Project Progress Report (PPR)

Customer Load Active System Services (CLASS)

This report was submitted to Ofgem in June 2013

Produced by: Herb Castillo
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CONTENTS

VERSION HISTORY

Version	Date	Author	Status (draft, etc)	Comments
1.0	16 June 2013	Herb Castillo	1st issue	For sign off and issue

APPROVAL

Name	Role	Signature & date
Mike Kay	Networks Strategy and Technical Support Director	Mike Kay Digitally signed by Mike Kay DN: cn=Mike Kay, o=Electricity North West, ou=Network Strategy, email=mkay@iee.org, c=GB Date: 2013.06.16 16:21:30 +01'00'
Steve Cox	Future Networks Manager	Steve Digitally signed by Steve Cox CN=Steve Cox C=GB - UNITED KINGDOM O=Electricty North West E=Steve.Cox@enwl.co.uk Date: 2013.06.17 11:00:30
Lynne Fulton	Distribution Finance Business Partner	Lynne Fulton Digitally signed by Lynne Fulton CN=Lynne Fulton C=GB - UNITED KINGDOM O=Electricity North West E=lynne.fulton@enwl.co.uk Date: 2013.06.17 09:19:39

GLOSSARY OF TERMS

Abbreviation	Term
CLASS	Customer Load Activity System Services
DNO	Distribution Network Operator
ICCP	Inter-Control Centre Communications Protocol
NETSO	National Electricity Transmission System Operator
NGET	National Grid Electricity Transmission Limited
SDRC	Successful Delivery Reward Criteria
SDRC output	Discrete evidence of attainment or part attainment of an SDRC as defined in the Project Direction
RTU	Remote Terminal Unit

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

1 EXECUTIVE SUMMARY

1.1 The CLASS Project

The Customer Load Active System Services (CLASS) Project is funded via Ofgem's Low Carbon Networks Second Tier funding mechanism. The Project is being undertaken by Electricity North West in partnership with key Industrial and Academic Partners. Formal notification of selection for funding was received from Ofgem on 21 December 2012. The Project is due for completion by 30 September 2015.

To meet its obligation to reduce greenhouse gas emissions by 80% by 2050, the UK Government has introduced a range of incentives including the Renewables Obligation (RO), Feed-in Tariffs (FITs), the Renewable Heat Incentive (RHI), the Renewable Heat Premium Payment (RHPP), etc. These measures, combined with increasing public awareness and changing behaviour, point to increased adoption of low carbon technologies (LCTs), including renewable generation technologies connected to the distribution network (known as 'Distributed Generation' or DG).

The shift towards LCTs and DG, and the consequent changes in the patterns of electricity demand, will present new challenges to Distribution Network Operators (DNOs). Recognising these new challenges, CLASS is seeking to demonstrate an innovative, easily implemented solution that will enable DNOs to cost-effectively accommodate LCTs and the changing patterns of demand on their networks.

There are three key elements to CLASS:

- **Demand reduction at time of system peak:** The potential doubling in electricity demand by 2050, and the changing patterns of electricity consumption, will put strains on existing network capacity. The natural relationship between voltage and demand can be used to manage peak demand, to alleviate some of this strain. The ability to actively manage peak demand through voltage control, in a way undetectable by customers, could provide DNOs with a useful tool for accommodating LCTs, whilst avoiding or deferring costly network reinforcement.

  CLASS will investigate the use of demand response, initiated by voltage reduction, to manage peak demand at a Primary substation. The potential that demand management through active voltage control provides for deferral of network reinforcement, and any impact on customers, will also be assessed.

- **Frequency Reserve and Response:** The increasing proportion of intermittent renewable energy sources in the UK generation mix, will increase the need for balancing services in order to maintain overall system stability. The financial and carbon cost of maintaining conventional spinning reserves are significant. Therefore, the availability of fast acting and flexible demand management for system balancing at both national and local level, would be beneficial from a number of respects.

