



The future

The Value of Lost Load (VoLL)

Methodology Statement Addendum C Stakeholder Consultation

29 July 2016



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VERSION HISTORY

Version	Date	Author	Status	Comments
1	14 June 2016	Impact research	Draft	
2	29 July 2016	T. Kennelly/ K. Quigley	Version 1	

APPROVAL

Name	Role	Date
Steve Cox	Head of Network Engineering	28 July 2016
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GLOSSARY

Abbreviation	Term
CE	Choice experiment
DECC	Department of Energy and Climate Change
DNO	Distribution network operator
ECP	Engaged customer panel
EHP	Electric heat pump
EV	Electric vehicle
GB	Great Britain
HEV	Hybrid electric vehicle
I&C	Industrial and commercial
LCT	Low carbon technology
Ofgem	Office of Gas and Electricity Markets
PV	Photovoltaic
RIIO-ED1	Electricity distribution price control 2015-2023
RIIO-ED2	Electricity distribution price control 2023-2031
SME	Small and medium enterprises
UKPN	UK Power Networks
VoLL	Value of Lost Load
WPD	Western Power Distribution

FOREWORD

The Value of Lost Load (VoLL) project will investigate if a single uniform VoLL, applied to all customer segments, remains appropriate as Great Britain (GB) moves towards an economy increasingly reliant on electricity, driven by the decarbonisation agenda. Extensive customer research will build on previous studies in this area to determine if a revised VoLL model would benefit customers.

The project is funded by the Network Innovation Allowance (NIA), introduced as part of the RII0-ED1 price control, which provides an allowance for RII0 network licensees to fund projects which have the potential to improve network operation and maintenance and to deliver financial benefits to the licensee and its customers.

The project commenced in October 2015 and will be conducted over a 28-month period. It will culminate in a comprehensive assessment of how VoLL should be defined across a range of customer segments and ultimately inform a potential revised model to help distribution network operators (DNOs) better plan their network investment and customer strategies.

This report and the analysis therein is one of a series of project dissemination documents and serves as an addendum to the VoLL methodology statement (version 2) which sets out the project research methodology and sampling approach that has been externally validated by an independent peer reviewer, Professor Ken Willis of Newcastle University.

The VoLL methodology statement (version 2) and its three addendums are available on the project [webpage](#).

- *Methodology Statement Addendum A: Literature Review*
- *Methodology Statement Addendum B: Peer Review*
- *Methodology Statement Addendum C: Stakeholder Consultation.*

This report documents the stakeholder consultation activities conducted to shape the research approach and guide the project's direction. This culminated in a revised version of the original VoLL methodology statement (version 2). The revised method was published in July 2016 and incorporates refinements to the original approach.

1 EXECUTIVE SUMMARY

1.1 Introduction

This report disseminates the learnings associated with engaging two key stakeholders, the Department of Energy and Climate Change (DECC) and Citizens Advice, the purpose of which was to outline the VoLL project's approach and integrate their feedback into the proposed method.

This report is an addendum to the VoLL methodology statement (version 2) which contains a comprehensive explanation of the background of the VoLL project and more granular detail about the objectives and engagement methodology utilised during the stakeholder consultation exercise.

The stakeholder consultation was conducted before any engagement with relevant customers, to ensure the customer research methodology was shaped appropriately.

Both DECC and Citizens Advice agreed to participate in the research and nominated an appropriate representative to take part in a depth interview. Electricity North West's market research project partner, Impact Research, conducted the interviews during February and

March 2016. The interviews were administered face-to-face and lasted approximately 45 minutes.

Stakeholders were sent a copy of the draft VoLL methodology statement (version 1) in advance and invited to read it prior to the meeting.

A discussion guide (Appendix A) was developed to assist interviewers in facilitating a semi-structured interview with questions relating to:

- Perception of the current single VoLL measurement
- The suitability and robustness of the proposed customer engagement methodology
- Successful project outcomes
- On-going consultation and dissemination of key findings and lessons learned.

