



# SMART STREET

## Project Progress Report (PPR)

19 December 2017



## VERSION HISTORY

Version	Date	Author	Status	Comments
V0.1	1 December 2017	B Ingham	First draft	
V 1.0	11 December 2017	B Ingham	Final	

## REVIEW

Name	Role	Date
Paul Turner	Innovation delivery manager	11 December 2017

## APPROVAL

Name	Role	Signature & date
Steve Cox	Engineering and technical director	
Sarah Barrett	Finance business partner	

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## GLOSSARY OF TERMS

Abbreviation	Term
APN	Access Point Network
C <sub>2</sub> C	Capacity to Customers (Electricity North West second tier LCN Fund project)
CEP	Customer engagement plan
CLASS	Customer Load Active System Services (Electricity North West second tier LCN Fund project)
CVR	Conservation voltage reduction
DINIS	Distribution network information system
DNO	Distribution network operator
DPS	Data protection statement
ECP	Engaged customer panel
FAT	Factory acceptance test
GM	Ground mounted
HV	High voltage
ICCP	Inter control communication protocol
IFI	Innovation Funding Incentive
ITT	Invitation to tender
LCT	Low carbon technology
LV	Low voltage
NMS	Network management system
O/H	Overhead
SAT	Site acceptance test
QUB	Queen's University Belfast
SDRC	Successful delivery reward criteria
SDRC output	Discrete evidence of attainment or part attainment of an SDRC as defined in the project direction
SP5	Spectrum Power 5
U/G	Underground
UoM	University of Manchester
U3A	University of the third age
VT	Voltage transformer
VVC	Voltage Var Control

# 1 EXECUTIVE SUMMARY

Funded under the second Tier of Ofgem's Low Carbon Networks Fund, the Smart Street project was authorised to commence in December 2013 and is now due to complete in April 2018. The project is being undertaken by Electricity North West and key partners.

Utilising the most advanced technology developed for LV network management, Smart Street challenges current operational practices and demonstrates how to optimise HV and LV networks in real time.

The Smart Street method combines the concepts of interconnection of networks, developed within the C<sub>2</sub>C project, and elements of the voltage control technologies developed by Electricity North West under the First Tier of the LCN Fund. The project utilises advanced real time optimisation software to simultaneously manage HV and LV network assets to respond to customers' changing demands in the most efficient end-to-end manner. The three key incremental steps in the Smart Street method are the application of:

- Co-ordinated voltage control, using transformers fitted with on-load tap changers and capacitors, across HV and LV networks
- Interconnecting traditionally radial HV and LV circuits and assuming control of these networks within the Electricity North West control room
- Real time co-ordinated configuration and voltage optimisation of HV and LV networks.

Enhancing existing networks in this way enables accelerated connection of clusters of low carbon technologies (LCTs) that contribute to emission reduction targets. Smart Street is a low risk, transferable, non-intrusive method which is an alternative first intervention to traditional network reinforcement. It is envisaged that the Smart Street method will release capacity up to four times faster and 40% cheaper than traditional reinforcement techniques for LCT clusters. Smart Street's optimisation software is expected to deliver conservation voltage reduction to improve the energy efficiency of customers' electrical appliances, reducing energy up to 3.5% per annum, and lowering network losses by up to 2% per annum across HV and LV networks. This will deliver recurring financial savings for customers, without degradation to the quality of customers' supplies.

During the Smart Street project, communications from customers in the trial areas will be monitored to collect quantitative customer information. The project team will also hold a series of customer focus groups with individuals recruited from within the trial areas, to collect qualitative customer information. In addition, the team will utilise outputs from the CLASS survey, which was designed to establish the customer experience of a change in supplied voltage. These findings support Smart Street customer research.

## **Progress to date**

The project was granted a four-month extension including a variance to project management costs on 9 March 2016. The project costs to date are £8,141k with completion costs estimated to be £8,656k of the £9,550k budget including contingencies.

This report is the eighth project progress report and covers the period June 2017 to November 2017 inclusive. The key highlights to date are:

## **Installation plan**

The installation programme was completed in January 2016 in line with the four-month project extension. A small number of equipment issues did arise on the trial networks which have been resolved within the project budget with no impact to the project timescales. These are detailed in Section 6 of this document.

## Spectrum Power 5

The installed system has had some issues with the operation of the VVC whereby the algorithm did not operate in its manner expected. This problem was resolved in conjunction with Siemens and the trials continued.

### Trials and research

The trial and research workstream has continued with the trials; the optimisation software has been run in closed loop mode and has operated to optimise the networks involved in the project. System data has been extracted and passed to the project's academic partners for analysis, copies of which are available on the [website](#).

### Customer engagement

- A series of customer focus groups were held mid trial, in each trial region, to elicit feedback about any perceived effects on the electricity supply. The engaged customer panel (ECP) consulted as part of this investigation did not detect any degradation to the quality of their supply since commencement of the trials. During the next and final reporting period, this qualitative customer research will be replicated to assess perception of change across the entire trial period.
- The customer workstream has continued to liaise closely with the customer contact centre (CCC) to ensure customer enquiries associated with any aspect of this project are captured and appropriately managed.
- The customer workstream has continued to work closely with the technology workstream to ensure that any operational issues associated with Smart Street have been addressed without detrimental impact to customers.

### Learning and dissemination

In addition to continued dissemination, knowledge sharing with stakeholders, regular updates on the project website and social media, learning and dissemination activities this reporting period include:

- Seventh Smart Street six-monthly progress report published on the Smart Street website.
- IET workshop on LV interconnections held.

During the reporting period the project has delivered one SDRC output detailed in Section 5.

*Figure 1.1: SDRC delivered during the reporting period*

Milestone	Workstream	Completion date
Publish seventh project progress report	Dissemination	Jun 17

During the next reporting period the project will deliver 13 SDRC outputs in line with the approved extension period.

*Figure 1.2: SDRC look ahead*

Milestone	Workstream	Completion date
Publish eighth project progress report	Dissemination	Dec 17
Active participation at four annual LCNI conferences (4/4)	Dissemination	Dec 17

Milestone	Workstream	Completion date
Produce and publish optimisation implementation strategy	Research	Feb 18
Publicise Smart Street within Electricity North West	Dissemination	Feb 18
Hold Smart Street knowledge sharing event	Dissemination	Feb 18
Publish on Smart Street website a summary overview of each trial	Trials	Apr 18
Publish on Smart Street website a final customer survey report	Customer	Apr 18
Publish on IET and Smart Street website results from the consultation process on impact on customers' electrical installations from application of the Smart Street method	Research	Apr 18
Publish on Smart Street website final HV and LV voltage and configuration study report	Research	Apr 18
Publish on Smart Street website final retrofit design and operation of interconnected LV networks study	Research	Apr 18
Publish on Smart Street website final cost benefit assessment study	Research	Apr 18
Publish on Smart Street website the final carbon impact study	Research	Apr 18
Publish advertorial	Dissemination	Apr 18
Smart Street closedown report issued to Ofgem and publish on Smart Street website	Closedown	Apr 18
Publish on Smart Street website Electricity North West's approach to managing LCT clustering	Closedown	Apr 18

### Summary of key risks

Project risks are monitored on a continuous basis, including the potential risks that were documented in the full submission. The status of these is described in Section 4.

