

# LCNF Full Submission

## Supplementary Answer Form

<b>DNO Name:</b>	Electricity North West Limited	<b>Question Number:</b>	ENWL034 (ENWT2001)
<b>Question Date:</b>	21 Sept 2010	<b>Answer Date:</b>	24 Sept 2010
<b>Question Topic:</b>	Box 13 – Successful Delivery Reward Criteria		

<b>Original Question No:</b>		<b>Original Answer Date:</b>	
<b>Original Question:</b>			
<b>Original Answer:</b>			

<b>Question:</b>	<p>We consider that many of the Second Tier Successful Delivery Reward Criteria set out in Box 13 do not meet the requirements of the Governance Document and the proforma guidance. For clarity, each criteria should be SMART (specific, measurable, attainable, relevant and time-bounded) - meaning each should linked directly to the intended milestones (i.e. identify a date of achievement against each criteria) and outputs of the project. As stated in the Governance Document the criteria must be linked to meeting the identified project milestones on at least an annual basis and must be linked to achieving the Full Submission proposals on the sharing of knowledge. We would also stress the importance of specifying the evidence that the DNO would present to us to demonstrate the achievement of each criteria. We recognise that Box 13 was limited to two sides and we have therefore decided to allow all DNOs to resubmit Box 13 using a maximum of four sides if required. A revised Box 13 has been provided that allows flexibility of space allocation between the criteria, and should be used to resubmit the criteria.</p>
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<b>Answer:</b>	See attachment at the end of this answer form.
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**Attachments:**

PDF documents:  
Northern Gateway Smart Grid Project Successful  
Delivery Reward Criteria.

## Successful Delivery Reward Criteria – Northern Gateway Smart Grid Project

### Box 13: Please set out your proposed Successful Delivery Reward Criteria

Successful Delivery Reward criterion	Evidence
<p><b>Project Initiation,</b></p> <p>To establish Programme Office, with operation and control processes established and documented, quality audits implemented and documented within the existing ENWL audit process by 02/2011.</p> <p>To conclude processes for the effective collation of project learning and the on-going dissemination to all stakeholders.</p> <p>To conclude commercial arrangements with all External Collaborators and key suppliers to confirm all commitments, targets and deliverables against agreed pricing.</p> <p>We will document this learning and disseminate to our stakeholder communities through the ENWL LCNF website, production of white papers, and presentations at DNO Forums.</p>	<p><b>Programme Office resourced and operational by 04/2011:</b></p> <ul style="list-style-type: none"> <li>• ENWL web-site fully operational by 01/2011;</li> <li>• Weekly communications update in place by 02/2011;</li> <li>• Control documents approved and published by 03/2011;</li> <li>• Initial audits completed by 03/2011 to provide baseline for future audits.</li> <li>• Learning processes approved and published by 03/2011;</li> <li>• Regular audits and quality reviews implemented; and</li> <li>• Signed commercial arrangements in place by 06/2011.</li> </ul>
<p><b>Distributed Energy Management System</b></p> <p>To design and implement a Distributed Energy Management System (DEMS) in a distribution network environment by 01/2012.</p> <p>To test the DEMS' capability to:</p> <ul style="list-style-type: none"> <li>• integrate network and distributed energy resources;</li> <li>• manage interaction between network, customers and/ or third parties to facilitate the change in customer behaviour;</li> <li>• deliver load balancing and manage network constraints through network reconfiguration;</li> <li>• deliver a demand side response; and</li> <li>• facilitate costs savings and carbon reduction.</li> </ul> <p>One specific DEMS integration challenge have been identified with as the integration with the Co-operative Group HQ Building Management System and with the biomass generation plant.</p> <p>The deployment of DEMS will provide new learning and will establish the model for future network management platforms and their deployment throughout GB.</p>	<p><b>DEMS system fully operational by 07/2012:</b></p> <ul style="list-style-type: none"> <li>• Approval of DEMS design and published by 08/2011;</li> <li>• DEMS hardware installation by 12/2011;</li> <li>• Training of ENWL personnel on DEMS;</li> <li>• DEMS operational by 07/2012.</li> <li>• DEMS integration with BMS and DG by 10/2012.</li> </ul> <p><b>Learning Outcomes:</b></p> <ul style="list-style-type: none"> <li>• Evaluation of DEMS' ability to integrate network and distributed energy resources, to deliver network reconfiguration and demand response, to identify the cost and carbon savings for partners and understand interaction between electricity and heat generation;</li> <li>• Applicable in DPCR6 planning.</li> </ul> <p><b>Dissemination of Learning:</b></p> <ul style="list-style-type: none"> <li>• Learning available on ENWL LCNF website;</li> <li>• Publication of white-paper #2 by 06/2011 and subsequent white papers;</li> </ul>

