

Solent Achieving Value from Efficiency



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SSET206 LCNF Tier 2 SDRC 8.8: TM4 (Community Energy Coaching Trial) - Final Reporting











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.

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GLOSSARY OF TERMS

Distribution Network Operator	A Distribution Network Operator is a company (such as SSEN) licensed by Ofgem to distribute electricity in the UK. These companies own, develop, operate and maintain the system of cables, towers and substations that brings electricity from the national transmission network to our homes and businesses						
	The co-design approach enables a wide range of people to make a creative contribution in the formulation and solution of a problem. This approach goes beyond consultation by building and deepening equal collaboration between citizens affected by, or attempting to, resolve a particular challenge. A key tenet of co-design is that users, as 'experts' of their own experience, become central to the design process. The role of facilitation is an essential component of a successful co-design project. Facilitators provide ways for people to engage with each other as well as providing ways to communicate, be creative, share insights and test out new ideas.						
Co-design approach	 The immediate benefits of employing a co-design approach include: Generation of better ideas with a high degree of originality and user value Improved knowledge of customer or user needs Immediate validation of ideas or concepts Higher quality, better differentiated products or services More efficient decision making Lower development costs and reduced development time Better cooperation between different people or organisations, and across disciplines 						
	 The longer-term benefits include: Higher degrees of satisfaction of, and loyalty from, customers and users Increased levels of support and enthusiasm for innovation and change Better relationships between the product or service provider and their customers 						
Top down/ bottom up	In the 'top-down' approach, key decisions are made at an executive (management or organisational) level and presented to the staff, stakeholders or customers making it easier to make decisions more quickly. By contrast, the 'bottom-up' approach starts with getting input from those who will be using or affected by the product/service or outcome with consensus decisions then finalised by the executive						
Community Engagement	Developing and sustaining a working relationship between one or more public body and one or more community group, to help them both to understand and act on the needs or issues that the community experiences						
Community Development	A process which enables people to organise and work together to identify their own needs and aspirations, take action to exert influence on the decisions which affect their lives, improve the quality of their own lives, the communities in which they live, and the societies of which they are a part						
Customer	Is the means by which a company creates a relationship with its customer base to foster brand lovalty and awareness						
Energy Literacy	These are the essential principles and fundamental concepts underpinning energy education, helping individuals and communities to make informed decisions about the use of energy						
Value/Action Gap	Is the space that occurs when the values (personal and cultural) or attitudes of an individual do not correlate with subsequent actions. More generally, it is the difference between what people say and what people do						
Substation	A place where high-voltage electricity from power plants is converted to lower-voltage electricity for homes or businesses						
kW	Stands for kilowatt. A kilowatt is simply 1,000 watts, which is a measure of power. So, for example, a 10,000 watt electric shower could also be called a 10 kilowatt shower						
kWh	A kilowatt hour (kWh) is a measure of energy. So a 1,000 watt drill needs 1,000 watts (1 kW) of power to make it work, and uses 1 kW of energy in an hour						
Power Draw	Or instantaneous power – is the amount of energy being used (or generated) at any one particular moment in time						
Constraint Managed Zone (CMZ)	A CMZ is a geographic region served by an existing network where security of supply is met through the use of flexibility services, such as Demand Side Response, Energy Storage and stand- by generation						



Acronyms

- ASB Anti-Social Behaviour
- BAU Business as Usual
- CEC Community Energy Coaching
- CKW Connecting Kings Worthy
- DCLG Department of Communities and Local Government
- DDS Distinct Dedicated Strategy
- DECC the former Department of Energy and Climate Change
- DoT Department of Transport
- DNO Distribution Network Operator
- KW Kings Worthy
- LCNF Low Carbon Network Fund
- NEL Neighbourhood Economics
- NOMIS National Online Manpower Information System
- Ofgem Office of Gas and Electricity Markets
- ONS Office for National Statistics
- RIIO (Revenue = Incentives + Innovation + Outputs)
- SAVE Solent Achieving Value from Energy
- SDRC Successful Delivery Reward Criteria
- SSEN Scottish and Southern Electricity Networks
- SW Shirley Warren
- SWWT Shirley Warren Working Together
- tEC the Environment Centre (Southampton)
- TM4 Trial Method 4
- UoS University of Southampton
- WinACC Winchester Action on Climate Change



NOTE TO READERS

The CEC Trial Delivery Team appreciates that the results of the trial research will be of interest to a wide range of potential audiences. It is suggested that particular audiences will be most interested in particular sections of the report as follows:

- <u>DNO Network Planners</u> interested in optimising network investment and potentially open to alternatives to straightforward reinforcement of network capacity. *See Sections* 3.4 (Delivery Issues), 4.1 (Analysis of Demand Reduction) and 4.4 (Learning Outcomes);
- <u>DNO Customer Engagement Teams</u> interested in looking for innovative tools and techniques for engaging customers and communities (especially 'hard to reach' groups) to address vulnerability issues and increase resilience. *See Sections 3.2 (Engagement around Energy), 4.2 (Analysis of other Impacts) and 4.4 (Learning Outcomes);*
- <u>DNO Stakeholder Engagement / Other Utilities and Strategic Partners</u> interested in developing strategic alliances to support organisational performance, deliver on key social obligations and maximise collaborative social impacts and cost efficiencies. See Sections 3.2 (Engagement around Energy), 3.3 (Convergence Activities), 3.4 (Delivery Issues), 4.2 (Analysis of other Impacts), 4.3 (Sustainability of Behaviour Change Impacts) and 4.4 (Learning Outcomes);
- <u>Third Sector infrastructure bodies and community-based organisations</u> interested in promoting energy efficiency and related ethical behaviours. *See Sections 4.1 (Analysis of Demand Reduction), 4.2 (Analysis of other Impacts), 4.3 (Sustainability of Behaviour Change Impacts) and 4.4 Learning Outcomes);*
- Industry bodies, Government Agencies and academic institutions interested in promoting research based innovation, best practise and identifying means of achieving wider policy level targets. See Sections 3.3 (Convergence Activities), 4.1 Analysis of Demand Reduction), 4.2 (Analysis of other Impacts) and 4.4 (Learning Outcomes).

To assist accessibility to relevant learning across these audiences, key learning points are checklisted at periodic points throughout the report. In particular, the Learning Outcomes set out in Section 4.4 are also colour-coded to indicate which audience groups might be most interested in any particular outcome.



EXECUTIVE SUMMARY

The SAVE Project as a whole is about exploring the scope for behaviour change and increased energy efficiency amongst customers leading to predictable peak demand reduction as an alternative to automatic network reinforcement.

There are 4 trial methods in all. Three are household based, each with a sample group of 1000 random households with dedicated monitoring equipment installed, receiving different 'cut' or 'shift' messages over a 2 year period. As distinct from the household based trials, the **Community Energy Coaching (CEC) trial** is community based, with local substation level monitoring installed across 2 differentiated communities of 1000 households each, one in Southampton and one in Winchester. The research focus for the CEC trial has been on collaboration with the communities and other stakeholder agencies in delivering potentially deeper and more sustainable impacts in terms of peak demand reduction and contingent social benefits.

The CEC trial research has been delivered in several phases over the period January 2014 to June 2018, with the aim of applying a co-design methodology to test an outcome-based theory of change, exploring different engagement and behaviour change techniques in the process. The trial has endeavoured to attribute measured demand reduction at local substations to specific research interventions. It has also captured other positive social impacts linked to local community and wider stakeholder engagement with a view to evidencing replicable third party and business benefits as part of a potentially sustainable process of behaviour change.

Through the course of the CEC trial research, a number of *key actions* were undertaken. These include:

- bringing together a multi-agency Stakeholder Group to design and oversee trial delivery;
- co-creation of a branded, community-driven organisation within each trial area as an intermediary in delivering a dedicated local change programme;
- establishing a local co-design group in each area as a consistent point of reference for the Delivery Team;
- provision of professional empowerment/coaching support to each community through a trusted environmental host organisation;
- selective installation of substation (and subsequently feeder level) monitoring equipment within each trial and control area in order to observe consumption behaviour;
- conducting baseline energy usage and awareness surveys;
- development of an Integrated Intervention Programme embracing both community and energy agendas;
- running Open Days in the format of focus groups and workshops to finalise intervention options and legacy plans;
- securing formal sign up to reducing peak electricity usage;
- demonstrating the value of utilities and local authorities working together in empowering positive change;
- building a legacy of positive, sustainable change within each community.



Substantial *Learning Outcomes* arising from the research trial offer a range of positive benefits for the Distribution Network Operator (DNO), other key stakeholders and local communities to build upon, notably:

- the value of the 'Connected Community' concept as a compelling driver for collective behaviour embracing both physical and emotional connections;
- clear buy-in at the community level to peak demand reduction based on increased levels of Energy Literacy and the associated 'earning the right' principle of co-design;
- for the final campaign 'Big Switch Off' event, an average reduction in peak electricity demand (6-7pm) of 10.6% across the selected substation feeders. This could be an incentive for a DNO to operate as the catalyst in focused community engagement – with an associated need to review lower cost peak monitoring options;
- the generation of 'stackable' social impacts which could justify cost-effective multi-agency collaboration with an associated need for clearer quantification of benefits;
- the potential for sustained transformation of communities with demand reduction (and other positive impacts) embedded in legacy plan commitments and locally branded change strategies;
- a potential community engagement protocol, based upon 5 key principles, which can underpin the co-creation of trusted local intermediary organisations able to support and embed change as part of any future collaborative work;
- follow up 'SAVE revisited' events which will take place in November 2018, reviewing with local residents and stakeholder partners the continuing durability of the outcomes achieved through the research trial.

With a view to *scaling up* the positive benefits of the CEC trial research to a viable BAU programme, the research has effectively served to create a prototype for non-traditional, DNO led engagement blending the change agendas of the DNO, other stakeholder agencies and the community itself.



1.1 CONTEXT

1.1.1 Introduction

This is the Final Report for the Community Energy Coaching Trial (Trial Method 4) within the SAVE Project (Solent Achieving Value from Efficiency). SAVE is a Low Carbon Network Fund (LCNF) research project led by Scottish & Southern Electricity Networks (SSEN). It began in January 2014 and is due to complete in June 2019. Involving over 8000 domestic customers, the project aims to establish whether and how energy efficiency measures can be considered as a cost effective, predictable and sustainable tool for managing peak demand as an alternative to network reinforcement.

The Coaching Energy Coaching Trial (CEC) is one of four trial methods within the overall SAVE project. It is focused on two differentiated trial communities, one in Southampton and one in Winchester. The other three trials involve randomly selected groups of individual households across the Solent area. Across all trials, the research aims to explore a range of energy efficiency messaging formats in achieving predictable behaviour change amongst domestic customers.

Distinctively, the CEC Trial focuses upon whole communities rather than individual households. It aims to build 'win/win' relationships with and between local residents and other stakeholder agencies to assess the relative impact and sustainability of collaborative, community-based engagement.

Neighbourhood Economics (NEL) has been responsible for overall management of the CEC trial since its inception in 2014. The 2 year active engagement phase of the trial started in January 2016 and was completed in December 2017. The active engagement phase for other trials runs throughout 2017 and 2018. They will accordingly report in June 2019.

1.1.2 The DNO's Investment Challenge

SSEN is the Distribution Network Operator (DNO) responsible for the electricity network that brings electricity to homes in the Solent and surrounding area. This area is representative of much of the UK where local authorities are implementing a strategy of supporting and encouraging local communities and businesses to develop and grow. This is positive but increases the challenge of demand on the electricity network.

The electricity network is sometimes characterised by periods of peak demand which can cause overloads on the existing distribution infrastructure. The aim of the SAVE project is to find out whether it is possible to reduce demand at peak times through encouraging and facilitating changes in customers' usage behaviour.

In addition the RIIO framework (Revenue = Incentives + Innovation + Outputs) is changing the way that DNOs operate with the adoption of social obligations as a primary output category within the



framework, driving renewed strategic focus amongst DNOs in delivering social benefits to customers, especially the most vulnerable.

1.1.3 The LCNI / SAVE research proposal

SAVE is designed to trial and evaluate the effects of four particular methods of energy efficiency in influencing positive behaviour change. Each Trial Method (TM) has been chosen to allow an assessment of multiple factors, notably the cost and effort required to install equipment and/or implement research tests.

The four methods are:

- TM1 LED installation testing different engagement routes to encourage customer take up of LEDs along with the impact of LEDs upon electricity consumption once installed.
- TM2 Data-informed engagement campaign a focused customer engagement campaign using tailored messaging to encourage behavior change and deliver subsequent reduction in peak and overall demand.
- TM3 Electricity Distribution Network Operators price signals direct to customers plus datainformed engagement – a focused customer engagement campaign as for TM2 but with added financial incentives.
- TM4 Community Energy Coaching (CEC) the subject of this Final Report.

Trial Methods 1-3 have sample groups of some 1,000 customers each, with a further 1,000 making up a control group for comparison, all selected on a randomised basis across the Solent region. These trials have been managed by DNV GL, and analysed by the University of Southampton (UoS). TM4 has 2 differentiated Trial communities of 1000 households each with matched, equivalent sized control areas.

1.1.4 SAVE Overall Sampling Framework

The CEC Trial (TM4) is distinct from the 3 household based trials as can be seen in the 'All Trial Sampling Framework' (Figure 1 below). Due to its interactive nature, working closely with residents and stakeholders as part of a co-design approach, it has been able to add value to the other trials by providing insights into why customers respond to energy efficiency in specific ways – understanding rather than just observing actions taken.

Given the CEC trial's aspiration to understand how local residents act together to achieve a collaborative impact on local networks it was designed to be monitored at substation level. Supported by the UoS the trials have been monitored at feeder level with 71 monitors (across 22 substations).

1.1.5 The Determinants of Behaviour Change – the MINDSPACE model

The SAVE project is about exploring and identifying the most reliable determinants of behaviour change in different customer settings. In exploring the key determinants of positive change, the CEC



trial builds upon the MINDSPACE model¹. Figure 2 below sets out the key influencing factors underpinning local co-design work through the trial.

Figure 1: ALL TRIAL SAMPLING FRAMEWORK										
TM1 - Trial Sample	4000+ randomly selected households	Designed to provide definitive research platform for determining attributable demand reduction linked to								
TM2 – Trial Sample TM3 – Trial Sample TM1-3 –	across the Solent region, roughly 1000 per sample group. Households were recruited on a voluntary 'opt in' and 'trial neutral' basis with no acknowledged assignment to	individual household consumption Sample size determined by aspiration to ensure								
	any particular sample group. All households with individual consumption monitoring equipment installed generating consumption data at 10 minute intervals	Demographic and housing profile information captured for all households allowing subsequent correlation with								
Control Sample		response data;								
TM4 – Trial Sample	1000 households in 2 areas differentiated demographically. Selected in association with stakeholder agencies.	Trial and control areas subject to wider area monitoring with consumption data generated at 10 minute intervals through 71 feeders across 22 substations in total.								
TM4 – Control Sample	1000 households in 2 areas differentiated demographically to mirror Trial areas.	Sample size selected to mirror household sample groups but with no equivalent aspiration regarding statistical significance of measured demand changes.								

1.1.6 SAVE Network Modelling

A key outcome of the SAVE Project is the development of the Network Investment Tool to be made available to all DNOs. The aim of this tool will be to allow DNOs to assess whether using customer engagement and energy efficiency measures to cut demand, or traditional technology based measures and 'smart' solutions will be more cost-effective for managing a network constraint in any given situation.

In order to best capture and apply the CEC trial learning for other feeder monitored trials as part of SAVE's Network Investment Tool, the team has worked closely with the University of Southampton (UoS) to develop an additional 'community model', sitting alongside the project's existing 'customer model'. The community model is inherently designed under the same methodology as the customer model². The premise being that if a DNO can understand how customer demographics (aligned with census data) impact the way in which a customer responds to an intervention then anticipated smart intervention effects can accurately be scaled and hypothesised across the UK. For the build of the customer model this means matching individual consumption data with household demographic information (from surveys on the project). For the CEC trial where consumption is measured at the substation rather than household level, this granularity in data does not exist. Instead the community model looks at how certain combinations of customer demographics interacting together might predictably elicit positive demand reduction.

² As developed by UoS - see SAVE SDRCs 2.1 and 2.2



¹ As published by Cabinet Office and Institute for Government in 2010. See also SAVE SDRC 1 (June 2014)

By working closely with the University of Southampton to understand those demographic variables which have the greatest impact on consumption (number of bedrooms, number of people per household and heat source) the overall project can match household addresses at feeder level to census Output Areas (OAs) to understand the 'types' of customer likely to reside on each feeder. Coupling this range of customer types with intervention effects gives an overview of what a given cluster of customers may achieve when interacting together. The community model can then build on this anticipated effect across customers, working with SAVE's other models in order to scale the effects across the UK, much like the customer model. Inherently no two communities will match exactly and as a result parameters are anticipated to match similar communities or highlight data gaps where not enough evidence exists. It is intended that this approach could then be built upon, scaled and added to by other community based projects monitored at substation/feeder level.

gure 2: MINDS	PACE: KEY DETERMINANTS OF BEHAVIOUR CHANGE
Messenger	we are heavily influenced by who communicates information
Incentives	our responses to incentives are shaped by predictable mental shortcuts such as strongly avoiding losses
Norms	we are strongly influenced by what others do
Defaults	we 'go with the flow' of pre-set options
Salience	our attention is drawn to what is novel and seems relevant to us
Priming	our acts are often influenced by sub-conscious cues
Affect	our emotional associations can powerfully shape our actions
Commitments	we seek to be consistent with our public promises, and reciprocate acts
Ego	we act in ways that make us feel better about ourselves

1.1.7 CEC trial - Governance documents

This final report draws upon a wealth of governance material created over the last 4 years of the project's delivery. Notable sources of information include the minutes of the monthly SAVE Project Partner Report Board (PPRB) meetings, bi-monthly CEC trial Stakeholder Group, various formal and informal Co-design and Focus Group meetings, CEC trial Quarterly Reports and Learning Logs.

More detailed information on the formal aspects of CEC trial governance, learning processes and the CEC trial Delivery Team are included under Appendix 1.



1.2 AIMS AND OBJECTIVES OF TM4 (THE CEC TRIAL)

1.2.1 LCNF Bid Commitments

Figure 3 below sets out the range of outcome commitments made in the SAVE LCNF funding bid, along with an indication of how each one has been addressed by the TM4 Delivery Team through the CEC trial.³

Figure 3:	CHECKLIST OF LCNF BID COMMITM	ENTS – THE TM4 FOCUS					
	Commitment	How addressed					
	 Monitor effect of energy efficiency measures on consumption across range of customers 	Formal energy interventions over several trial					
Bid	 Analyse effect and attempt to improve in subsequent iterations 	November 2017					
objectives:	 Evaluate cost efficiency of each measure 	Activity cost analyses undertaken. Given interactive nature of the trial, relatively difficult to apportion costs in detail between energy and social impacts					
	 What engagement approaches are available to DNOs to facilitate uptake of energy efficiency measures by domestic customers? 	Through baseline surveys / Co-design Groups / Focus Groups / formal trial iterations exploring a specific non-traditional, multi-agency coaching approach					
Knowledge	 What do DNO led energy efficiency campaigns look like and how can they be run successfully? 	Experimentation with different message formats and different types of messenger focusing					
gaps:	 What are the most cost-effective energy efficiency measures for DNOs? 	ultimately upon collective community action as (i) the primary driver of change and (ii) the foundation for sustained legacy impacts					
	 How enduring are the impacts of each measure and what costs if any are associated with sustaining the impacts? 	A follow-up review is planned for November 2018 to assess the durability of impacts.					
	 to gain insight into the drivers of energy efficient behaviour for specific types of customers 						
	 to identify the most cost effective channels to engage with different types of customers 	Through baseline surveys / Co-design Groups / Focus Groups / formal trial iterations					
Learning outcomes:	 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 	Exploring in particular the options for (i) improvin Energy Literacy (ii) the role of a trusted local intermediary in facilitating behaviour change and (iii) formal guidelines for rollout of a replicable B. multi-agency programme					

Appendix 2 summarises the parallels and contrasts between TM4 and other trials in the way these commitments were addressed.

³ This SDRC (Successful Delivery Reward Criteria) submission 'TM4 (Community Energy Coaching Trial) – Final Reporting' is the only formal SAVE submission relating to TM4 required by Ofgem.



1.2.2 TM4: Core hypothesis

The CEC trial represents an alternative, non-traditional approach to engagement, seeking as part of a local coaching process, to:

- *'embed'* a Community Energy Coach in a target community to provide a dedicated and consistent local presence
- work with all local stakeholders and partners to **'build'** the capacity to embrace change in energy consumption; and
- draw on the support of all stakeholders and partners in empowering and integrating grassroots effort to deliver and potentially *'sustain'* its own demand reduction, along with contingent social impacts and positive behaviour change which the engagement process has served to trigger.