### Summary of key learning outcomes delivered in the period

A detailed description of the project's learning outcomes can be found in Section 6; the areas where learning has emerged are summarised below:

- Customer perception of power quality is generally associated with unplanned interruptions.
- Customer views about projected changes in electricity demand vary.

## 2 PROJECT MANAGER'S REPORT

### 2.1 General project management

The most significant project management activities undertaken during the reporting period are listed below:

- Project monitoring and control
- Continued stakeholder engagement and management
- Monitoring ongoing trials and responding to any arising issues.

During the reporting period the project emphasis has focused on ensuring the satisfactory operation of the equipment during the ongoing trials. The customer workstream has continued to monitor enquiries relating to the on-going operation of the project systems. Spectrum 5 continues to run in both closed and open loop mode in line with the project trials.

During the next reporting period the most significant project management activities will be:

- Managing and dealing with network issues as and when they arise
- Project monitoring and control
- Continued stakeholder engagement and management
- Oversee monitoring of the Smart Street network in the six trial areas which includes maintaining good levels of communication with business as usual colleagues
- Monitoring the on-site trials and data recovery for analysis by the universities
- Project closedown.

There are no other project management risks or issues associated with delivery of a project SDRC or maintaining consistency with the full submission.

## **2.2 Technology workstream**

The most significant technology workstream activities during the reporting period are listed below:

- Continued monitoring of system performance and equipment
- Scheduled any network changes in response to data analysis.

During the next reporting period, the technology workstream's significant activities will be:

- Continued monitoring of system performance and equipment
- Decommissioning equipment associated with the project.

All SDRC associated with the above activities are complete or on track to the plan.

## **2.3 Trials and research workstream**

The most significant trials and research workstream activities during the reporting period are listed below:

- Continuation of the live trials
- Publication of the trial data on the Smart Street website
- Ongoing analysis of data gathered from the trial areas
- Modification of the trial parameters based on the findings of the initial academic review of the data.

All SDRC associated with the above activities are complete or on track. During the next reporting period, the trials and research workstream's significant activities will be:

- Project closedown
- Publish the HV and LV voltage and configuration study report
- Publish the final retrofit design and operation of interconnected LV networks study
- Publish the final cost benefit assessment study
- Publish the final carbon impact study.



There are currently no trials and research risks or issues associated with delivery of a project SDRC or maintaining consistency with the full submission.

## 2.4 Customer workstream

The most significant customer workstream activities completed during this reporting period are listed below:

- Work has commenced to refine focus group materials, confirm venues and finalise the strategy for the last phase of direct customer engagement to prove the hypothesis that customers will not perceive any change in their electricity supply as a result of the application of Smart Street techniques. This final piece of qualitative research will build on the mid trial study, which involved customer consultation in a series of focus group settings in January 2017. This demonstrated that there had been no detriment to power quality since the trials commenced. The learning from this final phase of customer research will be published in April 2018.
- The customer workstream has continued to work closely with the customer contact centre (CCC) to ensure that customer enquiries associated with any aspect of Smart Street are captured and managed. There have been no customer enquiries concerning Smart Street during this reporting period. In parallel, we have actively monitored power quality and voltage related issues recorded throughout the trial period to ensure that if any such problem arose on a Smart Street circuit, it was quickly identified, irrespective of whether this was raised by a customer or generated from another source. To date, there has been no reported voltage or power quality problem associated with the application of the trial regime.
- The customer workstream continues to work closely with the technology workstream to ensure that any operational issues are addressed, as they arise, negating detrimental customer impact. Work has commenced to prepare for the decommissioning and removal of specific equipment, where following completion of the trials, a customer commitment has been made to do so.

During the next reporting period the customer workstream's significant activities are as follows:

- The next phase of research with customers will be conducted following completion of the trials and will focus on perceived customer impact over the entire trial period and changes following cessation of the technique. It is expected to provide further evidence to prove the hypothesis that customers will not perceive a change in their electricity supply from the application of the Smart Street method.

## 2.5 Learning and dissemination workstream

The key activities undertaken by the learning and dissemination workstream during the period are summarised below:

- Organised the Smart Street technical workshop
- Presented the project to the IET Retired Member Group for Mersey and West Cheshire.

Additional internal dissemination activities included:

- Ongoing advice and support to operational colleagues working on and around the trial areas
- Attendance and participation at the LCNI conference, including presenting to one of the breakout sessions

**Regular updates to the Smart Street website:** Throughout the reporting period, the project website has been updated regularly with project outputs at: [www.enwl.co.uk/smartstreet](http://www.enwl.co.uk/smartstreet).

**Social media forums exploited:** To ensure that the key messages from Smart Street are disseminated as widely as possible, the project team is using a range of social media channels to communicate Smart Street-related information, specifically:



<http://www.facebook.com/ElectricityNorthWest>



<https://twitter.com/ElectricityNW>



<http://www.linkedin.com/company/Electricity-North-West>



<http://www.youtube.com/ElectricityNorthWest>

**Internal Electricity North West social media:** To improve information sharing within the business, regular use is made of internal social media.

In the next reporting period, the learning and dissemination workstream will undertake the following activity:

- Publish the seventh monthly project progress report
- Attendance and participation at the annual LCNI conference.

There are currently no customer risks or issues associated with delivery of a project SDRC or maintaining consistency with the full submission.

### 3 CONSISTENCY WITH FULL SUBMISSION

At the end of this reporting period, it can be confirmed that the Smart Street project is being undertaken in accordance with the full submission.

## 4 RISK MANAGEMENT

### Definition of risk status

**Open:** Accepted risk that needs visibility until such time that it is no longer a risk to the project. No further preventative actions identified or implemented.

**Controlled:** Risk with mitigating actions put in place to alleviate the possibility of an occurrence. Preventative actions identified or implemented to help manage the risk.

**Closed:** Potential of the risk occurring has passed or changes have been made to the project so that there is no longer a risk.

#### 4.1 Current risks and issues

There are currently no uncontrolled risks that could impede the achievement of any of the SDRC outlined in the project direction, or which could cause the project to deviate from the full submission.

**Risk 8 – Risk that customers in the trial areas perceive a change to their electricity supply leading to hypothesis failure and potential adverse publicity for Smart Street.**  
**Status: Open**

As part of proving the hypothesis that no change will be perceived by customers, the project team will carry out ongoing monitoring via the customer contact centre. Following any notification of a perceived change, extra monitoring equipment will be installed to validate the

claim and ensure that the perceived change is not due to the customer being sensitised to the trial. In addition, the customer surveys designed for CLASS include control groups that can be used to benchmark any survey responses that are obtained from the trials. To further qualify the customer experience, focus groups were held mid-trial in January 2017 and a final phase of engagement will take place at the end of the trial period with customers from each of the Smart Street trial locations. Feedback from the first of these panels shows that customers have not experienced any adverse effects on the quality of their supply.

**Risk 11 – Risk that external factors, not directly influenced by the trials or related to Smart Street, could cause customers to become negative towards Electricity North West or LCN Fund projects. Status: Open**

The Smart Street project team is working closely with the Electricity North West press office to identify any potential issues and formulate targeted communications to proactively minimise any adverse impacts to Smart Street.