<p><b>Monitoring of HV networks</b></p> <p>To install HV monitoring devices at strategic points across the network to deliver network metered data for demand management. To plan and implement the installation of HV monitoring devices in two phases: initial deployment by 08/2011 and full deployment by 05/2013 with connectivity to DEMS. Operational processes will be established in the design phase and updated through installation phases. Learning from the initial deployment phase will be assumed in full deployment. Operational processes will be further enhanced to include the wide scale deployment of monitoring on the HV network.</p> <p>To develop processes to manage the volume of data, and identify the optimal storage method and retrieval of data.</p> <p>To test the ability of HV monitoring to deliver the required information at an appropriate latency to enable effective demand management by the DEMS system.</p> <p>The deployment of monitoring devices and their integration in the DEMS will provide learning for dissemination to the DNO community and assist the considerations of wide scale deployment of monitoring within an existing HV network and the degree of monitoring required for effective demand management.</p>	<ul style="list-style-type: none"> <li>• Included within DNO Forum #1 and subsequent forum.</li> </ul> <p><b>Monitoring of HV networks by 10/2013:</b></p> <p><b>Initial deployment by 06/2012:</b></p> <ul style="list-style-type: none"> <li>• Target substations identified by 08/2011;</li> <li>• 3 HV monitoring devices operational by 06/2012.</li> </ul> <p><b>Full Monitoring deployment by 10/2013:</b></p> <ul style="list-style-type: none"> <li>• Target substations identified by 11/2012;</li> <li>• 9 HV monitoring devices operational by 10/2013.</li> </ul> <p><b>Learning Outcomes:</b></p> <ul style="list-style-type: none"> <li>• Assessment of initial deployment by 06/2012;</li> <li>• Data management procedures published by 07/2012</li> <li>• Data available to operation and design applications;</li> <li>• Assessment of the impact of data from HV monitoring on demand management by the DEMS system.</li> </ul> <p><b>Dissemination of Learning</b></p> <ul style="list-style-type: none"> <li>• Learning available on EWNL LCNF website;</li> <li>• Publication of white-paper #6 by 06/2012 and subsequent white papers;</li> <li>• Included within DNO Forum #2 and subsequent forums.</li> </ul>
<p><b>Distribution Automation</b></p> <p>To install Distribution Automation equipment at strategic points across the network to allow enhanced network control and load balancing.</p> <p>To plan and implement the installation of Distribution Automation in two phases: initial deployment by 06/2012 and full deployment by 11/2013 with connectivity to DEMS. Operational processes will be established at the design phase and updated through the installations phases.</p> <p>To assess the capability and use of Distribution Automation for demand management and constraint management.</p> <p>The deployment of Distribution Automation will provide learning for dissemination to the DNO community and assist with the consideration of wide scale deployment of automation within a</p>	<p><b>Distribution Automation operational by 11/2103:</b></p> <p><b>Initial deployment by 06/2012:</b></p> <ul style="list-style-type: none"> <li>• Target substations identified by 08/2011;</li> <li>• 3 HV automation devices operational by 06/2012.</li> </ul> <p><b>Full deployment by 11/2013;</b></p> <ul style="list-style-type: none"> <li>• Target substations identified by 11/2012;</li> <li>• 8 HV automation devices operational by 11/2013.</li> </ul> <p><b>Learning Outcomes:</b></p> <ul style="list-style-type: none"> <li>• Assessment of initial deployment by 06/2012;</li> <li>• Evaluation of the use Distribution Automation for enhanced network control and demand management by 03/2014.</li> </ul> <p><b>Dissemination of Learning:</b></p> <ul style="list-style-type: none"> <li>• Learning available on ENWL LCNF website;</li> </ul>

