Low Carbon London
'A Learning Journey'

Project Progress Report
17 June, 2011

V1.0 Final

Contents

1. Executive Summary

Low Carbon London is an ambitious learning project to pilot a wide range of low carbon tools and techniques that will help London and other areas of the UK to accelerate their move to cost-effective low carbon electricity networks.

It is a £29.9m project, spanning 3.5 years that brings together many specialists in their field to create a 2020 low carbon network scenario in London which can be replicated by other electricity network operators in the UK.

The project's comprehensive portfolio of trials explores all the challenges and opportunities for the distribution network operator in a low carbon economy. The trials are built around eight inter-related use cases that explore how different technologies and commercial arrangements operate and interact.

UK Power Networks will deliver Low Carbon London with 12 project partners, ranging from niche specialists in low carbon network management through to large global enterprises, as well as key London public bodies such as the Mayor's Office and Transport for London.

The first six months has seen the project mobilise across all of its 18 workstreams, taking a practical approach to overcoming some of the early challenges (e.g. identifying participants in electric vehicle trials) such a complex project presents. We have also established robust governance practices for the project with weekly workstream meetings, a monthly steering group for all project partners and key internal stakeholders within UK Power Networks, and a Project Partners Strategic Meeting for chief executives or senior representatives from UK Power Networks and all project partner organisations.

All key milestones have been met in this reporting period, including signing the first responsive-demand management contract, mobilising the project across 18 separate project workstreams and submitting the customer communications plan and data protection strategy to Ofgem.

However, the slippage in the DECC implementation programme for the deployment of smart metering across the UK and the delay in the domestic Renewable Heat Incentive (RHI) have had a detrimental impact on the early access to smart meters and heat pumps within the project. Furthermore, the prevailing economic conditions have had an impact on some of the project's assumptions; in particular, the take-up and subsequent availability of new generation electric vehicles has been slower than anticipated.

It is too early to say whether these factors will have an enduring and significant impact on the project and the associated trials. The project is mitigating the impacts on a tactical basis and is monitoring the situation closely to assess any longer-term impact on the overall objectives of the project and will provide an update in the December project progress report to Ofgem, or sooner if required.

The project has a strong emphasis on the need to capture, analyse and disseminate the learning from the trials, not just on a local basis, but on a national and potentially global basis. The ambitious nature of many of the use cases deliberately stretches current industry thinking and practice, so we expect to encounter 'working-level' difficulties and challenges as the project progresses. These difficulties and challenges present valuable learning opportunities and we have set in place processes to capture and include them in the overall learning dissemination framework.

The project has captured early learning in a number of areas, most notably in the work undertaken so far in distributed generation and responsive demand management. This learning has been fed back into subsequent phases of the project and will be shared with the wider industry at the ENA Low Carbon Networks conference on the 20th and 21st July, an ENA/ERA demand side management workshop in July, and at a UK Power Networks responsive demand seminar planned for September 2011.

2. Project Manager's report

Background

The initial six months of the Low Carbon London (LCL) project have focused on the successful mobilisation of the project, establishing the project governance framework, continuing the overall solution detail design and delivering the milestones due for this period.

The project is a comprehensive and multi-dimensional set of inter-connected trials based on use cases describing many different elements of low carbon electricity distribution network management. The project is delivered through a collaborative partnership framework led by UK Power Networks and encompassing eleven other partners.

The use cases form the basis of 12 technical project workstreams, eight of which are led by UK Power Networks, the remainder led by LCL partners. The project has also created six additional non-technical but critical project workstreams to address the cross-use case themes of customer engagement, data security and privacy, learning (capture, analysis and dissemination), finance, project management office and communications, public relations and stakeholder management, and these are led by a mix of UK Power Networks and partner personnel.

The recent DECC announcements on the delayed timetable for the smart meter technical specification have impacted some of the project's timelines for activities associated with installing compliant meters. We have mitigated this in a number of ways, for example by starting discussions with meter manufacturers and others in the meter supply chain.

We have also engaged with British Gas to work across a number of the project's use cases. At the time of this report, UK Power Networks and British Gas have agreed in principle headline terms that will enable British Gas to join the Low Carbon London project as a new participant.

Figure 1 (next page) describes the overall framework of the project use cases.

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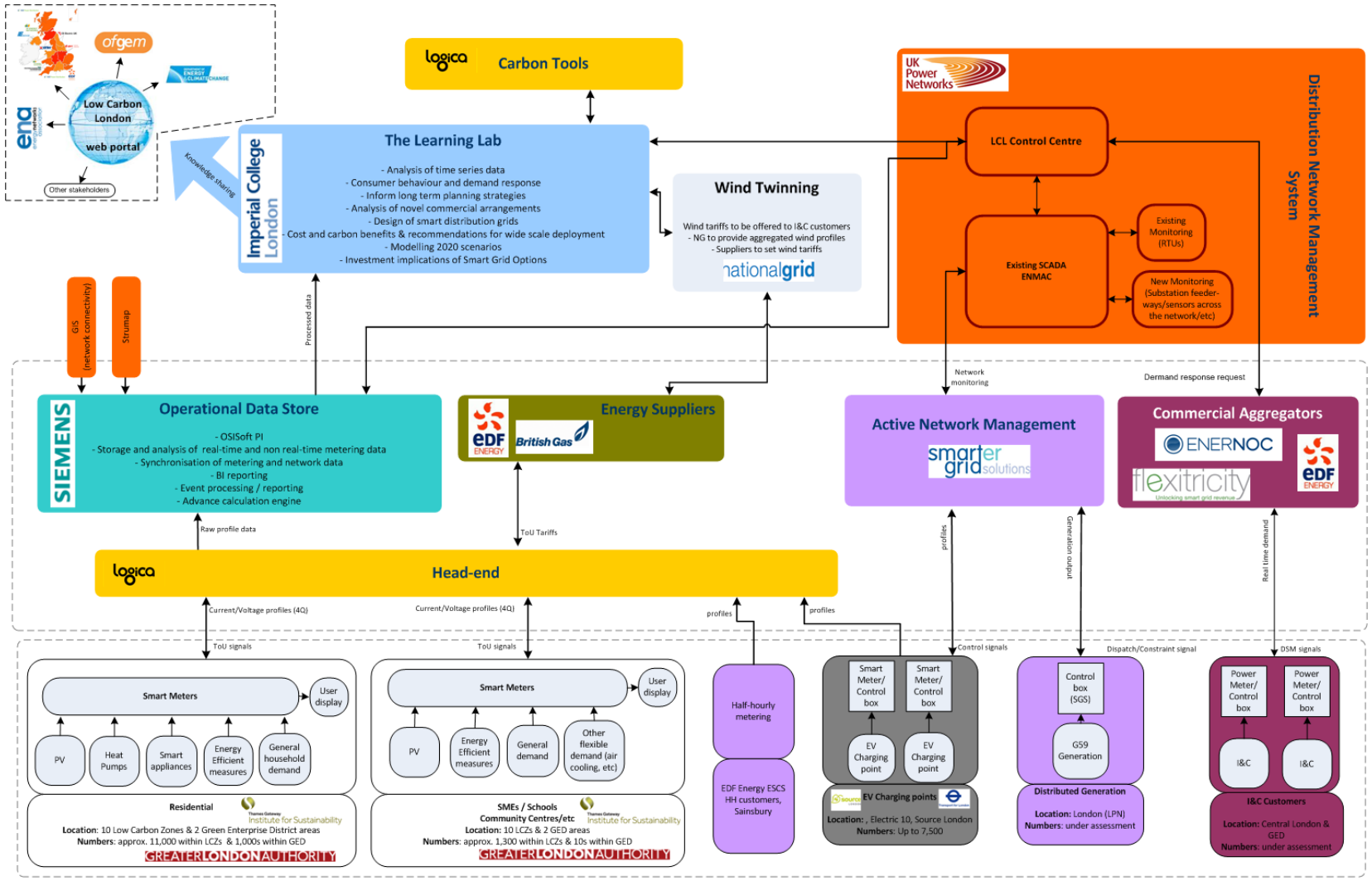


