulbs in the room.

[2] www.uk.rs-online.com

Pilot

TP1 had limited engagement from the LED group, and so the team could not predict interest in the LED installations. The SAVE team conducted a pilot to better understand possible update rates and approximate quantity and types of LED bulbs required. The project chose 100 households (all with actively communicating Loop devices) to contact.

The pilot took place over 4 weeks in August 2017. Project staff contacted all 100 households with the goal to install LED bulbs at as many as possible. Overall, the SAVE project installed 580 LED bulbs at 80 households. This equates to an average of 7.25 bulbs per house. Details are available in Table 1 below.

Table 1 LED Pilot Results

Call outcomes	Total
Respondent Agrees to LED installation	80
No reply	13
Refusal	7

Main rollout

Fieldwork for the main rollout of LED installations in TG2 commenced in September 2017 and ended in January 2018. The procedure followed a similar approach as the pilot, with trial participants receiving a letter in the post notifying them of the offer and project staff following up with phone calls or household visits to schedule the LED installation. Take up was expected to be slightly lower as this group included those with non-communicating Loop devices (which may indicate a lack of engagement with the SAVE project). However, final take up was similar to the pilot, with 76% of participants accepting the LED bulbs (as compared to 80% in the pilot).

Results

In total, the project installed 6,135 bulbs across 882 properties for an average of 7 bulbs per household.

Table 2 Full LED Trial Results

Call outcomes	Total
Respondent Agrees to LED installation	882
No reply	101
Refusal	177

The field work also included a short survey with households that had LED bulbs installed. The survey asked if the household had LED bulbs (before the project-led installation) and if no, asked why. The majority (60%) already had at least one LED bulb installed in their house. The kitchen was the most common location for LEDs.

Table 3 Households already using LED's

Percent of households with LEDs installed	
Yes	60%
No	40%

Of those that did not have any LEDs, the survey asked why. The most common reason cited was that they 'hadn't thought about it' (74%) while the second most common reason was they 'don't know enough about them' (28%).[3] This shows the main barrier to LED adoption is awareness. The nature of these barriers supports the theories identified by the governments 'Nudge Unit' as cited by David Halpern in his book 'Inside the Nudge Unit' discussing the simple need to 'remove friction' and make engagement as **easy** as possible for consumers maximises engagement rates.

Table 4 Barriers to LED uptake

Reasons stated for not using LEDs	
Haven't thought about it before now	74%
Don't know enough about them	28%
Too expensive	10%
I have tried them and do not like them - colour is off	1%
I don't need one, a bulb is a bulb	1%
Other (please specify)	1%

Early analysis of TP2 (Figure 2) shows that the average consumption per household in the LED trial group (blue line) fell in relation to that of the control group (red line). As noted above LED interventions started in August with a pilot of 100 households. It is clear from figure 2 below that prior to August 2017 the average consumption of the control group sat above that of the LED field group. The difference between these profiles narrows from LED installation starting up until w/c 6/11 whereby the LED group crosses below that of the control group, this decrease in consumption from the LED group as compared the control continues until w/c 11/12, at which point it is clear that the error bars of the two groups no longer overlap. Moving into early 2018 and the second half of LED installs we actually see the divergence between the lines decrease, despite a greater amount of installs. This is hypothesised as potentially resultant from increased daylight, weather changes or variation within the consumption profiles of the two groups. Further analysis form the UoS is required

[3] The survey allows respondents to choose multiple reasons, so the sum of responses will be over 100%.

to determine this and the % of load reduction achieved through LED engagement (and whether statistically significant).

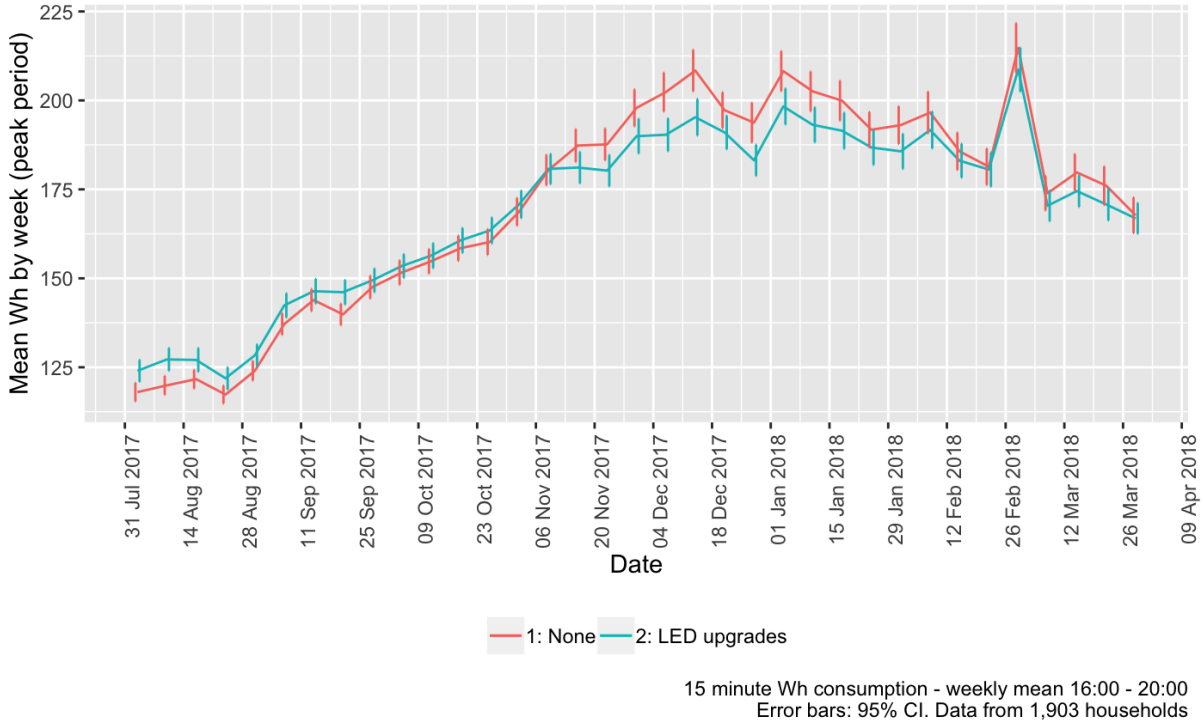

Figure 2 Consumption of LED Trial Group

2.1.2.2 Consumer engagement and Reduction events (TG3 and TG4)

The consumer engagement campaign continued in TP2 and built on the general information distributed in TP1 but with a focus of cutting energy use during the peak period (rather than shifting it outside the peak as explored in TP1).

<u>Consumer engagement</u>

Since DNOs currently only have access to mailing addresses and cannot access more personal contact information (such as emails or mobile numbers), the first half of the trial (October, November and December 2017) focused on post only engagement.

The postal mailings started with an initial ‘welcome pack’ that included a small booklet with general information on reducing electricity usage during the peak periods as well as physical items with the purpose of staying in the home longer. All materials used a cartoon character (named ‘Arthur Tate’) to deliver the messaging, as seen in the below images.

Both groups received the welcome pack in October 2017; it included:

- A booklet with ideas on how to use less electricity at home. It focused on how energy is used and reduction can be made when cooking, cleaning and relaxing in the home. The booklet also gave some general information about the winter peak period and how reductions in this time are especially helpful to the DNO. (Example page in Figure 3 below.)
- A small note book with helpful electricity saving tips on some of the pages.

- A package of sticky-notes with instructions to use them as reminders of energy saving behaviour (such as ‘run it on eco’ or ‘turn it off’).
- A pencil with the ‘4 to 8’ logo.

Figure 3 Data Informed Engagement

While a postcard may be discarded after being read, a notebook or pencil will likely persist in the home. The hope is these items are used within the house and serve as a more frequent reminder to cut energy consumption without being obtrusive. Arthur Tate, and the engagement material sent to customers were specifically designed to be engaging to both adults and children.

While consumers could still log onto the Loop portal and view their energy use, it was not used to send messages to consumers. Email messaging was also not used during this time. This was to reflect the methods of engagement currently available to DNOs.

The second half of the trial used digital delivery and all messaging was sent through the Loop portal and via email. These messages included much of the same content as was in the welcome pack, but delivered through a different medium and format (email and Loop, example in Figure 4 below). This was to test the effectiveness of digital engagement and if it could provide similar results at less cost. The ‘cut’ message was constant throughout both portions of the trial period.

Figure 4 Data Informed Engagement E-mail

Reduction events

In addition to the general reduction tips, TP2 asked both TG3 and TG4 to reduce their consumption by a set percent for a short time. Participants in TG3 were also offered a monetary incentive to do so, which varied by event. Events were advertised by post cards in the first half of the trial and through email/Loop for the second half. The events were as follows (with TG3 incentives in parentheses):

- Reduce energy consumption by 10% during the peak period Monday through Friday w/c 13 November 2017 (raffle draw for one of 20 £100 Restaurant Choice gift cards). Participants were notified of this event by postcard. A follow up postcard was sent two weeks later informing them if they were successful in cutting 10%.
- Reduce energy consumption by 10% during the peak period Monday through Friday w/c 29 January 2018 (raffle draw for one of 20 £100 Restaurant Choice gift cards). Participants were notified of this event by email and Loop notification. A follow up email and Loop notification was sent two weeks later informing them if they were successful in cutting 10%.
- Reduce energy consumption by 20% during the peak period for two days in w/c 5 March 2018 (raffle for one £1000 Sainsbury's voucher). Participants were notified of this event by email and Loop notification. A follow up email and Loop notification was sent two weeks later informing them if they were successful in cutting 20%. An example of the messaging for this event can be seen in Figure 5 below.
- Reduce energy consumption by 10% between 17:00 and 19:00 Tuesday, 20 March 2018 (£10 Costa Coffee gift card to all successful). Participants were notified of this event by email and Loop notification. A follow up email and Loop notification was sent two weeks later informing them if they were successful in cutting 10%.

TG3 participants were provided with incentives when they met their targets (or the chance to win, as in the raffles), while TG4 participants were given 'good job' messages through the post or Loop portal/email.

Figure 5 Event Day E-mail

The Loop portal also showed a target line on the consumption graph to show what a 10% (or 20%, depending on the event) reduction would look like for that specific household. This allowed the project to show household specific kWh targets and let households track their consumption in real time during the digital phase. Full data analysis from these events is still being conducted by the University of Southampton and will be available within the reporting period. However, success rates for each event are presented in Table 5 below.

Table 5 Event Day Pass Rate

Event	Description	Pass rate TG3	Pass rate TG4
1	Reduce energy consumption by 10% during the peak period Monday through Friday w/c 13 November 2017	28.0%	30.7%
2	Reduce energy consumption by 10% during the peak period Monday through Friday w/c 29 January 2018	19.8%	20.3%
3	Reduce energy consumption by 20% during the peak period for two days in w/c 5 March 2018	21.0%	19.7%
4	Reduce energy consumption by 10% between 17:00 and 19:00 Tuesday, 20 March 2018	29.3%	29.1%

Interestingly, the pass rate for both trial groups were somewhat similar across events, initially signalling that an incentive is making minimal difference as compared with data informed engagement alone. How this translates in terms of load reduction will be further explored in September 2018 when full trial analysis is conducted.

2.1.3 Community Energy Coaching

Across the past 12 months on SAVE the community energy coaching trials have completed TP3, 4 open day events and are able to evidence up to 21% peak load reduction on selected feeders (not statistically significant). Given the re-alignment of trials detailed in change request 2 (CR2) the Community Energy Coaching (CEC) trials have now completed. As such the project is able to report on them 1 year ahead of schedule in June 2018. To avoid replication of SDRC's 8.8 (produce community coaching trial report) and SDRC 3.2 (Hold meetings to share progress, experiences and next steps with customers involved in trials on a six monthly basis) this section will provide high level overviews of the activities completed with key references to the projects more detailed SDRC's.

2.1.3.1 Pre Trial Period 3

In the period of summer 2017 project partners Neighbourhood Economics (NEL) focus turned from delivery of TP2 to trial design for TP3. Core to this were two key areas of focus: determining a noticeable reduction in demand in TP3 and integrating the community agenda with a wider energy strategy.

Quantitative network results from TP2 showed minimal/no impact of the CEC trials at substation level. Discussions were therefore focused on how within TP3 the CEC trials could adapt in order to achieve noticeable demand reduction. This involved a series of meetings with the University of Southampton to support in scrutinising data, in turn with liaison with SSEN to identify those substations/feeders with least erratic demand. It was determined that by identifying those feeders with the most predictable demand profiles and by designing interventions to achieve targeted intense events would best allow for identification of any quantitative network impacts of the CEC trials.

From a field work perspective NEL, with the support of the community coaches focused on 'co-designing' an integrated intervention with each local community bringing together a Dedicated Distinctive Strategy (DDS) intertwined with both local and wider energy agendas.

A range of locally based community events and publicity related activities also took place across the pre-trial period to maintain engagement levels of which headlines include:

- 695 contacts established in Kingsworthy (rural affluent community) and 105 contacts in Shirley Warren (urban less affluent community).
- Facebook page in Kingsworthy now has 600 followers (out of 2000 houses across the town)
- The Shirley Warren Working Together group became constituted with members committee roles/responsibilities.
- School Fairs, Church fates and community clean ups attended/organised across the communities, notably within Kingsworthy the 'Worthy's Festival' was 'piggy-backed' on whereby the theme of efficient cooking (using solar panels and slow cookers) captured the imagination of the town (this event alone achieved 70 sign-ups for the trials big switch off event described in section 2.1.3.2 below)

Two consecutive open days were also held in this period prior to TP3 in each community, firstly to understand from residents what had worked in TP2 and what had not. Participants were then asked what they might like to see next time and to share their thoughts with friends/family before attending a second open day. A formal summary of this alongside learning outcomes is available in SDRC 3.2 (section 3.2).

