



Company Secretary  
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*Promoting choice and value for  
all gas and electricity customers*

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Date: 21 December 2012

Dear Company Secretary,

**Project Direction ref: WPD/ FLEXDGRID – Advanced Fault Level Management in Birmingham / 21 December 2012**

Western Power Distribution (Midlands West) plc (WPD) submitted the project on 17 August 2012 to be considered for funding through the Low Carbon Networks (LCN) Fund. In this year's decision<sup>1</sup>, we selected the project for funding.

We have issued this Project Direction to WPD. It contains the terms to be followed by WPD as a condition of FLEXDGRID – Advanced Fault Level Management in Birmingham receiving funding through the LCN Fund. It must comply with these terms, which can be found in the schedule to this direction.

**Project direction**

Paragraph 3.77 of Section Two of the LCN Fund Governance Document states that a Project Direction must:

- set out the Project-specific conditions that a distribution network operator (DNO) is committing to in accepting Second Tier Funding<sup>2</sup>;
- require the DNO to undertake the Project in accordance with the commitments it has made in the Full Submission<sup>3</sup>. Where appropriate the Project Direction may therefore include extracts from the Full Submission;
- 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
- set out the Project Budget that the DNO must report against and how variances against the Project Budget will be reported and approved.

These are described for FLEXDGRID – Advanced Fault Level Management in Birmingham in the schedule to this condition.

<sup>1</sup> <http://www.ofgem.gov.uk/Pages/MoreInformation.aspx?docid=55&refer=Networks/ElecDist/lcnf/stlcnf/year3>

<sup>2</sup> Second Tier Funding has the meaning given in CRC13.11.

<sup>3</sup> Unless otherwise specified, defined terms (terms in capitals) in this Project Direction are defined in Section seven of the LCN Fund Governance Document.

## **Decision**

Provided WPD complies with the LCN Fund Governance Document and the schedule to this Project Direction, FLEXDGRID – Advanced Fault Level Management in Birmingham is deemed to be an Eligible LCN Fund Project<sup>4</sup>.

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

### **Andrew Burgess**

Associate Partner, Transmission and Distribution Policy

**For and on behalf of the Authority**

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<sup>4</sup> Eligible LCN Fund Project has the meaning given in part G of Charge Restriction Condition (CRC) 13.

# Schedule to Project Direction

## 1. TITLE

Project Direction ref: WPD / FLEXDGRID – Advanced Fault Level Management in Birmingham / 21 December 2012

## 2. PREAMBLE

This Project Direction issued by the Gas and Electricity Markets Authority (the “Authority”) to Western Power Distribution (West Midlands) (the “Funding 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 Flexdgrid – Advanced Fault Level Management in Birmingham (the “Project”) as a condition of it being funded under the Second Tier and Discretionary Funding Mechanism<sup>5</sup>.

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

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

## 3. CONDITION PRECEDENT

The Funding 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**

Parsons Brinckerhoff
University of Warwick

### A) Methodology of Method Gamma

The Funding DNO must, prior to signing binding contractual agreements for the fault level mitigation technologies, as described in Section 2 (Project Description), provide a report including the following information -

- (i) The progress, including learning to date, of Method Alpha – Enhanced Fault Level Assessment and Method Beta – Real-time Management, as described in Section 2 (Project Description).
- (ii) A proposed methodology for Method Gamma – Fault Level Mitigation Technologies, as described in Section 2 (Project Description). This must include a functional description of the five proposed fault level mitigation technologies and five proposed substations. It must also include an explanation of why these technologies and substations have been chosen, based on the learning described in (i).
- (iii) A description of the process the Funding DNO has followed to consult with other GB DNOs on whether, based on the information provided in (i) and (ii), proceeding to Method Gamma – Fault Level Mitigation Technologies would provide the learning outlined in the Full Submission pro-forma. This must include a written consultation.
- (iv) The written responses received from other GB DNOs to the written consultation described in (iii) together with summaries of all other feedback received.

<sup>5</sup> Second Tier and Discretionary Funding Mechanism has the meaning given in CRC 13.3(b).

The Funding DNO may not access any funds from the Project Bank Account for the procurement process for the fault level mitigation technologies or for the fault level mitigation technologies until the Authority is satisfied that there is sufficient evidence provided through feedback in (iv) that GB DNOs consider that proceeding to Method Gamma would provide the learning outlined in the Full Submission pro-forma.

