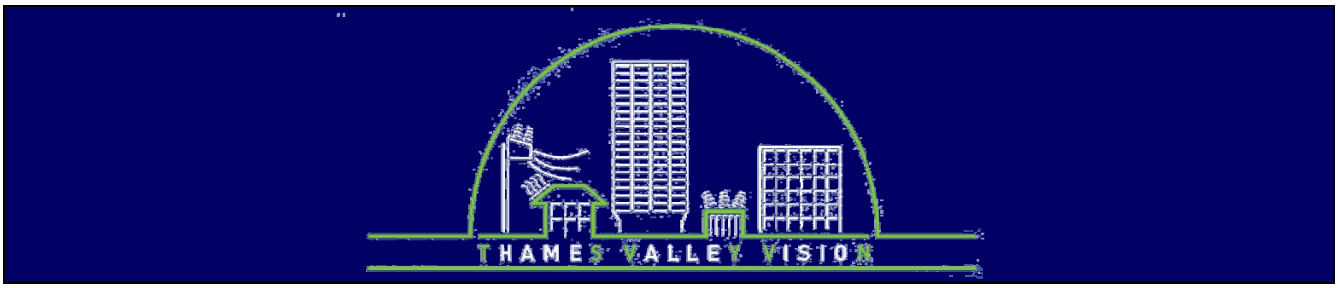


Project Progress Report
18th June 2012

Project Title:	New Thames Valley Vision
Reporting Period:	November 2011 - June 2012
Project Number:	SSET2003
DNO:	Southern Electric Power Distribution Ltd, Part of Scottish and Southern Energy Power Distribution

Scottish and Southern Energy
Power Distribution

Bracknell Forest Council
ea technology
imagination at work
Honeywell
KEMA DNV
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) aims to demonstrate that understanding, anticipating and supporting changes in consumer behaviour will help DNOs to develop an efficient network for the low carbon economy. This £30 million project is part of a £500 million programme funded by the Low Carbon Network Fund (LCNF) run by Ofgem, the UK energy regulator.

In this first reporting period since project award, the NTVV has made good progress to refine and implement its programme of works by building on the pre and post bid development activities. All Successful Delivery Reward Criteria (SDRCs) for this reporting period have been met and all project partners have received work orders and call off instructions to enable them to commence project activities.

As an integrated technology trial, the project has worked to develop and refine its ICT design. During the reporting period the Project Partners have commenced a more detailed process of business and process analysis to complement earlier assessments to allow construction of critical infrastructure and hardware in the next reporting period.

The project has started its Consumer Consortia and Energy Efficiency focus groups; developed and signed the first agreement to enable Automatic Demand Response (ADR) trials; and installed interface equipment at a commercial customer's premises to enable a peak-load shedding event. During the next reporting period, the project is aiming to significantly increase the number of trial participants and begin wider ADR equipment installation.

The project aims to demonstrate a minimum level of network monitoring and has selected the first 120 substation locations to support the smart analytics and integration work. Orders have been placed for the supply of monitoring equipment ready for installation in the next reporting period with site surveys underway now.

The project website – www.thamesvalleyvision.co.uk – has been released and is publically available. In addition, a number of general public awareness activities have been completed. Network operators provide the networks that customers need and it is important the NTVV and other 'smart grid' projects successfully communicate the customer driven reasons for new technologies and systems. Customers will be able to participate in NTVV in a number of ways, including our town centre high-street outlet planned to be delivered later this summer.

Perhaps the key challenge and one which is an active focus the NTVV project is how learning should be best captured during these initial project phases. The project has refined its approach in this area to ensure initial findings and other lessons are captured, interpreted and made ready for future application in the most effective manner.

2. Table of Contents

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 this first reporting period since project award, the NTVV has made good progress to refine and implement its programme of works by building on the pre and post bid development activities. All Successful Delivery Reward Criteria (SDRCs) for this reporting period have been met. The following key activities and deliverables have taken place during this reporting period and are planned to take place in the next period:

Commercial and governance frameworks
The Project Direction placed a number of requirements on the NTVV with a specific focus on project initiation. Namely, the project was required to 1) complete a report outlining the development work, key deliverables and specific learning outcomes associated with contract deliverables, 2) implement and share the minutes from a series of project governance mechanisms and reviews 3) put in place alternative arrangements for managing project costs other than the default bank account. All three of these requirements have been met with the appropriate arrangements made for the Work Order Development report and governance reviews as detailed in section 5 and financial arrangements as per sections 6 and 7. The project is due to hold it first technical assurance review in the next reporting period.

