Successful Delivery Reward Criteria

9.1 Criterion

The Scenario Investment Model (SIM) design blueprint will be complete by September 2012 and a prototype visualisation developed. Cranfield will lead design workshops to determine the user requirements and detailed functionality required. Attendees at the workshops will be ElectraLink, ELEXON, University of Bath and WPD. The workshops will determine aspects such as the database sizing, the data architecture, and the input and output criteria required.

A customer data privacy strategy will be developed. Coding standards, version control and back up methodologies will be developed. A separate activity will take place to determine the means of loading measurement data from the 200 trial substations and other available SCADA data. This will include the design of the Cisco telecommunications network infrastructure.

We will have a fully designed blueprint of the functionality and equipment required for the SIM. At this stage, Cranfield University will have recruited the development and build team.

The design will be reviewed by all the partners and signed off by WPD Technical Experts and responsible managers and the learning from this phase will be shared with other DNOs and the wider industry.

9.1 Evidence

Commercial agreements will be in place with Cranfield University, ElectraLink, ELEXON, University of Bath, Alstom, Cisco and Aston University by March 2012. Decision made on the required hardware and software to be purchased.

The SIM design blueprint will be documented. A prototype visualisation of the SIM will be developed and available for viewing. A customer data privacy strategy, data resilience and back up methods developed and documented.

A draft operations manual for SIM will be produced, which will be refined in the subsequent phases. All documents will be stored in the project files and subject to version control as per the configuration plan.

A comprehensive communications plan detailing knowledge dissemination roles and responsibilities and activities will be complete. A specific workshop will be held with other DNOs and LCNF project partners to share the output of the final trials design (Milestone DE2). A FALCON website, e-newsletter and podcast will be developed and established to disseminate the learning to a wider audience.

9.2 Criterion

Industry data will be used to new representative customer types in order to estimate substation loads by September 2012. We will work with ELEXON, ElectraLink and Katalysis to establish an initial view of half hourly consumption at distribution substations using the industry data available on total consumption for customers and the calculated profiles which determine half hourly usage.   Network measurement points will be selected, equipment installed, data gathered and aggregated. Comparison methodology will be specified. The comparison will be completed to establish the best combination of measured and calculated data to support the method trials. Algorithms to calculate load will be improved and error will be reduced. Consumption models will be created to reflect drivers such as building heating efficiency and heat loss, economic factors, etc

Models will be validated and improved using measured data. These models will be analysed to determine whether a new representative customer types are required to improve load prediction. These economic models will be used to estimate future load values when populated with predicted values of the consumption drivers.

9.2 Evidence

Data access agreements will be in place with required processes approved for use by ELEXON.

Analysis results will be shared i.e. the applicability of calculated data vs. measured data to include analysis of error margins and model data validity across network types and time variations. Decisions on the required measuring points to support trials will be made and minuted in the relevant meeting.

The results of key consumption drivers and any new proposed customer types and profiles will be disseminated as per the communication plan.

9.3 Criterion

Load scenarios based on a range of low carbon uptakes in the trials area will be created for use by the SIM by October 2014. Multiple Load scenarios will be developed reflecting different assumptions for the future values of the consumption drivers. There will be a minimum of four scenarios but there may be many more. Some of the scenarios will use similar assumptions to those underlying the load scenarios put forward by DECC and Ofgem.

UK wide assumptions will be separated into regional values using publicly available data or purchasing specialist datasets. E.g. economic forecast data will be applied at the lowest level that it is cost effective to obtain data.

The required network design scenario requirements for the SIM will be determined.

Scenarios where the network designs to be tested can not be automatically generated will be identified. Designs will be created manually and stored as scenarios for use by the SIM.

9.3 Evidence

Purchase agreements for specialist datasets will be in place.

Load scenarios will be published as per the communications plan.

We will share the design scenarios requirements, which will be included within the testing specification.

9.4 Criterion

SIM built and an updated run will take place to identify network 'hotspots' by September 2013.
Cranfield will issue a system design document based on our functional design specification. The hardware and software to build the SIM will be purchased and Cranfield will commence coding and integration of the software components. They will agree the system test specification with WPD and load the scenario data, the industry data and the measurement data. The SIM will then be run in line with the system test previously agreed.

After the period of testing, an initial run will take place. We will have a better understanding of where the 'hotspots' are in the network now, and the available headroom to accommodate low carbon technologies. Utilising the forecast scenarios we will understand where the hot spots will be under a series of low carbon uptakes. This will allow us to confirm a range of investment needs of the 11kV network in the target area. The learning from this phase will be shared with other DNOs and the wider industry.

9.4 Evidence

The hardware and software to develop the SIM will have been purchased.

A system design specification will have been developed.

A system test plan will have been created.

The first outputs from the SIM will be available for viewing.