  CLASS will investigate the use of a low frequency relay to switch out one transformer (of the pair of transformers) at a standard Primary substation and quantify the demand

response. The aim is to demonstrate that very fast demand response (ie <0.5 seconds) can be provided to meet National Electricity Transmission System Operator (NETSO) criteria.

CLASS will also investigate the provision of fast frequency response to the NETSO through the lowering of Primary transformers' taps. The aim is to demonstrate that a fast demand response (ie <10 seconds) can be provided to NETSO.

- **Voltage Control:** A key challenge for network operators is managing the unacceptably high voltages that can occur on distribution and transmission networks during periods when high renewable generation output coincides with low local demand. The operation of Primary transformers in a staggered tap configuration has the potential to provide a highly flexible and cost-effective means of absorbing reactive power within a network, thus controlling these unacceptable over-voltages.

  CLASS will investigate the viability of the tap staggering technique for provision of reactive power services (ie voltage regulation) to NETSO and DNO. The aim is to demonstrate that a reactive power absorption service can be provided, quantify the effect on the distribution network and aggregate effect on the transmission network.

1.2 Progress to date

This is the first CLASS Project Progress Report and covers the period from commencement of the Project to 31 May 2013. The key focus in this period has been on initiating and commencing the Project. The key highlights to date are outlined below.

- **The Project is now fully mobilised**
  During the reporting period, the Project was successfully initiated and mobilised. This included identification and recruitment of key resources, development of Project Initiation Documents, meetings with key Project Partners, etc. Internal project budget and financial controls have also been established to ensure that all Project expenditure and costs are robustly tracked and controlled. Furthermore, the Project Bank Account has been set up, and the first set of funds received.

- **Contracts have been signed with the key Project partners**
  Electricity North West signed contracts and held initiation meetings with the four key Project Partners identified in Table 1 of the schedule to the Project Direction; namely GE, National Grid, Parsons Brinckerhoff and Siemens. Ofgem's Condition Precedent for accessing funds from the Project Bank Account has therefore been met.

- **CLASS has been publicised internally**
  We commenced our internal communication activities with publication of two articles on CLASS, in the December 2012 and March 2013 editions of Electricity North West's internal magazine NewsWire.

- **Progress made towards the SDRCs due in the next period**
  Whilst no SDRCs were due in this reporting period, excellent progress is being made towards the SDRCs due in the next reporting period. In particular, a comprehensive

list of suitable sites for the installing Voltage Controllers has been compiled. An exercise is being undertaken to select 60 sites from this list that best meet the requirements of the Trials (SDRC due August 2013). Furthermore, work has commenced on planning of the first Webinar (SDRC due June 2013), and on developing the Project website (SDRC due in September 2013).

1.3 Risks

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.

We monitor risks on a continuous basis, including the potential risks that were documented in the Full Submission. These are described in detail in section 4.

1.4 Learning

The CLASS Project is still at an early stage in its life cycle and has not yet delivered learning outcomes that warrant specific dissemination to industry stakeholders.

We have however, commenced our internal communication activities (see section 1.2 above). We have also commenced planning of the first Project webinar and the Project website, both of which are due for completion in the next reporting period.

Table 1-1: Knowledge sharing events participated in during the reporting period

Event	Contribution	Date
Greater Manchester Energy Group	Presented	December 2012
National Grid workshop on Demand Control	Presented	January 2013
Electricity North West C_2C Knowledge Sharing Event	Attended	April 2013
GE Annual Conference	Presented	May 2013
SmartGrid GB/Electricity North West Workshop	Presented	May 2013

2 PROJECT MANAGER'S REPORT

2.1 General

The key project management activities undertaken during the reporting period are as follows:

- Project initiation and mobilisation
- Recruitment of key project resources
- Set-up of financial and contractual regimes
- Project monitoring and control.

During this reporting period, the Project was formally initiated and mobilised. As part of this, key Electricity North West project resources were recruited; including the Project Manager, Work stream Leads and other project staff.

