

Review of Low Carbon Network Fund proposals

Report to Expert Panel

Scottish & Southern Energy

SSET2002: Thames Valley Vision

8th October 2010

Report prepared by TNEI and Arthur D. Little
for project commissioned by Ofgem

Report Context

This report has been prepared for the Expert Panel with the aim of supporting them in their funding allocation decisions for the Low Carbon Network Fund.

Having reviewed the submission pro-forma and all of the supporting material, as well as answers to clarification questions we have put to the DNO, this report is intended to serve two purposes:

- it sets out any factual clarifications that we believe would be helpful to the expert panel when considering the submissions, based on information or data that is not immediately apparent or available in the pro-forma or Appendices A-E; and
- it highlights any concerns we have in any particular areas from, for example, either a technical, commercial or deliverability perspective, that the Expert Panel may wish to explore further with the DNO.

Consequently, the Expert Panel can assume that the factual content of the submission pro-forma to be sound unless noted otherwise in this report.

In writing the report we have avoided merely reproducing large parts of the submission, which stands on its own merits for the Expert Panels' consideration.

This report does not seek to assess the quality of this submission or rank it against any others. In particular, it does not provide any opinion as to whether the proposal should be funded. This is the role of the Expert Panel.

This report is not intended to be read in isolation and should be reviewed alongside the pro-forma and compulsory appendices.

Notice

This report was commissioned by Ofgem on terms specifically limiting the liability of TNEI and Arthur D. Little Limited. Our conclusions are the results of the exercise of our best professional judgement, based in part upon materials and information provided to us by Ofgem and others. Use of this report by any third party for whatever purpose should not, and does not, absolve such third party from using due diligence in verifying the report's contents.

Any use which a third party makes of this document, or any reliance on it, or decisions to be made based on it, are the responsibility of such third party. TNEI and Arthur D. Little Limited accepts no duty of care or liability of any kind whatsoever to any such third party, and no responsibility for damages, if any, suffered by any third party as a result of decisions made, or not made, or actions taken, or not taken, based on this document.

Table of Contents

Project: Thames Valley Vision	4
Description of Project (summarised from pro-forma Box 1)	4
Key Project Figures	5
Summary of independent analysis	6
1. Accelerates the development of a low carbon energy sector	7
2. Has the potential to deliver net benefits to existing and/or future customers	9
3. Has a Direct Impact on the operation of the distribution system	10
4. Generates new knowledge that can be shared amongst all DNOs	11
5. Involvement of other partners and external funding	13
6. Relevance and timing	15
7. Demonstration of a robust methodology and that the Project is ready to implement	16

Project: Thames Valley Vision

Description of Project (summarised from pro-forma Box 1)

Understanding Network Constraints

Scottish & Southern Energy is proposing a project based around the principals of Monitor, Model and Manage. This is essentially a comprehensive Distribution Network Owner/Distribution System Operator lifecycle solution to meet new low carbon technologies, involving network planning, forecasting, operations and active management. While the focus is on the low voltage network, it will also be demonstrating medium and high voltage applications as appropriate.

Problem

To date the LV networks have been designed to accommodate peak periods but resulting in a poor overall utilisation of around 20%. Low carbon technologies are expected to increase the network peak demand and without innovation, reduce utilisation factors. Existing procedures will result in overspending and delays to load related reinforcement and deterioration in quality of supply, customer interruptions, customer minutes lost and resulting in a restriction on low carbon connections.

Solution

The solution requires a project to address customer, company and industry impact in a location that has a representative customer base and network topology so that the outputs can be scaled across GB. Bracknell has been selected as there are no major low carbon initiatives and so the impact and results of the project activities will not need to be filtered out from other local initiatives. The solutions centre around creating an intelligent distribution network that tests the likely impact of low carbon technologies, enables new technologies and techniques to be rigorously evaluated, facilitates active community engagement and knowledge sharing between stakeholders.