The learning gained from these activities will be disseminated as per the communications plan.

A specific workshop will be held with other DNOs and LCNF project partners to share the identified 11kV 'hotspots' (Milestone DE2).

9.5 Criterion

The Engineering Intervention Technique trials 1-4 will be deployed onto the network and the results loaded on the SIM. The results will be analysed and available for dissemination by December 2014. Alstom and Aston University will prepare and agree with WPD equipment, resourcing and deployment specifications for Intervention Techniques 1-3. WPD and Aston University will prepare and agree a functional specification for substation batteries and agree technical and commercial arrangements with GE. Alstom and GE will build the key components and WPD will witness factory testing. Key components will be deployed in the trials area with the Cisco monitoring equipment. A programme of field testing will take place.

Trial data input into the SIM and analysis will demonstrate effectiveness in terms of time saving, customer service and cost efficiency of the deployment of Technique 1 - Dynamic Asset Rating onto one primary substation and 6 11kV circuits; Technique 2 – Automated Load Transfer: three automated load transfers schemes across 6 11kV feeders; Technique 3 - Meshed Networks: on 6 11kV circuits; Technique 4 - Storage: batteries in 10 distribution substations. The learning from these activities will be shared with other DNOs and the wider industry. The results obtained from these trials will be fed into the SIM and further, modified trials will be deployed with final results available in March 2015.

9.5 Evidence

The equipment, resourcing and deployment specifications for Intervention Techniques 1-3 will be documented.
Functional specification for substation batteries (Intervention Technique 4- Storage) will have been created.
Technical arrangements with GE will be documented and supported by formal commercial agreement.
The results of the field testing, loading the results of the trials in the SIM, and subsequent analysis will be available and disseminated as detailed in the communications plan.
A specific workshop to present the analysis of the network data by the SIM and the outputs of the trials will take place (DE4).

9.6 Criterion

The Commercial intervention technique trials will be deployed onto the network. The results will be analysed and dissemination by December 2014. Customers taking part in trialling Intervention Techniques 5 – Distributed Generation and 6 – Demand Side Management will obtain a new revenue stream. Through these trials we will inform best practice for how DNOs will engage with I&C customers. University of Bath (UoB) will develop a detailed specification for trials e.g. the amount of demand we would want to move and develop the customer engagement strategy and propositions. Working with Milton Keynes Council, customers in the target area will be approached and a commercial agreement negotiated. The energy retailers of customer's choosing to be part of the project will be notified and invited to be more actively involved. Through loading the results of the trials in the SIM, we will understand the effectiveness in terms of time saving, customer service and cost efficiency of the deployment. In addition to the evaluation criteria outlined above, we will find out how attractive the propositions are with Industrial and Commercial and Distributed Generation customers. The learning from these activities will be shared with other DNOs and the wider industry. The results obtained from these trials will be fed into the SIM and further, modified trials will be deployed with final results available in March 2015.

9.6 Evidence

A commercial agreement will be in place with the University of Bath by March 2012.

A comprehensive specification document detailing Intervention techniques 5 and 6 will be produced i.e. components and locations of each of the trials.

Use cases detailing the learning requirements and outputs from the implementation of the two commercial trials.

Commercial agreements with customers will be signed.

The learning obtained from loading the results of the trials in the SIM and their subsequent analysis will be available and disseminated as per the communications plan.

A specific workshop to present the analysis of the network data by the SIM and the outputs of the trials will take place (DE4).

9.7 Criterion

Assess the suitability of the Method for mainstream adoption and produce and optimum investment plan by 30th September 2015.

An optimised future business plan for the trials area will be developed. We will be able to compare this plan with the results of the updated run of the SIM outlined in criterion 9.4.

We will obtain an understanding of key sensitivities of low carbon uptake rates in a defined area and discuss these with Ofgem to assist in the design of suitable regulatory mechanisms.

As the intervention technique data becomes available, the SIM will be refined with multiple intervention techniques deployments and iterations of the SIM.

We will continue to develop the future low carbon uptake data, taking into account latest developments in government policy and low carbon technology.

The industry data will also continue to be enhanced including the introduction of data smart meter installed in the trials area.

9.7 Evidence

Improved industry data will be documented and shared with the industry.

An investment plan will be developed and operational manuals for each intervention technique will be developed and available for dissemination.

A final report consolidating the learning and the recommendations from the SIM will be developed and available for dissemination.

Workshops will take place with other DNOs and Government to explore how the SIM can inform network investment and policy (Milestone DE5)

A final report consolidating all the learning from the project will be produced. This will include recommendations for follow on projects, if appropriate and lessons learnt from each phase of the project.

A final project symposium to share the outputs of the SIM will take place (Milestone DE6) and the findings and the outputs of the whole project will be shared.