The feedback provided during this stakeholder consultation was used to inform and refine the project methodology. The changes made to the original method are summarised in Section 3 of this report and are reflected in the published VoLL methodology statement (version 2).

1.2 Summary of key findings

The stakeholder engagement exercise proved to be valuable in obtaining clear and objective feedback. The changes made to the VoLL research approach as a direct result of stakeholder feedback were:

- **Increased clarity regarding the scope of the project**
Justification for omitting industrial and commercial (I&C) customers from the scope of the project was included in the method. A table of definitions was also added to clarify key terms and enhance the transparency of the scope of the project.
- **Inclusion of short duration interruptions (SDIs) in the VoLL choice experiment (CE)**
Customer responses to SDIs will be tested as part of the appraisal of VoLL in the CE that forms part of the customer survey.
- **Expansion of the role of the engaged customer panel (ECP)**
In response to feedback from DECC, the role of the ECP was expanded and will now include an evaluation of the customer engagement outcomes and their implications for the VoLL project. To this end, the ECP will be re-convened to review, interpret and contextualise the research findings.
- **Definition of successful project outcomes**
More comprehensive detail about how the key project findings will be implemented and how DNOs might utilise the revised values, to inform decision-making, was included in the method.

1.3 Next steps

There will be on-going knowledge sharing and dissemination as the project progresses.

2 KEY FINDINGS

2.1 Background

The project team at Electricity North West identified two key stakeholders (DECC and Citizens Advice) to approach during this phase of the project. DECC was invited to participate because of its vested interest in matters of energy security and resilience; customer fairness and affordability, and climate change/decarbonisation. Citizens Advice was approached as a trusted advisor, champion of consumer rights and its influence in the development of energy policy within GB.

This report provides analysis of the stakeholder interviews conducted with representatives from these organisations. Electricity North West initially wrote to senior representatives of each stakeholder organisation and requested that an appropriate person be nominated to participate.

Impact Research conducted the interviews on behalf of Electricity North West during February and March 2016. The interviews were administered face-to-face and lasted approximately 45 minutes.

Representatives of both stakeholders gave explicit consent for their feedback to be attributed to their organisation for the purpose of disseminating the project findings.

Although neither stakeholder had read the method in full before the interview, both individuals had taken the opportunity to read elements of the document and were sufficiently familiar with the subject to ask pertinent questions which clarified their understanding of the proposed approach.

2.2 Perception of the current single VoLL measurement

Stakeholders perceived the research to be timely, citing significant changes occurring in power distribution and the need to update current thinking in preparation for RIIO-ED2 and beyond. This was considered to be particularly relevant in light of the anticipated increase in adoption of low carbon technologies (LCTs):

“There’s a danger that we take things for granted and are not prepared to question whether they are still valid or not. Now is an interesting time to set a baseline for then measuring how the sector will change with the rapid rollout of smart technologies.” DECC

Stakeholders shared the view that VoLL is likely to depend on contextual supply interruption factors such as season and duration which in turn, have different financial and non-financial impacts on customers. Stakeholders therefore took the view that a uniform VoLL disguises a key issue: that VoLL is not flat and may have significantly different values by customer segment:

“I think it is important to understand the extent to which the categorisation of VoLL can be broken down to a more granular level than it already has been.” Citizens Advice

DECC also supported the approach of segmenting the customer base to better understand variations in the way that VoLL is appraised.

Overall, stakeholders were quick to interpret and explain the problems posed by a single, uniform VoLL and endorsed the contribution the project could make to key areas such as network reliability standards, design policy decisions and service standards.

This buy-in to the research problem paved the way for the following discussion about the proposed method for a new measurement of VoLL.

2.3 The suitability and robustness of the proposed customer engagement methodology

2.3.1 Overall assessment of the proposed method

DECC and Citizens Advice were both familiar with the stated preference CE survey technique that had been identified in the literature review. The CE technique was acknowledged as a tried and tested, robust method for measuring VoLL.

