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Promoting choice and value for all gas and electricity customers

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Date: 19 December 2011

Dear Company Secretary,

Project Direction ref: SEPD/ New Thames Valley Vision/ 19-12-12

Project Direction issued to Southern Electric Power Distribution Plc ("SEPD") pursuant to the LCN Fund Governance Document¹ issued pursuant to Part E of Charge Restriction Condition 13 (Low Carbon Networks Fund) ("CRC13") of the Electricity Distribution Licence setting out the terms to be followed in relation to the New Thames Valley Vision project (the "Project") as a condition of it being funded under the Second Tier and Discretionary Funding Mechanism².

CRC13 establishes the arrangements, known as the Low Carbon Networks Fund ("LCN Fund"), for the purposes of incentivising the development of low carbon networks.

Part E of CRC13 requires the Gas and Electricity Markets Authority (the "Authority") to issue the LCN Fund Governance Document for the purposes of regulating, governing and administering the LCN Fund.

Part G of CRC13 defines a Project Direction as a direction issued by the Authority pursuant to the LCN Fund Governance Document setting out the terms to be followed in relation to the Eligible LCN Fund Project³ as a condition of its being funded pursuant to the Second Tier and Discretionary Funding Mechanism. A Project Direction must, by virtue of paragraph 3.74 of Section Two of the LCN Fund Governance Document:

- set out the Project-specific conditions that a distribution network operator ("DNO") is committing to in accepting Second Tier Funding⁴;
- require the DNO to undertake the Project in accordance with the commitments it has made in the Full Submission⁵. Where appropriate the Project Direction may therefore include extracts from the Full Submission; and
- set out the Approved Amount for the Project, as defined in CRC13.28, that will form part of the calculation contained in the direction issued by the Authority under CRC13.16 (the Funding Direction); and

¹ http://www.ofgem.gov.uk/Pages/MoreInformation.aspx?docid=77&refer=Networks/ElecDist/Icnf

² Second Tier and Discretionary Funding Mechanism has the meaning given in CRC 13.3(b).

³ Eligible LCN Fund Project has the meaning given in Part G of CRC 13.

⁴ Second Tier Funding has the meaning given in CRC13.11.

⁵ Unless otherwise specified, defined terms (terms in capitals) in this Project Direction are defined in Section seven of the LCN Fund Governance Document.

• Set out the Project Budget that the DNO must report against and how variances against the Project Budget will be reported and approved.

SEPD submitted the Project for funding under the LCN Fund on 18 August 2011 and the Authority decided to award the funding to SEPD in a decision dated 27 November 2011 (the "Decision Document⁶") subject to SEPD complying with CRC 13, the LCN Fund Governance Document (as may be modified from time to time in accordance with CRC 13 and as modified and/or augmented in respect of this Project by this Project Direction) and this Project Direction. In accordance with the LCN Governance Document the Authority hereby requires SEPD to comply with the conditions set out in the Schedule to this Project Direction.

This Project Direction is issued by the Authority, and provided SEPD complies with the LCN Fund Governance Document and this Project Direction, the Project is deemed to be an Eligible LCN Fund Project, as defined in CRC13.

This Project Direction constitutes notice pursuant to section 49A (Reasons for decisions) of the Electricity Act 1989.

Rachel Fletcher

Acting Senior Partner, Distribution and Governance

Signed on behalf of the Authority and authorised for that purpose by the Authority 19 December 2011

⁶ http://www.ofgem.gov.uk/Pages/MoreInformation.aspx?docid=92&refer=Networks/ElecDist/lcnf

Schedule to Project Direction

1. TITLE

Project Direction ref: SEPD/New Thames Valley Vision/19-12-12

2. PREAMBLE

This Project Direction issued by the Gas and Electricity Markets Authority (the "Authority") to Southern Electric Power Distribution Plc (the "Implementing DNO") pursuant to the LCN Fund Governance Document issued pursuant to Part E of Charge Restriction Condition 13 (Low Carbon Networks Fund) ("CRC 13") of the Electricity Distribution Licence (the "Licence") sets out the terms to be followed in relation to the New Thames Valley Vision project (the "Project") as a condition of it being funded under the Second Tier and Discretionary Funding Mechanism⁷.

Unless otherwise specified, defined terms in this Project Direction are defined in section 7 of the LCN Fund Governance Document.

References to specific sections of the Implementing DNO's Full Submission in this Project Direction are, for ease of reference, made by referring to the section number in the Implementing DNO's Full Submission pro-forma.