Reflecting this approach, the working hypothesis for the CEC Trial was summarised as follows:

"Measurable changes in localised consumption behaviours generally – and in terms of peak energy demand reduction in particular – are more likely to be achieved with key local and national stakeholders working intensively together to resource and empower defined geographical communities in actively embracing a compelling, locally relevant, collaborative sustainability-related theme. Furthermore, resultant positive behaviour change is more likely to be reinforced and sustained in the long-term by the momentum of pooled stakeholder effort".

The 'embed, build and sustain' model (as set out in Figure 4 below) provides a novel route to delivering behaviour change compared to more traditional approaches typically employed by DNOs and other utilities. Bringing together the 'bottom up' agenda of the community and aligning it with the 'top down' energy agenda of the DNO has provided a range of learning opportunities for all of the stakeholders involved.





1.2.3 BAU application

The key priority of the CEC trial and the wider SAVE project is to provide the learning and knowledge framework to underpin improved operational effectiveness in electricity distribution.

The research is accordingly focused on the replicability of trials in a 'business as usual' (BAU) setting with, in the case of the CEC trial, an imperative to consider the potential scaling up of the coaching approach to deliver positive and cost-effective operational outcomes for the DNO and other stakeholders.



2 TRIAL SET UP AND METHODOLOGY – April 2014 to December 2015

2.1 TRIAL PHASING

2.1.1 Phases of Research

The CEC Trial was delivered in a number of distinct phases over the period January 2014 to June 2018 as specified at the project outset:

- **Phases 1 and 2** took place over 2014 and 2015, the focus of which was primarily the pre-trial set up work including a good practice review, the preparation of the initial Project Manual (including the theoretical Outcomes Chain) the identification of the trial and control communities, recruitment of host organisations and the multi-agency Stakeholder group and the installation of substation monitoring equipment.
- **Phase 3** in 2016 saw the commencement of the 'live' trials focussing on the engagement of the two trial communities, the development of local branding, co-design groups and local strategies, along with the first of the formal energy related interventions.
- Phase 4 took place in 2017 and saw the continuation of the local development work with both locally branded co-design groups, further trial iterations with more formal focus group activity, culminating at the end of 2017 with the 'Big Switch Off' event which saw the 'bottom up' local action agenda and the 'top down' energy efficiency agenda integrate with the development of local legacy plans.
- **Phase 5** has seen the formal conclusion of the project with a shared dissemination event with residents from both communities and the multi-agency Stakeholder group, agreed legacy plans in place and the writing of this formal end of project report.

Figure 5 overleaf gives a flavour of headline events during each of these phases over the length of the trial research, with some of the key preparatory steps being elaborated in Section 2.2.

As an extension to the original phasing at the outset, it has been agreed that the NEL team should revisit the project in November 2018 to review the durability of legacy impacts. As such, substation / feeder monitoring equipment will remain in place as such through 2018.



Figure 5: OVERALL COMMUNITY ENERGY COACHING TRIAL TIMELINE – KEY EVENTS

2014	Phase 1 - Start up /Prepa	ration & Re	cruitmen	t													
Q1	Project partner and programm	e	Develop deta	ailed work		Input into C	Customer/Sta	akeholde	er	Identify	y and initi	ate key stake	holder	Ider	ntify criteria	for trial a	rea
01	familiarisation	with all Salant	orogramme	me Engagement Plan			tify trial	engagement			Con	selection					
	Area calaction process	Chort list of	LOCAl Autilo	ind for	Agree se	files propo	red for chart	listed or		(Dooker		iou of Cood	Dractice	in Com			loro'
Q3	initiated	network asse	essment	led for	inform s	election pr	ocess	liisteu ar	eas to	Engage	ement' sul	omitted to Of	gem		munity	learning	visit
Q4	Trial and control communities	Substatio	n monitoring	g installed in	trial & co	ontrol	Revised SAV	VE interv	vention p	eriods ag	reed & pr	oject Or	igoing s	takeholo	ler engager	nent & rec	ruitment
	agreed	areas					timeline an	nended				to	planne	d group			
2015	Phase 1 & Phase 2 - Initia	al Monitorii	ng							-							
Q1	Stakeholder Group	Host organi	sations in pla	ace Coacl	h recruitn	nent	'Outcomes	Chain'		Multi A	gency Pro	oject Manual	& Local		UKPI	l informati	on
03	established Stakeholder Group recruitmen	t complete wit	h montings	proce	ess appro	Ved	developed	cruited a	nd	Govern	ance Pac	k developed	000	oing alig	excha	ange	/E trial
Qz	Terms of Reference and supple	ementary targe	ets	neiu to revie	vv	Host SLA's i	in place	Li uiteu a	inu	engage	ement	Juei	focu	us and de	sign	wider SAV	/E that
Q3	Coaches in post 1 September –	induction & c	ommunity	Stakehol	der 'bus t	our' of tria	I areas and 1	to1 mee	etings	Ongoin	ng alignme	ent & review	of key n	nessages	SoLA Bri	stol projec	t review
	profiling commenced			to identi	fy key sup	plementar	y targets			with w	ider SAVE	trial					
Q4	De-synchronisation of SAVE	Coaches in	itial assessm	nent of key D	DDS	Sharing the	ne 'coaching'	' approa	ch with	Initial k	baseline d	ata analysis b	y Le	earning vi	isit to CSE/\	VPD/Bath	University
2016	Phase 3 - First Trial Iterat	tion		WUIK		coaches a		uers		00371	LC		16	LESSISI		OLA BIISLO	1
01	Local engagement T	rial design / ha	seline activit	ties and asso	ciated	Stakeholo	ler Group inr	out	Mitigati	ion plann	ing as lack	of data anal	vsis sun	nort	Learning V	isit to FNW	V re Power
QI	commences	ecognition of E	nergy Litera	cy issues	, clatea	into co-de	esign process	s at	and att	ributabilit	y issues b	ecome appar	ent	pore	Saver Chal	lenge	
Q2	Connecting Kings Worthy – Peo	ople, Places an	d Power agr	eed Shirle	y Warrer	Working T	ogether	Chan	nge of SW	V	Data stre	aming / crea	tive pla	tform	Impact me	asuremen	t model
	as DDS framework		. [ident	ified as li	kely way fo	rward	Coac	:h		design or	ngoing	<u> </u>		options re	viewed	
Q3	CKW local branding and activit shortcuts and walking to school	ies especially a	around f	and First community co-design SSWT b		SSWT brand	nding & framework in place –		Develop Area Leve support data analy			el model to Detailed		called intervention			
04	Feeder level monitoring in	Formal trial	interventior	rventions delivered Ongoing DDS and co-de			nd co-design	an Analysis of 2015 Stake		Stakeh	Stakeholders meet Creativ		reative pl	ive platform now		ange of KW	
~ .	place	to targeted	households		wor	k in both co	ommunities	b	baseline o	data	resider	nts in KW	tie	ed to loca	al branding	соа	ach
2017	Phase 4 - Further Trial Ite	eration s															
Q1	2 nd phase of formal trial interve	entions Doo	rstep feedba	ack Stake	holders r	neet Shirley	/ Full Ener	gy Test		Light	bulb Chall	enge launche	d as	SWWT fo	ormally I	W Welcor	ne Map
02	Integrated DDS & Intervention		ertaken Irmal (Situati	ion Stateme	en reside	nts	program		aning loc	overa	es for eva	mple Money				istributed	locian novt
QZ	Programme now in place	ac	tivity to com	pensate for	data sho	rtcomings		Sav	/ing Even	it in SW/ I	local fairs	in KW		formal ir	itervention	5 11Cld to t	icsign next
Q3	Final intervention co-design an	d creative	Messagi	ng Focus	Feed	ler selectio	n for final pla	anned	Wo	rthys Fest	tival and f	undraising ac	tivity in	SW E	Data analysi	s template	agreed
	materials developed		Groups I	held	inte	rventions n	ow made		focu	us for ong	oing DDS	work					
Q4	Lightbulb Community & Big Sw	itch Off	Final set	of Formal	a d	Convergen	ce Focus	'Mak	king the E	Emotional		Ongoing DDS	activity	in both c	th communities with a focus on		cus on
2018	Conclusions & Wran Un		interven	itions deliver	eu	aroups neit	J	Conn	lections	viueo	[n	and over and	legacy	prepara			
01	Review of trial interventions to	legacy m	eetings with	SWWT. CKV	V & Host	organisatio	ns to	Meeting	s with SS	EN Engin	eers and (CRT Final d	issemir	nation se	ssion with 9	itakeholde	rs and
Q.1	date	review les	sons learne	d and intent	ions to su	stain action	ns t	to review	v initial fi	indings		reside	nts fron	n both co	ommunities		
Q2	Final data analysis approved for	r sharing	Wider di	isseminatior	activitie	s for examp	ole WRC 0	Creation	of proje	ct video(s	s) to aid	Formal subn	nission	of SDRC	8.8 end of p	roject rep	ort to
	publicly	Measuri	Measuring the Impact Close Down event			dissemination Ofgem											



2.2 PREPARATION AND STRATEGIC DESIGN – KEY METHODOLOGICAL STEPS

2.2.1 Good Practice Review – August 2014

As part of the trial preparation in 2014, the Delivery Team put together a review of good practice in community engagement focusing upon behaviour change in the energy sector ('Background Review of Good Practice in Community Engagement' August 2014). This provided the team with a useful checklist in shaping the trial and highlighted the relative absence of engagement projects centring on a collaborative 'win/win' coaching approach to behaviour change. A key element to the review was the importance of establishing a clear 'behaviour change' framework providing a structured reference point for developing and testing local interventions. The MINDSPACE model (para 1.1.5) was identified as an appropriate and relevant starting point.

As part of the trial preparation and initial design process, the team looked widely at previous DNOrelated demand reduction and community engagement projects. Four projects in particular were looked at in depth – 'Less is More' (WPD), Power Saver Challenge (ENW), Energywise (UKPN) and Sola Bristol (ENW). The key lessons taken on board from these projects at this early stage in the strategic design process are detailed in Appendix 3.

2.2.2 Area Selection – October 2014

From a research perspective, the aim of the selection process was crucially to identify 2 differentiated trial areas each of 1000 households:

- one relatively affluent and aspirational, being seen as an attractive place to live with a
 relatively high quality of life allowing greater local engagement in choices regarding
 sustainability; and
- one relatively disadvantaged and increasingly susceptible to adverse effects in the local economy, many within the community being disaffected and potentially harder-to-engage on sustainability issues.

In 2014 the team delivered a series of localised Roadshows (awareness / workshop sessions) across the Solent region centred on Eastleigh, Isle of Wight, Portsmouth, Southampton, Gosport, Test Valley, Fareham, Winchester, Havant and East Hampshire. This led to the formulation of a long-list of potential trial locations based on the generally high levels of interest from potential partner authorities. Those interested authorities were then invited to submit an 'expression of interest' and put forward communities to be considered for the trial.

In October 2014, based on analysis of the bids received, the community pairings selected for the CEC trial were Shirley Warren / Townhill Park in Southampton and King's Worthy / New Alresford in Winchester.

Based on the 'bidding' process, 'Host' partner organisations appointed to support the operational delivery of the SAVE project within the trial areas were Winchester Action on Climate Change (WinACC) and The Environment Centre, Southampton (tEC).

The timetable and detail of how the selection process was conducted is summarised in Appendix 4.



2.2.3 Installation of Substation Monitoring Equipment - December 2014

Having selected the trial and control area pairings in October 2014, the CEC Delivery Team were able to install monitoring on 22 substations in December 2014 across the 4 areas – with an average of 5 substations being monitored in each. This provided more than a year's historical data by the start of the active engagement phase in January 2016 to enable baseline profiling.

Later, in order to increase the granularity of data being received, additional feeder level monitoring was installed selectively in October 2016 allowing the team to monitor consumption at feeder level (generally fewer than 100 customers) as well as substation level (generally up to 300 customers). Feeder monitoring provided greater flexibility in comparing the intensity of intervention impacts across smaller groups of households and allowed greater statistical sensitivity.

2.2.4 Recruitment of Stakeholder Group – early 2015

The Stakeholder Group was a distinctive feature of the CEC trial underpinning the detailed co-design process and subsequent delivery. As part of the coaching approach, it was important that these other partner agencies could be involved to share the 'ownership' of accumulated learning and any agreed, potentially replicable, solutions.

Supported by the NEL team the Group comprised representatives from the 3 utilities (SSEN, Southern Water and (SGN) Southern Gas Networks), 3 local authorities (Southampton, Winchester and Eastleigh), the 2 local Host Organisations (tEC and WinACC), the housing sector (First Wessex/Boulter Mossman) and the wider SAVE project (UoS, DNV GL and Future South).

There was a marked enthusiasm from the individual stakeholders and the group as a whole in contributing to the project and the prospect of shareable, transferable learning as identified in 1-2-1 interviews with members of the group. The novelty of the coaching approach along with access to detailed substation usage data provided a unique opportunity for stakeholders to be able to prove the effectiveness of different engagement approaches to energy efficiency.

The group's willingness to engage in the research was also underpinned by a genuine interest in testing the viability of joint public, private and third sector working with the DNO as a catalyst in promoting community development activity.

Although some of the Stakeholders were known to each other this was effectively the first occasion that they had been involved in partnership work of this nature and the first time that SSEN, Southern Water and Southern Gas Networks had come together as joint utilities on a project.

2.2.5 The Theory of Change and Outcomes Chain – June 2015

The ultimate outcomes of the Community Energy Coaching approach in an operational 'business as usual' (BAU) setting were seen as threefold:

- DNOs (for example SSEN) are able to predict peak network demand and defer (and/or plan) associated network reinforcement accordingly;
- Communities are empowered to manage positive change impacts including local energy consumption;



• Stakeholders can accrue 'value for money' benefits from positive (perhaps more qualitative) social, economic and environmental impacts matched to each organisation's particular agenda.

The Outcomes Chain put together in June 2015 as part of the early planning for the trial, illustrates the rationale which underpins the CEC programme. This 'starting with the end in mind' theoretical change model was devised working back from these 3 ultimate outcomes through a chain of intermediate outcomes to the programme's starting point.

Further information in Appendix 8 outlines how final outcomes, intermediate outcomes, underlying assumptions and strategic interventions as originally defined, interact with each other to allow progression towards the desired behaviour change scenarios. The stated assumptions made in charting the desired change were tested and monitored as part of the trial research, as were the series of strategic interventions undertaken where change (forward progression from outcome to outcome) could not be expected to occur naturally. These strategic interventions inherent in moving progressively through the chain form the core of the methodology.

An assessment of performance in progression through the trial to the 'ideal' outcomes is included under Appendix 8 along with key learning points from the process.

2.2.6 Formal Trial Governance – June 2015

The Stakeholder Group was established in early 2015 with its initial role being to contribute to, shape and approve the Local Governance Framework and the Project Manual (including the Outcomes Chain) for the trial as formally adopted in June 2015.

The Stakeholder Group provided a key function as a multi-agency governance body operating collaboratively to maximise win/win opportunities for stakeholders, whilst facilitating and overseeing the fundamental learning outcomes regarding local energy efficiency behaviours.

The key co-production, delivery and review activities of the Group were established through the adoption of formal Terms of Reference for the group and controlled through conventional contracts and agreements with the Host Organisations to keep the 3 ultimate Outcomes Chain aspirations in sight.

2.2.7 Recruitment of local Coaches – September 2015

Both of the Host Organisations were able to identify a current member of staff who could readily assume the role of coach on a part time basis within their respective trial areas. Given that in a future operational context an external recruitment process might be needed, Southampton Council for Voluntary Service was commissioned to undertake an independent assessment of required competencies prior to any commitment to appoint. On this basis, the 2 in-house candidates were appointed, taking up post in September 2015.

The coaches' initial 3 month work programme ahead of the formal active engagement period starting in January 2016 focussed upon programme design, project compliance and due diligence, learning visits and initial community mapping.



2.2.8 Final choice of Trial Areas – October 2015

With the appointment of the coaches, final decisions on the selection of the Trial areas were made jointly, Shirley Warren and Kings Worthy being selected in October 2015. The Trial areas are shown in Figure 6 below.

A fuller description of the demographic character and consumption profiles for the selected trial areas is set out in Appendix 5. The composition of the Delivery Team as it changed over the course of the trial is set out in Appendix 1.





2.3 KEY COACHING PRINCIPLES

2.3.1 Coaching Essentials

The CEC approach is a non-traditional, co-design methodology which has been used to test an outcome-based theory of change.

The coaching process is about moving from where you are now, to where you want to be, more quickly and effectively than if you acted alone - the 'you' in this case being collectively the DNO, stakeholder partners and the community itself – as per Figure 7 below.

Moving forward in this way is more likely to create the basis of trust between the parties involved, which will reinforce both the depth, and durability, of positive behaviour change.



2.3.2 Balancing Top Down and Bottom Up change

The coaching approach does not reflect the typical relationship between communities and large service providers, such as utility companies and local authorities. The tendency is usually for these organisations, given immediate time and budget constraints, to focus upon organisationally driven 'top down' approaches to change reflecting a relatively short-term, delivery focussed agenda.

By applying coaching principles, the CEC trial research has sought to create collaboration between all parties on a wider, collective agenda which they can each recognise as coherent and meaningful for themselves. This has been referred to throughout the life of the trial as 'balancing top down and bottom up change'.



It has been recognised as part of the CEC trial that large service organisations may rarely have the 'luxury' of this relatively rich form of engagement. This has served to reinforce the emphasis throughout on the replicability of positive outcomes in a cost-effective, 'business as usual' (BAU) setting.

There is an emerging possibility of a BAU programme which could deliver a range of 'stackable' benefits to the DNO, other utilities and stakeholder agencies, in the process aligning energy and water efficiency with increased carbon monoxide awareness and wider policy level strategies such as the Carbon Plan.

Figure 8 below summarises this balancing process in terms of a win/win/win solution combining the aspirations of the DNO, other key stakeholders and the community itself.





3 ACTIVE ENGAGEMENT – January 2016 to December 2017

THE ENGAGEMENT PROCESS 3.1

3.1.1 **Formal Trial Periods**

In accordance with the original SAVE Project bid, the 2 year Active Engagement period included 3 formal Trial Periods (TPs) during the winter months when energy demand is highest:

- Trial Period 1: January to March 2016 TP1 was about building relationships, establishing • local Distinctive Dedicated Strategies (DDS) and associated co-design group work with the communities and stakeholders to create the 'foundation' for behaviour change;
- . Trial Period 2: October 2016 to March 2017 – continuing the foundational theme through TP2.0 (October to December) delivering interventions focused on 'cutting' consumption and seeking feedback through surveys and group sessions in preparation for the next, potentially more challenging round of interventions through TP2.5 in 2017. TP2.5 (January to March 2017) focused on 'shift' messaging ' using the branded intermediaries to refine messaging and creative materials in preparation for the final iteration of interventions in TP3;
- Trial Period 3: October to December 2017 looked at more intensive demand reduction • tests through the Big Switch Off challenge and sought to converge the community, stakeholder and DNO change strategies in each area exploring opportunities for legacy commitments maximising the sustainability of positive behaviour change impacts.





The broad course of the Active Engagement 'journey' is set out in Figure 9 above, moving through 2016 as the 'foundation' year and 2017 as the 'challenge' year.

For reference, Figure 11 in Section 3.2.1 summarises all of the CEC trial interventions within and between the formal Trial Periods.

3.1.2 Preparatory Community Mapping

In preparation for TP1, a key component of the coaches' initial work programme was to undertake 'desk top' profiling of the trial areas to build an understanding of the key local themes which could represent the communities' own local priorities. This process involved engagement with as many officials and commentators as possible short of direct engagement with local organisations and residents within the trial areas themselves. This 'proscription' was seen as important in avoiding the risk that baseline consumption data could be unduly influenced by any advance notification of the project. Subsequently, as the coaches moved into the formal 'active engagement' period in January 2016, this community mapping work was complemented by 'on the ground' local discussions regarding the potential focus for the DDS.

3.1.3 The Engagement Journey

Building upon the initial community mapping work, the journey began by seeking out as many community leaders, organisations, opinion formers and interest groups as the CEC Delivery Team could find to ensure as wide a range of interests within the community were represented as possible. In due course this enabled the team to bring together a core group of residents for co-design purposes. These groups looked at how the research process could work and at ways in which the coaching resource, available through the trial, could add value more widely to the community's own agenda.

By applying the principles of the embed/build/sustain coaching approach, the team sought first to help deliver recognised community aspirations and only then to integrate energy saving into an overall joint strategy. Throughout the early stages of engagement, this approach became seen as a matter of 'Earning the Right' to present the DNO's 'energy' agenda by initially empowering the community to articulate and deliver its own independent agenda through this trust building process. Accepting that no 'one size fits all', the team's initial approach in each community was to establish and support the local agenda for change and then, very transparently, to seek to accommodate demand reduction within the locally driven strategy.

