



# CLASS Project Progress Report

Version 1.0  
23 June 2014



## VERSION HISTORY

Version	Date	Author	Status	Comments
v1.0	23 June 2014	Herb Castillo	1 <sup>st</sup> issue	

## APPROVAL

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## GLOSSARY OF TERMS

Abbreviation	Term
ASC	Autonomous Substation Controller
CLASS	Customer Load Activity System Services
DNO	Distribution Network Operator
ICCP	Inter-Control Centre Communications Protocol
NETSO	National Electricity Transmission System Operator
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

# 1 EXECUTIVE SUMMARY

## 1.1 The CLASS Project

This is the third six-monthly Project Progress Report (PPR) for the Customer Load Active System Services (CLASS) Project. It covers the period December 2013 to May 2014.

Funded via Ofgem's Low Carbon Networks Second Tier funding mechanism, CLASS is being undertaken by Electricity North West in partnership with key Technology 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.

The project is seeking to demonstrate how the natural relationship between demand and voltage can be exploited to cost-effectively accommodate increasing energy demand, including Low Carbon Technologies (LCTs), on electricity networks. As this approach could maximise the use of existing assets and minimise the need for capital investment, CLASS has the potential to realise significant cost-savings to customers.

There are three key elements to CLASS:

- **Demand reduction at time of system peak:** The potential increase in electricity demand by 40% to 60% by 2050 will put strains on existing network capacity. The relationship between voltage and demand can be exploited to alleviate this strain.

*CLASS will investigate the application of voltage reduction to reduce demand at a Primary substation at times of system peak. The potential that this provides for deferral of network reinforcement, and any impacts on customers, will be assessed.*

- **Frequency Reserve and Response:** The increasing proportion of intermittent renewable energy sources in the UK generation mix will increase the need for system balancing. The costs of conventional balancing services, eg spinning reserves, are significant. A fast acting demand management facility to aid system balancing would therefore be beneficial.

*CLASS will investigate the benefits of switching out a transformer at a primary substation, to rapidly reduce demand when system frequency falls below a threshold. The aim is to demonstrate that a 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 a fast frequency response to the NETSO by reducing voltage at a group of Primary substations.*

- **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 demand.

*CLASS will investigate the benefits that operating primary transformers in a staggered tap configuration provides by absorbing reactive power on the network.*

## 1.2 Progress to date

The key project highlights during the reporting period are outlined below.

Evidence associated with the Successful Delivery Reward Criteria (SDRCs) due in the reporting period has been achieved.

The evidence for the 11 SDRCs due in the reporting period were successfully delivered. These are summarised in Table 1.1 below, and are discussed in greater detail in sections

Table 1-1: Most significant SDRCs delivered in this reporting period

SDRC (Evidence)	Planned date	Completion date
Publish on CLASS website Trials and test regime report in January 2014	Jan-14	Jan-14
Publish on CLASS website Control Group and Trial area customer communication by January 2014	Jan-14	Jan-14
Distribute communication pamphlets in February 2014	Feb-14	Feb-14
Publish the design of the regulation scheme for substation Voltage Controllers by February 2014	Feb-14	Feb-14
Network monitoring equipment installed and commissioned by March 2014	Mar-14	Mar-14
ICCP installed and commissioned by March 2014	Mar-14	Mar-14
Publish the commissioning reports by April 2014	Apr-14	Apr-14
Technology go-live by April 2014	Apr-14	Apr-14
Publish the ICCP commissioning reports by April 2014	Apr-14	Apr-14
Host the first CLASS learning event by April 2014	Apr-14	Apr-14
Second CLASS Webinar by June 2014	Jun-14	Jun-14

The first tranches of CLASS Trials have commenced. In the next reporting period, the trials and the associated customer surveys will be further progressed.

The Project actual costs to date are £3.9m, and the estimated at completion costs is now £7.0m, which is £1.0m favourable to Project Budget (including contingency).

### **The integrated CLASS solution has been tested and is 'live'**

The CLASS solution combines a range of technologies, including IT, telemetry and Communications equipment, the Autonomous Substation Controller (ASC), and an Inter-Control Centre Communications Protocol (ICCP) link with National Grid, that are being used together innovatively for the first time.

After a period of testing, the CLASS solution went live at the end of March 2014. The solution successfully operates and functions as an integrated solution, which puts CLASS in a strong position to undertake the full schedule of Trials that have been formulated to test the key CLASS hypotheses.

### **The CLASS Trials have commenced**

A robust Trials methodology to test the CLASS hypotheses was finalised in consultation with project stakeholders. The methodology outlines the suite of CLASS Trials to be undertaken, and includes a schedule that sets out the timing of the Trials.

Trial 1 of the suite of trials, ie the load modelling trials, commenced on 1<sup>st</sup> April 2014, and other trials are scheduled to commence in the next reporting period.

### **All customers in the CLASS Trial area have been informed of the imminent Trials**

A wide ranging engagement exercise was undertaken to raise awareness about CLASS amongst customers in the trial area, and to invite customers to participate in the customer surveys that will be undertaken in association with some of the Trials.

This took the form of a CLASS information leaflet, developed in consultation with customer focus groups, which was distributed to all 471,000 customers in the trial area. The response was overwhelmingly positive, with a large number of customers expressing interest and support for the project. As a consequence, about 33% of the domestic customer survey participants have been recruited based on their response to the leaflet and meeting key criteria.

### **The on-site roll-out commissioning programme has proven to be challenging**

Whilst we have proven the CLASS solution and gone-live, the roll out of the integrated solution to the CLASS Primary Substations is proving challenging. All requisite hardware and monitoring equipment has been installed at the 60 CLASS Trial Primary substations. However, the fully integrated solution has been commissioned at 20 substations to date.

The primary challenge has been the integration of old and new technologies. Many of Electricity North West's primary substations contain control equipment that is 50 years old and complex, with less standardization than expected. Significant experience has been gained and lessons learned. These are discussed in Section 6: Learning Outcomes. These will prove valuable for any future roll-out of CLASS.

Various mitigating actions have been put in place to redress these challenges (see section 1.3 below). The ongoing commissioning at the remaining Trial Primary substations is not expected to affect the progress of the Trials, as all commissioning activities will be completed by the critical path date.

## **1.3 Risks**

As outlined above, there is a risk that the ongoing commissioning activities could affect the progress of the Trials. This risk is controlled and the probability of it occurring is low, as mitigations actions have been put in place.