Additionally all contractual arrangements necessary for successful initiation of the Project were put in place. Specifically, contracts have been signed with four Project Partners, namely, GE, Siemens, Parson Brinckerhoff and National Grid. As such, the *Condition Precedent* set out in section 3 of the Schedule to the Project Direction has been met.

Internal project budget and financial controls have also been set up to ensure that all project expenditure and costs are robustly tracked and controlled. Additionally, the Project Bank Account has been set up, and the first set of funds received.

2.2 Technology, Trials and Research work streams

The key activities undertaken by the Technology, Trials and Research work streams during the reporting period are listed below:

- Project initiation meetings held with GE, Siemens, Parson Brinckerhoff, National Grid and the University of Manchester
- A comprehensive list of suitable Primary substations selected for installation of Voltage Controllers
- Site survey of three pilot sites undertaken (for installation of Voltage Controllers).

During the next reporting period, the Technology, Trials and Research work streams will undertake the following activities:

- Identification of the final 60 sites for installation of Voltage Controllers
- Finalisation of the specifications for the monitoring equipment
- Identification of sites for monitoring equipment
- Publish the site selection report including the methodology
- Publish the map of the Trial area on CLASS website
- Hold detailed requirements workshops with National Grid to define and agree specifications for the Dashboard and ICCP Link.

2.3 Customer Engagement work stream

The key Customer Engagement work stream activities undertaken during the reporting period are listed below:

- An initial draft of the Customer Engagement Plan and Data Privacy Statement produced
- Kick-off meeting held with Impact Research.

In the next reporting period, the Customer Engagement work stream will undertake the following activities:

- Finalise the Customer Engagement Plan and Data Privacy Statement, and submit to Ofgem for approval
- Publish Customer marketing campaign materials on CLASS website
- Host first Customer Workshop.

2.4 Learning and Dissemination Work stream

The key Learning and Dissemination Work stream activities undertaken during the period are as follows:

- Two overview articles on CLASS published in Electricity North West's internal magazine
- Commenced planning of the first CLASS Webinar and Podcast, which will introduce CLASS to key stakeholders
- Commenced planning of the CLASS website, which will provide an easily accessible repository for all CLASS-related information
- Established presence on the Connect Networking Platform (https://connect.innovateuk.org), a platform provided by the Technology Strategy Board that enables knowledge sharing and publicising of events and research to wide range of stakeholders
- Presentations and attendance at the events below:

Table 2-1: Knowledge sharing events participated in during the reporting period

Event	Contribution	Date
Greater Manchester Energy Group	Presented	December 2012
National Grid workshop on Demand Control	Presented	January 2013
Electricity North West C_2C Knowledge Sharing Event	Attended	April 2013
GE Annual Conference	Presented	May 2013
SmartGrid GB/Electricity North West Workshop	Presented	May 2013

During the next reporting period the key Learning & Dissemination Work stream will undertake the following activities:

- Host the first CLASS Webinar
- Upload first CLASS video podcast to website
- Develop CLASS Website and Social media forums
- Attend annual LCNF Conference in November 2013 (Brighton).

3 CONSISTENCY WITH FULL SUBMISSION

At the end of this first reporting period, we can confirm that the CLASS Project is being undertaken in accordance with the Full Submission.

4 RISK MANAGEMENT

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.

We monitor risks on a continuous basis, including the potential risks that were documented in the Full Submission. These risks are still only hypothetical at this stage; drawn from our experiences with other projects and the specific nature of CLASS.

The status of these risks is shown in Table 4.1 below.