2.1.3.2 Trial Period 3

The final trial window for the CEC trials looked to test the success of NEL's approach to engagement, concentrated around building win-win relationships with the community at earlier stages in the project. That is drawing upon the relationships developed through the support given to the community; the litter picks, numerous community events, supporting local agendas and creating material for the local community; in order to gain people's trust to listen and engage with a wider energy agenda.

Whilst a lot of the wider outcomes will be reported in the CEC trials closedown report to be submitted to Ofgem June 2018 two key areas of focus have been: the load reduction events which cumulated in what was marketed as the 'Big Switch Off (BSO)' event and the supplementary social value of CEC trials.

The Big Switch Off event was organised in each community for Sunday 19th November (a Sunday was chosen to coincide with the day of the weeks peak consumption as reported in June 2017 Annual Report). This event asked the whole community to participate in a reduction in electricity between 6-7pm. Prior to the BSO event local residents were encouraged to formally sign up to a challenge to reduce use during the restraint hour through the Connecting Kings Worthy / Shirley Warren Working Together websites and/or at key locations within the community to download or order the Big Switch Off Information Pack. Material received particularly positively included simple visualisations of what an average appliance in a customer's property may consume. It was understood through community and focus group interaction that people need information they can digest 'within a matter of seconds', providing a visual stimuli was noted as a good solution to this ask. The resultant engagement graph shown in Figure 6 was credited by residents and stakeholders alike.

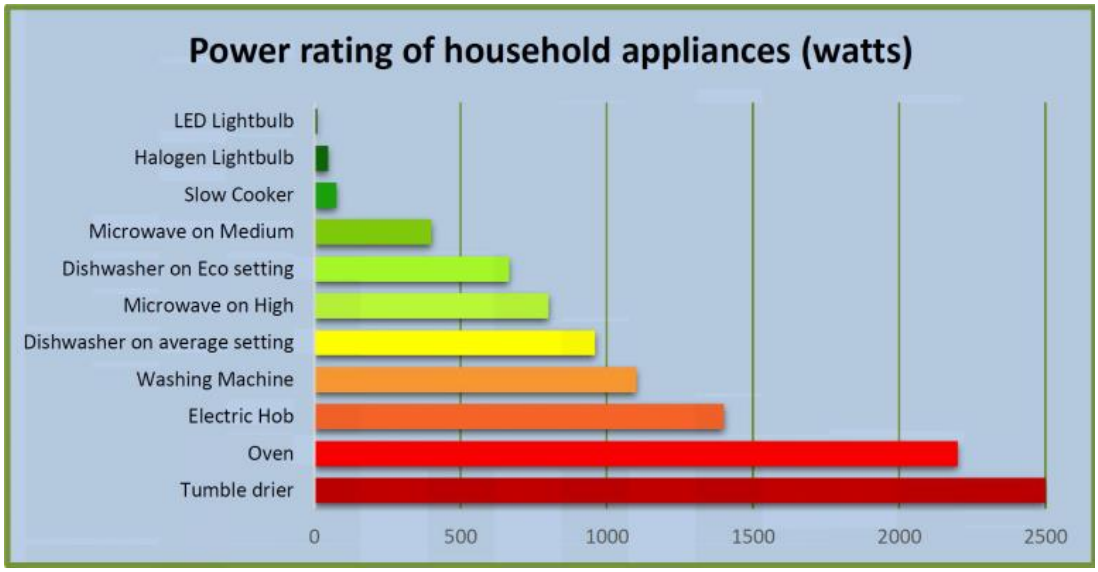

Figure 6 CEC Engagement Material

To understand the benefits of different levels of interaction and in accordance with targeting interventions to maximise chances of noticeable demand reduction (as discussed in section 2.1.3.1 above); circa. 170 households on selected feeder were engaged with additional intensity. This took the form of additional sign-up material and the advertisement of two preliminary events in the build up to the BSO. The aim in these areas was to allow calibration of data analysis on each feeder against declared commitment to participation, the hypothesis being that a 25% sign up commitment would yield a measurable electricity demand reduction of 10% at peak.

Analysis of the BSO event has evolved throughout the period following the event. The SAVE project team initially looked to draw upon wider project learning and apply similar methods of baselining to those used for commercial demand response trials on New Thames Valley Vision. This included comparisons with consumption a day before the BSO event, and the Sundays either side of the event. Following this analysis, due to identification of particularly cold temperature on the weekend of the BSO the project team sought value in then looking to account for how a difference in temperature may have affected consumption on the day of the BSO event. In order to best manage this the project team worked closely with the University of Southampton who applied regression analysis using the principle of 'heating degree days' to understand how weather/temperature impacted consumption on the trials feeders (temperature will have a greater impact on electricity demand in electrically heated areas than gas heated) across each community between October 2017 and February 2018 (A full summary of this process will be described in SDRC 8.8 which will be submitted to Ofgem June 2018).

The results of this analysis can be seen in Table 6 below. It is clear from this that on the specifically targeted feeders, in general, the project can observe a reduction in demand. Due to the variability in consumption at feeder level the project applied a 95% confidence rating to the results to identify where/when any change in demand is likely due to an intervention itself. It is apparent that whilst 4 out of the 5 feeders subject to 'intense engagement' within the trial areas showed a reduction in demand

across the BSO only circa. 2 gave a 95% confidence that this effect was due to the intervention and not external variability in consumption. Full reporting of this analysis will be presented in SDRC 8.9.

Table 6 BSO Event Results

MEASURED DEMAND REDUCTION – BIG SWITCH OFF: SIGN UP							
Feeder data monitoring, BIG SWITCH OFF, 6-7pm, Sunday 19 November 2017							
Feeders	No of h/h	Measured Demand (kWh)	Baseline Demand (kWh)	Ratio of Measured Demand	Peak Load Reduction (%)	Confidence Level (%)	
Shirley Warren Trial							
Bindon 3	118	87.3	108.3	81	-19	**>95**	
Bindon 4	61	89.0	82.2	108	8	**-**	
Shirley Warren Control							
Wakefield 1	54	32.9	35.1	94	-6	**-**	
Wakefield 2	108	99.6	102.2	97	-3	**-**	
Wakefield 3	85	54.2	55.0	98	-2	**-**	
Kings Worthy Trial							
Hookpit Farm 1	61	83.2	93.9	89	-11	**<95**	
Hookpit Farm 2	26	43.3	50.4	86	-14	**<=95**	
Hookpit Farm 4	76	61.1	77.4	79	-21	**>95**	
Kings Worthy Control							
Sheppards Down 1	31	38.9	38.7	100	0	**-**	
Sheppards Down 2	29	48.6	44.8	108	8	**-**	

With regards social obligations NEL have progressed discussions with SSEN stakeholder engagement teams to identify areas which may deliver greatest value to the DNO as well as it's wider stakeholders. This has namely centred around identification of Priority Service Register (PSR) customers and how through direct community interaction such a service can be discussed and understood by local residents. In discussions at the CEC local stakeholder group, other utilities in particular noted merit of such forms of engagement with discussions progressing around a requirement for 'joined up thinking' on both energy consumption and customer engagement.

2.1.3.3 Post Trial Period 3

The end of formal trial periods on the CEC trials has presented a 6 month period in which NEL have worked to: build legacy outcomes with the local community, hold a final community/stakeholder open day, plan dissemination of the trials' key learning outcomes and consolidate key outcomes for final reporting. Mean whilst SSEN has focused on the build of a community model for integration with the project's wider modelling package of work (reported in section 2.3).

The importance of legacy planning in the community was identified by NEL in order to best secure lasting impacts for both residents and the DNO from community based engagement. This has involved a series of meeting with local residency groups to identify key targets going forwards, and resultant actions to achieve this. In Shirley Warren, this materialised in ownership of the brand 'Shirley Warren Working Together' remaining with a tightly knit local group. In Kings Worthy this included the build of a sustainability strategy which it felt was best owned by the local Parish Council.

Given the importance of long-term impact of domestic demand side response trials the project has made the decision to procure 14 days of Neighbourhood Economics resourcing to revisit the communities in November. It is intended this will provide understanding of the implications of legacy planning as well as lasting impacts '1 year on' in the communities. It is intended this will be completed in a final Open Day based format with members of the established residency groups as well as the wider communities.

In March 2018 Neighbourhood Economics organised a final dissemination session for residents and stakeholders alike. This Open Day was facilitated by an independent third party in an attempt to minimise bias that may have materialised had the coaches or NEL facilitated the event. Key learning outcomes have been captured and reported by NEL some notable discussions included:

- The fact that energy was not the initial focus on the trials but rather, getting to know and support each community's own aspirations,was critical to getting people on board, developing the trust relationships and to the success of the project.
- The energy message turned out to be far more interesting and relevant then people thought it would be.
- The trust relationships that were developed were crucial to the development of local people as 'human messengers' who delivered with much more power than a mail shot.
- Both communities expressed a sense of the greater 'connectedness' that exists as a result of the project – both between individuals and groups within the community and with the support available to them externally.
- As part of the SAVE legacy there is a much greater awareness of energy issues, including the role of the DNO and peak demand, alongside an appreciation of wider environmental issues with real willingness to keep them on the local agenda for action.
- Having energy as a thread that was interwoven in local conversations, rather than as a standalone subject, has been a key factor in the project's success and paves the ways for more integrated approaches with the electricity, gas and water utilities and other partner organisations.

For the SAVE project team discussions off the back of both this event and the CEC trials has seen a closer relationship develop with representatives at Southern Water and Southern Gas Networks. Such understanding has allowed for consideration of partnered engagement in the data informed messaging being deployed in TP3 of the household monitoring trials. It has also identified potential benefits of closer collaboration with other utilities and potential for discussions on joined up thinking with regards to both energy efficiency and community/customer engagement.

2.2 Trial Period 3 (TG1-TG4)

Within SAVE change request 1 (CR-1) the project team identified the capability to accommodate a third trial iteration within the project framework. It was intended, much like TP2, this trial iteration

would build upon learning from previous trial iterations to further improve the delivery of LED lighting (TG2), data informed engagement (TG4) and price signals (TG3). Following the substantial success of the LED lighting trials within TP2 the project team questioned the value in running a further LED based trial within TP3 with the remaining 24% of the population. Analysing the surveys carried out during installation of LED lights the data confirmed that just 8.7% of the population actually refused LED installation (see Table 2) and the rest of this 24% (some 15.3% of total population) that were not successful simply couldn't be reached. It was hypothesised that the cost of engaging this small sub-group of the population would out-weigh the benefits.

Resultantly the project set out to understand alternate options for this trial group which may warrant greater value and more replicable practice than further LED lighting engagement. Three key options were identified: no engagement and return unused funding to customers at the end of the project, energy efficiency (EE) based interaction, and dynamic tariff engagement. Each option is discussed below.

Return budget to customers

As discussed above SSEN do not think it replicable of a BaU network management scenario to spend project budget on engaging a subset of the population at substantial cost with minimal network benefits. As a result, should significant learning not be able to be obtained from this trial group (TG), it may be preferable for the project to do nothing further with this TG and simply return funds. Given the substantial sunk costs in recruiting this trial population and the relatively minimal anticipated cost of running an alternate trial with this population with potential significant increased learning to bring benefits to customers, government and industry, SSEN recommended that this option should not be pursued.

Energy Efficiency based interaction

Given SAVE's LED lighting trials were designed to act as an example of how EE could be used by a DNO to manage network constraints, a clear alternate form of engagement with this trial group was an alternate form of EE. Project partners DNV GL carried out an exercise to identify the next most effective forms of EE engagement a DNO might use to manage their networks and bring wider societal benefits. The options seen as most attractive, along with pro's and con's of each approach are outlined in Table 7 below.

Table 7 Energy Efficiency Campaigns

Technology	*Description*	*Estimated cost per unit (excludes labour unless otherwise stated)*	*Pros*	*Cons*	*Applicability*
Low flow showerheads and faucets aerators	Devices that restrict the flow of water. They save water (directly) and energy (through less water needing to be heated).	£8 (for an adapter) or £15-£30 (new showerhead)	Inexpensive, easy to install. Saves energy and water. Low impact to lifestyle.	Often removed if low quality.	Low. Will only save electricity if the home has an electric boiler. Otherwise savings will be gas, and therefore not applicable for this trial.
Smart or programmable thermostats	Can be timed to turn off or down during unoccupied periods of time.	£30 (basic programmable) or £100-£200 (smart thermostat)	Saves energy. Low impact to lifestyle.	Need a technician to install (requires wiring). Small knowledge barrier to overcome for correct usage. Would want to provide some basic training/literature.	Low. Will only save electricity if the home has an electric boiler (or air conditioning). Otherwise savings will be gas, and therefore not applicable for this trial. Requires an installer.
Pipe insulation	Insulate hot water pipes (for sanitary hot water and/or space heating) to reduce losses.	£3-5 per 20ft of wrap	Very inexpensive. Saves energy. Very low impact to lifestyle.	Some pipes may be difficult to get to.	Low. Will only save electricity if the home has an electric boiler. Otherwise savings will be gas, and therefore not applicable for this trial. Requires an installer.