Governance

The governance framework reflects the collaborative nature and partnership ethos of the project, by enabling all parties and stakeholders to have regular visibility of the project and its progress – and, where appropriate, to share in making decisions.

The core of the governance framework is a monthly project steering group meeting, attended by all the project management team, the project partners and UK Power Networks senior stakeholders.

This is the primary operational governance body and has evolved from the two separate meetings outlined in the initial report submitted to Ofgem in February 2011. It represents a more streamlined but inclusive governance framework that better encourages transparency and partner buy-in to the project.

The UK Power Networks CEO also has regular executive management oversight of the project. Once a month, Low Carbon London is a routine agenda item on the weekly UK Power Networks Executive Management Team meeting, chaired by UK Power Networks CEO. This agenda item is presented by the Low Carbon London Project Director reinforced with a monthly project update report submitted to the Executive Board.

In addition, the UK Power Networks CEO chairs a quarterly meeting of the Project Partners Strategic Group, comprising senior executive representatives from all twelve project partners, providing a final escalation point for any issues arising, as well as senior-level strategic guidance.

At a working level, the project operates through a set of bi-weekly and weekly meetings. The project sponsor holds a bi-weekly review meeting with the project director, project manager and chief architect. The project director further reviews project progress on a weekly basis with the project manager.

The project manager also holds a weekly meeting bringing together all project workstreams. This is supplemented by a set of bi-weekly individual workstream review meetings with the project manager and a framework of regular meetings with clusters of workstreams with a common interest in technical or non-technical dimensions of the project.

The project also operates under the auspices of the internal UK Power Networks formal project methodology and governance framework, and reports on a monthly basis to its overseeing executive body, the Project Governance and Control Group.

The overall governance framework has a natural flow through from level to level and enables effective escalation of issues if needed. The monthly project steering group routinely receives in-depth presentations from two individual workstreams, scheduled on a rota to allow the full portfolio of project workstreams to be presented at least once a year to the project steering group.

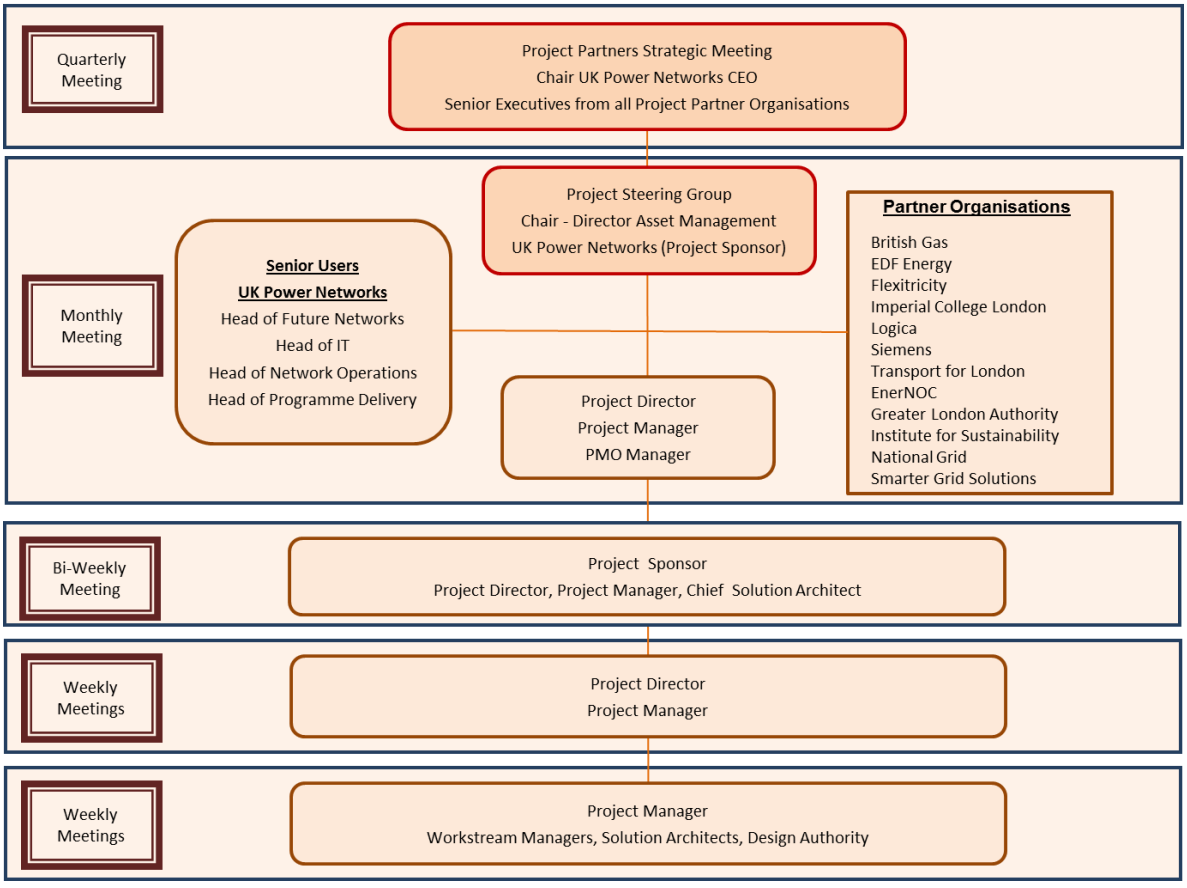
Table 1 below describes the UK Power Networks internal LCL reporting controls