Method

The project will develop a monitor, model and manage methodology to provide an alternative to traditional network reinforcement. This includes monitoring real time data on the network to create a level of observability. Model and forecast how energy will flow in a low carbon distribution network and the development of appropriate tools, systems and processes. Manage the network with new techniques and procedures with new network technologies.

Project

The project will develop and rigorously validate new least cost solutions. It will determine the optimum amount of network monitoring, develop modelling and planning tools for active networks, revise existing codes and create new standards, optimise load related investment to improve utilisation, engage with local groups to identify benefits.

Key Project Figures		
Project		
Funding requested:	£24.5M	
Total Project value:	£32.2M	
Direct Benefit:	£0.0	
Roll-out		Proposal
(discounted):	£11.6B	
Total Other Benefits (discounted):	£0.0	Total Carbon Benefit
Total Costs :	£0.0	
Net Benefit :	£11.6B	
Carbon Saved (undiscounted):	474 million tonnes	

TOTAL WITHOUT CONTINGENCY	32,160,611
Percentages of total cost	
Contingency	0.0%
IT	0.3%
Equipment	28.5%
Staff	68%
<i>Internal</i>	34%
<i>Contractors</i>	33%
Payments to consumers	2%
Decommissioning	0.9%
Other	0%

EXPLICIT PROJECT MANAGEMENT LABOUR	
Project Working Days	935
Labour Days	21023
Full Time Equivalents	412.2
Project Management	£10,730,313
Relative to Project Cost	33%

Key Items	Total Cost	FUNDING PROPORTION OF TOTAL ITEM COSTS			
		External	LCNF	DNO	
				Compulsory	Extra
Labour	11,064,162	0%	90%	10%	0%
Equipment	9,164,379	0%	90%	10%	0%
Contractors	10,705,399	36%	58%	6%	0%
IT	101,044	0%	90%	10%	0%
IPR Costs	-	-	-	-	-
Travel & Expenses	58,080	0%	90%	10%	0%
Payments to users	790,576	0%	90%	10%	0%
Contingency	-	-	-	-	-
Decommissioning	276,971	0%	90%	10%	0%
Other	-	-	-	-	-
Total	32,160,611	12%	79%	9%	0%

Summary of independent analysis

General View:

The project aims to understand the role that both network and demand-side solutions play in managing and planning networks in the future.

The project appears to be reasonably well developed and has some clear targets and objectives and is deliverable. The learnings are likely to be applicable across the UK DNOs.

Significant Issues:

There are no significant issues with this project

Specific Issues:

- The project is also sourcing funding from other sources. While some of this is secure (e.g. £100k from Thames Valley Consumer Consortium), others are still subject to negotiation (Bracknell Forest Homes: £50k, Other energy suppliers: £50k)

- There are still key elements of the project still to be tendered/finalised; the detail in the work packages suggests that key variations are likely to have been considered.

- The project will introduce a number of complexities where there is direct customer interface (e.g. forming an ESCO). While this was not addressed in the proforma, responses to questions provide further descriptions of activities including ESCO arrangements, relationships with industrial & commercial customers (incl. technology and commercial solutions provided through third parties, to allow customers to benefit from adjusting their behaviour), and payment regimes. While this includes a detailed description, the complexity could still represent a project risk.

- There is no explicit mention of organisations to manage personal data security through the assignment (*DNO comment: while no explicit reference has been made, we are aware this is of critical importance and it has been discussed with potential communication providers*)

- The DNO has raised the concern that the risk of increased monitoring may uncover existing network power quality issues

- We question whether community initiatives for the promotion of energy efficiency fall within the scope of the Low Carbon Network Fund (LCNF). We also note that SSE believe that it does fall within the scope of the LCNF and agree with the points they make, and merely raise the issue as a point of discussion for the Expert Panel.

- We believe that the carbon benefits as they have been explained are an over estimate

- No costs are assumed the GB roll-out, meaning the benefits reported are gross benefits.

- Key collaborators propose making significant contributions which appear to be commensurate with benefits. However details behind the funding contribution of each collaborator are not provided (e.g. details of benefits in kind or other financial commitments).