Smart power strips	A power strip with a 'controller' plug that turns off all other connected devices when the item plugged into the controller plug is off. Especially relevant to desktop computers and TVs and their associated devices.	£20-£30	Saves energy. Relatively low impact to lifestyle if installed correctly. Easy to install. Cable boxes especially can have very high phantom power draws when 'off'. Inexpensive.	If installed incorrectly, can cause TV and computer systems to not work. Would want to provide some basic training/literature.	Medium to low as savings would be very small (may not seen). Requires an installer.
Duct sealing	Increasing the air tightness of HVAC ducts to reduce leakage of conditioned air.	£500-£1,000 per home (includes labour)	Saves energy. Very low impact to lifestyle.	Only for ducted HVAC systems, very few UK homes have this kind of set up as it is more common for commercial buildings.	Very low. Only applicable to ducted HVAC systems. Will only save electricity if the home has AC or electric heating.
Air sealing	Increasing the air tightness of the home (often through weather stripping on doors and windows) to reduce leakage of conditioned air.	£50-£100	Saves energy. Low impact to lifestyle.		Low. Will only save electricity if the home has an electric boiler (or air conditioning). Otherwise savings will be gas, and therefore not applicable for this trial.
Refrigerator coil cleaning	Cleans the coils on the back of refrigerators to increase the efficiency.	£70-£120 per home (Mostly labour cost.)	Saves energy. Very low impact to lifestyle.	Savings may be small, savings will be biggest on very dirty refrigerators. Some refrigerators may be hard to access (built ins).	Medium. Savings potential is small.
Slow cookers	An electrical cooking pot that will slow cook food at low temperatures over a longer time than cooking on the hob.	£30 (simple model), £100+ for models with timers	Inexpensive. Shifts some energy use to outside peak periods (as they take all day to cook).	Knowledge barrier to overcome before people will use them. Savings only seen in homes with electric hobs. Would result in additional load in homes with gas hobs.	Low. Would need engagement for this to work correctly, only applicable in some homes (with electrical cookers).

Appliance recycling	Homeowners exchange their (still working) older appliances (washers, dish washers, freezers, refrigerators) for a discount/rebate on new, high efficiency versions.	Flexible. SSEN could set rebates as they see fit.	Could result in sizable savings per participating home.	Requires a high level of engagement from participants, would ideally need to partner with a retailer. Logistically challenging.	Low for trial, medium to high for real world constrained zones. The 3 month timeline for this project would make it almost impossible to market the programme, gain participants and see results.

Of particular interest in these trials was the potential for use of slow cookers following the success of such appliances in eliciting behaviour change in the CEC trials on SAVE. However the requirement for behaviour change inhibited the hypothesised impact of slow cookers. Whilst the CEC trials were designed to factor in the benefits of education and closer qualitative interaction with trial participants, it is intrinsic to cost-effectively design the EE (LED) trials that behaviour change should not be paramount. In incorporating this into trial design the project team hypothesised significant scope creep, time-bound constraints and costs that may limit replicability. The same logic applied to 'smart power strips' and 'smart or programmable thermostats'.

The replacement of larger appliances and appliance recycling posed interesting concepts that a DNO may pursue. Given the findings from TP1 around participant uptake of 'reactive' mechanisms of engagement that require a participant to engage with the DNO as opposed vice-versa, the cost-required to fully incentivise such appliances, and the fact fully-funded replacement has already been trialled by a DNO (ENW's Power Saver Challenge) this method was discounted.

Whilst there were other potentially less costly forms of EE identified such as refrigerator coil cleaning or low flow shower heads the benefits in terms of electricity saving were too minimal to justify. It is a recommendation and a lesson from the project that in future a DNO taking the DNO led approach to rolling out LED bulbs may deem it most cost-effective to do this as a package with other low cost energy efficiency improvements. This is because the majority of cost lies in labour; carrying out other improvements whilst in a customer's premises may multiply value. Additionally it can be seen from the above that a lot of the solutions identified are actually likely to benefit gas and water utilities in addition to the DNO. The project team is in discussion with Southern Gas Networks (SGN) and Southern Water where this learning is being shared and discussions held around how such a structure might look given the evidence provided by the SAVE project.

Based on the evidence provided in Table 7 the project decided that it would not be beneficial to run an alternate EE trial. It should be noted this is not to say that there are not other forms of EE that a DNO

might use in network management, however within the context of the SAVE project's scope and the duration of the final trial window no methods were deemed applicable.

Price signals

Up until TP3 the SAVE project has looked to run price signal trials on a 'constraint management strategy' building on learning from UKPN's LCL project, this event day based structure, looked to replicate situations whereby the network may be constrained for short defined time periods and hence maximise potential payment for an individual 'load-shed' performed by a customer. Similar to both TRIADS and what is commonly referred to as a Critical Peak Pricing (CPP) structure this technique was scaled from one-off events in TP1 to numerous and longer lasting (up to 5 days) events in TP2.

Such trial structuring also allowed for the direct comparability between the data informed trials and data informed + price signals trials by facilitating an environment whereby both groups could be subject to the exact same event based messaging, nonetheless with one group not receiving the payment based incentive. Learning from TP1 showed that when applying data informed engagement there was no additional impact of price signals on overall network load reduction. Scaling this approach in TP2 indicative findings show the same results with impacts of 'event based' price signals being minimal or nothing at all. This however is still subject to detailed analysis, scheduled for completion July 2018.

Given this learning and moving into TP3 the project has indicated that if there is to be value in another price signal initiative it should be re-shaped significantly and appear psychologically different to those consumers it reaches. Resultantly the project team looked to explore alternate dynamic pricing based mechanisms with regularly/routinely occurring payment structures which may provide consumers with a more consistent approach to facilitate habitual behaviour change. Three strands of work were performed to determine: (1) mechanisms which might be considered; (2) best directed outputs from the trials, and; (3) the mechanism most relevant to industry. The summary of each of these activities is detailed below.

A. Literature review and internal expertise to determine available price mechanisms

Table 8 below shows a summary of all the mechanisms considered by the project team for testing as well as their source and any related comments. For the purpose of this exercise it was not signalled whether a mechanism might be DNO led (direct to customers, incentive only structure) or supplier led (reflected through use of system charging, incentive and disincentive structure)- this is detailed under (B).

Table 8 Dynamic Pricing Mechanisms

Mechanism	Description	Source	Comments
Time of Use (ToU) Tariff	This tariff offers a range of different level price bands (typically 2 or 3) which will vary based on time of day. It may be static (same every day), seasonal (different across seasons) or dynamic (different across days).	One of the most trialled and tested price signals. Both Low Carbon London (LCL) and Customer Led Network Revolution (CLNR) tested this mechanism from a supplier driven perspective.	Mixed results from ToU studies, results appear more positive in US given controllability of cooling load. LCL dynamic trials note a 5-10% peak reduction in demand, whilst CLNR static trials note an 8.3% peak reduction. In both these trials however robustness of trial population and scalability of results can be questioned.
Critical Peak Pricing (CPP) and Critical Peak Rebate (CPR)	These tariff mechanisms provide a more significant 'occasional' spike in demand when compared to ToU mechanisms. CPP does this through an increased price at peak times in return for reduced prices during the off-peak. CPR on the other hand offers a rebate during such peaks, much like the event days already trialled on SAVE.	As well as SAVE TP1 and TP2, UKPN's Energywise project tested a form of CPR with vulnerable customers. Low Carbon London also trialled a structure similar to CPP by running events which offered high and low pricing periods together (excluding mid/amber periods as tested in their standard ToU tests).	It is noted in CLNR that: "Alternative ToU tariffs, such as Critical Peak Pricing, might be tried as a way of reducing demand during these times." SAVE has drawn upon such learning in its existing trials, if this is to be tested to further learning peaks should be more regular and potentially looked at from a supplier perspective (disincentive and incentive based as opposed solely reward based).
Banded pricing and Peak banded pricing	Banded pricing charges/rewards consumers solely on their consumption being above/below a pre-set arbitrary limit. Peak banded pricing solely applies this incentive during a pre-set peak period.	This mechanism has been discussed at industry forums and indicates a potential means by which EV users may be charged given the large and identifiable excess loading an EV may cause. So far as we're aware this has not been tested in the UK.	Such a mechanism has the possibility of being easy to understand for customers given its binary nature. This could also provide interesting learning into the capabilities of such a mechanism if used to encourage smart EV charging.
DNO location ramping	This tariff is designed to theoretically model a defined geographical constraint whereby as the network reaches closer capacity price signals increase in intensity. The approach used could be ToU, CPP, CPR or banded.	Internal discussions with project engineers and commercial teams noted this may be one way in which as a constraint become more likely and urgent costs are increased accordingly.. So far as we're aware this has not been tested in the UK.	Given TP3's 3 month duration this mechanism is not deemed appropriate. It could also suffer from challenges to communicate to customers and replicability in a real-world situation.
Red appliance banding	Customers are paid based on the number of red appliances they use simultaneously throughout the day (red appliances are	Discussions with SSEN colleague who sit on the charging futures forum (CFF) shared ideas around	The advantage of this mechanism would be the potential ability to protect the requirements of vulnerable

	discretionary high energy use appliances e.g. dishwashers, EV charger etc).	potential pricing mechanisms including appliance based pricing. So far as we're aware this has not been tested in the UK.	customers, given this is not based on overall usage just usage of those appliances deemed luxuries as opposed to requirements. Whilst 10 second monitoring on SAVE could detect appliance usage this mechanism is outside of project scope and could be costly to replicate given the requirement for appliance level monitoring.

B. Ofgem Discussions to optimise trial findings

Following identification of a range of price mechanisms and means by which the project could deliver them (DNO/Supplier led, allowing participants to opt-in or automatically opting them in, etc.) the project looked to discuss findings and combine them with the wider direction given by Ofgem's half-hourly settlement (HHS) experts. Ofgem's SAVE project officer facilitated this meeting with colleagues interested in the interaction between ToU and HHS as well as those from the behavioural insights team to collate views on customer interaction and impact on (vulnerable) customers. Key learning from the meeting included:

- Vulnerable customers are a key consideration with regards to dynamic pricing. There is a need to understand how any changes to the current system may disproportionately impact some sub-groups.
    - *The project will test incentive only based mechanisms to replicate a price signal whereby there is no potential negative impact on vulnerable customers- this is a more acceptable approach to consumer focus groups.*
    - *The project is analysing customers against census data and hence will be able to determine how different groups of customer may respond differently to price signals.*
- Noted it would be good to see how customers actually 'buy-in' to schemes, previous studies look at auto-enrolling customers onto a given tariff
    - *The project understands the value and replicability of testing 'opt-in' of customers, the risk here is that only a small per-cent of a trial group opt-in, hence hampering the wider trial population useless. Given the project has two trial groups this could be explored with one group if not both. A question around testing 'opt-in' to dynamic tariffs will also be put out to industry for consultation alongside which pricing mechanism the project pursues.*
- Ofgem note an interest in banded pricing mechanism as an approach not previously tested in the UK
    - *The project will account this opinion when collating consultation responses on price signal mechanisms most relevant to industry*
- Ofgem noted interest around potential fatigue to price signals/messaging
    - *Whilst the project scope limits TP3 to the final trial and a 3 month duration the project does anticipate carrying out recruitment activities over the summer to boost trial population as a result of attrition/comms issues, resultantly these 'new' trial participants could be looked at separately to those participants that have been on the project for 18 months + to provide indicative evidence to any fatigue*

C. Industry Consultation- choosing the optimal trial mechanisms.

Having collated information on a variety of different pricing mechanisms and sought Ofgem's views on variables the trials may look to test, the project team looked to industry experts to determine the

pricing structure that would merit greatest value. On 24th January the project issued a consultation, specifically targeted at DNO's, the Charging Futures Forum (CFF) task force and those industry experts who registered an interested in the project event at the Houses of Parliament in November 2017 (see section 6.3). Taking advice from discussions with Ofgem the project determined that any price mechanism would be run from a DNO as opposed a market perspective; the consultation then looked to investigate which price mechanism (of those described in Table 8 above) would be of greatest value to industry. The consultation also looked to tease out opinions on running a trial which gave a population the option to opt-in or automatically assumed opt-in. Results of these questions (of which 4/5 other DNO's views are represented) can be seen in Figure 7 and Figure 8 below respectively.