#### B) Value for money

Notwithstanding A) above, the Funding DNO may commence the procurement process for fault level mitigation technologies at its own cost.

The Funding DNO must, prior to issuing an Invitation to Tender for fault level mitigation technologies, provide a report to the Authority which demonstrates that the Funding DNO will procure fault level mitigation technologies in a way that will deliver best value for money.

The Funding DNO may not issue the Invitation to Tender for fault level mitigation technologies until the Authority is satisfied that the competitive procurement process will be undertaken in a way that will deliver best value for money.

### **4. COMPLIANCE**

The Funding DNO must comply with CRC 13 and 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 the Project by this Project Direction) and the Project Direction.

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 Funding DNO or another DSP<sup>6</sup>) 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 3.121 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's<sup>7</sup> 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 £13,513.76k

### **6. PROJECT BUDGET**

The Project Budget is set out in Annex 1. The Funding 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 Funding DNO will report on expenditure against each line under the category total in the Project Budget, and explain any projected variance against each line total in excess of

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<sup>6</sup> As defined in the Licence.

<sup>7</sup> Ofgem is the offices of the Gas and Electricity Markets Authority. The terms 'Ofgem' and 'Authority' are used interchangeably in this Project Direction.

5% as part of its detailed report which will be provided at least every six months, in accordance with paragraph 3.95 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 Funding DNO with respect to reporting that are set out in the LCN Fund Governance Document.

## **7. PROJECT IMPLEMENTATION**

The Funding 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 £1,548.22k
- (iii) complete the Project on or before the Project completion date of 31 March 2017; and
- (iv) disseminate the learning from the Project at least to the level described in Section 5 (Knowledge Dissemination).

## **8. REPORTING**

Ofgem will issue guidance (as amended from time to time) about the structure and content of the reports required by paragraph 3.95 of Section Two of the LCN Fund Governance Document. The Funding DNO must follow this guidance in preparing the reports required by paragraph 3.95 of Section Two of the LCN Fund Governance Document.

As required by paragraph of 3.97 of Section Two of the LCN Fund Governance Document, the Funding DNO must inform the Authority promptly in writing of any event or circumstance likely to affect its ability to deliver the Project as set out in its Full Submission.

## **9. COST OVERRUNS**

The maximum amount of Discretionary Funding that the Funding DNO can request as additional funding for cost overruns on the Project is 0%<sup>8</sup>.

## **10. INTELLECTUAL PROPERTY RIGHTS (IPR)**

In Section 5 (Knowledge Dissemination) the Funding DNO has stated that the Project does conform to the default IPR arrangements set out in Section Five 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 2<sup>9</sup> below (that comply with paragraphs 3.27 of Section Two of the LCN Fund Governance Document).

### **Table 2. Successful Delivery Reward Criteria**

<sup>8</sup> This is the amount requested by the Funding DNO in its Full Submission.

<sup>9</sup> These are the Successful Delivery Reward Criteria set out in the Funding DNOs Full Submission