1. Accelerates the development of a low carbon energy sector

Summary:

The project aims to understand the role that both network and demand-side solutions play in managing and planning networks in the future.

We believe that the carbon benefits as they have been explained are an over estimate due to interpretational issues.

The learnings from the project will be applicable networks across the remaining DNOs.

<p>1.1. The proposal is closely aligned to priorities outlined in the current Low Carbon Transition Plan</p>	<p>The project involves the installation of a range of network monitoring and control solutions, including storage technologies, which will allow the modelling and control of the network in the face of increasing penetration levels of low carbon technologies, including PV and electric vehicles.</p> <p>The project also looks at the role that the demand side can play in managing network operational and expansion issues through commercially incentivised demand response for industrial & commercial and domestic customers and energy efficiency programmes. We also note that the project seeks to promote the role of electric vehicles.</p> <p>One of the stated aims of the project is alleviating fuel poverty. One of the means of delivering this activity is to “...promote renewable technologies and insulation schemes (through the CERTs scheme) within the Bracknell area in the public and private sectors, with particular emphasis on reducing fuel poverty” (extract from response to question SSE014). We note that the CERT scheme is an obligation on suppliers and therefore question whether this is within the scope of the Low Carbon Network Fund. SSE believes that this does lie within the scope of the LCNF fund as they are trying to create a future where boundaries between DNO and Supplier in this area are blurred. We agree with this and merely raise the issue as a point of discussion for the Expert Panel.</p>
<p>1.2. The calculations for carbon savings are robust (audit of calculations only)</p>	<p>The calculations of the carbon benefits appear robust.</p> <p>We note that the carbon savings are expressed as a 5% reduction in carbon due to DSM.</p>
<p>1.3. The carbon benefits of the project are credible</p>	<p>We believe that the carbon benefits as they have been explained are an over estimate.</p> <p>Referring to the KEMA report in Appendix 14.2, the table on page 5 shows the impact on carbon emissions of moving load from the peak and into the off-peak period for a number of representative days, with off-peak carbon emissions increasing and peak carbon emissions decreasing. The net results are overall reductions of between 0% and 11.9%, with a simple average 4.4% saving per annum as set out in the paragraph below the table.</p> <p>However this reduction is an over estimate. The peak and off-peak periods</p>

	<p>are both on average 6 hours long. This means that there are 12 hours of the day when there is <i>no change</i> in carbon emissions due to peak shifting. Hence the emission reduction should be approximately half those claimed $(12*4.4 + 12*0) / 24 = 2.2\%$.</p> <p>As a result we believe the £11.6B carbon savings that have been claimed to be an over-estimate.</p> <p>We note that SSE (correctly) assert that there is no defined approach to this, and that their approach is robust: the method they have used is the same as presented in National Grid and Ofgem's analysis as illustrated in Figure 2.1 of page 19 of the DSR Discussion Paper. However, we note that page 16 of the same paper gives indicative carbon savings of between 0.16% and 0.5%, significantly lower than the 5% that is claimed.</p> <p>The carbon savings are not valued using DECC prices. The carbon price assumption starts at £22/tonne in 2010, rising to £25/tonne in 2020 before increasing to £70/tonne in 2030 where it remains until 2050. We note that this is a conservative estimate.</p>
1.4. Extrapolation for roll-out is both statistically and technically sound, reliable and/or verifiable.	The carbon benefits are extrapolated from the Bracknell load to a GB level on the basis of relative load (see response to question SSE036), which seems reasonable.
1.5. Total energy system consideration as well as for DNO	There are no other specific assumptions on behalf of other system operators.
1.6. Assessment of Method's credibility	<p>The method is credible. It has identified a number of barriers, for example, managing network constraints and planning, and seeks to resolve these.</p> <p>The Method will also deliver carbon reductions through a combination of demand-side response and allowing the connection of more low-carbon technologies.</p>
1.7. Significance of the Deliverable	The Deliverable should provide learnings that are applicable to other GB DNOs, by bringing together learnings on network solutions and customer engagement in demand-side issues to determine how networks can be utilised and expanded to accommodate the low carbon future.
<i>Re-estimation of carbon benefits on the basis of "correcting for erroneous assumptions" or re-baselining</i>	

2. Has the potential to deliver net benefits to existing and/or future customers

Summary:

No costs are assumed the GB roll-out, meaning the benefits reported are gross benefits.