Specifically, the number of onsite commissioning teams has been doubled to ensure that there are no risks to the Trial schedule. Furthermore, the commissioning teams have learned lessons from each type of issue encountered to date, and therefore the potential for further disruption is significantly lowered.

## **1.4 Learning and dissemination**

A detailed description of the Project's learning outcomes can be found in section 6, the areas where learning has emerged are summarised below:

- Lesson 2 – Customer material should be simple yet informative
- Lesson 3 – Face-to-face is the best option both for recruitment and for completing the baseline survey
- Lesson 4 – There is some customer concern about data protection
- Lesson 5 - Integration of old and new plant presents significant challenges

- Lesson 6 - ASC Input / output channels are limited
- Lesson 7 - Standardised ASC/ Software is required

The CLASS project team has been utilising a range of tools to disseminate and share knowledge about the project with stakeholders. One of the key dissemination activities in the reporting period was a Knowledge Sharing event held on 30<sup>th</sup> April 2014, which had representation from a range of stakeholders. Various project outputs have also been uploaded on the project website at: [www.enwl.co.uk/class](http://www.enwl.co.uk/class).

Members of the CLASS team also participated in a number of knowledge sharing events, as shown in Table 1.2 below.

*Table 1-2: Participation in knowledge sharing events during the reporting period*

Event	Contribution	Date
Delivering for the future seminar	Attended	February 2014
CLASS Knowledge Sharing Event	Hosts	30 <sup>th</sup> April 2014
DSR forum	Presented	March 2014
Future of Utilities	Presented	March 2014
WPD - LV network templates	Attended	April 2014
CLASS Customer Newsletter	Authors	May 2014
National Grid demand customer seminar	Attended	May 2014

## 2 PROJECT MANAGER'S REPORT

### 2.1 General

The key project management activities undertaken during the reporting period are summarised below:

- **Management of Project resources:** CLASS has diverse site-based and office-based teams working on the range of activities, including technology build, customer engagement, trial design and implementation, etc. During the reporting period, these resources continued to be managed and coordinated in order to optimise outcomes.
- **Project monitoring and control:** Monitoring of project finances and outcomes has been ongoing to ensure that the Project progresses in a controlled manner and that the outputs are of the highest quality.
- **Regular engagement with Project Partners:** The Electricity North West CLASS project team engages and holds regular meetings with the Project Partners. These include weekly and monthly meetings with individual Partners, *ad hoc* meetings as necessary and quarterly Project Steering Group meetings that are attended by all Partners.

### 2.2 Technology, Trials and Research Workstreams

The key activities undertaken by the Technology, Trials and Research Workstreams during the reporting period are summarised below:

- **Installation of all CLASS network hardware and equipment:** All requisite network hardware has been installed onsite and in the Control Room as necessary. These include primary and secondary network monitoring equipment, the Autonomous

Substation Controllers (ASCs), the associated Automatic Voltage Controls (AVCs) and all IT, telemetry and communications hardware.

- **Go-live with the integrated CLASS solution:** On 31<sup>st</sup> March 2014, we completed testing and went live with the integrated CLASS solution, which comprises of the CLASS Dashboard, the Autonomous Substation Controllers (ASCs), a real-time data link with National Grid, and the various CLASS other IT and communications infrastructure.
- **National Grid CLASS infrastructure and link completed:** Given its key role in CLASS, there were various requirements of National Grid during the Project's build phase. These included the development of a dedicated dashboard for CLASS in National Grid's control room, and together with Electricity North West, developing a real-time data link, an *Inter-Control Centre Communications Protocol (ICCP) link*, to connect Electricity North West's and National Grid's control room.

All requisite activities have been completed.

- **Trials methodology and schedule completed:** Working collaboratively with Project Partners, a robust methodology and schedule for the trials was completed. This sets out the suite of four trials that will be undertaken to test the CLASS hypotheses, as well as their timings. Notably, the method of the trials and their schedules have been formulated to maximise outcomes and to provide a very clear view of how CLASS would perform if rolled out. The document setting out the methodology and schedule can be viewed at: <http://www.enwl.co.uk/docs/default-source/class-documents/design-approach-to-class-trials-and-associated-test-schedules.pdf?sfvrsn=4>
- **CLASS Trials commenced:** In line with the schedule (above), the CLASS trials started in April 2014. The first Trial undertaken was Trial 1: Load Modelling.
- **Roll-out of CLASS Solution to sites ongoing:** Whilst we have proven and gone-live with the CLASS solution, the roll out to the sites is proving challenging. All requisite hardware have been installed at the 60 CLASS Trial Primary Substation. However, the fully integrated solution has only been commissioned at 20 substations to date. (The challenges facing the roll-out are discussed in more detail in the Lessons learned section.)

In the next reporting period, the Technology, Trials and Research Workstreams will undertake the following activities:

- Progress CLASS Trials;
- Complete the roll-out of CLASS solution to sites;
- Provide University of Manchester with monitoring and trial data, so that analysis can commence.

### 2.3 Customer Engagement Workstream

The key activities undertaken by the Customer Engagement Workstream during the reporting period are summarised below:

- **Completed the Engaged Customer Panel workshops:** To ensure that the CLASS material and survey instruments are understandable to customer, a cross-section of customers, the Engaged Customer Panel (ECP), were enlisted to test and help with the design of CLASS material and instruments. The ECP were engaged via a series of workshops,

- **Distribution of CLASS leaflets to all households in the Trial area:** Raising awareness of the low carbon challenge amongst customers, as well as what CLASS is seeking to do to address it, is one of the key objectives of the customer engagement work stream. Towards this end, a comprehensive awareness-raising exercise was undertaken in February 2014, in which leaflets were distributed to all 471,000 households in the CLASS trial area. The leaflet outlined the low carbon challenge, how CLASS is seeking to address it, the benefits of CLASS, and invited customers to register for participation in the surveys. A copy of the customer leaflet can be found at the following link: <http://www.enwl.co.uk/docs/default-source/class-documents/class-customer-leaflet.pdf?sfvrsn=8>

The response from customers was very positive, and a significant number expressed interest in participating in the CLASS surveys.