All project partners have received work orders and call off instructions to enable them to commence project activities, as per section 5. These orders are placed using frameworks developed for the NTVV and agreed before project award.

Integrated Modelling and Management Design
As an integrated technology trial, the project has worked to develop and refine its ICT design. During the reporting period the ICT design was progressed to a) ensure work order deliverables were appropriately scoped and subsequently b) to refine a coordinated design ready for construction. At present the project partners, specifically SEPD, GE, UoR and Honeywell are completing a process of detailed business and process analysis to complement the earlier assessments (as detailed in as per section 5). In the next reporting period, the ICT design will be advanced to allow construction of critical infrastructure and hardware.

Commercial Customer Engagement
During this reporting period, the project was set and achieved two Successful Delivery Reward Criteria (SDRC) concerning its commercial customer engagements and has also met a third SDRC due for the next reporting period. As detailed in sections 5 and 8, the project has started its Consumer Consortia and Energy Efficiency focus groups; developed and agreed the first agreement to enable Automatic Demand Response (ADR) trials; and installed interface equipment at the customer's premises to enable a peak-load shedding event. Initial findings have been captured as per section 9 – these will be extended and tested as the project progresses. During the next reporting period, the project is aiming to significantly increase the number of trial participants and begin wider ADR equipment installation.

Network Monitoring Equipment
The NTVV has placed orders to supply monitoring equipment as defined in the project submission, ready for installation during the next reporting period. The locations for the first 120 substation monitors have been established to allow detailed site surveys and eventual installation of at least 100 units before April 2013. Site selection has been informed by the requirements of the smart analytics trials and has also been used to define the primary target areas for domestic customer enrolment. The project aims to demonstrate the minimum level of network monitoring necessary. The monitoring configuration, manufacture and installation programme does not allow much room for delay, however careful review has not identified any unmanaged risks to date with the appropriate contingencies under continual development.

Domestic Customers and Public Awareness
As detailed in section 5, the project website – www.thamesvalleyvision.co.uk – has been released and is publically available. In addition, a number of general public awareness activities have been completed. Network operators provide the networks that customers need and it is important the NTVV and other 'smart grid' projects successfully communicate the customer driven reasons for new technologies and systems. The

project's direct customer involvement will be managed through our Customer Engagement plan, to be finalised in the next reporting period. Customers will be able to participate in NTVV in a number of ways, including our town centre high-street outlet which is planed to be delivered later this summer.

Learning
Perhaps the key challenge and one which is an active focus the NTVV project is how learning should be best captured during these initial project phases. Section 9 outlines the approach we are taking to ensure initial findings and other lessons are captured, interpreted and made ready for future application in the most effective manner.

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.

We are currently in the second stage of integrating the NTVV with a wider European consortium bid for FP7 funding. This is expected 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 will not fundamentally change the scope or reduce the outputs of the LCNF funded project, rather it will enhance and validate the learning in a broader context and help increase the influence on European legislation.

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 has implemented planned activities in accordance with the Project Direction. The following thematic summary outlines the progress to date and key activities in the next Reporting Period.

Public Awareness
Network operators build and maintain their assets on behalf of their customers. As a customer facing project, the NTVV is working to establish a good public understanding of the project and other smart grid indicatives including those enabled through the Low Carbon Network Fund. Whilst the project is focused on engaging local customers in Bracknell and the wider Thames Valley area it has also received good wide-scale press coverage. A brief search using Google News just after project announcement identified 18 articles (Bloomberg, BBC News, M2M World News, SmartMeters, Energy Efficiency News, Scotsman, The Engineer, reNews Europe, Business Green, ShareCast, and Stock Market Wire) as well as Ofgem's own article in The Sunday Times.

