



# Smart Street

## Project Progress Report (PPR)

Version 1.0

18 Dec 2014

A large, stylized sign with the words "SMART STREET" in bold, green, uppercase letters. The sign is mounted on two white posts and is set against a green background. Below the sign is a white silhouette of a cityscape with various buildings, a bus, and wind turbines.

**SMART STREET**

## VERSION HISTORY

Version	Date	Author	Status	Comments
1.0	15 Dec 2014	K Hoban	1 <sup>st</sup> Issue	

## APPROVAL

Name	Role	Signature & date
Mike Kay	Networks Strategy and Technical Support Director	
Steve Cox	Head of Network Engineering	
Lynne Fulton	Head of Business Performance	

# CONTENTS

- VERSION HISTORY ..... 2
- APPROVAL..... 2
- GLOSSARY OF TERMS ..... 4
- 2 EXECUTIVE SUMMARY ..... 5
- 3 PROJECT MANAGER’S REPORT..... 8
- 4 CONSISTENCY WITH FULL SUBMISSION.....11
- 5 RISK MANAGEMENT .....11
- 6 SUCCESSFUL DELIVERY REWARD CRITERIA.....14
- 7 LEARNING OUTCOMES .....15
- 8 BUSINESS CASE UPDATE .....19
- 9 PROGRESS AGAINST BUDGET.....19
- 10 INTELLECTUAL PROPERTY RIGHTS (IPR) .....19
- 11 OTHER.....19
- 12 ACCURACY ASSURANCE STATEMENT .....20
- APPENDIX A –PROJECT BUDGET.....21
- APPENDIX B – DETAILED PROJECTED PROJECT EXPENDITURE.....22
- APPENDIX C – PROJECT BANK ACCOUNT .....23

## GLOSSARY OF TERMS

Abbreviation	Term
C <sub>2</sub> C	Capacity to Customers (Electricity North West Second Tier Project)
CEP	Customer Engagement Plan
CLASS	Customer Load Active System Services (Electricity North West Second Tier Project)
CVR	Conservation Voltage Reduction
ECP	Engaged Customer Panel
DINIS	Distribution Network Information System
DPS	Data Protection Statement
HV	High Voltage
ICCP	Inter Control Communication Protocol
IFI	Innovation Funding Incentive
LV	Low Voltage
ITT	Invitation To Tender
NMS	Network Management System
SDRC	Successful Delivery Reward Criteria
SDRC output	Discrete evidence of attainment or part attainment of an SDRC as defined in the Project Direction

All other definitions shown starting with a capital letter are as per Low Carbon Networks Fund Governance Document v.6

# 1 EXECUTIVE SUMMARY

Funded via Ofgem's Low Carbon Networks Second Tier funding mechanism, Smart Street is being undertaken by Electricity North West in partnership with Kelvatek, Siemens and Impact Research. In addition to its Partners academic support is provided by Manchester University and Queens University Belfast. The Smart Street Project was authorised to commence in December 2013 and is due to complete in December 2017.

Smart Street will demonstrate a step change in the co-ordination and integrated operation of distribution networks in Great Britain. Utilising the most advanced technology developed today 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 Capacity to Customers Project, and elements of the voltage control technologies developed within Electricity North West's LCNF First Tier programme. The Capacity to Customers Project focused on EHV and HV networks. Smart Street will extend these technologies and their benefits down the voltage levels to encompass HV and LV networks. The Project utilises advanced real time optimisation software to simultaneously manage all 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 with on load tapchangers 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.

The four year Smart Street Project, which started in January 2014, will employ these techniques to demonstrate that a network operator can quickly release capacity and voltage headroom to facilitate the connection of LCTs and at the same time operate a cost, carbon and energy efficient distribution network. The themes of LV network management and interconnection, HV and LV voltage control, and network configuration and voltage optimisation are the key interlinking aspects of the Smart Street Method.

Enhancing existing networks in this way enables accelerated connection of clusters of low carbon technologies 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 low carbon technology 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 Smart Street, communications from customers within the Trial areas will be monitored to collect quantitative customer information. The Project team will also hold a series of customer focus groups recruited from within the Trial areas to collect qualitative customer information. In addition, outputs from the CLASS survey will be utilised, which are designed to establish the customer experience of a change in supplied voltage to supplement the customer research.

## Progress to date

The Project costs to date are £695k and the estimated completion cost is in line with the Project budget excluding contingency. This report is the second Project progress report and covers the period June 2014 to November 2014 inclusive. The Project is on track and key highlights to date are:

### Smart Street site selection completed

- The Trial circuits have been identified and meet the requirements of the bid document.
- The circuits overlap with both C<sub>2</sub>C and CLASS Project circuits.
- On site surveys have now been carried out on all the selected circuits to check for suitability and to identify any potential issues at an early stage to reduce the risk of potential future delays.

### Circuit design completed

- The design methodology has been applied to the Trial circuits and the circuit designs finalised.
- The network design has been reviewed to make sure that all proposed test scenarios can be achieved across the Trial networks.

### Engaged customer workshops delivered

- Workshops were held and the target of 30 customers were recruited.
- The feedback from the workshops was utilised to influence the customer awareness campaign/customer leaflet content.

### Completed customer engagement plan

- The customer engagement plan was submitted and approved by Ofgem on 16 July 2014.

### Completed customer data privacy statement

- The data privacy statement was submitted and approved by Ofgem on 16 July 2014. Both the customer engagement plan and data privacy statement are published on Electricity North West's website and can be accessed via:  
<http://www.enwl.co.uk/smartstreet/about-smart-street/key-documents>

During the reporting period the Project has delivered 12 SDRC outputs, detailed in section 5.