Frequency	Report	Recipient (S)	Purpose
Monthly	UK Power Networks Executive Management Team Report	UK Power Networks CEO	Monthly executive oversight
Monthly	UK Power Networks Project Governance & Control Report	UK Power Networks Head of Project Delivery	Monthly internal project governance and control oversight

Monthly	LCL Programme Steering Group Report	UK Power Networks Project Design Authority Managers	Monthly internal management design oversight
Bi-Weekly	LCL Project Sponsor Report	LCL Project Sponsor LCL Project Director	Project sponsor oversight
Bi-Weekly	LCL Project Workstream Reviews	LCL Project Manager	Individual workstream project management oversight
Weekly	LCL Weekly Management Review	LCL Project Director	Project Director weekly delivery oversight
Weekly	LCL Project Workstreams Meeting Report	LCL Project Manager LCL Project Management Office All LCL Project Managers All LCL Workstream Leads	Detailed project workstreams progress, risks and issues, learning,

Figure 2 below describes the governance framework

Figure 2 – Project Governance Framework



Project Operating Model and Work Breakdown Structure

The multi-dimensional and highly integrated nature of the use cases has required the project to adopt an operating model that:

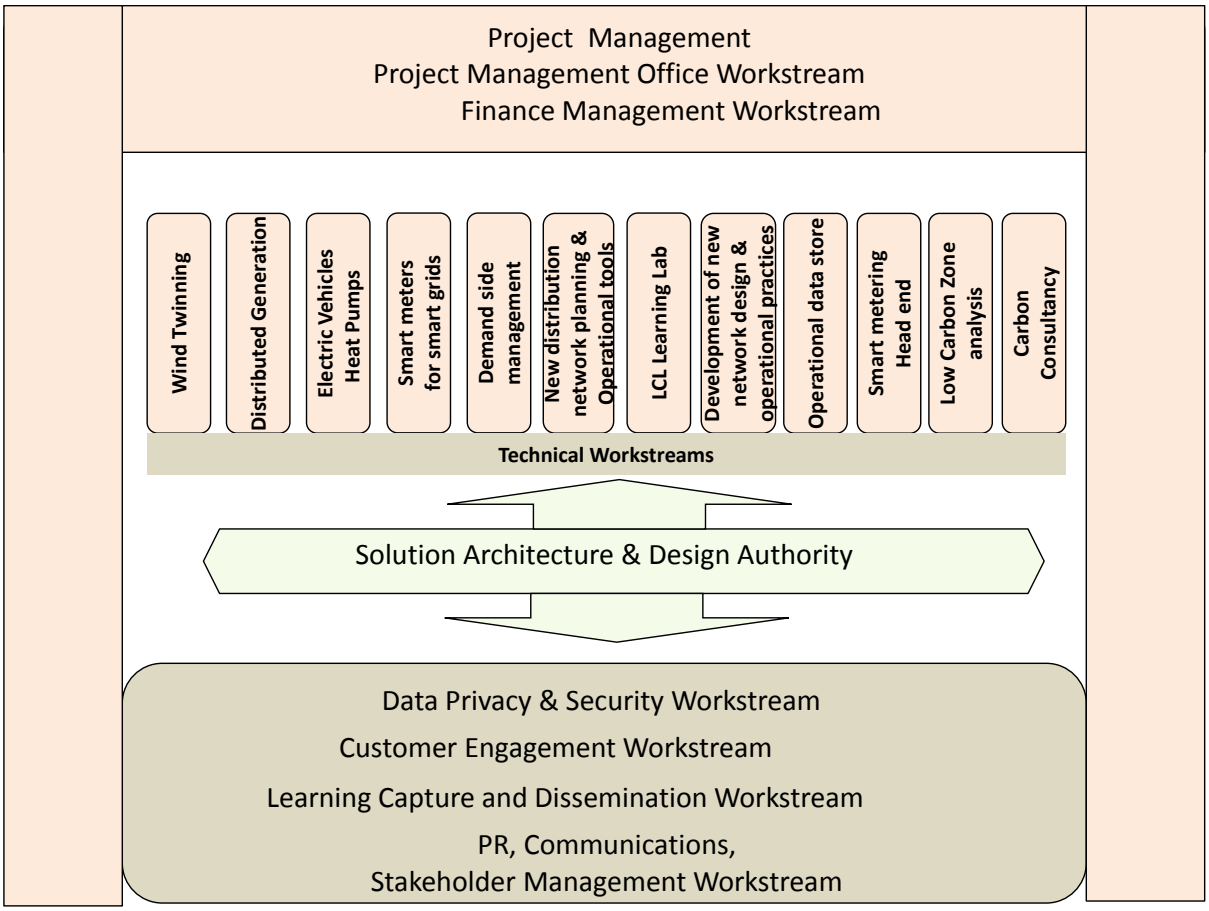
- divides the work into manageable workstreams
- promotes consistency in cross-workstream themes and dependencies

The project has created 12 technical workstreams that mirror the use cases. The workstreams are clustered into logical groupings led by a project manager. Six further non-technical workstreams have also been established for critical dimensions of the project that require a quality and consistent approach throughout the project:

- customer engagement
- data privacy and security
- communications and stakeholder management
- learning capture, analysis and dissemination
- finance
- project management office

These particular workstreams ensure a consistent approach to these critical disciplines is taken across the technical workstreams.