The formal project Launch Event was held on 21st February at Easthampstead Park Conference Centre, Bracknell. At the launch a welcome was given by Councillor Chris Turrell, Mayor of the Borough of Bracknell Forest and Councillor Dorothy Hayes, executive member for the environment and followed by a brief history of the area by Dr Peter Durrant, County Archivist. Mark Mathieson, MD of Networks, SSE and Stewart Reid, Project Director and Future Networks and Policy Manager, SSEPD described the project and its importance to the project partners and the wider UK industry. The event was chaired by Paul Britton of the Thames Valley Chamber of Commerce and concluded in an open floor session and networking.

The first release of the project website – www.thamesvalleyvision.co.uk – has been published with the initial release focused on a number of operational purposes such as domestic and commercial engagement. The website framework allows full social media engagement, will present project news and will give energy consumption data for Bracknell. The website will be publically announced in the local Bracknell press once the soft release period has completed.

The 'Your Energy Matters' high street outlet is planned to open during the next reporting period, ahead of schedule. This facility will be located in the high street and will provide a local focal point for customers to interact and understand with the project, improve their understanding of energy management and also sign-up to participate in the project directly.

The NTVV is pleased to report that it won an award in the 3rd iESE Annual Award for Celebrating public service innovation and transformation in the fourth category, Working Together. This award is issued to the project that has instigated the most impressive programme of shared working with other public sector organisations, local authorities, local businesses or national organisations. iESE is a body set up to "Accelerate Public Sector Transformation".

During the next reporting period, NTVV will publish its Customer Engagement Plan in support of the specific domestic customer related activities.

Commercial Customer Engagement
Commercial customers are encouraged to participate in the NTVV through Consumer Consortia, Energy Efficiency focus groups and as participants in Automatic Demand Response trials. As defined in our Successful Delivery Reward Criteria, the first Consumer Consortium and the Energy Efficiency Focus Groups were held during February in conjunction with the Thames Valley Chamber of Commerce

The first participant in Automatic Demand Response trials has signed up to both the participation and installation agreements and has had equipment installed to enable a manually prompted load shedding event to be tested meeting two more of the project's early Successful Delivery Reward Criteria.

The NTVV has set itself an internal target to sign-up all 30 Automatic Demand Response trial participants within 18 months, ahead of plan. The customer agreement process is taking longer than originally expected and is proving a good real life situation to explore the core business drivers for participation and partnership. It should be noted that, whilst the project will test different commercial frameworks, the financial returns are not guaranteed or defined for project participants at this stage.

Smart Analytics
Drawing on their IFI funded work, the University of Reading have complete the first of four literature reviews in support of the Smart Analytics and have specified the first tranche of monitoring study zones. The University has been able to draw on this understanding to begin the more detailed work required to develop the methods and measures for forecasting in the NTVV.

The University of Reading have worked with GE and SSE to ensure the techniques they are developing can be implemented and integrated in the LV modelling environment with particular attention to how actual load readings and their 'budied' counterparts can be forecast as a number of scenarios. As part of the wider technical integration, the smart analytic data requirements have been fed into the systems design process. To inform this process a development prototype which uses mapping reference data, generic load profiles and GE's modelling environment is being constructed to identify any early interface problems.

Monitoring
The First 120 sites for monitoring equipment installation have been established and site surveys are underway. Site selection has been informed by the requirements of smart analytics to establish a mixture of homogeneous and heterogeneous sites. This has also enabled more specific customer end-point monitoring target zones to be identified which will feed into the customer engagement plan.

Configuration and manufacture plans for the substation monitoring devices are progressing to plan, although the plan remains tight. NTVV is considering an alternative design for end-point monitoring equipment which may deliver earlier than defined in the work order. Installation work for both substation and end-point monitoring work will begin in the next Reporting Period.

Network monitoring, modelling and management technical integration
The NTVV has completed a 'level 0' ICT architectural design from which the project partners and specifically GE, Honeywell and the University of Reading will develop into a complete design. To enable hardware installation, the project is prioritising infrastructure elements first. The initial pre-bid process analysis is being expanded and refined through a series of joint requirements workshops. These workshops have be designed to finalise the configurations needed for PowerOn Fusion but also aim to ensure there is an integrated approach with Electric Office and the power analysis tool, CymDist.