*Table 1.1 SDRCs delivered during the reporting period*

Milestone	Workstream	Completion date
Submit customer engagement plan and data privacy statement to Ofgem	Customer	June 14
Project progress reports published on Smart Street website	Project Management	June 14
Publish on the Smart Street website a report detailing the site selection methodology, and a map of Smart	Research/ Trials	July 14

Street Trial areas		
Contracts for the supply of networks equipment signed	Project Management	July 14
Smart Street website and social media forums live	Dissemination	July 14
Publish advertorials	Customer	July 14
Smart Street webinar held	Dissemination	July 14
Engaged customer panel workshop delivered	Customer	September 14
Publicise Smart Street within Electricity North West in monthly team brief pack and Volt (intranet) and Newswire (quarterly employee magazine)	Dissemination	September 14
Deliver general awareness materials and publish on the Smart Street website	Dissemination	October 14
Engaged customer panel lessons learned published on the Smart Street website	Customer	October 14
Active participation at the Annual LCN Fund Conference – 2014	Project Management	October 14

During the next reporting period the Project will publish the progress report on the Smart Street website and hold the second webinar session.

### Summary of key risks

Project risks are monitored on a continuous basis, including those potential risks that were documented in the Full Submission. The status of these is described in section four.

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

A detailed description of the Project's learning outcomes can be found in section six, the areas where learning has emerged are summarised below:

- Conducting site surveys at the earliest opportunity after circuit selection is essential to identify risks and issues and allow sufficient time to implement solutions or alternatives.
- The actual location for where it is possible to site HV ground mounted capacitors is limited due to space restrictions at existing distribution substations. This needs to be considered at the design phase to confirm there is a suitable location while correctly sizing the capacitor for optimum performance.
- Identifying and engaging internal stakeholders at an early stage is essential to achieve buy-in from the wider business.
- Factory visits to suppliers provide the earliest opportunity to identify issues and de-risk the installation programme.

### *Customer workshops*

- To embed stakeholder engagement, an engaged customer panel (ECP) was recruited to help formulate effective communication plans. The ECP research was designed to identify the best method of communicating the details of the Project to customers on the Trial circuits. The panel was made up of an appropriate demographic cross-section of customers from within each of the Trial regions, to provide robust qualitative research.

- The ECP was introduced to various stimulus material which clarified Electricity North West's role and responsibility with the energy sector and was then subsequently introduced to the concept and hypothesis of the Project.
- Based on the outcome of the focus groups, the most effective means of communicating the Project to customers was confirmed to be via a leaflet. Several versions of the leaflet with different textual content and imagery were presented to the ECP.
- The fundamental challenge in using leaflets as a communication tool is designing the literature in such a way as to ensure it receives maximum readership and is not simply discarded or misinterpreted as marketing material.
- The final design was a hybrid of what was considered to be the best combination of text and images to communicate the message as simply as possible. The leaflet was distributed on 24 October 2014 and to date has generated only one enquiry from a concerned customer on a Trial circuit.
- Since its issue, follow-up research has been conducted to gauge the extent to which the leaflet was read and was effective in communicating the concept of Smart Street. The research confirmed that the customers who had read the literature believed it effectively conveyed the main principles of the Project.

*Table 1.2 Third party dissemination activities*

Event	Contribution	Date
First webinar held	Presented	July 14
Presented Smart Street overview to other DNOs at Infuse conference	Presented	September 14
Presented Project overview to Kelvatek colleagues on factory visit	Presented	September 14
Presented Smart Street overview at system automation conference	Presented	September 14
Presented/exhibited at LCNF conference	Presented	October 14

### **Internal dissemination activities**

- Smart Street was publicised in the company's internal magazine, NewsWire, in November 2014.
- A Project update was included on the Volt (Electricity North West's intranet).

## **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
- Active participation at annual Low Carbon Networks & Innovation Conference.

During the reporting period the Project emphasis has focused on three key areas:

- Development of Spectrum 5 software for voltage optimisation.
- Developing a construction schedule for the Trial networks.
- Stakeholder engagement and briefings.

During the reporting period the Project emphasis has focused on finalising the circuit selection and design. From this the Project team has engaged with Electricity North West's operations business and agreed the construction plan which is designed to fit around the staged delivery timescales from the Project suppliers. The customer workstream has been very active in finalising the customer engagement plan; customer data privacy statement; hosting engaged customer panel workshops as well as publishing the ECP lessons learned report. Progress has been made to connect Spectrum 5 to the IT networks via an ICCP link and data modelling of company records into Spectrum 5 has also started. A number of employees including data maintainers, control room users and Smart Street team experts have completed their training on the Siemens training on the Spectrum 5 software.

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

- Project monitoring and control
- Continued stakeholder engagement and management
- Dissemination of the Smart Street Project at various industry events and the second Project webinar.

There are no Project management risks or issues that are 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:

- Completed Trial area feasibility studies
- Placing of equipment orders and agreeing timescales with suppliers
- Applied design methodology to complete Trial area site selection
- Agreed initial installation plan with operations and commenced construction.

All SDRCs associated with the above activities are complete or on track.

During the current reporting period the emphasis has been on circuit selection. Considerable effort has been devoted to ensure circuit suitability at this early stage to de-risk future technical delivery.

During the next reporting period, the Technology Workstream's significant activities will be:

- Complete development of current codes of practice to include new technologies
- Roll-out of training on new technology to operational teams
- Installation and configuration of new IT hardware and software
- Progress Trial network construction.