Table 4-1: Potential Project risks included in the Full Submission

Risk description	Category	Owner	Likelihood	Impact	Status	Mitigating Action
Resources are not mobilised in time, resulting in project delay	Other	Electricity North West	Very Low	Moderate	Open	All Electricity North West resources are in place. Furthermore, project Delivery Plans have been agreed with all project partners, and are regularly reviewed.
Delay to installation of Voltage Controllers due to resourcing constraints	Installation	Electricity North West	Moderate	Moderate	Open	An installation plan has been agreed with Siemens. Electricity North West is closely monitoring this activity.
Older Primary substation sites may have incomplete layout drawings	Installation	Electricity North West	Fairly Likely	Moderate	Open	A Pilot Survey is being undertaken to capture learning on how to deal with such issues.
Delay to connecting the link to Electricity North West's and National Grid's control system	Installation	Electricity North West/ National Grid	Moderate	Moderate	Open	Lessons learnt from similar installations are being used to inform the design stage.
Establishment of the link could impact Electricity North West's and National Grid's systems and processes	Installation	Electricity North West/ National Grid	Moderate	Moderate	Open	Respective staff with responsibility for Electricity North West's and National Grid's systems are involved in the detailed specification and design.
National Grid may be unable to undertake their responsibilities in executing some of the Trials, due to other commitments	Installation	Electricity North West/ National Grid	Moderate	Moderate	Open	A detailed trial schedule is being developed and will be agreed with National Grid.
Trials could compromise Electricity North West's and National Grid's security of supply commitments	Other	Electricity North West/ National Grid	Very Low	Significant	Open	Specific dates for Trials will be identified and agreed to ensure security of supply commitments are not compromised.
Conflicts may occur between Trials and unknown planning/ maintenance works at	Installation	Electricity North West/ National	Moderate	Moderate	Open	Engineering teams at Electricity North West and National Grid will be engaged to ensure that trials do not conflict with

Risk description	Category	Owner	Likelihood	Impact	Status	Mitigating Action
specific Primary substation sites		Grid				maintenance works.
Customers in the Trial area have voltage optimisers fitted, thus concealing the impact of the Trials	Other	Electricity North West	Very Low	Moderate	Open	The robust customer recruitment process will ensure that such customers are identified, and an approach identified for addressing them.
Customers in the Trial area notice a change in their voltage levels because of the Trials being undertaken	Other	Electricity North West	Very Low	Significant	Open	CLASS will proactively inform all customers and stakeholders in the Trial area of the Project, and provide them with contact details for the team, etc.
Potential for poor customer participation due to complexity of CLASS	Recruitment	Electricity North West	Low	Significant	Open	A pilot communication will be undertaken to assess how best to engage customers for CLASS.
Placebo effect amongst survey participants	Other	Electricity North West	Moderate	Moderate	Open	Survey responses will be normalised against a Control Group outside of the Trial area to identify any placebo effects.
Potential for attrition amongst survey participants between surveys	Recruitment	Electricity North West	Low	Significant	Open	Surplus participants will be recruited to negate the impacts of any drop outs.
University of Manchester undergoes personnel changes during the Project	Other	Electricity North West/ University of Manchester	Moderate	Moderate	Open	The agreement with University of Manchester ensures that all deliverables involve multiple individuals to minimise this risk
Learning is not disseminated effectively to all stakeholders	Other	Electricity North West	Very Low	Moderate	Open	A range of stakeholders will be engaged to ensure multiple communication channels exist to disseminate learning
Electricity North West may not able to respond to OC6 within the Project area because of an ongoing initiated Trial	Other	Electricity North West	Very Low	Significant	Open	Any issue around compliance with OC6 will be addressed with National Grid as a matter of urgency

Risk description	Category	Owner	Likelihood	Impact	Status	Mitigating Action
Customers may be confused by the various ‘green energy’ government initiatives currently ongoing	Recruitment	Electricity North West	Moderate	Moderate	Open	The CLASS Customer Engagement Plan is being developed to minimise customer confusion with other government initiatives

As the Project progresses, we will gain a better view of the likelihood of these risks and will also identify more evidence-based ones.

5 SUCCESSFUL DELIVERY REWARD CRITERIA (SDRC)

As already indicated, no SDRCs were due in this reporting period.

The SDRCs due in the next reporting period, and their status, are shown in Table 5-1 below.