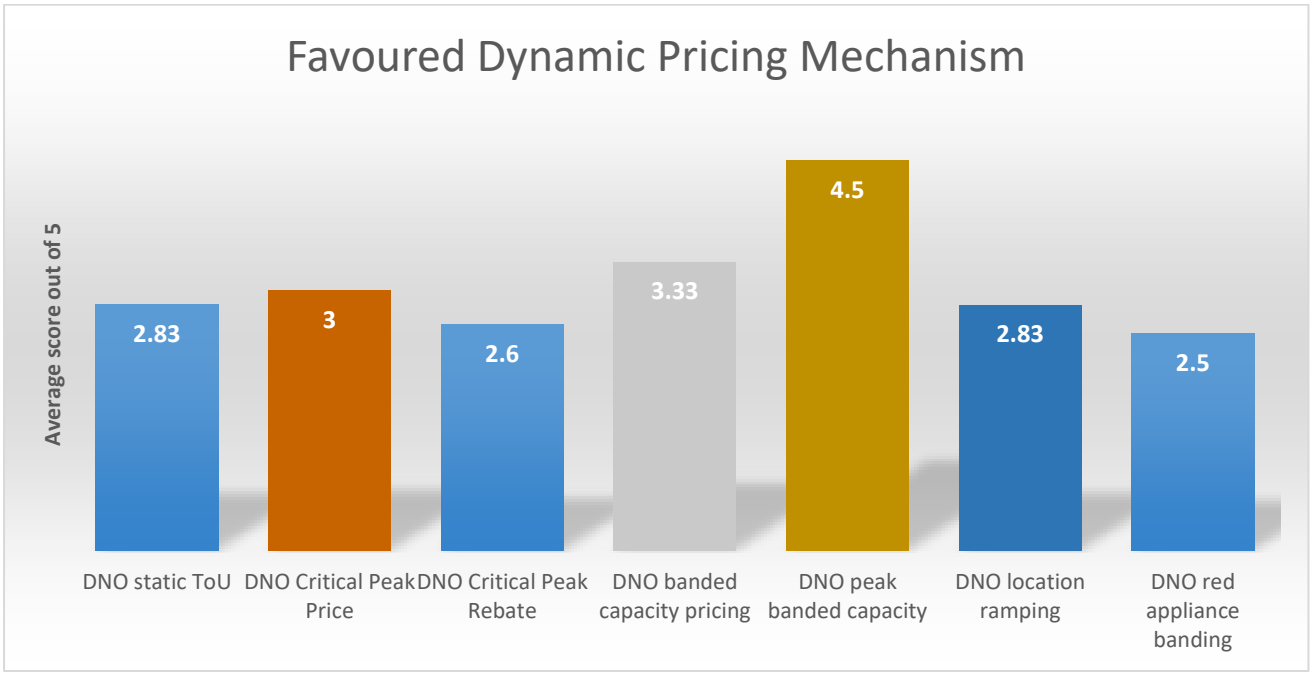

Figure 7 Consultation Response- Price Mechanism

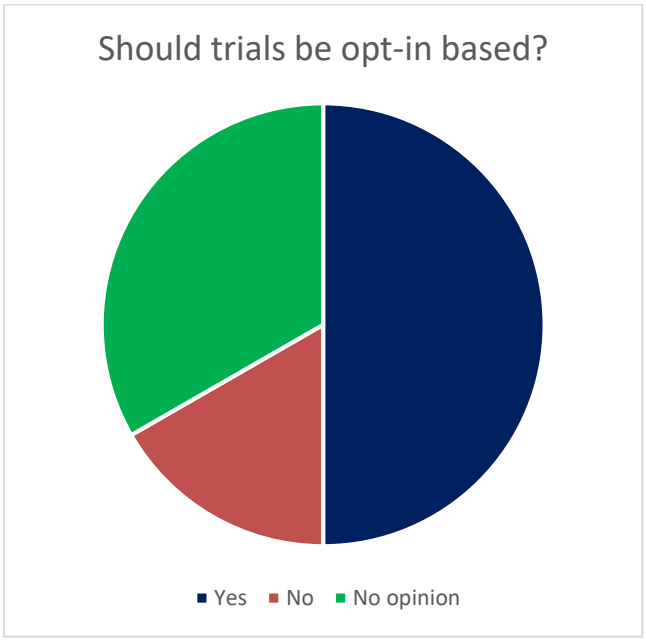

Figure 8 Consultation Response- 'Opt In'

Figure 7 above shows on a scale of 1-5 how valuable respondents felt a given mechanism would be to test. There is a clear preference from industry to see a 'DNO peak banded capacity' mechanism tested, with key comments reflecting that this tariff must be wary of different heating sources a home might have.

Figure 8 then illustrates that 50% of the consultation respondents would like to see these trials run on an opt-in basis. This poses the risk to the project that very few people opt-in effectively leaving a trial group redundant. Thus, the project team have thought carefully about how best to incorporate this without the risk of a largely un-engaged trial group. The solution devised is detailed in section 312.2.1, Trial Period 3 Re-alignment, below.

Given industry appetite and policy level focus on dynamic pricing the project feels that; an additional price signal trial allowing for further testing into how price levels, structures and the messaging that accompanies them, would provide the greatest value from what would have been the LED trial group.

Following consultation, the project looked to determine estimated impact on trial costs to all project partners. Once these indicative figures had been collated and confirmed as within the budget allocated for a third LED trial iteration SSEN presented their revised standpoint to Ofgem. This overview took place in March 2018 and was received positively by Ofgem. The project clarified they would not anticipate this constitute a material change under NIC governance given:

- No delays to the project end date or any SDRC reports.
- No negative impact on project learning and specifically no impact on compliance with the project direction.
- No change to project partners set out in the project direction.
- No addition to project budget requirements.

A full summary of the proposed new trial iterations displayed in section 2.2.1 below.

2.2.1 Trial Period 3 Re-alignment

The SAVE project bid document assumes that trial period three would consist of three distinct trial groups, LED lighting, data informed engagement, and 'data informed engagement + price signals'. Given project learning around LED lighting and industry direction (as described in section 2.2 above) the revised project groupings will include three distinct groups, namely: data informed engagement, 'data informed engagement + price signals (1)' and 'data informed engagement + price signals (2)'.

It is discussed above that the project will design these price signal groups to be comparable allowing understanding of the price elasticity of customers and/or how different structures (opt-in/opt-out) might affect customer response. Given our dynamic pricing mechanism would not expect to receive data informed engagement in the same way in which previous 'event' based campaigns had, coupled with an inability for a data-informed only campaign to replicate a dynamic pricing structure (without payment) it was decided this data informed campaign should be de-coupled from the price signal messaging campaign. Having already run two trial periods whereby price signals were directly

comparable to data informed campaigns with minimal impact of price when deployed under an ‘event based’ mechanism; the project determined the best approach for TP3 would be building on previous learning to deploy a BaU replicable data informed campaign. This campaign is detailed further within this section.

Given the need for two directly comparable trial groups for price signal groups and the desire to run a BaU replicable data informed trial the project team made the decision to re-align trial groups. The re-alignment of trial groups to best achieve this was making both groups whom had been ‘primed’ with past education campaigns (TG3- data informed engagement and price signals and TG4 data informed engagement only) the two price signal groups. Mean whilst making the ‘un-primed’ LED trial group (TG2 received no education material, just bulbs) an effectively ‘fresh’ trial group to run data informed campaigns giving the greatest insight into a how a customer base would respond to this ‘BaU ready’ form of engagement. The final trial period alignment is displayed in Figure 9 below.

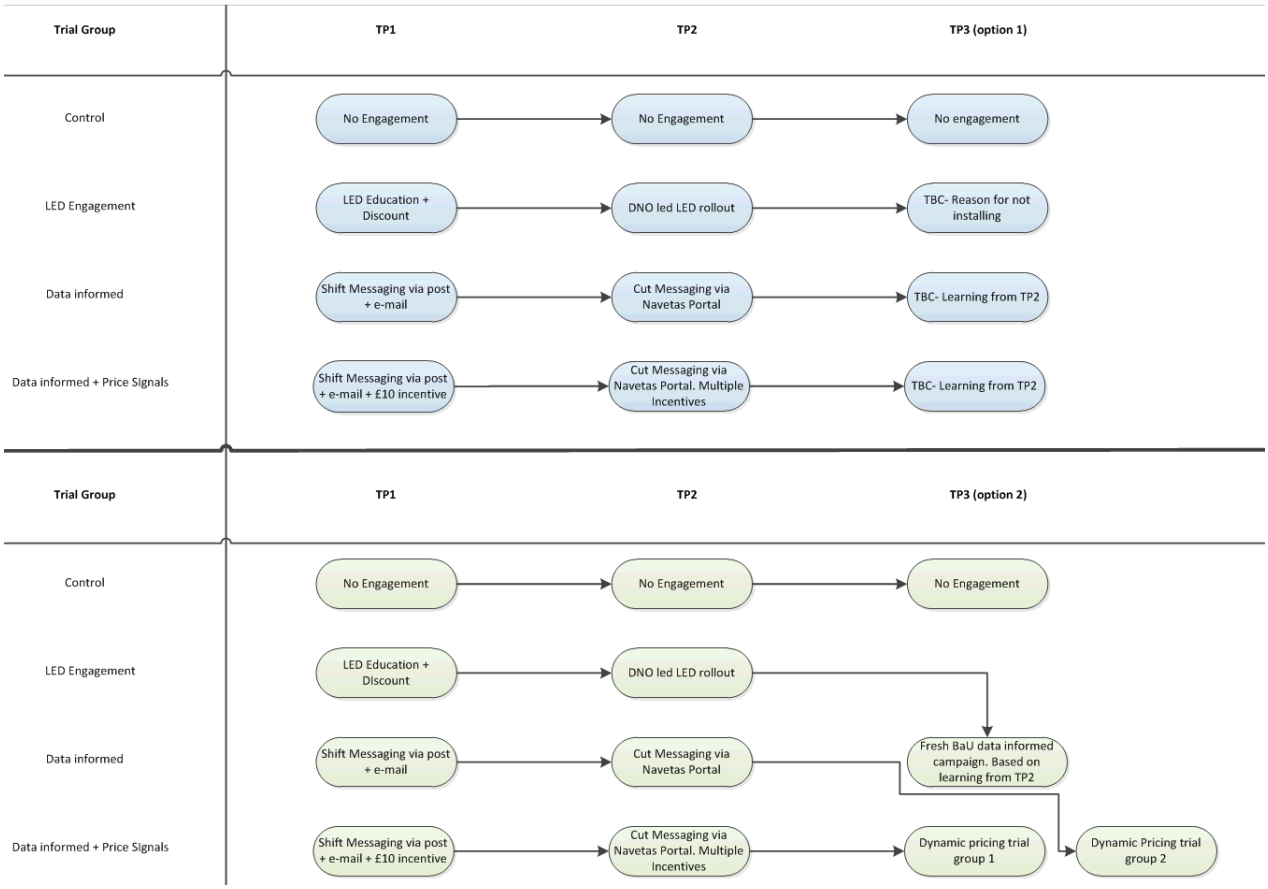

Figure 9 Re-aligned Trials

Data informed Engagement

The project’s data informed engagement trials are being designed to continue as always anticipated, drawing on learning from the previous two trial periods to deliver an improved final iteration. This trial aims to best replicate what a DNO might do in business as usual to encourage demand reduction through data. Given the ‘unprimed’ LED trial group (no previous education received) the customer base can accurately represent how the wider Solent and UK would respond should a DNO deploy data informed engagement as a smart intervention.

Analysis of TP2 data which will define TP3 is still on-going, however it is anticipated messaging will be more direct and event based than previous messaging campaigns. Partnership in messaging is also being explored with other utilities, namely Southern Gas Network and Southern Water, drawing upon successful collaboration within the project's CEC trials. It is intended this will aid in clarity of messaging from the utilities to customers and could stack benefits from a commercial perspective.

Price Signal Engagement

As noted in section 2.2 above the project saw a preference from industry to explore both 'opt-in' based trials and 'DNO peak banded' based trials. A series of trial design meetings with: BMG research to explore engagement options, Navetas to explore smart visualisation options, DNV GL to discuss trial design and UoS to look into analytical requirements/considerations (both customer level and project level) have been held to best design this trial.

The outcome of these discussions sees the project running identical 'DNO peak banded pricing mechanisms' with both TG3 (previously data informed and price signals) and TG4 (previously data informed engagement alone). The only difference between these two groups will be the incentive level which is offered to customers. The purpose of this is to give a controlled study into how a customer's price elasticity of demand may vary with regards peak energy demand, providing a key feed-in to the pricing and incentive model (see section 2.3). The band levels within each group will remain constant and to ensure a target that is motivating to all is set consumers (within a single trial group) have been divided into three differentiated sub-sets; low consumers, middle consumers and high consumers. It is understood that such sub-dividing by consumption may not be possible in a business as usual context, however other methods such as council tax band or household size may act as appropriate alternatives.

In order to test 'opt in' whilst mitigating against the risk of a poor response rate from customers (Ofgem's Distributional Impact of Time of Use Tariffs report[4] predicts around 8% of consumers would uptake such a tariff, May 17) the project has designed a trial that will run engagement in multiple rounds. One initial round of engagement will be carried out with TG3 in order to determine response to 'opt-in' engagement. Should this be above a pre-set limit (to be determined by the project team) then the project will also run an 'opt-in' based trial with TG4. Should this not be the case the project will run an 'opt-out' based mechanism to engagement where participants are auto-enrolled unless they stipulate they would **not** like to be on the trial.

Given these iterative rounds of engagement the team has produced a detailed Gantt chart illustrating timelines and dependencies in order to ensure recruitment in time for the start of TP3. A high-level illustration of this can be seen in Figure 10 below.