- **Informed suppliers with customers in the trial area of the imminent trials:** To supplement the leaflet distribution exercise, all energy suppliers with customers in the trial area were also contacted by letter, and informed about the Trials. It was recognised that suppliers are still often the first point of contact for customers regarding perceived issues with their electricity supply. Therefore, even though leaflets had been sent to every household in the trial area, it was deemed useful to make the suppliers aware as well.
- **Finalised customer survey methodology, including peer review:** To maximise the robustness of the surveys and the associated analyses, a clear methodology to guide the format and timings of the customer survey has been developed by Impact Research, with support from Electricity North West.

The methodology was externally reviewed by Prof Ken Willis, Emeritus Professor of Environmental Economics at Newcastle University. Prof Willis concluded that the methodology is *“commendable in its experimental design with test and control groups...and in assessing whether the effect of CLASS on customer utility is statistically significant or not.”* The full review can be found at the following link:

<http://www.enwl.co.uk/docs/default-source/class-documents/class-peer-review.pdf?sfvrsn=4>

- **Trial and control group customers identified:** To investigate and assess potential placebo effects, CLASS will survey a ‘control group’ in addition to affected ‘Trial Group’. The control group is comprised of unaffected customers, drawn from downstream of a Primary Substation not actively involved in the trial at that given point in time. The views and responses will be used to benchmark the responses of those customers actively participating in the trials.
- **Recruited customers and conducted a baseline survey:** Following the distribution of the CLASS leaflets (above), an exercise was undertaken by Impact Research (supported by Electricity North West) to select a representative subset of survey participants, from the large number of customers that had registered for participation in the surveys.

The original plan was for recruitment to be undertaken through a face-to-face process. However, by drawing on the domestic customers that had registered interest in the surveys after receiving the leaflet, it was possible to recruit around 250 domestic customers for participation in the surveys. A supplementary recruitment exercise was undertaken to recruit a further 250 domestic and 200 I&C customers for the surveys.

- **Customer survey commenced to support trials:** In the latter weeks of the reporting period, Customer Surveys commenced to assess whether customers observed any

impacts on their electricity supply from particular CLASS Trials. As these surveys have only recently commenced, no analyses are yet available.

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

- Progress the suite of customer surveys, in line with the CLASS trials
- Commence analyses of the customer survey data to identify early trends
- Distribute second customer communication to customers in trial area
- Distribute third customer communication to customers in trial area
- Distribute fourth customer communication to customers in trial area.

## 2.4 Learning and Dissemination Workstream

The key activities undertaken by the Learning and Dissemination Workstream during the period are summarised below:

- **Hosted the CLASS Knowledge Sharing event:** On 30<sup>th</sup> April 2014, the CLASS Project team hosted a knowledge sharing event at the Museum of Science and Industry (MOSI) in Manchester. A well-attended webinar had previously been held in June 2013, but this was the first time that relevant stakeholders and representatives from other DNOs had been brought together in a single room to discuss CLASS.

Like the webinar, the event was well attended.

- **Regular updates to the CLASS website:** Throughout the reporting period, we have continued to update the Project website at: [www.enwl.co.uk/class](http://www.enwl.co.uk/class), with Project outputs and updates.
- **Social media forums exploited:** To ensure that the key messages from CLASS are disseminated as widely as possible, the Project team is using a range of social media outlets to communicate CLASS-related information.

To maximise the effectiveness of dissemination and engagement activities, CLASS is utilising existing corporate social media channels rather than 're-inventing the wheel'. Specifically, the Project team is using the social media outlets below:



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



[http://twitter.com/ElecNW\\_News](http://twitter.com/ElecNW_News)



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



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

In the next reporting period, the following learning and dissemination activities will be undertaken:

- Host second CLASS webinar
- Publish on CLASS website Second Video podcast

- Attend and actively participate in 2014 Annual LCN Fund Conference

### **3 CONSISTENCY WITH FULL SUBMISSION**

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

### **4 RISK MANAGEMENT**

There is one controlled risk that is worthy of discussion, as it illustrates some of the challenges that other DNOs might face when trying to roll out CLASS and also provides the context for some of the lessons learnt during the Technology Build stage of the Project.

#### **Risk: Roll-out of CLASS integrated technology to site is proving more challenging than envisaged, thus presenting some risk to the trials progressing**

As indicated in section 2.2, all required hardware has been installed at the 60 CLASS Primary substations. However, the roll-out of the integrated CLASS solution to these sites is proving more challenging than was envisaged.

To date, the integrated CLASS solution has only been rolled out to 20 of the 60 sites. The primary challenge has been the integration of old and new technologies at sites.

This ongoing challenge relates to the diversity of historical substation equipment design being greater than anticipated. Resolution of individual substation integration details may affect the progress of the trials, particularly the suite of trials that require all 60 sites to be fully functioning.

#### **Mitigating actions**

This risk is controlled and the probability of it occurring is deemed to be low. In particular, mitigating action has been taken, which included doubling the number of on-site teams testing and commissioning the integrated CLASS solution. This has resulted in a robust roll-out plan that shows the integrated solution being tested and commissioned at all 60 sites by end of June 2014, which is about a month prior to commencement of the first Trial requiring all 60 sites.

Furthermore, whilst the teams have faced challenges in the roll out the integrated solution, they have now gained enough experiences of the types of issues encountered, and therefore the potential for disruption is significantly lowered.

#### **Other Project risks**

We monitor risks on a continuous basis, including the potential risks that were documented in the Full Submission. Apart from the above, none of these risks have materialised or are deemed likely to. In any case, the status of these risks is described in Appendix A.

## 5 SUCCESSFUL DELIVERY REWARD CRITERIA (SDRC)

Twelve SDRCs were delivered in this reporting period. These are shown in Table 5-1 below.

*Table 5-1: CLASS Project SDRCs delivered in the reporting period*

SDRC (Evidence)	Planned date	Completion date
Publish on CLASS website Trials and test regime report in January 2014	Jan-14	Jan-14
Publish on CLASS website Control Group and Trial area customer communication by January 2014	Jan-14	Jan-14
Distribute communication pamphlets in February 2014	Feb-14	Feb-14
Publish the design of the regulation scheme for substation Voltage Controllers by February 2014	Feb-14	Feb-14
Network monitoring equipment installed and commissioned by March 2014	Mar-14	Mar-14
ICCP installed and commissioned by March 2014	Mar-14	Mar-14
Publish the commissioning reports by April 2014	Apr-14	Apr-14
Technology go-live by April 2014	Apr-14	Apr-14
Publish the ICCP commissioning reports by April 2014	Apr-14	Apr-14
Host the first CLASS learning event by April 2014	Apr-14	Apr-14
Circulate second CLASS customer communication by May 2014	May-14	May-14
Second CLASS Webinar by June 2014	Jun-14	Jun-14

The SDRCs due in the next reporting period are shown below.