Table 5-1: Status of CLASS Project SDRCs due in the next reporting period

SDRC (Evidence)	Due date	Status
Send for approval the Customer Engagement Plan and Data Privacy Statement to Ofgem by July 2013	Jul-13	On Track
Publish the site selection report including the methodology by August 2013	Aug-13	On Track
CLASS Website and CLASS website and Social Media Forums is live by September 2013	Sep-13	On Track
Publish on CLASS website map of Trial area by September 2013	Sep-13	On Track
Publish on CLASS website customer marketing/ campaign materials by September 2013	Sep-13	On Track

The current status of all SDRCs set out in the Project Direction is shown at Appendix A. It will be noted from the commentary for each, that we currently have no reason to believe that any of the SDRCs will be delayed. As the CLASS Project is still at an early stage, this could change; and if so, we will update future Project Progress Reports accordingly.

6 LEARNING OUTCOMES

The CLASS Project is still at an early stage in its life cycle and has not yet delivered learning outcomes that warrant specific dissemination to industry stakeholders.

We have however, commenced our internal communication activities, with publication of two articles on CLASS in the December 2012 and March 2013 editions of Electricity North West's internal magazine *NewsWire*.

Going forward, we intend to implement a multifaceted approach to dissemination that will draw on a range of tools and approaches to ensure that we reach a diverse audience of Energy Industry Participants, Costumers, Consumer Groups, Academia, Regulators, Local Groups and internal Electricity North West stakeholders. These include:

- *Developing and maintaining a CLASS Website:* Currently in development, the CLASS website will be the hub for the Project's dissemination activities. It will provide interested stakeholders and members of the public with easy access to information about CLASS, upcoming events, project outcomes and reports, lessons learnt, etc. The CLASS website will be fully up and running by end September 2013.

- *Hosting Webinars and Podcasts:* We will hold a three-part webinar series and host a three-part podcast series to raise stakeholder awareness about CLASS, communicate

the drivers and potential benefits of the Project, and provide updates on progress. The first webinar will be held on 27th June 2013, and planning for this is currently ongoing.

- *Internal Electricity North West Communications:* A key stakeholder group for CLASS are internal staff. In that regard, we intend to actively generate and maintain interest and regularly communicate progress, outcomes and development to staff across the business. We have commenced this with two articles in the internal staff magazine.

- *Lectures, conferences and dissemination workshops:* During the life of CLASS, we will hold six web-based and conference-type dissemination workshops to which a range of stakeholders will be invited. During these interactive workshops, we will provide stakeholders with updates on the Project outcomes and progress; and provide them with an opportunity to engage and ask questions.

7 BUSINESS CASE UPDATE

We are not aware of any developments that have taken place since the issue of the CLASS Project Direction that affects the business case for the Project.

8 PROGRESS AGAINST BUDGET

The Project Budget as defined in the Project Direction is shown in Appendix B.

Actual spend to date compared to Project Budget is summarised in Table 8.1 below. The report includes expenditure up to and including 31 May 2013.

It will be noted that the Project is currently performing favourably relative to forecast budget. Project expenditure as at the end of May 2013 was £198k compared to a Cost Baseline of £897k.

As already indicated, all Electricity North West resources are now in place. The favourable variance in Labour costs however, reflects the process undertaken to identify and recruit the appropriate resources.

Furthermore, whilst all orders have been placed, all goods and services have not been received and invoiced. This accounts for the favourable variance relative to the projected costs for Equipment, Contractors and IT.

Table 8-1: Summary of project spend to date

£'000s Excluding Partner Funding Ofgem Cost Category	Spend to Date			Total Project		
	Actual	Budget	Variance	Forecast	Budget	Variance
Summary						
Labour	25	92	67	1,948	1,948	0
Equipment	0	334	334	1,141	1,141	0
Contractors	140	361	221	3,644	3,644	0
IT	33	62	29	287	287	0
Payments to users	0	0	0	141	141	0
Contingency	0	27	27	595	595	0
Other	1	21	21	341	341	0
Total Costs	**198**	**897**	**699**	**8,098**	**8,098**	**0**

Detailed expenditure is shown at Appendix C at project activity level.