[4]https://www.ofgem.gov.uk/system/files/docs/2017/07/distributional_impact_of_time_of_use_tariffs_1.pdf

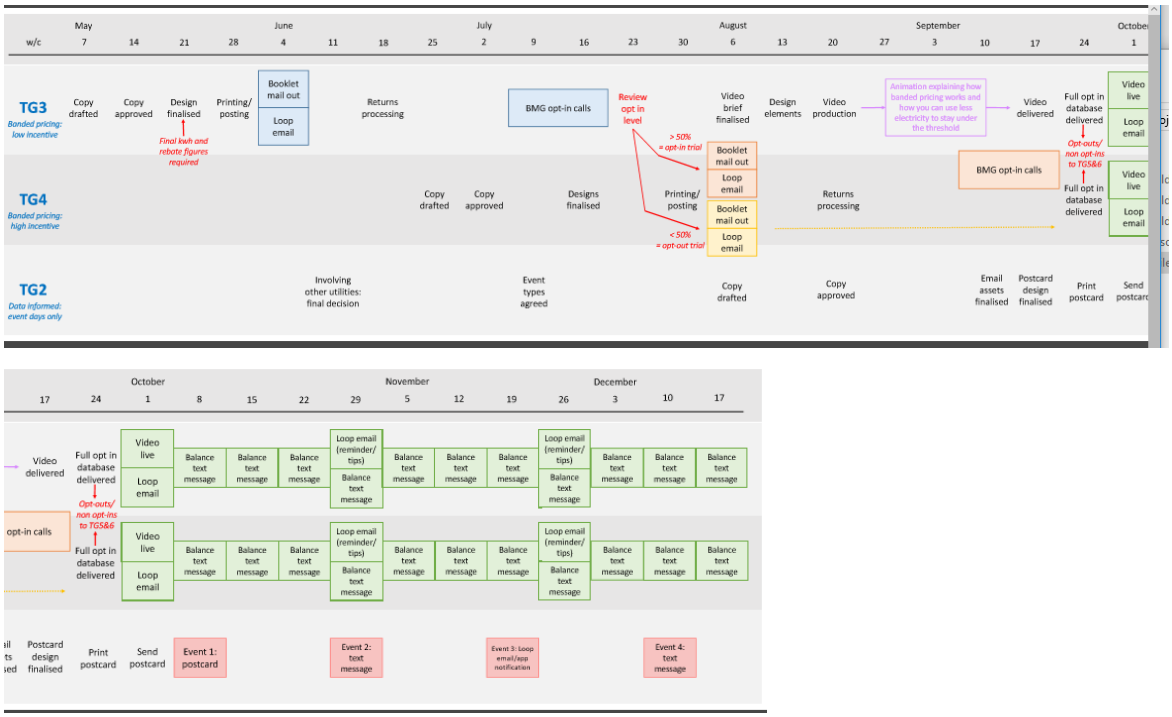

Figure 10 TP3 Delivery Schedule

2.3 Modelling

The below section provides a description of key discussions, challenges and progress made within the projects modelling framework between June 17 and June 18. The project has a total of 10 SDRC's relating to it's modelling package of work, progress against these are summarised in section 5.

Within the project's last Project Progress Report (PPR), TP1 results were reported showing high level results from the project's initial event day. The methods of analysis utilised to best identify these results, variance across customer types and communications approaches were reported more thoroughly in section 5 of SDRC 4 (create commercial energy efficiency measures) in June 2017. This included forms of both descriptive and regression analysis providing initial insight into the behaviour of different customers to different forms of stimuli.

Throughout Summer and Autumn 2017 the project team have worked closely with the University of Southampton to translate where most value from this initial analysis can benefit a DNO and translate these outputs into a modelling framework. Alongside this the projects network model has evolved to schedule with partners EA Technology, this is reported in SDRC 7.2 (updated network model) completed in December 2017.

The principal challenge faced by the project has been interlinking the customer model with the network model. Ultimately that is; finding a means of mapping customer load profiles onto a distribution network. The problem being that the DNO currently has no means of knowing which type of customer is on any given part of their network. The customer model was originally built to use

census information as a means of predicting how a given type of customer might act on a day-to-day basis (in terms of electricity consumption) and how this varied with a given (SAVE) intervention. UoS proved this concept in 2014 in their SDRC 2.1 (create initial customer model) by showing how adjusting the weighting of certain customers based upon the type of customers in a Lower Super Output Area (LSOA) would create an adjusted load profile for an area.

Translating this to a network and resultantly a network model, two key challenges arose: 1) the network investment tool is intended to provide an LV tool for network planners, LSOA level can cover around 1000 households, which may limit granularity in analysis. 2) the network does not interlink neatly with census areas, resultantly a smart approach of representing customers on the network is required.

With regards to (1) the project has explored how customers could also be represented at Output Area (OA) level, a more granular overview of census data that shows demographics of households in clusters of around 100 which is more in keeping with the LV network. The UoS explored this using a 'spatial microsimulation' approach (see SDRC 2.2, updated customer model) allowing the weighting of customers to a given OA. This however highlighted inherent limitations in the data, namely a census area may require a given type of customer for which the project might have limited data, as a result weighting of any individual customer could be disproportionate and hence cause large variations in the load profile of an OA. This issue was noted as less prevalent at LSOA level given the wider amount of customers and hence lighter weighting on any given individual customer profile. Solutions outlined in SDRC 2.2 being explored include:

- excluding outlier households – although this risks reducing the realistic inherent heterogeneity;
- reducing the number of constraints used in the micro-simulation approach – although this has potential to reduce the extent to which the (fewer) constraints can effectively model the socio-economic distribution of peak demand profiles;
- increasing the 'pool' size by substantially increasing the proportion of households who have completed recruitment surveys to as close to 100% as possible.

Furthermore in order to resolve issue (2) the project has worked closely with both EA Technology and UoS to scope how OA's (customer model) might be matched with the distribution network (network model) as well as how the outputs of one model might interact with another. In order to appropriately match these data sets the project has designed a census interface. It is intended this interface will map how the network interacts with census data, for example the percent of given customers on a feeder that interlink with any series of OA's. This concept is displayed on Figure 11 below, the census interface itself is currently being scoped.

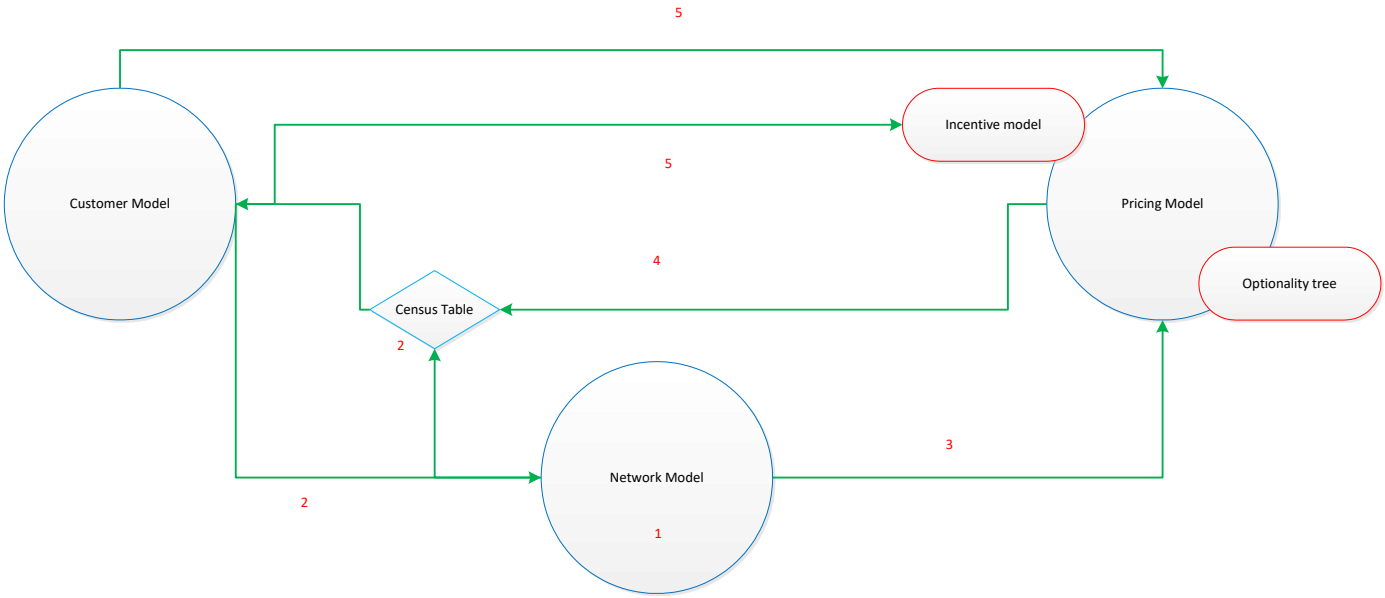

Figure 11 Network Investment Tool

To ensure usability of the final network investment tool, in addition to best matching the outputs of the customer model with inputs of the network model the project has asked the UoS to determine which customer variables (i.e. age, house size, heating type etc.) best correlated with changes in electricity consumption. In March, the university produced a report for the project highlighting that household size (no. of bedrooms), household occupants and heat source were the largest indicators of varied electricity consumption. Given this identification of 'correlating variables' the project is working to create customer types to view how a given category interacts with each intervention as input to the network model. It is determined this is the best means to balance imperfections and complexity within the models with a detailed network modelling approach that could be used to represent LV (and HV/EHV) networks.

Ultimately given these developments project partners have outlined a best fit approach to how a network planner would operate the initial network investment tool- this is as displayed in Figure 11. That is:

1. The network planner will start by inputting network information for a given area under investigation, into the network model
2. The network model will then reach into the census interface to determine which type of customers are located on the network in question, these customer weightings and load profiles are then retrieved from the customer model and provided to the network model where they are aggregated to form a load profile for the network in question.
    a. Within the network model load forecasts can also be run to estimate how a given scenario (i.e. DECC scenarios) might change demand and cause/exasperate a network constraint.
3. The load profile, network type and forecast are all fed into the pricing model which can estimate costs of traditional reinforcement.

The pricing model reported in SDRC 4 displayed the capabilities required above and the capability to input a cost for a given smart intervention and how this might compare to traditional reinforcement/other smart interventions (accounting for optionality). As the network investment tool

described above has evolved the project has seen significant added value in furthering development of the pricing model to allow: (1) a better illustration of LV network costs, (2) a fairer representation of how an intervention may vary based on customer types and (3) the addition of incentive, commercial and customer layers to understand how the cost of a given financial incentive may vary across areas, the commercial considerations required and any impact of vulnerable customers.

Resultantly the project went to market for an update to the pricing model, of which 5 responses were received. Upon careful evaluation, the project determined EA Technology were best placed to deliver the required model both cost-effectively and to high quality. This work breakdown has been integrated with the network models work breakdown structure to deliver a detailed strategy for delivery and minimise project risk. The evolution of the network investment tool and pricing model will mean that after stage 3 above:

4. The pricing model is proposed to reach back into the customer model asking for the same customer types as the network model, however this time drawing intervention profiles as opposed control profiles to understand how a given intervention effects each customer type and how this translates to the area in question.
    a. For a dynamic pricing intervention this feeds into the incentive model which will understand how customers elasticity of demand varies across customer types and hence the estimated payment to a given customer type for a given demand reduction and what this aggregates to at network level.
5. The process of comparing the cost of traditional reinforcement to smart interventions accounting for changes in demand over time and potential requirement of multiple interventions in order to manage a given network constraint. This may include a validation route back through the network model in order to minimise error.

Throughout the next 12 months both UoS and EA Tech will work to schedules detailed within detailed work breakdown structures. SSEN is working closely with partners to identify dependencies and ensure work remains on track to complete the final network investment tool in June 2019. The finalised pricing model will also be reported in SDRC 8.5 Network Pricing Model Report.

2.3.1 Community Model

The customer model described in section 2.3 provides a means of modelling interventions monitored at household level. The CEC trials are inherently different given monitoring which occurs at feeder and substation level. In order to incorporate these trials the project is building a community model. Using the same methodology as the customer model the community model sits alongside the customer model and looks to understand customer types on any given feeder being monitored and the resultant response to smart interventions.

Following the close of CEC live trials at the end of December 2017 the project has used regression analysis to determine a given load-reduction on selected feeders across trial communities on a given ‘event day’. Demographics of these feeders have then been determined by understanding customer addresses on each feeder and how this related to OA’s in order to weight given customer types (as determined by the customer model) on each feeder. This will tell the project how a given group of customer types might interact with community energy coaching interactions. Parameters will next be

put in place with regards to how close a ‘group’ of customers on a ‘real-world’ feeder may need to be to the ‘groups’ the project has monitored to accurately predict a given level of intervention.

The concept assumes that should similar data be available for other projects such a modelling technique could be scaled with more data in future. This model is being developed based upon UoS’s methodology by SSEN and will form a part of the overall Network Investment Tool.

2.4 Meter and data gathering

In June 2017 the project reported higher than expected communications and attrition issues. The project detailed micro-level analysis in order to determine the cause of issues as well as best practice approaches to address these issues, including: any replicability of issues at a single premise, efficiency of resource (i.e. phone, letter, field support) and duplication of activities to address offline comms.

The drop-off in active loop kits has continued to be an issue throughout the last year, this has progressed at a linear rate (excluding expectation periods such as Christmas) and remains to namely be as a result of participants unplugging the loop monitors in their homes (disconnected RX), this is shown in Figure 13 for April 2018 (against those stats reported in May 17 PPR- Figure 12). As this is determined a behavioural issue (as opposed a technical issue) the project has trialled numerous communications avenues/engagement techniques in which to reduce this issue.