There are no Technical Workstream risks or issues that are associated with delivery of a Project SDRC or maintaining consistency with the Full Submission.

### **2.3 Trials and Research Workstream**

The most significant Trials and Research Workstream activities during the reporting period are listed below:

- Modelled and analysed selection of Trial circuits
- Produced network design methodology / rules based methodology
- Applied rules based methodology to the proposed Trial circuits
- Produced and gained approval of a product description for the design of the Trial and test regimes
- Started the detailed design of the Trial and test regimes.

All SDRCs associated with the above activities are complete or on track.

During the current reporting period the emphasis has been on finalising circuit selection and applying the design methodology. Along with Manchester and Belfast universities work has begun on designing the Trial and test regime

During the next reporting period, the Trials and Research Workstream's significant activities will be:

- Develop initial network models required for academic studies
- Produce a report on literature survey of CVR and voltage optimisation methodologies
- Produce a report on literature survey on customer-side and power quality impacts
- Progress the detailed design of the Trial and test regimes.

There are no Trials and Research risks or issues at this time that are associated with delivery of a Project SDRC or maintaining consistency with the Full Submission.

### **2.4 Customer Workstream**

The most significant Customer Workstream activities during the reporting period are listed below:

- Customer engagement plan completed and approved by Ofgem
- Customer data privacy statement completed and approved by Ofgem
- Delivered engaged customer panel workshop
- Delivered general awareness materials to customers
- Published engaged customer panel lessons learned and general awareness materials on the Smart Street website
- Go live of the Smart Street website and social media forums.

During the next reporting period the Customer and Commercial Workstream's significant activities will be:

- Arrange written notification of planned supply interruptions to customers as appropriate, associated with the installation of enabling technology, in accordance with business as usual procedures
- Arrange written notification to customers, as appropriate, to inform of installation of street furniture on the footpath outside their homes
- Design training materials and commence briefing of customer contact centre employees.

There are no customer risks or issues at this time that are 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**

### **4.1 Risks and issues experienced during reporting period**

There are currently no uncontrolled risks that could impede the achievement of any of the SDRCs outlined in the Project Direction, or which could cause the Project to deviate from the Full Submission.

Risks are monitored on a continuous basis, including the potential risks that were documented in the Full Submission.

### **4.2 Risks that existed at time of documenting the Project Full Submission**

The narrative below refers to risks that existed at the time of submission and were detailed in Appendix E of the Full Submission.

#### **Recruitment Risks**

**Risk 1 - Risk that Electricity North West and/or Partners are not able to mobilise their resources in time. *Status: Controlled***

Electricity North West has mobilised the Smart Street team; weekly and monthly Project governance meetings have been established and implemented. These include monthly updates to the sponsoring director. A comprehensive Project plan with clearly defined timescales and milestones has been agreed with Project Partners, the internal delivery team and other stakeholders. Framework agreements with clear terms and conditions have been agreed and put in place with all Partners.

**Risk 12 - Risk that there may be some confusion amongst customers due to other ongoing government initiatives, eg The Green Deal and smart metering rollout program. This could lead to customer engagement being adversely affected. *Status: Controlled***

The Smart Street customer engagement plan is both non-intrusive and simple, thus minimising the potential for confusion with other government initiatives. In addition, the Project intends to conduct engaged customer panel workshops with a representative sample of customers in order to obtain feedback on how best to inform customers of the Project and how it may affect customers.

## Procurement Risks

### **Risk 4 – Risk that a lack of suitable equipment vendors may result in a poor response to invitations for tenders. *Status: Controlled***

The Project's request for information during the development of Smart Street showed that products are available from a number of vendors, but some products require further development. The initial response to the tender process has been good and no problems are envisaged. An expression of interest has already been issued through Achilles (Utilities Vendor Database) for the procurement of LV capacitors, HV pole mounted capacitors and HV ground mounted capacitors with four vendors responding positively. The ITT documents have now been issued. All equipment orders have now been placed and there is an agreed schedule of delivery dates with all suppliers in place.

### **Risk 5 – Risk that actual product delivery lead times may be greater than planned. *Status: Controlled***

Clearly defined timescales have been included in all vendor agreements to ensure that Project timescales are met. In addition, the evaluation criteria for procurement activities include weighting for delivery timescales. This will ensure that a suitable product can be procured within the required timescales of the Project. The construction build plan has been designed in such a way that the equipment with the longest lead times will be installed at the later stages of the build in order to minimise the risk of delays.

## Installation Risks

### **Risk 2: Risk that following preliminary design, planning issues where equipment is proposed to be located could lead to extended consultation requirements. *Status: Open***

Electricity North West will engage early to inform customers of local works, thus minimising the risk of objections. Furthermore, any installation of equipment will be planned to minimise intrusion and disturbance, while maximising the benefits. Physical size of equipment and location will be considered to prevent issues further into the installation programme.

Due to the larger than originally anticipated physical size of the HV ground mounted capacitors, an issue has arisen whereby three units need to be sited outside of the associated substation. This has been identified at an early stage and the Project team are currently in discussions with the relevant land owners.

### **Risk 6: Risk that the vendor does not achieve delivery and installation of the optimisation software or that there are potential constraints with Electricity North West's NMS configuration and commissioning. *Status: Open***

Early contact was made with Siemens for discussion and agreement to deliver the software according to the Project plan. Through this, an understanding of the data requirements and connectivity between the optimisation software and Electricity North West's NMS system has been agreed at an advanced stage. In addition, since Project go-live, significant effort has been invested in finalising functional requirements prior to signing contracts with Siemens. This is aimed at de-risking Project delivery.