3. CONDITION PRECENDENT

The Implementing DNO will not access any funds from the Project Bank Account until it has signed contracts with the Project Partners named in Table 1.

Table 1 Condition Precedent

Table 1 Colldition Frecedent	
University of Reading	
General Electric Company	
Honeywell	

At least one month prior to signing contract with a Project Partner, the Implementing DNO must submit a report to Ofgem that sets out:

- (i) the development work that has been carried out on the specific work-stream or deliverable of the project that will 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.

4. COMPLIANCE

The Implementing DNO must comply with CRC13 and the LCN Fund Governance Document (as may be modified from time to time in accordance with CRC13 and as modified and/or augmented in respect of the Project by this Project Direction) and the Project Direction.

⁷ Second Tier and Discretionary Funding Mechanism has the meaning given in CRC 13.3(b).

Any part of the Approved Amount that the Authority determines not to have been spent in accordance with this Project Direction (or the LCN Fund Governance Document) is deemed to be Disallowed Expenditure.

Pursuant to CRC 13.14 Disallowed Expenditure is revenue received (whether by the Implementing DNO or another DSP⁸) under the Second Tier and Discretionary Funding Mechanism that the Authority determines not to have been spent in accordance with the provisions of the LCN Fund Governance Document or those of the relevant Project Direction.

Pursuant to paragraph 3.117 of Section Two of the LCN Fund Governance Document, Disallowed Expenditure includes any funds that must be returned if the Project is halted without Ofgem's⁹ permission, any funds that have not been spent in line with the approved Project Budget contained within the Project Direction, and any unspent funds on the completion of the Project.

5. APPROVED AMOUNT FOR THE PROJECT

The Approved Amount is £22,031k

6. PROJECT BUDGET

The Project Budget is set out in Annex 1. The Implementing DNO must not spend more than 110% of any category total (e.g. "Labour") in Annex 1 without the Authority's prior consent (such consent is not to be unreasonably withheld).

The Implementing DNO will report on expenditure against each line under the category totals in the Project Budget, and explain any projected variance against each line total in excess of 5% as part of its detailed report which will be provided at least every six months, in accordance with paragraph 3.92 of Section Two of the LCN Fund Governance Document. Ofgem will use the reported expenditure and explanation to assess whether the funding has been spent in accordance with the LCN Fund Governance Document or with this Project Direction.

For the avoidance of doubt this reporting requirement does not change or remove any obligations on the Implementing DNO with respect to reporting that are set out in the LCN Fund Governance Document.

7. PROJECT IMPLEMENTATION

The Implementing DNO must undertake the Project in accordance with the commitments it has made in the Full Submission approved by the Authority pursuant to the LCN Fund Governance Document and the terms of this Project Direction. These include (but are not limited to) the following:

- (i) undertake the Project in accordance with the description set out in Section 2 (Project Description);
- (ii) provide a DNO Compulsory Contribution of £2,701k;
- (iii) complete the Project on or before the Project completion date of 31 March 2017; and

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⁸ As defined in the Licence.

⁹ Ofgem is the offices of the Gas and Electricity Markets Authority. The terms 'Ofgem' and 'Authority' are used interchangeably in this Project Direction.

(iv) disseminate the learning from the Project at least to the level described in Section 5 (Knowledge Dissemination).

8. REPORTING

Ofgem will produce guidance (which may be amended from time to time) about the structure and content of the reports required by paragraph 3.92 of Section Two of the LCN Fund Governance Document. The Implementing DNO must follow this guidance in preparing the reports required by paragraph 3.92 of Section Two of the LCN Fund Governance Document.

9. COST OVERUNS

The maximum amount of Discretionary Funding that the Implementing DNO can request, as additional funding, for cost overruns on the Project is 0%.¹⁰

10. INTELLECTUAL PROPERTY RIGHTS (IPR)

In Section 5 (Knowledge Dissemination) the Implementing DNO has stated that the Project does conform to the default IPR arrangements set out in Section 5 of the LCN Fund Governance Document and must therefore undertake the Project in accordance with the default IPR arrangements.

11. SUCCESSFUL DELIVERY REWARD CRITERIA

The Project will be judged by the Authority for the purposes of the Second Tier Successful Delivery Reward against the Successful Delivery Reward Criteria set out in Table 2¹¹ below (that comply with paragraphs 3.27 and 3.28 of Section Two of the LCN Fund Governance Document).