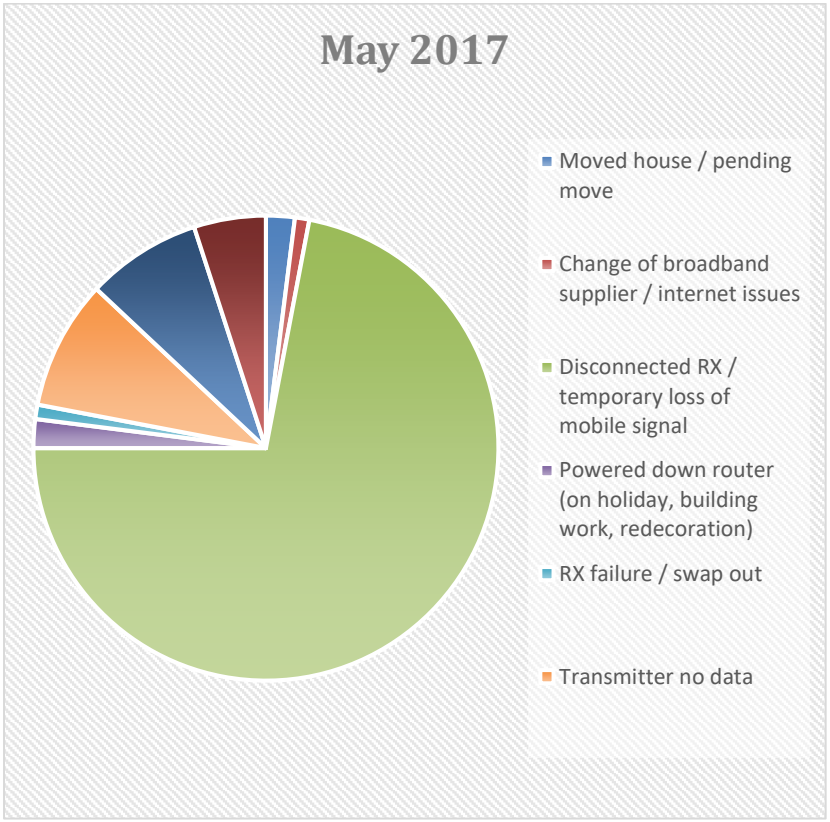

Figure 12 2017 Reason for Offline Comms

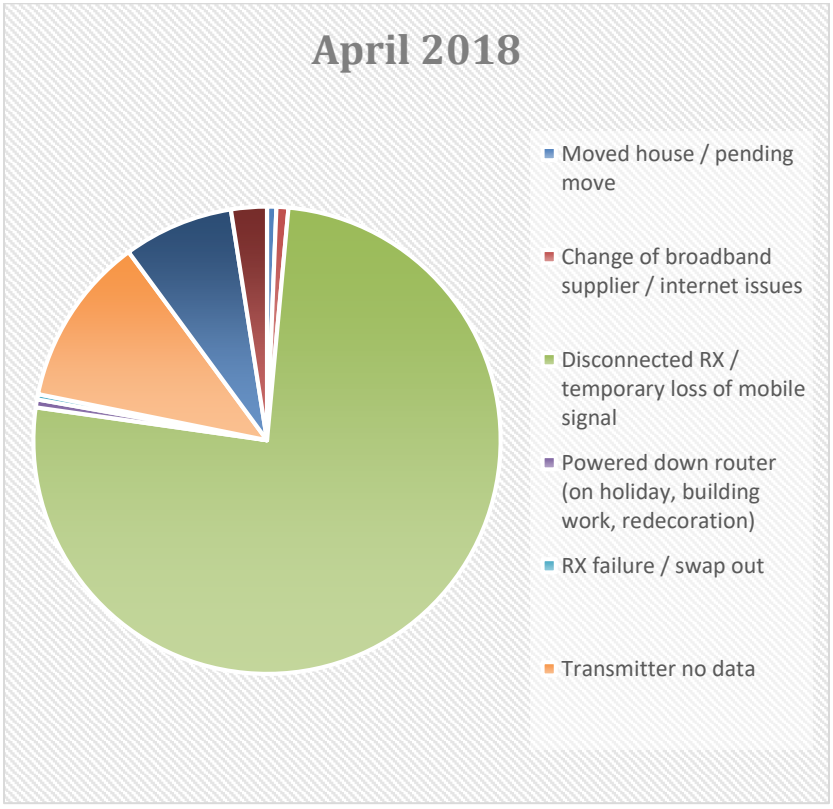

Figure 13 2018 Reason for Offline Comms

Resultantly over the course of the last year the project has carried out a campaign of engagement measures to most effectively maximise participant levels, a summary of these since April 17 are shown in Table 9 below:

Table 9 Communications retention

Engagement	Date	Estimated Success (quantity of online comms)	Cost Ratio
200 personalised 'loop offline' letters	April 17	33%	0.03
100 personalised 'loop offline' letters	April 17	42%	0.03
250 personalised 'loop offline' letters	June 17	39%	0.03
50 personalised 'loop offline' letters	July 17	44%	0.03
120 personalised 'loop offline' letters	August 17	40%	0.03
Summer update letter to all customers	Sept 17	N/A	0.01
185 personalised 'loop offline' letters	Sept 17	44%	0.03
350 new recruits	Sept 17	100%	1
100 field visits with LED engagement	Oct 17	100%	0.47
300 personalised 'loop offline' letters + phone support	Jan 18	37%	0.03
116 personalised 'loop offline' letters	Jan 18	41%	0.03
25 field visits with LED engagement	Feb 18	100%	0.47
270 personalised 'loop offline' letters	Mar 18	40%	0.03

Despite this engagement the project has still seen communicating kit (within last 30 days) fall from 3692 in May 2017 to 3121 by the end of May 2018. Should these rates continue the project anticipates online communications (of kit that has sent readings within the last 24 hours) will be at around 2500 households (625 per trial group) by the start of TP3. The resultant demand reduction required in order to see statistical significance from the trials is estimated at approximately 7.3%. Given learning from other domestic DSR trials estimated achievable load reduction was hypothesised between 3 and 12%[5]. Given a lot of the trials considered in this saw households opt-in to enrol on a dynamic tariff whilst SAVE is looking to test opt-in rates followed by overall demand reduction against a pre-set population (in order to best replicate real-world response) the anticipated impact is towards the lower end of this scale. Resultantly the project is looking to most cost-effectively (starting with

[5] Low Carbon London notes up to a 10% reduction as a result of dynamic pricing, Customer Led Network Revolution notes 8.3%, Ireland Smart Metering Trials note 7-12% and Energy Demand Research Project (EDRP) note 3% or less in overall demand.

phone/letter support and then moving to re-engagement and some new recruitment) engage 700 households bringing the estimated online trial population from 2500 to 3200 by October 2018. The statistical significance for load-reduction would thus forth reduce to a hypothesised achievable 6.5%.

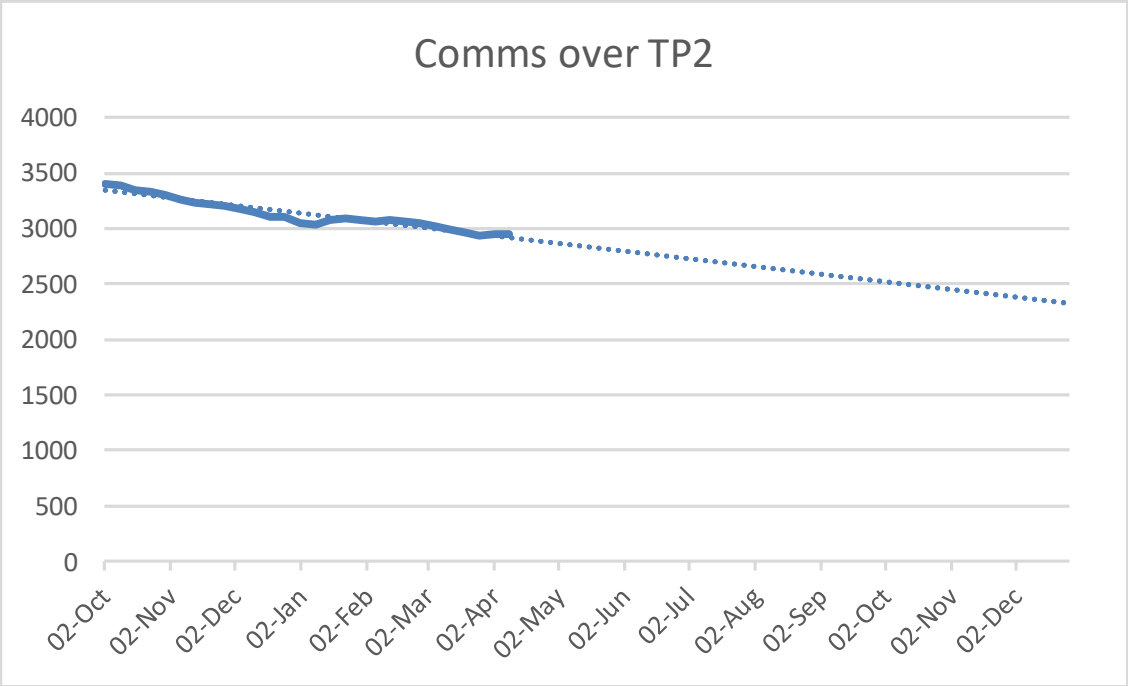

Figure 14 Estimated Communications with no change in intensity of engagement

3 Consistency with full submission

Ofgem guidance: The DNO should confirm that the Project is being undertaken in accordance with the full submission. Any areas where the Project is diverging or where the DNO anticipates that the Project might not be in line with the full submission should be clearly identified. The DNO should also include, where appropriate, references to key risks identified under "Risk Management".

The SAVE project is being conducted in accordance with the full submission. To ensure all commitments from this submission are completed in a timely and efficient manner, the project has developed a comprehensive structure with clear linkages to the text of the full submission. The project has linked this with its wider work breakdown structure (WBS) assigning ownership and providing clarity to all key project contributors.

The Project has recommended that a change to the operation of the projects third trial period (TP3) from an energy efficiency (LED lighting) based engagement mechanism, to a price signal based engagement mechanism would maximise learning and value for money for customers (detailed in section 2, above). The project does not see this as a material change under NIC governance, given:

- No delay to the project end date
- No delay to SDRC delivery
- No negative impact on project learning
- No change to project partners

The project will re-align the allocation of funds to cost categories in order to meet its new direction in TP3. Namely this reflects costs being shifted away from LED lighting to price signals budget and more labour resource to contractors (see section 8).

The project has not made any change requests in this reporting period and has no plans to do so during the next reporting period.

4 Risk management

Ofgem guidance: The DNO should report on the risks highlighted in box 26 of the full submission pro forma, plus any other risks that have arisen in the reporting period. DNOs should describe how it is managing the risks it has highlighted and how it is learning from the management of these risks.

The Project risk register is a live document designed to identify actual and potential barriers to the satisfactory progress of the SAVE project. The register is used to target resources and to develop control measures and mitigations. The SAVE risk register is a single log of risks as identified by SSEN, University of Southampton, DNV GL, Future Solent and Neighbourhood Economics. The register is reviewed at the monthly Project Partner Review Boards and is reported to the SSEN Project Steering Group.

Risks are assessed against their likelihood and impact, where the impact considers the effect on cost, schedule, reputation, learning, the environment and people. Risks are scored before (inherent) and after (residual) the application of controls. Risks which are closed are removed from the live register, with any learning captured through the Learning Moments and Project Trials described in section 7.

Increased focus is placed on risks with amber or red residual scores and also on all risks with a red inherent score (to ensure there is no over-reliance on the controls and mitigation measures). At present there are 8 risks that fall into this category. These risks and how the project is managing them are shown below in Figure 15.

Risk ref #	Confidential to Partner	Source	Owner	Phase	WBS Category	Status	Risk Description	Impact: st	Impact: hedule	Impact: putation	Impact: arning	Impact: vironment	Impact: ople	kelihood	Risk Control/Mitigation Actions	Impact: st	Impact: hedule	Impact: putation	Impact: arning	Impact: vironment	Impact: ople	kelihood	Score	Contingency st (£k's)	Contingency lay (wks)	Score	Mapping Ref	Contingency st (£k's)	Contingency lay (wks)	Risk Review Date
WP1-3		SEPD	SEPD			Active	Lack of budget to complete project and over spend on budget	4	4	3	4	1	1	3	CR2 approved by Ofgem, re-budgeting and forecasting of the project complete. Monthly forecasting calls with AP ensure on-track with budget. Frequent re-forecasting	4	4	3	3	1	1	2	12	4.7	0.1	8	42	0.5	0.0	26/03/2018
WP1-11		SEPD	SEPD			Active	Handover of staff do not get to grips with project, specifcally modelling aspects	4	2	2	2	1	1	3	Training provided by existing/ex-project team. Access to data, software etc. Ongoing support from existing project team. Consultant support as a last resort	4	1	1	2	1	1	2	12	4.7	0.0	8	42	0.5	0.0	26/03/2018
WP2-7		SEPD	UoS			Active	Incomplete full recruitment and update surveys will increase uncertainty in customer model.	3	1	3	4	1	1	4	Use update/TU surveys to continue to get more data. Some of budget for recriutment surveys could be used for additional recriutment to up these waitings. Summer recruits could give immediate recruitment surveys. LED group engagement used to boost surveys. Newsletter to be sent out to advertise surveys	2	1	2	3	1	1	3	16	23.4	0.2	9	33	0.7	0.0	09/04/2018
WP3-10		SEPD	EA Tech			Active	Inabilty to incorporate the area level model being developed in M4 as part of network model. Discussion needed on how this looks at feeder/customer level.	1	4	1	2	1	1	4	Regular review meetings beteen EATL, NEL and data analyst. New data analyst to focus on community model development following recruitment	1	3	1	2	1	1	3	16	2.3	0.9	9	33	0.2	0.1	09/04/2018
WP4-1		UoS	UoS			Active	Attrition/Opt-out rates continue to grow with adverse impacts on the level of reduction needed for statistical significance	3	2	3	4	1	1	4	Regular reviews and updates in addition to identification of potential causes for attrition. Analysis shows trial material not the cause of attrition. CBA of additional incentivsation or re-recruitment. Budget being retained for additional recruitment prior to TP2. Factorial approach an option if numbers drop too low. Pre TP3 recruitment	2	2	2	3	1	1	3	16	23.4	0.4	9	33	0.7	0.0	09/04/2018
WP4-2		BMG	BMG			Active	Contacting customers for recruitment surveys proving challenging with 837 outstanding as of 13/11 of which most have been contacted 20+ times.	3	3	3	3	1	1	4	understanding of the impact of this on UoS will be less ability to prove how representative the trial is, equally within the customer model this will reduce the sample sizes that can be used and hence increase uncertainty (non-response rate shows consistency of data against other studies) . SSEN to trial new methods of engagement including text and letter (when TP2 LED work complete). It may be worth carrying out recruitment survey upon install in any future installations. All future installls will	3	2	2	2	1	1	3	12	23.4	0.7	9	33	2.3	0.0	09/04/2018
WP4-11		SEPD	DNV			Active	Re-design of TP3 trials poses risk of cost, management process, customer engagement and anticipated learning.	3	4	3	2	1	2	3	All partners have provided overview of costs for TP3 price signal trials, LED budget being re-aligned to allow for this. Customer engagement process being worked on with internal SSEN corporate and partner support, payment issue being looked into and other DNO's engaged. Anticiated learning documented and compared with trial alternatives. Risk to be revisited May 18 as trials better scoped	2	3	2	1	1	1	3	12	2.3	0.1	9	33	0.7	0.1	23/04/2018
WP9-7		DNV	DNV			Active	Issuing bespoke incentive levels to each particpiant in cost prohibitive	3	2	2	2	1	1	4	DNV GL to look at subcontractors, SSEN to look at internal capabilities. Further back-up of runding up payment levels using existing vouchers	3	1	2	1	1	1	3	12	23.4	0.4	9	33	2.3	0.0	12/04/2018

Figure 15 Risk Register

5 Successful delivery reward criteria (SDRC)

Ofgem guidance: The DNO should provide a brief narrative against each of the SDRCs set out in its Project Direction. The narrative should describe progress towards the SDRCs and any challenges the DNO may face in the next reporting period.