To identify the related changes to business processes, initial business stakeholders' reviews have been held with SSEPD Power Systems operations and control staff. The requirements and process workshops have been supported with specific power analysis tool training and included representatives from SSEPD Network Planning to ensure the integrated product meets their expectations.

Technical validation of project partner work orders has resulted in a slight delay to the communications design however this is expected to be recovered by the next reporting period and is not expected to result in an overall project delay.

Data validation and security
An earlier trial of LV data quality had identified that there is a need to re-establish the link between LV feeder number and LV circuit name/GIS reference. This referencing will be gathered during specific site inspections and will be combined with an installation and communications survey during the next Reporting Period. A manual test of data transfer processes between SEPD and the University of Reading has been competed in line with SSE's corporate and project specific procedures.

Governance
The Project Partner Review Board met on:

- 2nd November 2011
- 22nd December 2011
- 1st January 2012
- 23rd February 2012

- 29th March 2012
- 10th May 2012
- 31st May 2012

The Project Steering Group met on:

- 11th November 2011
- 9th December 2012
- 6th January 2012 (paper submitted only)
- 10th February 2012
- 20th April 2012
- 8th June 2012 (papers submitted only)

In their Project Direction, Ofgem requested a 'Work Order Development' report to be submitted one month prior to work orders being placed; detailing (i) the development work that had been carried out on the specific work-stream or deliverable of the project that would be covered by the contract; (ii) the key deliverables required of the Project Partner under the contract; and (iii) the specific learning outcomes that will result from the contract deliverables with that Project Partner; for University of Reading, General Electric Company and Honeywell. SEPD worked with Ofgem to develop the right level of detail and to additionally highlight the decision points required before proceeding with individual elements. This report was submitted and subsequently agreed with Ofgem to allow orders to be placed.

The Project Direction also detailed arrangements to allow SEPD to manage funds using alternative arrangements. SEPD have subsequently developed processes to allow it to comply with the default arrangements and subsequently made a request to Ofgem to change the Project Direction; this request was accepted. Details of the changes are included in section 7.

EA Technology and SEPD held a workshop to jointly share lessons and best practice between R&D projects. The workshop focused on arrangements for LCN funded projects, their management and drew on SSE's Large Capital Projects process and EA Technologies experience with LCNF and other similar multi-party projects.

Project Partner Agreements

Since being awarded the Project Direction, the NTVV has defined and agreed the work orders and call off instruction for each partner to enable formal commencement of project deliverables. Orders are placed against the framework agreements as signed before project award and contain the following elements:

- Products – details the individual products which the particular partner/supplier will provide as part of the overall solution
- Services – shows the services that are specific to the particular product or solution
- Timetable and Delivery Plan – when and how the partner/supplier intends to deliver its products/services/solutions
- Testing – a detailed testing plan with associated dependencies
- Specifications –detailed specifications of the products and/or services
- Quality Plans – a quality plan showing key dates and milestones
- Price and Payment Terms – the overall pricing and the particular payment terms that have been agreed for the overall solution and individual elements/stages where agreed
- Appendix - Deliverables - the deliverables associated with the particular solution, products or services, including Learning and information dissemination.

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 during the December 2011 – June 2012 reporting period as follows:

Labour (as at 12th June 2012)	
Project & ICT Management	£94,594.00
Project Engineering (monitoring, energy management & network design)	£45,445.00
Customer, Commercial & Knowledge Management	£30,290.00
ICT Architecture	£29,599.00
ICT Field Resource	£8,512.25
(This including £24,620 of embedded contractors, integrated and managed as direct-labour and £4,365 of recruitment costs)	
Other (as at 12th June 2012)	
Learning dissemination, website and low carbon community centre	£1,636.77
Total expenditure during Reporting Period (December 2012 – June 2012)	£210,077.02

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.

Budget variance
There is no projected change in overall project budget. 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 are listed in the Appendix (Section 14). 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.

It should be noted that project costs incurred by SEPD had not been transferred to the bank account until recently. This was to ensure the project had met all Project Direction requirements allowing it to do so.