*Table 5-2: CLASS SDRCs due in the next reporting period*

SDRC (Evidence)	Planned date	Status
Circulate third customer communication by August 2014	Aug-14	On Track
Publish on CLASS website second Video podcast by 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
Actively Participate in 2014 Annual LCN Fund Conference (November 2014)	Nov-14	On Track
Circulate fourth customer communication by November 2014	Nov-14	On Track

The current status of the evidence for all CLASS SDRCs is shown in Appendix B. Progress against the SDRCs and the Project plan will continue to be monitored, and if the current forecast for SDRC delivery changes, future Project Progress Reports will be updated accordingly.

## 6 LEARNING OUTCOMES

The key learning gained from the current reporting period are summarised below:

- **Materials should be simple and informative but communicate the key issues:** CLASS is a complex Project and therefore can be challenging for customers to understand, which could in turn affect the recruitment of survey participants. Notably, there is a short window to get a customer to sign up for the surveys, and the provision of informative materials can help this process.

In that regard, and taking advice from the Engaged Customer Panel, CLASS has utilised a variety of tools to raise customer awareness of CLASS, including the CLASS video, leaflet, FAQ document, etc.

The simplicity of the customer materials, and involving the Engaged Customer Panels in their design, has contributed to the Project's success in registering the required number of survey participants in a timely manner.

- **Face to face is the optimum method for undertaking the baseline survey:** CLASS undertook the baseline surveys through face-to-face interviews. This was successful, and is highly-recommended as an approach for first-time engagement and baseline interview of a survey participant. As CLASS is a complex Project, face-to-face engagement ensures that survey participants understand all aspects of the Project and that questions can be clarified as necessary, as a Market Research representative is present to help with any confusion.
- **Customers are concerned about data protection:** During the baseline surveys, customers were asked a significant number of questions about their home, income, electricity usage, etc. During the seasonal surveys, information about electricity usage and observations will continue to be elicited from survey participants. Some customers have requested reassurance that their personal data would not be passed on or sold to third parties.

There are a number of ways through which we are providing this reassurance. This includes a consent form, which the customer signs, that states that no data or information collected during the survey, will be provided to third parties or used for any purpose apart from CLASS. We have also published a Data Privacy Statement on the CLASS website, which outlines the robust approach that we are taking for managing and storing personal data as part of CLASS.

- **Integration of old and new plant presents unique challenges:** During the installation it was found to be very challenging when trying to integrate new Microtapp relays with existing equipment that could be 50/60 years old. Furthermore, it was found that the existing equipment had probably been modified in some form during its life span which made every site solution bespoke.
- **ASC Input / output channels are limited:** Due to the size of the housing, the ASC was limited to 16 inputs and 16 outputs. Increasing this size would have required an additional box. This resulted in using a toggle system for the alarms and limiting the alarms to and from the ASC. The preferred number of inputs and outputs for a business as usual situation would be 32 to enable a more robust and complete set of alarms.

- **Standardised ASC/ Software is required:** The ASC device is currently tailored to each site type and on occasion the incorrect ASC was fitted at a site. When moving to a business as usual scenario, the ASC should be standardised so all functions are available at a site if required. Furthermore, the software loaded on the ASC is site specific, and this currently needs to be set-up offsite. The preferred option would be for the software to be standard with options that enable the ASC to be configured on-site.
- **Business as usual approach:** The building and installation of the Microtapp relays have pre-existing business as usual (BAU) processes. Consideration should have been given for Project installation activities to follow the BAU process, in other words fabricated by our framework panel supplier and installed by our Operation business. The benefit of this is that the process is well defined and issues encountered by the Project team are likely to have been already encountered and resolved.

## 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 C.

Actual spend to date compared with Project Budget is summarised in table 8.1 below. The report includes expenditure up to and including 31 May 2014. Detailed projected expenditure at Project activity level can be found in Appendix D.

Table 8-1: Summary of project expenditure

£'000s Excluding Partner Funding Ofgem Cost Category	Spend to Date			Total Project		
	Actual	Budget	Variance	Forecast	Budget	Variance
<b>Summary</b>						
Labour	919	1,536	617	1,696	1,948	252
Equipment	623	1,141	519	943	1,141	198
Contractors	1,890	2,602	713	3,591	3,644	53
IT	206	243	37	299	287	(12)
Payments to users	46	47	1	85	141	57
Contingency	68	495	426	220	595	375
Other	173	187	14	281	341	60
<b>Total Costs</b>	<b>3,924</b>	<b>6,251</b>	<b>2,327</b>	<b>7,115</b>	<b>8,098</b>	<b>983</b>

The actual spend to date is £3.9m, £2.3m favourable to Project Budget to date. The estimated at completion costs is forecast to be £7.1m, £1.0m favourable to Project Budget.

The challenges associated with commissioning the Primary substation ASCs has caused a deferment of expenditure compared to the Project Budget. This has resulted in a £2.3m variance as at 31 May 2014. This is not expected to jeopardise the delivery of the Project. We currently anticipate using just under 40% of the Projects contingency, primarily on installation of substation controllers and monitoring equipment (at 12 of the Primary Substations additional equipment was needed to interface the Siemens ASC with existing tap change control equipment).

## **9 BANK ACCOUNT**

The CLASS Project bank statement is shown in Appendix E. The statement contains all receipts and payments associated with the Project up to the end of May 2014.