<p>DEMS managed network.</p>	<ul style="list-style-type: none"> <li>• Publication of white-paper #6 by 06/2012 and subsequent white papers;</li> <li>• Included within DNO Forum #2 and subsequent forums.</li> </ul>
<p><b>Telecommunications Assessment</b>  To design and install four telecommunication technologies for the connectivity of network devices and distributed energy resources to DEMS.</p> <p>To install the telecommunication infrastructure in two phases: initial deployment by 12/2011 and full deployment by 09/2013 enabling connectivity of network devices to DEMS.</p> <p>To evaluate the capability of each telecommunication architecture and technology against a range of criteria including cost, quality of service and operational efficiency contingent upon the network device and its environment.</p> <p>The deployment and evaluation of the four competing telecommunications technologies will identify the optimum of telecommunications solution for a given situation and environment in any wide scale deployment.</p>	<p><b>Telecommunications Infrastructure operational by 09/2013</b></p> <ul style="list-style-type: none"> <li>• Initial design approved and published by 12/2011;</li> <li>• Initial deployment completed by 06/2012;</li> <li>• Full deployment completed by 09/2013.</li> </ul> <p><b>Learning Outcomes:</b></p> <ul style="list-style-type: none"> <li>• Assessment of initial deployment by 09/2012;</li> <li>• Evaluation of each telecommunication architecture and technology against a range of criteria including cost, quality of service and operational efficiency completed by 02/2014 and identification of optimal solutions published by 03/2014;</li> <li>• Applicable in DPCR6 planning.</li> </ul> <p><b>Dissemination of Learning</b></p> <ul style="list-style-type: none"> <li>• Learning available on EWNL LCNF website;</li> <li>• Publication of white-paper #6 by 06/2012 and subsequent white papers;</li> <li>• Included within DNO Forum #1 and subsequent forums.</li> </ul>
<p><b>Cyber Security Solution</b>  To design and deploy an initial Cyber Security Solution (CSS) and enhance its capability throughout the Project life to secure the newly installed Smart Grid technology.</p> <p>To undertake regular audits of the CSS to test its effectiveness and robustness against third party intrusion and determine the optimal solution upon completion of the Project by 03/2014.</p> <p>To document each phase of the CSS deployments to aid dissemination of learning, utilising the ENWL website for regular updates and DNO Forums for encouraging dialogue and exchange of information.</p>	<p><b>Cyber Security Solution operational by 04/2014:</b></p> <ul style="list-style-type: none"> <li>• Initial CSS design approved and published by 08/2011;</li> <li>• Initial CSS solution implemented by 11/2011;</li> <li>• Assessment of CSS deployment completed by 06/2012;</li> </ul> <p><b>Learning Outcomes:</b></p> <ul style="list-style-type: none"> <li>• Audits findings documented, all issues resolved by 08/2012.</li> <li>• Regular audits and assessments implemented;</li> <li>• Findings and recommendations of each review published;</li> <li>• Optimum solution for cyber security determined and published.</li> </ul> <p><b>Dissemination of Learning:</b></p> <ul style="list-style-type: none"> <li>• Learning available on EWNL LCNF website;</li> <li>• Publication of white-paper #4 by 12/2011 and subsequent white papers;</li> <li>• Included within DNO Forum #1 and subsequent forums.</li> </ul>

<p><b>Modelling of HV and LV networks</b></p> <p>To develop new modelling techniques for analysis and planning:</p> <ul style="list-style-type: none"> <li>• Evaluation of the underlying techniques of power system modelling, eg load flow algorithms, to find those capable of modelling unbalanced networks with sparse network data and multiple time sequenced loading data;</li> <li>• Identification of techniques most likely to be developed into standardised approaches to be deployed at scale for the planning and real time operation of future networks;</li> <li>• Integrating existing network management systems, asset data (eg Geographical Information System of cables), and new sources of loading data, particularly from smart metering.</li> <li>• Integration of modelling techniques with DEMS</li> <li>• Trials to find (a) efficient ways of undertaking the modelling and (b) simplifications so that algorithms still converge efficiently, ie do not require inordinate processing power.</li> <li>• Techniques to cope with the poor records of existing LV circuits, and to test the sensitivity of models to this</li> <li>• Accommodation of the redundancy of smart metering data.</li> <li>• Identify suppliers of techniques and equipment necessary to implement at scale on an efficient commercial basis</li> </ul>	<p><b>Development of modelling techniques by 03/2014:</b></p> <ul style="list-style-type: none"> <li>• Report on algorithms/ techniques that can be used by 04/2011;</li> <li>• Build first working prototype network models for the Northern Gateway network by 03/2012;</li> <li>• Refine models; test against real system data; run against different data sparsity assumptions, by 03/2013;</li> <li>• Prove integration with DEMS and report, by 10/2013;</li> <li>• Report on future approach to HV and LV modelling for smart grids, including specification for modelling systems, by 03/2014.</li> </ul> <p><b>Learning Outcomes:</b></p> <ul style="list-style-type: none"> <li>• New academic and practical work of the modelling of active networks at HV and LV, including the integration of modelling techniques with asset management systems and loading data;</li> <li>• Understanding of the resources to provide the real time or quasi real time responses needed for active management of smart grids for DPCR6 planning.</li> </ul> <p><b>Dissemination of Learning:</b></p> <ul style="list-style-type: none"> <li>• Learning available on EWNL LCNF website;</li> <li>• Publication of white-paper #3 by 09/2011 and subsequent white papers;</li> <li>• Included within DNO Forum #1 and subsequent forums;</li> <li>• Implementation of DNO Network Design by 08/2013.</li> </ul>
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