Section 13 of the Project Direction granted SEPD an exemption to the standard arrangements for a separate bank account under paragraph 3.77 of Section Two of the LCN Fund Governance Document. It also required SEPD to provide a financial tracking and reporting system which is functionally equivalent to a separate bank account for this Project. This was because SEPD identified procedural and technical challenges to the SSE group which prevented the use of a separate bank account.

In order to better meet the default position, SEPD has worked to identify an approach by which the existing SSE group systems can facilitate the requirements for a separate bank account as set out in the LCN Fund Governance Document. Consequently on 17th February 2012 SEPD requested and Ofgem agreed that section 13 of the Project Direction be amended so that SEPD can comply with the default arrangements set out in the LCN Fund Governance Document.

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 June 2012) and into the next reporting period (up to December 2012).

	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	First Consumer Consortia in support of the NTVV held on 27th February in conjunction with the Thames Valley Chamber of Commerce and

			Honeywell. Consortia featured speakers from SSEPD and Honeywell using a business breakfast format. The consortium is part of a coordinated engagement plan to explain and enrol commercial customers onto Automatic Demand Response trials and to also explore the wider partnerships that can exist between the DNO and its customers
SDRC 9.3b	29/2/2012	Arrange and hold the first "Energy Efficiency" focus group	Focus Group held on 29th February supported by a number of customer leads from the Consumer Consortium. Whilst the overall format worked well, in this more focused group, it was clear that different customers have differing levels awareness when it comes to energy management. It was felt that these topics might be best explored and developed using similarly small groups in the future.
SDRC 9.1a	31/5/2012[1]	First ADR Agreement negotiated and signed with Commercial Customer	First customer signed NTVV agreement to allow ADR trials on Monday 28th of May. This agreement was in two parts with a) an Installation Agreement and b) a Collaboration Agreement. The agreements will allow the systems to be installed, trialled and functionally assessed and will allow a variety of commercial and other incentives to be practically assessed.
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	During the agreement drafting phase of SDRC 9.1a, the customer was keen to pursue installation of the equipment necessary to locally trigger a Load Shedding Event. The first event was triggered and trailed on 28th May with 81 kW of demand reduced without any notable effect to the customer's facility.
SDRC 9.4a	31/72012	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	Project Partner and DNO subject matter experts engaged in developing problem statement, hypothesis and test programme. However the dedicated engineering resource is not currently in place to fully realise this work.

[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.

Beyond the next reporting period, the following table lists the remaining SDRC to be achieved in chronological order:

SDRC	Due	Description
SDRC 9.2a	31/1/2013	250 In house end point monitors installed & learnings presented
SDRC 9.3c	28/2/2013	Produce customer engagement lessons learnt Report
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 interactive website, and the method and means of capture of stakeholders views on the learning outputs…
SDRC 9.2b	30/4/2013	100 Substation monitoring installations installed
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

The NTVV has adopted and three tiered approach to operationally capturing this learning:

1) **Learning Outcomes** – reporting against and reviewing these research questions using the structured deliverables as identified in section 9 of the full submission pro forma with dissemination activities as per section 5.
2) **Learning Moments** – capture of insights and other ad hoc instances as revealed through the course of the project. NTVV implemented two mechanisms for gathering learning moments by a) completing a pre-forme during each project Communication Cycle and b) using a private members Linked-In group
3) **Project Trials** – by methodically defining and reviewing each project activity or group of activities using a Plan-Do-Study-Act template the project is able to: clearly define the purpose of trials and how they relate to the NTVV Learning Outcomes, allow relevant participants to shape and

influence trials to gain maximum benefit, capture knowledge from these trials in a consistent way and ensure findings from trials influence subsequent project development. The approach is equally applicable to both direct learning (provides significant evidence to answer the learning outcome) and indirect learning (provived evidence to support operational/procedural aspects of meeting the learning outcome)

The Learning Moments approach matches SSEPD's Safety Moments agenda items at each project meeting and has been embedded from project outset. The Project Trials approach is a recent innovation and is expected to be a timely intervention as the project develops. Pertinent insights and other ad hoc instances as captured through our Learning Moments are listed below:

Data-point Nomenclature A workshop to consider a trialling LV network modelling process came to the conclusion that energy data concerning a physical location should be referenced to the location and not the device which gathers it, as the device which gather the data may be re-deployed during the project. This would be in contrast to normal SSEPD practice which references the item of plant on the understanding that plant does not normally move.
Data Quality at Integration SSEPD has a number of systems which work well to meet current business purposes. However the NTVV requires some of these to be linked together and it is perceived that this, will reveal a number of interface problems. A small-scale manual test to map geographic records to on-site labelling has identified that the data is broadly consistent but has different numbering conventions used on site and electronically. As a result, a wide scale data capture exercise is being developed to link the different numbering conventions used across the NTVV area.
Data Management Through early trials of data extracts, often by manual means, it has been shown that data may be missing or mis-formatted. Likewise, in one case, a simple typo had resulted in a handful of duplicated entries; this was detected by visual error checking. One potential solution to be considered is the use of data analysis and error checking tools as part of the integration process
Commercial Customer Engagement Commercial customer agreements to enable the installation and trial operation of ADR equipment have been developed. Their first evolution had two separate documents 1) an installation agreement and 2) a collaboration agreement. From practically trials, it is observed that having two documents gave a piecemeal and potentially confusing interface. Also, given that customers would need to follow internal processes to accept these agreements two documents seemed to have been viewed as requiring 'double' the amount of effort for sign-off and of legal review. As a development from this, SSEPD and Honeywell have developed a single/combined document which is simpler and more expedient to issue. It also serves to emphasise the LCNF based partnership of NTVV.
Third Party Building Operators In one case, a customer was been keen to participate but his building was operated by a third party. Whilst the building operator would endeavour to match the customer's enthusiasm the they tended to be more focused on preventing disruption to the building and meeting their own internal SLAs. In this case, Honeywell was able to draw on US experience and used a pre-prepared technical pack to reduce the design burden on the building operator. During customer engagement in the Tier 1, the time taken for a customer to review, internally agree and return ADR T&Cs has been one month, even though the customer was particularly keen/ engaged.
Customer Participation An informal conversation with colleague who had worked in cable TV roll-outs highlighted the importance of recognising and valuing customer participation. The colleague's caution was to be

prepared to answer customer questions and maintain their enthusiasm over what may seem like long delays from contact to eventual action. With NTVV we wish to engage with early adopters and their may be a heightened risk that we do not match the customer's enthusiasm with our responsiveness.
End-point monitoring installation A physical mock-up of the end-point monitors, which ostensibly use smart meter technology, has shown that industry standard processes for installing a 'check meter' are appropriate. However, care must be taken to connect the end-point monitor up-stream of the customer's tariff meter to prevent the customer being charged for any burden presented by the end-point monitor. It has been decided that DNO staff are best placed to install these meters since they will be installed on the network side of the tariff meter effectively as an extension of the cut-out and that DNO staff will have the wider training necessary to detect, manage and resolve any unexpected network issues that may be identified at the same time – for example a poorly located cut-out fuse. The mock-up of monitor, meter and cut-out is now available for informing the ongoing customer conversations.
Battery locations and installation Learning from the ongoing Tier 1 Low Voltage 'community size' batteries being installed at Greenwatt Way, Slough is beginning to inform the physical aspects of NTVV wide-scale trials . These discrete units look well built and safely installed, however their specific form-factor would pose a number of challenges for future wide-scale roll-out. In particular, their design is 'short and wide' whereas the norm for street furniture is 'tall and thin.' With this design it is likely that it would significantly reduce the space for pedestrians on a typical footpath. It will also be necessary to consider if there is an increased risk of theft or vandalism as a result additional plant in the urban environment – however much of this will be managed and controlled through SSEPD's 'ESQCr' processes.