Core groups of 8-10 residents began to consolidate more formally from April 2016 into a recognised Development Group in each area. These groups looked in detail at the options for widespread change within the community which the trial could help to deliver – the so-called DDS (Distinctive Dedicated Strategy). This initial engagement work, leading to agreement on the DDS and local branding, effectively constituted the first of the formal trial periods (TP1 - January to March 2016), although in both areas DDS options appraisal work tended to spill over into other foundation activities through Spring 2016. Details of the process leading to the development of the DDS are elaborated in Appendix 6.

The formalisation of the Co-design Groups, DDS and local brandings ('Connecting Kings Worthy' and 'Shirley Warren Working Together') in April to June 2016 provided a platform for developing both the community-led and the DNO-led strands of the behaviour change agenda.



The process allowed for the community-led and the DNO-led 'journeys' to be initially separate with a view to:

- taking opportunities throughout the trial to identify and explore 'touch points' through specific interventions as indicated in the Summary of Research Interventions table (Figure 11) and;
- gradual convergence between the DDS and energy agendas through the trial culminating in joint legacy planning with a view to demand reduction being embedded in sustained community-led activity beyond the end of the Active Engagement period.

2016 was effectively the 'foundation' year, ensuring trust relationships were established between the CEC Delivery Team, the community and with the newly branded co-design groups, effectively laying the ground for 2017 as the 'challenge' year.

3.1.4 Contrasting Reactions in initial engagement

The two trial communities can be effectively characterised respectively as:

- <u>Shirley Warren</u>: a 'below the radar' community with a dearth of community-based organisations and activities. Our primary engagement challenge was to bring <u>people</u> together in an effort to foster greater social cohesion;
- <u>Kings Worthy</u>: a 'resilient' community with an abundance of Community-based organisations and activities. Our primary engagement challenge was to bring <u>organisations</u> together in an effort to promote greater connectedness across the community.

The relative absence of community-based activity in Shirley Warren and the associated social cohesion challenge became clear through early engagement. This required significant effort by the whole Delivery Team to get 'underneath the radar' and bring together individuals who could make a difference. In Kings Worthy, the array of existing community organisations made initial engagement much easier. Reflecting upon why their community might have been selected for research, the typical response in Kings Worthy was 'well of course you would choose us' whereas in Shirley Warren' it was more a case of 'we're just not used to being asked what we think'.

In terms of the initial separation of the DDS and energy agendas there was through the 2016 'baseline' year periodic questioning of the perceived lack of priority being placed on the energy agenda – that is 'when are we going to talk about energy?'. This questioning was generally more prevalent in Kings Worthy.

The local co-design process has generally worked well with formal group meetings being held on a regular 4-6 weekly basis with fairly consistent attendance throughout the trial. In Shirley Warren the fact of people being drawn together to represent the interests of their community was a new opportunity and from tentative beginnings has been embraced enthusiastically leading to the formal constitution of 'Shirley Warren Working Together'. By contrast in Kings Worthy, with the wealth of organisations already in operation, the challenge was to ensure that representatives with a range of other community commitments did not feel over-burdened with involvement in the SAVE work.



3.1.5 The Distinctive Dedicated Strategies (DDS)

Following the coaching approach the crucial principle of working initially with each community on their own terms was key to establishing and supporting the local agenda for change. Only once this was in place did the team seek to accommodate demand reduction by agreement within the locally driven strategy despite this being the primary focus for the project.

In Kings Worthy, a number of workshops were held to discuss and agree the key issues that residents felt could be addressed through the support available from the project. This was a relatively straightforward process with the range of current community activity making it easy to identify residents to engage with. In Shirley Warren, however, a smaller number of residents attended a number of informal 'get togethers' following a greater level of active recruitment before undertaking the same process. The process of delivering the DDS is described in more detail in Appendix 6.

Each community naturally focused on the idea of an umbrella strategy making connections and drawing together different aspects of community life and groups and interests within it. This theme of 'connectedness' effectively set the tone for local engagement work and evolved considerably throughout the trial as a touchstone in tying together the community aspiration and energy aspiration strands of the trial.

Ultimately the DDS became enshrined in the umbrella brandings – Shirley Warren Working Together and Connecting Kings Worthy – which over the further course of the trial were to become the local organisational focus underpinning the development and presentation of the behaviour change interventions – effectively the trusted intermediary.

The logo/brandings and key DDS aims for each trial area are set out in Figure 10 below.

Figure 10: LOCAL BRANDING PLATFORMS			
Stinley Warner Bond Store Togethe	 to give our community a voice to make our community a better place to use less energy and save money 		
Connecting Kings Worthy	 connecting people connecting places connecting power		



3.1.6 Activity Levels

The levels of engagement activity have fluctuated within and between the trial communities over the 2 year Active Engagement period.

The levels of activity at the outset reflect the 'busy' nature of Kings Worthy compared to the 'less active' Shirley Warren but this changes over time as the DDS activity in SW begins to take off whilst the competition for volunteer time in Kings Worthy becomes more apparent. At times activity has also been linked to changes in coach personnel, with a slight drop in activity in Kings Worthy in late 2016/early 2017 reflecting a handover in coach and in Shirley Warren in the summer of 2016 when NEL staff provided necessary additional cover during a change of coaching staff.

Appendix 10 provides details of the 'on the ground' engagement activity taking place in both communities across the trial period. It is not an exhaustive list of engagement activity but demonstrates the difference in approach in the early months in particular. In addition to this a local website was created for both trial areas and social media, primarily Facebook, used to maintain a local presence and to widen the engagement net.



Learning Checklist #1

Key learning points coming through the trial set up and initial community engagement activities:

- from the outset there was a high level of positive enthusiasm amongst stakeholders and potential partner agencies for joint working as part of the research and a strong identification with the aims of the project. This seems to reflect on one hand the relative absence of good practice references regarding collective behaviour change and, on the other, an aspiration to establish the viability of joint public, private and third sector working led by the DNO (as evidenced from Roadshow briefings and 1-2-1 interviews with Stakeholder Group members);
- there was a difference in the tone of the response to initial engagement from an urban 'below the radar' community where the challenge was to draw individuals together and a relatively 'resilient' community where the challenge was to draw organisations together (as evidenced through initial co-design work and later focus group and convergence feedback);
- the in-depth DDS engagement process clarifying and articulating each community's aspirations and priorities, naturally focused on 'umbrella' options connecting a range of individual change priorities. The idea of 'connectedness' became an underlying theme through the trial research (as evidenced through initial co-design work and later focus group and convergence activities);
- the principle of working initially with the communities unconditionally on their own terms was perceived positively as the DNO 'Earning the Right' to present its own energy agenda (as evidenced through initial co-design work and later focus group and convergence activities);
- the 'Shirley Warren Working Together' and 'Connecting Kings Worthy' brandings provided 'trusted local messenger' platforms for subsequent community engagement around energy. From the DNO viewpoint, as well as being potentially more effective in supporting behaviour change, these platforms offer the opportunity for greater cost efficiencies engaging customers in a 'one to many' rather than 'one to one' basis (as evidenced through later focus group and convergence activities).



3.2 ENGAGEMENT AROUND ENERGY

3.2.1 Summary of Interventions

Figure 11 overleaf sets out the integrated programme of research interventions undertaken in delivering the core energy strand of the trial.

The local branding established as part of the early engagement through Trial Period 1 (January to March 2016), provided the platform for designing and consolidating the programme of research interventions to be conducted through the 2 remaining trial periods.

The shape of the programme evolved throughout the trial in response to co-design and focus group discussions in each community. Notwithstanding the different responses encountered there was no particular divergence of view between the trial areas in terms of the design of the interventions. As such, the same overall programme was delivered in both areas.

Consumption variability issues in relation to substation monitoring and the challenge of observing relatively small changes in consumption, served to limit the scope for running some potential interventions. These issues and how the Delivery Team has sought to mitigate them are covered in more detail in Section 3.4.

3.2.2 Intervention Dependencies

As part of the iterative process through the trial periods, the focus for particular interventions was influenced or dependent upon preceding interventions.

Initially in both areas local knowledge was used to determine the nature of the early 'cut' asks, including the language used and factsheet information that was put together in response to discussions relating to 'energy literacy'. As the trials developed and focus group work became more formalised the nature of the interventions and their organisation became a motivation for real co-design and delivery work. The changing nature of the intervention messages used, progressing from Save Money/Save the Planet to Support Your Network/Care for Your Community, and the Big Switch Off events and sign up activities, illustrates how the resident feedback and focus group input influenced the direction and nature of the interventions as well as directly supporting their delivery.

In both communities co-design work took place through informal discussion with the SWWT and CKW Development Group members at their regular meetings to discuss their own local DDS activities, along with ad hoc feedback from conversations with residents in different community settings. As the trial progressed more formal feedback was gathered from participants in specific interventions through door knocking and formal feedback sessions. During the summer of 2017 recruitment took place to establish more formal focus groups with a view to refining and nuancing the messaging ahead of the final set of interventions. In Kings Worthy, recruitment took place along traditional invitation lines whereas in Shirley Warren, when this route failed to gain any traction, an alternative invitation of an informal 'cheese & wine evening to talk about energy' was set up. This proved much more successful and led to a group of some 16+ individuals becoming involved in the ongoing co-design process.



Figure 11: SUMMARY OF TM4 RESEARCH INTERVENTIONS

Community engagement				
Branded	Blanket community engagement building upon initial 'mapping and gapping' work to			
Community	identify strategic change options tailored to each community's needs and, interactively,	TP1		
Strategy	coming up with an agreed 'distinctive dedicated strategy' (DDS) for each area			
Local Resource	Drawing together and supporting a local Co-design Group of local leaders / key players			
Group	to help advise and oversee all strands of the project - both DDS-driven and energy-	TP1		
Group	driven – and facilitating trust relationships between all parties			
Demonstration	Designing and delivering a range of projects reflecting agreed DDS priorities – where	Post TP1		
Projects	possible (but not necessarily) promoting alignment with the wider energy agenda	1050111		
	Ongoing development of the principles underlying the DDS to explore with local leaders			
Future Vision	/ key players options for long-term place branding to reinforce positive change and	Post TP1		
	wider buy-in beyond the end of the project			
Awareness rai	sing			
Cross-over	Embedding the energy agenda within routine community activities - building on	Post TP1		
Events	existing community initiatives and/or through purpose-designed events	1050111		
	Using the branded websites to support the local DDS strategies in the trial areas,			
Website	building on opportunities for general awareness raising regarding energy efficiency and	TP2 / 3		
	resident involvement – linking to other social media applications			
Lightbulb	Providing a 'catch all' awareness raising and engagement framework for the energy			
Challenge	saving 'change agenda' within the trial communities building upon the wider DDS work	TP2.5		
Programme	 promoting formal sign-up to particular activities and feedback through "shared subsubs" and use hits (as sigl used is a sack time) 			
Impact Moacu				
Receive	rement			
Basenne	nior to widespread interactivity	TP2.0		
Response	Using a 'trusted' local branding selecting clusters of bouseholds at feeder level and			
Direct Asks	asking them to take certain actions to initially 'cut' then 'shift' demand at certain times	TP2 0 / 2.5		
Big Switch Off:	A dedicated 'demand reduction challenge' urging a collective, community-wide			
	response. Impact was recorded in terms of sign up and background monitoring at			
promotion	substations / feeders. The event was the culmination of the Lightbulb Challenge –	TP3		
	Sunday 19 November 2017			
	Selecting a number of feeders for more intensive interaction to record relative BSO sign			
Big Switch Off	up levels, testing whether and to what extent active participation in the intervention			
sign un	can be detected in reduced consumption within set periods of demand restraint.	TP3		
Sign up	Households were asked to cut and/or shift consumption for a particular hour over 3			
	alternate weeks culminating in the Big Switch Off			
	Background monitoring during the trial to assess whether there is any discernible			
Ambient Effect	evidence of widespread demand reduction (either 4-8pm or overall) across the trial	d reduction (either 4-8pm or overall) across the trial Post TP3		
Dutantha	communities as measured at substations / feeders – as compared to control areas			
Priority	Exploring how the relative PSR sign up levels could be substantially increased in			
Services	collaboration with the local community as a natural extension of the current DDS work	POST IPZ		
Focus Groups				
Tocus Groups	A combination of door stop survey, focus group and online activity, aiming to add value			
Qualitative	to other household based trials to explain why particular outcomes are observed			
Feedback	evoloring how residents may have reacted to set interventions and why specific actions	TP2 / 3		
recuback	were taken. This activity informed the formal 'Messaging' focus groups	rmal 'Messaging' focus groups		
	Establishing a number of differentiated Focus Groups within each trial area to test			
	'energy literacy' - leading to a clearer understanding of what constitutes a compelling			
Messaging	narrative likely to underpin widespread behaviour change and, as evolved, the practical	Pre TP3		
	steps to encouraging sign up to the 'caring community' aspiration			
	Exploring new ways of working, looking at how the DDS generally and the Energy	TD2 / Dect		
Convergence	agenda specifically can converge as part of an integrated, locally branded initiative or	TD2		
	legacy plan to sustain positive behaviour change activity in the trial areas	142		

Figure 12 below shows in some detail how the sequence of feedback and focus group outputs served to shape the overall programme in this way.



Figure 12: FOCUS GROUP / FEEDBACK SEQUENCING				
When	Who	Focus	Outcome	
Feb- July	KW and SW lead 'co-design'	Agree focus and branding for local	SWWT and CKW agreed as focus for local DDS activities with core components identified	
2016 residents Sept CKW 2016 Group & SWWT – using local knowledge and views of known group members	CKW Development Group & SWWT – using local	Consideration of TP2 intervention and design series of 3 energy 'cut' and 3 'shift' asks via letter	 Local residents design and agree look and feel of local logos and branding Local branding (CKW & SWWT) to be used as lead creative platform in intervention communications rather than SSEN or other 'higher' level branding Start with simple, known messages and asks which are easily achievable Keep language simple and instructions clear Suggestions for appropriate accompanying 'giveaways' of top tips leaflet, thermometer card and sticky notes for reminders Can it wait 'til after 8 – as strapline for shift messages seen as positive 	
	to specific households on selected feeders	 'peak demand' and 'how do you get your electricity' factsheet put together in response to local lack of knowledge 'Can it wait 'til after 8' Fridge magnet as gentle visual reminder Cooking leaflet to address issue of need to cook at peak times but how can it be done more efficiently 		
Jan 2017	Door step feedback from TP2 participants	Seek feedback on letter design, content, nature of asks and action taken	 Confirmation of approach using local branding Positive feedback on nature of reminders for known 'energy saving actions – prompt to action for many Top tips card and in particular thermometer seen as helpful in support of taking action to reduce use. Fridge magnet proved conversation starter for children. General willingness to engage in local research 	
Feb 2017	Informal feedback session with invited TP2 participants	Confirm door step responses and to seek views on next steps	 Shift message seen as new and 'novel' Once role of DNO understood the reason for peak demand shift becomes clear The 'how' still needs to be explained Opportunities for recognition for individual and community action taken discussed with the idea of a package of activity under a 'Lightbulb Challenge' banner seen as interesting 	
March 2017	CKW and SWWT Co-design Group feedback sessions	Review feedback from trial period 2/2.5 and consider next steps in engaging the wider community	 Lightbulb Challenge (LBC) agreed as creative platform for broadening engagement to the whole community LBC seen as a banner incorporating a wide range of energy activities LBC launched at events in KW (linked to launch of welcome map) and SW (money saving event) LBC award considered as too challenging to fit with KW busy calendar and too big a task for SW at present 	
July- Sept 2017	Messaging Focus Groups, recruiting and incentivising 'new' local residents based on 2 meeting commitment In each area	Review messaging to date and seek views on further developing messages and support materials with a view to widening engagement across the community	 Drivers for behaviour change examined LBC seen as not quite hitting the mark although seen as useful branding for energy literacy/project type work with schools, groups Idea of 'caring community' has resonance in both areas – Lightbulb Community a possible refocus of current branding Further factsheets developed in response to need for simple, visual information – in particular the 'power draw' graph seen as a very clear and understandable call to action 'Reduce your use' identified as potential new slogan to build upon existing social norms of recycling, reuse and food/water waste campaigns BSO events planned as all community call to action as well as final targeted intervention on specific feeders with sign up activity at local events and online. 	
Oct 2017	CKW and SWWT Co-design Groups	Agree local activities and dissemination as part of BSO event	 Local activities designed taking in to account capacity of volunteer helpers and impact upon of competing local activities SW plans all community BSO event at the Action Centre KW plans limited feeder focussed event at the King Charles pub. 	
Nov 2017	CKW and SWWT – Convergence Focus Groups	Agree learning and legacy from SAVE trial	 Key learning points identified informing potential BAU application Local legacy plans outlined 	
Feb 2018	Round 1 & 2	Confirm legacy plans	Legacy activities from both DDS and energy activities agreed	



3.2.3 Generation of Creative Material

'Energy Literacy 'became a key concept driving the generation of creative materials for the CEC trials. Whilst low levels of awareness of energy issues had been anticipated the team was taken aback by the consistently low levels of understanding across the differing communities - where energy comes from, how it gets to them, what the role of a DNO is and the challenges faced in keeping the lights on, understanding their bills, understanding how much energy the range of appliances they have used, the difference between draw (kW) and consumption (kWh) and what action they can take. The team uncovered an urgent need to talk differently about these things, to use clear language and to present information simply and visually.

Through the whole process of relationship building and collaborative working, it became apparent early on, that attitudes to energy usage were influenced mainly by negative associations. But, as the team explained more about the research, they were able to talk instead about (i) the positive role of Network Companies like SSEN (ii) the positive impact of 'shifting' peak demand (iii) the collective impact of communities and (iv) the Network Operator's social obligations.

The generation of creative material was also linked directly to the different campaigns and messaging formats linked to particular interventions, notably:

- Cut Save Money / Save the Planet
- Shift Support your Network / Support Your Community
- Reduce Your Use as per Power Draw Chart
- Cooking Save time too
- Lightbulb Community
- Caring Community
- Connected Community

The implication is that the learning about Energy Literacy is widely if not universally applicable providing an established base of research which does not need to be reinvented community by community.

Alison Dean, Stakeholder Engagement Manager for SSEN, commented: 'Building on the learning from the SAVE Project, SSEN is keen to use the Energy Literacy Toolkit that has been put together with the trial communities' support to enable local partners, as trusted intermediaries, to provide their own branded factsheets that can help them offer energy efficiency advice which is relevant and useful in the local communities they serve.'

A full inventory of creative material including direct communications for demand restraint interventions is included at Appendix 7.

3.2.4 Key drivers for behaviour change

An essential part of the CEC trial co-design work was to understand the key drivers for behaviour change in order to inform the development of trial messaging and the design of energy interventions and ongoing interaction with the community.

It had been assumed at the outset that the behaviour change messaging for the trial would revolve around a combination of 'saving money' or 'saving the planet' in promoting widespread buy-in to demand reduction. Both of these drivers for change had some traction in each trial area but


generally they tended individually to divide opinion and, when linked together, to offer a confused message. Digging deeper to identify alternative change platforms, the single most unifying driver was being part of a 'Caring Community'. This was true for both trial areas.

Figure 13: POTENTIAL BEHAVIOUR CHANGE DRIVERS			
Potential Driver	Learning Outcome		
Save the Planet a wide range of environmental messages and issues including climate change / CO2 reduction	 Although this a fairly well known and understood global message the challenge of 'what can I do on my own' to make a difference to such a big and complex issue leaves many people disempowered and disengaged The need for a cultural, rather than individual, behaviour change shift is recognised The need for societal norms of EE to be adopted along the lines of recycling, reuse and waste is a potential opportunity - especially if combined in a multi utility message 'Blue Planet' effect for example plastic straws and a clear, targeted campaign possible 		
Save Money energy saving and related money saving message	 Again considered to be well known and generally well understood Those that need to save money were found to be using comparatively little electricity already Those who have money are often not bothered by £ savings unless motivated by wider environmental issues and in which case will have usually invested in 'green' energy saving appliances General energy literacy is an issue for the residents in both communities To use money as the sole driver would appear to be limiting or potentially divisive 		
Support Your Network understanding the role of the DNO and using peak demand as the focus for change	 Energy literacy is a key issue here as the majority of residents know little or nothing about the existence or role of the DNO Once they do understand the role of the DNO the idea of peak demand is easily understood Older residents in particular can draw on past memories of unreliable energy supplies and are often readily willing to change behaviour If residents have no real experience of power cuts they do not as readily understand the need for action Potentially divisive as some believe that they pay their bills to ensure 24 hour constant on demand access to energy and it is therefore a network problem to resolve 		
Support Your Community creating a sense of belonging, ethical behaviour and caring within the community	 Building on the impetus generated locally through the local CKW and SWWT brands and DDS activity local people are keen to further develop their sense of belonging to a community – especially one that cares about the people who live there, the local environment, about building local pride and a positive external view, about the future for their children and the legacy their activities will leave and so on. The opportunity to build 'caring' for the local network into this broader mix has found a real appeal in both communities Creating and building on the sense of 'connectedness' in the community and across existing activities 		

Reflecting this, the Delivery Team has been able to explore in depth what it means to be a caring, better connected, community - with peak demand reduction being one of the key consensus factors. This has been looked at further in the development of the business case for a wider BAU programme.



