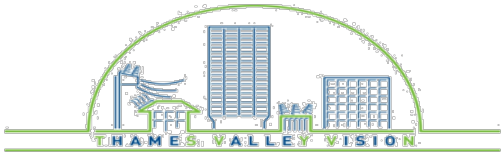
Scottish and Southern Energy Power Distribution



New Thames Valley Vision

PROJECT PROGRESS REPORT

Project Number	SSET2003
DNO	Southern Electric Power Distribution Ltd
Reporting Period	June 2012 to December 2012

Bracknell Forest Council

ea technology

KEMA DNV

Honeywell

University of Reading

1 Executive summary

Ofgem guidance: This section should be able to stand alone and provide a picture of the progress of the project in the period to all stakeholders not directly involved in the project. The DNO should describe the general progress of the project; any notable milestones or deliverables achieved in the period; as well as details of any dissemination activities carried out in the period.

The New Thames Valley Vision (NTVV) is a Low Carbon Network Fund Tier 2 project selected by Ofgem, the UK's energy regulator, during the 2011 competitive selection process. This five year project is focussed on the low voltage (LV) network and aims to demonstrate how electricity distribution networks can better serve their customers by understanding, anticipating and supporting their energy use as they move towards low carbon technologies.

The project has met all Successful Delivery Reward criteria milestones since inception and for this report period with a focus on designing and deploying hardware in support of the core learning outcomes. The project has also made opportunities for capturing and sharing early learning and has held and participated in three dissemination events during this period as well as through its own website. Progress in this Reporting Period has continued according to plan, with notable milestones include in this summary.

The "Your Energy Matters" facility was opened by the Mayor of Bracknell on 15th of December. This centre is designed to enhance project awareness and will test new relationships between customers and DNOs in the support of low carbon technology.

Customer engagement and participation has led to 15 commercial customers signing Automatic Demand Response Agreements with three sites having completed installation works. The NTVV has produced a discussion document and test plan considering the role of Power Electronics and Batteries on the LV network and has subsequent procurement processes of Energy Storage and Management Units to establish market capabilities in response to these specific requirements.

Monitoring equipment and hardware and ICT infrastructure has been and is being deployed for 250 end-points and 100 substations with a significant piece of design and review focussed on ensuring safe and secure systems in accordance with the project's Data Protection Strategy and the Data Protection Act. The methodologies for analysing this data have been prepared and reviewed using alternative sources of data and the project is ready to make best use of the data captured from these devices.

To visualise and enact changes on the LV network, activities are underway to prepare and configure the Network Modelling Environment and the Distribution Management System. A series of workshops have been completed to establish the requirements for subsequent hardware design and construction. Smart analytic tools are being progressed to 'buddy' this monitored data and optimise the level of monitoring required.

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3 Project manager's report

Ofgem guidance: The project manager's report should be a more detailed version of the Executive Summary. This section should describe the progress made in the reporting period. Any key issues, deliverables or events should be drawn out and described in detail; referring where necessary to other sections of the PPR. This section should also provide an outlook onto the next reporting period. It should describe any key issues or concerns which the project manager considers will be a major challenge in the next reporting period.

In the first year of operation The New Thames Valley Vision (NTVV) has focussed on designing and deploying the right hardware and infrastructure to support its core learning outcomes, whilst also capturing early findings and using these to shape future trials. Looking ahead, deployment continues as the project moves to implement a range of trials and experiments.

All Successful Delivery Reward Criteria (SDRCs) for this reporting period have been met, details of which are included in section 8). The following key activities and deliverables have taken place during this reporting period and are planned to take place into the next:

Learning Outcome: Understanding

To gather data about how power flows around the low voltage network, the project is in the process of deploying 250 end-point monitors and 110 substation monitors. The NTVV has established a number of trial zones and used these zones to select the most appropriate locations for monitoring. Provision has been made to deploy more units, should the analysis require. Section 5 defines the electrical and ICT works completed and in progress to ensure these devices are safe, secure and correctly specified to meet project requirements and the provision of the Data Protection Act. The data gathered by this monitoring equipment will be used to validate energy use categorisation methods; these methods have been based on literature review and code preparation.

Learning Outcomes: Anticipating and Optimising

A series of business requirements workshops have prepared configuration specifications which define how a Network Modelling Environment and Distribution Management System for the low voltage (LV) network should behave. These documents have formed the basis for subsequent hardware design and construction and will be further extended to understand the business processes that are required for a DNO to operate an LV network in this manner. To take advantage of these tools and to extend monitored data, 'Aggregation' and 'Forecasting' smart analytic tools are in progress to 'buddy' and optimise the level of monitoring required.

Learning Outcome: Supporting Change

The NTVV is exploring a range of technical and commercial solutions both on the network and in coordination with the customer. Customer engagement and participation has led to 15 commercial customers signing Automatic Demand Response agreements, as per section 5. Subsequent site surveys and installation works are beginning to inform the nature of the commercial propositions that a DNO might consider in deploying Demand Response to the network.

Preparations for Energy Storage and Management Units to be embedded on the LV network have progressed with the production of a discussion document and test plan and subsequent procurement process to establish market capabilities in response to these specific requirements. The NTVV postulates that economic and flexible support requires smart control algorithms to operate economically. Work to prepare these algorithms has progressed with analysis to apply controls for a battery unit operating in isolation and similar controls for a fleet acting in concert. The next reporting period will see significant progress in the deployment of thermal energy storage.

Customer Engagement

The project has successfully enrolled over 360 domestic customers as project participants and has opened its high street facility called “Your Energy Matters” in Bracknell’s shopping district. The Your Energy Matters facility has been designed to enhance project awareness and form a test bed for exploring new relationships between customers and DNOs in the support of low carbon technology.

NTVV has focused on preparing a successful footprint and a broad base of customer participation ahead of wider publicity initiatives and is building the foundations for sharing results through a number of relevant channels. In addition, the project is keen to share and build on earlier engagement and during this reporting period it has held or actively participated in three dissemination events (as per section 9.3) as well as through the project website.

4 Business case update

Ofgem guidance: The DNO should note any developments or events which might affect the benefits to be gained from the Second Tier project. Where possible the DNO should quantify the changes these developments or events have made to the project benefits compared to those outlined in the full submission proposal.

Scottish and Southern Energy Power Distribution's (SSEPD) core purpose is to provide the energy people need in a reliable and sustainable way. To achieve this, our delivery priority is to deliver upgraded electricity transmission networks, operational efficiency and innovation in electricity and gas distribution networks as they respond to the decarbonisation and decentralisation of energy. Through its learning outcome approach NTVV has been designed to feed into and update this business plan by:

- In the short term providing a benchmark network in which the implications of disruptive technologies can be assessed and scaled.
- Allow us to cost and plan the monitoring of our network with the optimal level of low cost equipment and communications infrastructure taking full account of the longer term input from Smart metering data.
- Allow us to produce short, medium and long term models of investment requirements for a range of disruptive technology penetration levels
- Provide us with an evaluation, technical, economic and commercially, of a range of innovative network management tools releasing capacity on the network.
- Provide a template into which solutions from other SSEPD and other DNO projects can be fed to allow comparative evaluation and inform solution selection for inclusion in our business plan.
- Quantify and define resource requirements including staff and contractor skill sets to support the roll out of the business plan.
- Generate new processes, standards and procedures that are required to implement the NTVV approach as business as usual.

Our experience shows us that whilst individual technical and commercial solutions may be challenging, the real challenges emerge when these solutions are scaled up. This is the driver behind the creation of a network operations and planning environment, which in essence performs three critical functions:

- Creates the environment in which planners, operational staff and business systems will interact with the data derived from and solutions implemented in the project.
- Allows the flow of information from DNO legacy systems to the new solutions to reap the benefit of existing system information e.g. connectivity, circuit ratings, system operational state.
- Seamless integration of new solutions into core business and real time system allowing control along side traditional systems using the same staff infrastructure e.g. control rooms, planning tools.