Weekly meetings are held with Siemens to address any actions and issues and have resulted in good progress on what is a complex element of the Project.

### **Risk 7: Risk that new technologies or software installed do not perform as expected in the commissioning stage leading to delays to commencing the Trial and potentially affecting the quality of Smart Street outputs. *Status: Open***

All Smart Street equipment technologies have been trialled and proven under previous IFI and LCNF Tier 1 funded projects; or proven in business as usual scenarios. In addition early commissioning dates have been planned to allow contingent time should this risk materialise.

## **Other Risks**

**Risk 3: Risk that the Trial areas selected will not include areas with CLASS or C<sub>2</sub>C leading to a lost opportunity to gain further value from utilising existing assets.**

***Status: Controlled***

The selection criteria outlined in Appendix B of the Full Submission has been applied to the selected circuits with priority applied to CLASS and C<sub>2</sub>C assets. The circuit selection criteria were designed to utilise existing Trial networks where practicable and only where there are other factors that prevent overlap with CLASS or C<sub>2</sub>C have alternate circuits been included. Of the 11 HV circuits selected three overlap with CLASS and eight overlap with C<sub>2</sub>C.

**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 will be held in the latter part of the second year of the Trial period with customers from each of the Smart Street Trial locations.

**Risk 9: Risk that the survey group does not form a representative sample of either the Electricity North West or GB customer base. *Status: Controlled***

We will be leveraging previous Second Tier surveys that will establish customer perception of a change to the supply customers recruited for the Trial surveys will be representative of the wider population at both Electricity North West and GB level and be matched by ACORN classification.

**Risk 10: Risk that some industrial customers have transformer winding ratios of 11000/400 leading to out of limit voltages on their networks. *Status: Open***

A search for potential HV customers in Trial areas will be conducted. If any are found they will be informed of the Smart Street Trials in order to ensure appropriate actions are taken to avoid out of limit voltages on their premises.

**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 are 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 in order to minimise the risks associated with the movement of research staff.

**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: Open**

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: Open**

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 in order to ensure all internal stakeholders are aware of the outcomes of the Project.

**5 SUCCESSFUL DELIVERY REWARD CRITERIA**

During the reporting period, one planned SDRC was delivered. This is detailed in table 5.1 below.

*Table 5.1 SDRC delivered in reporting period*

Milestone	Planned date	Completion date	Comments
Send customer engagement plan and data privacy statement to Ofgem	Jun 14	Jun 14	Completed
Project progress reports published on Smart Street website	Jun 14	Jun 14	Completed
Publish on the Smart Street website a report detailing the site selection methodology, and a map of Smart Street Trial areas	Jul 14	Jul 14	Completed
Contracts for the supply of networks equipment signed	Jul 14	Jul 14	Completed
Smart Street website and social media forums to be live	Jul 14	Jul 14	Completed
Publish advertorials	Jul 14	Jul 14	Completed
Smart Street webinar held	Jul 14	Jul 14	Completed
Engaged customer panel workshop delivered	Sep 14	Sep 14	Completed

Publicise Smart Street within Electricity North West in monthly team brief pack and Volt (intranet) and/ or Newswire (bimonthly employee magazine)	Sep 14	Sep 14	Completed
Deliver general awareness materials and publish on the Smart Street website	Oct 14	Oct 14	Completed
Engaged customer panel lessons learned published on the Smart Street website	Oct 14	Oct 14	Completed
Active participation at fourth annual LCN Fund Conference – (2014)	Oct 14	Oct 14	Completed
Smart Street knowledge sharing events	Oct 14	Oct 14	Completed

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

*Table 5.2 SDRC look ahead*

Milestone	Planned date	Forecast date	Comments
Project progress reports published on Smart Street website.	Dec 14	Dec 14	On track
Hold Smart Street webinar.	Apr 14	Apr 14	On track

During the next reporting period none of the SDRCs 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: Early engagement with internal stakeholders is essential to achieve Project buy-in**

**Background:** Smart Street involves a new method of control and operation of the Electricity North West network. These fundamental changes affect a large number of internal business partners and how they operate business as usual. To support these changes all internal stakeholders were identified at an early stage. Engagement is on-going and has highlighted previously unidentified possible risks/issues.

**Lessons learned:** Early contact with internal business users is essential to achieve Project buy-in. This also allows the various business partners to highlight any risks unknown or not previously identified by the Project team. Through early engagement the Project has benefited from the support of the wider business.

### **Lesson 2: Ofgem Smart Street Project officer budget variance percentage request**

**Background:** The first Smart Street six monthly report was submitted in June 2014. This was approved by Ofgem and feedback was given at this time.

**Lessons learned:** The feedback from the first report highlighted the Ofgem Project officer's desire for the budget variance to be included as a percentage in the table as it was felt that in future it would be more useful in this format. This has now been included into this report and will be contained in all future reports.

### **Lesson 3: Using a panel of customers to assist with the design of engagement and survey material is very beneficial to the Project**

**Background:** To assist with the development of customer materials, the Project team engaged a representative cross-section of customers through a series of workshops. These customer panels help to advise on how best to engage customers during the Trials, the design of customer materials and their language and message.

The outputs of the workshops have validated the Project view that involving customers at the design stage ensures that campaign materials are more effective, engaging and understandable by members of the public. In particular, the following learning points have been gained from the workshops.

