

# LCN Fund Full Submission

## Supplementary Answer Form

Tick if this answer is Confidential: ☐

Tick if this answer has been provided verbally: ☒

Project code:	NGT203	Question Number	23
Question date	03 October 2013	Answer date	11 October 2013
Submission section question relates to	Expert Panel Bilateral		
Topic	<b>Diagnostic Tool</b>		
Question	<p>We note the DSR diagnostic tool is an essential output of the project. Given this -</p> <p>(a) How would learning from other DSR trials be incorporated in the tool?</p> <p>(b) Is there already sufficient data to build this tool?</p>		
Notes on question			
Answer	<p><b>a) How would learning from other DSR trials be incorporated in the tool?</b></p> <p>The diagram below shows a simplified representation of the proposed ACE DSR diagnostics / forecasting tool.</p> <div style="text-align: center;"> <pre> graph TD     Inputs[INPUTS • Network data • Social Variables • Load forecasts • Generation forecasts • Probabilistic data] --&gt; Tool[ACE DSR Diagnostics Tool Diagnostic Module Sensitivity Factor Module Statistics Module Energy Practices Module]     DSRProp[DSR propositions/characteristics (from ACE trials and other projects)] --&gt; Tool     Tool --&gt; Outputs[DECISION SUPPORT OUTPUTS Power-flow sensitivity: • Future load profiles • Location of future constraints • Constraint types • Years to reinforcement • Optimum locations for DSR DSR Diagnostics: • Optimum DSR type • DSR profile • Resultant load profile • Cost of DSR • Years to reinforcement with DSR applied]     LFE([Proprietary Load Flow Engine (such as IPSA2, DINIS, etc)]) --&gt; Tool     </pre> </div> <p>The purpose of this tool is to create a means to package and deliver the results of DSR trials (including the ACE DSR trials) in a way that would</p>		

be of real practical use to other DNOs. It will enable DNOs to test particular geographic areas for DSR potential, based upon the characteristics of the customers connected in that area.

The tool will be designed to have a library of the key characteristics from the results of DSR trials. For the tool to be able to compile this library it will require the following kinds of inputs from ACE and from other DSR trials:

- A detailed description of the intervention types, and how they were applied;
- The socio-demographics of the customers / types of businesses involved in the trials;
- Information on the prevalence of low-carbon technologies (such as solar PV, heat pumps and electric vehicles);
- Load profiles with and without the DSR interventions for each customer type, and information on the degree of confidence that can be associated with each observation based upon statistical analysis of the trial results;
- Contextual data (including on weather and fuel price events); and
- Costs of the intervention per customer and per kW released.

We will contact those leading each study to obtain this data and we expect that data from LCN fund trials will be readily available. Those leading academic studies are also likely to be willing to share this data.

Each DSR project is different in terms of the engagement methods, technical solutions, customer types, etc. Through consultation with the existing and future DSR projects we will determine a standard interface and data structure to enable simple and transparent input to the tool for findings from other projects to be integrated.

The accuracy of the tool outputs will be dependent on the quality of its inputs. We intend to develop the tool to deal with a range of quality on the input side and to indicate the level of confidence in its outputs. So, even though the tool may not be a highly accurate predictor for a particular type of demand side response / approach to customer engagement (i.e. where the input data is of low quality) it will still provide sufficient information to be used as an effective design decision support tool that gives network planners guidance regarding the most fruitful places and methods to realise DSR on their networks.

**b) Is there already sufficient data to build the tool?**

The tool will include a representation of confidence levels in the DSR that could be achieved - dependant on the size, duration and quality of the trial data it draws upon, which will allow a broad range of data to be incorporated. It should therefore be possible to build and run this tool with data that is currently available with varying degrees of confidence and as current trials are completed the level of confidence should increase.