Table 2. Successful Delivery Reward Criteria

Desired Outcome	Criteria for achieving
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.	
a) March 2012- First Automatic Demand Response (ADR) Agreement negotiated and signed with Commercial Customer ¹² ;	a) First Signed Agreement documentation presented to Ofgem. Initial review of engagement process and commercial models used/trialled
b) May 2012 - Install the Honeywell/SSEPD interface equipment, programme the	b) Prepare and present report on learnings and track kW shift in peak loads. Visit to site to physically see and/or photographic

 $^{^{10}}$ This is the amount requested by the Implementing DNO in its Full Submission.

¹¹ These are the Successful Delivery Reward Criteria set out in the Implementing DNOs Full Submission

¹² The Implementing DNO has written to Ofgem outlining that as a result of the additional requirements we have placed in Direction 3, they may be unable to complete this aspect of their Successful Delivery Reward Criteria as projected in their Full Submission. This letter is published alongside this Direction. We accept the reasons which the Implementing DNO has put forward outlining why they will not be able to meet the target date of March 2012. Consequently, providing that this aspect of the Successful Delivery Reward Criteria is completed by no later than 31 May 2012, not meeting the March 2012 deadline will not impact on the Authority's assessment of the project for a Second Tier Successful Delivery Reward upon completion.

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 Load¹³;

c) April 2015 - 30 Customers signed up to Automatic Demand Response (ADR) programme and host customer eventrenew new arrangements. evidence

- c.i) Provide electronic copies of 30 signed agreements.
- c.ii) Prepare a sample of new commercial agreement to facilitate optimal use of the network, and provide written overview of technologies deployed in demand side response. Event, produce report including, list of attendees, speakers, feedback and successes of the event.

Focus: Method 3 (optimised deployment of network monitoring)

Related learning: LO1 & LO4 -Understanding and Supporting Change with improved monitoring & information for network operators

- a) January 2013 250 In house end point monitors installed & learnings presented;
- b) April 2013 100 Substation monitoring installations installed;

- c) January 2014 Install and commission the Network Management component of the Distributed Solutions Integrator System (DSI)
- d) April 2014 Develop and trial method of optimising network monitoring based on installation of first 100 substation monitors

- a) Prepare documentation and present work, commissioning reports, sample of data capture/transfer and provide photographic evidence of active operation of systems. Reports to include information regarding unit/ installations costs and reliability to inform RIIO. Photographic evidence of installations. Viewings can also be arranged as proof
- b) Prepare documentation and present work, commissioning reports, sample of data capture/transfer and provide photographic evidence of active operation of systems. Reports to include information regarding unit/ installations costs and reliability to inform RIIO. Photographic evidence of installations. Viewings can also be arranged as proof
- c) Presentation of commissioning report to Ofgem. System tour and overview will be offered. Photographs can also be provided as a back up
- d) Prepare report reviewing optimal deployment of monitors based on

¹³ The Implementing DNO has written to Ofgem outlining that as a result of the additional requirements we have placed in Direction 3, they may be unable to complete this aspect of their Successful Delivery Reward Criteria as projected in their Full Submission. This letter is published alongside this Direction. We accept the reasons which SSE has put forward outlining why they will not be able to meet the target date of March 2012. Consequently, providing that this aspect of the Successful Delivery Reward Criteria is completed by no later than 31 July 2012, not meeting the May 2012 deadline will not impact on the Authority's assessment of the project for a Second Tier Successful Delivery Reward upon completion.

	installation of first 100 substation monitors
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.	
a) February 2012 - Start Consumer Consortia element of customer engagement programme,	a) Present minutes and summary of the event. Review feedback forms to assess degree of success. Document methods and effectiveness of customer engagement in relation network monitoring and demand response participation and explore future opportunities.
b) February 2012 - Arrange and hold the first "Energy Efficiency" focus group.	b) Present minutes and summary of the event. Review feedback forms to assess degree of success. Document methods and effectiveness of customer engagement in relation network monitoring and demand response participation and explore future opportunities.
c) February 2013 - Produce customer engagement lessons learnt Report.	c) Prepare and present first report on level of consumer engagement and formation of consortia. Establish unit/installation costs of engagement to inform RIIO
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	
a) July 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.	a) Produce discussion document and deployment plan for energy storage and power electronics - include an assessment of the management of network losses and power quality.
b) March 2014 - Install 30 thermal energy storage devices as defined in (a).	b) Photographic evidence of installs. Site visit will also be offered
c) March 2014 - Install 25 LV connected batteries as defined in (a).	c) Photographic evidence of installs. Site visit will also be offered
d) March 2015 - Produce learnings from energy storage and power electronic deployment to assess the hypothesis as defined in (a).	d) Produce report which discusses validity of deployment plan and lessons learnt in relation to (a). Report to review hypothesis of (a) drawing conclusions for variation and recommendations for future application.