#### **Lessons learned**

##### **Sufficient time should be allowed at the bid stage for ECP activity**

The timings at the start of the Smart Street Project became compressed due to the lead time required to mobilise Project Partners and that needed for Ofgem approval of the CEP. This process has an eight-week window during which time no customers can be contacted for research purposes.

After receiving Ofgem approval, time was very limited for recruiting ECP participants; organising and conducting the initial focus groups; analysis; revising the leaflets between phases one and two; conducting the second phase of focus groups and then making final changes to the customer leaflet before print and despatch by the end of October to meet the SDRC.

Future Second Tier LCNF bids should allow for the eight-week Ofgem approval window when setting SDRCs for customer engagement activities. This should mitigate against the risk of reduced learning because of insufficient time to plan and execute research activities.

##### **Keep educational background information on the Project focused and concise**

Providing participants with background and context on the low carbon agenda, government targets, dates and expected increase in electricity demand is important. However, Electricity North West recognises that it can also be counterproductive, provoke debate and a certain degree of cynicism. ECP participants were suspicious of what they perceived as Government imposition of legislative targets on the taxpayer and higher fuel prices. Any reference to fuel bills including DUoS charges fuelled expressions of contempt towards the energy sector, as participants perceived suppliers to be large profit-making organisations.

Therefore, the background and context to introducing LCNF projects and the low carbon agenda should be very carefully considered and limited to key facts to provide sufficient information, without generating an inflammatory reaction from a generally wary public.

##### **Do not have pre-conceived ideas about customer information preferences**

Due to the success of the ECP activity in C<sub>2</sub>C an identical approach was adopted in the subsequent Second Tier Project, CLASS. However, whilst the process undertaken was the same, the outcome of the CLASS ECP was quite different as participants preferred to be furnished with more detail for the CLASS Project.

In Smart Street focus groups, sharing such a markedly abridged version of the leaflet was almost a redundant exercise as the extended and more informative version was seen to be more appropriate from the outset. Nevertheless, previous learning has shown that pre-conceived ideas need to be tested given that each project is perceived differently by customers who are focused on the risks and benefits of the proposals.

Future projects should consider multiple versions of an extended leaflet, in addition to an abridged version. These might be designed in such a way as to provide the same information in a variety of different formats, tone with slightly differing focuses and different illustrations, etc.

### **The design of the front cover is critical with respect to customers reading the information**

The single biggest barrier to overcome in achieving an effective leaflet awareness campaign is first getting customers to read the literature and to not immediately dispose of it. The leaflet needs to look as 'official' as possible, to distinguish it from junk mail.

Customers' suggestions included increasing the prominence of the word 'important' and if costs allowed, personalising the front with individual postcodes or the name of the town. It is recommended that multiple examples of front covers with various designs comprised of text, imagery and a hybrid of both are presented for participants to evaluate. However:

- This can be difficult to manage in a large group with differing options
- Reactions to the text will be influenced by the image, and vice versa.

Therefore a 'pick and mix' approach should be adopted in future ECP focus groups, offering a selection of different images, headline text and body text, enabling participants to piece together the ideal cover.

### **'Good news' needs to be genuinely regarded as good news by customers**

If customer communication is being promoted as 'good news' it must be perceived as good news by customers and needs clearly articulating. In the case of the Smart Street Project, the 'good news' was initially not sufficiently compelling for ECP participants to agree with this headline.

In light of this learning, a 'good news' message should only be used when there is a consensus amongst customers that there is a sufficiently clear, measurable and valid good news message with tangible benefits, and guaranteed cost savings or improved reliability of supply.

### **The relationship between DNO and supplier is still confusing for customers**

The same questions posed during previous ECPs are repeatedly raised including: will the leaflets be sent with your bill; and isn't that the best way to make sure it is read? Further clarification of the relationship between Electricity North West and electricity suppliers is required.

The learning outcome from C2C demonstrated that any direct communication with customers should address the public's current lack of awareness of Electricity North West and its role as a DNO. Brand awareness should be delivered in a simple, friendly, customer-facing manner, clearly delineating the DNO role from that of energy suppliers.

### **Information about the Trial Method should be simple and informative, so as not to create confusion**

It is often assumed that a lot of detailed information is needed to explain the Method, ie the technology behind the Method. However, for some this level of detail is too much and its inclusion can raise more questions than it answers.

The techniques and concepts behind large Second Tier projects are too complex for many customers to understand. Any attempt to explain decarbonisation, gain customers' acceptance of the problem, achieve credibility and enhance the appeal of the solution opened customers up to information that was deemed too technical and unnecessary. The learning from the Smart Street ECPs has shown that there is a need to balance the appropriate level of detail, with an executive summary of the key information at the start. Those customers who require more detail can then read on to acquire the extra information.

### **Including advice on what to do in the event of a power cut can be interpreted as an indication that power quality is set to decrease**

The '*what to do in the event of a power cut*' message was considered to give a negative tone to the leaflet. Although popular with C<sub>2</sub>C, the information is considered to be less relevant for Projects such as CLASS and Smart Street and therefore should be more restrained. The space given over to information regarding power cuts should be given careful consideration in light of the key elements of the Project in question.

The C<sub>2</sub>C ECP firmly believed that the main benefit of the C<sub>2</sub>C Method for them was an increase in power supply quality through short duration interruptions (SDIs) which increased the relevance of the information in the C<sub>2</sub>C customer leaflet. However, in Smart Street customers were less able to clearly define the benefit of the Method to themselves as they perceived very little, if any, discernible customer impact.