SSEPD has not noted any developments or events which might affect the business case outlined above and as detailed in the full submission proposal. As a project focussed on delivering learning outcomes, SSEPD has not identified any direct financial benefits through delivering the NTVV.

On publishing this Project Progress Report, SSEPD is in the final stages of agreeing participation in the DISCERN European FP7 project. This project is intended to increase the speed and level of learning as a result of the increased data set and broader scope of a full scale European collaboration. This engagement in a European consortium does not change the scope or reduce the outputs of the LCNF funded project; rather it will enhance and validate the learning in a broader context.

5 Progress against plan

Ofgem guidance: This section should summarise the progress of the project in the previous six month period. It should describe any issues of note that were faced in the reporting period, and how these issues were managed. Key achievements/notable events should be highlighted. The DNO should briefly describe key planned activities for the next reporting period. This should include any issues the DNO envisages facing in the next reporting period.

The NTVV consists of 24 Packages of Work (PoW) which directly map to core learning outcomes and learning dissemination methods. Each PoW consists of number of components, where a component is defined as a:

Deliverable – defined activity with clear stages of implementation and completion;

Trial – aspects which require investigation and/or experimentation; or

Report – produced to formalise project outcomes, to enable the sharing of learning and outputs related to a deliverable or trial, or to address a specific evidence requirement of an SDRC (Successful Delivery Reward Criteria).

The NTVV has implemented activities in accordance with the Project Direction and is progressing to plan. The following summary outlines the progress to date and key activities in the next reporting period.

End-point Monitoring

End-point monitoring is being deployed in 250 properties during winter 2012 to provide energy profile information and coordinate with substation monitoring. There is a related SDRC to have 250 units deployed by the end of January 2013. A subsequent deployment of 200 end-point monitors is planned for spring 2013, if required, in support of the analysis.

End-point monitors have been specified to comply with the Data Protection Act and the NTVV Data Protection Strategy. SSEPD drew on SSE Group expertise to complete an extensive due diligence and risk analysis of physical and communication aspects. This review recommended subsequent improvements to end-point monitor and head-end encryption protocols which are due to be completed the first week in January. During the interim period, end-point monitors are able to be installed with the communication path disabled (weekly traffic reports confirm that whilst devices have been successfully registered no data has been exchanged before the upgrade is complete). These units have undergone electrical functional testing and have been approved for use on the SSEPD distribution network.

All devices have been delivered and are currently being installed in customers' premises. Installation work is being carried out by SSEPD staff from the local depot. The use of local staff reinforces the focus on the LV network and interaction with the community that is served by this network. Depot staff have been actively involved in deployment planning and have shared in briefing presentations.

Substation Monitoring

Substation monitoring will be deployed during spring 2013 to record energy profile information on a per-feeder, per-phase basis at 110 sites. There is a related SDRC to have 100 units deployed by the end of March 2013. A subsequent deployment of up to 225 end-point monitors is planned for spring 2013 if required in support of the analysis.

The first 100 substation locations to be fitted with monitoring have been identified and specified for the provision of appropriate quantities of three and six feeder monitors, together with current sensors and voltage connectors. Testing of a prototype is in progress to refine the communications interface with the Distribution Management System. Electrical hardware (including current sensors and voltage connectors) have been approved for the use on the SSEPD distribution network. A contract has been placed to install and commission the monitoring equipment and the first twenty units have been received and are being used for contractor training.

Characterisation

The mechanism by which project partners can securely access the data collected by the project has been established and is in construction alongside the end-point and substation monitoring deployment plans. To validate and confirm project conclusions, the project is looking to identify other potentially helpful data sources and assess their suitability and feasibility in relation to the project and the project's Data Protection Stratey

A Literature Review in support of energy use characterisation has been completed and initial code has been prepared. A paper describing the preparation of this code has been written to cover: the purpose and format of the code, give guidelines for running the code and explain how the code will be verified and validated.

ICT Infrastructure

The project has prepared a solutions architecture for the IT, SCADA and Telecommunication components of the project to enable monitoring data to be collected and allow the preparation of the LV Network Modelling Environment and Distribution Management System. This design has been signed off at SSE Architecture Review Board (ARB). The solutions architecture has informed the project's Data Protection Strategy – an initial version of which was approved by the authority to enable installation of monitoring equipment; a subsequent version is with the authority to enable further stages, including data collection and processing.

The pre-production environment has been built and later production environments are in construction. A 'pen' test (penetration test) for end-point monitoring is scheduled for early January in accordance with the Data Protection Strategy.

Network Modelling Environment

Workshops have been held to allow the full requirements of the Network Modelling Environment to be established. These requirements are being documented and will lead to the high level and detailed design stages. In support of this activity the policies and procedures relating to the electrical ratings of

the LV network have been established, and the LV network in the Bracknell area has been surveyed to allow the connectivity of existing GIS system to be updated prior to migration onto the Network Modelling Environment.

Requirements elicitation has been informed by earlier LCNF Tier 1 work and has been supported with input from a project inspired forum of Planning Engineers to manage interaction between the NTVV and operational business units and address a) specific power-flow modelling design problems and b) identifying the use and test cases for this modelling environment.

Distribution Management System

Workshops have been completed to allow the full requirements of the Distribution Management System to be established. The requirements have been documented and a training programme established. The ICT environment has been specified and is under construction. Symbology and system set-up is being based on the existing processes and applications known to control and cartographic staff within the business; though this will require tailoring and configuration for LV distribution networks

Aggregation and Forecasting

Aggregation analysis attempts to allow the use of relatively sparse data from only a handful of end-points to be 'buddied' such that the power flows across a network can be assessed. Forecasting analysis runs a number of scenarios (varying in both timescale and application) to support future power flow analysis.

Initial literature reviews have been completed for these two topics and work has focussed on proving the interaction with Forecasting and Smart Control algorithms. Future work will investigate the application of weather patterns and how analysis can be supported with historic quarterly energy usage data

Automatic Demand Response (ADR)

The project has set-out to engage 30 buildings on to ADR schemes. To date 15 customers have signed participation agreements, 8 have agreed load-shed schemes (defining what demand can be reduced on receipt of an automatic signal), 3 schemes are being installed and 3 are operational. The ICT architectural elements of the ADR system have been specified within the Level 1 architecture and the core interfaces between the Network Management System and the ADR system have been defined and documented.

Commercial customer engagement processes have been reviewed and revised throughout this period to ensure the customer benefit is well understood, that the pre-selection criteria is appropriate and that media opportunities are not missed. In support of the customer engagement, SSEPD has reviewed and refreshed its commercial customer database, verifying on foot where appropriate.

Looking ahead, these ADR installations will form part of a series of trials to establish the availability of ADR and its application to network management. These trails will draw on earlier LCNF Tier 1 work; and the project is open to opportunities to share data and analysis as appropriate.

Commercial

The NTVV is drawing up terms of reference to refine and refresh appropriate pricing for participation in ADR. These will include 1) establishing the DUoS related payment envelope for ADR and 2) determining a customer acceptable price point for ADR participation.

Drawing on field work to date, it appears that a number of sites would require some enhancement to enable or increase the amount of controllable demand available for ADR engagement. An emerging piece of work may consider the level to which it would be appropriate for a DNO to improve a customers demand-response infrastructure where this has a network benefit; and how this benefit should be shared.

Energy Storage and Management Units

The discussion document "Energy Storage and Power Electronics on the Low Voltage Distribution Network" in support of SDRC 9.4a was submitted on 13th July 2012. It identified eight applications to improve voltage performance, thermal limitations, efficiency and emergency response on the low voltage network. These include: balancing load between phases (with and without storage), storage to balance peaks and troughs, reactive voltage support (with and without storage), improving power quality & harmonics, demand reduction and frequency response.