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

- a) November 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.
- b) April 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.
- c) April 2014 Aggregate and integrate the short, medium and long term forecasts and produce first report on the modelling LV load profiles.

- a) LV Customer Groups presented. The learning from the methods and techniques employed will be presented to enable third party application of these processes. Provide prototype code and description for open-source (unsupported) release.
- b) Results will be presented together with analysis, evaluation and tests of the methods including accuracy and error estimates and comparisons of techniques
- c) Include Examples to illustrate effectiveness of the methods. Early validation will also be presented using data collected prior to this date. We will compare against real data to validate the robustness of the model. Provide prototype code and description for open-source (unsupported) release.

Focus: Method 1 (Understanding and forecasting customer requirements)
Related learning: LO1 & LO2 Understanding and Anticipating through Demand Forecasting & Modelling for Smarter Networks
December 2013 - Build, Install and Commission the Low Voltage Modelling Environment component of the Distributed Solutions Integrator System (DSI).
Note: The Low Voltage Modelling Environment and wider Distributed Solutions Integrator System are further described Appendix J

Photographic evidence of the LV modelling environment and an invitation to see it in operation and an online demo. Prepare documentation and present work including:

- a) Commissioning reports
- b) Sample of data capture/ transfer
- c) Report on lessons learnt during process
- d) Provide photographic evidence of active operation of systems

Focus: Public Engagement

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.

The strategy and deployment of the Low Carbon Community Advisory Centre will be matched and respond to customer requirement and coordinate with other Photographic evidence of established events, and provision of published information including:

- a) "in-situ" low carbon advice displays
- b) Low carbon advice material provided to local road-show events;
- c) Bracknell Forest Council and other stakeholder website material

stakeholder initiatives including Bracknell Forest Council. The duration of the engagement is need driven and will respond to project and community by connecting customers in the Bracknell area with low carbon initiatives, the opportunities and challenges addressed by the New Thames Valley Vision and way in which customers can participate.

d) NTVV interactive learning and dissemination website
This will include an initial report on attendance list/volumes, first attendee feedback reports, take up of early initiatives and evidence of the most effective way to encourage community energy involvement taking learning from past projects.

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

- a, b and c) throughout Project Prepare final reports on the trials carried out on the subjects listed in "Evidence 9.8" as well as an end of project report;*
- a) November 2014 (1) End Use and Network Monitoring Evaluation [Methods 1 and 3], (2) Demand Side Response Evaluation [Method 2], (3) Network controlled Automated Demand Response evaluation & Energy Efficiency [Method 2], (4) LV Network Storage [Method 2], (4) LV Network Storage Evaluation and Issues [Methods 2 and 1], (6) Smart Meter performance [Method 1], (7) Integration Solution Control Evaluation [Methods 1, 2 and 4] and (8) Overall Proven Benefits (both financial and customer service) [Method 1]
- b) November 2015 (1) Low Carbon Fuel Poor Evaluation, (2) Bracknell Forest Homes Low Carbon Promotions [Method 1] and (3) Technical Impact Evaluation [Method 1]
- c) November 2016 (1) UoR Smart Analytic and Forecasting Evaluation [Methods 1 and 3], (2) Low Carbon Community Advisory Centre Evaluation and (3) DNO Training and Policies Review
- d) April 2017 Project Close Down Report [Methods 1, 2, 3 and 4]
- d) April 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.*
- * Description of proposed report scopes as per Appendix K

The maximum amount of the Second Tier Successful Delivery Reward (which will not exceed the DNO Compulsory Contribution) that the Project will be eligible for is £2701k.

12. PROJECT MANAGEMENT

Until directed otherwise by the Authority the Implementing DNO must submit:

- copies of the documents submitted to the Monthly Project Review Board (as described in section 6 and Appendix C (iv) of the submission) no later than one week after each meeting of this board;
- copies of the documents submitted to the NTVV Technical Assurance board (as described in section 6 and appendix C (iv)) no later than one week after each meeting of these boards; and
- iii) copies of the documents submitted to Project Steering Group (as described in section 6 and appendix C (iv)) no later than one week after this each meeting of this board.

so as to update the Authority on:

- i) the progress of the project;
- ii) how risk mitigation plans have been developed and enacted; and
- iii) the actions which are being taken to ensure that the project is delivered for the Approved Amount and implemented as set out in Section 7 of this Direction.