The SAVE project has identified ten Successful Delivery Reward Criteria (SDRC) in Table 10 below. The majority of these are split into a number of sub components and each component has defined criteria, evidence and a target date for completion. The following table lists the individual SDRC components in chronological order and details the Project's progress towards their achievement for those due to be completed in this reporting period (up to June 2018) and into the next reporting period (up to June 2019).

	Completed (SDRC met)		Emerging issue, remains on target		SDRC completed late
	On target		Unresolved issue, off target		Not completed and late

Table 10 SDRC Delivery

SDRC	Due	Description	Status
SDRC 3.1	28/02/2014	Create Customer Engagement Plan	Complete – submitted to Ofgem on 28/02/2014
SDRC 8.9	19/06/2014	6 monthly Project Progress Report	Complete - and due to be submitted every 6 months until end of the Project
SDRC 1	30/06/2014	Produce report on learning from UK and international energy efficiency projects and the impact on the design and implementation of the SAVE project	Complete – submitted to Ofgem 30/06/2014
SDRC 8.9	19/12/2014	6 monthly Project Progress Report	Complete - and due to be submitted every 6 months until end of the Project
SDRC 2.1	31/12/2014	Create initial customer model	Complete – submitted to Ofgem 31/12/14
SDRC 7.1	31/12/2014	Create initial network model and parameters for tool	Complete – submitted to Ofgem 31/12/14
SDRC 8.9	19/06/2015	6 monthly Project Progress Report	Complete - and due to be submitted every 6 months until end of the Project
SDRC 5	30/06/2015	Identify control and sample groups	Complete – submitted to Ofgem 30/06/15
SDRC 6	30/06/2015	Install 80% of clip-ammeter	Complete – submitted to Ofgem 30/06/15
SDRC 8.9	19/12/2015	6 monthly Project Progress Report	Complete - and due to be submitted every 6 months until end of the Project
SDRC 8.9	19/06/2016	6 monthly Project Progress Report	Complete - and due to be submitted every 6 months until end of the Project
SDRC 8.9	19/12/2016	6 monthly Project Progress Report	Complete - and due to be submitted every 6 months until end of the Project
SDRC 8.9	19/6/2017	6 monthly Project Progress Report	Complete - and due to be submitted every 6 months until end of the Project
SDRC 4	30/06/2017	Create commercial energy efficiency measures	Complete – submitted to Ofgem 25/1/18
SDRC 2.2	31/12/17	Revise Customer Model	Complete – submitted to Ofgem 28/12/17

SDRC 7.2	31/12/17	Revise Model and Tool	Complete – submitted to Ofgem 28/12/17
SDRC 3.2	31/01/2018	Hold meetings to share progress, experiences and next steps with customers involved in trials on a six monthly basis	Complete – submitted to Ofgem 25/1/18
SDRC 8.9	19/06/2018	12 monthly Project Progress Report	On track for completion
SDRC 8.8	29/06/2019	Produce community coaching trial report	Given completion of CEC trials one year ahead of other trial the project will deliver this report a year ahead of schedule in June 2018
SDRC 8.3	29/06/2019	Produce LED trial report	Given completion of LED trials 31/3/18 the project will look to deliver this report ahead of schedule in early 2019

The following table lists the remaining SDRCs in chronological order:

SDRC	Due	Description
SDRC 2.3	30/06/2019	Finalise customer model
SDRC 7.3	30/06/2019	Finalise network investment tool
SDRC 8.1	29/06/2019	Produce project closure report
SDRC 8.2	29/06/2019	Produce network investment tool key outcomes report (including comparison of trial method impacts)
SDRC 8.4	29/06/2019	Produce DNO price signals direct to customers trial report
SDRC 8.5	29/06/2019	Produce network pricing model report
SDRC 8.6	29/06/2019	Produce customer and network modelling report
SDRC 8.7	29/06/2019	Produce data-informed engagement trial report

To ensure quality and timely delivery of the large quantity of SDRC reports due at the close of SAVE, the project team have held initial meetings to align dependencies of these SDRC's. Internal deadlines have been set for partners across sub-sections of reports to spread delivery and avoid 'tail ending'. This risk has been captured and will continue to be mitigated through visible work breakdown structures and partner time management throughout final reporting.

6 Learning outcomes

Ofgem guidance: The DNO should briefly describe the main learning outcomes from the reporting period. It should update Ofgem on how it has disseminated the learning it generated as part of the Project over the last six months

The learning objectives for the Project are:

- to gain insight into the drivers of energy efficient behaviour for specific types of customers
- to identify the most effective channels to engage with different types of customers
- to gauge the effectiveness of different measures in eliciting energy efficient behaviour with customers
- to determine the merits of DNOs interacting with customers on energy efficiency measures as opposed to suppliers or other parties

These will be answered as a result of carrying out the following project objectives:

- Create hypotheses of anticipated effect of energy efficiency measures (via commercial, technical and engagement methods)
- Monitor effect of energy efficiency measures on consumption across range of customers
- Analyse effect and attempt to improve in second iteration
- Evaluate cost efficiency of each measure
- Produce customer model revealing customer receptiveness to measures
- Produce network model revealing modelled network impact from measures
- Produce a network investment tool for DNOs
- Produce recommendations for regulatory and incentives model that DNOs may adopt via RIIO

6.1 Learning Outcomes

There have been four SDRC's completed within this reporting period. In addition to this the project has completed its second of three trial phases with planning initiated for the final trial iteration. Alongside this as project analysis has progressed so too has the data which feeds the project's overall Network Investment Tool and its associated models. This section will report key learning from each SDRC in Table 11 below. Further captured learning outcomes are bulleted in section 6.2. 'learning moments'

Table 11 Learning Outcomes

SDRC Report	Learning Captured
4- Create Commercial Energy Efficiency Measures	The report identified seven different paths through which a DNO might pass price signals to domestic customers. Highlighting pro's, con's and potential considerations. Key areas of discussion include: geography, changes to DCUSA, changes to DUoS, new billing mechanisms and supplier interaction/competition.

	The project has identified a Sunday peak in domestic demand, challenging traditional thinking around peak consumption occurring on weekday evenings.
	Trial period 1 identified minimal uptake of energy efficiency taking a reactive approach to LED engagement.
	Whilst trial period 1 identified no statistically significant impact of price signals or data informed engagement it would materialise that price signals have no initial additional impact than data informed engagement alone.
2.2- Updated Customer Model	By categorising customers using project surveys and consumption data from the projects first trial phase the university of Southampton are able to determine: 1) variables most responsible for trends in consumption and 2) household attributes that are associated with significantly higher and lower levels of consumption.
	There is statistically significant evidence that overall household consumption is impacted by a house's: 'eco-mean score' and the presence of children.
	The results of the projects 'time use' dairies are consistent with the hypothesis that: treatment groups would report more energy-using acts than the control group in the pre-peak and post-peak periods surrounding an event, and fewer in the peak period, this however is not statistically significant.
	Statistically significant results were found in trial group 3 (price signals) to support the claim that households avoid household energy consumption by being away from home and thus reducing evening peak electricity consumption.
	The variability in customer profiles over short timescales raises challenges for small area estimation profiles when generated at output area (OA) level. This is due to potential loss of 'load-diversity' when modelling at LV level.
7.2 Updated Network Model	Communication between the customer and network model requires a census interface which can map/interpolate between customers at census level onto the network.
SDRC 3.2 Improve Customer Engagement	Message quantity needs careful consideration so not to cause annoyance, whilst messages themselves should be made clear and accessible without being common sense and patronising.
	Engagement material that stays in a customer's home such as fridge magnets and stickers may act as a better prompt given greater long-term visibility.
	People feel competition and relation to other households provide greater context and interest in their demand profiles
	Making education both visible and understandable to all customers 'at a glance' is key.
	Providing messaging that linked to communities' agendas and interests, meant people were more inclined to listen to a utility's 'ask'; as opposed to how they would respond to 'another' corporate mailer. Statistics show that circa. 10% of

	people responded to DNO branded material whilst over 50% of people responded to locally branded material.
	There is a need for visibility and accountability of wider social benefits that may accrue through smart solutions as a means to defer network reinforcement.

6.2 Learning Moments

The following 'Learning Moments' have been recorded during this reporting period:

- Analysis of attrition suggests that there are no effects on project participation (online comms/project drop-out) as a result of being part of one particular trial group.
- Change in consumption across weeks influenced namely by weather (temperature) changes caused baselining issues in TP1. Resultantly project partners DNV GL and UoS worked together to develop a baselining metric which accounts for an individual household changing consumption across a 5 week period to provide a more reflective baselining technique.
- Proactive LED engagement has seen an uplift from a 0.4% of households participating in the trials under TP1 to 76% participation in TP2.
- Indicative analysis of DNO led LED engagement showing an average 6%+ reduction in household peak consumption across first half of TP2 (analysis ongoing).
- Coupling recruitment surveys with re-recruitment works has maximised project data and is seen as more cost-effective than the previous decoupled approach.
- It was expected initially that 'GU' bulbs in people's kitchens would provide the biggest 'wins' in terms of peak load reduction. Following pilot installs field teams have discovered a lot of GU bulbs in people's kitchens are already LEDs and it's actually the bayonet/screw fittings that are older inefficient bulbs.
- Safety regulations around certain bulb types and more sophisticated bulbs (dimmers etc.) must be understood in any DNO led LED engagement.
- During the LED pilot it was discovered in recording data there was the need for a logic check to ensure any bulbs replaced were lower wattage than old bulbs (minimise human error).
- During incentivised trials it should be noted that some customer communications may take 30 days to catch-up (i.e. if a clamp has been stops communicating the Navetas Loop will store 30 days of data before the data is overwritten, hence data can be restored if a plug starts communicating again any time within this 30 day window) therefore caveats or follow-up payment should be considered for those customers with temporary offline communications.
- Recruitment for project open days 'too early' (3 weeks prior) resulted in large drop-outs, as a result re-engagement took place in the days immediately preceding the event (< 5 days before), this actually resulted in higher 'on the day' attendance figures than other events.
- Engagement with stakeholders should take place at different levels. Within the community coaching trials initial engagement with those in strategic positions in organisations was important. Later in the trials engagement with more operational staff to support 'on-the-ground' was more important.

- Some people find the time use diaries, used by the project to identify changes in activities between trial and control groups, too intrusive (personal) which is challenging uptake.
- Limited data regarding certain specific customer demographics may cause problems/erraticism in modelling processes. This can be particularly problematic for heat profiles where some sources of heating such as heat pumps, oil/gas and electric (non-storage) are relatively 'rare', however (particularly where clustered) can significantly impact consumption in an area. Dummy profiles and wider LCNI project data is being explored as a potential solution.
- When carrying out engagement/open days with different communities, tailored engagement methods may need be adopted in each area to optimise and incentivise attendance. It was seen that rather than using incentives to encourage participation using the budget for a themed evening better attracts attendance i.e. a 'wine and cheese' evening.
- A Unique Selling Point (USP) used in engagement campaigns like pink envelopes and 'Can It Wait Til After 8' straplines were seen as particularly memorable at open day events.
- Items that 'stick around the home' i.e. stickers, fridge magnets, notebooks etc. cited as useful engagement material.
- The CEC trials have found that engaging households around the benefits of shifting cooking patterns through potential time savings as opposed to energy saving has a greater impact in changing people's behavior. An additional benefit to this can be sought by running community events with a 'cooking' theme that can then be linked to a time saving/energy saving message attracts far more attention than other themes trialed due to the universal interest from different members of the household in cooking/food.
- The CEC trials note that energy usage in the home needs to be understandable and relatable. There is no point talking about kW/kWh as the majority of the population don't relate. In addition if information can be made graphical, and 'understood within seconds' people are more likely to digest the information.