The paper postulates the following hypothesis for subsequent testing: "Economic and flexible support for LV networks will be provided by power electronics with energy storage running smart control algorithms which make use of forecasted demand to provide a coordinated response to address the technical standards of voltage and thermal performance in the most efficient manner possible." A test deployment programme has been prepared and has led to a subsequent procurement process with a current Request for Information underway to consider appropriate technologies. Procurement processes will continue in the next reporting period, as will an associated ICT design.

Thermal Storage

Distribution networks can benefit from energy stored thermally at customers' premises. The project plans to deploy approximately five thermal storage units to manage photovoltaic panel in-feed during the next reporting period. This initial installation will assess the changes that a customer would need to make to accommodate this technology and will compliment a separate piece of research to assess the harmonic impact of deployment en-mass.

The envisioned deployment plan of photovoltaic panels by a Registered Social Landlord has been adjusted and is unlikely to take place during the required timescale. In response, the NTVV is working to identify other test sites and to assess the appropriate level of promotion that a DNO might make in support of low carbon technology.

Smart Control

Building on the related Categorisation, Aggregation and Forecasting analysis, Smart Control seeks to dispatch low carbon mitigation measures in the most optimal manner. This technology will be paired with Energy Storage and Management Units to prove the analysis. This work is being performed in two parts 1) the optimisation of a single unit and 2) optimisation of multiple units and their interaction. Work to date has focused on coordination of forecast power flow data and the management of uncertainty, perhaps as the result of a forecast which is correct in magnitude but slightly adrift in its timing.

Customer Engagement

Direct engagement with domestic customers during this reporting period has been mostly focused on identifying and building relationships with project participants. The process for making contact and agreeing participation, as per our Customer Engagement Strategy, is relatively formal and unobtrusive. A separate and significant piece of work is underway to make the project more visible (through the 'Your Energy Matters' facility below)

The project initially requires 250 participants to have an end-point monitor installed. To ensure participants give informed consent, the project team has telephoned participants to talk through the details of consent before sending a form to the customer for review and signature ahead of installation. This is a labour intensive process with one person being able to make contact with approximately 30 customers a day. The NTVV really appreciates the time and effort from each participant and will continue to keep all customers informed of our progress.

To date, the project has received applications from 365 domestic customers to become project participants and register their interest in having an end point monitor installed. Each participant has received a thank you letter and has been added to the contact list for project updates. Where participant locations are appropriate, they have been separately contacted to arrange installation of an end-point monitor.

Commercial customer engagement has continued since the first reporting period, with a Consumer Consortium Event held at Regus in Bracknell in partnership with Thames Valley Chamber of Commerce - over 25 delegates took part in this event. This commercial engagement has also supported the sign-up of customers to ADR schemes with 15 agreements signed to date.

Your Energy Matters - Low Carbon Community Advisory Centre

The Your Energy Matters facility is a project dedicated site in the pedestrianised shopping district of Bracknell. The facility was officially opened by the Mayor of Bracknell and Mark Mathieson, SSE Managing Director, Networks at a community event on the 15th December.

The facility has been open ahead of the original plan, even though fit out works were delayed to accommodate activities in response to a refurbishment and demolition asbestos survey. Many of the fixtures and have been donated and demonstrate a range of low carbon technologies.

The facility is operated by a full time Customer Liaison Office and also includes Bracknell Forest Council Staff during the busy lunchtimes and afternoons. This facility is designed to keep local residents up to date with the project; allow the Local Authority to promote low carbon technologies and allow DNOs to monitor the impact of these interventions. Bracknell Forest Council has been able to recognise the community benefit that this facility and the NTVV in preparing its application for the DECC Fuel Poverty and the Pioneer Places schemes. It is expected that this facility will significantly enhance project awareness and will form a test bed for new relationships between customers and DNOs in the support of low carbon technologies.

Industry Governance Review

The project has completed a review of UK DNO commercial and governance frameworks and is finalising a process to map the relevant project impacts against this framework. This exercise will give the project a tool to assess how project progress may inform future changes commercial and governance frameworks.

Preparing for BAU

The NTVV has begun a piece of analysis to understand which of the UK energy industries' policies and procedures may be impacted by project trials. This analysis uses SSEPD documents as a proxy but will map back any changes to UK-wide relevant material. In parallel to this an analysis of the relevant topics and mechanisms for training this information out to UK industry will conclude during the next reporting period.

Project Governance

The Project Partner Review Board met on:

- 28th June 2012
- 23rd February 2012
- 26th July 2012
- 30th August 2012
- 27th September 2012 (Full day workshop)
- 15th November 2012
- 14th December 2012

The Project Steering Group met on:

- 6th July 2011
- 3rd August 2012
- 6th September 2012
- 5th October 2012
- 2nd November 2012
- 7th December 2012

The Technical Assurance Board met on:

- 29th November 2012

6 Progress against budget

Ofgem guidance: The DNO should report on expenditure against each line in the Project Budget, detailing where they are against where they expected to be at this stage in the project. The DNO should explain any projected variance against each line total in excess of 5 per cent.

Expenditure against budget
The project has incurred expenditure since inception as follows
(Percentages indicate performance on 2011 Bid Submission phased cumulative budget 11/12-12/13):

LABOUR	**£659,364.10**	**25.9%**
Customer, commercial and knowledge management	£90,402.45	44.1%
ICT architecture	£124,187.88	45.0%
ICT field resource	£35,176.06	5.3%
Network Field Resources	£15,794.29	6.9%
Project and ICT Management	£251,681.93	55.9%
Project engineering (monitoring, energy management & network design)	£142,121.49	19.8%
CONTRACTOR	**£1,674,708.57**	**68.9%**
Automatic demand response	£227,057.95	242%
Customer, commercial and knowledge management	£17,904.14	- %
ICT field resource	£31,840.00	81.6%
Integration of monitoring, modelling and management	£1,092,015	94.1%
Learning dissemination, website and low carbon community centre	£39,200	- %
LV network monitoring equipment	£17,781.20	8.0%
Real-time systems and information technology equipment	£59,650.80	48.5%
Smart analytics	£189,259.48	36.6%
EQUIPMENT	**£913,340.66**	**36.8%**
Automatic demand response	£505,387.05	447%
Communications	£51,943.56	21.8%
Integration of monitoring, modelling and management	£26,586.00	443%
LV network monitoring equipment	£313,632.05	33.3%
Real-time systems and information technology equipment	£15,792.00	7.1%
IT	**£40,407.45**	**9.6%**
Learning dissemination, website and low carbon community centre	£40,407.45	65.2%
TRAVEL & EXPENSES	**£7,504.37**	**9.2%**
General	£7,504.37	19.7%
OTHER	**£85,769.00**	**23.2%**
ICT field resource	£167.50	- %
Learning dissemination, website and low carbon community centre	£8,431.79	10.8%
Real-time systems and information technology equipment	£77,169.71	36.4%

Performance against budget

Project expenditure is within the budget defined in the Project Direction. It should be noted that a number of invoices relating to this reporting period remain to be received and receipted; however the inclusion of these costs in the next reporting period is not expected to adversely affect the project's performance against budget. The table of expenditure indicates how this expenditure compares with the phased budget as originally indicated in the 2011 Bid Submission.