Figure 13 above summarises the CEC trial insight on the relative value of the 4 key behaviour change drivers as identified through the research trial.

3.2.5 The 'Power' of the Power Draw Chart

Building upon the idea of Energy Literacy through the Messaging Focus Groups in Summer 2017, it became clear that once customers understood the role of the local network the idea of peak demand was seen as an obvious and interesting issue that needed to be dealt with - the key question then being 'so tell me how do I use less between 4-8pm?' The response within both Trial areas was expressed neatly as a 'lightbulb moment', opening the door through further co-design and focus group work to the development of a range of creative material including factsheets, fridge magnets and a power draw chart.

The power draw chart (Figure 14 below), by popular consensus, appeared to have the most significant potential impact in encouraging a change in peak usage behaviour as it showed very simply and visually where the bigger savings could be made – both in terms of peak demand and equivalent energy cost savings.

By visually demonstrating the simple fact that appliances that use a lot of 'heat' in order to work will by default use a lot of energy proved to be another 'lightbulb moment' for many people in both communities.





3.2.6 Alternative Cooking

In messaging terms, the Delivery Team was told early on, that seeking to change evening cooking routines in family households would be a step too far. This would be seen as a taboo subject especially for busy families where lifestyle change was not a realistic option.

Further focus group work revealed that if the value of change was presented in other terms, notably saving time, then things like use of slow cookers and batch cooking could be seen as attractive options offering some traction. Recipe sharing activity on the local Facebook pages, especially in Kings Worthy, was a confirmation of this idea. Also, for older, non-working households, shifting main meal times was reportedly relatively straightforward.

Through events and promotions, the Delivery Team was able also to build engagement routines around the theme of 'alternative cooking', demonstrating the value of low energy baking, slow cooking and batch cooking in terms of both saving time and saving energy.



Learning Checklist #2

Key learning points coming through the initial community engagement around Energy:

- initial attitudes to energy usage were influenced mainly by negative associations. However, individuals and groups became more supportive as we were enabled to talk instead about (i) the positive role of network companies like SSEN (ii) the positive impact of shifting peak demand (iii) the collective impact of communities and (iv) the network company's in-built social obligations (as evidenced from initial baseline surveys, initial co-design work and later focus group and convergence activities);
- the concept of 'Energy Literacy' became the key driver in the generation of creative materials for TM4. While low levels of awareness of energy issues were anticipated, the Delivery Team was taken aback by the consistently low levels of understanding. This was evident across both communities, revealing an urgent need to use different language and to present information simply and visually (as evidenced from initial baseline surveys, initial co-design work and later focus group and convergence activities);
- it had been assumed at the outset that the behaviour change messaging would revolve around a combination of 'saving money' or 'saving the planet' in promoting widespread buy-in to demand reduction. In reality, the single most unifying driver was being part of and contributing to a 'Caring Community'. This was true for both trial areas (as evidenced from initial baseline surveys, initial co-design work and later focus group and convergence activities);
- it became clear that once customers understood the role of the local network operator the idea of peak demand (4-8pm) was seen as an obvious and interesting issue that needed to be dealt with. In terms of creative material, the power draw chart, by popular consensus, appeared to have the most significant potential impact in prompting and directing a change in peak usage (focus group and convergence activities);
- against a background of resistance to changing evening cooking routines, particularly in family households, presenting the value of change in alternative terms, notably saving time, was seen as acceptable and helpful. Things like use of slow cookers and batch cooking could accordingly be seen as attractive options, reducing peak demand by implication. By contrast older person households were more willing and able to consider a change to their cooking routine (focus group and convergence activities, social media analytics).



3.3 CONVERGENCE ACTIVITIES

3.3.1 Convergence Focus Groups

Applying the principles of the embed/build/sustain coaching approach, the whole community engagement 'journey' was geared towards gradual convergence between the community-led agenda and the energy-led agenda. This process culminated in joint legacy planning within each community with a view to the issue of energy usage and ongoing demand reduction being embedded in sustained community-led activity beyond the end of the Active Engagement period, rather than remaining a standalone issue.

As such, conscious effort to seek convergence within Trial Period 3 during the 2017 Challenge Year was built into the Intervention Programme (Figure 11 above) through the Convergence Focus Groups conducted in each area, building upon the process of co-design developed throughout the trial.

These groups were organised over 2 rounds in November 2017 and February 2018 with dates as part of the overall sequence of interdependent focus groups (para 3.2.2). In each community, attendees included Development Group members and some of those involved in the more formalised focus group activity with discussions centring on key outcomes in the form of Legacy Plan commitments as incorporated in Section 4.3. The convergence process was successful in as much as both communities readily engaged in legacy planning as part of the focus group work with a view to consciously embedding energy issues and peak reduction into wider community-based activities, retaining and building upon the established local brandings of Shirley Warren Working Together and Connecting Kings Worthy.

More detailed feedback on this convergence process is to be found in the SDRC3.2 Open Days report submitted to Ofgem in December 2017.

3.3.2 Final Co-design Dissemination Workshop

A final co-design Dissemination Workshop event was held on 15 March 2018, drawing together representatives from both Trial areas involved in the co-design process together with members of the Stakeholder Group. The purpose of the workshop was to get feedback and share lessons learned on the SAVE project from residents and other stakeholders involved in supporting and directing the trial research. The event was independently facilitated.

The workshop was enthusiastically supported with 26 attendees expressing their appreciation for the work, the positive impacts it has had upon the 2 communities and the insights provided into the process of long-term behaviour change with communities and service providers working together.

The key points emerging are set out in Figure 15 overleaf. Overall both communities attested to the positively transformational nature of the Coaching trial research. In Kings Worthy the impact was felt through a greater sense of 'connectedness' between the many and varied activities taking place but with the CKW brand providing a focus for a community wide discussion about energy and related environmental issues. Jackie Porter, CKW Development group member as well as a Hampshire County Councillor and Winchester City Councillor has said: "Thanks to the SAVE project and the work of Connecting Kings Worthy, of the 33 areas I represent Kings Worthy is the only area where issues of energy are visible and people are happy to engage in conversations around energy efficiency, peak demand and associated wider environmental issues.". In Shirley Warren, due to the lack of existing



community infrastructure, the impact of SAVE and the development of SWWT is seen to have been greater and been more passionately embraced, with Jenny Elliott, Pastor at the Shirley Warren Action Church, saying 'The SAVE project has totally transformed Shirley Warren – it has been the catalyst for action – bringing together local people to deliver positive change in their own community as well as achieve reductions in peak demand. A real win/win! We're so glad we got involved.'

Other quotes from members of both communities and the Stakeholders involved can be found in Figure 28.

Figure 15: FII	NAL CO-DESIGN DISSEMINATION EVENT, MARCH 2018
Area	Key Points Emerging
Coaching Approach	 Endorsed by all as a very positive experience with residents in particular benefiting from the 'bottom up', joint nature of the project. The fact that energy was not the initial focus of activity but rather understanding and supporting the community's own agenda was critical to the success of the project The trust relationships that have been developed have been crucial to the development of local people as 'human messengers' who can deliver with much more power than a mail shot The coaching approach has been successful in adapting its delivery to suit each community and building trusted relationships to deliver the energy agenda more persuasively
Energy Literacy	 The energy message turned out to be far more interesting and relevant than people thought it would be and people were far more open to talking about it once relationships were established. Messages need to be simple, relatable and visual where possible As a result of the co-design process local residents became active champions to share the messages and their new found insights into the energy agenda recognising that energy is not a 'standalone' issue
Engagement	 Seeing the community as part of the solution and not just the problem was key to resident engagement and empowerment People enjoyed sharing the role of problem solver and advocate through the co-design focus group work and other regular interaction A video format was seen as a very useful engagement tool – particularly if using local people to demonstrate the power of the community voice and experience The fact that there was no 'hard sell' was key
Legacy	 Both communities feel a greater sense of 'connectedness' – between individuals and groups within the community and with the support available to them externally Positive sustainable impacts to support the social fabric have been achieved in each community for example, the community cafe and clean ups in Shirley Warren and welcome map and walking bus in Kings Worthy Greater awareness of energy issues, including the role of DNO and peak demand, with appreciation of wider environmental concerns and real willingness to keep on local agenda for action, for example, Jackie's monthly columns and Jenny's sermons Having energy as a thread interwoven into local conversations, rather than as a standalone issue, has been a key factor in the project's success and paves the way for further integrated approaches between the 3 utilities and other stakeholders The challenge of educating and engaging children and young people is seen as critical in achieving long term behaviour change and developing new social norms
Scaling	 The success of a tailored approach meeting the needs of different communities was seen as a key design factor and a challenge which needs to be built in to future work if the trial impacts are to be scaled up operationally
DNO Reputation	 Working as part of the community, rather than the more traditional top down, external approach, meant that the natural suspicion people had was dissipated to a large extent As a result of the project people are far more aware of the role of the DNO and view the DNO in a more positive light



3.3.3 Use of Video

For the purposes of this convergence work, NEL put together 2 videos for internal project use:

- <u>'Making the Emotional Connections'</u> which was used during the Round 1 Convergence Focus Groups in each area to encourage reflection on customers' trial 'experience' and the potential for future action;
- <u>'Making The Emotional Connections Part 2'</u> highlighting the original video and additionally sharing the initial findings from the research ahead of the final report. This video was prepared for use at the Final Co-design Dissemination Workshop on March 15 2018.

Both of these videos received positive feedback from community members and stakeholders alike, proving an accessible and engaging format for presenting information requiring reflection and priming focus for discussion. Building upon this it was suggested that this Final Report on the Coaching Trial should be accompanied by 2 in-house 'shorts' (i) featuring 'live' feedback from participants on the lessons learned and the way forward in sustaining positive change and (ii) spelling out the key engagement lessons to support participant stakeholder representatives in making the case within their own agencies for working differently.

Learning Checklist #3

Key learning points coming through this Section looking at convergence activities - drawing together the community agenda and the energy agenda at the latter stages of the research:

- In both communities the coaching trial has been perceived as transformational with
 residents reporting that initial engagement to support the development of their
 own agenda was a refreshing approach and one which made them willing to listen
 and engage with the energy agenda where otherwise they would not have (as
 evidenced through focus group work and the final dissemination workshop);
- These additional social benefits to both the DNO and wider stakeholders evidence value beyond sole load management (as evidence by PPRB/Stakeholder meetings and the final dissemination workshop);
- In both communities, there was a readiness at the latter stages of the research to engage in legacy planning discussions about embedding energy issues into wider community-based activities with a commitment to retain and build upon the established local brandings of Shirley Warren Working Together and Connecting Kings Worthy (as evidenced through focus group work and the final dissemination workshop);
- Through the work of the trial, energy usage is seen as an underlying community issue not something apart, with the community itself being part of the solution in addressing peak demand (as evidenced through focus group work and the final dissemination workshop).



3.4 DELIVERY ISSUES and PERSISTENT RISKS

3.4.1 Persistent Risks

The progress of the CEC trial in terms of overall risk exposure has been relatively smooth with the following specific exceptions around (i) substation data monitoring (ii) stakeholders' complementary targets and (iii) quantification of social impacts.

3.4.2 Substation monitoring

The SAVE project bid looked to the deployment of substation monitoring on the CEC trial in order to draw conclusions with regards to measurable changes in demand of up to 15%. The research opportunities presented by this enhanced monitoring capability were key in obtaining the goodwill of stakeholders and community representatives in supporting the CEC trial. It was of particular interest that the capabilities may exist to allow data to be streamed live through local websites as a means of immediate demand reduction performance feedback.

NEL have worked with the wider project team to overcome a range of challenges which have impacted upon these aspirations namely:

- The relatively small substation / trial area sample size (22 substations across the 2 trial and 2 control areas) and the associated capacity, with a limited sample, to draw more generic research conclusions applicable to other communities in reality the household based trials (TM 1-3) are best placed to correlate specific responses to energy efficiency messaging with specific demographic and community characteristics as part of the segmented input to the Customer / Network modelling process (para 1.1.6);
- The observability of relatively small changes in consumption (given the background fluctuations associated with the number of independent consumption choices being made across multiple households and the inherent margins of error in data) and the associated confidence with which changes can be seen as attributable to specific interventions this was addressed through the installation of more granular feeder level monitoring which aimed to provide greater opportunity to observe changes in consumption. In addition, based on extensive appraisal work by NEL and a thorough examination of the issues by the wider SAVE Team ahead of Trial Period 3, a range of creative solutions in the design of final intervention iterations were identified; notably (i) correlating measured levels of sign up to the Big Switch Off event in November 2017 with levels of demand reduction on a limited number of selected feeders in each trial area and (ii) regression analysis comparing the demand impacts on selected feeders with all other feeders in trial and control areas over the winter period October 2016 to February 2018 to assess the statistical significance of any weather adjusted reductions in demand;
- <u>The difficulty in providing regular 'live' updates on consumption levels to use as a</u> <u>community wide engagement tool and to facilitate street level competitions</u> - the challenge was related to both the observability of relatively small changes in consumption and the required level of analytical resource. In terms of intervention design, this limited the scope for running particular interventions, in particular the idea of street level / feeder level competitions linked to a local awards programme. Ideally, the value of 'competition' as a key incentive to behaviour change would be tested as part of any future trial alongside the



incentive of 'co-operation' as linked to the concept of caring community. By way of compensation for difficulties associated with specific quantitative measures, the Delivery Team enhanced the interventions programme during the 2017 'challenge' year to maximise the value of qualitative impacts. As such, a greater focus on social obligation concerns such as the Priority Services Register was introduced;

• <u>The challenges associated with substation monitoring and data analysis/streaming</u> - the ability to accurately estimate a baseline for consumption profiles is noted as challenging throughout previous academic and industry literature. The close management of these issues on SAVE and support provided by both the University of Southampton and wider project team has provided an initial blueprint for swifter performance feed-back to local residents in future projects. It is anticipated this timely quantification of load-reduction could serve an active tool for further motivating communities.</u>

Building on this point with a view to any future rollout of a community-centric coaching programme, alternatives might include: (i) increasing budget of community based interventions to allow for bespoke analytical resource to provide timely feedback to local communities; (ii) more rudimentary monitoring solutions for example access to smart meter data or at substation level linked specifically to peak demand, simplifying interpretation to 'exception reporting' recording the number of 'breach' events rather than existing substation monitoring requiring detailed analysis based on measured consumption over time. In this way, the monitoring requirements associated with future scaling of the coaching approach could be more closely aligned with low cost substation monitoring techniques and devices already in operational use.

3.4.3 Stakeholders' Complementary targets

As part of the initial base-lining process, attempts were made to build key stakeholders' complementary targets into the overall framework of change alongside equivalent DNO and community aspirations.

A series of 1-2-1 sessions was conducted with Stakeholder Group members to establish their particular themes and issues in local service delivery. These sessions identified the list as set out in Figure 16 below⁴. A variety of established Sustainability / Sustainable Living frameworks were also explored to provide a context within which they could be evaluated

Given the relative absence of published baseline data at a sufficiently granular (Lower Level Super Output Area) statistical unit level and the associated very limited capacity for monitoring updates within the timeframe for the trial, it was not possible to move forward confidently with this aspect of target setting. Any original research against these targets was, in practical resource terms, beyond the scope of the project.

More positively, it has been possible to incorporate elements of these targets in the sample 'stackable' benefits potentially accruing from a multi-agency rollout of a 'Connected Communities' Coaching Programme (Appendix 13).

⁴ For definition of acronyms, please refer to list on page 8



5			
THEME / ISSUE	Data Sources	LLSOA	updates
Supporting vulnerable groups			
fuel poverty / warm homes	DECC Sub-regional fuel poverty	✓	x
 social care / maintaining services for the most vulnerable / PSR 	DCLG LA Revenue	x	1
Financial exclusion / debt levels	NOMIS Financial Exclusion	×	1
Improving health and well being			
defining well being	DCLG National Wellbeing Survey	✓	x
wider public health issues	ONS Census Health data	✓	x
 Promotion of walking (linked to both well-being and vehicle usage) 	DoT Vehicle Licensing	x	~
 Local food – community gardens/orchards 		×	x
Healthy, green, sustainable lifestyle		x	x
Use of natural resources			
Waste reduction / Recycling	Let's Recycle LA league table	x	1
Water Consumption		x	x
Community Safety			
Carbon monoxide awareness		x	х
Levels of anti-social behaviour	Police UK ASB Crime dataset	 ✓ 	✓

Figure 16: STAKEHOLDERS' COMPLEMENTARY TARGETS

3.4.4 Quantification of Social Impacts – Equivalent Unit Value

In terms of research compliance, to facilitate calculations of cost efficiency achieved through the trial (Figure 3: Checklist of Bid Commitments / para 1.2.1), the ideal would have been to quantify the impact of the contingent social impacts delivered through the Coaching trial, with an understanding of 'Equivalent Unit Value' (EUV) for each one.

In addition, looking forward to potential replication and scaling of positive trial impacts, the ability to examine in greater depth the EUV of potential benefits accruing to particular stakeholders participating in any multi-agency rollout programme, as part of an assessment of BAU cost-effectiveness would be helpful. In the DNO case, this could be linked directly to established social obligations.

However, in the absence of any established mechanism for evaluating positive social impacts, and the Delivery Team having undertaken an initial desktop review of various tools (including social accounting, Social Return on Investment, the balanced scorecard) and current research, it appears there are no established energy industry criteria against which the positive social impacts achieved through the trial can be formally evaluated.

In terms of current research, there is one project recently undertaken by the Water Research Council (WRc) with Collingwood Environmental Planning (CEP) looking at the adverse (rather than the positive) social impacts of Utility Company operations. This work has been undertaken on behalf of 4 northern utilities - Northern Powergrid, Northern Gas Networks, Northumbrian Water and



Yorkshire Water. The 'Social Impacts of Network Activities - Summary Report' (February 2018) sets out the conclusions from first stage desktop work, making the case for further direct research to establish an operational quantification framework. Further work might offer the opportunity to explore future options for looking more comprehensively at both positive and adverse social impacts, developing an understanding of how a collaborative engagement approach might also serve to reduce the adverse social impacts of utility company operations.

More positively in relation to the immediate quantification challenge, for the purposes of the potential rollout Guide in Appendix 13, NEL have suggested that rather than seeking to generate an EUV for each individual targeted benefit, future work should proceed on the basis of 'Equivalent Total Value' (ETV) as derived by 'stacking' benefits together and relating collective impact to likely operational cost per site. This would then allow potential stakeholders to review whether the predicted ratio between cost and value overall is likely to be deemed cost effective from an individual and/or multi-agency perspective.

Learning Checklist #4

Key learning points coming through the review of the Delivery Issues and Persistent Risks as addressed through the project:

- Observing relatively small changes in consumption is difficult at substation level given the background fluctuations associated with the number of independent consumption choices being made across multiple households. This required the Delivery Team to look differently at the balance between quantitative and qualitative impacts in later intervention iterations (as evidenced through formal interventions and impact analysis);
- in future community-based research and/or scaling of the coaching approach, smart meters may provide an alternative technique for monitoring peak demand, this however would require such an intervention to be done at scale to avoid variability issues. If the key issue in an operational setting is the frequency with which a capacity threshold on a substation transformer is breached, it is suggested to explore options for low cost substation monitoring, installing equipment which could issue an alert whenever this occurs;
- it was not possible to include stakeholders' complementary targets alongside demand reduction targets as part of the formal research given the absence of regular published data at the local level (as evidenced through Stakeholder Group minutes and 1:1 sessions);
- in the absence of any established industry mechanism for evaluating positive social impacts, capacity to quantify the value of individual social impacts was limited. This required the Delivery Team to look at the combined value of selected impacts in calculating the overall cost effectiveness of replicable behaviour change activities (as evidenced through SECV team briefing papers and meeting notes).