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 fifteen 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
LO4d-33	The envisioned deployment of PV panels with a local housing agency will not materialise - due to a change of the agency's development plans (as well as a change to the commercial proposition as a result of changes in FiT). It had been intended to use the agency's plans to model a high density PV network challenge and also be a basis for recruitment/ deployment of storage solutions.	3	3	4	4			4	16	1. The project schedule allows time to review the test approach and ensure recruitment of customers for storage solutions. 2. Continue to work with the housing agency as it may still be possible to recover this position and may provide useful additional information. Should also coincide with end-point monitoring recruitment. 3. Consider alternative opportunities for testing network challenges and storage solutions.	3	3	3	3			4	12
LO1-1	S/stn and end-point monitoring equipment does not meet requirements/ timeline	2	4		3			4	16	1. Delivery defined in GE project plan for regular tracking - August delivery of first s/stn monitoring unit by GE on track 2. Prepare contingencies using new and/or BAU alternatives, should delivery plan slip	2	4		3			3	12
LO4b-14	SDRC9.4a problem statement not defined	2	4	2	3			4	16	1. UoR engagement to develop the academic parts progressing well 2. No SSEPD specific resource assigned, through matrix management approach is acceptable at this stage 3. Considering use of 3rd party consultant for independent review	2	3	2	3			3	12
ICT07, LO2b-20	Insufficiently understood and/or inadequate implementation of information security in the ICT design	3	4	4	3		2	4	16	1. DPA compliant design of data flows and security plan now at detailed design stage 2. SSE InfoSec (independent team) to perform whole project risk review on 21/6/2012	1	3	2	2		1	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
LO1-12	No customers willing to have end-point monitor installed		4	4	4			4	16	1. Engagement through Bracknell Forest Homes 2. Engagement plan (High Street Presence/Website) 3. Consider use of incentives/competition (e.g. £10 M&S voucher)	1	3	1	3			3	9
PM02	Inadequate Project Management/ Engineering resource		4	2	4	2	2	4	16	1. Complete recruitment according to plan If required 2. Work existing resource harder 3. Prioritise essential activities only		3	1	3	1	1	3	9
ICT03, ICT12, ICT13, ICT14, ICT15	ICT resources are shared across several projects.	2	3					4	12	1. Resource plan that equitably shares between projects 2. Contract Process Analyst in place 3. Contract Architect in place 4. Embedded IT 'servers' contractor in place 4. ICT PM to coordinate design and delivery interviews on 12/6/12	2	3					3	9
ICT02, ICT03, LO2b-12	Technical design requires close working between SSE IT and RTS departments as well as GE.	2	4		3			3	12	1. Technical Integration meetings to develop design 2. Consistent Architectural Drawings/Level 0 signed off 3. Level 1 drawings for key hardware due for mid June	1	3		2			3	9
LO2b-10	Existing data quality for LV network poor.	2	4		4			3	12	1. Anticipate poor quality/error check as data extracted 2. Monitor quality through modelling as project develops 3. Reduce study resolution to meeting data quality	2	3		4			2	8
LO1-10	No suitable way of fitting end-point monitors in domestic properties adjacent existing meters	1	4		4			3	12	1. Select properties based on space requirements 2. Trial fitting using test-bed 3. Consider cut-out based monitor	1	4		4			2	8
ICT16	SCADA systems have not been proven on LV networks.	2	3		3			4	12	1. Use open standards 2. Use a proven integrator (i.e. GE) 3. Trial a variety of architectures I.e. aggregated web services and direct from site	2	2		2			3	6
KDc-21	Impact on NTVV participating stakeholders of general adverse media coverage as to what end-customers are funding in their electricity bill - "renewables; green deal; fuel poor; innovation funding etc"	3	2	3	2	1	1	4	12	1. Pre-prepared statements/ material addressing identified list of possible concerns with appropriate rebuttal and use as an opportunity to turn into a positive message for NTVV (currently under development) 2. Document any such occurrence and stakeholder response to action as a learning outcome 3. Recognise as part of wider NTVV stakeholder engagement plan and development of materials and media	3	1	3	1	1	1	2	6
LO 1-5	Smart meter installation programme (by others) delayed.	2	1		3			4	12	1. Regular engagement with supply companies	2	1		3			2	6
LO1-7	Ancillary Product availability (sensors, data aggregators etc)	2	4		3			3	12	1.Technical Integration Meetings 2.Work with other vendors	3	3		2			2	6
LO 1b-01	Incorrect, inadequate or late provision of data.	2	4		3			3	12	1. Employ verification methods 2. Review Meetings	2	3		3			2	6

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.