## **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: STATUS OF RISKS FROM THE FULL SUBMISSION

Risk description	Category	Owner	Likelihood	Impact	Status	Comments
Resources are not mobilised in time, resulting in project delay	Other	Electricity North West	Very Low	Moderate	Closed	All Electricity North West resources are in place. Furthermore, all Project Partners are fully mobilised.
Delay to installation of Voltage Controllers due to resourcing constraints	Installation	Electricity North West	Low	Moderate	Open	Installation of the Autonomous Substation Controllers (ASCs) has commenced and is currently progressing.
Older Primary substation sites may have incomplete layout drawings	Installation	Electricity North West	Fairly Likely	Very Low	Open	A Pilot Survey was undertaken by Siemens, and an approach agreed for dealing with these and similar issues.
Delay to connecting the ICCP link to Electricity North West's and National Grid's control system	Installation	Electricity North West/ National Grid	Low	Moderate	Closed	Development of the ICCP link is now completed.
Establishment of the ICCP link could impair Electricity North West's and National Grid's systems and processes	Installation	Electricity North West/ National Grid	Very Low	Moderate	Closed	The design and plan for delivering the ICCP link has been developed in collaboration with stakeholders in National Grid and Electricity North West. Therefore all (known) issues have been identified, and eliminated in the design stage.
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	Very Low	Moderate	Open	The CLASS Trials and Test methodology has been produced in consultation with National Grid. Therefore all (known) constraints on National Grid have identified, and eliminated in the design stage.
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	The CLASS Trials and Test methodology has been produced in consultation with National Grid. Notably, system security – for both organisations, has been at the heart of the trial design. Furthermore, a number of tests have been undertaken before Go-Live, to assess and minimise system risk.

Risk description	Category	Owner	Likelihood	Impact	Status	Comments
Conflicts may occur between Trials and unknown planning/ maintenance works at specific Primary substation sites	Installation	Electricity North West/ National Grid	Very Low	Moderate	Open	The CLASS Trials and Test methodology has been produced through a consultative process. Engineering teams at Electricity North West and National Grid have been engaged to ensure that trials do not conflict with maintenance works.
Customers in the Trial area have voltage optimisers fitted, thus concealing the impact of the Trials	Other	Electricity North West	Low	Moderate	Open	The customer engagement 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	Low	Open	The objective of the CLASS trials is to assess whether customers observe any impacts on their electricity supply. Therefore, if they do, that would form part of CLASS' learning. To ensure that customers know that the trial is ongoing, the project team 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	Workshops with a cross-section of customers, ie the Engaged Customer Panel (ECP) have been undertaken. The ECP has advised on the form of the survey instruments. This will ensure that all materials are easily understandable.
Placebo effect amongst survey participants	Other	Electricity North West	Low	Moderate	Open	Survey responses will be normalised against a Control Group to identify any placebo effects. Furthermore, the subsequent analyses will highlight any 'outliers' in the data, which will then be further investigated as necessary.
Potential for attrition amongst survey participants between surveys	Recruitment	Electricity North West	Low	Moderate	Open	Surplus participants have been identified to negate the impact of drop outs.
University of Manchester undergoes personnel changes during the Project	Other	Electricity North West/ University of	Low	Low	Open	The contract with University of Manchester ensures that all deliverables involve multiple individuals to minimise this risk. Furthermore, clearly defined

Risk description	Category	Owner	Likelihood	Impact	Status	Comments
		Manchester				timeframes have been included in the contract.
Learning is not disseminated effectively to all stakeholders	Other	Electricity North West	Very Low	Moderate	Open	CLASS dissemination activities have already started and a diverse range of tools are being used to engage stakeholders. These include webinars, podcasts, social media, a dedicated CLASS website, newsletters, etc
Electricity North West may not be able to respond to OC6 within the Project area because of an ongoing initiated Trial	Other	Electricity North West	Very Low	Significant	Open	As National Grid is a CLASS Project Partner, any issue around compliance with OC6 will be addressed with National Grid as a matter of urgency.
Customers may be confused by the various 'green energy' government initiatives currently ongoing	Recruitment	Electricity North West	Moderate	Moderate	Open	The input from the cross-section of customers, ie the ECP, who have advised on the design of customer materials, will ensure that CLASS is easily understood and not confused with other 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.

## APPENDIX B: SUMMARY OF PROJECT SDRC

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

SDRC (Evidence)	Due date	Status
Evidence of test Trial data transferred by July 2014	Jul-14	On Track
Learning Event 2	Jul-14	On Track
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 C: PROJECT DIRECTION BUDGET

£'000s Excluding Partner Funding Ofgem Cost Category	Plan
<b>Labour</b>	<b>1,948</b>
Data Management	32
Data routing configuration	99
Installation & configuration of Dashboard hardware & software	83
Monitoring Equipment	236
Project Management	1,035
Purchase & Installation of substation controllers	99
Publicity and Dissemination	20
SOAP Interface to PoF	156
Voltage Controllers interface	188
<b>Equipment</b>	<b>1,141</b>
Purchase & Installation of substation controllers	657
RTU installation	172
Monitoring Equipment	313
<b>Contractors</b>	<b>3,644</b>
Purchase & Installation of substation controllers	1,125
Installation & configuration of ICCP	27
Customer Survey	219
Development of Change Proposals	60
Carbon Impact assessment	41
Research - Technical	886
Project Management	912
Design of voltage regulation scheme	375
<b>IT</b>	<b>287</b>
Installation & configuration of Dashboard hardware & software	122
Installation & configuration of ICCP	165
<b>Payments to users</b>	<b>141</b>
Incentive to attract customers to complete surveys	141
<b>Contingency</b>	<b>595</b>
Installation & configuration of ICCP	147
Purchase & installation of monitoring equipment	124
Incentive to attract customers to complete surveys	33
Purchase & Installation of substation controllers	156
Installation & configuration of Dashboard hardware & software	78
Research - Technical	56
<b>Other</b>	<b>341</b>
Publicity and Dissemination	194
Accommodation	146
	<b>8,098</b>

Source: Ofgem Schedule to Project Direction - Decmeber 2012

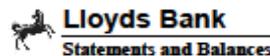
## APPENDIX D: DETAILED PROJECTED PROJECT EXPENDITURE