Budget variance

There are no projected changes to the overall project budget above those noted in the previous project progress report. The following table lists the projected changes in reporting lines >5% against the resultant change to the overall reporting category:

Category	Reporting Line	Change	Note
Contractors		+1.8%	
Resulting from:			
	Automatic Demand Response	-5.5%	1
	Integration of monitoring, modelling and management	+4.5%	2
Equipment		-5.6%	
Resulting from:			
	Automatic Demand Response	+4.5%	1
	Integration of monitoring, modelling and management	-46.1%	2
IT		+7.2%	
Resulting from:			
	Automatic Demand Response	+7.9%	1
	Integration of monitoring, modelling and management	+8.2%	2
Labour		+2.7%	
Resulting from:			
	Customer, commercial and knowledge management	+19.4%	3
Other		-16.2%	
Resulting from:			
	Real-time systems & information technology equipment	-37.8%	3
Travel & Expenses		-66.3%	
Resulting from:			
	Integration of monitoring, modelling and management	-100.0%	2

Notes:

1 Movement of cost allocations within the activity "Automatic Demand Response" to better reflect the nature of project costs/milestone payments. No substantive change in overall in cost of activity.

2 Movement of cost allocations within the activity "Integration of monitoring, modelling and management" to better reflect the nature of project costs/milestone payments. Travel & Expenses not treated as exceptional items within the performance of this activity. No substantive change in overall in cost of activity.

3 Detailed design has identified savings in some licensing costs. Budget reallocated to enhance customer experience through full-time staffing at high street outlet. No substantive change in combined cost of activities.

7 Bank account

Ofgem guidance: The DNO should provide a bank statement or statements detailing the transactions of the Project Bank Account for the reporting period. Where the DNO has received an exemption from Ofgem regarding the requirement to establish a Project Bank Account it will provide an audited schedule of all the memorandum account transactions including interest as stipulated in the Project Direction.

Transaction details for the NTVV Project Bank account during this reporting period are listed in the Appendix. This extract has been redacted to protect the financial details of transacting parties; the full, un-altered copy has been submitted in a confidential appendix to Ofgem.

A summary of the transactions to date are shown in the table below:

Description	**Totals** (project inception to end of Nov 2012)
Electricity North West Limited	£580,000.00
Northern Electric Distribution Limited	£793,333.32
Yorkshire Electricity Distribution Plc	£1,140,000.00
Scottish Hydro Electric Power Distribution Plc	£373,333.35
Southern Electric Power Distribution Plc	£3,800,000.00
Southern Electric Power Distribution Plc (10% contribution)	£1,800,668.00
SP Distribution Limited	£766,666.68
SP Manweb Plc	£753,333.32
Eastern Power Networks Plc	£1,320,000.00
London Power Networks Plc	£1,140,000.00
South Eastern Power Networks Plc	£1,126,666.68
Western Power Distribution (South West) Plc	£2,913,333.32
Interest Received	£6,619.72
Payments from account	-£2,986,515.06
Balance	**£13,527,439.33**

8 Successful delivery reward criteria (SDRC)

Ofgem guidance: The DNO should provide a brief narrative against each of the SDRCs set out in their Project Direction. The narrative should describe progress towards the SDRCs and any challenges the DNO may face in the next reporting period.

The New Thames Valley Vision has identified eight Successful Delivery Reward Criteria (SDRC) which span both the objectives and the lifecycle of the project. Each SDRC is split into a number of sub components and each component has defined criteria, evidence and a targeted date for completion. SDRCs are related to the Learning Outcomes and Methods as per Section 9 if the full submission pro forma and as outlined below:

Criterion (9.1)

Focus: Method 2 (demand response)
Related learning: LO1, LO2, LO4 & LO5 - Understand, Anticipating and Supporting Change. L04 - Supporting Change: Implement Technologies to support the transition to LC Economy. L05 – New Commercial Models with customers and how will they be delivered.

Criterion (9.2)

Focus: Method 3 (optimised deployment of network monitoring)
Related learning: LO1 & LO4 - Understanding and Supporting Change with improved monitoring & information for network operators

Criterion (9.3)

Focus: Method 2 (demand response) and 3 (optimised deployment of network monitoring)
Related learning: LO1 & LO2 Understanding and Supporting Change - to explore practical and commercial measures required to enrol network monitoring and demand response participation.

Criterion (9.4)

Focus: Method 4 (network based energy storage and power electronics)
Related learning: LO1, LO3, LO4 - Understanding, Optimising and Supporting Change through new technologies including energy storage and advanced ICT systems

Criterion (9.5)

Focus: Method 1 (Understanding and forecasting customer requirements)
Related learning: LO1 & LO2 - Understanding and Anticipating through Demand Forecasting & Modelling for Smarter Networks

Criterion (9.6)

Focus: Method 1 (Understanding and forecasting customer requirements)
Related learning: LO1 & LO2 - Understanding and Anticipating through Demand Forecasting & Modelling for Smarter Networks

Criterion (9.7)

Focus: Public Engagement

Criterion (9.8)

Focus: Knowledge Sharing of methods 1, 2, 3 and 4

The following tables lists the individual SDRC components in chronological order and details the project's progress towards their achievement for those due to be completed in this reporting period (up to December 2012) and into the next reporting period (up to June 2013).

	Completed (SDRC met)		Emerging issue, remains on target		SDRC completed late
	On target		Unresolved issue, off target		Not completed and late

SDRC	Due	Description	Status
SDRC 9.3a	29/2/2012	Start Consumer Consortia element of customer engagement programme	Complete – as noted in previous Project Progress Report
SDRC 9.3b	29/2/2012	Arrange and hold the first "Energy Efficiency" focus group	Complete – as noted in previous Project Progress Report
SDRC 9.1a	31/5/2012[1]	First ADR Agreement negotiated and signed with Commercial Customer	Complete – as noted in previous Project Progress Report
SDRC 9.1b	31/7/2012[2]	Install the Honeywell/ SSEPD interface equipment, programme the Building Management System (BMS) and implement a manual Peak Load Shedding event, via the Demand Response Aggregation Server (DRAS), and track the actual kW shift in Peak Load	Complete – as noted in previous Project Progress Report
SDRC 9.4a	31/7/2012	Develop problem statement, hypothesis and test deployment programme for coordinated energy storage and power electronics on the Low Voltage distribution network - building on previous and current battery installation tests	The discussion document "Energy Storage and Power Electronics on the Low Voltage Distribution Network" identified eight applications to improve voltage performance, thermal limitations, efficiency and emergency response on the low voltage network. These include: balancing load between phases (with and without storage), storage to balance peaks and troughs, reactive voltage support (with and without storage), improving power quality & harmonics, demand reduction and frequency response. The paper postulates the following hypothesis for subsequent testing: "Economic and flexible support for LV networks will be provided by power electronics with energy storage running smart control algorithms which make use of forecasted demand to provide a coordinated response to addresses the technical standards of voltage and thermal performance in the most efficient manner possible." A test deployment programme has been prepared and has led to subsequent procurement processes for Energy Storage and Management Units (ESMUs)
SDRC 9.2a	31/1/2013	250 In house end point monitors installed & learnings presented	End-point monitors have been received and back-office systems installed to enable their installation. >350 project domestic participants have registered their interest in the NTVV and installation works are underway.
SDRC 9.3c	28/2/2013	Produce customer engagement lessons learnt Report	Report into customer engagement under development and drawing on project participant activities.
SDRC 9.7	28/2/2013	Successful establishment of all aspects of the Low Carbon Community Advisory Centre –including display material at various locations, the associated	The "Your Energy Matters" facility in Bracknell's town centre was opened on 18th December in a public ceremony with the Mayor of Bracknell, Project Partners and Participants, the Managing Director of Networks,

[1] The Project Direction placed additional requirements on SSEPD - these requirements have now been met. In placing these requirements, Ofgem agreed that SDRCs that the target date for this SDRC should be set at two months later than the date originally published in Section 9 of the full submission pro-forma.