9 BANK ACCOUNT

The CLASS Project bank statement is shown in Appendix D. The statement contains all receipts and payments associated with the Project up to the end of May 2013.

10 INTELLECTUAL PROPERTY RIGHTS

Electricity North West is following the default IPR arrangements. No IPR have been generated or registered during the reporting period.

We are currently considering the IPR implications of forthcoming project deliverables, and will report on them in the next project progress report.

11 ACCURACY ASSURANCE STATEMENT

This document has been reviewed by a number of key business stakeholders. The Project team and select members of the CLASS Project Steering Group, including the lead member of the bid development team have reviewed the 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 CLASS Project Manager and the Project's finance representative who review all financial postings to the Project each month in order to ensure 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 & Technical Support Director.

APPENDIX A: SUMMARY OF PROJECT SDRC

SDRC (Evidence)	Due date	Status
Webinar 1	Jun-13	On Track
Send for approval the Customer Engagement Plan and Data Privacy Statement to Ofgem by July 2013	Jul-13	On Track
Publish the site selection report including the methodology by August 2013	Aug-13	On Track
CLASS Website and CLASS website and Social Media Forums is live by September 2013	Sep-13	On Track
Publish on CLASS website map of Trial area by September 2013	Sep-13	On Track
Publish on CLASS website customer marketing/ campaign materials by September 2013	Sep-13	On Track
Publish on CLASS website first Video Podcast by September 2013	Sep-13	On Track
First customer workshops held by October 2013	Oct-13	On Track
Active participation at Annual LCN Fund Conference 2013	Nov-13	On Track
Final customer workshops held by December 2013	Dec-13	On Track
Publish on CLASS website Trials and test regime report in January 2014	Jan-14	On Track
Publish on CLASS website Control Group and Trial area customer communication by January 2014	Jan-14	On Track
Publish the design of the regulation scheme for substation Voltage Controllers by February 2014	Feb-14	On Track
Network monitoring equipment installed and commissioned by March 2014	Mar-14	On Track
ICCP installed and commissioned by March 2014	Mar-14	On Track
Publish the commissioning reports by April 2014	Apr-14	On Track
Technology go-live by April 2014	Apr-14	On Track
Publish the ICCP commissioning reports by April 2014	Apr-14	On Track
Baseline customer survey initiated in April 2014	Apr-14	On Track
Learning Event 1	Apr-14	On Track
Webinar 2	Jun-14	On Track
Evidence of test Trial data transferred by July 2014	Jul-14	On Track
Learning Event 2	Jul-14	On Track

SDRC (Evidence)	Due date	Status
Publish on CLASS website Video podcast 2 by 15 August 2014	Aug-14	On Track
Publish on CLASS website an initial capability report for all the Trial scenarios by September 2014	Sep-14	On Track
Raw monitoring data downloadable from CLASS website by September 2014	Sep-14	On Track
Active participation at Annual LCN Fund Conference 2014	Nov-14	On Track
Publish on CLASS website Video podcast 3 by 8 December 2014	Dec-14	On Track
Monitoring data is updated on CLASS website by December 2014	Dec-14	On Track
Publish on CLASS website Interim Network Modelling and Analysis Reports by January 2015	Jan-15	On Track
Publish on CLASS website Interim Profile Modelling Study by January 2015	Jan-15	On Track
Publish on CLASS website Interim Asset Health Study Report by January 2015	Jan-15	On Track
Webinar 3	Mar-15	On Track
Monitoring data is updated on CLASS website by April 2015	Apr-15	On Track
Customer surveys completed, with an initial summary report published by June 2015	Jun-15	On Track
Publish on CLASS website NETS SQSS Change Proposal Report by June 2015.	Jun-15	On Track
Publish on CLASS website Final Network Modelling and Analysis Reports by September 2015	Sep-15	On Track
Publish on CLASS website Final Profile Modelling Study by September 2015	Sep-15	On Track
Publish on CLASS website Final Asset Health Study Report by September 2015	Sep-15	On Track
Publish on CLASS website Customer Survey Report by September 2015	Sep-15	On Track
Active participation at Annual LCN Fund Conference 2015	Nov-15	On Track
Provide confirmation from National Grid that the long term monitoring study has been initiated	Dec-15	On Track