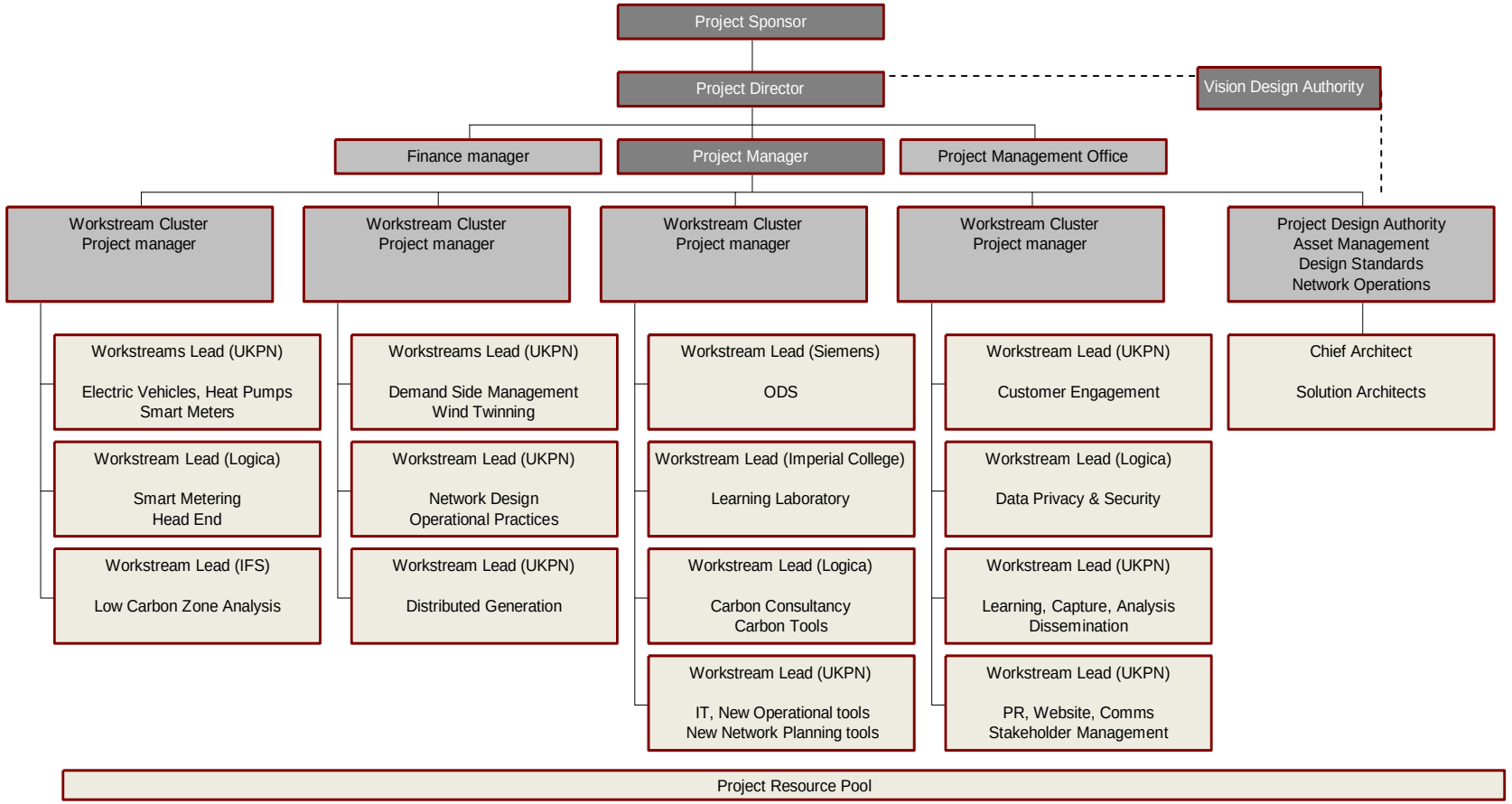
Figure 3 describes the project operating model and work breakdown structure



Project Organisation

The project organisation has evolved as the project has moved into different phases of the project. Project workstreams have been created as the need has arisen for focused activity in certain areas. The current project organisation is described below in figure 4

Figure 4 **Low Carbon London Project Organisation**



Progress made this period

The project has made good progress, mobilising 18 project workstreams led by UK Power Networks employees to deliver a multifaceted project with 11 external partners. The governance framework was quickly established with all levels of governance meeting within the first month of the project. Since then, all meetings have been held as planned, with the second quarterly Project Partners Strategic Group held in early May 2011.

Resources

Resourcing workstreams from within UK Power Networks has had to be coordinated with the transfer of the company to new owners and the establishment of the company as a new stand-alone legal entity in its own right. As an operationally customer service driven and efficiency-focussed company, we have taken steps to identify, release and mobilise appropriately skilled resources once there are clearly scoped and defined tasks for them to deliver. Given the very strong commitment to the Low Carbon London project from UK Power Networks senior management, there is firm commitment to secure the appropriate level of resource and expertise required for the project on an as required basis.

Dependency matrix

A key focus for this period has been embedding the use cases into the respective workstreams. The project consists of a complex and integrated set of trials within the use cases, which require careful and deliberate orchestration in order to progress. To facilitate this, a dependency matrix was established early on to identify and address the various workstream and use case inter-dependencies.

Detailed project plan

Significant work has been undertaken to develop, evolve and validate the detailed 1650-line bid submission project plan into a cogent and integrated project delivery plan. This process has identified a small number of inconsistencies between some milestones in the bid document, the published Project Direction and the overall solution design and internal solution chronology.
These inconsistencies all relate to components of evidence related to an SDRC, rather than to the SDRC itself, and primarily arise from the considerable re-scoping of the project that was undertaken from original bid to the final bid submission. Work is still ongoing to finalise the best approach to take on these, as some are dependent upon the final timetable for the availability and deployment of a technically compliant smart meter and the matter will be revisited in subsequent Project Progress Reports.

First demand side contract

The delivery highlight this period has been securing the first responsive demand contract placed with our commercial aggregators. This was a major milestone for the project and represents a first of its kind within the UK. Going forward, further contracts will be placed to evaluate the feasibility of responsive demand contracts under various daily load profile scenarios (for example very peaky demand curves and relatively flat demand curves). In this way, the economic efficiency, speed of response, limits of duration, and confidence levels associated with responsive demand will be tested – and hence its suitability as a substitute for conventional network reinforcement.

Technical work

Much of the technical work this period has been concentrating on establishing the component parts of the overall solution. In certain areas of the solution, due to the prevailing economic conditions and recent DECC announcements on the timetable for the smart meter implementation and the postponement until October 2012 of the introduction of the domestic element of the renewable heat incentive, some components have not progressed as quickly as originally planned.

These external factors have also had an impact on the availability of latest-generation electric vehicles and early availability and access to them within the project is currently proving more challenging than originally envisaged. Furthermore, announcements on the timetable for the deployment of smart meters

and the availability of the domestic Renewable Heat Incentive have had a detrimental impact on the intended early availability of smart meters and heat pumps in the particular areas of the network targeted for the project's trials.

Mitigation plans have been implemented to alleviate these issues where possible, and the impact on the project of these factors and the mitigating action taken to date is discussed in more detail in Sections 4 and 7 below.

It should be noted that those parts of the project not impacted by external factors (e.g. operational data store and smart metering head end system) are all progressing well to time, budget and quality.

Outlook for next reporting period

The next six months continues the work to build test and deploy the foundation components of the project solution. Key deliverables in the next period include the set up of the Learning Laboratory by Imperial College London, the start of the electric vehicle (EV) trials and the delivery of an in-depth customer engagement strategy for smart meters. The following table details the main deliverables due in the next reporting period.