£'000s Excluding Partner Funding Ofgem Cost Category	Total Project			Comments
	Forecast	Plan	Variance	
<b>Labour</b>	<b>1,696</b>	<b>1,948</b>	<b>252</b>	<b>Efficiencies anticipated. However, trials may identify new requirements.</b>
Data Management	25	32	7	Efficiencies anticipated at completion to value of £7k.
Data routing configuration	7	99	92	Anticipated efficiencies. However, trials may identify new data requirements.
Installation & configuration of Dashboard hardware & software	55	83	28	Efficiencies anticipated to value of £28k.
Monitoring Equipment	221	236	15	Anticipated efficiencies forecasted to value of 15k.
Project Management	1,001	1,035	34	Anticipated efficiencies. However, trials may identify new resource requirements
Purchase & Installation of substation controllers	102	99	(3)	
Publicity and Dissemination	16	20	4	Efficiencies anticipated to value of £4k
SOAP Interface to PoF	92	156	65	Efficiencies anticipated to value of £65k
Voltage Controllers interface	176	188	11	Efficiencies anticipated to value of £11k
<b>Equipment</b>	<b>943</b>	<b>1,141</b>	<b>198</b>	<b>Efficiencies anticipated. However, trials may identify new requirements.</b>
Purchase & Installation of substation controllers	624	657	33	Efficiencies anticipated to value of £33k.
RTU installation	9	172	163	Efficiencies anticipated. However, trials may identify new requirements.
Monitoring Equipment	310	313	3	
<b>Contractors</b>	<b>3,591</b>	<b>3,644</b>	<b>53</b>	
Purchase & Installation of substation controllers	1,085	1,125	40	
Installation & configuration of ICCP	33	27	(5)	Profile variance and effort variance to original plan
Customer Survey	224	219	(5)	
Development of Change Proposals	59	60	1	
Carbon Impact assessment	41	41	(0)	
Research - Technical	885	886	0	
Project Management	912	912	(0)	
Design of voltage regulation scheme	353	375	23	Efficiencies anticipated to value of £23k.
<b>IT</b>	<b>299</b>	<b>287</b>	<b>(12)</b>	
Installation & configuration of Dashboard hardware & software	127	122	(5)	
Installation & configuration of ICCP	172	165	(7)	
<b>Payments to users</b>	<b>85</b>	<b>141</b>	<b>57</b>	<b>Anticipated efficiencies. However, trials may identify new incentive requireme</b>
Incentive to attract customers to complete surveys	85	141	57	Anticipated efficiencies. However, trials may identify new incentive requirements
<b>Contingency</b>	<b>220</b>	<b>595</b>	<b>375</b>	<b>Forecasted at completion at £375k favourable to plan</b>
Installation & configuration of ICCP	22	147	125	Minimal use of contingency anticipated.
Purchase & installation of monitoring equipment	46	124	78	Partial use of contingency required.
Incentive to attract customers to complete surveys	0	33	33	No use of contingency anticipated at this stage.
Purchase & Installation of substation controllers	152	156	5	Full use of contingency required - Additional equipment required at 12 sites.
Installation & configuration of Dashboard hardware & software	0	78	78	No use of contingency anticipated at this stage.
Research - Technical	0	56	56	No use of contingency anticipated at this stage.
<b>Other</b>	<b>281</b>	<b>341</b>	<b>60</b>	
Publicity and Dissemination	199	194	(4)	
Accommodation	83	146	64	Efficiencies anticipated.
	<b>7,115</b>	<b>8,098</b>	<b>983</b>	

Source: Ofgem Schedule to Project Direction - December 2012

## APPENDIX E: PROJECT BANK ACCOUNT

The bank statement below details all transactions relevant to the Project up to 10 June 2014. This includes all receipts and payments associated with the Project up to the May 2014 month end reporting period.



Yesterday's Statement

C082421

### 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 PLOGA 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
27JUN13	F/FLOW	WESTPOWSWEST F/FLOW			108,083.33	1,915,330.79 Cr
27JUN13	BGC	R B S-SP MANWEB BGC ENWL NO 12 LCNF			30,500.00	1,945,830.79 Cr
27JUN13	CHGS	ACCOUNT CHARGE		2.44		1,945,828.35 Cr
28JUN13	CR	ELECTRICITY NWL NO.4 PYMT TRANSFER 00465			216,083.33	2,161,911.68 Cr
28JUN13	F/FLOW	SCOTTISH HYDRO-ELE F/FLOW			15,250.00	2,177,161.68 Cr
28JUN13	F/FLOW	SOUTHERN ELECTRIC F/FLOW			32,333.33	2,209,495.01 Cr
28JUN13	BGC	LONDON POWER NETWO BGC LOW CARB NETWORKS			70,666.67	2,280,161.68 Cr
28JUN13	BGC	SOUTH EASTERN POWE BGC LOW CARB NETWORKS			46,083.33	2,326,245.01 Cr
28JUN13	BGC	NORTHERN ELECTRIC BGC LCNF			46,416.67	2,372,661.68 Cr
28JUN13	BGC	NORTHERN ELECTRIC BGC LCNF			32,416.67	2,405,078.35 Cr
04JUL13	CR	INTEREST ADJUSTMENT GROSS CREDIT INTEREST			969.63	2,406,047.98 Cr
08JUL13	DR	ELECTRICITY NWL NO.4 PYMT TRANSFER 00475		75,274.50		2,330,773.48 Cr
17JUL13	BGC	R B S-SP MANWEB BGC ENWL NO 12 LCNF			30,500.00	2,361,273.48 Cr
26JUL13	CR	ELECTRICITY NWL NO.4 PYMT TRANSFER 00484			216,083.33	2,577,356.81 Cr
26JUL13	F/FLOW	SCOTTISH HYDRO-ELE F/FLOW			15,250.00	2,592,606.81 Cr
26JUL13	F/FLOW	SOUTHERN ELECTRIC F/FLOW			32,333.33	2,624,940.14 Cr
26JUL13	BGC	NORTHERN ELECTRIC BGC LCNF			46,416.67	2,671,356.81 Cr
26JUL13	BGC	NORTHERN ELECTRIC BGC LCNF			32,416.67	2,703,773.48 Cr
26JUL13	BGC	UK PN OPERATIONS BGC 1000 2000066000 K			70,666.67	2,774,440.15 Cr
26JUL13	BGC	UK PN OPERATIONS BGC 1000 2000066007 K			46,083.33	2,820,523.48 Cr
29JUL13	F/FLOW	WESTPOWSWEST F/FLOW			108,083.33	2,928,606.81 Cr
12AUG13	DR	ELECTRICITY NWL NO.4 PYMT TRANSFER 00493		289,570.25		2,639,036.56 Cr
21AUG13	BGC	UK PN OPERATIONS BGC 1000 2000073436 K			70,666.67	2,709,703.23 Cr
21AUG13	BGC	UK PN OPERATIONS BGC 1000 2000073443 K			46,083.33	2,755,786.56 Cr
27AUG13	F/FLOW	WESTPOWSWEST F/FLOW			108,083.33	2,863,869.89 Cr
28AUG13	CR	ELECTRICITY NWL NO.4 PYMT TRANSFER 00485			216,083.33	3,079,953.22 Cr
28AUG13	F/FLOW	SP MANWEB PLC F/FLOW			30,500.00	3,110,453.22 Cr
28AUG13	F/FLOW	SOUTHERN ELECTRIC F/FLOW			32,333.33	3,142,786.55 Cr