**Risk 13 – Risk that the University of Manchester or Queen’s University, Belfast undergo personnel changes during the project, leading to loss of specific skills which could impact the quality of deliverables. Status: Controlled**

Work packages agreed with the universities have defined the tasks for which each university is responsible. All research activities are being undertaken in a collaborative manner, with the involvement of multiple individuals across both academic institutions to minimise the risks associated with the movement of research teams. During the project the lead researcher, Dr Nando Ochoa, has moved to a new position at the University of Melbourne. However he continues with the oversight of the Smart Street research activities remotely.

**Risk 14 – Risk that the high volume of LCN Fund events will dilute the effectiveness of dissemination activities leading to lower than expected value derived from Smart Street being achieved. Status: Controlled**

Strong project branding has been developed along with key messages and high quality dissemination materials to ensure that Smart Street is clearly differentiated and reaches the right audience. Choice of dissemination media is being optimised to achieve maximum reach and coverage. Throughout the project the learning and dissemination approach will be tailored to meet the needs of each stakeholder group. In addition to the publication of learning materials through social media and online, industry wide and bespoke knowledge sharing events will take place.

**Risk 15 – Risk that the varied interests of the stakeholders prevents knowledge from being disseminated effectively leading to the learning outcomes from Smart Street not being maximised. Status: Controlled**

During the Smart Street mobilisation, multiple communication channels and a range of stakeholders have been identified to maximise Smart Street dissemination outcomes. A Smart Street project partner event has been held to open communication channels between all parties and this will be followed by quarterly steering group meetings. Dissemination of knowledge forms a key part of each project steering group to ensure all internal stakeholders are aware of the outcomes of the project.

**Risk 21 – Risk of signal strength issue with Lynx devices. Status: Closed**

Variable signal strength was experienced at some Lynx locations. Kelvatek has supplied a quantity of alternative high gain aerials and aerial pillars for such locations.

Ongoing monitoring of individual signal strength performance will be conducted during the trial period. A small number of Lynx sites are still experiencing difficulties in maintaining consistent signal strength despite having the external aerials fitted. Working with Vodafone we have identified that the only way to further improve signal quality at these sites is to utilise roaming SIMs. However this change would entail modifications to the RTUs and Electricity

North West's APN and so is not feasible within the constraints of the project. The intermittent signal of these few units has not impact on the validity of the trials.

**Risk 31 – Concerns raised over the interlocking on the HV GM capacitor banks.**  
**Status: Closed**

Following the energisation of the capacitor banks during the previous reporting period concerns of the suitability of the interlocking arrangements have been raised by Electricity North West's system operations section. As such the devices were temporarily taken offline while modifications were made to alleviate the concerns.

**Risk 32 – Inefficient operation of VVC. Status: Controlled**

Queens University Belfast data validation work has highlighted that the VVC algorithm was not running the network to its most efficient arrangement in all cases. The project team worked with Siemens to revise the parameters of the system which resolved the issue for the trials. The team also then liaised with the academic partners at QuB to adjust the trial regime to retest this trial solution.

## 5 SUCCESSFUL DELIVERY REWARD CRITERIA

During the reporting period, eight planned SDRC were delivered. This is detailed in Figure 5.1 below.

*Figure 5.1: SDRC delivered in reporting period*

Milestone	Workstream	Completion date
Publish seventh project progress report	Dissemination	June 17

The SDRC planned for the next reporting period can be seen in Figure 5.2 below.

*Figure 5.2: SDRC look ahead*

Milestone	Workstream	Completion date
Publish eighth project progress report	Dissemination	Dec 17
Active participation at four annual LCNI conferences (4/4)	Dissemination	Dec 17
Produce and publish optimisation implementation strategy	Research	Feb 18
Publicise Smart Street within Electricity North West	Dissemination	Feb 18
Hold Smart Street knowledge sharing event	Dissemination	Feb 18
Publish on Smart Street website a summary overview of each trial	Trials	Apr 18
Publish on Smart Street website a final customer survey report	Customer	Apr 18

Milestone	Workstream	Completion date
Publish on IET and Smart Street website results from the consultation process on impact on customers' electrical installations from application of the Smart Street method	Research	Apr 18
Publish on Smart Street website final HV and LV voltage and configuration study report	Research	Apr 18
Publish on Smart Street website final retrofit design and operation of interconnected LV networks study	Research	Apr 18
Publish on Smart Street website final cost benefit assessment study	Research	Apr 18
Publish on Smart Street website the final carbon impact study	Research	Apr 18
Publish advertorial	Dissemination	Apr 18
Smart Street closedown report issued to Ofgem and publish on Smart Street website	Closedown	Apr 18
Publish on Smart Street website Electricity North West's approach to managing LCT clustering	Closedown	Apr 18

During the next reporting period none of the SDRC are forecast to be delivered at variance to the dates contained within the project plan appended to the full submission.

## 6 LEARNING OUTCOMES

A project website has been established as a repository for sharing project learning to interested stakeholders. The learning outcomes during the period are described below.

### Lesson 1: Partner engagement

For future ventures it is worth restructuring the contract such that there is a larger support payment on project completion to ensure the partner's attention remains focused throughout the project lifetime

## 7 BUSINESS CASE UPDATE

Electricity North West is not aware of any developments that have taken place since the issue of the project direction that affect the business case for the project.

## 8 PROGRESS AGAINST BUDGET

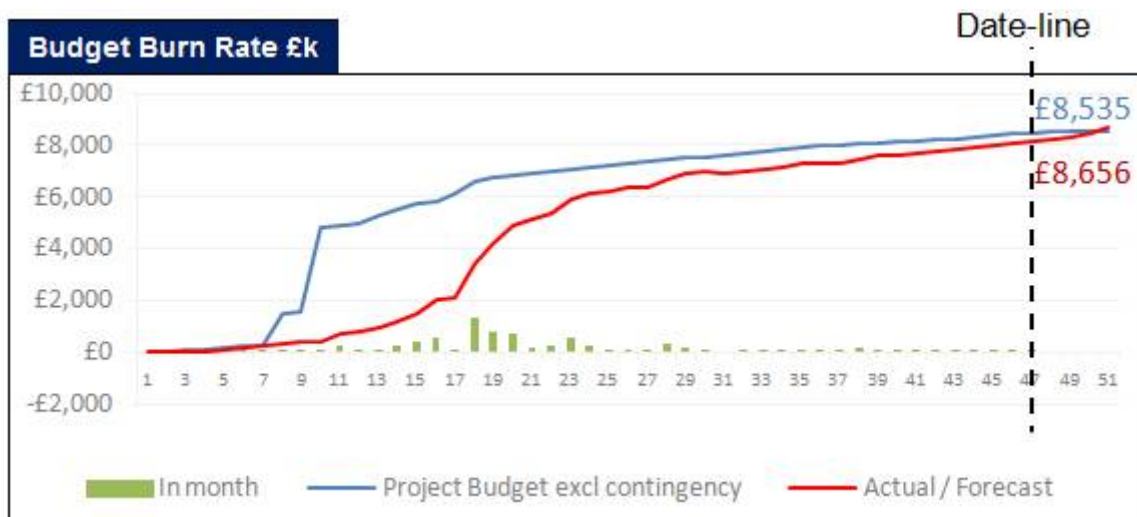
The original project budget as defined in the project direction is shown in Appendix A.