Reference to a potential increase in the number of SDIs was not favourably received by the Smart Street ECP and was seen to be sending a negative and contradictory message. Furthermore, as Smart Street is expected to improve the overall quality and reliability of the electricity supply, it was deemed more appropriate to focus the message on the positive aspects of the Project.

### **Expectations of bill savings are enticing, but need careful management**

When discussing benefits, the most appealing benefit is commonly considered to be a financial cost saving directly associated with a reduction in customers' electricity bills. In Smart Street the tangible saving may be relatively small for some customers and will certainly vary from one individual to the next based on their appliances and electricity usage. It is therefore inappropriate to allude to monetary savings at an individual level.

Customers are extremely sensitive and sceptical about ambiguous language. Unless savings can be clearly defined and quantified with a substantive cost benefit to the individual, detailed information or specific claims should be omitted from awareness materials. Customers are also sceptical of having any potential bill saving passed down from their supplier.

### **Lesson 4: Importance of an early Trial design overview**

**Background:** Development of the Trial design commenced once the network design was complete. In hindsight this could have caused conflict between the network design and how the Trials were going to be run.

**Lessons learned:** By developing a Trial design schedule as early as possible, issues associated with the development and delivery of the Project can be reduced. It is recommended that the network design and Trial design should be developed at the same time to minimise the risk of not meeting the required test criteria. This also would allow for IT and software requirements to be finalised earlier in the Project.

## 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 2014.

*Table 8.1 – Project expenditure*

Excluding Partner Funding Ofgem Cost Category	Actual	Budget	Variance	Forecast	Budget	Variance	%
<b>Summary</b>							
Labour	380	225	(154)	1,908	1,888	(20)	-1%
Equipment	4	1,159	1,155	3,182	3,235	53	2%
Contractors	89	48	(40)	1,893	1,960	66	3%
IT	167	0	(167)	1,090	1,090	(0)	0%
Contingency	0	0	0	0	1,015	1,015	100%
Decommissioning	0	0	0	39	39	0	0%
Other	56	51	(5)	282	323	42	11%
<b>Total Costs</b>	<b>695</b>	<b>1,484</b>	<b>789</b>	<b>8,394</b>	<b>9,550</b>	<b>1,156</b>	

Note 1: Project Budget as defined in Project Direction - December 2013

The actual spend to date is £695k and the estimate at completion cost is now £8,394k.

The phased mobilisation of the Project has resulted in a deferment of some expenditure to the first quarter of 2015. This has resulted in a £789k variance to the original Project budget. This is not expected to jeopardise the delivery of the SDRC as the costs are associated with relatively long duration activities whose SDRCs are not due until June 2015. The estimated at completion forecast is currently expected to remain in line with the original budget of £8,451k excluding contingency. (There are currently no known issues that will require utilisation of contingency held within this budget.) 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 2014.

## 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 of use to Ofgem in understanding the progress of the Project and performance against the SDRCs.

## **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 narrative has also been peer-reviewed by the Electricity North West future networks manager and the Electricity North West networks strategy and technical support director.

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. The financial information has also been peer-reviewed by the Electricity North West distribution finance business partner. Issue of the document has been approved by the networks strategy and technical support director.

## APPENDIX A – 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>

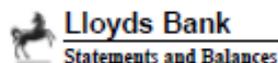
Source: Ofgem Schedule to Project Direct - December 2013

## APPENDIX B – DETAILED PROJECTED PROJECT EXPENDITURE

£'000s Excluding Partner Funding Ofgem Cost Category	Total Project				Comments
	Forecast	Plan	Variance	%	
<b>Labour</b>	<b>1,908</b>	<b>1,888</b>	<b>(20)</b>	<b>-1%</b>	
HV & LV Network Management & Interconnection - Labour	317	305	(12)	-4%	
Network Configuration & Voltage Optimisation - Labour	453	431	(24)	-5%	
Project Management, Planning, Policy and Training - Labour	1,137	1,152	14	1%	
<b>Equipment</b>	<b>3,182</b>	<b>3,235</b>	<b>53</b>	<b>2%</b>	
Data Preparation - Equipment	285	285	0	0%	
HV & LV Network Management & Interconnection - Equipment	2,172	2,229	57	3%	
HV & LV Voltage Control - Equipment	725	721	(4)	-1%	
<b>Contractors</b>	<b>1,893</b>	<b>1,960</b>	<b>66</b>	<b>3%</b>	
Customer Engagement & Survey - Contractors	114	110	(4)	-4%	
HV & LV Voltage Control - Contractors	351	350	(0)	0%	
LV Network Management & Interconnection - Contractors	161	161	0	0%	
Network Configuration & Voltage Optimisation - Contractors	363	381	18	5%	
Peer reviews, support & customer research - Contractors	134	142	8	5%	
Research -Technical - Contractors	603	626	23	4%	
Research - CBA & CIA - Contractors	167	189	22	12%	
<b>IT</b>	<b>1,090</b>	<b>1,090</b>	<b>(0)</b>	<b>0%</b>	
Network Configuration & Voltage Optimisation - IT	1,090	1,090	(0)	0%	
<b>Contingency</b>	<b>0</b>	<b>1,015</b>	<b>1,015</b>	<b>100%</b>	
HV & LV Network Management & Interconnection - Contingency	0	272	272	100%	Not anticipating use of contingency at this stage
HV Voltage Control - Contingency	0	426	426	100%	Not anticipating use of contingency at this stage
Dissemination, Policy, Training & Trials - Contingency	0	82	82	100%	Not anticipating use of contingency at this stage
Network Configuration & Voltage Optimisation - Contingency	0	235	235	100%	Not anticipating use of contingency at this stage
<b>Decommissioning</b>	<b>39</b>	<b>39</b>	<b>0</b>	<b>0%</b>	
Decommissioning	39	39	0	0%	
<b>Other</b>	<b>287</b>	<b>323</b>	<b>42</b>	<b>13%</b>	
Technology build and Trials data - Other	87	87	0	0%	
Learning & Dissemination - Other	140	133	(12)	-5%	
Accommodation - Other	55	103	48	47%	
<b>Total</b>	<b>8,394</b>	<b>9,550</b>	<b>1,156</b>	<b>12%</b>	