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**ELECTRICITY NWL NO.12 LCNF (CLASS) (GBP)**

Date	Type	Narrative	Value Date	Payments	Receipts	Balance
28AUG13	F/FLOW	SCOTTISH HYDRO-ELE F/FLOW			15,250.00	3,158,036.55 Cr
28AUG13	BGC	NORTHERN ELECTRIC BGC LCNF			46,416.67	3,204,453.22 Cr
28AUG13	BGC	NORTHERN ELECTRIC BGC LCNF			32,416.67	3,236,869.89 Cr
10SEP13	INT	GROSS CREDIT INTEREST			3,206.02	3,240,075.91 Cr
20SEP13	BGC	UK FN OPERATIONS BGC 1000 2000082895 K			70,666.67	3,310,742.58 Cr
20SEP13	BGC	UK FN OPERATIONS BGC 1000 2000082902 K			46,083.33	3,356,825.91 Cr
26SEP13	BGC	R B S-SP MANWEB BGC ENWL NO 12 LCNF			30,500.00	3,387,325.91 Cr
26SEP13	CHGS	ACCOUNT CHARGE		3.20		3,387,322.71 Cr
27SEP13	CR	ELECTRICITY NWL NO.4 PYMT TRANSFER 00504			216,083.33	3,603,406.04 Cr
27SEP13	F/FLOW	WESTPOWSWEST F/FLOW			108,083.33	3,711,489.37 Cr
27SEP13	F/FLOW	SCOTTISH HYDRO-ELE F/FLOW			15,250.00	3,726,739.37 Cr
27SEP13	F/FLOW	SOUTHERN ELECTRIC F/FLOW			32,333.33	3,759,072.70 Cr
27SEP13	BGC	NORTHERN ELECTRIC BGC LCNF			46,416.67	3,805,489.37 Cr
27SEP13	BGC	NORTHERN ELECTRIC BGC LCNF			32,416.67	3,837,906.04 Cr
30SEP13	CR	ELECTRICITY NWL NO.4 PYMT TRANSFER 00506			404,271.45	4,242,177.49 Cr
10OCT13	DR	ELECTRICITY NWL NO.4 PYMT TRANSFER 00513		63,310.16		4,178,867.33 Cr
10OCT13	DR	ELECTRICITY NWL NO.4 PYMT TRANSFER 00512		193,561.88		3,985,305.45 Cr
10OCT13	DR	ELECTRICITY NWL NO.4 PYMT TRANSFER 00511		404,271.45		3,581,034.00 Cr
25OCT13	BGC	UK FN OPERATIONS BGC 1000 2000094983 K			70,666.67	3,651,700.67 Cr
25OCT13	BGC	UK FN OPERATIONS BGC 1000 2000094990 K			46,083.33	3,697,784.00 Cr
28OCT13	CR	ELECTRICITY NWL NO.4 PYMT TRANSFER 00522			216,083.33	3,913,867.33 Cr
28OCT13	F/FLOW	WESTPOWSWEST F/FLOW			108,083.33	4,021,950.66 Cr
28OCT13	F/FLOW	SOUTHERN ELECTRIC F/FLOW			32,333.33	4,054,283.99 Cr
28OCT13	F/FLOW	SCOTTISH HYDRO-ELE F/FLOW			15,250.00	4,069,533.99 Cr
28OCT13	BGC	NORTHERN ELECTRIC BGC LCNF			46,416.67	4,115,950.66 Cr
28OCT13	BGC	NORTHERN ELECTRIC BGC LCNF			32,416.67	4,148,367.33 Cr
28OCT13	BGC	R B S-SP MANWEB BGC ENWL NO 12 LCNF			30,500.00	4,178,867.33 Cr
13NOV13	DR	ELECTRICITY NWL NO.4 PYMT TRANSFER 00530		707,073.54		3,471,793.79 Cr
20NOV13	BGC	UK FN OPERATIONS BGC 1000 2000110268 K			70,666.67	3,542,460.46 Cr
20NOV13	BGC	UK FN OPERATIONS BGC 1000 2000110275 K			46,083.33	3,588,543.79 Cr
27NOV13	F/FLOW	WESTPOWSWEST F/FLOW			108,083.33	3,696,627.12 Cr
28NOV13	CR	ELECTRICITY NWL NO.4 PYMT TRANSFER 00541			216,083.33	3,912,710.45 Cr
28NOV13	F/FLOW	SCOTTISH HYDRO-ELE F/FLOW			15,250.00	3,927,960.45 Cr
28NOV13	F/FLOW	SOUTHERN ELECTRIC F/FLOW			32,333.33	3,960,293.78 Cr
28NOV13	BGC	NORTHERN ELECTRIC BGC LCNF			46,416.67	4,006,710.45 Cr
28NOV13	BGC	NORTHERN ELECTRIC BGC LCNF			32,416.67	4,039,127.12 Cr
28NOV13	BGC	R B S-SP MANWEB BGC ENWL NO 12 LCNF			30,500.00	4,069,627.12 Cr
06DEC13	DR	ELECTRICITY NWL NO.4 PYMT TRANSFER 00546		258,765.24		3,810,861.88 Cr
06DEC13		Value of Credits (75)			6,000,893.78	
06DEC13		Value of Debits (11)		2,190,031.90		
06DEC13		Closing Ledger Balance				3,810,861.88 Cr
06DEC13		Closing Cleared Balance				3,810,861.88 Cr