Project expenditure compared to baseline forecast is summarised below at the cost category level and in Appendix B at project activity level. The report includes expenditure up to and including 30 November 2017.

Figure 8.1: Project expenditure

£'000s Excluding Partner Funding Ofgem Cost Category	Spend to date			Total Project			
	Actual	Plan	Variance	Forecast	Plan	Variance	%
Labour	1,942	1,866	-76	1,979	1,888	-91	-5%
Equipment	3,199	3,231	31	3,274	3,235	-39	-1%
Contractors	1,734	1,955	222	1,940	1,960	20	1%
IT	1,079	1,090	11	1,098	1,090	-8	-1%
Contingency	0	1,015	1,015	0	1,015	1,015	100%
Decommissioning	1	26	25	39	39	0	0%
Other	186	315	129	327	323	-4	-1%
<b>Total</b>	<b>8,141</b>	<b>9,498</b>	<b>1,357</b>	<b>8,656</b>	<b>9,550</b>	<b>894</b>	<b>9%</b>

The actual spend to date is £8,141k with the forecast at completion cost now £8,656k.



The estimate at completion forecast is currently expected to remain within the original budget of £9,550k including contingency. The project bank statement is shown in Appendix C. The statement contains all receipts and payments associated with the project up to the end of November 2017 including the November 2017 month end transfer.

## 9 INTELLECTUAL PROPERTY RIGHTS (IPR)

Electricity North West is following the default IPR arrangements. The company's IPR approach has been considered in line with current period project deliverables and it has been concluded that the default IPR arrangements apply.

## 10 OTHER

There is no other information at this time that would be relevant to Ofgem in understanding the progress of the project and performance against the SDRC.

## **11 ACCURACY ASSURANCE STATEMENT**

The project team and select members of the Smart Street project steering group, including the lead member of the bid development team, have reviewed this report to ensure its accuracy.

The financial information has been produced by the Smart Street project manager and the project's finance representative who review all financial postings to the project each month. This ensures that postings have been correctly allocated to the appropriate project activity. Issue of the document has been approved by the Engineering & Technical director.

## APPENDIX A – PROJECT DIRECTION PROJECT BUDGET

£000's	
Excluding Partner Funding	
Ofgem Cost Category	
<b>Labour</b>	<b>1,888</b>
HV & LV Network Management & Interconnection - Labour	305
Network Configuration & Voltage Optimisation - Labour	431
Project Management, Planning, Policy and Training - Labour	1,152
<b>Equipment</b>	<b>3,235</b>
Data Preparation - Equipment	285
HV & LV Network Management & Interconnection - Equipment	2,229
HV & LV Voltage Control - Equipment	721
<b>Contractors</b>	<b>1,960</b>
Customer Engagement & Survey - Contractors	110
HV & LV Voltage Control - Contractors	350
LV Network Management & Interconnection - Contractors	161
Network Configuration & Voltage Optimisation - Contractors	381
Peer reviews, support & customer research - Contractors	142
Research -Technical - Contractors	626
Research - CBA & CIA - Contractors	189
<b>IT</b>	<b>1,090</b>
Network Configuration & Voltage Optimisation - IT	1,090
<b>Contingency</b>	<b>1,015</b>
HV & LV Network Management & Interconnection - Contingency	272
HV Voltage Control - Contingency	426
Dissemination, Policy, Training & Trials - Contingency	82
Network Configuration & Voltage Optimisation - Contingency	235
<b>Decommissioning</b>	<b>39</b>
Decommissioning	39
<b>Other</b>	<b>323</b>
Technology build and Trials data - Other	87
Learning & Dissemination - Other	133
Accommodation - Other	103
<b>Total</b>	<b>9,550</b>

Source: Ofgem Schedule to Project Direct - December 2013



## APPENDIX B – DETAILED PROJECTED PROJECT EXPENDITURE

Excluding Partner Funding Ofgem Cost Category	Actual	Plan	Variance	Forecast	Plan	Variance	Variance %
<b>Labour</b>	<b>1,942</b>	<b>1,866</b>	<b>(76)</b>	<b>1,979</b>	<b>1,888</b>	<b>(91)</b>	<b>-5%</b>
HV & LV Network Management & Interconnection - Labour	321	305	(16)	319	305	(14)	-4%
Network Configuration & Voltage Optimisation - Labour	445	431	(14)	444	431	(14)	-3%
Project Management, Planning, Policy and Training - Labour	1,176	1,130	(46)	1,215	1,152	(64)	-6%
<b>Equipment</b>	<b>3,199</b>	<b>3,231</b>	<b>31</b>	<b>3,274</b>	<b>3,235</b>	<b>(39)</b>	<b>-1%</b>
Data Preparation - Equipment	184	281	97	204	285	81	29%
HV & LV Network Management & Interconnection - Equipment	2,205	2,229	24	2,259	2,229	(30)	-1%
HV & LV Voltage Control - Equipment	811	721	(90)	811	721	(90)	-13%
<b>Contractors</b>	<b>1,734</b>	<b>1,955</b>	<b>222</b>	<b>1,940</b>	<b>1,960</b>	<b>20</b>	<b>1%</b>
Customer Engagement & Survey - Contractors	91	110	20	110	110	0	0%
HV & LV Voltage Control - Contractors	368	350	(17)	367	350	(17)	-5%
LV Network Management & Interconnection - Contractors	162	161	(2)	162	161	(2)	-1%
Network Configuration & Voltage Optimisation - Contractors	356	381	25	356	381	25	7%
Peer reviews, support & customer research - Contractors	103	137	34	132	142	10	7%
Research -Technical - Contractors	541	626	85	668	626	(42)	-7%
Research - CBA & CIA - Contractors	112	189	77	145	189	45	24%
<b>IT</b>	<b>1,079</b>	<b>1,090</b>	<b>11</b>	<b>1,098</b>	<b>1,090</b>	<b>(8)</b>	<b>-1%</b>
Network Configuration & Voltage Optimisation - IT	1,079	1,090	11	1,098	1,090	(8)	-1%
<b>Contingency</b>	<b>0</b>	<b>1,015</b>	<b>1,015</b>	<b>0</b>	<b>1,015</b>	<b>1,015</b>	<b>100%</b>
HV & LV Network Management & Interconnection - Contingency	0	272	272	0	272	272	100%
HV Voltage Control - Contingency	0	426	426	0	426	426	100%
Dissemination, Policy, Training & Trials - Contingency	0	82	82	0	82	82	100%
Network Configuration & Voltage Optimisation - Contingency	0	235	235	0	235	235	100%
<b>Decommissioning</b>	<b>1</b>	<b>26</b>	<b>25</b>	<b>39</b>	<b>39</b>	<b>0</b>	<b>0%</b>
Decommissioning	1	26	25	39	39	0	0%
<b>Other</b>	<b>186</b>	<b>315</b>	<b>129</b>	<b>327</b>	<b>323</b>	<b>(4)</b>	<b>-1%</b>
Technology build and Trials data - Other	10	87	77	87	87	0	0%
Learning & Dissemination - Other	81	127	46	137	133	(4)	-3%
Accommodation - Other	94	100	6	103	103	(0)	0%
<b>Total</b>	<b>8,141</b>	<b>9,498</b>	<b>1,357</b>	<b>8,656</b>	<b>9,550</b>	<b>894</b>	<b>9%</b>

## APPENDIX C – PROJECT BANK ACCOUNT

The bank statement below details all transactions relevant to the project up to 30 November 2017. This includes all receipts and payments associated with the project up to the 30 November 2017 month-end reporting period.