[2] The Project Direction placed additional requirements on SSEPD - these requirements have now been met. In placing these requirements, Ofgem agreed that SDRCs that the target date for this SDRC should be set at two months later than the date originally published in Section 9 of the full submission pro-forma.

		interactive website, and the method and means of capture of stakeholders views on the learning outputs…	SSE, and the Director of Distribution, SSEPD.
SDRC 9.2b	30/4/2013	100 Substation monitoring installations installed	The first twenty substation monitors have been received, site surveys and selection process have identified the initial 110 locations, the installation contractor has been appointed and training is underway.

Beyond the next reporting period, the following table lists the remaining SDRCs in chronological order:

SDRC	Due	Description
SDRC 9.5a	30/11/2013	Establish a unique, reliable method for customer segmentation based on individual behavioural energy consumption. Produce first version of the universal customer categorisation vocabulary for DNOs
SDRC 9.6	31/12/2013	Build, Install and Commission the Low Voltage Modelling Environment component of the Distributed Solutions Integrator System (DSI)
SDRC 9.2c	31/1/2014	Install and commission the Network Management component of the Distributed Solutions Integrator System (DSI)
SDRC 9.4b	31/3/2014	Install 30 thermal energy storage devices as defined in (9.4a)
SDRC 9.4c	31/3/2014	Install 25 LV connected batteries as defined in (9.4a)
SDRC 9.2d	30/4/2014	Develop and trial method of optimising network monitoring based on installation of first 100 substation monitors
SDRC 9.5b	30/4/2014	Produce first report on the testing of the various mathematically rigorous methods used, develop and produce accurate half hour resolution short, medium and long term rolling forecasts of domestic energy loads
SDRC 9.5c	30/4/2014	Aggregate and integrate the short, medium and long term forecasts and produce first report on the modelling LV load profiles
SDRC 9.8a	30/11/2014	Prepare final reports on the trials carried out on the subjects listed in "Evidence 9.8" as well as an end of project report
SDRC 9.4d	31/3/2015	Produce learnings from energy storage and power electronic deployment to assess the hypothesis as defined in (9.4a)
SDRC 9.1c	30/4/2015	30 Customers signed up to Automatic Demand Response (ADR) programme and host customer event-renew new arrangements
SDRC 9.8b	30/11/2015	Prepare final reports on the trials carried out on the subjects listed in "Evidence 9.8" as well as an end of project report
SDRC 9.8c	30/11/2016	Prepare final reports on the trials carried out on the subjects listed in "Evidence 9.8" as well as an end of project report
SDRC 9.8d	30/4/2017	Hold a project review seminar to discuss the learning from the project. Attendees will be invited including Customers, Ofgem, DNO's, product suppliers and other stakeholders to discuss the way forward

9 Learning outcomes

Ofgem guidance: The DNO should briefly describe the main learning outcomes from the reporting period. It should update Ofgem on how it has disseminated the learning they generated as part of the project over the last six months.

The principle aim of New Thames Valley Vision is to demonstrate that understanding, anticipating and supporting changes in consumer behaviour can help DNOs to develop an efficient network for the low carbon economy. The NTVV is structured around five Learning Outcomes (LOs) which act as the defining researching questions to be answered by this project.

LO-1: Understanding - What do we need to know about customer behaviour in order to optimise network investment?

- LO-1.1 What is the optimum level and location of network monitoring?
- LO-1.2 To what extent can customers be categorised in order to better understand their behaviour?

LO-2: Anticipating - How can improved modelling enhance network operational, planning and investment management systems?

- LO-2.1 How could network headroom change as customers react to low carbon stimuli?
- LO-2.2 How can modelling outputs be fed into operational systems and processes in a meaningful manner?
- LO-2.3 How can modelling outputs be fed into planning systems and processes in a meaningful manner?
- LO-2.4 How can modelling outputs be fed into investment systems and processes in a meaningful manner?
- LO-2.5 How can network modelling outputs be fed into town planning systems and processes and vice-versa?
- LO-2.6 What changes are required to industry governance and documentation to facilitate a modelling based approach to network monitoring?

LO-3: Optimising - To what extent can modelling reduce the need for monitoring and enhance the information provided by monitoring?

- LO-3.1 To what extent can modelling be used in place of full network monitoring?
- LO-3.2 How might modelling assumptions change over time?

LO-4: Supporting Change (technologically) - How might a DNO implement technologies to support the transition to a Low Carbon Economy?

- LO-4.1 How could distributed solutions be configured into the DNO environment
- LO-4.2 How could a network management solution integrate with building management systems
- LO-4.3 How can the DNO best engage with customers to encourage demand reduction, and where on the network is each most effective
- LO-4.4 How would network storage be used in conjunction with demand Response

LO-5: Supporting Change (commercially) - Which commercial models attract which customers and how will they be delivered?

- LO-5.1 Large commercial
- LO-5.2 Light commercial (SMEs)
- LO-5.3 Domestic

9.1 Development of project trials

The project trials approach described in the last Project Progress Report has been to emphasise the focus on delivery of the physical project elements as a means to learning and make an initial definition of trials against the project timeline. This emphasis has been useful for partner organisations less used to working to learning-oriented goals. To aid the delivery of these learning-oriented goals a series of 'Packages of Work' summary documents have been prepared and will remain under continued review to clearly drive the deliverables, trials and reports in support of the core learning outcomes.

9.2 Learning Moments

In addition to the formalised learning capture and trialling methodology, the project aims to capture ad hoc leaning generated during the course of project implantation. The following 'Learning Moments' have been recorded during this reporting period.

Substation monitor enclosure design – benefits of site visits SSEPD arranged site visits to a representative selection of substations for GE's product team. GE found this activity invaluable – seeing real world examples of conditions and the variation in substation environments at the pre-design stage enabled the team to appreciate the potential issues and problems and understand the physical requirements in terms of width, depth, height, weight, mounting possibilities, and safety, resulting in a user-focused design.
Policy and procedures review – document maintenance Review of SSEPD policies and procedures to identify those on which NTVV outcomes are likely to have impacts has resulted in selection of 89 priority documents for review. The exercise has also revealed that a number of documents currently have references to versions of external documents (e.g. standards) which have been superseded. While it would not be difficult in most cases for users to access correct versions, there is a need for more flexible policies and tools which will enable changes in the standards landscape to flow through to the people who need them.
LV network data analysis A workshop led by University of Reading (details in Dissemination section ... below) generated several learning points, notably that further collaboration/exchange would be beneficial to address the following issues in a coordinated way: a) ways to improve efficiency of collection, storage and processing of large volumes of LV data; b) means of sharing anonymised datasets from different projects to help evaluate statistical validity of different methods and add value to data acquisition projects; c) appropriate level of data resolution – currently differs from project to project, the benefits of very fine resolution need to be evaluated against the costs of storage and computation; d) whether there is a need for a unified approach to classifying consumers by energy use behaviour
Network Modelling Environment (NME) functionality – forecast uncertainty It has become apparent that for energy demand forecasts to be useful to planners on the LV network a measure of uncertainty must be coupled with the forecasts. The question has arisen: How is this uncertainty to be illustrated in the NME? As of present there is no function in the NME for dealing with this and a way of visualising uncertainty/confidence needs to be built in to enable planners to make more informed decisions.
ADR trial participant recruitment – appealing to commercial customers Several lessons have been learned in relation to commercial customer recruitment for ADR trials. Trial 'selling points' most likely to generate interest include: service/benefits company could gain –

audit to identify potential for energy savings, reduction in energy bills; local aspect of the project – an opportunity for Bracknell businesses only; link with Bracknell Forest Council; positioning project as a 'business in the community' initiative; and asking for the opportunity to visit to check eligibility – project perceived as selective and exclusive rather than in need of trial sites. Customers were generally less likely to respond to: selling points relating to: LCNF funding (businesses averse to taking public money); focus on searching for sites to install kit for a trial project; and environmental benefits.