APPENDIX B: PROJECT DIRECTION BUDGET

£000's Excluding Partner Funding Ofgem Cost Category	
Labour	**1,948.16**
Data Management	32.00
Data routing configuration	99.03
Installation & configuration of Dashboard hardware & software	83.39
Monitoring Equipment	235.98
Project Management	1,035.07
Purchase & Installation of substation controllers	99.03
Publicity and Dissemination	19.67
SOAP Interface to PoF	156.36
Voltage Controllers interface	187.63
Equipment	**1,141.43**
Purchase & Installation of substation controllers	656.71
RTU installation	172.00
Monitoring Equipment	312.72
Contractors	**3,644.65**
Purchase & Installation of substation controllers	1,125.16
Installation & configuration of ICCP	27.36
Customer Survey	218.80
Development of Change Proposals	60.10
Carbon Impact assessment	40.69
Research - Technical	885.52
Project Management	911.56
Design of voltage regulation scheme	375.47
IT	**286.85**
Installation & configuration of Dashboard hardware & software	121.78
Installation & configuration of ICCP	165.06
Payments to users	**141.15**
Incentive to attract customers to complete surveys	141.15
Contingency	**594.69**
Installation & configuration of ICCP	147.33
Purchase & installation of monitoring equipment	123.72
Incentive to attract customers to complete surveys	33.41
Purchase & Installation of substation controllers	156.36
Installation & configuration of Dashboard hardware & software	78.18
Research - Technical	55.69
Other	**340.91**
Publicity and Dissemination	194.47
Accommodation	146.45
	8,097.84

APPENDIX C: DETAILED PROJECT EXPENDITURE

£'000s Excluding Partner Funding Ofgem Cost Category	Spend to date Actual	Plan	Variance	Comments
Labour	**25**	**92**	**67**	
Data Management	0	0	0	
Data routing configuration	0	0	0	
Installation & configuration of Dashboard hardware & software	0	0	0	
Monitoring Equipment	0	0	0	
Project Management	25	92	67	All resources in place. Variance due to process of identifying the appropriate resources
Purchase & Installation of substation controllers	0	0	0	
Publicity and Dissemination	0	0	0	
SOAP Interface to PoF	0	0	0	
Voltage Controllers interface	0	0	(0)	
Equipment	**(0)**	**334**	**334**	
Purchase & Installation of substation controllers	0	334	334	Orders have been placed, but all goods and services not yet been recieved and invoiced
RTU installation	(0)	0	0	
Monitoring Equipment	0	0	0	
Contractors	**140**	**361**	**221**	
Purchase & Installation of substation controllers	0	72	72	Orders have been placed, but all goods and services not yet been recieved and invoiced
Installation & configuration of ICCP	0	3	3	Orders have been placed, but all goods and services not yet been recieved and invoiced
Customer Survey	0	0	0	
Development of Change Proposals	0	0	0	
Carbon Impact assessment	0	7	7	Profile variance to plan, estimated at completion in line with plan
Research - Technical	0	61	61	Orders have been placed, but all goods and services not yet been recieved and invoiced
Project Management	140	147	7	
Design of voltage regulation scheme	0	72	72	Orders have been placed, but all goods and services not yet been recieved and invoiced
IT	**33**	**62**	**29**	
Installation & configuration of Dashboard hardware & software	0	25	25	Orders have been placed, but all goods and services not yet been recieved and invoiced
Installation & configuration of ICCP	33	37	4	Orders have been placed, but all goods and services not yet been recieved and invoiced
Payments to users	**0**	**0**	**0**	
Incentive to attract customers to complete surveys	0	0	0	
Contingency	**0**	**27**	**27**	
Installation & configuration of ICCP	0	13	13	Profile variance to plan, estimated at completion in line with plan
Purchase & installation of monitoring equipment	0	0	0	
Incentive to attract customers to complete surveys	0	0	0	
Purchase & Installation of substation controllers	0	14	14	Profile variance to plan, estimated at completion in line with plan
Installation & configuration of Dashboard hardware & software	0	0	0	
Research - Technical	0	0	0	
Other	**1**	**21**	**21**	
Publicity and Dissemination	0	0	0	
Accommodation	1	21	21	Profile variance to plan, estimated at completion in line with plan
	198	**897**	**699**	