Date	Description of Milestone	Status / Comments
30 Jun11	Learning - Lab setup	On target
8 July 11	EV trials begin	On target
30 Sep 11	Documented privacy & security strategy	On target, data privacy and security assessment underway
08 Jul 11	Learning - Lab setup complete	On target
22 Jul 11	SMART - smart meter Interface to Operational Data Store Complete	On target
01 Sep 11	PM - LCL stage 2 planning completion	On target
30 Sep 11	SMART - smart meter Setup and initial installation complete	Potentially at risk - impacted by delays in the DECC announcement on the timetable for a smart meter specification
30 Sep 11	Learning - demonstration of Lab facilities & documented schedule of trials	On target
30 Sep 11	Learning - Laboratory commissioned Q3, 2011	On target
30 Sep 11	SMART - demonstrate initial head end functionality	On target
30 Sep 11	SMART - Logica Head End commissioned	On target

30 Sep 11	SMART - preparation completed for 5000 smart meter rollout	Potentially at risk - impacted by delays in the DECC announcement on the timetable for a smart meter specification
30 Sep 11	SMART - results of smart meter acceptance surveys	Definitely delayed - impacted by delays in the DECC announcement on the timetable for a smart meter specification Now provisionally re-scheduled for completion end Q4 2011, subject to technically-compliant device
30 Sep 11	SMART - statistical analysis of smart meter trial sample size	Potentially at risk - impacted by delays in the DECC announcement on the timetable for a smart meter specification

The DECC announcement on the timetable for finalisation of the UK smart metering technical specification has impacted the smart meter-related activities and deliverables. As a result of the new timetable we do not anticipate technically compliant smart meters becoming readily available until early in 2012. This in turn may require a short postponement of the customer engagement work aimed at securing participation in smart metering related trials. This is because of our desire to adopt industry best practice in keeping the elapsed time minimised between gaining consumer consent and installing a smart meter. Much of the planning work, including any associated SDRC evidence, needs to be synchronised with the production availability of a technically compliant smart meter which at this stage still is to be determined.

At present, the main area of impact on SDRC-associated evidence is the results of the customer smart meter acceptance surveys. This activity is now scheduled for completion by end of Q4 2011. This revised deadline is still likely to prove challenging, and with the possibility that a technically compliant smart meter may not be available until Q1 2012, may be subject to further adjustment in due course, in order to minimise the time lapse between consent and meter installation in line with industry best practice.

Further mitigations have been enacted through liaising with potential alternative smart meter suppliers and discussions with companies in the smart meter supply chain. It is still planned to have 500 smart meters within the trial by year end and although these currently available devices may not be fully future-technically compliant, they will meet the needs of the first phase of the project.

All other related SDRC evidence due for end Q3 2011, through careful mitigation and planning, is still on schedule for end Q3 2011.

The project is also actively working to contribute to the upcoming LCNF Conference on 20-21 July by disseminating the learning gained to date.

3. Business case update

There have been no changes to the carbon savings predicted in the bid stage. In order to ensure that carbon savings are correctly calculated, Logica's sustainability practice is assisting with calculating carbon savings for each workstream. These savings will then be extrapolated to produce a carbon emission reduction figure for Great Britain as a whole up to 2050. Once the trials are underway we will monitor these figures and compare them to the estimates submitted in our bid.

As a result of utilising Demand Side Management (DSM) we expect to be able to defer network reinforcement from DPCR5 to ED1, as declared in our project bid submission. Since we have yet to perform DSM trials, we have no reason at this stage to believe our declared level of savings will change. We will be performing a cost benefit analysis at the end of Phase 1, during Q4 2012, consistent with our project bid submission, the findings of which will be used to update the next report to Ofgem.

4. Progress against plan

Most of the key / high level milestones for the first six months have been met, although some have slipped (details below). At this time, these slippages do not impact on the critical path or successful delivery reward criteria.

The most critical activity in the first six months was project mobilisation, especially with the complex and interdependent nature of the Low Carbon London project. This mobilisation included:

- Establishment of project "headquarters" at UK Power Networks
- Establishment of interdependent workstreams (project) aligned to the use cases
- Resourcing to build each workstream up to required strength (see issues below)
- Solution workshops (for the project and for each workstream) to make sure the teams understood the overall project, and their respective roles and objectives within it
- Establishment of a strong governance structure (including Project Steering Group, Partner Strategy Group, and UK Power Networks' Executive Management Team, which meet monthly, quarterly, and monthly respectively)
- Establishment of the project management office

Solution design was another major activity area, in which we went down to a more detailed design and planning level than was available at the bid stage. This included

- additional solutions workshops for the project and for individual workstreams;
- Prince 2 product descriptions for all key deliverables; and
- deliverables, milestones and dependency matrix.

Further key activities / deliverables have included

- Draft data security strategy;
- First responsive demand contract in place; and
- Customer analysis for potential participants for the various trials.

Slippage has occurred with some milestones / deliverables:

- Collaboration agreement signoff. All but one of the partners has signed off, with some minor issues are still being resolved between UK Power Networks and Imperial College London
- List of target customers. Identifying potential participants (smart meters, electric vehicles, heat pumps etc.) is taking longer than expected (see Issues below for more details and mitigating actions
- Knowledge sharing portal. The portal design and build has been pushed back by two months, to allow more time to identify potential participants (see previous point)

Issues

The delay in a final published smart meter technical specification may materially affect the roll out of smart meters across the UK, with some industry players unwilling to commit significant investment without a clear agreement on specifications. A delayed roll out means we may have to settle for a smaller number of participants in smart meter-reliant trials, or trial starts will be delayed, or trials will have to run longer than originally planned. The following mitigation actions have been initiated:

- Our statistical analysis of smart metering trial sample sizes will include an assessment of the statistical impact / validity of a smaller sample size

- We are currently assessing the potential impact and feasibility of delaying or extending trials, if necessary, to achieve the target number of smart meters. This assessment includes cost implications, and the knock on effect of activities, deliverables, or milestones which are dependent on the smart meters

- To mitigate the impact of a delay in smart metering roll out, we are talking with another potential collaborator (British Gas) about accessing their smart meter customer base in London

Initial indications are that there are very limited numbers of heat pumps in the geographic areas originally targeted. We are looking at expanding the geography of the heat pump trials to increase the sample size.

The take-up and subsequent availability of the latest generation of electric vehicles is much less than anticipated. The project is seeking to mitigate the impact of this by actively engaging with private and public organisations such as EV manufacturers, EV suppliers, EV owners clubs, TfL, Source London, EV charging post operators, local councils and supermarkets to get as significant a critical mass as possible.

As the project organisation mobilised and progressed with the detailed planning, it became evident a small number of milestones needed to be reviewed either because additional dependencies or new issues were identified, or because the learning outputs would benefit from re-scheduling the milestone or deliverable date to be later in the project (see also section 7 on SDRCs). Work is still ongoing to evaluate the best approach to these, as the continuing uncertainty around external factors impacting some of them, specifically those associated with the implementation of a technically compliant smart meter, is yet to be resolved.