4.1 ANALYSIS OF DEMAND REDUCTION IMPACTS

4.1.1 **Data Related Interventions**

Over the course of the CEC trial, various data related interventions have been undertaken with a view to being able to observe positive changes in electricity consumption as measured at substation / feeder level. Data related interventions were delivered in both Trial Periods 2 and 3, October 2016-March 2017 and October-December2017, respectively:

- 'Direct Asks: cut' / TP 2.0 and 'Direct Asks: shift' / TP 2.5; •
- 'Big Switch Off: promotion' / TP3 and 'Big Switch Off: sign up' /TP3. ٠

In successive research iterations through 2016 and 2017, these interventions have been designed (i) within increasingly narrow restraint windows (ii) with increasingly nuanced messaging (iii) with increasingly intensive promotion. Copies of the respective communications are included under Appendix 7.

Through a gradual progression over the formal trial periods, the Delivery Team was accordingly able to assess the point at which a measurable reduction in demand could confidently be observed through feeder level consumption monitoring. This process culminated in the Big Switch Off (BSO) event in November 2017 delivered as part of Trial Period 3 activity. Figure 17 overleaf looks at the 4 interventions in detail:

The high levels of engagement in terms of sign up and numbers joining in events is seen as a direct result of the non-traditional engagement and co-design principle underpinning the coaching approach.

Observability of Demand Reduction 4.1.2

In earlier 'Direct Ask' interventions (Trial Period 2), groups of households were asked to participate in first reducing and then shifting consumption within a series of set periods of restraint. The hypothesis was that a notional 5% reduction in consumption would be observable through substation monitoring. In the event, the Direct Asks data analysis was inconclusive. This was because the set restraint periods were too broad to overcome the background fluctuations associated with the number of independent consumption choices being made across multiple households. Also, for these earlier interventions, actual levels of participation in the 'asks' were unknown.

Learning from this experience, the Big Switch Off was accordingly designed with a narrow restraint window for the event (1 hour) and for selected feeders in each area, with a declared participation rate (25%). As such, the hypothesis for the Big Switch Off was that a notional 10% reduction in consumption would be observable, particularly for the 'sign up' version of the intervention. The assumption was that the narrowness of the restraint window combined with the declared sign up rate would be sufficient to overcome the background consumption fluctuations.



Figure 17: DATA RELATED INTERVENTIONS

Direct Asks: cut/ TP 2.0 – selected groups of 185 households on 3 feeders in each area were invited on behalf of Connecting Kings Worthy and Shirley Warren Working Together to participate in 3 set periods of voluntary demand restraint throughout November and December 2016. The dates were (i) Saturday 12 November (ii) Saturday 26 to Monday 28 November (iii) Saturday 10 to Saturday 17 December.

Having set the scene in written branded communication with each household, all those who did not opt out of the research (some 97%) then received a reminder ahead of each event period with further support information and an enclosed 'giveaway'. The giveaways respectively were a Top Tips energy saving leaflet, a Thermometer Card and sticky 'reminder' notes for key appliances, all with local branding.

At this 'cut' stage (TP2.0) ahead of the 'shift' stage (TP2.5), the Direct Asks intervention was primarily about awareness raising. It served to set the scene for follow up doorstep surveys by the Team to assess levels of customer buy-in to the process and to capture feedback on what households had been able to do to cut consumption and the quality of support information provided.

As such, the survey feedback informed the next 'shift' test iteration.

Direct Asks: shift'/ TP 2.5 – building on the feedback from the initial 'cut' asks, the same groups of households in each area were then invited to participate in 3 additional, more concentrated voluntary restraint events aiming to shift demand away from the peak 4-8pm period, rather than cutting demand as such, throughout January, February and March 2017.

The set restraint periods were (i) Saturday 21 January between 4-8pm (ii) Saturday 11 to Monday 13 February between 6-7pm (iii) Saturday 4 to Saturday 11 March between 5-7pm.

As before, all households received a reminder ahead of each event period with further support information and an enclosed 'giveaway'. The giveaways respectively were a Peak Demand Factsheet, a 'Can it wait til after 8' fridge magnet and a low energy / time saving Recipe Leaflet.

The hypothesis for the 'shift 'iteration of the Direct Asks intervention was that we might expect to be able to observe a 5% reduction in peak demand for the set restraint periods;



Big Switch Off: promotion /TP3 – reducing the restraint window still further, the Big Switch Off event was set for Sunday 19 November (6-7 pm). The event was heavily promoted within the trial areas through banners / posters, website / social media, local press coverage and leaflet drops.

Local residents were encouraged to formally sign up to the 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 in order to download or order the Big Switch Off Information Pack.

The core 'nuanced' messaging underpinning the Big Switch Off intervention was about being part of "a community which cares ... about the environment, about each other, about how we use our energy resources, about avoiding waste ... and ultimately about the legacy we are leaving our children ... our first 'lightbulb idea' being to get as many people as we can throughout Autumn 2017 to sign up to using less electricity at peak times (4-8pm) - easing the pressure on the community network". The Big Switch Off was thus presented as an initial challenge to test the level of impact which the community could have by consciously working together.

Big Switch Off: sign up /TP3 – increasing the intensity of promotion further still, the 'Sign Up' version of the Big Switch Off added the additional ingredient of a target sign up level allowing calibration of data analysis on each feeder against declared commitment to participation, the hypothesis being that a 25% sign up commitment could yield a measurable demand reduction of 10%.

For the Sign Up tests c170 households were identified grouped around selected substation feeders in each trial area where the Delivery Team was most confident about which addresses were connected to which feeders. Each household was encouraged to participate in 2 separate 'SAVE hour' test events on Tuesday 7 and Thursday 16 November culminating in the 'Big Switch Off event on Sunday 19 November. A range of 'giveaways' developed through Focus Groups was sent out with each request letter. The giveaways respectively were a thermometer card, power draw fridge magnet and slow cooker Christmas pudding recipe. In addition everyone who signed up was sent an Information Pack containing background information about the community's aspirations and a series of factsheets developed to promote Energy Literacy.

To achieve the target of 25% sign up for the Big Switch Off itself on 19 November, the team visited every address until the required threshold was reached for each feeder. Participants were also invited to 'diversionary' community events coinciding with the 6-7pm restraint period as an opportunity for residents to come together socially, using less energy at home in the process. Across the two communities some 90 people in Shirley Warren and 30 people in Kings Worthy joined in the events.

4.1.3 Feeders being monitored

For the Big Switch Off event overall, 16 substation feeders were monitored in Kings Worthy (some 1000 households) and 20 in Shirley Warren (some 1200 households). In each case, reconciliation checks on these feeder addresses were undertaken by SSEN.



For the 'sign up' version of the intervention, 3 feeders on the Hookpit Farm substation in Kings Worthy and 2 feeders on the Bindon Road substation in Shirley Warren were selected, totalling some 170 households in each area. These feeders were identified as lowest risk in terms of data accuracy, with less erratic consumption profiles making observable changes in demand more accessible.

For the purposes of comparison with the 'sign up' feeders in Kings Worthy and Shirley Warren, 2 and 3 feeders with similar consumption profiles/customer demographics were selected within the respective control areas.

4.1.4 The weather adjusted analysis process

For the purposes of data analysis:

- for each of the feeders across the trial areas and the selected control feeders, calculations were made from substation monitoring data of the total household electricity consumption for the period 6-7 pm on the 16 other Sundays during the winter period October 2017 to February 2018 – that is, not including the day of the Big Switch Off, 19 November 2017;
- these individual consumption values were compared with the average temperature for each of the respective Sundays using the principle of 'heating degree days' (HDD). This assumes that (in the UK) heating will typically be switched on when the external temperature reaches 15.5 degrees Celsius. Days when the average temperature is less than 15.5 degrees are defined by the number of degrees below this 'switch on' level. Thus a day with an average temperature of 14.5 equals 1 HDD, 13.5 equals 2 HDD and so on;
- plotting the consumption values graphically against the respective number of HDDs, a 'best fit' straight line is calculated using statistical regression analysis techniques which can effectively predict the mean expected consumption value for any HDD value. For the day of the Big Switch Off, Sunday 19 November, the actual average temperature for the whole day was equivalent to 10 HDDs;
- the actual and predicted consumption values are accordingly compared for each feeder to identify any difference (increase or decrease) against expectation on any day;
- the regression analysis is also used to calculate the probability of any consumption value falling within a range either side of the predicted mean. In defining this range, the probability level selected was 95%, the implication being that there is only a 1 in 20 probability of any value falling outside of that range being a chance occurrence.

4.1.5 Big Switch Off: Promotion/TP3

Across both trial communities, data analysis for the Big Switch Off restraint hour is relatively inconclusive for the 'promotion' version of the intervention (Figure 17, Section 4.1.1).

The results of the regression analysis for each substation and feeder are set out in Figures 18 and 19 overleaf for Kings Worthy and Shirley Warren respectively, with the actual consumption values for the day of the Big Switch Off shown as circled.



For the 13 Kings Worthy feeders not included in the 'sign up' version of the event, 6 feeders show an observed reduction in demand and 7 an increase in demand for the restraint hour. For one feeder in particular - Bull Farm / Feeder 2 – the observed reduction is close to the 95% confidence level, that is, a 1 in 20 chance that it would not occur naturally.

For the 18 Shirley Warren feeders not included in the 'sign up' version of the event, 14 show observed reductions / no change in demand and 5 an increase in demand for the restraint hour. For one feeder in particular – Birch Close / Feeder 3 - the observed reduction is close to the 95% confidence level, that is, a 1 in 20 chance that it would not occur naturally.

4.1.6 Big Switch Off: sign up/TP3

For the 'sign up' version of the intervention (Figure 17), the data analysis as set out in Figures 21-24 is more conclusive. These show the weather adjusted analysis for all feeders on the Bindon and Hookpit substations in Shirley Warren and Kings Worthy respectively along with corresponding controls.

• <u>Kings Worthy</u>: for the 3 selected feeders in Kings Worthy with a declared household participation rate of 25% in the Big Switch Off (Feeders 1, 2 and 4), all showed a weather adjusted reduction in consumption for the restraint hour. Individually the reductions were 11% (Feeder 1 serving 61 households), 14% (Feeder 2 serving 26 households) and 21% (Feeder 4 serving 76 households). All 3 selected feeders are on the Hookpit Farm substation. These observed reductions each exceed the hypothesised target of 10%.

In terms of statistical validity, the 21% reduction on Feeder 4 is the most significant, there being a more than 95% probability that the observed reduction was due not to chance but to the research intervention itself. The 14% reduction on Feeder 2 is also close to the 95% probability level. Confidence levels that the observed reductions are attributable to the Big Switch Off impact are reinforced when looking at the 2 control area feeders (Figure 24) where the actual consumption is at or close to the predicted (intervention free) weather adjusted level.

- <u>Shirley Warren</u> For the 2 selected feeders in Shirley Warren with a declared household participation rate of 25% in the Big Switch Off (Feeders 3 and 4), one (Feeder 3 serving 118 households) showed a weather adjusted reduction in consumption for the restraint hour of 19%. The other (Feeder 4 serving 61 households) showed an increase of 8%. Both selected feeders are on the Bindon Road substation. The observed reduction of 19% exceeds the hypothesised target of 10%.
- In terms of statistical validity, the 19% reduction on Feeder 3 is significant, there being a more than 95% probability that the observation would not have occurred by. This result provides evidence to support the hypothesis that observed consumption was due to the intervention. Looking at the 3 control area feeders (Figure 23) where the actual consumption is at or close to the predicted (intervention free) weather adjusted level, the results are also consistent with the hypothesis, that is, that these feeders would remain unchanged.











This analysis is summarised in the table at Figure 20 setting out the results for the selected trial and control feeders. The graphs in Figures 21-24 show the regression analysis results for Hookpit and Bindon substation feeders and the respective control area feeders (Sheppards Down for Kings Worthy and Wakefield for Shirley Warren). The actual consumption values for the day of the Big Switch Off are shown as circled.

Figure 20: MEASURED DEMAND REDUCTION – BIG SWITCH OFF: SIGN UP						
Feeder data monitorin	g, BIG S	SWITCH OFF, 6-7	pm, Sunday 19 No	ovember 2017		
Feeders	No h/h	Measured Demand (kWh)	Predicted Demand (kWh)	Measured v Predicted (kWh)	Load Reduction (%)	Confidence Level (%)
Shirley Warren Trial						
Bindon 3	118	523.8	649.8	-126	-19	>95
Bindon 4	61	534	493.2	40.8	8	-
Shirley Warren Control						
Wakefield 1	54	197.4	210.6	-13.2	-6	-
Wakefield 2	108	597.6	613.2	-15.6	-3	-
Wakefield 3	85	325.2	330	-4.8	-2	-
Kings Worthy Trial						
Hookpit Farm 1	61	499.2	563.4	-64.2	-11	<95
Hookpit Farm 2	26	259.8	302.4	-42.6	-14	<=95
Hookpit Farm 4	76	366.6	464.4	-97.8	-21	>95
Kings Worthy Control						
Sheppards Down 1	31	233.4	232.2	1.2	0	-
Sheppards Down 2	29	291.6	268.8	22.8	8	-













Overall across the 5 trial area feeders selected for the more intensive 'sign up' intervention, 4 show reductions in expected demand in excess of the hypothesised target of 10%. The anomaly is the Bindon 4 Feeder in Shirley Warren where measured demand increased by 8%. This could be due just to the relative randomness of household consumption choices on that feeder.⁵

4.1.7 Calibration of Impacts

As well as assessing the likely attributability of measured demand reductions to the BSO event, 3 other particular points arise from the data analysis in terms of calibration of impacts:

- <u>Participation rates</u> whereas the actual levels of reduction are important, perhaps of greater importance was the opportunity to 'calibrate' observed reduction against the level of household 'sign up' as a measure of the participation rate threshold required to achieve an observable reduction at feeder level. This was achieved, in as much as the analysis shows that a notional participation rate of 25% can be linked to measurable reductions of the order of 10 20%;
- <u>The effect of space heating</u> as shown in the foregoing diagrams, applying the principle of 'heating degree days' (HDDs) to the consumption data reveals the existence of electrical space heating. The steeper the gradient of the line, the greater the use of this heating in

⁵ The intervention effects for all 4 Bindon feeders are shown in Appendix 9. Although measured consumption on feeders 1 and 4 was higher than the HDD model predicted, the consumption was well within the 95% confidence interval of predicted values. These feeders also appear to be less affected by temperature (Figure 21 showing a relatively shallow gradient) with accordingly less scope for demand reduction.



response to colder weather (more HDDs) with consumption increasing as temperature falls. The analysis hints towards use of electrical space heating across both areas especially on those feeders selected for the Big Switch Off: sign up intervention.⁶ The assumption is that in Shirley Warren the steeper gradient is associated predominantly with primary electric heating (for example on Bindon Feeder 3, Figure 21) and in Kings Worthy predominantly with secondary electric heating (for example on Hookpit Farm Feeder 4, Figure 22). Against this reduction, it is important that customers (in particular the most vulnerable) are not inadvertently encouraged to under-heat their homes;

• <u>Scope for reduction</u> – building upon this point, the greater the incidence of electrical heating, the greater the potential impact of any voluntary demand restraint. As an indication, looking at Hookpit Farm Feeder 4 and Bindon Feeder 3, consumption on both feeders is relatively sensitive to temperature as shown in Figures 21 and 22. The load reduction on these feeders as indicated in Figure 20 (Measured v Predicted Demand) equates to an average reduction in consumption per household for the restraint hour of 1.3 kW and 1.1 kW respectively.

4.1.8 Network Capacity released / Scalability

Building upon the CEC research in a business as usual situation, it is crucial for a DNO to understand both the tangible benefits and scalability of specific network interventions aimed at demand reduction.

The intervention affects across all substations on the day of the BSO event (not just the targeted 'sign up' feeders) are summarised in Appendix 9. As such, it is possible to estimate the reduction per customer as a result of the CEC trials, averaging this out across all feeders to depict an estimated mean reduction per customer. This can then be scaled geographically based on customer numbers. Pending continuing development of the Community Model to fit the final network investment tool timetable (due June 2019), initial analysis hints that the Shirley Warren community has interacted comparatively better with whole community based interaction, whilst the Kings Worthy community has interacted better with the more targeted 'sign up' intervention. The community model will look to further quantify and detail these results.⁷

⁷ There is a question as to whether voluntary peak period demand restraint can predictably result in correspondingly increased demand in prior or subsequent periods. This is being explored in detail as part of the SAVE household based trials.



⁶ This links potentially to the Government's Carbon Plan targeting zero emissions from houses by 2050 with an implication accordingly for more electric heating and therefore potentially greater opportunity for demand reduction. See also Para 4.3.5 of this report.

Learning Checklist #5

Key learning points coming through the analysis of demand reduction impacts:

- Progressive interventions throughout TP2 promoting set periods of voluntary demand restraint for households on selected feeders, yielded no consistent, observable demand reduction. The assumption is that actions taken by individual households were not visible against the background fluctuations associated with the number of independent consumption choices being made across multiple households (as evidenced through analysis of substation monitoring data, October 2016 to March 2017);
- Through the 'Big Switch Off' intervention during TP3 (November 2017) with the restraint window reduced to 1 hour (6-7pm) and a declared sign up rate of 25%, we observed a reduction of between 11% and 21% on 4 of the 5 selected feeders. The hypothesised target was 10%. In 3 of the 4 cases showing a measurable reduction, the statistical probability that the results could not have occurred by chance was close to or in excess to 95% confidence intervals (as evidenced through analysis of substation monitoring data, October 2017 to February 2018);
- Weather adjustment of consumption values for the equivalent Big Switch Off hour for the period October 2017 to February 2018 revealed evidence of relatively greater usage of electrical space heating on the 5 selected feeders in both areas as compared to other feeders monitored (as evidenced through analysis of substation monitoring data, October 2017 to February 2018);



4.2 ANALYSIS OF OTHER IMPACTS

4.2.1 Other Quantitative Impacts

Figure 25 below sets out the relative levels of response to (i) an initial DNO branded communication and (ii) a subsequent locally branded communication as part of the 'Baseline Response' and 'Direct Asks' interventions conducted in Trial Period 2.

As a rough test of the 'messenger effect', 20% of households in Kings Worthy and 6% in Shirley Warren responded positively to a direct invitation from the DNO to get involved in the project by returning a tear off 'commitment slip'. This compares to over 50% in both areas responding positively when invited to take energy saving actions through Connecting Kings Worthy or Shirley Warren Working Together – as reported in a subsequent door step feedback survey. As can be seen, there was a much higher response rate for the locally branded approach, particularly in Shirley Warren. Given the different response mechanisms, some caution needs to be exercised in interpreting these results.⁸ The difference in response rates though is interesting, especially in Shirley Warren where initially there was potentially a greater sense of disconnect from key service agencies. Copies of the respective communications are included under Appendix 7.

Figure 25: OTHER QUANTITATIVE OUTPUTS (non-substation data)							
	Shirley	Warren			Kings V	Vorthy	
BASELINE R	ESPONSE - T	P2: DNO bra	nded approa	ch			
no of h/h positive response no of h/h positive response per intervention per intervention per intervention per intervention			response rvention				
100 6%		92 20		%			
	Shirley	Warren		Kings Worthy			
'DIRECT ASI	'DIRECT ASKS: CUT' – TP2: Door Step Feedback - Locally branded approach						
h/h per intervention	Follow up door step interviews	Interviewees responded to 'asks'	Reporting actions related to:	h/h per intervention	Follow up door step interviews	Interviewees responded to 'asks'	Reporting actions related to:
170	21%	58%	Heat (22%) Wash (19%) Lights (31%)	170	30%	51%	Heat (12%) Wash (16%) Lights (12%)

Figure 11 (para 3.2.1) shows these tests in the context of the overall summary of interventions conducted through the trial.

In the door step survey following up the 'cut' version of the Direct Asks intervention, householders generally offered positive feedback on the nature and content of the information received as context for the specific asks. They acknowledged the specific intervention requests but in many cases willingness to respond positively to the various asks was reportedly not always borne out in practice, with many 'forgetting' to take action or being otherwise distracted on the event days. This

⁸ With a need potentially for more specific research.



serves to emphasise the importance in TP3 intervention design of correlating demand impact with declared sign up rates to address this notional 'value/action gap'.

4.2.2 The Priority Services Register

In relation to the Priority Services Register (PSR), the impact measurement was approached in 3 stages: (i) first conducting DNO branded surveys to establish awareness levels (ii) then undertaking locally branded promotion through third party health-related agencies (iii) then tapping into local friendship networks within the trial areas. At set intervals following the two initial stages, attempts were made to interrogate the SSEN Stakeholder Engagement and Vulnerable Customer (SECV) Team's PSR database to compare attributable changes. In the process, the structure of the database was usefully updated to improve its functionality in response to the operational challenges presented through the trial. While this in itself was a positive step forward, associated day to day database cleansing tended, by default, to neutralise intended efforts to correlate increased registration numbers with trial area postcodes.