No benefits are claimed in addition to the carbon benefits discussed above.

2.1. The calculations for net benefits are robust	The calculation of net benefits appears robust.
2.2. The benefits claimed are credible	No benefits other than for carbon savings due to Demand Side Management are claimed.
2.3. The costs are credible	<p>No costs are assumed for the GB roll-out. This was queried with the DNO (SSE0025). Their response is reproduced below.</p> <p><i>A very clear theme of our Project is that we will be seeking to establish what the appropriate requirements for a solution are. We have stated that we expect the level of network monitoring we conduct, to be greater than that actually required, but until that is achieved we cannot put a cost on a GB roll-out. We also intend to determine what network management solutions are the most cost-effective to achieve the desired results. These costs and solutions will also be determined by the extension of the Tracking and Inferencing modelling across different representative areas. Therefore, we do not believe it is appropriate to take the cost of our activities and merely apply a pro-rata cost for GB deployment. We are particularly keen to demonstrate and enumerate how new approaches can be best achieved at lowest cost via adaptation and development of existing enterprise-wide DNO systems.</i></p> <p><i>We also anticipate a number of our initiatives to be private sector financed “quick-wins” which will commence deployment as soon as they have an established business model – eg PV promotion and network controlled building management systems. However, the financial incentives required to deliver these solutions also still need to be determined during the course of our Project.</i></p> <p><i>We refer to the significant piece of work conducted by Imperial College to ascertain the cost/benefits of “smart” versus traditional re-enforcement and we support the general findings of the study. We would not presume to conduct our own analysis in the timeframe required for the Bid submission, and believe any such attempt to do so would be misleading. We do however look forward the conclusions of our Project.</i></p> <p>Not assuming any costs means that the benefits presented are gross benefits.</p>
Re-estimation of net benefits on the basis of “correcting for erroneous assumptions” or re-baselining	

3. Has a Direct Impact on the operation of the distribution system

Summary:

The project considers the introduction of automated network reconfiguration. It is strong on the applicability of increased network monitoring leading to improved modelling and management.

Importantly the Project will trial “connect and manage” approaches in a “distribution system operator” role. It will alternate between network based and customer based solutions. There is potentially interesting learning for other DNOs.

The use of energy storage as pseudo-load to create load behaviours to test the network is novel and may be useful as a means to test stresses in a controlled and timely manner.

<p>3.1. Directly contributes to the planning, development and operation of an efficient distribution system.</p>	<p>Not clearly stated in Box 16 as to what the actual network impacts will be. The focus appears to be on timely access to the network and minimising customer cost issues imposed through distribution use of system charges.</p>
<p>3.2. The size of benefits that can be attributed to the Distribution System, taking into account the level of funding requested.</p>	<p>No clear definition of what will actually be done here. Certainly will involve some network automation and monitoring. <i>(DNO clarification: in addition via University of Reading, benefits will accrue by identifying where monitoring and automation is not required)</i></p> <p>Boundaries are not clear between DNO and wider benefits, however emphasis is made on the "demonstration" perspective which is an indication of this trying to be an enabler project</p>

4. Generates new knowledge that can be shared amongst all DNOs

Summary:

The project is focused on measuring and modelling demand/customer behaviour to gain better knowledge of different customer types. The learning activities are aiming at supporting DNOs as their networks become more active/dynamic.

The learnings will be available to the other DNOs. The Bracknell group is fairly typical of other DNOs and so learnings should be transferrable. It is investigating some useful generics for DNOs and the detailed programme shows useful activities. The project involves a wide range of activities and has a good spread of customer types and trials. The potential for good quality knowledge generation is high.