Key Achievements & Notable Events

The mobilisation of such a large partnership was a major achievement in its own right. The Low Carbon London project has developed a genuine culture of teamwork and co-operation.

The series of solution workshops proved invaluable for both validating and progressing the solutions for each workstream and the overall project. They provided a means for:

- Identifying potential issues
- Confirming existing and identifying new dependencies
- Getting into more detailed timetables and plans

Awareness of Low Carbon London within the various partners is high, thanks to good publicity and promotional activities. This not only raises the internal profile of the project, but allows staff to flag their interest in joining the project in the future.

UK Power Networks is actively encouraging young graduate engineers to join the team, and several are already on the project. The opportunity afforded by such a project allows the graduates to get in on the ground floor of this exciting project, and is seen as a key success factor for the longer term embedding of change throughout UK Power Networks.

Plan for next reporting period
Several SDRC's due in the next reporting period (Specifically by end Q3,2011), viz.

- Smart metering head end commissioned
  - Demonstration of initial head end functionality
- Learning laboratory commissioned
  - Demonstration of learning laboratory facilities at Imperial College
  - Documented schedule of trials
- Preparation for smart meter roll out complete
  - Results of smart meter customer acceptance (take up) surveys
  - Documented privacy & security strategy
  - Statistical analysis of smart meter trial sample size

There are additional milestones and deliverables other than just SDRC's, such as

- Knowledge sharing portal (Q3 2011)
- Learning - half yearly workshop for industry & public partners (Q3 2011)

All the above milestones are on track to be delivered as scheduled, with the exception of the smart meter acceptance surveys which will be synchronised with the deployment of technically compliant smart meters; current plans expect the slippage to be contained to three months although this may be subject to further revision once the production availability date of a suitable smart meter becomes clearer.

5. Progress against budget

The expenditure for the project to date is contained in the table below.

	Actuals May-11 YTD	Budget May-11 YTD	Variance	% Variance	Budget Total project	Budget 2011 FY	
Box 6 (Employment costs)							
Programme Director	55	56	1	2%	512	115	
PMO	14	22	8	36%	310	62	Lower resource availability than planned
Communications & Commercial Managers	61	61	-	-	468	146	
Administrative Support	5	6	1	17%	154	28	Lower resource availability than planned
Technical Lead	46	57	11	19%	630	136	Lower resource availability than planned
Network Operations Staff	86	251	165	66%	2,520	1,132	Lower resource availability than planned
Box 7 (Equipment costs)	-	-	-	-	-	-	
5 ANM schemes	150	150	-	-	844	566	
40 aggregator equipment/devices	-	-	-	-	650	-	
smart metering	-	-	-	-	693	69	
Plugged in Places contribution	-	-	-	-	1,125	563	
Substation works	-	370	370	100%	1,328	888	Original budget assumed works would start earlier
Box 8 (Contractor costs)	-	-	-	-	-	-	
Box 9 (Customer and user payments)	-	-	-	-	-	-	
Aggregator payments to I&C customers	-	281	281	100%	2,440	1,267	Original budget assumed DSM work would start earlier
Box 10 (Other costs)	-	-	-	-	-	-	
IT costs – operational data store	799	799	-	-	2,001	1,634	
IT costs – Carbon Tool licensing	-	-	-	-	70	70	
IT costs – SGS support & software licence	-	-	-	-	465	-	
IT costs – Aggregator IT costs	-	19	19	100%	163	85	Original budget assumed DSM work would start earlier
IT costs – comms, infrastructure, environment and interfaces	-	178	178	100%	640	428	Original budget assumed works would start earlier
IT costs – Logica head end	32	32	-	-	596	178	
Contingency	37	488	451	92%	3,247	1,154	Contingency was budgeted throughout life of project, expected to be utilised later
Abnormal travel	1	1	-	-	20	6	
Public engagement/learning dissemination	183	183	-	-	1,728	470	
Inflation	-	-	-	-	747	-	
Partner/Collaborator labour costs	888	888	-	-	7,007	2,066	
Other solution/implementation costs	-	-	-	-	380	180	
Programme Management Other	112	124	12	10%	1,150	313	Original budget assumed training would start earlier
Total	2,469	3,966	1,497		29,888	11,557	

The Project budget has been developed by taking the high level original submission budget and breaking down cost items to create a monthly budget to report against. The budget reflects the agreed payment profiles following the signing of contracts with the collaboration partners.

During the process of breaking down the budget a number of minor errors and changes of assumptions were identified. However, at this point the budget has not been changed. It is anticipated that as further clarity on costs is obtained as the project progresses, there will be sufficient detail to enable a formal budget change request to be created. It is Low Carbon London's intention that any anticipated cost over-runs on a specific budget line is made up by efficiencies in spend elsewhere.

Any change to the original bid budget requires the raising of a budget Change Request for consideration of the Project Steering Group. This does not include mapping issues where we consider a re-classification of the nature of costs appropriate such as the distinction of software development costs and other partner labour costs. As at the end of May, only one such request had been raised and approved, at a value of £5,250.

At this stage of the project it is not anticipated that any line is projected to exceed 5% of the bid submission line total.

Performance against budget
Most lines are behind budget; this is due to the prioritisation of planning activities and mobilisation delays against the submitted bid assumptions and consequent initial project budget for the first half of the year. It is anticipated that the cost under runs will be recovered once the project is fully resourced.

Countering this under spend, the cost of business resources charged for to the project is more than was anticipated in the bid. This is in part due to the higher cost of the specialist expertise required for input into the project. Furthermore, a number of ancillary expenses such as travel were higher than anticipated in the bid. The budget for this is coming from the contingency provision.

6. Bank account

There has been two months' worth of receipts from the Low Carbon Networks fund. Approximately one month's interest has been accrued as monies are received towards the end of each month.

There have been delays in signing collaboration agreements with LCL partners EDF Energy (now signed) and Imperial College (still outstanding). This has prevented the project from making payments from the project bank account, as the conditions set out for this in the Project Direction have not been fully met. To date, UK Power Networks has been bearing the cost of financing the project with all project payments being made from UK Power Networks bank accounts. The outstanding collaboration agreement is expected to be signed later this month.