Figure 26	5: PSR IN	MPACTS					
	Shirley	Warren			Kings \	Vorthy	
PRIORITY S	PRIORITY SERVICES REGISTER – POST TP2: DNO branded survey then locally branded approaches						
Awareness level as per survey	Committed to sign up as per survey	Increase in database post survey	Subsequent sign up: local friendship networks	Awareness level as per survey	Committed to sign up as per survey	Increase in database post survey	Subsequent sign up: local friendship networks
5% of 80 interviewees	45	N/A	10	8% of 85 interviewees	47	N/A	10

Looking at the staged intervention in more detail, the initial stage consisted of street surveys, carried out at school gates and local shops, to establish some baseline information. As can be seen in Figure 26 above general awareness of the PSR in both communities was very low at only 5 - 8% of those interviewed. However, many residents showed an interest in the service taking information for their families, friends and neighbours saying that they would consider signing up or knew someone who would benefit, including those who lived outside of the trial area.

The second stage involved locally branded promotion of the PSR as a service felt to be of benefit to local residents, asking health professionals to share the information with targeted PSR Category 1 & 2 residents within the trial areas⁹. This was met with some willingness from GP's, clinics and other 'surgeries' where information could be displayed in waiting rooms. There was however, a reluctance and at times an inability, for health workers to take this information on at an individual or targeted level due to management policies which required high level permissions for staff to engage.

By contrast, at the third stage, nominal sign up targets through local groups and friendship networks were readily achieved with local groups and residents in both areas being willing to share information and to identify individuals who they felt might benefit. This was particularly the case in Kings Worthy where the local infrastructure is more developed and where there was a local pharmacy which was willing to send out information along with prescriptions, a day centre who

⁹ PSR Categories: Priority 1 - customers needing support within the hour in the event of a sustained power cut; Priority 2 – customers needing support within 2-4 hours.

actively promoted the PSR throughout the winter months and a church which was willing to share with those receiving pastoral care. In Shirley Warren the SWWT group and the Shirley Warren Action Church were the main promoters of the PSR using their local activities and personal networks to identify potential beneficiaries.

This more networked 'local' approach to promoting the PSR was specifically linked to the development of 'caring community' as the key driver for collective behaviour change offering opportunities to address support needs for vulnerable and 'fuel poor' customers.

Simon O'Loughlin, SSEN Stakeholder Engagement Manager, commented: 'the work done with Neighbourhood Economics required different, more local, Priority Services Register reporting to usual business requirements. Working with Neighbourhood Economics we revisited our reporting tools and made significant adjustments which enabled us track changes to our PSR customer numbers on a more local level and with greater frequency in defined postcode areas to gain better insight into signups and what motivates people to register for these additional free services.'

He went to say that 'One hypothesis we wanted to test whilst working with Neighbourhood Economics was that it was most effective and efficient to promote the free of charge Priority Services Register to customers using our own community based advisers. The work used the SSEN Customer Mapping Tool to examine social indicators and involved our local teams promoting the PSR, promotion by Neighbourhood Economics teams as third party intermediaries and partners from within the community itself.

The results clearly pointed to partners from within the community getting better results, followed by trusted third party intermediaries such as Neighbourhood Economics. This has allowed us to change our strategy and we've launched a new initiative to work closer with partners in communities and provide them with more of the information they need to help people sign up to the PSR.'

4.2.3 Qualitative Impacts

In the process of exploring peak demand reduction, the CEC trial has served to create substantial added value in terms of positive social impacts in both communities. These contingent impacts have been categorised into 3 main types – those attributable to the coaching methodology, those attributable to the community-led co-design work and those attributable to the energy interventions themselves, as set out in Figure 27 below. Attributable social impacts range from:

- community based outcomes such as Shirley Warren Working Together becoming a constituted group, the community litter clean ups and community café in Shirley Warren, the reinstatement of the school 'walking bus' and the production of the local short cut orientation and welcome map in Kings Worthy;
- from the DNO perspective, there are increases in 'energy literacy', greater awareness and sign up to the PSR, support for fuel poor and vulnerable customers;
- for other stakeholders there are increases in healthy lifestyles through increased walking, improved mental health through the growth of new care support activities, physical street scene improvements due to clean ups and improved signage, increased social capital and community cohesion, greater awareness of water efficiency and the risks of carbon monoxide.

Reflecting these wide ranging impacts, the coaching process has created substantial added value in delivering 'stackable benefits' which could accrue to the DNO and other stakeholders collectively through a follow on BAU Programme. Benefit stacking could offer opportunities for cost effective



collaboration taking account of the declared priorities of all stakeholders involved. The idea of 'stackable benefits' is one that appears to resonate and have traction for all key stakeholder agencies involved.

Ben Earl, Water Efficiency Manager with Southern Water says that 'The novel approach of the Coaching trial to working with stakeholders has shown the benefits of breaking down the barriers between agencies and the positive benefits of collaborative working to approach the shared challenges we face. I have been so impressed by the success of this approach that I am working with partners from within the gas and energy utilities to look at ways of continuing to work together by pooling our resources to collectively benefit communities.'

Of particular interest to DNOs is the opportunity to take learning from the CEC trial and explore new collaborative approaches through Constraint Managed Zones CMZ's ¹⁰ with a view to making them more accessible to smaller/local companies that may be more likely to bring social value as well as pure load reduction. As CMZ techniques do not seek to increase capacity but reduce or manage demand to avoid capacity constraints there would appear to be a natural 'fit'.

Attril	outable to coaching methodology		Current Status
sw	New constituted community organisation	 Increased volunteering / activism An empowering voice for the community Point of contact for service agencies Transformational confidence boost 	One year Annual General Meeting in March 2018
кw	Bringing organisations together	 Closer (more connected) joint working Adding value not burden 	Ongoing
SW KW	Locally branded change initiatives	 Focus on 'bigger picture' change opportunities Trusted intermediary status Platform for creating distinctive identity 	Ongoing
SW KW	Collaborative Community Improvement Strategies	 Consensus on shared priorities Direct support to deliver activities / programmes Established Co-design / Development Groups 	Ongoing
Attri	outable to DDS co-design work		
кw	Walking (and cycling) Campaign including Mark 1 Route Map	 Reduced car usage on school run through increased knowledge of 'shortcuts' Increased levels of health through walking / cycling Increased community interaction through events 	'walking bus' Reinstated 200 children play in park before school
КW	Mark 2 Welcome Map	 Reinforcing caring image Reinforcing sense of community 	Ongoing
ĸw	Support for Festival	 Enhanced DNO reputation Peak issue/BSO awareness raising Validation of community action Reinforcement of mutually beneficial support through specific coach role on Festival Committee 	one off
КW	Involvement of school/uniformed groups	 Development and testing of walking routes/map, reinstatement of school walking bus and ongoing interest in wider energy agenda. 	Ongoing

Figure 27: ARRAY OF ATTRIBUTABLE SOCIAL IMPACTS

¹⁰ A CMZ is a geographic region served by an existing network where security of supply is met through the use of flexibility services, such as Demand Side Response, Energy Storage and stand-by generation. DNOs have traditionally met security of supply standards by increasing network capacity (installing new electricity cables and substations).



SW	Community Café	 Widening community networks Support for vulnerable people (regular daily attendance of 30+ parents / children) Building personal and community confidence Restoration of Councillor contact 	Ongoing
SW	Identification as 'Action Centre' as a catalyst for community-led change	 Introduction of elected member surgeries Increasing participation in lunch club, art group, kids club, family lunches etc. New Parent and Toddler group set up in Sept 2017 building on SWWT baby-sitting circle and informal child care/support networks 	ongoing
SW	Purpose built Community Café / Action Centre	 New pipeline Community Hub venue Formal planning and consultation work Funding bids / Resource generation 	planning continuing
sw	Community Clean ups	 Increased volunteering Public areas cleaner / safer / less fly tipping Increased community pride Tangible evidence of change Widening community networks 	Ongoing
SW	Financial Inclusion / Money Saving Events	 Individuals receiving direct advice Awareness raising on energy issues Links made with key support agencies 	Ongoing
SW	Health / advice sessions	 Increased health awareness Reduced health inequalities Carbon Monoxide awareness 	Ongoing
SW	Community Fund raising events	Increased community fundingIncreased social capital	Ongoing
Attril	outable to interventions programme		
SW KW	Online/ social media	Dedicated websiteFacebook network	Ongoing
SW KW	Energy Awareness / Literacy	 Creative Platform / branded materials Energy Literacy toolkit Increased participation in energy saving activities (Focus Groups / BSO / Events / School activities) Materials delivered to every household as part of locally branded community action 	ongoing use of branded material
SW KW	Formal Community Planning	 Resilience Plan Sustainability Plan Community Plan / Parish Plan 	ongoing as part of legacy plans
SW KW	Commitment to Caring Community	 PSR sign ups / focus on vulnerable people Commitment to ethical / environmental action Commitment to demand reduction as part of community-led change initiative 	ongoing as part of legacy plans
SW KW		 10 point 'Connected Community' plan 	ongoing as part of legacy plans
SW		 Slow Cooker Club / Focus on food / timesaving as a vehicle for changing energy behaviour 	ongoing as part of legacy plans
кw	Key Legacy commitments	 Mutual reinforcement of energy and environmental messages across community groups & with 'eco' church development 	ongoing as part of legacy plans
KW		Demonstration energy efficient building	Ongoing as part of legacy plans
SW		 Regular Demand Reduction / BSO Event days 	ongoing as part
SW		Regular clean ups	ongoing as part



4.2.4 Project Cost Breakdown / cost efficiency of individual measures

Trial costs have been allocated against the various elements of activity undertaken since project inception. The breakdown (Appendix 11) offers a rough guide on the proportion of costs incurred on 3 broad types of activity:

- <u>Project Management</u> costs directly attributable to setting up and managing TM4 as a research project these costs are seen as constituting a one-off, non-recurring investment to secure research outcomes which might subsequently underpin a BAU community engagement programme;
- <u>Generated Learning</u> costs directly attributable to generating tailored learning outcomes designed to inform BAU activities these costs are seen as constituting a one-off, non-recurring investment to secure research outcomes which might subsequently underpin a BAU community engagement programme;
- <u>BAU Starter</u> elements of research cost which might be expected to be incurred at some level in delivering a subsequent BAU engagement programme building upon learning generated through the research trial - this constitutes the baseline as further refined in Appendix 13 looking at guidelines for future rollout in more depth. As a rough guide, the estimated 34% of trial costs being allocated to these research elements equates to a benchmark cost per trial community of the order of £100,000 to secure recorded social and energy related impacts.

4.2.5 The value of direct DNO / customer interaction

One of the key bid commitments in the original LCNF bid for SAVE (Figure 3) was to determine the merits of DNOs interacting with customers on energy efficiency measures as opposed to suppliers or other parties.

Given the DNO's relationship with customers within any given community, where all who live or work there will receive their electricity via the same local network, regardless of supplier or other parties, they are in a unique position to take the lead on community based customer interaction. Based on the experience of the CEC trial, there are 3 ways in which the interaction between the DNO and customers has been particularly beneficial:

- <u>Energy Literacy</u> in facilitating measures aimed at improving Energy Literacy specifically appreciation of the distinctive role of the DNO;
- <u>Trusted Local Intermediaries</u> in co-creation of local organisations acting on behalf of the DNO in facilitating change in peak demand behaviour allowing the DNO and other stakeholders to engage residents on a 'one to many' rather than 'one to one' basis;
- <u>Collaborative BAU engagement programme</u> in the specification of formal guidelines for potential rollout of a replicable BAU engagement programme harnessing the value of stakeholder collaboration and the 'stackability' of multi-agency benefits.

A key outcome of the CEC trial has been to show the complementary merits of building longer term partnership based interaction through a trusted intermediary to deliver both the DNO's own energy agenda and wider social outcomes.



4.2.6 Key feedback quotes

Throughout the course of the CEC trial, the project has captured a range of specific quotes from those involved. These are summarised in Figure 28 below

Figure 28: WI	HAT PARTICIPANTS HAVE SAID ABOUT THE CEC TRIAL
Who	Quote
Cllr Jackie Porter Hampshire County Council/Winchester City Council/School Governor/ Connecting Kings Worthy	 'Thanks to the SAVE Project and the work of Connecting Kings Worthy, of the 33 areas I represent, Kings Worthy is the only area where issues of energy are visible and people are happy to engage in conversations around energy efficiency, peak demand and associated wider environmental issues.' 'One of the positive impacts of SAVE has been the reinstatement of the walking bus, which now operates 5 days/week, and the fact that there are now up to 200 children playing on the school fields before school each day.'
Stella Bowling Connecting Kings Worthy	 'Although I was fairly energy conscious before attending the SAVE Project, I learned some useful tips and enjoyed meeting other members of the local community to share ideas. I now think more about saving energy and am using my slow cooker more often, even using it to cook 'roast' beef which is very tender!'
Malcolm Prince Winchester City Council/Connecting Kings Worthy	 'The SAVE Project was very successful at harnessing the support of existing groups and organisations in Kings Worthy, encouraging and enabling them to take on board the energy agenda through their own routine activities. Rather than trying to reinvent the wheel, it has used to advantage the mature network that already exists to deliver its messages – for example, during Lent the churches suggested a different eco activity each day and the Worthy's Parish Magazine now has a full page of energy tips each month. This less direct approach has provided the catalyst for action and has helped to increase the sense of 'connectedness' between local groups.'
Tom Brenan Chief Executive WinACC	• 'The SAVE project has played a key role in WinACC's community engagement work over the past two years. We are using the learning from this to help shape future plans and projects.'
Alison Skillen Coach – Kings Worthy	 'Throughout the SAVE research, the feedback from the community has been that they don't have the time, or necessarily the interest, to spend trying to make sense of energy, kWh or wider environmental issues. So rather than broach the energy agenda up front we realised that food was a great way to encourage people to start a conversation where we could begin to address these issues but from their starting point and not ours. Once residents understood peak demand they just wanted to know what simple and easy changes they could undertake that would make a difference. As an environmental charity, messaging at the right level is key to our success, so we have taken these lessons learned from SAVE, and in particular the need to present information more simply and visually, to adapt how we work with organisations, communities and individuals.'
Jenny Elliott Minister Shirley Warren Action Church & Chair of Shirley Warren Working Together	• 'The SAVE Project has totally transformed Shirley Warren – it has been the catalyst for action – bringing together local people to deliver positive change in their own community as well as achieve reductions in peak demand. A real win/win. We're so glad we got involved.'
Heather Read Shirley Warren Working Together	• 'I have made friends for life as a result of the SAVE Project –where I was previously isolated I now have a great support mechanism in place both for me and my family which has made an immense difference to how we feel about each other and the community we live in.'
Alison Joyce Shirley Warren Action Church	 'The coaching approach has been spot on – it has worked from the bottom up to ensure the community has had a voice and has been empowered to act – both upon our own agenda but also in support of the energy agenda. Unlike other 'top



	down' initiatives we have not felt done to but valued and included. In recognising that those within the community are best placed to come up with workable strategies for that particular place/set of circumstances and the value of 'change agents' (in this case SAVE) in providing the motivation, ideas and prompt to action has had the added benefit of allowing us to be the experts on what works for our community which has brought about greater success. It has been a genuine collaboration!'
Angie Baker Shirley Warren Working Together	 'Energy is now a thread interwoven into our daily conversations – and that is because the coaching approach took the time to encourage us to understand and own the issue, allowing us to find our own ways of talking about energy and encouraging us to share our solutions with each other.'
Emma Bailey Shirley Warren Working Together	 'We feel like we have been treated like part of the solution rather than part of the problem and it is so refreshing not to feel patronised and done to.'
Michele McHugh Shirley Warren Working Together	 'This Project has raised my awareness of how to use energy better. The approach enabled me to understand and ask questions without feeling like an idiot! The SAVE team were willing to engage and work with us. As a result our community feels like a friendlier place to be.'
Christine Whitcher Shirley Warren Working Together	 'The hands on approach of this Project have helped us to create a friendly community where I can be myself. I no longer need to try to be different. I am accepted for who I am. I feel more loved and valued. Our community café has given me a new lease of life.'
Adam Goulden Chief Executive tEC	 'The Environment Centre is delighted to have been involved in the SAVE Project. It has also allowed us to work with a range of new and interesting partners including community engagement experts, local authority stakeholders, utility companies, academics and third sector organisations.' 'We have learned a great deal through the SAVE Project and are actively incorporating new approaches into our everyday activities.' 'The SAVE Project has allowed us to work closely with some amazing people, helping them to form a constituted community group and, with them, deliver a variety of events and activities which have achieved real outcomes for local residents. We hope to continue to work with those groups as part of the legacy of this Project.'
Zaki Mafoud Coach – Shirley Warren	 'Working with the community to support residents to develop and deliver their own agenda has been an interesting new way of working. The relationship we have built with the community has been mutually beneficial, facilitating the delivery of the energy saving message, achieving real improvements in the community, while furthering our understanding of the residents we support. I am keen to maintain the good relationships we have made within the community and to broaden the range of issues we work with residents to address. This is an approach that I will continue to use, both in Shirley Warren and with other communities in Southampton.'
Jason Light Strategy Lead (Environment) Eastleigh Borough Council	 'The SAVE Coaching approach has successfully demonstrated how you can support people to understand an issue and empower them to seek their own solutions which can be different for each person and can change over time. This makes coaching much more resilient than a traditional marketing approach as it provides people with the flexibility to respond to changing situations.' 'The Coaching approach has shown that people talking to people is a powerful tool for change. Given the current mistrust in 'experts' people would rather talk to a friend, so the coaching trial has been well timed in demonstrating the powerful impact of peer to peer information sharing through trusted local contacts.' 'Here at Eastleigh Borough Council our management team has been undergoing coaching training so it has been really interesting to see how the principles of coaching have been applied to a community setting. Having a new appreciation of what could be achieved, I have watched the connections they have made with



	the energy agenda and the way in which they have taken ownership of the issues
	 'A community coaching approach is more resource intensive at the outset but I
	believe that the flexible and resilient nature of the response achieved makes it a
	much more cost effective approach in the longer term.'
	• 'Southampton City Council is really pleased to have been involved with the SAVE
	Project. It has succeeded in engaging the residents of a previously 'hard to reach'
Stove Hoves Arter	community through the coaching approach. Alongside the peak demand reductions
Southampton City	made to the resilience of the community though the support given to residents to
Council	set up their own community café, undertake local litter 'clean ups and establish
	local support networks through the creation of Shirley Warren Working Together.
	The work of the SAVE Project has provided us with a local reference point for
	ongoing local communications where previously we had none.'
	 Working on the CEC trial has allowed us to develop productive and positive working relationships with the utilities. We have been able to identify common
Steve Lincoln	goals around more sustainable communities and better understand the benefits of
Community Planning	working together within a defined community. This different way of working has
Manager Winchester City	resulted in other areas of joint working beyond the trial communities involved.'
Council	• The work of the 'Connecting Kings Worthy' group in encouraging more walking in
	the community, particularly through the school, directly contributed to the
	Winchester City Council corporate "Feet First campaign in 2016/17. (Although initially scentical about what the coaching approach could achieve L have
Paul Ciniglio	been impressed with the outcomes of the trial - the way in which the Project
BM3e – Boulter	successfully engaged with the communities; the messaging used; giving the
First Wessex Housing	communities a tool kit to make peak demand/energy efficiency and what to do
Association	about it understandable. In particular I feel that this approach and 'toolkit' would
	be of use to help other communities - to empower them to change for the better.'
	 The Coaching trial has demonstrated how to harness the energy and enthusiasm of two very different communities. The impact has been really impressive.
	empowering positive changes within both communities and in the individuals
	involved, creating a template for multi-utility engagement with communities in the
Ben Earl Water Efficiency	future.'
Manager	• 'The novel approach of the Coaching trial to working with stakeholders has shown
Southern Water	the benefits of breaking down the barriers between agencies and the positive
	been so impressed by the success of this approach that Lam working with partners
	from within the gas and energy utilities to look at ways of continuing to work
	together by pooling our resources to collectively benefit communities.'
	• 'The SAVE Coaching trial has provided a unique opportunity for SGN to work
Susan Day	alongside other local utility companies and to share in the learning generated. We
Stakeholder	have been particularly impressed with the nature of the community engagement
Engagement Manager	responses to the issue of peak demand. At SGN we are keen to continue
SGN	developing this collaborative approach in our work with partners from the other
	utilities.'
	• 'The stakeholder work carried out by Neighbourhood Economics has facilitated
	cross-industry understanding of how utilities and local authorities might share
Charlie Edwards	agenuas, fieldwork and customer relationship management. Next steps should
SAVE Project	parties to share costs and benefits of a given initiative. From a consumer
Manager	perspective as well communities have noted how this joined up messaging relays
	more succinctly than multiple overlapping streams of messaging. Future
	discussions must look at how this process could be fairly commercialised and
	implemented at scale.'