# APPENDIX C – PROJECT BANK ACCOUNT

The bank statement below details all transactions relevant to the Project up to 28 November 2014. This includes all receipts and payments associated with the Project up to the November 2014 month end reporting period.



Yesterday's Statement

C082421

300002-01676933  
ELECTRICITY NWL NO.13 LCNF (SMART) (GBP)

Date	Type	Narrative	Value Date	Payments	Receipts	Balance
30MAY14		Opening Ledger Balance				2,366,657.64 Cr
30MAY14	DR	SERVICE CHARGES REF : 0144333498		3.90		2,366,653.74 Cr
10JUN14	DR	ELECTRICITY NWL NO.4 PYMT TRANSFER 00649		61,333.41		2,305,320.33 Cr
20JUN14	BGC	UK PN OPERATIONS BGC 1000 2000087518 K			85,967.38	2,391,287.71 Cr
20JUN14	BGC	UK PN OPERATIONS BGC 1000 2000087519 K			54,226.33	2,445,514.04 Cr
26JUN14	F/FLOW	WESTERN POWER DIST F/FLOW			186,323.17	2,631,837.21 Cr
26JUN14	BGC	R B S-SP DISTRIBUT BGC LOW CARB NWRK2014/			47,939.08	2,679,776.29 Cr
26JUN14	BGC	R B S-SP MANWEB BGC LOW CARB NWRK2014/			35,804.37	2,715,580.66 Cr
27JUN14	CR	ELECTRICITY NWL NO.4 PYMT TRANSFER 00655			166,958.26	2,882,538.92 Cr
27JUN14	F/FLOW	SOUTHERN ELECTRIC F/FLOW			15,363.80	2,897,902.72 Cr
27JUN14	F/FLOW	SCOTTISH HYDRO-ELE F/FLOW			18,022.37	2,915,925.09 Cr
27JUN14	BGC	NORTHERN ELECTRIC BGC LCNF			54,572.59	2,970,497.68 Cr
27JUN14	BGC	NORTHERN ELECTRIC BGC LCNF			38,031.66	3,008,529.34 Cr
27JUN14	CHGS	ACCOUNT CHARGE		2.25		3,008,527.09 Cr
30JUN14	DR	SERVICE CHARGES REF : 0146433050		3.15		3,008,523.94 Cr
15JUL14	BGC	UK PN OPERATIONS BGC 1000 2000098013 K			85,967.38	3,094,491.32 Cr
15JUL14	BGC	UK PN OPERATIONS BGC 1000 2000098014 K			54,226.33	3,148,717.65 Cr
25JUL14	DR	TO A/C TFR 02749020 300002		63,298.96		3,085,418.69 Cr
28JUL14	BGC	R B S-SP MANWEB BGC LOW CARB NWRK2014/			35,804.37	3,121,223.06 Cr
28JUL14	BGC	NORTHERN ELECTRIC BGC LCNF			38,031.66	3,159,254.72 Cr
28JUL14	BGC	R B S-SP DISTRIBUT BGC LOW CARB NWRK2014/			47,939.08	3,207,193.80 Cr
28JUL14	BGC	NORTHERN ELECTRIC BGC LCNF			54,572.59	3,261,766.39 Cr
28JUL14	CR	FROM A/C TFR 02749020 300002			166,958.26	3,428,724.65 Cr
28JUL14	F/FLOW	F/FLOW WESTERN POW TFR WPD GROUP 2014/15 LCNF PROJE			186,323.17	3,615,047.82 Cr
28JUL14	F/FLOW	F/FLOW SCOTTISH HY TFR			18,022.37	3,633,070.19 Cr
28JUL14	F/FLOW	F/FLOW SOUTHERN EL TFR			15,363.80	3,648,433.99 Cr
08AUG14	DR	TO A/C TFR 02749020 300002		91,771.76		3,556,662.23 Cr
26AUG14	F/FLOW	F/FLOW WESTERN POW TFR WPD GROUP 2014/15 LCNF PROJE			186,323.17	3,742,985.40 Cr
27AUG14	BGC	UK PN OPERATIONS BGC 1000 2000114700 K			54,226.33	3,797,211.73 Cr
27AUG14	BGC	UK PN OPERATIONS BGC 1000 2000114699 K			85,967.38	3,883,179.11 Cr
28AUG14	BGC	R B S-SP MANWEB BGC LOW CARB NWRK2014/			35,804.37	3,918,983.48 Cr
28AUG14	BGC	NORTHERN ELECTRIC BGC LCNF			38,031.66	3,957,015.14 Cr
28AUG14	BGC	R B S-SP DISTRIBUT BGC LOW CARB NWRK2014/			47,939.08	4,004,954.22 Cr
28AUG14	BGC	NORTHERN ELECTRIC BGC LCNF			53,634.14	4,058,588.36 Cr
28AUG14	BGC	NORTHERN ELECTRIC BGC LCNF			54,572.59	4,113,160.95 Cr
28AUG14	CR	FROM A/C TFR 02749020 300002			166,958.26	4,280,119.21 Cr
28AUG14	F/FLOW	F/FLOW SOUTHERN EL TFR			15,363.80	4,295,483.01 Cr
28AUG14	F/FLOW	F/FLOW SCOTTISH HY TFR			18,022.37	4,313,505.38 Cr
09SEP14	DR	TO A/C TFR 02749020 300002		71,745.89		4,241,759.49 Cr
10SEP14	BGC	UK PN OPERATIONS BGC 1000 2000119413 K			54,226.33	4,295,985.82 Cr
10SEP14	BGC	UK PN OPERATIONS BGC 1000 2000119412 K			85,967.38	4,381,953.20 Cr
16SEP14	DR	SERVICE CHARGES REF : 150852410		0.60		4,381,952.60 Cr
26SEP14	BGC	NORTHERN ELECTRIC BGC LCNF			38,031.66	4,419,984.26 Cr