ADR trial participant recruitment – increasing efficiency of recruitment

The customer engagement framework from the LCNF T1 project SSET1004 has been refined and expanded to 25 separate steps with a clear set of selection criteria to judge eligibility at each stage. This has speeded the recruitment process (from months to weeks, and approximately halved the resource requirement for man days on site), provides a means of tracking potential participants' progress through selection and a record of rationale for selection/rejection which can be used to explain the decisions to companies.

ADR trial participant recruitment – communicating with participants

Introducing a brief 'pre-audit' survey to check basic qualification criteria provides an opportunity to produce a short report on potential load shed from real strategies specific to the building, building impacts and potential energy savings. This has been found to promote company sign up as companies get a better understanding of what they are signing up to and can base decisions on figures relating to their own premises rather than generic information on potential energy savings.

9.3 Dissemination Activities

Three main dissemination events have been completed in this period:

GE Small World Open Day (September 2012)

A presentation was given at this GE-led workshop covering the project objectives, stakeholder engagement, context of the NTVV and how it has engaged a wide community of interest and participation. Customer engagement was emphasised as was the need to engage with vendors with a different business model. Representatives of telecommunications, software development, consultants, IDNO and utilities attended.

Low Carbon Networks Fund Conference (October 2012)

NTVV dissemination at this event included a presentation and exhibition stand display. Representatives of six of the seven project partners attended including four members of SSEPD's project team. This enabled knowledge exchange with other projects – NTVV representatives reported making useful links with the Low Carbon London (UKPN) and LV Network Templates (WPD) teams, as well as suppliers and Ofgem. SSEPD has joined a consortium for a new FP7 project bid as a result of one of these contacts.

LV Behaviour workshop (November 2012)

The University of Reading led this event at which they disseminated early findings relating to the preparation of new mathematical methods for customer categorisation, aggregation and forecasting using LV network data. The aim of the event was to facilitate knowledge exchange, collaboration and debate between researchers using various methods to analyse similar data and industry representatives. The event provided attendees with new contacts in this field and the strong technical focus and small group (35) was conducive to knowledge sharing and learning Further events are planned to build on this success.

Project Website (www.thamesvalleyvision.co.uk)

The NTVV website has received 938 hits since launch, attracting 16 – 51 unique visitors per week, with a spike noted immediately after a dissemination event led by WPD and attended by project representatives from SSEPD and University of Reading, suggesting participation in external events is an effective means of raising project awareness. Around 55% of visits are from first time visitors, indicating a relatively high proportion of visitors return to the site. We aim to significantly increase traffic in the next six months with Phase 2 of the site to introduce more features and awareness raising through the launch of the Your Energy Matters low carbon community advisory centre.

10 Intellectual Property Rights (IPR)

Ofgem guidance: The DNO should report any IPR that has been generated or registered during the reporting period along with details of who owns the IPR and any royalties which have resulted. The DNO must also report any IPR that is forecast to be registered in the next reporting period.

In commissioning project partners to commence project activities, the NTVV has applied the default IPR treatment to all work orders (as defined in the Low Carbon Networks Fund Governance Document v.5, Section 2). This will ensure IPR which is material to the dissemination of learning in respect of this project is controlled appropriately.

No Relevant Foreground IPR has been generated or registered during the November 2011 – June 2012 reporting period. No Relevant Foreground IPR is forecast to be registered in the next reporting period.

11 Risk management

Ofgem guidance: The DNO should report on the risks highlighted in box 26 of the full submission pro forma, plus any other risks that have arisen in the reporting period. DNOs should describe how they are managing the risks they have highlighted and how they are learning from the management of these risks.

The project risk register is a live-document designed to identify actual and potential barriers to the satisfactory progress of the New Thames Valley Vision. The register is used to target resources and to develop control measures and mitigations. The NTVV risk register is a single log of risks as identified by SSEPD, GE, UoR, Honeywell, KEMA, EA Technology and Bracknell Forest Council. The register is reviewed at the monthly Project Partner Review Boards and is reported to the SSEPD Project Steering Group.

Risks are assessed against their likelihood and impact, where the impact considers the effect on cost, schedule, reputation, learning, the environment and people. Risks are scored before (inherent) and after (residual) the application of controls. Risks which are closed are removed from the live register, with any learning captured through the Learning Moments and Project Trials described in section 8.

Increased focus is placed on risks with amber or red residual scores and also on all risks with a red inherent score (to ensure there is no over-reliance on the controls and mitigation measures). At present, there are ten risks that fall into this category - these are listed below:

		Inherent									Residual							
		Impact									Impact							
#	Risk Description	Cost	Schedule	Reputation	Learning	Environment	People	Likelihood	Score	Risk Control/Mitigation Actions	Cost	Schedule	Reputation	Learning	Environment	People	Likelihood	Score
U2-b	S/Stn monitor measurements not correctly captured and passed to central systems from live sites.	4	4	2				4	16	Prototyping and bench-testing by SSEPD to provide feedback about the result analysis to the technology team before code freeze allowing correction of any wrong measurements.	4	4	2				3	12
U4-d	Failure of implementation for the DLMS HLS firmware upgrade (first time used) - required to ensure industry leading security	2	4					4	16	1. Regular communication between monitoring and integration suppliers 2. Early tests using Beta firmware from supplier to assure early visibility of expected functionality.	2	4					3	12
S7-b	Limited RTS resource to help design & deliver SCADA systems and overall requirements.	2	4		3			4	16	1. RTS resourcing to meet workload 2. Identify and schedule minimal resource 3. Escalate/re-set expectations if implementation not possible	2	4		3			3	12
T4-d	The envisioned deployment of PVs with a RSL does not materialise - due to a change of development plans and ideas (as well as a changes to the suppliers' commercial proposal). This was intended to create a high density PV network challenge and also be a basis for recruitment/ deployment of storage solutions.	3	3	4	4			4	16	1. Support and explore new PV ventures with local housing organisations 2. Partner to research DNO appropriate measures from promoting/supporting low carbon technologies	3	3	3	3			3	9

		Inherent									Residual							
		Impact									Impact							
#	Risk Description	Cost	Schedule	Reputation	Learning	Environment	People	Likelihood	Score	Risk Control/Mitigation Actions	Cost	Schedule	Reputation	Learning	Environment	People	Likelihood	Score
S3-a	No batteries which fit project needs are available	3	3		4			4	16	1. Discussion Paper defines core functionality require 2. RFI released to assess/match market capabilities 3. Informed by Slough Battery project	2	3		4			2	8
A1-d	The data transfer mechanism around the export of the LV network model from the NME to the DMS is dependent on a product enhancement. There is a risk that this enhancement will not be delivered in line with the project schedule.	2	3					4	12	Regular communication with the product team will identify any issues which may impact the delivery schedule as early as possible in order for the project team to work towards finding a suitable solution for all parties.	2	3					3	9
U2-d	Firmware upgrade of S/Stn Monitors may be required after commission of the devices	3	3					4	12	1. Detailed tests before commissioning reduce the likelihood of this 2. Remote upgrade possibility to be analysed. There is a risk that all commissioned devices need to be personally visited.	3	3					3	9
A1-e	The feasibility of driving the LV power analysis in the PAT package from the GIS and of returning the results of the analysis for visualisation in EO has not been tested. The risk is that when we address this aspect through COM integration, it may become apparent that this is far more complex than anticipated and is outside the skill set of the delivery team.	2	4	1				3	12	1. Should it be identified that the execution team do not have the necessary skills to execute we will have the potential to use PAT suppliers consultants; it is confirmed that this team does possess the skills required. 2. Identification of the timeframes around these requirements being defined and an understanding of the delivery timeframes required to meet the requirement to be sought as early as possible.	2	3	1				3	9
U2-a	S/stn monitoring equipment not delivered to time-line	3	4	2	3			3	12	1. Weekly progress meeting with supplier 2. Visible programme schedule 3. Explore other vendors	2	4	2	3			2	8
U3-b	Academic model for 'understanding ' flawed		4		4			3	12	1. Review Performance 2. Prototype and test against previous analysis 3. Implement and engage in UK-wide workshops		4		4			2	8

12 Other

Ofgem guidance: Any other information the DNO wishes to include in the report which it considers will be of use to Ofgem in understanding the progress of the project and performance against the SDRC.