Lloyds Bank		Yesterday's Statement			C082421	
Statements and Balances						
300002-01676933						
ELECTRICITY NWL NO.13 LCNF (SMART) (GBP)						
Date	Type	Narrative	Value Date	Payments	Receipts	Balance
01JUN17		Opening Ledger Balance				2,561,586.64 Cr
09JUN17	CR	INTEREST (GROSS)			545.44	2,562,132.08 Cr
09JUN17	DR	TO A/C TFR 02749020 300002		71,551.25		2,490,580.83 Cr
10JUL17	CR	INTEREST (GROSS)			528.82	2,491,109.65 Cr
03AUG17	DR	TO A/C TFR 02749020 300002		74,101.95		2,417,007.70 Cr
09AUG17	CR	INTEREST (GROSS)			427.13	2,417,434.83 Cr
31AUG17	DR	TO A/C TFR 02749020 300002		59,690.46		2,357,744.37 Cr
11SEP17	CR	INTEREST (GROSS)			433.20	2,358,177.57 Cr
28SEP17	DR	TO A/C TFR 02749020 300002		130,436.94		2,227,740.63 Cr
09OCT17	CR	INTEREST (GROSS)			353.23	2,228,093.86 Cr
09NOV17	CR	INTEREST (GROSS)			500.56	2,228,594.42 Cr
15NOV17	DR	TO A/C TFR 02749020 300002		39,719.31		2,188,875.11 Cr
16NOV17	DR	TO A/C TFR 02749020 300002		82,059.30		2,106,815.81 Cr
08DEC17	DR	TO A/C TFR 02749020 300002		74,560.51		2,032,255.30 Cr
08DEC17		Value of Credits (6)			2,788.38	
08DEC17		Value of Debits (7)		532,119.72		
08DEC17		Closing Ledger Balance				2,032,255.30 Cr
08DEC17		Closing Cleared Balance				2,032,255.30 Cr
*** End of Report ***						

## APPENDIX D – RISK LOG





Risk ID	Risk Title	Risk Description	Status
1	Resource mobilisation risk	There is a risk that ENWL and/or partners are not able to mobilise their resources in time because of other commitments. This may lead to a delay in achieving key milestones and deliverables. (Other)	Closed
2	Extended consultation requirements risk	There is a risk that following preliminary design, planning issues where equipment is proposed to be located could lead to extended consultation requirements. This could compromise optimal equipment positioning and cause delays to the start of the Trial. (Installation)	Closed
3	Not feasible to use existing CLASS and C2C assets risk	There is a risk that the trial areas selected will not include areas with CLASS or C2C leading to a lost opportunity to gain further value from utilising existing assets. (Other)	Closed
4	Suitable equipment vendors risk	There is a risk that a lack of suitable equipment vendors may result in a poor response to invitations for tenders, leading to reduced competitiveness of quotes and reduced value for money. (Procurement)	Closed
5	Delivery lead times risk	There is a risk that actual product delivery lead times may be greater than planned due to supply constraints around some of required technologies eg on load tap changing transformers, capacitors, link box switches and RTUs which could lead to installation delay and start of the trial. (Procurement)	Closed
6	Optimisation software delivery	There is a risk that the vendor does not achieve delivery and installation of the oOptimisation software or that there are potential constraints with Electricity North West's NMS configuration and commissioning. This could lead to a delayed start of the Smart Street trials. (Installation)	Closed
7	Technologies or software performance risk	There is a risk that new technologies or software installed do not perform as expected in commissioning stage leading to delays to commencing the trial and potentially impacting the quality of eta outputs. (Installation)	Closed
8	Customer perceive change to electricity supply	There is a risk that customers in the trial areas perceive a change to their electricity supply leading to hypothesis failure and potential adverse publicity for Smart Street. (Other)	Open
9	Survey group representation	There is a risk that the survey group does not form a representative sample of either the Electricity North West or GB customer base. (Other)	Closed





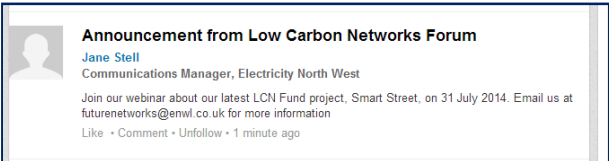
Risk ID	Risk Title	Risk Description	Status
10	Out of limit voltages	There is a risk that some industrial customers have transformer winding ratios of 11000/415 leading to out of limit voltages on their networks. (Other)	Closed
11	External factors risk	There is a risk that external factors, not directly influenced by the trials or related to Smart Street, could cause customers to become negative towards Electricity North West or LCN Fund projects. (Other)	Open
12	Customer confusion due to other initiatives	There is a risk that there may be some confusion among customers due to other ongoing government initiatives, eg The Green Deal and smart metering rollout programme. This could lead to customer engagement being adversely affected. (Recruitment)	Closed
13	Risk of university personnel changes	There is a risk that the University of Manchester or Queen's University, Belfast undergo personnel changes during the project, leading to loss of specific skills which could impact the quality of deliverables. The lead researcher, Dr Nando Ochoa, has now moved to a new post at the University of Melbourne, however he continues to oversee the project (Other)	Open
14	Dilution due to high volume of LCN Fund events risk	There is a risk that the high volume of LCN Fund events will dilute the effectiveness of dissemination activities leading to lower than expected value derived from eta being achieved. (Other)	Open
15	Effective knowledge dissemination	There is a risk that the varied interests of stakeholders prevents knowledge from being disseminated effectively leading to the learning outcomes from Smart Street not being maximised (Other)	Open
16	Weezap/Lynx delivery dates	The PM has concerns regarding delivery of the first batch of Weezap/Lynx devices. During a recent factory visit it was apparent that Kelvatek's manufacturing capability was less well developed than anticipated. Despite this Kelvatek has assured the PM that ten production units will be delivered by the end of July.	Closed
17	Signing of contract for supply of capacitors	There is a concern that the contract for the supply of capacitors is not signed by the end of July due to contractual issues with the bids	Closed
18	HV ground mounted capacitor sites	Due to the HV ground mounted capacitors being larger than anticipated in the bid document some may need to be sited outside of existing substations. Also capacitors require LV supplies.	Closed
19	Signal strength issues with EPM's and LV Capacitors	Devices not communicating with the server due to poor signal strength	Closed