Dissemination will be led by SSE (although not explicitly stated) with support from University of Reading and Strathclyde, and possibly The IET as a KTP (Knowledge Transfer Partner). It will set up a Low Carbon Smarter Networks Centre for technical and non-technical audiences. This will be made available to other DNOs for 10% of the time. Additional industry consortia and community advice centres will be set up. An interactive Web Portal will be set up for the project. Relevant reports will be published on the ENA and SEPD websites.

There is a good level of dissemination activity. The engagement starts early in the programme and the formal reports are well defined and will be delivered from mid 2012. The project programme shows a wide range of outputs across a number of areas. Targeted at technical and non-technical audiences

Learning Chain Summary:

The project will be generating data and there are defined activities and appropriate partners to convert this into information and knowledge. There are real system trials planned as well as the LCSNC and so learning can be achieved for a range of parties.

4.1. Robust methodology to capture the results from the Project	<p>It is not clear from the proposal exactly what will be done in terms of measuring customer behaviour (DNO clarification: the project will measure consumer behaviour via 1000 smart meters and the activities of the University of Reading)</p> <p>See optional Appendix 16.1 for additional details.</p>
4.2. Applicability of the new learning to the other DNOs.	<p>The "new knowledge" is described only in generics which although the intent can be seen, it is not explicit in what is being learnt.</p> <p>See optional Appendix 16.2 for additional details.</p>
4.3. Effective plans to disseminate learning from the Project	<p>It is not explicitly clear which party is the lead disseminator, or rather, which party is in charge of managing the learning dissemination. (DNO clarification: SSE will lead all dissemination activities with support from Universities of Reading, Strathclyde and others as appropriate)</p> <p>See optional Appendix 18.1 for additional details.</p>

<p>4.4. Knowledge generated is novel including innovative plans, tools and techniques which will be shared openly and easily with DNOs.</p>	<p>Good degree of innovation shown. Not explicitly clear which project partner is managing these activities.</p>
<p>4.5. Effective treatment of IPR. (Where a DNO wishes to deviate from the default requirement for IPR)</p>	<p>Default IPR conditions</p>

5. Involvement of other partners and external funding

Summary:

Key parties involved in the project are summarised below. Organisations with an asterisk represent organisations which could have been categorised as collaborators

	<i>Equipment providers</i>	<i>Comms. providers</i>	<i>Energy retailers</i>	<i>Academic /Knowledge transfer organisations</i>	<i>Project managers/ consultants/ advisors</i>	<i>Public sector players/</i>
Collaborators	GE (IGE Energy Services Honeywell Control Systems Smarter Grid Solutions Ltd			University of Reading	KEMA Consultants	Bracknell Forest Council
Partners	Nortech Sentec S&C Digsilent Current Group Passiv Systems Coolpower Solarcentury Geothermal Int		npower Scottish Power Southern Electric Good Energy	IET, University of Strathclyde	DavisLangdon Ergon Energy	SEEDA Bracknell Forest Homes
Others mentioned						

Collaborators

Only SSE as partner and SGS (where SSE has a minority shareholding) are linked to SEPD. In both cases, they are sufficiently removed. All partners appear to commercial exposure on the success of the project.

Key collaborators have a necessary track record:

- Honeywell and GE are major international players.
- SGS is a smaller organisation – it is not clear how it would meet its role if it was involved in more than one successful LCN project. Further responses to questions confirmed the track record of the company working with most of the large energy companies in the UK and also discussed the size of the organisation: “*core team will have grown to 25 by 2011.*”. Considering response to the other SSE project, this project could account for 10%-20% of 2010 income.

There is no explicit mention of organisations to manage personal data security through the assignment. However it is noted that these issues have been discussed with their potential communication providers and SSE envisage that this partner/ supplier would provide expertise in this area.

Partners

The involvement of energy suppliers is important to provide information on Bracknell consumers, support communication with customers, explore future commercial arrangements, install smart meters etc. At this stage the project has engaged with SSE regarding meter roll-out; it is not clear regarding the extent of others involved in the project. However in follow-up questions it is mentioned that they are “supplier agnostic” and there are “contingencies for any non-involvement”; it is not clear what these contingencies are at this stage.