6.3 Dissemination Activities

The table below shows the main dissemination activities which have been completed in this period:

Leading Partner	Date(s)	Description
SSEN	21/6/17	SAVE project team meet with BEIS to provide a full overview of project, specifically the modelling/targeting of Energy Efficiency.
SSEN	14/9/17	SAVE project team meeting with Energy Saving Trust to share project learning and learn from previous EST projects/areas of potential added value for TP3.
SSEN	28/9/17	SAVE project disseminated in SSEN 'future networks' newsletter to 1000 stakeholders.
SSEN	20/11/17	SAVE event at houses of parliament- Intro presentation on DSO given by Head of DSO and Innovation. Labour Shadow Energy

		Minister Alan Whitehead discussed relevance of SAVE in evolving energy markets. SAVE overview by project partners and feed-in to industry given by PM.
SSEN	6/12/18	LCNI Conference 2018- SAVE project exhibited throughout the event. Presented on: Low Carbon Technology, Distributed Generation.
BMG	1/1/18	Provide an overview of SAVE at the Utility Week Conference.
SSEN	9/1/18	Feed in to SSEN response to BEIS's call for evidence around Energy Efficiency.
NEL	15/3/18	Final Dissemination event to both trial communities and key stakeholders. Events were independently facilitated in order to maximise .
SSEN	18/3/18	Network Planner Dissemination Roadshows, one event held in South, one event held in North. This provided an opportunity for project team to discuss SAVE approximately one year before close and strengthen support in the delivery of the network investment tool.
SSEN	17/4/18 19/4/18	Open Days 7 and 8- Presentation to TG3 and TG4 project participants to gain feedback on TP2 and TP3 trial design.
NEL	16/5/18	Presentation on SAVE project (specifically CEC trials) at NPG 'Quantifying network benefits' closedown event. Key discussion around benefits of closer collaboration with utilities.
SSEN	Ongoing	Discussions with other DNO's around domestic DSR tariffs, notably: UKPN on CLNR and EnergyWise, NPG on CLNR, WPD on SoLa Bristol and ENW on Power Saver Challenge.
SSEN	Ongoing	The project has engaged suppliers through a random stratified sample of small (<250k customers), large (>250k customers) and big six energy suppliers to understand their stand-points on dynamic pricing.

7 Business case update

Ofgem guidance: The DNO should note any developments or events which might affect the benefits to be gained from the Second Tier project. Where possible the DNO should quantify the changes these developments or events have made to the Project benefits compared to those outlined in the full submission proposal.

SSEN's core purpose is to provide the energy people need in a reliable and sustainable way. To achieve this, our delivery priority is to deliver upgraded electricity transmission networks and operational efficiency and innovation in electricity distribution networks as they respond to the decarbonisation and decentralisation of energy. The learning from the SAVE project will inform our strategy to deliver on this priority with the aim of supporting our core purpose.

Through these trials, SSEN hopes to quantify the most cost effective approach to having a measurable change in the operation of the distribution system and develop means of controlling demand reduction in order to be able to rely on the demand reduction to defer or avoid network reinforcement.

Drawing on previous research and project learning up until now the project expects to see reductions of between 5-10% in overall electrical consumption for the interventions being trialled, although this reduction and potential benefit to the networks is expected to vary depending on multiple variables.

Expected reductions achieved as a result of the interventions being trialled in the Project are shown below, these have been updated on full submission following learning from TP1 and TP2 (and TP3 for CEC trials).

Average annual household consumption (kWhs per year)	4,226	4,226	4,226	4,226
Measure	**LEDs**	**Data informed engagement**	**DNO rebates**	**Community Coaching**
Average annual household lighting consumption (kWhs per year)	634			
Expected total reduction (%)	8.0	10	12	10
Expected annual reduction (kWhs per year)	338	423	507	423
Expected hourly reduction (kWhs)	0.04	0.05	0.06	0.05
Expected hourly reduction (Watts per hour)	39	48	58	48
Expected daily reduction (Watts per day)	463	193	232	193

Small LV Urban

Reduction on LV cable with 150 customers (kW)	6	7	9	7
Rating of circuit (kW)	200	200	200	200
Headroom made available (%)	2.89	3.62	4.34	3.62
Equivalent number of 3kW heat pumps or EVs now able to connect (without diversity)	2	2	3	2

The project team notes that as trial learning has progressed the significant additional value of trials has become increasingly apparent. Namely this includes value to third party stakeholders (BEIS, other utilities etc.), social benefits and carbon reductions. The project team notes this business case is inherently limited to those benefits that accrue solely in terms of network capacity released. SDRC 8.8 ‘produce community coaching report’ further details how some of these benefits and how they might be accounted in future.

8 Progress against budget

Ofgem guidance: The DNO should report on expenditure against each line in the Project Budget, detailing where it is against where it expected to be at this stage in the Project. The DNO should explain any projected variance against each line total in excess of 5 per cent.

Project expenditure is within the budget defined in the Project Direction. The table below details expenditure against each line in the Project Budget and compares this with planned expenditure to date[6]. Projected variances are also listed for changes >5%.

As discussed in section 2 following discussions with Ofgem the project team believe that adjustment of TP3 to reflect an extra price signal trial as opposed to a further LED lighting trial (given 76% penetration of bulbs across the trial population already) provides the best value for industry, customers and government. Additional to this as the project's modelling work package has evolved the project has identified additional value through an updated pricing model (see section 2.3). This work has been commissioned from EA Technology and is designed to provide a more integrated and higher quality network investment tool that can provide greatest commercial value for the project (namely best addressing objective 8: *Produce recommendations for regulatory and incentives model that DNOs may adopt via RIIO*).

As a result of these decisions the project expects no change in total budget and an overall increase in learning outcomes. It is determined by the project's team interpretation of NIC governance[7] that this does not stipulate a change request. In order to best achieve this, evolution of the project budget has been subject to slight revisions across tasks. This includes:

- Reduction in Labour costs by £170k
- Increase in Equipment costs by: £22k
- Increase in Contractor costs by: £122.85k
- Increase in Travel and Expenses costs by: 10k
- Increase in Other costs by: £15.15k

[6] Expenditure is compared with a dynamic assessment of project phasing which reflects the nature of specific contract payments and physical delivery milestones. A comparison of expenditure with phased budget will often indicate a payment lag due to the nature of invoicing processes.
[7] Project discussion with Ofgem 9/4/18 confirmed use of more up to date NIC governance as opposed previously followed LCNF Governance documentation.

	Old Budget	Revised Budget	Expenditure ITD	Comparison with expected expenditure	Projected Variance (at project conclusion)		
					(£K)	%	#
LABOUR	£1,848,320	£1,678,320	£756,739	70%	0	0	
EQUIPMENT	£1,015,000	£1,037,000	£968,589	95%	0	0	
CONTRACTORS	£5,085,350	£5,208,200	£3,586,201	82%	0	0	
IT	£586,850	£586,850	£599,281	102%	0	0	
TRAVEL & EXPENSES	£26,400	£36,400	£27,161	129%	0	0	
PAYMENTS TO USERS	£472,300	£472,300	£255,570	68%	0	0	
DECOMMISSIONING	£206,930	£206,930	£365	-	0	0	
OTHER	£402,530	£417,680	£30,300	-	0	0	

Notes: The budget totals used are reflective of the new SAVE budget structure, detailed in Formal Change Request CR-2 and agreed by Ofgem in July 2016.

9 Bank account

Ofgem guidance: The DNO should provide a bank statement or statements detailing the transactions of the Project Bank Account for the reporting period.
Where the DNO has received an exemption from Ofgem regarding the requirement to establish a Project Bank Account it must provide an audited schedule of all the memorandum account transactions including interest as stipulated in the Project Direction.

Transaction details for the SAVE Project Bank account during this reporting period are listed in the Appendix. This extract has been redacted to protect the financial details of transacting parties; the full, un-altered copy has been submitted in a confidential appendix to Ofgem.

A summary of the transactions to date are shown in the table below:

Description	**Totals (June 2017 – June 2018)**
Payments out of account	-£1,364,364.81
Interest	£4734.00
Balance	**£3,169,374.44**

10 Intellectual Property Rights (IPR)

Ofgem guidance: The DNO should report any IPR that has been generated or registered during the reporting period along with details of who owns the IPR and any royalties which have resulted. The DNO must also report any IPR that is forecast to be registered in the next reporting period.

In commissioning project partners to commence project activities, the SAVE project has applied the default IPR treatment to all work orders (as defined in the Low Carbon Networks Fund Governance Document version 7). This will ensure IPR which is material to the dissemination of learning in respect of this project is controlled appropriately.

No Relevant Foreground IPR has been generated or registered during the June 2017 – June 2018 reporting period. No Relevant Foreground IPR is forecast to be registered in the next reporting period.

The SAVE project intends to gather details of IPR through the structure of individual project trials. Specifically, in concluding project activities the following details will be gathered: 1) components required for trial replication and, 2) knowledge products required for trial replication.

11 Other

Ofgem guidance: Any other information the DNO wishes to include in the report which it considers will be of use to Ofgem and others in understanding the progress of the Project and performance against the SDRC.

No further details.

12 Accuracy assurance statement

Ofgem guidance: DNO should outline the steps it has taken to ensure that information contained in the report is accurate. In addition to these steps, we would like a Director who sits on the board of the DNO to sign off the PPR. This sign off must state that he/she confirms that processes in place and steps taken to prepare the PPR are sufficiently robust and that the information provided is accurate and complete.

This Project Progress Report has been prepared by the Project Manager and reviewed by the Project Delivery Manager before sign-off by the Director of Engineering, who sits on the Board of SSEN.

This report has been corroborated with the monthly minutes of the Project Steering Group[8] and the Project Partners Review Board to ensure the accuracy of details concerning project progress and learning achieved to date and into the future. Financial details are drawn from the SSE group-wide financial management systems and the Project bank account.

Prepared by:	Charlie Edwards	SAVE Project Manager
Reviewed by:	Stewart Reid	Head of Asset Management & Innovation
Final sign off:	Andrew Roper	Director of Engineering & Investment

[8] The Project Steering Board meets as part of an overall SSEN Innovation Steering Board

Appendix - Redacted copy of bank account transactions

Bankline

RBS
The Royal Bank of Scotland

Statement for account 60-17-21 95285822 from 01/06/2017 to 31/05/2018

Short name:	SOUTHERN ELECTRIC PO	Currency:	GBP
Alias:	SOUTHERN ELECTRIC PO	Account type:	CORP CASH MANAGER PL
BIC:	xxxxxxxx	Bank name:	NATIONAL WESTMINSTER BANK
IBAN:	xxxxxxxxxxxxxxxxxxxxxxxx	Bank branch:	READING MKT PLACE

Date	Narrative	Type	Debit	Credit	Ledger balance
	CLOSING BALANCE				**3,169,374.44Cr**
31/05/2018	31MAY-GRS xxxxxxxx	INT		413.17	3,169,374.44Cr
22/05/2018	SOUTHERN ELECTRI SAVE COSTS	EBP	104,596.81		3,168,961.27Cr
30/04/2018	30APR-GRS xxxxxxxx	INT		430.44	3,273,558.08Cr
29/03/2018	29MAR-GRS xxxxxxxx	INT		390.04	3,273,127.64Cr
28/02/2018	28FEB-GRS xxxxxxxx	INT		392.61	3,272,737.60Cr
21/02/2018	SOUTHERN ELECTRI SAVE COSTS	EBP	186,106.33		3,272,344.99Cr
31/01/2018	31JAN-GRS xxxxxxxx	INT		476.58	3,458,451.32Cr
23/01/2018	SOUTHERN ELECTRI SAVE COSTS	EBP	74,154.73		3,457,974.74Cr
29/12/2017	29DEC-GRS xxxxxxxx	INT		426.20	3,532,129.47Cr
21/12/2017	SOUTHERN ELECTRI SAVE COSTS	EBP	61,379.43		3,531,703.27Cr
30/11/2017	30NOV-GRS xxxxxxxx	INT		327.42	3,593,082.70Cr
27/11/2017	SOUTHERN ELECTRI SAVE COSTS	EBP		65.52	3,592,755.28Cr
22/11/2017	SOUTHERN ELECTRI SAVE COSTS	EBP	301,722.85		3,592,689.76Cr
01/11/2017	SOUTHERN ELECTRI REVERSAL	EBP		298,921.93	3,894,412.61Cr
31/10/2017	SOUTHERN ELECTRI SAVE COSTS	EBP	298,921.93		3,595,490.68Cr
31/10/2017	31OCT-GRS xxxxxxxx	INT		362.69	3,894,412.61Cr
25/10/2017	SOUTHERN ELECTRI SAVE COSTS	EBP	298,921.93		3,894,049.92Cr
29/09/2017	29SEP-GRS xxxxxxxx	INT		340.22	4,192,971.85Cr
25/09/2017	SOUTHERN ELECTRI SAVE COSTS	EBP	103,710.53		4,192,631.63Cr
31/08/2017	31AUG-GRS xxxxxxxx	INT		366.58	4,296,342.16Cr
18/08/2017	SOUTHERN ELECTRI SAVE COSTS	EBP	34,754.39		4,295,975.58Cr
31/07/2017	31JUL-GRS xxxxxxxx	INT		371.13	4,330,729.97Cr
28/07/2017	SOUTHERN ELECTRI SAVE COSTS	EBP	43,592.12		4,330,358.84Cr
30/06/2017	30JUN-GRS xxxxxxxx	INT		371.40	4,373,950.96Cr
28/06/2017	SOUTHERN ELECTRI SAVE COSTS	EBP	155,425.69		4,373,579.56Cr
	OPENING BALANCE				**4,529,005.25Cr**
Totals			**1,663,286.74**	**303,655.93**	

NB: Transactions with today's or next business day's date may still be subject to confirmation and may subsequently be reversed from your account.
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