Figure 5 shows the bank account summary

Bank account summary	£ '000
Opening balance	-
LCNF receipts (two months)	4,151
Interest received	1
Balance @ 31/05/11	4,152
Held as:	
Balance at bank	152
Money Market deposit (overnight)	4,000
Balance @ 31/05/11	4,152

7. Successful delivery reward criteria (SDRC's)

The Low Carbon London project use case activities and related SDRC's are divided into two distinct phases, a build phase and a trial (conclusion) phase. The activities during this and the next reporting periods are primarily concerned with the build phase

Build Phase SDRC's	Status
Preparation of solution implementation complete: Logica smart metering Head End solution and Learning Laboratory commissioned (Appendix 2, use case U07.1 and U07.2).	At this stage we anticipate no delays in the Logica Head End Solution or in commissioning the Learning Laboratory.
Preparation for c.5,000 smart meter roll out complete, including address selection, acceptance surveys, privacy and security measures	As a result of the delays to the national smart meter rollout, we do not expect to have all work completed by the end of Q3 2011. We anticipate having selected addresses and completed privacy and security measures, but we do not anticipate having completed acceptance surveys until later in the project by the end of Q4 2011, or later, depending upon the availability of a technically compliant smart meter.
1st stage of solution implementation complete: Operational Data Store and interface to Logica head end commissioned, smart meter installation underway and "carbon impact tools" delivered.	At this stage we anticipate no delays to the Operational Data Store or the interface to the Logica head end and we anticipate the smart meter installation to be underway. We also anticipate the carbon impact tools to be fully operational.
Implementation of initial trials based on data from the initial smart meters and half hourly industrial & commercial (I&C) customer meters with analysed results	We anticipate that initial trials will have been performed on time, due for completion Q2 2012.
Trials Phase SDRC's	**Status**
Conclusion of "Using Smart Meters and Substation Sensors to Facilitate Smart Grids" trials – complete Q2 2012. Understanding customer behaviour and potential network impact (Appendix 2, use case U04.1) Use of Smart Meter information to support distribution network planning and design (Appendix 2, use case U04.2) Use of smart meter data to support network operations (Appendix 2, use case U04.3)	Timely completion of this SDRC will depend on no further delays to the DECC smart meter specifications.
Conclusion of "Enabling and Integrating Distributed Generation" trials – complete Q2 2013 Facilitating connections to LV and HV distribution networks (Appendix 2, use case U02.1) Active Management of DG to address security of supply concerns and postpone network reinforcement (Appendix 2, use case U02.2)	Timely completion of this SDRC will depend on successful recruitment of DG owners to participate in trials.
Conclusion of "Enabling Electrification of Heat and Transport" trials – complete Q4 2013 Exploring impact of electric vehicle charging (Appendix 2, use case U03.1) Exploring the impact of heat pump demand (Appendix 2, use case U03.2)	At this stage we anticipate no delays in completing this SDRC. However, this is dependent on a supplier offering Time of Use (ToU) tariffs. EDF Energy, our current supplier partner has flagged major IT systems issues which may prevent them from being able to offer customers ToU tariffs. To mitigate this risk we have agreed headline terms with British Gas who have confirmed capability to offer ToU tariffs.
Conclusion of "Residential and SME Demand Side Management" trials – complete Q3 2013 Energy Efficiency programmes and technologies (Appendix 2, use case U05.1.a) Consumer Behaviour demand response and responsiveness to TOU tariffs" trials (Appendix 2, use case U05.1.b)	Timely completion of this SDRC will depend on no further delays to the DECC smart meter specifications. In addition, this SDRC is dependent on a supplier offering ToU tariffs. EDF Energy, our current supplier partner, has flagged major IT systems issues which may prevent them from being able to offer customers ToU tariffs. To mitigate this risk we have agreed headline terms with British Gas who have confirmed capability to offer ToU tariffs.

Conclusion of "I&C Demand Side Management" trials – complete Q1 2014 Demand side management with I&C customers (Appendix 2, use case U05.2) Demand side management conflicts and synergies (Appendix 2, use case U05.3)	At this stage we anticipate no delays in completing this SDRC.
Conclusion of "Wind Twinning" trials – complete Q1 2014 Wind twinning through TOU tariffs with Suppliers (Appendix 2, use case U01.1) Wind twinning through responsive demand contracts with Commercial Aggregators (Appendix 2, use case U01.2)	At this stage we anticipate no delays in completing this SDRC.
Conclusion of trials Q2 2014 for: "New Network Design and Operational Practices" (Appendix 2, use case U08) "Network Planning and Operational Tools" (Appendix 2, use case U06)	At this stage we anticipate no delays in completing this SDRC.

The smart meter trial may also suffer slow take-up and this will be monitored to make sure any statistical conclusions are made against a valid sample size.

8. Learning outcomes

Distributed Generation

To recruit owners of distributed generation, UK Power Networks has been contacting customers to discuss their participation in the project. This has in effect necessitated a marketing campaign as, traditionally, DNOs only have customer contact details at the point of connection (and these, as we have discovered, are rarely the appropriate contacts for discussing new commercial opportunities surrounding active management of generation). This has meant that securing the relevant contacts for distributed generation connected to our network has been time-consuming. It is clear from this experience that if DNOs are to avoid unnecessary and expensive network reinforcement in the future by encouraging customers to provide cost-effective generation services to the network, they will need to review their interactions with developers and operators of distributed generation and invest in more sophisticated customer engagement systems.

In addition, we have identified that Combined Heat and Power (CHP) plants are generally scoped to serve the maximum heat demand requirement of the establishment and therefore offer limited flexibility for modulating their electricity output to service the distribution network. Further investigations of this finding are underway. This learning has been disseminated internally through discussions with our Connections department and will be one of the topics for discussion at our industry learning seminar event in September. Invitations to this event will be circulated in early July.

Smart meters

Due to delays in the smart meter rollout, the major electricity suppliers have adopted different timing strategies for their smart meter rollout plans. Lack of availability of smart meters meeting the DECC functional requirements catalogue specification (the requirements of which, it is anticipated will be reflected in the delayed publication of the technical specification in July), has meant that some electricity suppliers are now planning a later start to their smart meter rollout during the foundation (pre-DECC stage) of the programme.

This has taught us how reliant DNOs are on the attitudes and approach of electricity suppliers. We are currently in advanced discussions to enable a second supplier to join our project. This will provide us with opportunities to gain a more comprehensive understanding of the impact different supplier approaches to delivering the smart meter rollout will have on gaining early benefit for distribution networks.

Electric Vehicles and Heat Pumps

It has been challenging to locate heat pumps in any volume and this may be caused by the decision to postpone until October 2012 the introduction of the Renewable Heat Incentive for domestic customers, causing consumers to delay heat pump installation. We are currently investigating mitigation measures and may consider undertaking a desktop survey of heat pump demand in order to ensure we fully take account of anticipated new loads on our distribution network.

As already acknowledged, at this initial stage we are facing some challenges in recruiting customers with heat pumps or electric vehicles, and owners of distributed generation who want to participate in the trials. We are finding that in a low carbon future DNOs will need to allocate more time to customer engagement than has previously been the case. For this reason, we are currently planning to recruit additional resource to deliver the customer engagement requirement of the project.