Successful Delivery Reward criterion	Evidence
<p><b>Specific:</b> Develop an Enhanced Fault Level Assessment process.</p> <p><b>Measurable:</b> Workshop and report on the Enhanced Fault Level Assessment process.</p> <p><b>Achievable:</b> An initial Enhanced Fault Level Assessment process has been developed as part of the bid from the Initial Screening Process to Full Submission Pro-forma.</p> <p><b>Relevant:</b> This criterion corresponds to the delivery of Method Alpha (Enhanced Fault Level Assessment).</p> <p><b>Timely:</b> The Enhanced Fault Level Assessment process will be developed by 1 June 2013, with the publication being available to other DNOs interested parties thereafter.</p>	<ol style="list-style-type: none"> <li>1. Using the Birmingham HV electricity network to trial the Enhanced Fault Level Assessment process.</li> <li>2. A workshop with other DNOs to discuss the Enhanced Fault Level Assessment process.</li> <li>3. A publication on the Enhanced Fault Level Assessment process to be shared with other DNOs.</li> </ol>
<p><b>Specific:</b> Simulation and application of the Enhanced Fault Level Assessment process to demonstrate what can be achieved with customers' connections.</p> <p><b>Measurable:</b> Quicker response to customers' connections applications.</p> <p><b>Achievable:</b> Simulation and application of Enhanced Fault Level Assessment process to Birmingham Primary Substations carried out as part of the bid from ISP to FSP.</p> <p><b>Relevant:</b> Delivery of Method Alpha (Enhanced Fault Level Assessment).</p> <p><b>Timely:</b> The Enhanced Fault Level Assessment process will be applied by 1 December 2013, with potential adoption into BaU by the end of the project.</p>	<ol style="list-style-type: none"> <li>1. A developed and tested Enhanced Fault Level Assessment process with endorsement from WPD planning and design engineers.</li> <li>2. Quicker response to customers' connections applications.</li> <li>3. Characterisation of the substations to determine the suitability of potential Fault Level Mitigation Technologies.</li> <li>4. Open source fault Level Mitigation Technology models.</li> <li>5. Quantification of additional capacity that will be unlocked to accommodate future customers' connections.</li> </ol>
<p><b>Specific:</b> Confirmation of the project detailed design.</p> <p><b>Measurable:</b> Lead to the confirmation of five substation sites for the inclusion of Fault Level mitigation technologies and ten sites for Fault Level monitoring.</p> <p><b>Achievable:</b> Design developed with partners. Builds on the outputs of Criteria 1 and 2.</p> <p><b>Relevant:</b> Delivery of Method Beta and Method Gamma. Design will confirm the capability of equipment being installed, the connection requirements, location and any modifications needed to the HV network to allow the equipment to be connected.</p>	<ol style="list-style-type: none"> <li>1. Confirmation and justification of the five substation sites selected for Fault Level mitigation and ten substation sites selected for Fault Level monitoring.</li> <li>2. Availability of detailed design documents to other DNOs.</li> </ol>

<p><b>Timely:</b> The project detailed design will be developed by 1 June 2013.</p>	
<p><b>Specific:</b> Development of novel commercial frameworks with generation and demand customers</p> <p><b>Measurable:</b> Enter into novel commercial contracts and inform policy changes through contract trials.</p> <p><b>Achievable:</b> The novel commercial frameworks will be developed by WPD's Connections Policy Team in conjunction with Parsons Brinckerhoff.</p> <p><b>Relevant:</b> The novel commercial contracts will deliver to customers the benefits of Method Alpha (Enhanced Fault Level Assessment process), Method Beta (Real-time Management) and Method Gamma (Fault Level Mitigation Technologies)</p> <p><b>Timely:</b> Novel commercial frameworks will be development, trialled and tested by the end of the project.</p>	<ol style="list-style-type: none"> <li>1. Novel commercial frameworks are readily available for use in customers' connection applications within the project trials.</li> <li>2. Production a 'Connections Options' document and dissemination to other DNOs, customers and other interested parties.</li> </ol>
<p><b>Specific:</b> Installation and open-loop (non-network controlling) tests of Fault Level monitoring equipment.</p> <p><b>Measurable:</b> Installation of equipment in ten Primary Substation sites with open-loop testing results being disseminated.</p> <p><b>Achievable:</b> Positioning to deliver monitoring through successful testing in previous IFI and Tier-1 projects. Identification of alternative monitoring options through thorough design phase.</p> <p><b>Relevant:</b> This criterion corresponds to the delivery of Method Beta.</p> <p><b>Timely:</b> Installation and trialling of equipment by 31 December 2015.</p>	<ol style="list-style-type: none"> <li>1. Installation of equipment in ten Primary Substation sites.</li> <li>2. Open-loop (non-network controlling) test results being disseminated.</li> </ol>
<p>Delivery and Authority approval of report as required under B) Value for money of 3. CONDITION PRECEDENT before issuing Invitation to Tender for fault level mitigation technologies. 31 December 2013</p>	<ol style="list-style-type: none"> <li>1. Delivery of a report to the Authority under B) Value for money of 3. CONDITION PRECEDENT.</li> <li>2. Authority approval that the competitive procurement process will be undertaken in a way that will deliver best value for money.</li> </ol>
<p>Delivery and Authority approval of report as required under A) Methodology of Method Gamma of 3. CONDITION PRECEDENT before signing contracts for fault level mitigation technologies. 31 December 2013</p>	<ol style="list-style-type: none"> <li>1. Delivery of a report to the Authority covering points (i) to (vi) under A) Methodology of Method Gamma of 3. CONDITION PRECEDENT.</li> <li>2. Authority approval that there is sufficient evidence that GB DNOs consider that</li> </ol>