Simon O'Loughlin Stakeholder Engagement Manager SSEN	 'The work done with Neighbourhood Economics required different, more local, Priority Services Register reporting to usual business requirements. Working with Neighbourhood Economics we revisited our reporting tools and made significant adjustments which enabled us track changes to our PSR customer number on a more local level and with greater frequency in defined postcode areas to gain better insight into signups and what motivates people to register for these additional free services.' 'One hypothesis we wanted to test whilst working with Neighbourhood Economics was that it was most effective and efficient to promote the free of charge Priority Services Register to customers using our own community based advisers. The work used the SSEN Customer Mapping Tool to examine social indicators and involved our local teams promoting the PSR, promotion by Neighbourhood Economics teams as third party intermediaries and partners from within the community itself. The results clearly pointed to partners from within the community itself. The results, followed by trusted third party intermediaries such as Neighbourhood Economics. This has allowed us to change our strategy and we've launched a new initiative to work closer with partners in communities and provide them with more of the information the partners in communities and provide them with more
	of the information they need to help people sign up to the PSR.'
Alison Dean Stakeholder Engagement Manager SSEN	 'Building on the learning from the SAVE Project, SSEN is keen to use the Energy Literacy Toolkit that has been put together with the trial communities' support to enable local partners, as trusted intermediaries, to provide their own branded factsheets that can help them offer energy efficiency advice which is relevant and useful in the local communities they serve.'



Learning Checklist #6

Key learning points coming through the analysis of other impacts aside from demand reduction:

- As an initial benchmark, response levels to a request to 'be part of forthcoming energy research' were significantly higher in Kings Worthy (20%) as compared with Shirley Warren (6%) (as evidenced through the Baseline Response intervention analysis);
- As a rough test of the 'messenger effect', 20% of households in Kings Worthy and 6% in Shirley Warren responded positively to a direct invitation from the DNO to get involved in the project, compared to over 50% in both areas reporting a positive response when invited to take energy saving actions through Connecting Kings Worthy or Shirley Warren Working (as evidenced through Baseline Response and Direct Asks / doorstep feedback interventions);
- PSR awareness levels were below 10% in both communities 8% in Kings Worthy and 5% in Shirley Warren (as evidenced through dedicated interview questionnaires);
- As a further indication of the 'messenger effect', working through the locally branded platforms and local friendship networks, the team was readily able to identify customers with particular needs in relation to eligibility for PSR registration (as evidenced through co-design and convergence activities);
- A wide array of positive social impacts has been generated throughout the active engagement period of the trial arising from the coaching approach, the DDS codesign work and the energy interventions themselves. As well as adding value to the social fabric in each area, these impacts provide a benchmark for the scale and range of 'stacked' benefits which the DNO and other stakeholders could anticipate in any subsequent, scaled BAU engagement programme (as evidenced through codesign, focus group, convergence activities and Final Co-design Dissemination event);



4.3 SUSTAINABILITY OF BEHAVIOUR CHANGE IMPACTS

4.3.1 The Assumption

There is an assumption in the hypothesis for the Coaching trial (Para 1.2.3) that "... positive behaviour change is more likely to be reinforced and sustained in the long-term by the momentum of pooled stakeholder effort". As such, four specific means for sustaining positive change emerged through the Coaching trial. These are outlined below.

4.3.2 Energy Literacy Toolkit

Through initial engagement and baseline work it was established that both communities were characterised by relatively low levels of awareness of energy issues. Gradually through the co-design process this has come to be recognised as a matter of 'energy literacy' (para 3.2.3).

Echoing the need to address Energy Literacy levels, few in the community were aware of the significance of peak demand or why it might be an issue for the DNO. Once explained, there was a clear understanding across all groups of why this should be and a general willingness to 'shift' usage of certain items out of this peak time in order to do their bit to help.

A substantial creative platform (see Appendix 7 for a full inventory of creative materials) has been generated as part of trial which, with minor adaptation, could be ready for conversion into either a generic toolkit and /or branded material for other communities to use.

4.3.3 Making the Emotional Connections

As it has evolved over the trial's 2 year active engagement period, the essence of the coaching approach has become characterised as - *'making emotional connections'* - among and between organisations and individuals and with particular environmental and ethical issues. This builds upon the idea of 'connectedness' as coming through the original DDS work (para 3.1.5).

Building upon trust relationships developed through the trial, the concept of 'Connected Community' has served to facilitate and empower positive change, both 'top down' and 'bottom up', building upon the idea of emotional connection. An indication of some of the potential benefits is set out in Appendix 12.

The DNO has an opportunity in seeking to engage more effectively and sustainably with communities to develop the idea of 'connectivity', aligning the idea of physical connections to the energy network with emotional connections to and within communities. Demand reduction is accordingly not so much about 'making connections with the network' but rather about 'facilitating emotional connection' within the community. This idea underpins the Stepped Guide to rolling out a 'Connected Communities' Coaching Programme (Appendix 13) with a view to sustaining both demand reduction and social impacts.



4.3.4 Trial Area Legacy Plans

In both communities, work continued during the challenge year (2017) to bring together the community focused work of the DDS and integrate it with the energy agenda. Culminating in the Convergence Focus Groups conducted in Trial Period 3, the 'making the emotional connections' internal video was used to remind people of the journey they had been on and to see what had been achieved on both fronts during the course of the project. Ensuing discussions enabled the groups to reflect upon what they had achieved of their own aspirations and how much 'energy' had become a natural part of their conversation in the process.

Building upon this, the communities identified a range of actions which they each felt could be continued past the end of the trials in December 2017. Revisiting the groups for a 'legacy' session in February 2018 provided an opportunity for them to re-evaluate the impact of SAVE and to reaffirm their position with regard to a range of legacy commitments.

It would appear, based upon the qualitative feedback at these meetings and again at the Final Dissemination Event held in March 2018, that there is a clear sense that 'energy is now a thread running through local conversations' and that a commitment to maintain an interest in demand reduction and build some continued reference/action linked to it into the community's longer term improvement plans will happen.

Given the original hypothesis for the CEC trials (para 1.2.3), it would appear that the coaching approach has demonstrated that the impact is likely to be deeper and longer lasting than might otherwise have been expected. A further opportunity to test this hypothesis will come in November 2018 when there will be an opportunity to revisit both areas to discover what has happened to the energy agenda since the end of the project in December 2017.

The formal commitments made by each community as of February 2018 are set out in Figures 29 and 30 overleaf.

4.3.5 Contribution to the Government's current strategy for reducing greenhouse gas emissions as set out in the 'The Carbon Plan'

The Carbon Plan sets out how the UK will achieve decarbonisation within the framework of current UK energy policy. Current policies put the UK on track to reduce emissions of CO_2 by a third on 1990 levels by 2020. During this decade, the Government is developing and deploying the technologies that will be needed to halve emissions in the 2020s. This will put the UK on a path towards an 80% reduction by 2050.

To achieve these targets the electricity sector will have to review current policies and practices and adopt new technologies that will enable it to deliver the electricity needed but with a significant reduction in emissions. This challenge is significantly increased by the new buildings emissions target of close to 0 by 2050 which is likely to see an increase in electric heating demand and an associated greater peak. In managing this increase there will need to be an increase in the supply of renewables and resultantly (given inflexibility of supply) greater attention paid to demand side response programmes such as that demonstrated by the CEC trials. Estimated CO₂ reductions for the CEC Trials are included in Appendix 9 (Figure A2) which looks at Network Scalability based upon load reductions achieved during the BSO event.

The CEC Trial and any potential developing BAU programme could contribute to the knowledge base required to meet these ambitious targets by working with communities to increase their awareness


and knowledge in Energy Literacy, energy efficiency and associated environmental issues and by encouraging and facilitating action by domestic customers to adopt energy efficient behaviours and undertake home improvements and adaptations which support targets for Lower Carbon Buildings, Low Carbon Electricity, Low Carbon Waste/Reuse, and Low Carbon Transport in particular.

The research learning inherent within the Energy Literacy Toolkit developed through the CEC Trial, could usefully feed into the Department for Business, Energy and Industrial Strategy (BEIS)¹¹ current work on building a market for energy efficiency.

4.3.6 Stakeholders' Good Practice

For key service agencies (such as utility companies, local authorities, housing associations, health bodies) to interact successfully with communities to change behaviour, those agencies need to review their own behavioural norms. This is a clear message coming through the CEC trial on a number of fronts, notably, around consistency of interaction, awareness of community issues and priorities, provision of catalytic, in kind support, overcoming silo mentality and seeking co-designed solutions to shared problems.

Feedback from key stakeholders who have been involved throughout in shaping and overseeing the trial (utilities, local authorities, housing agencies, environmental groups) validates the co-design approach. It is seen as more likely to lead to sustained behaviour change on the basis that continued collective investment in a coaching style engagement can be shown to be a cost-effective option in delivering predictable benefits to stakeholders in future.

Stakeholders involved in the trial have already taken steps to continue the pattern of collaborative work established through the trial. The three utilities involved in SAVE (SSEN, Southern Water and SGN) are actively looking for new ways to work together in order to build upon the potential for 'stackable benefits' that a joint approach provides. Similarly the relationships that have evolved through the Stakeholder group has seen new linkages made with, for example, a representative from SSEN now sitting on the tEC Board and an Eastleigh Borough Council officer upon the WinACC Board. In addition, the two host organisations tEC and WinACC have both expressed their desire to continue to provide support to both trial communities in a more 'light touch' way given ongoing resources, but to extend the principles of the coaching approach where possible and appropriate to their work in other communities.

Given the very positive feedback from residents and stakeholders alike to the coaching approach, there is an opportunity as a clear step forward for the DNO and other stakeholders to jointly adopt a new protocol for community engagement as an expression of conscious change in collective behaviour. This would demonstrate a real willingness to embrace the lessons from TM4 and provide a public commitment to working differently and collectively with other stakeholders and communities in the future. This is elaborated further as part of the Learning Outcomes section of this report. In addition there are opportunities for stakeholders to build upon the relationships established with both trial communities to support the delivery of the local legacy plans for example the DNO with the development of local community resilience plans.

¹¹ BEIS Call for Evidence on Building a Market for Energy Efficiency (Published 12 October 2017).



Figure 29: LEGACY PLAN - SHIRLEY WARREN WORKING TOGETHER



Looking a year ahead, the SWWT Development Group want to see SWWT actively continuing to promote energy saving messages, including those started through SAVE, alongside activities to promote wider social benefit. In particular:

- They want to see if they can undertake a BSO in November 2018 to build on 2017's successful event;
- They want to continue to promote the 'can it wait 'til after 8' message and other energy saving messages to encourage people to use less at peak times but through regular 'touch point' activities rather than set piece events;
- They would like to see a slow cooking club where people could learn how to use slow cookers and benefit from both the time, cost and energy savings to be made but would need some additional resource/staff/volunteer time to enable it to happen. If there was an opportunity to tie in with a 'healthy eating' type project to access additional help/support that would make it more achievable;
- They intend to continue to undertake regular clean ups to reach further into the community helping to restore pride in SW and the way it looks;
- They would like to see the new Community Café built at the front of the Action Centre and in operation with an 'eco' focus (or similar) to actively embrace energy issues by using energy efficient appliances, looking at environmentally friendly use of disposable (compostable) cups and plates rather than using the dishwasher, possibly having solar panels to generate its own electricity, energy saving messages and information being available to users and so on;
- They would like continued access to the materials designed for the project, for example, the fridge magnets, information sheets and so on;
- They would like to invite Alan Whitehead (MP for Southampton) to talk to them about wider energy policy issues that they are interested in exploring as a result of the project, raising mutual awareness of the impact of energy and environmental policies upon local residents. They will look for a suitable opportunity to do this;
- They would like to try and integrate energy into other community activities and make it something that they do across the board as a matter of course embedding the learning locally.
- Making the most of the links they now have with tEC, they would like to access energy efficiency support/ tie in with other available projects and with other organisations for broader support as needed;
- They are happy to engage with SSEN Customer Relations team staff to look at community resilience planning.



Figure 30: LEGACY PLAN - CONNECTING KINGS WORTHY



Looking a year ahead, the CKW Development Group want to build on the neutrality of the CKW brand and see it used to underpin the 'specialness' of Kings Worthy as an active and 'connected' community. Specifically they want to:

- Actively use the CKW brand to continue to promote both energy saving and wider environmental messages, including those started through SAVE;
- See the Group continue to meet on a quarterly basis to provide a focus and drive to ensure the brand continues to be used/developed;
- Use the CKW brand at upcoming Church and School fairs to promote specific community wide energy/environmental messages linked to the development of the 'eco' Church and school curriculum in the first instance;
- Build on St Mary's Church's aim to become an 'eco' church and make the wider community aware of the background and potential impact along with opportunities for reinforcing energy and environmental messages/action;
- Maintain use of the CKW website and FB page to promote associated local activity;
- Building on a local visioning exercise, to create exemplar community buildings where the community can see for themselves the difference energy efficiency measures can make through for example. Solar PV and a public display unit;
- Continue to look at the opportunity to develop a 'Sustainable KW' strategy which all groups could independently adopt as part of their BAU practice;
- Work with the SSEN Customer Relations Team to update the parish resilience plan;
- See the development of a SAVE app as a legacy of the project which would have a simple slide calculator to show impact in money saved of energy efficient actions undertaken for example slow cookers, shorter showers etc. This would require ongoing, external support;
- Continue to receive support from WinACC for on the ground help to enable the group to deliver on these aspirations.



Learning Checklist #7

Key learning points coming through the review of the sustainability of behaviour change impacts at the latter stages of the trial:

- In relation to 'Energy Literacy', a substantial creative platform has been generated as part of the trial which, with minor adaptation, could readily be converted into either a generic toolkit and /or branded material for other communities to use (as evidenced through focus group work, final dissemination event);
- As evolved over the course of the trial, the essence of the coaching approach has become characterised as - 'making emotional connections' - among and between organisations and individuals and with particular environmental and ethical issues. Building upon this joint 'ownership' of energy issues, the DNO has an opportunity in seeking to engage more effectively and sustainably with communities to develop the idea of 'connectivity', aligning the idea of physical connections to the energy network with emotional connections to and within communities (as evidenced through final dissemination event and feedback / quotes from stakeholders);
- There is a clear sense within both communities that 'energy is now a thread running through local conversations' and that a commitment to maintain an interest in demand reduction and build some continued reference/action linked to it into the community's longer term improvement plans will outlive the project. This commitment reinforces the ongoing opportunity for 'one to many' rather than 'one to one' engagement with DNO customers through the local trusted intermediary organisation. It is embodied in the formal legacy plans for each community (as evidenced through final dissemination event and convergence activities);
- Key stakeholders involved in the trial have already taken steps to continue the pattern of collaborative work established through the project. Given the very positive feedback from residents and stakeholders alike to the coaching approach, there is an opportunity as a clear step forward for the DNO and other stakeholders to jointly adopt a new protocol for community engagement as an expression of conscious change in collective behaviour (as evidenced through final dissemination event and feedback / quotes from stakeholders).



4.4 LEARNING OUTCOMES

4.4.1 5 Key Themes / 5 Key Audiences

Reflecting the SAVE Project bid commitments and the specific trial hypothesis, the key conclusions drawn from the TM4 Community Energy Coaching trial are centred around 5 themes:

- **Delivering Peak Reduction** •
- Joined Up Stakeholder Working
- Improving Community Engagement
- Adding Social Value
- Sustaining Positive Impacts •

Taking each theme in sequence, a series of specific Learning Outcomes have been identified drawing together key learning points as check-listed periodically throughout this report.

The Delivery Team appreciates that the results of the CEC trial research will be of interest to a range of different audiences with different focuses (Figure 31). The Learning Outcomes have been colour coded to show which audiences are likely to be most interested in any particular outcome.

Figure 31: 5 KEY AUDIENCES		
Audience	Focus	
DNO Network Planners	focused on optimising network investment and potentially open to alternatives to straightforward reinforcement of network capacity	
DNO Customer Engagement Teams	looking for innovative tools and techniques for engaging communities (especially 'hard to reach' groups) to address vulnerability issues and increase resilience	
DNO Stakeholder Engagement / Other Utilities and Strategic Partners	developing strategic alliances to support organisational performance, deliver on key social obligations and maximise collaborative social impacts and cost efficiencies	
Third Sector infrastructure bodies and community-based organisations	seeking to promote energy efficiency and related ethical behaviours	
Industry bodies, Government Agencies and academic institutions	promoting research based innovation and best practice and identifying means of achieving wider policy level targets	

The Learning Outcomes represent the significant and essential knowledge, insights and understanding gained as part of the CEC trial. They are presented with a view to:

- offering guidance to SSEN and their key stakeholders regarding ongoing 'business as usual' (BAU) operations;
- alerting other DNOs to relevant learning around peak demand, community engagement and • delivery of social obligations;
- underpinning future resource generation for potential follow on replication work; •
- facilitating legacy planning and operational relationships between project participants; •
- adding value to the other SAVE trials which remain active until the end of 2018. •



4.4.2 Learning Outcomes



LO3 Cooking Routines **Delivering Peak Reduction ...**

... across the 2 trial communities, the team addressed widespread resistance to changing evening cooking routines in family households ...

On the subject of cooking routines, the team was told early on that seeking to change cooking routines in family households would be a step too far. While non-working households might in theory be more responsive, this would be seen as a taboo subject especially for busy families where lifestyle change was not regarded as a practical option. However, further focus group work revealed that by presenting the value of change in alternative terms, notably saving time, was seen as acceptable and helpful. Things like use of slow cookers and batch cooking could accordingly be seen as attractive options offering some traction in reducing peak demand by implication. Recipe sharing activity on the local Facebook pages, especially in Kings Worthy, was a validation of this idea. Through events and promotions, the team was able also to build engagement routines around the theme of 'alternative cooking', demonstrating the value of low energy baking, slow cooking and batch cooking in terms of both saving time and saving energy. Social events with a food / cooking component were also helpful in creating opportunities for behaviour change messaging. In Energy Literacy terms, the Power Draw chart was helpful here in in emphasising the relative significance of cooking in contributing to peak demand

LESSON / ACTION: rather than being a taboo subject, a focus upon cooking and food can be a valuable catalyst in shaping energy efficiency campaigns aimed at peak reduction.

Section Ref:

3.2

Delivering Peak Reduction ... LO4 ... the scope of the research interventions was constrained by the technical **Substation** challenges related to analysing changes in collective consumption behaviour Monitoring at substation level ... The team confronted a number of challenges related to monitoring and observability of relatively small changes in consumption and the associated confidence with which changes can be seen as attributable to specific interventions. These challenges have necessitated options appraisal work to identify creative solutions in final trial period design. In the event of any further rollout of a community-centric coaching programme, alternative monitoring solutions might usefully be considered linked specifically to measurement of peak demand rather than measured consumption. If the key issue in an operational setting is the frequency with which a capacity ceiling on a substation transformer is breached, it might be useful to explore options for installing equipment which could issue an alert whenever this occurs. Achievement in reducing peak demand might then be a matter more simply of recording the number of 'breach' events rather than more elaborate third party monitoring requiring analysis based on measured consumption over time. In this way, the monitoring requirements associated with future community-based research and/or scaling of the coaching approach could be more closely aligned with low cost substation monitoring techniques and devices already in operational use. Section Ref: LESSON / ACTION: to address the challenges faced in measuring peak demand reduction, alternative low cost substation/feeder monitoring solutions should be reviewed in anticipation 3.4 Appendix 13 of any next stage programme rollout.



LO5 Percentage Reductions ... through a combination of narrowing constraint periods, highly nuanced messaging and a known level of declared participation in specific tests, the team was able to observe a measurable demand reduction in excess of 10% on selected substation feeders ...

In successive iterations over the course of the trial, data related interventions have been designed within increasingly narrow restraint windows, increasingly nuanced messaging and increasingly intensive promotion - with a view to being able to assess the point at which a measurable reduction in demand could confidently be observed through feeder level consumption monitoring.

This process culminated in the 'Big Switch Off' (BSO) event in November 2017 which was delivered as part of Trial Period 3 activity. For the BSO, the restraint window was reduced to 1 hour (6-7pm), messaging was themed around 'Caring Community' and there was a declared sign up rate of 25%. Under these circumstances, the team observed a reduction of between 11% and 21% on 4 of the 5 selected feeders across the 2 communities. This compared with the hypothesised target of 10%. In 3 of the 4 cases showing a measurable reduction, there was a more than 95% probability that the observed reduction was due not to chance but to the research intervention itself.

As an indication, a 15% reduction in consumption if replicated across each 1000 household trial community between 4-8pm would amount to a notional drop in consumption of the order of 4000 kW.

LESSON / ACTION: these demonstrable levels of demand reduction provide the benchmark for the DNO in what could be achieved through focused community engagement.

Delivering Peak Reduction ...