Source: CLASS Master Cost Forecast May 2013 FINAL

APPENDIX D: PROJECT BANK ACCOUNT

The bank statement below details all transactions relevant to the Project up to 12 June 2013. This includes all receipts and payments associated with the Project up to the May 2013 month end reporting period.

Lloyds TSB — **Yesterday's Statement** — **C082421**

Statements and Balances

300002-01813272
ELECTRICITY NWL NO.12 LCNF (CLASS) (GBP)

Date	Type	Narrative	Value Date	Payments	Receipts	Balance
07MAR13		Opening Ledger Balance				0.00 Cr
26APR13	CR	ELECTRICITY NWL NO.4 PYMT TRANSFER 00430			1,025,863.37	1,025,863.37 Cr
26APR13	F/FLOW	SOUTHERN ELECTRIC F/FLOW			32,333.37	1,058,196.74 Cr
26APR13	F/FLOW	SCOTTISH HYDRO-ELE F/FLOW			15,250.00	1,073,446.74 Cr
26APR13	BGC	LONDON POWER NETWO BGC LOW CARB NETWORKS			70,666.63	1,144,113.37 Cr
26APR13	BGC	SOUTH EASTERN POWE BGC LOW CARB NETWORKS			46,083.37	1,190,196.74 Cr
26APR13	BGC	NORTHERN ELECTRIC BGC LCNF			46,416.63	1,236,613.37 Cr
26APR13	BGC	NORTHERN ELECTRIC BGC LCNF			32,416.63	1,269,030.00 Cr
26APR13	BGC	R B S-SP MANWEB BGC ENWL NO 12 LCNF			30,500.00	1,299,530.00 Cr
29APR13	F/FLOW	WESTERN POWER DIST F/FLOW			108,083.37	1,407,613.37 Cr
28MAY13	CR	ELECTRICITY NWL NO.4 PYMT TRANSFER 00446			216,083.33	1,623,696.70 Cr
28MAY13	F/FLOW	WESTPOWSWEST F/FLOW			108,083.33	1,731,780.03 Cr
28MAY13	F/FLOW	EDF ENERGY PLCGA F/FLOW			70,666.67	1,802,446.70 Cr
28MAY13	F/FLOW	SOUTH EASTERN POWE F/FLOW			46,083.33	1,848,530.03 Cr
28MAY13	F/FLOW	SCOTTISH HYDRO-ELE F/FLOW			15,250.00	1,863,780.03 Cr
28MAY13	F/FLOW	SOUTHERN ELECTRIC F/FLOW			32,333.33	1,896,113.36 Cr
28MAY13	BGC	NORTHERN ELECTRIC BGC LCNF			46,416.67	1,942,530.03 Cr
28MAY13	BGC	NORTHERN ELECTRIC BGC LCNF			32,416.67	1,974,946.70 Cr
28MAY13	BGC	R B S-SP MANWEB BGC ENWL NO 12 LCNF			30,500.00	2,005,446.70 Cr
12JUN13	DR	ELECTRICITY NWL NO.4 PYMT TRANSFER 00463		19,104.49		1,986,342.21 Cr
12JUN13	DR	ELECTRICITY NWL NO.4 PYMT TRANSFER 00462		179,094.75		1,807,247.46 Cr
12JUN13		Value of Credits (18)			2,005,446.70	
12JUN13		Value of Debits (2)		198,199.24		
12JUN13		Closing Ledger Balance				1,807,247.46 Cr
12JUN13		Closing Cleared Balance				1,807,247.46 Cr

*** End of Report ***