Risk ID	Risk Title	Risk Description	Status
20	HV ground mounted capacitor modifications	Due to changes to policy/codes of practice within Electricity North West since the project started modifications are required to the capacitor design.	Closed
21	HV ground mounted capacitor delivery	Supplier has not met agreed delivery timescales. This is in part due to the supplier failing to source components within anticipated timescales.	Closed
22	LV capacitor software	Delays in supply of latest version of firmware for LV capacitors from ABB.	Closed
23	VT failure for O/H capacitors	Operational restriction now in place on Mid Central Electric VT's, company-wide due to disruptive failures. This restriction came into force days before the installation of the HV O/H capacitors which are fitted with this type of VT.	Closed
24	Signal strength issues with Lynx devices at some locations.	No, weak or varied signal strength is being experienced at some link box locations.	Closed
25	RTU component failure	A component failure within the second and final batch of system RTUs has been identified by the supplier CG.	Closed
26	Bell house failure	Water has filled the link box bell house at a number of sites	Closed
27	Lynx signal	Poor or no signal at some of the Lynx sites	Closed
28	Weezap firmware update	All Weezap devices require updating at factory and swapped over on site	Closed
29	HV capacitor firmware	Ongoing problems with HV capacitor firmware	Closed
30	Land access issues for O/H capacitor installations	Due to extremely wet weather land owners are preventing land access for the work to erect the HV O/H capacitors.	Closed
31	HV GM capacitor interlocking	Concerns were raised by Electricity North West system operations regarding the interlocking on the HV GM capacitors	Closed
32	Inefficient operation of VVC	Queens University Belfast data validation work has highlighted that the VVC algorithm was not running the network to its most efficient arrange in all cases. The project team worked with Siemens to revise the parameters of the system which resolved the issue for the trials. The team also then liaised with the academic partners at QUB to adjust the	Controlled

Risk ID	Risk Title	Risk Description	Status
		trial regime to retest this trial solution.	





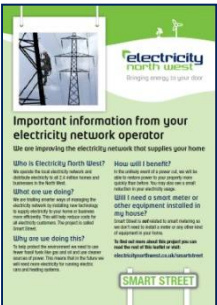
## APPENDIX F – SMART STREET COMMUNICATIONS REGISTER

Date	Activity	Audience	Evidence
Aug 2013	eta proposal video on YouTube	All stakeholders	<a href="#">You Tube</a>
Aug 2013	Internal announcement on proposed project in weekly ebulletin	All employees	
Nov 2013	Smart Street funding press release	All external stakeholders	<a href="#">Press release</a>
Nov 2013	Smart Street funding announced	Twitter	
Nov 2013	Internal announcement about funding in weekly ebulletin	All employees	
Dec 2013	Funding announced in internal magazine, NewsWire	All employees	




Date	Activity	Audience	Evidence
Jan 2014	Employee overview on The Volt intranet	All employees	
Jan 2014	Employee overview in company team brief	All employees	
March 2014	Smart Street web page	All stakeholders	<a href="#">Smart Street website</a>
March 2014	Smart Street video updated on YouTube	All stakeholders	<a href="#">YouTube</a>
March 2014	Project update in internal magazine NewsWire	All employees	
May 2014	Smart Street video promoted on Twitter	All stakeholders	
May/June 2014	Smart Street project partner events	MOSI event	<a href="#">Event slides</a>
June 2014	Project progress report no 1 submitted	Ofgem and industry stakeholders	<a href="#">Project progress report page</a>
July 2014	Smart Street advertorial in E&T magazine	All stakeholders	<a href="#">E&amp;T magazine ad</a>
July 2014	Smart Street webinar promoted on LinkedIn	All stakeholders	





Date	Activity	Audience	Evidence
July 2014	Smart Street webinar promoted on Twitter	Twitter	
July 2014	Smart Street webinar on Twitter	All stakeholders	
July 2014	Launch of Smart Street microsite	All stakeholders	<p>Smart Street website</p>
July 2014	Smart Street webinar	All stakeholders	<p>Webinar recording Webinar slides</p>
Aug 2014	Website launch and webinar promoted on LinkedIn	All stakeholders	
Aug 2014	Project website promoted on Twitter	All stakeholders	
Aug 2014	Webinar promoted on Twitter	All stakeholders	

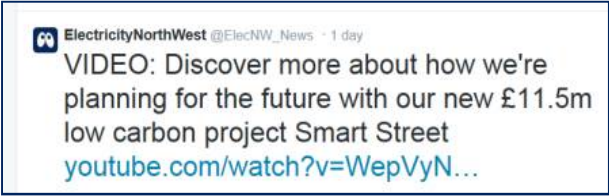


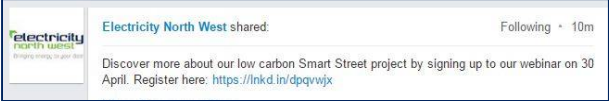

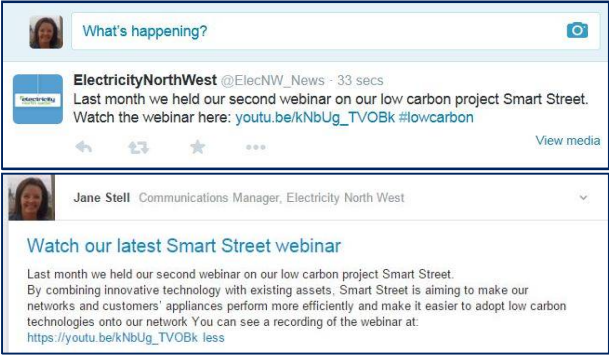









Date	Activity	Audience	Evidence
Sep 2014	Project website promoted on Twitter	All stakeholders	
Sep 2014	Smart Street project update story on company intranet and internal e-bulletin	All employees	
Sep 2014	Smart Street presentation to Infuse event promoted on Yammer	All employees	
Sep 2014	Tweet about presentation at external event	All stakeholders	
Sep/Oct 2014	Engaged customer panels		?
Oct 2014	Mailing to 62,000 customers in Trial areas	Customers on Trial circuits	 <a href="#">Smart Street customer leaflet</a>
Oct 2014	Presentation on Smart Street at LCNI conference	Industry stakeholders	<a href="#">Presentation slides</a>

Date	Activity	Audience	Evidence
Oct 2014	New Smart Street video – a day in the life of Smart Street on You Tube and Project website	All stakeholders	 <p>ElectricityNorthWest (@Elnw_News) · Oct 21 Watch our new animated video to learn more about our low carbon #SmartStreet project... <a href="http://ow.ly/DSVj8">ow.ly/DSVj8</a></p> <p>YouTube</p> <p>View more photos and videos</p> <p>YouTube</p>
Oct 2014	Smart Street video promoted on Twitter	All stakeholders	 <p>ElectricityNorthWest (@Elnw_News) · Oct 21 Watch our new animated video to learn more about our low carbon #SmartStreet project... <a href="http://ow.ly/DSVj8">ow.ly/DSVj8</a></p> <p>YouTube</p> <p>View more photos and videos</p>
Oct 2014	Smart Street video promoted on Yammer	All employees	 <p>Jane Stell To Future Networks</p> <p>As part of the materials we put together for this year's LCNI conference, we've developed an animated video on A Day in the Life of Smart Street. Smart Street is our most recent LCN Fund tier 2 project. You can watch the video here: <a href="http://www.electricitynorthwest.co.uk/smartstreet">www.electricitynorthwest.co.uk/smartstreet</a></p> <p> <b>ENWL SmartStreet - Low Carbon Network Project</b> <a href="http://www.electricitynorthwest.co.uk">www.electricitynorthwest.co.uk</a> Smart Street aims to make networks and customers' appliances perform more efficiently and make it easier to adopt low carbon technologies - Read ...</p>