From follow-up questions, the project appears to have a sensible approach to engaging with partners/collaborators: “*Interest in the TVV project is increasing and more businesses are asking to get involved, however our strategy is to keep the number of high level partners to 5*”. This also reflects the need to manage the risk of any given party.

The large number of partners from industrial & commercial, public sector organisations is important to develop an ESCO model. This is also clarified in responses to questions: “*We have already enlisted the support of a number of the large businesses [who] benefit or be involved in the development of these [ESCO] solutions....*”. The interface with these partners appears to have been well considered and articulated.

The roles of Universities of Reading, Strathclyde and IET in knowledge transfer are not clearly described in the original proforma. Responses to questions clearly defines the role of each: “*University of Reading will lead the Tracking and Inferencing Modelling...The University of Strathclyde will also provide technical assurance for the active network management system and end-use control devices...The IET provides further high profile channel to reach an established and wide ranging stakeholder group*”

Honeywell Control Systems is listed as both a partner and collaborator.

The communication element is not yet out to tender and SSE is currently preparing scoping and tendering documentation subject to project approval. It is also noted that in parallel they are evaluating a short term solution to the communications challenge utilising SSE's existing systems. They note that “there is significant competition in this sector and believe that best value for the customer can be achieved by a tender process.”

External Funding

Key collaborators propose making significant contributions which appear to be commensurate with benefits. However details behind the funding contribution of each collaborator are not provided (e.g. details of benefits in kind or other financial commitments).

Also the nature of the contribution from some collaborators is not completely clear (though it is noted some clarifications were provided in response to questions):

- SGS is contributing £460K out of equipment spend of £2.797million for the HV/LV active network management. It is not clear if their contribution includes items such as software or IP licence requirements)
- Honeywell is contributing over £700K based on contribution of labour;
- the specific details of the benefit in kind from GE (£1.585) is not clear.

The project is also sourcing funding from other sources. While some of this is secure (e.g. £100k from Thames Valley Consumer Consortium), others are still subject to negotiation (Bracknell Forest Homes: £50k, Other energy suppliers: £50k)

6. Relevance and timing

Summary:

With the imminent uptake of low carbon technologies, the project is focusing on understanding and knowledge around demand accuracy and response applicability in order to manage future stresses. It will also feed into the smart meter roll-out.

There is a clear statement of intent of outputs to feed into DCPR6, in particular for this network group and whether the schemes are appropriate to avoid traditional reinforcement.

The focus is on issues expected on the Low Voltage network and ensuring that these can be foresighted accurately and appropriate responses available and targeted.

The project program shows that results are within appropriate timeframes.

<p>6.1. The timing of the project is appropriate</p>	<p>Only concern is whether the low carbon stresses will be tested in this network, load-related issues are mentioned but no guaranteed low carbon technology uptake.</p> <p>The storage elements can "simulate" this behaviour but this requires "prediction" of customer behaviour. <i>(DNO comment: some behaviours such as PV can be easily predicted, University of Reading will provide support for more complex predictions. This is a key part of TVV and measuring its accuracy and effectiveness is a vital learning outcome)</i></p> <p>Aims to feed into smart meter deployment but the decisions may already have been made in this regard by the time results are available.</p>
<p>6.2. Use of solution as part of their future business planning and how it would impact on its business plan submissions in future price control reviews, including DPCR6.</p>	<p>Good focus on addressing business impacts and the evolution/adaption of existing systems rather than replacement is practical.</p>
<p>6.3. Focus on developments associated with a move to a low carbon economy that are more likely to happen.</p>	<p>Project focused on appropriate developments</p>
<p>6.4. Time to tangible results</p>	<p>Project program shows that results are within appropriate timeframes.</p>

7. Demonstration of a robust methodology and that the Project is ready to implement

Summary:

The project undertakes a smart grid solution utilising active control, storage, DSM (at industrial & commercial level), and variable tariffs (at consumer level).