Version : 3,16,1,514

This report is confidential and for the intended recipient only.  
If you are not the intended recipient please destroy this page immediately.

01/12/14 13:12:17

Page 1

30002-01676933  
 ELECTRICITY NWL NO.13 LCNF (SMART) (GBP)

Date	Type	Narrative	Value Date	Payments	Receipts	Balance
26SEP14	BGC	NORTHERN ELECTRIC LCNF			54,572.59	4,474,556.85 Cr
26SEP14	F/FLOW	F/FLOW SCOTTISH HY			18,022.37	4,492,579.22 Cr
26SEP14	F/FLOW	F/FLOW SOUTHERN EL			15,363.80	4,507,943.02 Cr
26SEP14	F/FLOW	F/FLOW WESTERN POW WPD GROUP			186,323.17	4,694,266.19 Cr
26SEP14	CR	2014/15 LCNF PROJE FROM A/C TFR 02749020 300002			166,958.26	4,861,224.45 Cr
29SEP14	BGC	R B S-SP MANWEB LOW CARB NWRK2014/			35,804.37	4,897,028.82 Cr
29SEP14	BGC	R B S-SP DISTRIBUT BGC LOW CARB NWRK2014/			47,939.08	4,944,967.90 Cr
20OCT14	DR	SERVICE CHARGES REF : 153040723		0.65		4,944,967.25 Cr
21OCT14	BGC	UK PN OPERATIONS 1000 2000132660 K			54,226.33	4,999,193.58 Cr
21OCT14	BGC	UK PN OPERATIONS 1000 2000132659 K			85,967.38	5,085,160.96 Cr
27OCT14	F/FLOW	F/FLOW WESTERN POW WPD GROUP			186,323.17	5,271,484.13 Cr
28OCT14	BGC	2014/15 LCNF PROJE R B S-SP MANWEB			35,804.37	5,307,288.50 Cr
28OCT14	BGC	LOW CARB NWRK2014/ NORTHERN ELECTRIC LCNF			38,031.66	5,345,320.16 Cr
28OCT14	BGC	R B S-SP DISTRIBUT LOW CARB NWRK2014/			47,939.08	5,393,259.24 Cr
28OCT14	BGC	NORTHERN ELECTRIC LCNF			54,572.59	5,447,831.83 Cr
28OCT14	F/FLOW	F/FLOW SCOTTISH HY			18,022.37	5,465,854.20 Cr
28OCT14	F/FLOW	F/FLOW SOUTHERN EL			15,363.80	5,481,218.00 Cr
29OCT14	CR	FROM A/C TFR 02749020 300002			166,958.26	5,648,176.26 Cr
05NOV14	DR	TO A/C TFR 02749020 300002		67,734.08		5,580,442.18 Cr
10NOV14	CR	INTEREST (GROSS)			305.78	5,580,747.96 Cr
17NOV14	DR	SERVICE CHARGES REF : 155327362		0.60		5,580,747.36 Cr
21NOV14	BGC	UK PN OPERATIONS 1000 2000142717 K			54,226.33	5,634,973.69 Cr
21NOV14	BGC	UK PN OPERATIONS 1000 2000142716 K			85,967.38	5,720,941.07 Cr
26NOV14	F/FLOW	F/FLOW WESTERN POW WPD GROUP			186,323.17	5,907,264.24 Cr
28NOV14	BGC	2014/15 LCNF PROJE NORTHERN ELECTRIC LCNF			938.45	5,908,202.69 Cr
28NOV14	BGC	R B S-SP MANWEB LOW CARB NWRK2014/			35,804.37	5,944,007.06 Cr
28NOV14	BGC	NORTHERN ELECTRIC LCNF			38,031.66	5,982,038.72 Cr
28NOV14	BGC	R B S-SP DISTRIBUT LOW CARB NWRK2014/			47,939.08	6,029,977.80 Cr
28NOV14	CR	FROM A/C TFR 02749020 300002			166,958.26	6,196,936.06 Cr
28NOV14	F/FLOW	F/FLOW SOUTHERN EL			15,363.80	6,212,299.86 Cr
28NOV14	F/FLOW	F/FLOW SCOTTISH HY			18,022.37	6,230,322.23 Cr
28NOV14		Value of Credits (62)			4,219,559.84	
28NOV14		Value of Debits (11)		355,895.25		
28NOV14		Closing Ledger Balance				6,230,322.23 Cr
28NOV14		Closing Cleared Balance				6,230,322.23 Cr

\*\*\* End of Report \*\*\*