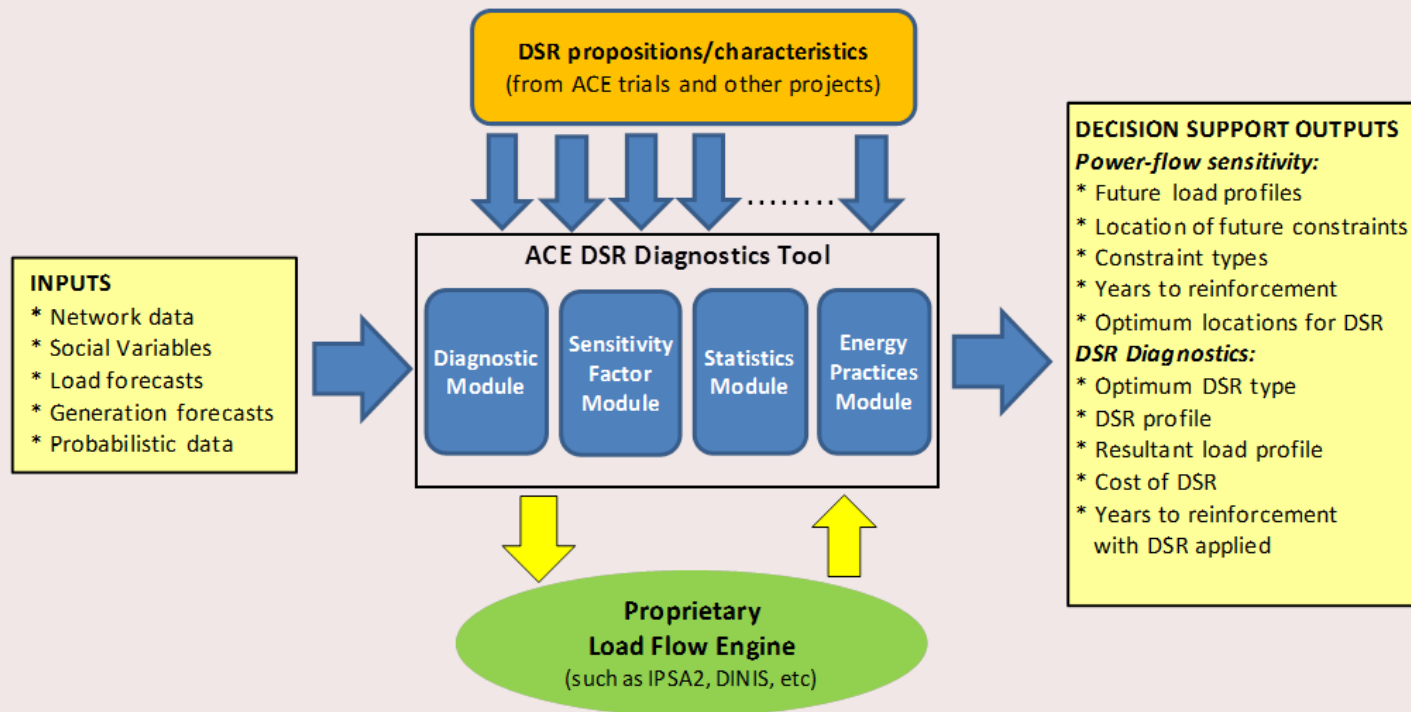
The tool would have to wait for the completion of the ACE intervention trials for it to include non-tariff based residential DSR and the potential from local authority behavioural changes.

We expect more and improved data to become available from other projects as they are completed during the lifetime of the ACE project

	and we will establish a template to incorporate future data as it becomes available as well as a standard interface for future projects to build into their initial design.
Attachments	Presentation provided to the Expert Panel on 25 September 2013
Verbal Clarifications (Consultants)	

## Q6: DSR diagnostics tool – integrating learning (1 of 2)

### a) How would learning from other DSR trials be incorporated in the tool?



- Each DSR project is different in terms of the engagement methods, technical solutions, customer types, etc.
- Through consultation with the existing and future DSR projects we will determine a standard interface and data structure to enable simple and transparent input to the tool for findings from other projects to be integrated
- The tool will be designed to have a library of the key characteristics from the results of DSR trials
- Consultation will also benefit design of the decision support output

## Q6: DSR diagnostics tool – integrating learning (2 of 2)

### **b) Is there already sufficient data to build this tool?**

- The tool will include a representation of confidence levels in the DSR that could be achieved - dependant on the size, duration and quality of the trial data it draws upon
- This allows a broad range of data to be incorporated
- We expect more and improved data to become available from other projects as they are completed during the lifetime of the ACE project
- Further, we will establish a template to incorporate future data as it becomes available as well as a standard interface for future projects to build into their initial design