3.4 /4.1 Appendix 9

Section Ref:

Delivering Peak Reduction ... LO6 Emotional ... in both areas, the essence of the coaching approach came to be characterised as Connection 'making emotional connections' ... From very early on in both areas, the idea of 'connectedness' was a consistent, underpinning theme for our research emerging naturally from the DDS engagement process. As it has evolved over the 2 year active engagement period, the essence of the coaching approach become characterised as 'making emotional connections' - among and between organisations and individuals and with particular environmental and ethical issues. The associated trust relationships have served to facilitate positive change through successive trial manifestations of integrated working - 'Lightbulb Community', 'Caring Community' and latterly 'Connected Community'. Section Ref: LESSON / ACTION: building upon the joint 'ownership' of energy issues, the DNO has an opportunity in seeking to engage more effectively and sustainably with communities and 4.3 stakeholders together to develop the idea of 'connectivity', aligning the idea of physical Appendix 12 connection to the energy network with emotional connection to and within communities.

Se El

LO7 DNO as catalyst Joined Up Stakeholder Working ...

... initial stakeholder and partner enthusiasm for the project was spurred in particular by an aspiration to establish the viability of joint public, private and third sector working, with DNO-led engagement as the catalyst ...

From the outset there was a high level of positive enthusiasm amongst stakeholders and potential partner agencies for joint working as part of the research. There was a strong identification with the aims of the project and the prospect of shareable consumption data and transferable learning regarding behaviour change.

In terms of 'market readiness', the Stakeholder Group's willingness to engage in the research was also underpinned by a genuine interest in testing the viability of joint public, private and third sector working. The opportunity for the DNO to collaborate and crucially to be a catalyst for multi-agency community engagement was of particular interest to local authority and third sector partners whose resources, and therefore capacity to take the initiative, are increasingly stretched.

'Working on the CEC trial has allowed us to develop productive and positive working relationships with the utilities. We have been able to identify common goals around more sustainable communities and better understand the benefits of working together within a defined community. This different way of working has resulted in other areas of joint working beyond the trial communities involved.' (Steve Lincoln, Community Planning Manager, Winchester City Council)

LESSON / ACTION: based on the Coaching trial experience, there is a naturally catalytic role for the DNO in facilitating non-traditional, multi-agency community engagement.

Section Ref:

2.2 Appendix 13

LO8 Stakeholder Collaboration Joined Up Stakeholder Working ...

... key stakeholders involved in the trial have already taken steps to continue the pattern of collaborative work established through the project ...

As part of the initial base-lining process (in accordance with the Outcomes Chain change model) the plan was to build stakeholders' complementary targets into the overall framework of formal research alongside equivalent DNO and community aspirations. This proved impossible given the relative absence of published baseline data at LSOA (Lower Super Output Area) level. Elements of the identified targets have subsequently been incorporated in the sample 'stackable' benefits potentially accruing from a multi-agency rollout of a 'Connected Communities' Coaching Programme.

Generally, feedback from key stakeholders who have been involved throughout in shaping and overseeing the trial (utilities, local authorities, housing agencies, environmental groups) validates the co-design approach. It is seen as more likely to lead to sustained behaviour change on the basis that continued collective investment in a coaching style engagement can be shown to be a cost-effective option in delivering predictable benefits to stakeholders in future. Key stakeholders have already taken steps to continue the pattern of collaborative work established through the trial.

'The novel approach of the Coaching trial to working with stakeholders has shown the benefits of breaking down the barriers between agencies and the positive benefits of collaborative working to approach the shared challenges we face. I have been so impressed by the success of this approach that I am working with partners from within the gas and energy utilities to look at ways of continuing to work together by pooling our resources to collectively benefit communities.' (Ben Earl, Water Efficiency Manager, Southern Water)

LESSON / ACTION: the level of commitment to joined up working as evidenced through the trial indicates an opportunity for further exploration of the cost-effectiveness of multi-agency collaboration targeting specific stakeholder benefits.

Section Ref:

4.2 4.3



LO9 Engagement Protocol Joined Up Stakeholder Working ...

... given the very positive feedback from residents and stakeholders alike to the coaching approach, there is an opportunity for the DNO and other stakeholders to establish a set of good practice principles for future community engagement ...

As part of the trial preparation the team put together in 2014 a review of good practice in community engagement focusing upon behaviour change in the energy sector ('Background Review of Good Practice in Community Engagement' August 2014). While this has been a useful checklist for the team in shaping the trial, the document was not designed to lend itself to ready interpretation in an operational setting. Building upon this original review, the team has been able through the trial to develop additional, more specific learning about achieving deeper and more sustainable change through community engagement. Reviewing the wealth of community feedback through the trial, the team has distilled the key learning down to 5 headline principles:

- <u>Understand the local agenda before seeking to introduce your own</u> 'top down' information or community campaigns typically start with the agency led issue that needs to be addressed with relatively little account taken of the complementary needs or interests of the recipient community, the context in which communication will be received and corresponding willingness or ability of residents to engage or act. By starting from the 'bottom up' and understanding the needs and aspirations of the target community, 'top down' campaign messages can be tailored to suit, with willing community partners sharing ownership of the issue. 'Earning the right' is key;
- See the community as part of the solution not part of the problem often the people with the better ideas for addressing a problem will be those closest to it. Using a co-design approach can harness the expertise of 'in house' industry experts along with the wider knowledge and experience of local stakeholders and residents. Blending different perspectives into locally tailored solutions will provide more traction and greater local buy in than something perceived as 'imposed' or 'parachuted in'. Generally, customers will respond badly or not at all, if they feel 'done to';
- <u>The need for change does not lie only within communities</u> service organisations and public agencies can subject communities to an ongoing cycle of change requests: 'eat more of this', 'less of that', 'use less of this' and 'save more of that'. The expectation is that the need for change lies within each individual, household, community but rarely within the organisations and agencies themselves. If we really want to create new social norms we need to interact positively with those we seek to change and be prepared to change ourselves and our traditional ways of working in the process, taking time to appreciate local circumstances and build mutual understanding;
- <u>No one size fits all</u> communities are multi-faceted and complex. From a local perspective a single issue, 'silo' tick box approach to service delivery and problem solving is likely to be perceived as a frustrating waste of time. For an effective appreciation of the core needs within a community, engagement needs to be sustained and relatively non-prescriptive with an opportunity to involve a range of service providers who, acting together, can make a real difference against a commonly agreed agenda;
- Ensure that the importance of consistent relationship building is not always superseded by urgent operational demands a bottom up, co-design approach takes time and commitment to deliver results and consistent success is based upon the quality of the relationships that can be developed and maintained. Trust in service agencies is slow to be established at the community level but quick to evaporate when commitments made routinely give way to other urgent operational demands.

These good practice principles will typically apply in all operational situations involving groups of customers and are likely to be of particular relevance to DNOs seeking to deliver core social obligations in a more meaningful and sustainable way. The CEC trial has demonstrated that in adopting a more collaborative, multi-agency style, the positive outcomes of community and customer engagement can be both more effective and more durable.

LESSON / ACTION: there is an opportunity for current stakeholders to jointly adopt a new community engagement protocol as an expression of conscious change in collective behaviour. This would demonstrate a willingness to learn from the lessons established through the research trial and express a public commitment to working differently in future.

3.2



LO10 Community Readiness Improving Community Engagement ...

... in terms of their 'readiness to engage' the 2 trial communities were particularly well polarised ...

The aim of the selection process was crucially to identify 2 differentiated trial areas each of 1000 households, one relatively affluent and one relatively disadvantaged. In practice it became clear through initial 'mapping and gapping' and engagement work that the communities were particularly polarised in terms of the relative levels of social capital. Shirley Warren was very much 'below the radar' with a dearth of community-based organisations and activities - the challenge being to draw individuals together. Kings Worthy was a distinctly 'resilient' community with an abundance of community-based organisations together.

Shirley Warren presented a particularly difficult social cohesion challenge in terms of the focused efforts necessary initially to get 'underneath the radar' and bring together individuals who could make a difference.

As reported at the March 2018 Dissemination event, the 'depth' of impact in social terms was perceptively the greater in Shirley Warren - reflecting the community's generally lower levels of resilience. In Kings Worthy the 'breadth' of impact was perceptively the greater - with a real sense of added value in reinforcing and integrating community activity across the community.

LESSON / ACTION: different communities' relative readiness to engage and the associated resource implications will be a key factor in decisions about target communities in any next stage programme rollout.

Section Ref:

3.1 / 3.3 Appendix 5 Appendix 13

LO11 Earning the Right Improving Community Engagement ...

... the principle of working initially with the communities unconditionally on their own terms was perceived positively as the DNO 'Earning the Right' to present its own energy agenda ...

The idea of 'Earning the Right' to talk to communities about energy issues is at the heart of trial's non-traditional approach to local engagement. Piloting the approach to engagement within 2 very different communities, the team has been able through the Coaching Trial to demonstrate a level of positive change in both peak demand reduction and related social impacts.

Feedback from the trial communities confirms that their relative responsiveness on the energy agenda in particular reflects our collaborative co-design approach. The team sought first to help deliver recognised community aspirations and only then to integrate energy saving into an overall joint strategy. Although relatively resource intensive, 'earning the right' to present the DNO agenda through this initial trust building process was seen by the communities as crucial. This feedback validates the Outcomes Chain model regarding the creation of a local 'trust' platform.

While underpinning a potential composite 'Engagement Protocol' (LO9), this point has standalone significance.

 LESSON / ACTION: the cost effectiveness of this unconditional approach should be reviewed as part of any next stage programme rollout.
 Section Ref:

 3.1
 3.3



LO12 Trusted Local Messenger Improving Community Engagement ...

... the co-produced community brandings have provided 'trusted local messenger' platforms creating a positive 'messenger effect' in promoting behaviour change ...

Increasingly, as the idea of energy efficiency has become more firmly embedded within the locally branded strategies, the communities themselves have been seen as 'owning' the initiative. So, from the DNO perspective, 'Shirley Warren Working Together' and 'Connecting Kings Worthy' have become de facto intermediaries in promoting peak reduction on behalf of the DNO. These intermediary organisations have assumed the mantle of 'trusted messenger'. While the messages that DNO and the local organisations present might not be different as such, the fact that local organisations are much more likely to be listened to within the community has been borne out through both formal interventions and focus group feedback. Given that in reality it is difficult to incentivise peak reduction directly on the basis of either reduced cost or reduced environmental impact, this community context has been all the more important in conveying change behaviour change messages.

With and through these intermediary organisations, the team has undertaken a range of formal intervention iterations aimed at testing the response to different messages and campaigns working through the local intermediaries on a 'one to many' (rather than the typical 'one to one' basis). As rough tests of the 'messenger effect':

- 20% of households in Kings Worthy and 6% in Shirley Warren responded positively to a direct invitation from the DNO to get involved in the project, compared to over 50% in both areas reporting a positive response when invited to take energy saving actions through Connecting Kings Worthy or Shirley Warren Working Together;
- against a background of Priority Service Register awareness levels of 8% in Kings Worthy and 5% in Shirley Warren, working through the locally branded platforms and local friendship networks, the team were readily able to identify customers with particular needs in relation to eligibility for PSR registration.

LESSON / ACTION: from the DNO viewpoint, as well as being potentially more effective in supporting behaviour change, a locally branded platform offers the opportunity for improved cost efficiencies by engaging customers on a 'one to many' rather than a 'one to one' basis.

Section Ref:

3.3 4.2

LO13 Social Impacts

Adding Social Value ...

... a wide range of positive social impacts has been generated throughout the active engagement period of the trial as a natural part of the coaching process ...

In the process of exploring peak demand reduction, the CEC trial has served to create substantial added value in terms of positive social impacts in both communities. These contingent impacts have categorised into 3 main types – those attributable to the coaching methodology, those attributable to the DDS co-design work and those attributable to the interventions themselves.

Reflecting the wide range of impacts across these categories, the coaching process has created substantial added value in notably, volunteering levels, reduced vehicle usage, community leadership, environmental clean-ups, care support and PSR awareness

This success provides a basis for delivering 'stackable benefits' which could accrue to the DNO and other stakeholders collectively through a follow on BAU Programme. Benefit stacking could offer opportunities for cost effective collaboration taking account of the declared priorities of all stakeholders involved.

LESSON / ACTION: as well as adding value to the social fabric in each area, these impacts provide a benchmark for the scale and range of 'stackable' benefits which the DNO and other stakeholders could anticipate in any subsequent, scaled BAU engagement programme.

Appendix 13



LO14 Quantified Value

LO15

Merits of direct DNO

Interaction

... in the absence of any established DNO-led mechanism for evaluating positive social impacts, capacity to quantify the value of individual social impacts as part of the project itself has been limited ...

To evaluate the cost-efficiency of these impacts, the team ideally needed to be able to quantify the value of each one in some way to get an understanding of 'Equivalent Unit Value' (EUV), that is, the cost which a potential beneficiary organisation can interpret as value for money in considering any future replication of the engagement process as piloted through the CEC trial. Also, looking forward to the potential scaling of positive trial impacts, it was seen as important to be able to examine in greater depth the EUV of potential benefits accruing to particular stakeholders participating in any multi-agency rollout programme, as part of an overall assessment of BAU cost-effectiveness. In the DNO case, this would be linked directly to established social obligations.

In the absence of any established mechanism for evaluating positive social impacts and having reviewed current tools and recent research, it appears there are no established industry criteria against which the positive social impacts achieved through the trial can be formally evaluated. As an alternative the team accordingly looked at the combined value of selected impacts in calculating the overall cost effectiveness of replicable behaviour change activities coming up with the idea of 'Equivalent Total Value' (ETV). So rather than seeking to generate an EUV for each individual targeted benefit, the stepped Guide for the potential rollout of a Connected Communities Coaching Programme aims to proceed on the basis of ETV as derived by 'stacking' benefits together and relating collective impact to likely operational cost. This accordingly allows potential stakeholders to review whether the predicted ratio between cost and value overall is likely to be deemed value for money from an individual and/or multi-agency perspective.

LESSON / ACTION: with industry partners and key stakeholders, SSEN should initiate further work to identify a clear framework for quantifying positive social impacts accruing from community-centric work, with a view to more definitive evaluation of multi-agency interventions.

Section Ref: 3.4

Appendix 13

Sustaining Positive Impacts ...

Adding Social Value ...

... direct DNO/customer interaction has been beneficial in 3 particular ways ...

One of the key bid commitments in the original LCNF bid for SAVE was to determine the merits of DNOs interacting with customers on energy efficiency measures as opposed to suppliers or other parties. Based on the experience of the CEC trial, there are 3 ways in which direct interaction between the DNO and customers has been particularly beneficial:

- <u>Energy Literacy</u> in facilitating measures aimed at improving Energy Literacy specifically appreciation of the distinctive role of the DNO;
- <u>Trusted Local Intermediaries</u> in co-creation of local organisations acting on behalf of the DNO in facilitating change in peak demand behaviour - allowing the DNO and other stakeholders to engage residents on a 'one to many' rather than 'one to one' basis;
- <u>Collaborative BAU engagement programme</u> in the specification of formal guidelines for potential rollout of a replicable BAU engagement programme harnessing the value of stakeholder collaboration and the 'stackability' of multi-agency benefits.

This experience is nuanced in the sense that, through direct DNO action, the complementary merits of longer-term interaction through a trusted intermediary are seen as more compelling.

LESSON / ACTION: these positives offer both the incentive and the means for development of a scaled BAU engagement programme.

Section Ref:

1.2 4.2



LO16 Legacy Planning Sustaining Positive Impacts ...

... in both communities there was a readiness to engage in legacy planning ...

In both communities, there was a readiness at the latter stages of the research to engage in legacy planning discussions about embedding energy issues into wider community-based activities with a commitment to retain and build upon the established local brandings of Shirley Warren Working Together and Connecting Kings Worthy. The idea of sustainability was a key component of the trial hypothesis and this readiness represents validation of the Outcomes Chain assumptions.

This readiness was consistent across the 2 communities with local commitment embodied in formal Legacy Plans. Energy usage is now reportedly seen as an underlying community issue not something apart, with the community itself being part of the solution in addressing peak demand.

'Thanks to the SAVE project and the work of Connecting Kings Worthy, of the 33 areas I represent Kings Worthy is the only area where issues of energy are visible and people are happy to engage in conversations around energy efficiency, peak demand and associated wider environmental issues.' (Jackie Porter, Local District and County Councillor).

The longer term sustainability of recorded social and energy related impacts is unknown at this stage.

LESSON / ACTION: Plans for the Delivery Team to revisit the communities in November 2018 will offer an opportunity to discover what has happened to the energy agenda since the end of the active engagement period in December 2017. Understanding regarding the longer term sustainability of positive impacts will necessarily rely upon future rollout planning.

Section Ref:

4.5 Appendix 13

Sustaining Positive Impacts ... LO17 ... as a rough guide, the estimated cost per trial site (for the elements of research Unit Cost per cost which might be expected to be incurred at some level in delivering a site subsequent BAU engagement programme) was of the order of £100,000 ... Overall research costs for the CEC trial break down fairly naturally into costs of: Project Management - costs directly attributable to setting up and managing TM4 as a research project these costs are seen as constituting a one-off, non-recurring investment to secure research outcomes which might subsequently underpin a BAU community engagement programme; Generated Learning - costs directly attributable to generating tailored learning outcomes designed to inform BAU activities - these costs are seen as constituting a one-off, non-recurring investment to secure research outcomes which might subsequently underpin a BAU community engagement programme; BAU Starter - elements of research cost which might be expected to be incurred at some level in delivering a subsequent BAU engagement programme building upon learning generated through the research trial. As a rough guide, the estimated percentage of trial costs being allocated to the 'BAU Starter' research elements equates to a benchmark cost per trial site over 2 years of the order of £100,000 to secure recorded social and energy related impacts. Section Ref: **LESSON / ACTION:** this provides a benchmark for any follow-on proof of concept / scaling work with an aspiration to reduce significantly to allow value for money assessment for any 4.2 Appendix 11 future BAU programme.

LO18 Changed Community Sustaining Positive Impacts ...

... in both communities the impact of the CEC trial has been perceived as transformational ...

Over the course of the trial, greater energy literacy has become increasingly embedded within the trial communities. Reportedly, 'the energy thread has now become interwoven within the fabric of community life' in both trial areas. Embedded within tailored Legacy Plans now in place, the energy issue is less likely to fall off the agenda post research project and is by this means set to become a 'normal' part of a community's longer term improvement activities. This commitment reinforces the ongoing opportunity for 'one to many' rather than 'one to one' engagement with DNO customers through the local trusted intermediary organisation.

'The SAVE project has totally transformed Shirley Warren – it has been the catalyst for action – bringing together local people o deliver positive change in their own community as well as achieve reductions in peak demand. A real win/win. We're so glad we got involved.' (Jenny Elliott, Pastor of Shirley Warren Action Church and Chair of Shirley Warren Working Together).

'The SAVE Coaching approach has successfully demonstrated how you can support people to understand an issue and empower them to seek their own solutions which can be different for each person and can change over time. This makes coaching much more resilient than a traditional marketing approach as it provides people with the flexibility to respond to changing situations.' (Jason Light, Strategy Lead (Environment), Eastleigh Borough Council)

LESSON / ACTION: these positives offer both the incentive and the means for development of a scaled BAU engagement programme.

4.2 / 4.3 Appendix 13

Section Ref:

4.4.3 The 'Connected Communities' Prototype and potential Rollout

With a view to scaling up the CEC trial research to a viable BAU programme, these Learning Outcomes offer a lot to build on, notably:

- The value of the 'Connected Community' concept as a compelling driver for collective behaviour embracing both physical and emotional connections;
- Clear buy-in at the community level to peak demand reduction based on increased levels of energy literacy and the associated 'earning the right' principle of co-design;
- Demonstrable reductions in peak electricity demand as an incentive for a DNO to take the lead in focused community engagement with an associated need to review lower cost peak monitoring options;
- The generation of 'stackable' social impacts to underpin more cost-effective multi-agency collaboration with an associated need for clearer quantification of benefits;
- The potential for sustained transformation of communities with demand reduction (and other positive impacts) embedded in locally branded change strategies;
- An engagement protocol which can underpin the co-creation of trusted local intermediary organisations able to support and embed change.

The CEC trial has effectively served to create a prototype for non-traditional, DNO led engagement blending the change agendas of the DNO, other stakeholder agencies and the community itself. Building on the prototypes created, there is an opportunity for further proof of concept work to develop a replicable, multi-agency 'Connected Communities' Coaching Programme – effectively the



CEC trial 'in a box'. This would build more widely on the learning established through the research trial and the positive knowledge, insights and understanding regarding peak demand reduction and added social value as achieved through the collaborative process.

As a next step, a Beta rollout could be considered by DNOs to test whether a scaled programme can be delivered within a strict enough budget to ensure a cost-effective return on investment for all stakeholders. A Stepped Guide setting out how the DNO might go about this along with stakeholder partners is included under Appendix 13.

NEL / June 2018