Date	Activity	Audience	Evidence
Oct 2014	Leaflet and video in internal ebuletin	All employees	 <p>Electricity North West logo: <b>connect</b> the weekly bulletin for our people Edition 21 Friday 24 October 2014</p> <p><b>Latest news...</b></p> <p><b>Smart Street customer leaflets sent out this week</b></p> <p>Today we're sending a leaflet to 19,500 customers in the trial areas of our Low Carbon Networks Fund project, Smart Street.</p> <p>Although the trials don't start until next year, we're writing to customers now to let them know that we will soon be installing new equipment on the part of the network that supplies their home or business. Customers will benefit from the equipment as we potentially will be able to restore power more quickly in the unlikely event of a power cut. They may also see a small reduction in their electricity usage.</p> <p>By introducing new technology Smart Street will balance voltage so that our network and customers' appliances perform more efficiently. It will also be much easier to adopt new low carbon technologies (such as solar panels, electric vehicles and heat pumps) onto the electricity network. This innovative approach will help to keep costs down for customers, get the most from the existing network and reduce carbon emissions.</p> <p>You can see the customer leaflet and our latest animated video on our website <a href="#">here</a>.</p>
Oct 2014	Smart Street leaflet and video promoted on Linked In	All stakeholders	 <p><b>Smart Street leaflet issued to customers</b></p> <p>Jane Stell Communications Manager, Electricity North West</p> <p>Today customers in the trial areas of our Low Carbon Networks Fund project, Smart Street, will receive a leaflet explaining all about the project.</p> <p>Although the trials don't start until next year, we're writing to customers now to let them know that we will soon be installing new equipment on the part of the network that supplies their home or business. Customers will benefit from the equipment as we potentially will be able to restore power more quickly in the unlikely event of a power cut. They may also see a small reduction in their electricity usage.</p> <p>By introducing new technology Smart Street will balance voltage so that our network and customers' appliances perform more efficiently. It will also be much easier to adopt new low carbon technologies (such as solar panels, electric vehicles and heat pumps) onto the electricity network. This innovative approach will help to keep costs down for customers, get the most from the existing network and reduce carbon emissions.</p> <p>You can see the customer leaflet and our latest animated video at <a href="http://www.enwl.co.uk/smartstreet">www.enwl.co.uk/smartstreet</a></p>
Oct 2014	Smart Street leaflet promoted on Yammer	All employees	 <p>Jane Stell To All Company</p> <p>Today customers in the trial areas of our Low Carbon Networks Fund project, Smart Street, will receive a leaflet explaining all about the project.</p> <p>Although the trials don't start until next year, we're writing to customers now to let them know that we will soon be installing new equipment on the part of the network that supplies their home or business. Customers will benefit from the equipment as we potentially will be able to restore power more quickly in the unlikely event of a power cut. They may also see a small reduction in their electricity usage.</p> <p>You can see the customer leaflet and our latest animated video at <a href="http://www.electricitynorthwest.co.uk/smartstreet">www.electricitynorthwest.co.uk/smartstreet</a>.</p> <p><b>ENWL SmartStreet - Low Carbon Network Project</b> <a href="http://www.enwl.co.uk">www.enwl.co.uk</a> Smart Street aims to make networks and customers' appliances perform more efficiently and make it easier to adopt low carbon technologies - Read ...</p> <p><b>Smart Street leaflet FINAL</b> Uploaded to All Company • Files</p> <p>Like • Reply • Share • More • 28 minutes ago</p>

Date	Activity	Audience	Evidence
Oct 2014	Smart Street leaflet promoted on Twitter	All stakeholders	
Oct 2014	LCNI conference promoted on Twitter	All stakeholders	
Oct 2014	Engaged customer panel lessons learnt	All stakeholders	ECP lessons learnt
Nov 2014	Article in internal magazine	All employees	
Nov 2014	Email to MPs in primary substation areas	MPs	
Dec 2014	Project progress report no 2	Ofgem and industry stakeholders	<a href="#">Project progress report page</a>
Jan – Feb 2015	Letters to customers affected by technology installation	Customers in Trials areas	<a href="#">Copy of letter</a>



Date	Activity	Audience	Evidence
Feb 2015	Smart Street video promoted on Twitter	All stakeholders	
April 2015	Smart Street video promoted on Twitter	All stakeholders	
April 2015	Smart Street webinar promoted on Twitter	All stakeholders	
April 2015	Smart Street webinar promoted on Linked In	All stakeholders	
April 2015	Smart Street webinar promoted on Linked In via Low Carbon Networks Forum	All stakeholders	
April 2015	Smart Street webinar recording on LinkedIn and Twitter	All stakeholders	
April 2015	Smart Street webinar recording on Yammer	All employees	
April 2015	Smart Street webinar	All stakeholders	<a href="#">Slide presentation</a> <a href="#">Webinar recording</a>
June 2015	Smart Street advertorial	All stakeholders	<a href="#">E&amp;T magazine ad</a>
June 2015	Project progress report no 3	Ofgem and industry stakeholders	<a href="#">Project progress report page</a>

Date	Activity	Audience	Evidence
June 2015	Internal comms update in weekly bulletin	Employees	
July 2015	Contact centre briefing	Customer-facing employees	<a href="#">Contact centre presentation</a>
July 2015	Stakeholder update	All stakeholders	<a href="#">Stakeholder newsletter</a>
Sep 2015	Learning event promoted on Twitter	All stakeholders	
Sep 2015	Learning event promoted on Linked In	All stakeholders	
Sep 2015	Smart Street video promoted on Twitter	All stakeholders	
Oct 2015	Presentation on Smart Street at Infuse event	Kelvatek's Infuse event delegates	
Oct 2015	Learning event	All stakeholders	<a href="#">Event slides</a>
Oct 2015	Learning event on Twitter	All stakeholders	






Date	Activity	Audience	Evidence
Oct 2015	Learning event on LinkedIn	All stakeholders	
Nov 2015	Presentation at annual LCNI conference	Industry stakeholders	 <p><a href="#">Conference slides</a></p>
Nov 2015	Supplier letter	Electricity supply companies	<a href="#">Letter to suppliers</a>
Dec 2015	Project progress report no 4	Ofgem and industry stakeholders	<a href="#">Project progress report page</a>
Jan 2016	Stakeholder update	All stakeholders	<a href="#">Stakeholder newsletter</a>
Jan 2016	Start of live trials	All stakeholders	<p>Published on website homepage</p> 