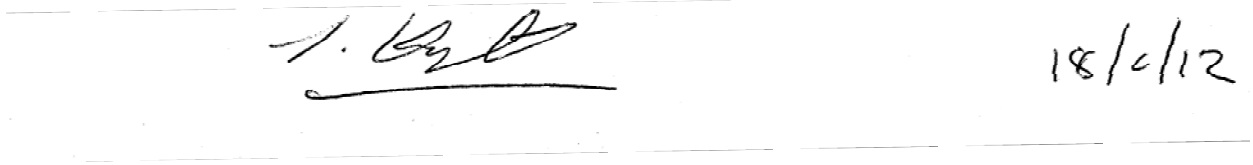
13. Accuracy assurance statement

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	12th June 2012
Recommended by:	Nigel Bessant	Project Delivery Manager	12th June 2012
Reviewed by:	Stewart Reid	Project Director	14th June 2012
Final sign-off:	Stuart Hogarth	Director of Distribution, SSEPD	18th June 2012



14. 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
15/06/2012	SEPD PLC-INCOME A/	EBP		675,250.50	4,616,840.11Cr
	TVV COSTS				
13/06/2012	SEPD PLC-INCOME A/	EBP	210,077.02		3,941,589.61Cr
	TVV COSTS				
13/06/2012	SCOTTISH HYDRO-E	EBP		93,333.33	4,151,666.63Cr
	TVV COSTS				
11/06/2012	SEPD PLC-INCOME A/	EBP		475,000.00	4,058,333.30Cr
	JUNE TVV TRANSFER				
30/05/2012	SCOTTISH POWER	CHP		94,166.67	3,583,333.30Cr
	**********				
	SP MANWEB PLC				

Date	Narrative	Type	Debit	Credit	Ledger Balance
30/05/2012	SCOTTISH POWER	CHP		95,833.33	3,489,166.63Cr
	**********				
	SP DISTRIBUTION				
	LTD				
	CHAPS TFR				
29/05/2012	SEPD PLC-INCOME A/	EBP		950,000.00	3,393,333.30Cr
	TVV TRANSFER				
28/05/2012	SOUTH EASTERN POWE	BAC		140,833.33	2,443,333.30Cr
	LOW CARB NETWORKS				
28/05/2012	EASTERN POWER NETW	BAC		165,000.00	2,302,499.97Cr
	LOW CARB NETWORKS				
28/05/2012	LONDON POWER NETWO	BAC		142,500.00	2,137,499.97Cr
	LOW CARB NETWORKS				
28/05/2012	NORTHERN ELECTRIC	BAC		142,500.00	1,994,999.97Cr
	LCNF				
28/05/2012	NORTHERN ELECTRIC	BAC		99,166.67	1,852,499.97Cr
	LCNF				
28/05/2012	ELECTRICITY NORTH	BAC		72,500.00	1,753,333.30Cr
	ELECTRICITY NW				
	**********				
	**********				
25/05/2012	/RFB/WPD LCNF PA	CHP		364,166.67	1,680,833.30Cr
	**********				
	WESTPOWSWEST				

Date	Narrative	Type	Debit	Credit	Ledger Balance
27/04/2012	R B S-SP DISTRIBUT	BAC		95,833.37	1,316,666.63Cr
	LOW CARBON NETWORK				
27/04/2012	R B S-SP MANWEB	BAC		94,166.63	1,220,833.26Cr
	LOW CARBON NETWORK				
27/04/2012	SOUTH EASTERN POWE	BAC		140,833.37	1,126,666.63Cr
	LOW CARB NETWORKS				
27/04/2012	EASTERN POWER NETW	BAC		165,000.00	985,833.26Cr
	LOW CARB NETWORKS				
27/04/2012	LONDON POWER NETWO	BAC		142,500.00	820,833.26Cr
	LOW CARB NETWORKS				
27/04/2012	NORTHERN ELECTRIC	BAC		142,500.00	678,333.26Cr
	LCNF				
27/04/2012	NORTHERN ELECTRIC	BAC		99,166.63	535,833.26Cr
	LCNF				
27/04/2012	ELECTRICITY NORTH	BAC		72,500.00	436,666.63Cr
	ELECTRICITY NW				
	**********				
	**********				
25/04/2012	/RFB/WPD LCNF PA	CHP		364,166.63	364,166.63Cr
	**********				
	WESTPOWSWEST				
Totals			210,077.02	4,826,917.13	