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

**ELECTRICITY NWL NO.12 LCNF (CLASS) (GBP)**

Date	Type	Narrative	Value Date	Payments	Receipts	Balance
06DEC13		Opening Ledger Balance				4,069,627.12 Cr
06DEC13	DR	ELECTRICITY NWL NO.4 PYMT TRANSFER 00546		258,765.24		3,810,861.88 Cr
10DEC13	INT	GROSS CREDIT INTEREST			4,691.16	3,815,553.04 Cr
17DEC13	BGC	UK PN OPERATIONS BGC			70,666.67	3,886,219.71 Cr
17DEC13	BGC	1000 2000142062 K				
17DEC13	BGC	UK PN OPERATIONS BGC			46,083.33	3,932,303.04 Cr
17DEC13	BGC	1000 2000142069 K				
20DEC13	BGC	R B S-SP MANWEB BGC			30,500.00	3,962,803.04 Cr
20DEC13	BGC	ENWL NO 12 LCNF				
27DEC13	CR	ELECTRICITY NWL NO.4 PYMT TRANSFER 00553			216,083.33	4,178,886.37 Cr
27DEC13	F/FLOW	WESTPOWSWEST F/FLOW			108,083.33	4,286,969.70 Cr
27DEC13	F/FLOW	SCOTTISH HYDRO-ELE F/FLOW			15,250.00	4,302,219.70 Cr
27DEC13	F/FLOW	SOUTHERN ELECTRIC F/FLOW			32,333.33	4,334,553.03 Cr
27DEC13	BGC	NORTHERN ELECTRIC BGC			46,416.67	4,380,969.70 Cr
27DEC13	BGC	LCNF				
27DEC13	BGC	NORTHERN ELECTRIC BGC			32,416.67	4,413,386.37 Cr
27DEC13	BGC	LCNF				
03JAN14	CHGS	CHARGE ADVISED		3.18		4,413,383.19 Cr
15JAN14	BGC	UK PN OPERATIONS BGC			70,666.67	4,484,049.86 Cr
15JAN14	BGC	1000 2000006101 K				
15JAN14	BGC	UK PN OPERATIONS BGC			46,083.33	4,530,133.19 Cr
15JAN14	BGC	1000 2000006108 K				
16JAN14	DR	ELECTRICITY NWL NO.4 PYMT TRANSFER 00573		500,071.24		4,030,061.95 Cr
27JAN14	F/FLOW	WESTPOWSWEST F/FLOW			108,083.33	4,138,145.28 Cr
28JAN14	CR	ELECTRICITY NWL NO.4 PYMT TRANSFER 00582			216,083.33	4,354,228.61 Cr
28JAN14	F/FLOW	SCOTTISH HYDRO-ELE F/FLOW			15,250.00	4,369,478.61 Cr
28JAN14	F/FLOW	SOUTHERN ELECTRIC F/FLOW			32,333.33	4,401,811.94 Cr
28JAN14	BGC	NORTHERN ELECTRIC BGC			46,416.67	4,448,228.61 Cr
28JAN14	BGC	LCNF				
28JAN14	BGC	NORTHERN ELECTRIC BGC			32,416.67	4,480,645.28 Cr
28JAN14	BGC	LCNF				
28JAN14	BGC	R B S-SP MANWEB BGC			30,500.00	4,511,145.28 Cr
28JAN14	BGC	ENWL NO 12 LCNF				
21FEB14	BGC	UK PN OPERATIONS BGC			70,666.67	4,581,811.95 Cr
21FEB14	BGC	1000 2000043642 K				
21FEB14	BGC	UK PN OPERATIONS BGC			46,083.33	4,627,895.28 Cr
21FEB14	BGC	1000 2000043649 K				
25FEB14	DR	ELECTRICITY NWL NO.4 PYMT TRANSFER 00594		115,872.57		4,512,022.71 Cr
27FEB14	F/FLOW	WESTPOWSWEST F/FLOW			108,083.33	4,620,106.04 Cr
28FEB14	CR	ELECTRICITY NWL NO.4 PYMT TRANSFER 00593			216,083.33	4,836,189.37 Cr
28FEB14	F/FLOW	SCOTTISH HYDRO-ELE F/FLOW			15,250.00	4,851,439.37 Cr
28FEB14	F/FLOW	SOUTHERN ELECTRIC F/FLOW			32,333.33	4,883,772.70 Cr
28FEB14	BGC	NORTHERN ELECTRIC BGC			46,416.67	4,930,189.37 Cr
28FEB14	BGC	LCNF				
28FEB14	BGC	NORTHERN ELECTRIC BGC			32,416.67	4,962,606.04 Cr
28FEB14	BGC	LCNF				
28FEB14	BGC	R B S-SP MANWEB BGC			30,500.00	4,993,106.04 Cr
28FEB14	BGC	ENWL NO 12 LCNF				
10MAR14	INT	GROSS CREDIT INTEREST			5,389.77	4,998,495.81 Cr
10MAR14	DR	ELECTRICITY NWL NO.4 PYMT TRANSFER 00599		237,533.78		4,760,962.03 Cr
11MAR14	BGC	UK PN OPERATIONS BGC			70,666.67	4,831,628.70 Cr
11MAR14	BGC	1000 2000051704 K				
11MAR14	BGC	UK PN OPERATIONS BGC			46,083.33	4,877,712.03 Cr
11MAR14	BGC	1000 2000051711 K				
13MAR14	BGC	R B S-SP MANWEB BGC			30,500.00	4,908,212.03 Cr
13MAR14	BGC	ENWL NO 12 LCNF				
27MAR14	F/FLOW	WESTPOWSWEST F/FLOW			108,083.33	5,016,295.36 Cr
28MAR14	CR	ELECTRICITY NWL NO.4 PYMT TRANSFER 00604			216,083.33	5,232,378.69 Cr
28MAR14	F/FLOW	SOUTHERN ELECTRIC F/FLOW			32,333.33	5,264,712.02 Cr
28MAR14	F/FLOW	SCOTTISH HYDRO-ELE F/FLOW			15,250.00	5,279,962.02 Cr
28MAR14	BGC	NORTHERN ELECTRIC BGC			46,416.67	5,326,378.69 Cr
28MAR14	BGC	LCNF				
28MAR14	BGC	NORTHERN ELECTRIC BGC			32,416.67	5,358,795.36 Cr
28MAR14	BGC	LCNF				
31MAR14	CHGS	ACCOUNT CHARGE		3.01		5,358,792.35 Cr
25APR14	DR	ELECTRICITY NWL NO.4 PYMT TRANSFER 00621		896,626.15		4,462,166.20 Cr
15MAY14	DR	ELECTRICITY NWL NO.4 PYMT TRANSFER 00631		93,178.27		4,368,987.93 Cr
10JUN14	INT	GROSS CREDIT INTEREST			6,042.89	4,375,030.82 Cr
10JUN14	DR	ELECTRICITY NWL NO.4 PYMT		294,609.97		4,080,420.85 Cr

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