This section has been left intentionally blank.

13 Accuracy assurance statement

Ofgem guidance: DNOs should outline the steps they have taken to ensure that information contained in the report is accurate. In addition to these steps, we would like a Director who sits on the board of the DNO to sign off the PPR. This sign off must state that he/she confirms that processes in place and steps taken to prepare the PPR are sufficiently robust and that the information provided is accurate and complete.

This Project Progress Report has been prepared by the Project Delivery Manager and reviewed by the Project Director before sign-off by the Director of Distribution, who sits on the Board of SEPD.

This report has been corroborated with the monthly minutes of the Project Steering Group and the Project Partners Review Board to ensure the accuracy of details concerning project progress and learning achieved to date and into the future. Financial details are drawn from the SSE group-wide financial management systems and the project bank account.

Prepared by:	Nigel Bessant	Project Delivery Manager	11th December 2012
Recommended by:	Nigel Bessant	Project Delivery Manager	11th December 2012
Reviewed by:	Stewart Reid	Project Director	13th December 2012
Final sign-off:	Stuart Hogarth	Director of Distribution	17th December 2012

Appendix - Redacted copy of bank account transactions

Account Statement

Account Information

Sort code:	******	Currency:	GBP
Account number:	********	Account type:	SPECIAL INT BEARING
Currency account number:		BIC:	********
Alias:	SEPD PLC-TVV PROJECT	Bank name:	NATIONAL WESTMINSTER BANK
Short name:	SEPD PLC-TVV PROJECT	Bank branch:	**********
IBAN:	**********		

Date	Narrative	Type	Debit	Credit	Ledger Balance
28/11/2012	R B S-SP DISTRIBUT	BAC		95,833.33	13,527,439.33Cr
	LOW CARBON NETWORK				
28/11/2012	R B S-SP MANWEB	BAC		94,166.67	13,431,606.00Cr
	LOW CARBON NETWORK				
28/11/2012	SOUTH EASTERN POWE	BAC		140,833.33	13,337,439.33Cr
	LOW CARB NETWORKS				
28/11/2012	EASTERN POWER NETW	BAC		165,000.00	13,196,606.00Cr
	LOW CARB NETWORKS				
28/11/2012	LONDON POWER NETWO	BAC		142,500.00	13,031,606.00Cr
	LOW CARB NETWORKS				

Date	Narrative	Type	Debit	Credit	Ledger Balance
28/11/2012	NORTHERN ELECTRIC LCNF	BAC		142,500.00	12,889,106.00Cr
28/11/2012	NORTHERN ELECTRIC LCNF	BAC		99,166.67	12,746,606.00Cr
28/11/2012	ELECTRICITY NORTH ELECTRICITY NW FP 28/11/12 0740 **********	BAC		72,500.00	12,647,439.33Cr
27/11/2012	SOUTHERN ELECTRI NTVV COSTS	EBP	598,312.95		12,574,939.33Cr
26/11/2012	/RFB/WPD LCNF PA ********** WESTPOWSWEST	CHP		364,166.67	13,173,252.28Cr
23/11/2012	SCOTTISH HYDRO-E TVV COSTS	EBP		46,666.67	12,809,085.61Cr
12/11/2012	SEPD PLC-INCOME A/ NOV TVV	EBP		475,000.00	12,762,418.94Cr
09/11/2012	SEPD PLC-INCOME A/ TVV COSTS	EBP		225,083.50	12,287,418.94Cr
Totals			598,312.95	2,063,416.84	

Account Statement

Account Information

Sort code:	******	Currency:	GBP
Account number:	********	Account type:	SPECIAL INT BEARING
Currency account number:		BIC:	********
Alias:	SEPD PLC-TVV PROJECT	Bank name:	NATIONAL WESTMINSTER BANK
Short name:	SEPD PLC-TVV PROJECT	Bank branch:	**********
IBAN:	**********		

Date	Narrative	Type	Debit	Credit	Ledger Balance
28/09/2012	R B S-SP DISTRIBUT	BAC		95,833.33	9,998,918.60Cr
	LOW CARBON NETWORK				
28/09/2012	R B S-SP MANWEB	BAC		94,166.67	9,903,085.27Cr
	LOW CARBON NETWORK				
28/09/2012	SOUTH EASTERN POWE	BAC		140,833.33	9,808,918.60Cr
	LOW CARB NETWORKS				
28/09/2012	EASTERN POWER NETW	BAC		165,000.00	9,668,085.27Cr
	LOW CARB NETWORKS				
28/09/2012	LONDON POWER NETWO	BAC		142,500.00	9,503,085.27Cr
	LOW CARB NETWORKS				

Date	Narrative	Type	Debit	Credit	Ledger Balance
28/09/2012	NORTHERN ELECTRIC LCNF	BAC		142,500.00	9,360,585.27Cr
28/09/2012	NORTHERN ELECTRIC LCNF	BAC		99,166.67	9,218,085.27Cr
28/09/2012	ELECTRICITY NORTH ELECTRICITY NW FP 28/09/12 0740 **********	BAC		72,500.00	9,118,918.60Cr
28/09/2012	28SEP-GRS ********	INT		5,018.16	9,046,418.60Cr
27/09/2012	SOUTHERN ELECTRI NTVV COSTS	EBP	990,572.36		9,041,400.44Cr
25/09/2012	/RFB/WPD LCNF PA ********** WESTPOWSWEST	CHP		364,166.67	10,031,972.80Cr
24/09/2012	SCOTTISH HYDRO-E TVV COSTS	EBP		46,666.67	9,667,806.13Cr
14/09/2012	SEPD PLC-INCOME A/ TVV COSTS	EBP		225,083.50	9,621,139.46Cr
10/09/2012	SEPD PLC-INCOME A/ TVV COSTS	EBP		475,000.00	9,396,055.96Cr
Totals			990,572.36	2,068,435.00	

Account Statement

Account Information

Sort code:	******	Currency:	GBP
Account number:	********	Account type:	SPECIAL INT BEARING
Currency account number:		BIC:	********
Alias:	SEPD PLC-TVV PROJECT	Bank name:	NATIONAL WESTMINSTER BANK
Short name:	SEPD PLC-TVV PROJECT	Bank branch:	**********
IBAN:	**********		

Date	Narrative	Type	Debit	Credit	Ledger Balance
26/10/2012	SOUTH EASTERN POWE	BAC		140,833.33	12,062,335.44Cr
	LOW CARB NETWORKS				
26/10/2012	EASTERN POWER NETW	BAC		165,000.00	11,921,502.11Cr
	LOW CARB NETWORKS				
26/10/2012	LONDON POWER NETWO	BAC		142,500.00	11,756,502.11Cr
	LOW CARB NETWORKS				
26/10/2012	NORTHERN ELECTRIC	BAC		142,500.00	11,614,002.11Cr
	LCNF				
26/10/2012	NORTHERN ELECTRIC	BAC		99,166.67	11,471,502.11Cr
	LCNF				