Data Protection and Privacy
As data protection is such an important issue for the project, a data protection specialist has joined the project for a short-term period to assess any data protection challenges and recommend comprehensive, effective solutions. We expect that this will produce some valuable learning to inform data protection strategies for future LCNF projects and indeed for DNOs' strategies for providing adequate data protection measures as smart meter data becomes more readily available for network management purposes.

9. Intellectual Property Rights (IPR)

The project has not generated or registered any IPR during this reporting period. Furthermore, it is not expected any IPR will be generated or registered during the next reporting period.

10. Risk management

The project has taken a proactive approach to risk management within the various workstreams, with regular project-wide risk workshops and individual project workstream risk reviews on a bi-weekly basis. The following table details those risks highlighted in the bid submission, together with the mitigations included in the bid submission and an update this reporting period.

Risk Description	Impact/ Probability	Status	Mitigating Actions at time of submission	Mitigating actions update June 2011
Smart Meters				
There may not be sufficient energy efficiency measures in place in the smart meter locations	M/L		Energy efficiency measures are being rolled out in the Green Enterprise District and the Low Carbon Zones and the project will explore with our Partners deployment of CESP / CERT funding	High level information received from the Low Carbon Zone project managers, to be referenced against a cleansed data set that has been developed. In addition, discussions are being held with the supplier (British Gas) responsible for many of the installation activities to gain a better understanding.
Installation issues relating to the installation of Smart Meters: a. Accessibility to sites; b. Functionality; c. Data confidentiality.	H/L		a) & c) Project will work with the GLA and Consumer Focus and will include address selection, acceptance surveys and privacy and security measures, b) Meters to be installed by Supply Partners will comply with full industry specification	Site accessibility remains an issue, although these are well understood and being factored into the trial design. Initial Meter installs for the customer profiling trials may be of a lower spec meter, but this does not impact on the quality of the learning output. Later installations for trials which will look at network impact from variations in use are likely to be with a meter of suitable specification, subject to availability. During the production of the Data Privacy Strategy, it was decided to enhance the risk assessment by engaging a Data Privacy and security expert. The Data Privacy Strategy and Data Security Policy are in the latter stages of approval, and a full Privacy Impact Assessment is underway.
The take up of Time of Use tariffs may be low	M/M		Ongoing discussion with suppliers to incentivise take up	EDF Energy have confirmed in the collaboration agreement they will endeavour to secure take up of Time of Use tariffs
Supply Of Smart Meters			New risk – not in original bid submission	EDF Energy B2C and UK Power Networks are in agreement regarding the smart metering schedule, although negotiations are still underway regarding the agreement.

Distributed Generation				
Insufficient levels of Distributed Generation available	M/M		Ongoing discussion with suppliers to incentivise take up, and working closely with the GLA and Institute for Sustainability to track and influence developments in the Green Enterprise District.	In addition to the ongoing discussions with the suppliers, our Connections department have been provided with a selection processes which they are applying to new and existing Distributed Generation connection applications so as to actively identify suitable Distributed Generators. Direct contact is being made with owners of Distributed Generators via direct phone calls and a planned delivery of informative letters detailing the objectives of the project. Contact is also being made with trade organisations, local councils and Distributed Generation operational management companies.
Industrial & Commercial				
Aggregators are unable to attract sufficient load for the project's requirements	M/L		Aggregators have already made approaches to potential customers and are confident of being able to meet the requirements	EDF Energy & Flexitricity have sent their contracts for approval and signing to UK Power Networks legal department. EnerNOC; Ongoing communication is in place to achieve this within the desired timeframe. Agreements need to be in place between aggregators and the customers to ensure sufficient load. Although the project has limited influence here the aggregators have a financial incentive through their margin to implement this
Electric Vehicles & HPs				
Insufficient numbers of electric vehicles in the trial area	H/M		There are currently 500 vehicles in the GLA fleet which will be available to the project. There will also be collaboration with the ETI and EDF ESCS EV projects and possible future collaboration along with TfL with vehicle manufacturers.	Although the GLA have a limited number of EVs within their fleet due to budget cuts, we have routes to about 160 congestion charge-exempt vehicle owners, plus access to members of the G-Wiz owners club, and are discuss with Nissan, Peugeot, Mercedes about access their customers.
The project is unable to add monitoring software to electric vehicle charging posts or control	M/L		Collaboration with TfL will provide access to usage data etc.	We are looking at collecting charging point usage data from TfL Source London as well as charging point network operators.

the use of the posts.				
The majority of charging posts are privately owned and cannot be monitored	M/L		UK Power Networks project is looking at data acquisition from privately owned charging posts. Ongoing discussions with potential additional collaborators who have private charging posts, e.g. retailers	We are looking at collecting charging point usage data from TfL Source London as well as some Charging Point Network Operators.
Low number of Heat Pumps will impact validity of trial	H/M		New risk – not in original bid submission	We are discussing with the Energy Saving Trust plus two manufacturers of Heat Pumps how we can contact Heat Pump owners through them.
Project				
Inability to meet SDRC, key milestones & project management deliverables due to low recruitment of UKPower Networks resources	H/M		New risk – not in original bid submission	Work is ongoing to clearly define within the work streams the key deliverables and for the leads to define exactly the resource requirements to deliver these. This will be supported by the business to refine the definition, selection and recruitment process, and for the collaboration partners to provide additional resources as the project requires. This is being continuously assessed and monitored.
Partner engagement / commitment & Collaboration Agreement	H/M		New risk – not in original bid submission	EDF Energy Collaboration agreement signed 10th June. Discussions ongoing with Imperial College London to resolve single remaining issue.
Detailed Trial design not yet fully clarified – the benefits may not be fully realised as trial outputs and learning's are not synchronised	M/M		New risk – not in original bid submission	Siemens have provided a Chief Architect to establish design methodology and create architecture description and solution product breakdown structure.

11. Other

Since the start of the Low carbon London project, UK Power Networks has submitted a further proposal for Tier 2 LCNF funds. Using a common communications platform, UK Power Network's Flexible Plug & Play Low Carbon Networks project would bring together a range of interoperable smart grid technologies to create a highly flexible integrated system ideally suited to serve a generation dominated network.

Lessons learned from this project will be applicable to any network with significant levels of DG, and will be applied as appropriate to DG installations participating in the Low Carbon London project.

12. Accuracy assurance statement

I hereby confirm that this report represents a true, complete and accurate statement on the progress of the Low Carbon London project in its first six months and an accurate view of our understanding of the activities for the next reporting period. A robust process was in place to product the report.

Signed ……

Date ……

Barry Hatton
Director, Asset Management
UK Power Networks