Date	Activity	Audience	Evidence																																				
Feb 2016	Internal comms update in weekly bulletin	All employees	 <p>connect the weekly bulletin for our people Edition 85 Friday 12 February 2016 Latest news...</p> <p><b>Smart Street briefings</b></p> <p>Following a challenging installation programme the £11.5 million Smart Street project is now live and the team are holding a series of meetings to update you on the technology installation and the project trials.</p> <p>Smart Street is trialling innovative voltage control techniques to make our networks and customers' appliances perform more efficiently and make it easier to adopt low carbon technologies onto the electricity network. It's the first demonstration in Great Britain of a fully centralised, low voltage network management and automation system.</p> <p>The trials will take place over a two-year period using a two-week-on / two-week-off test regime. This will enable us to compare one year's worth of Smart Street data with normal network operation, so we can calculate the overall benefits of Smart Street and understand any impact on the 67,000 customers served by the trial circuits in Manchester, Wigan, Wilton and Egremont.</p> <p>During the technology build we have installed a range of new devices including Weezaps and Lynx, end-point monitors, low voltage capacitors, high voltage capacitors and on-load tap changing transformers. All of this equipment has been integrated into our network management system and is controlled by bespoke Spectrum 5 software developed by Siemens.</p> <p>The briefings will last about an hour and will take place between 8:30AM and 12:30PM at the following dates and locations:</p> <ul style="list-style-type: none"> <li>Boston Street boardroom: Wednesday 24 February 2016</li> <li>Broadway meeting room: Chadderton, Monday 29 February 2016</li> <li>Conference room, Whitebirk: Tuesday 1 March 2016</li> <li>Ground floor office, Hilltop: Thursday 3 March 2016</li> </ul> <p>You can find out more about Smart Street and our other low carbon projects at <a href="http://www.enw.co.uk/thefuture">www.enw.co.uk/thefuture</a> or you can email the Future Networks team.</p>																																				
Feb 2016	Advertorial	All stakeholders	<a href="#">E&amp;T magazine ad</a>																																				
Feb/ Mar 2016	Internal briefings	Operational employees	Slides on website																																				
April 2016	Raw monitoring data	All stakeholders	 <p><b>Smart Street trial data</b></p> <p>We need your help to collect and analyse a wealth and significant amount of trial data so that we can share our findings with the rest of the industry. This includes information on voltage and power quality so that we can assess the effects of Smart Street on the regional and national electricity networks and our service to customers.</p> <p>The next rawest month's data is available below. For previous months' data, please contact us.</p> <p>April 2016</p> <table border="1"> <tbody> <tr> <td>1 April 2016</td> <td>7 April 2016</td> <td>13 April 2016</td> <td>19 April 2016</td> <td>25 April 2016</td> <td></td> </tr> <tr> <td>2 April 2016</td> <td>8 April 2016</td> <td>14 April 2016</td> <td>20 April 2016</td> <td>26 April 2016</td> <td></td> </tr> <tr> <td>3 April 2016</td> <td>9 April 2016</td> <td>15 April 2016</td> <td>21 April 2016</td> <td>27 April 2016</td> <td></td> </tr> <tr> <td>4 April 2016</td> <td>10 April 2016</td> <td>16 April 2016</td> <td>22 April 2016</td> <td>28 April 2016</td> <td></td> </tr> <tr> <td>5 April 2016</td> <td>11 April 2016</td> <td>17 April 2016</td> <td>23 April 2016</td> <td>29 April 2016</td> <td></td> </tr> <tr> <td>6 April 2016</td> <td>12 April 2016</td> <td>18 April 2016</td> <td>24 April 2016</td> <td>30 April 2016</td> <td></td> </tr> </tbody> </table> <p><a href="#">Webpage</a></p>	1 April 2016	7 April 2016	13 April 2016	19 April 2016	25 April 2016		2 April 2016	8 April 2016	14 April 2016	20 April 2016	26 April 2016		3 April 2016	9 April 2016	15 April 2016	21 April 2016	27 April 2016		4 April 2016	10 April 2016	16 April 2016	22 April 2016	28 April 2016		5 April 2016	11 April 2016	17 April 2016	23 April 2016	29 April 2016		6 April 2016	12 April 2016	18 April 2016	24 April 2016	30 April 2016	
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May 2016	Smart Street video promoted on Twitter	All stakeholders	 <p>ElectricityNorthWest @ElecNW_News · May 17 Watch our animated video to learn more about our low carbon #SmartStreet project...</p> <p><b>A day in the life of Smart Street</b> Smart Street is an £11.5 million project funded by the Low Carbon Networks Fund which will keep costs down for customers, reduce carbon emissions and help ge... youtube.com</p>																																				



Date	Activity	Audience	Evidence
May 2016	Presentation at Utility Week Live, Birmingham	All stakeholders	<p><a href="#">Conference slides</a></p> <p>Yammer</p> 
June 2016	Project progress report no 5	Ofgem and industry stakeholders	<a href="#">Project progress report page</a>
July 2016	Stakeholder update	All stakeholders	<a href="#">Stakeholder newsletter</a>
Oct 2016	LCNI conference	Industry stakeholders	<a href="#">Slide presentation</a>
Oct 2016	Promotion of LCNI conference in internal magazine and Connect e-bulletin	All employees	
Nov 2016	Briefing at Manchester Electrical Energy and Power Systems workshop	Industry stakeholders	<a href="#">Presentation slides</a>
Dec 2016	Project progress report no 6	Ofgem and industry stakeholders	<a href="#">Project progress report page</a>

Date	Activity	Audience	Evidence
Jan 2017	Innovation roadshow	All employees	
Feb 2017	Industry newsletter	All stakeholders	<a href="#">Newsletter page</a>
Feb 2017	Advertorial	All stakeholders	<a href="#">E&amp;T magazine ad</a>
Feb 2017	Smart Street workshop	Industry stakeholders	<a href="#">Slide presentation</a>
Feb 2017	Internal comms update in weekly ebulletin	All employees	 <p><b>Smart Street project update</b> 26 February 2017</p> <p>We are now at the halfway point of our Smart Street trials and to mark the occasion we held a technical workshop on 26 February at our lobby house office to update our presentations on our progress, compare them with other distribution networks operators and also to see the Smart Street system in action and meet technology enthusiasts to see how Smart Street equipment integrates with the existing network.</p> <p>The £11.5 million Smart Street project is trialling innovative voltage control techniques to enable our networks and customers' appliances to perform more efficiently and make it easier to adapt low carbon technologies onto the electricity network.</p>
Feb 2017	Workshop promoted on Twitter	All stakeholders	 <p>ElectricityNorthWest @ElecNW_News · 1m Great session today with @Kelvatek @CPENetwork @ESBNetworks @SiemensUKNews on our Smart Street project enwi.co.uk/smartstreet</p>
Feb 2017	Workshop promoted on Yammer	All employees	 <p>All Company Ben Ingham · Tuesday at 2:25pm from iPhone Successful workshop today around the Smart St project, plenty of interest from the other DNOs and the Manchester weather held off long enough for us to visit some of the sites involved.</p>

Date	Activity	Audience	Evidence
April 2017	Smart Street learning installations	All stakeholders	 
Apr 2017	IET event	IET	<a href="#">Slide presentation</a>
Apr 2017	IET presentation on Twitter	IET	
Jun 2017	Project progress report no 7	Ofgem and industry stakeholders	<a href="#">Project progress report page</a>
Jul 2017	Innovation learning event on social media	All stakeholders	
Jul 2017	Innovation learning event on social media	All stakeholders	

Date	Activity	Audience	Evidence
Jul 2017	Innovation learning event on social media	All stakeholders	
Jul 2017	Innovation learning event	All stakeholders	<a href="#">Slide presentation and survey results</a>
Jul 2017	Smart Street promoted on Twitter	All stakeholders	
Nov 2017	Industry newsletter	All stakeholders	<a href="#">Newsletter page</a>
Nov 2017	IET.TV consultation	All stakeholders	<a href="#">Recording of consultation</a>
Dec 2017	Chilean seminar	Academic stakeholders	<a href="#">Slide presentation</a>
Dec 2017	LCNI conference	Industry stakeholders	<a href="#">Slide presentation</a>