13. BANK ACCOUNTS

The Implementing DNO has requested an exemption from the requirement in paragraph 3.77 of Section Two of the LCN Fund Governance Document to keep the funds from the Second Tier Funding for this Project in a separate bank account. The Authority has decided to grant this exemption subject to the conditions set out in paragraphs 3.79 to 3.82 of Section Two of the LCN Fund Governance Document. For the avoidance of doubt those conditions are set out below.

The Implementing DNO must provide a financial tracking and reporting system which is functionally equivalent to a separate bank account for this Project. This means they must hold any Approved Amounts, the DNO Compulsory Contribution and all other funding from the Implementing DNO, External Collaborators and External Funders, that the Implementing DNO has identified within its Full Submission as being used to fund the Project, unless otherwise agreed by Ofgem in a memorandum account "which is capable of providing all the information that would be available from a separate bank account. This memorandum account must:

- (i) show all transactions relating to and only to the Project;
- (ii) be capable of supplying a real time statement (of transactions and current balance at any time);
- (iii) accrue expenditures when a payment is authorised (and subsequently reconciled with the actual bank account);
- (iv) accrue payments from the moment the receipt is advised to the bank (and then subsequently reconciled with the actual bank account);
- (v) calculate a daily total; and

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¹⁴ Or equivalent unique code within their financial system, if approved as functionally equivalent by the Implementing DNO"s auditors. For this direction, the term memorandum account will also refer to the equivalent unique code if the auditors' approval has been obtained.

(vi) calculate interest on the daily total according to the rules applicable to the account within which the funds are actually held.

The Implementing DNO's auditors must review the systems and processes that the Implementing DNO is proposing to use to conform to the requirements set out in this section and provide a signed statement to Ofgem that the systems and processes are fit for purpose, before the Project is initiated and any funds are spent.

The Implementing DNO's auditors must provide an annual report to Ofgem to confirm that the Implementing DNO is conforming to the requirements set out in this section.

The Implementing DNO must provide an audited schedule of all the memorandum account transactions, including interest (calculated according to sub point (vi) above), as part of its detailed progress reports to Ofgem.

The Implementing DNO is still required to comply with the remainder of paragraph 3.84 (in relation to the date on which the funds will be deposited and the requirements of use) and the rest of the LCN Fund Governance Document, and for the purposes of such compliance the requirements set out in this section are considered to comprise the Project Bank Account.

14. USE OF LOGO

The Implementing DNO and Project Partners, External Funders and Project Supporters¹⁵ may use the LCN Fund logo for purposes associated with the Project but not use the Ofgem or Ofgem E-Serve logos in any circumstances.

15. AMENDMENT OR REVOCATION

As set out in the LCN Fund Governance Document and this Project Direction, this Project Direction may be amended or revoked under the following circumstances:

- (i) if the Implementing DNO considers that there has been a material change in circumstance that requires a change to the Project Direction, and the Authority agrees (paragraph 3.94 of Section Two of the LCN Fund Governance Document); or
- (ii) if Ofgem agrees to provide Discretionary Funding, which requires the re-issue of the Project Direction (paragraph 3.102 of Section Two of the LCN Fund Governance Document); or
- (iii) if the Implementing DNO applies for Discretionary Funding to cover a decrease in Direct Benefits and the Authority decides it would be in the best interest of customers to make changes to the Project Direction before the Discretionary Funding would be awarded (paragraph 3.101 of Section Two of the LCN Fund Governance Document).

16. HALTING OF PROJECTS

This Project Direction is subject to the provisions contained in paragraphs 3.103 to 3.107 of Section Two of the LCN Fund Governance Document relating to the halting of projects. By extension, this Project Direction is subject to any decision by the Authority to halt the Project to which this Project Direction relates and to any subsequent relevant Funding Direction issued by the Authority pursuant to CRC13.16.

 $^{^{15}}$ As listed in Box 1.5 of Section 1 of the Full Submission pro-forma.

In the event of the Authority deciding to halt the Project to which this Project Direction relates, the Authority may issue a statement to the Implementing DNO clarifying the effect of that halting decision as regards the status and legal force of the conditions contained in this Direction.

NOW THEREFORE:

In accordance with the powers contained in the LCN Fund Governance Document issued pursuant to Part E of CRC13 (Low Carbon Networks Fund) of the Licence the Authority hereby issues this Project Direction to the Implementing DNO in relation to the Project.

This constitutes notice of reasons for the Authority's decision pursuant to section 49A of the Act.

Rachel Fletcher

Acting Senior Partner, Distribution and Governance

Signed on behalf of the Authority and authorised for that purpose by the Authority 19 December 2011