Date	Narrative	Type	Debit	Credit	Ledger Balance
26/10/2012	ELECTRICITY NORTH	BAC		72,500.00	11,372,335.44Cr
	ELECTRICITY NW				
	FP 26/10/12 0740				
	**********				
25/10/2012	R B S-SP DISTRIBUT	BAC		95,833.33	11,299,835.44Cr
	LOW CARBON NETWORK				
25/10/2012	R B S-SP MANWEB	BAC		94,166.67	11,204,002.11Cr
	LOW CARBON NETWORK				
25/10/2012	/RFB/WPD LCNF PA	CHP		364,166.67	11,109,835.44Cr
	**********				
	WESTPOWSWEST				
24/10/2012	SCOTTISH HYDRO-E	EBP		46,666.67	10,745,668.77Cr
	TVV COSTS				
15/10/2012	SEPD PLC-INCOME A/	EBP		475,000.00	10,699,002.10Cr
	TVV COSTS				
12/10/2012	SEPD PLC-INCOME A/	EBP		225,083.50	10,224,002.10Cr
	TVV COSTS				
Totals			0.00	2,063,416.84	

Account Statement

Account Information

Sort code:	******	Currency:	GBP
Account number:	********	Account type:	SPECIAL INT BEARING
Currency account number:		BIC:	********
Alias:	SEPD PLC-TVV PROJECT	Bank name:	NATIONAL WESTMINSTER BANK
Short name:	SEPD PLC-TVV PROJECT	Bank branch:	**********
IBAN:	**********		

Date	Narrative	Type	Debit	Credit	Ledger Balance
28/08/2012	SOUTH EASTERN POWE	BAC		140,833.33	8,921,055.96Cr
	LOW CARB NETWORKS				
28/08/2012	EASTERN POWER NETW	BAC		165,000.00	8,780,222.63Cr
	LOW CARB NETWORKS				
28/08/2012	LONDON POWER NETWO	BAC		142,500.00	8,615,222.63Cr
	LOW CARB NETWORKS				
28/08/2012	NORTHERN ELECTRIC	BAC		142,500.00	8,472,722.63Cr
	LCNF				
28/08/2012	NORTHERN ELECTRIC	BAC		99,166.67	8,330,222.63Cr
	LCNF				

Date	Narrative	Type	Debit	Credit	Ledger Balance
28/08/2012	SCOTTISH POWER ********** SP MANWEB PLC	CHP		94,166.67	8,231,055.96Cr
28/08/2012	SCOTTISH POWER ********** SP DISTRIBUTION LTD CHAPS TFR	CHP		95,833.33	8,136,889.29Cr
28/08/2012	/RFB/WPD LCNF PA ********** WESTPOWSWEST	CHP		364,166.67	8,041,055.96Cr
28/08/2012	ELECTRICITY NORTH ELECTRICITY NW FP 28/08/12 0721 **********	BAC		72,500.00	7,676,889.29Cr
24/08/2012	SOUTHERN ELECTRI NTVV COSTS	EBP	1,187,552.73		7,604,389.29Cr
24/08/2012	SCOTTISH HYDRO-E TVV COSTS	EBP		46,666.67	8,791,942.02Cr
13/08/2012	SEPD PLC-INCOME A/ TVV COSTS	EBP		475,000.00	8,745,275.35Cr
10/08/2012	SEPD PLC-INCOME A/ TVV COSTS	EBP		225,083.50	8,270,275.35Cr
Totals			1,187,552.73	2,063,416.84	

Account Statement

Account Information

Sort code:	******	Currency:	GBP
Account number:	********	Account type:	SPECIAL INT BEARING
Currency account number:		BIC:	********
Alias:	SEPD PLC-TVV PROJECT	Bank name:	NATIONAL WESTMINSTER BANK
Short name:	SEPD PLC-TVV PROJECT	Bank branch:	**********
IBAN:	**********		

Date	Narrative	Type	Debit	Credit	Ledger Balance
27/07/2012	R B S-SP DISTRIBUT	BAC		95,833.33	8,045,191.85Cr
	LOW CARBON NETWORK				
27/07/2012	R B S-SP MANWEB	BAC		94,166.67	7,949,358.52Cr
	LOW CARBON NETWORK				
27/07/2012	SOUTH EASTERN POWE	BAC		140,833.33	7,855,191.85Cr
	LOW CARB NETWORKS				
27/07/2012	EASTERN POWER NETW	BAC		165,000.00	7,714,358.52Cr
	LOW CARB NETWORKS				
27/07/2012	LONDON POWER NETWO	BAC		142,500.00	7,549,358.52Cr
	LOW CARB NETWORKS				

Date	Narrative	Type	Debit	Credit	Ledger Balance
27/07/2012	NORTHERN ELECTRIC LCNF	BAC		142,500.00	7,406,858.52Cr
27/07/2012	NORTHERN ELECTRIC LCNF	BAC		99,166.67	7,264,358.52Cr
27/07/2012	ELECTRICITY NORTH ELECTRICITY NW FP 27/07/12 1429 **********	BAC		72,500.00	7,165,191.85Cr
25/07/2012	/RFB/WPD LCNF PA ********** WESTPOWSWEST	CHP		364,166.67	7,092,691.85Cr
24/07/2012	SCOTTISH HYDRO-E TVV COSTS	EBP		46,666.67	6,728,525.18Cr
24/07/2012	SOUTHERN ELECTRI TVV COSTS	EBP		403.99	6,681,858.51Cr
13/07/2012	SEPD PLC-INCOME A/ TVV COSTS	EBP		225,083.50	6,681,454.52Cr
09/07/2012	SEPD PLC-INCOME A/ TVV COSTS	EBP		475,000.00	6,456,371.02Cr
29/06/2012	29JUN-GRS ********	INT		1,197.57	5,981,371.02Cr
28/06/2012	SOUTH EASTERN POWE LOW CARB NETWORKS	BAC		140,833.33	5,980,173.45Cr
28/06/2012	EASTERN POWER NETW LOW CARB NETWORKS	BAC		165,000.00	5,839,340.12Cr

Date	Narrative	Type	Debit	Credit	Ledger Balance
28/06/2012	LONDON POWER NETWO	BAC		142,500.00	5,674,340.12Cr
	LOW CARB NETWORKS				
28/06/2012	NORTHERN ELECTRIC	BAC		142,500.00	5,531,840.12Cr
	LCNF				
28/06/2012	NORTHERN ELECTRIC	BAC		99,166.67	5,389,340.12Cr
	LCNF				
28/06/2012	SCOTTISH POWER	CHP		95,833.33	5,290,173.45Cr
	**********				
	SP DISTRIBUTION				
	LTD				
	CHAPS TFR				
28/06/2012	SCOTTISH POWER	CHP		94,166.67	5,194,340.12Cr
	**********				
	SP MANWEB PLC				
28/06/2012	ELECTRICITY NORTH	BAC		72,500.00	5,100,173.45Cr
	ELECTRICITY NW				
	FP 28/06/12 0720				
	**********				
25/06/2012	/RFB/WPD LCNF PA	CHP		364,166.67	5,027,673.45Cr
	**********				
	WESTPOWSWEST				
22/06/2012	SCOTTISH HYDRO-E	EBP		46,666.67	4,663,506.78Cr
	TVV COSTS				
15/06/2012	SEPD PLC-INCOME A/	EBP		675,250.50	4,616,840.11Cr
	TVV COSTS				

Date	Narrative	Type	Debit	Credit	Ledger Balance
13/06/2012	SEPD PLC-INCOME A/ TVV COSTS	EBP	210,077.02		3,941,589.61Cr
13/06/2012	SCOTTISH HYDRO-E TVV COSTS	EBP		93,333.33	4,151,666.63Cr
11/06/2012	SEPD PLC-INCOME A/ JUNE TVV TRANSFER	EBP		475,000.00	4,058,333.30Cr
Totals			210,077.02	4,671,935.57	