The organisational chart clearly breaks responsibilities by organisation and function (e.g. customer manager, delivery team, learning & dissemination etc). The bid preparation team have remained engaged for further preparation to ensure readiness.

Risk procedures are in place and a number of high level risks have been identified

The delivery criteria map well onto the key project activities.

<p>7.1. Detailed Project plan, with responsibilities clearly established and inter-dependencies identified.</p>	<p>Responsibilities and accountabilities are clearly laid out in the organisational chart.</p> <p>Detailed project plan clearly describing interdependencies. Apart from first meetings with consumer consortia, many of the milestones appear to occur in 2012 or later. Responses to questions confirmed this is due to timing of significant technical deployments. They subsequently suggested <i>other interim milestones for 2011</i></p>
<p>7.2. Resources to deliver the Project are of a sufficient size and quality to be reasonably expected to ensure its delivery.</p>	<p>Activities appear to have appropriate resources; specific roles of each collaborator per task are outlined in project organisation but not the plan in detail.</p> <p>There are major players with track-record are included in proposal. However collaborators notably Smarter Grid Solutions Ltd (SGS) are smaller and are involved in more than one LCN bid. However this is not anticipated to be an issue as they have a strong track record in delivering network management systems and SSE has worked with SGS since its inception</p>
<p>7.3. Demonstration that the Project can be started in a timely manner.</p>	<p>The project has already identified key aspects of the detail of the project and appears it can be started in a timely manner.</p> <p>Some funding still needs to be secured (e.g. Bracknell Forest Homes and Other Energy suppliers) and draft MoUs will need to be formalised (e.g. KEMA, UoR, and Bracknell Forest Council)</p>
<p>7.4. Risks to costs and benefits of the Project have been reasonably estimated.</p>	<p>There are still key elements of the project still to be tendered/finalised; the detail in the work packages suggests that key variations are likely to have been considered.</p> <p>Risks to costs/benefits have been discussed at a high level; these are not directly linked to the project plan or assessed in detail in the proposal.</p>

7.5. Assessment of proposed cost overrun percentage (if non-default?)	Default
7.6. Assessment of Direct Benefit protection (if non-default?)	No direct benefits identified
7.7. Identification of appropriate risk mitigation processes	<p>Risk procedures are in place and a number of high level risks have been identified. In particular the risk that the increased monitoring may uncover existing issues has been raised.</p> <p>Contingency is not included as a separated item but built in to individual costs</p>
7.8. Direct Impact on Distribution Networks on roll-out has been correctly identified	The information obtained will be of value to all DNO's
7.9. Immediate Project impacts on the proposer's network have been correctly identified	<p>Installation of new monitoring equipment, and storage batteries as well as automating circuit breakers.</p> <p>Active management of the network through DSM (commercial arrangements), energy storage (batteries) and network reconfiguration.</p>
7.10. Customer Impact and change required have been correctly identified	There is no evidence there will be any direct involvement of domestic consumer though obtaining information from smart meters does appear part of the scheme. Industrial & commercial customers will be incentivised through new commercial arrangement
7.11. Technology Viability	<p>Low risk.</p> <p>The project undertakes a smart grid solution utilising active control, storage, DSM (at industrial & commercial level), and variable tariffs (at consumer level).</p> <p>Risk of component failure high but risk of project failure low due to the numbers of and diversity of equipment being uses. However a significant part of the project is data collection, through extensive monitoring, and associated analysis thus risk of total failure is low. The risk of failure to deliver a suitable model mitigated by use of reputable university.</p>
7.12. Successful Delivery Criteria	Revised successful delivery criteria align with project milestones and timescales provided.

7.13. Contractual proposals	<p>The project will introduce a number of complexities with respect to commercial arrangements where there is direct customer interface (e.g. forming an ESCO). While this was not addressed in the proforma, responses to questions provide further descriptions of activities including ESCO arrangements, relationships with industrial & commercial customers (incl. technology and commercial solutions provided through third parties, to allow customers to benefit from adjusting their behaviour), and payment regimes. While this includes a detailed description, the complexity could still represent a project risk.</p>
7.14 Derogations and exemptions	