	proceeding to Method Gamma would provide the learning outlined in the Full Submission pro-forma.
<p>Hold a workshop, inviting all GB DNOs and other interested parties. At the workshop, the Implementing DNO will:</p> <p>a) provide details of the emerging learning of Method Alpha (Enhanced Fault Level Assessment) and Method Beta (Real-time Management) and the proposed methodology for Method Gamma (Fault Level Mitigation Technologies).</p> <p>b) provide GB DNOs and other interested parties the opportunity to provide feedback on the proposed methodology for Method Gamma (Fault Level Mitigation Technologies), based on the emerging learning of Method Alpha (Enhanced Fault Level Assessment) and Method Beta (Real-time Management).</p>	<ol style="list-style-type: none"> <li>1. Hold a workshop with other GB DNOs by 31 October 2013.</li> <li>2. Written responses to the consultation from each GB DNO submitted with the report required under A) Methodology of Method Gamma of 3. CONDITION PRECEDENT.</li> </ol>
<p><b>Specific:</b> Installation and open-loop (non-network controlling) tests of Fault Level mitigation equipment.</p> <p><b>Measurable:</b> Installation of equipment in five Primary Substation sites with open-loop testing results being disseminated.</p> <p><b>Achievable:</b> Positioning to deliver Fault Level mitigation technologies through successful testing in previous IFI, ETI and Tier-1 projects. Identification of alternative mitigation options through thorough design phase.</p> <p><b>Relevant:</b> This criterion corresponds to the delivery of Method Gamma (Fault Level Mitigation Technologies).</p> <p><b>Timely:</b> Installation and trialling of equipment by 31 December 2016.</p>	<ol style="list-style-type: none"> <li>1. Installation of equipment in five Primary Substation sites.</li> <li>2. Dissemination of open-loop (non-network controlling) test results and system-level learning.</li> </ol>
<p><b>Specific:</b> Closed-loop (network controlling) tests of Fault Level monitoring and mitigation equipment.</p> <p><b>Measurable:</b> Control of network and quantification of gains (for example Fault Level reduction, security of supply, increased customer connection capacity).</p> <p><b>Achievable:</b> Building through the learning of open loop testing. Valuable learning output, independent of customer connection applications.</p>	<ol style="list-style-type: none"> <li>1. Dissemination of closed-loop (network controlling) test results and system-level learning.</li> </ol>



<p><b>Relevant:</b> Criterion corresponds to the delivery of Method Beta and Method Gamma.</p> <p><b>Timely:</b> Installation and trialling of equipment by 31 December 2016.</p>	
<p><b>Specific:</b> Analysis of test results, evaluating and quantifying the benefits of the Solution and applicability to GB HV electricity networks.</p> <p><b>Measurable:</b> Knowledge dissemination, publication of reports, generation of new Policy documents.</p> <p><b>Achievable:</b> Appropriate resource to deliver learning outcomes and Policy document development through WPD internal resource, PB and the University of Warwick.</p> <p><b>Relevant:</b> Provides project output and the evaluation of Method Alpha, Method Beta and Method Gamma.</p> <p><b>Timely:</b> Knowledge dissemination, publication of reports, generation of new Policy documents to be achieved by 31 December 2016.</p>	<ol style="list-style-type: none"> <li>1. Knowledge dissemination: <ol style="list-style-type: none"> <li>a. Network data being made available.</li> <li>b. Six-monthly progress reports submitted to Ofgem throughout project.</li> <li>c. Eight industry conferences attended and presented by December 2016.</li> <li>d. LCNF Annual Conference.</li> </ol> </li> <li>2. Publication of reports.</li> </ol>

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 £1,548.22k.

## 12. USE OF LOGO

The Funding DNO and Project Partners, External Funders and Project Supporters<sup>10</sup> 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.

## 13. 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 Funding DNO considers that there has been a material change in circumstance that requires a change to the Project Direction, and the Authority agrees (paragraph 3.98 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 Funding 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 3.105 of Section Two of the LCN Fund Governance Document).

<sup>10</sup> As listed in Box 1.5 in Section 1 of the Full Submission pro-forma.

#### **14. HALTING OF PROJECTS**

This Project Direction is subject to the provisions contained in paragraphs 3.107 to 3.111 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 CRC 13.16.

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 Funding 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 CRC 13 (Low Carbon Networks Fund) of the Licence the Authority hereby issues this Project Direction to the Funding DNO in relation to the Project.

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