DECC proposed that the survey method was *“A sound, well thought-out, intellectually coherent piece of work”* and that:

“If Impact Research were going to do this type of work then it would appear that it is approaching it in the right way”. DECC

Citizens Advice echoed this conclusion by emphasising the statistical robustness of the relatively large sample sizes proposed for the pilot and main quantitative surveys, implying that the method should be considered both comprehensive and valid:

“The sample sets for the polling are really quite large; there’s nothing that causes me undue concern.” Citizens Advice

2.3.2 Feedback on the scope of the customer engagement methodology

Large I&C customers

The proposed method concluded that, in comparison with large I&C customers, small to medium enterprises (SMEs) and domestic electricity customers have a reduced capacity to influence the reliability of their power supply by resilience planning either from paying for additional network assets or installing standby generation to provide an alternate source of supply during an outage.

This assertion implies that while I&C customers may have widely varying assessments of VoLL, they are generally more able to effectively influence the security of their supply. Therefore, large I&C customers were not included within the scope of the customer engagement.

DECC initially challenged why these customers were outside the scope, on the basis that:

“Large users of electricity are best equipped to have a conversation and quantify the value of lost load”. DECC

Conversely, Citizens Advice perceived a ‘strong case’ for excluding large I&C customers from the research:

“The larger sites are more likely to have back-up generation capabilities and are probably more able to signal their VoLL, for instance by already having interruptible contracts in place.” Citizens Advice

After considered debate, both stakeholders endorsed the omission of large I&C customers from the remit of the research, but suggested there was a need for the rationale to be clearly defined in the project documentation.

Definition of LCT users

The method makes provision for surveying a statistically robust sample of LCT users comprised of users of electric vehicles (EVs) including hybrid electric vehicles (HEVs), photovoltaics (PVs) and electric heat pumps (EHPs). DECC queried the definition of LCT users, specifically in relation to the inclusion of HEV users:

“I am worried about the extent to which the hybrid electric vehicles are actually ever plugged in, hence I would suggest caution in classifying them in the same way as other electric vehicles.” DECC

Impact Research agreed that the attitudes, perceptions and behaviours of HEV users may be significantly different to those of EV users. The implication of this finding is that extra care should be taken to distinguish sub-segments such as EV users from HEV users (both active users ie those who use charging points and inactive users who do not).

Categorisation of supply interruptions

DECC supported the proposed inclusion of both planned and unplanned supply interruptions in the CE exercise given the implied variance in response from customers exhibiting different expectations and sensitivities towards each type of interruption.

DECC also suggested inclusion of SDIs, ie lasting up to three minutes, within the CE, given the prevalence of these across modern distribution networks protected by automated systems.

Importance of geography

Unprompted, both stakeholders asserted the importance of the level of granularity in the analysis required. One such level was the extent to which geography can influence VoLL:

“You are sampling within broad DNO areas; such as Western Power Distribution (WPD) and UK Power Networks (UKPN). WPD’s operating region is everything from Dartmoor to central Birmingham and UKPN the Norfolk Broads to the centre of London.” DECC

The intended approach of analysing responses from across GB was explained to stakeholders during the interview. The approach will classify customers as living in urban or rural areas and aggregate these samples across the total GB population.

Citizens Advice echoed DECC’s feedback regarding marked differences in the perception, attitudes and sensitivities of customers to VoLL by geography and suggested this should be expressed more prominently in the project analysis plan.

Guaranteed Standards of Service

Citizens Advice sought clarification as to whether the scope of the project would appraise customer perception of current compensation levels, tied to [The Guaranteed Standards of Performance](#) with a view to informing RIIO-ED2 business plans:

“Compensation is a topical issue in consumer challenge groups at the moment.” Citizens Advice

Impact Research confirmed that VoLL will be measured both in terms of customers’ willingness to accept compensation for lost load and willingness to pay for avoidance of lost load. While current payments linked to Guaranteed Standards of Service will not be specifically appraised, a key output from the research will be to provide guidance on customer compensation strategies.

Survey administration

Both stakeholders were satisfied that the interviewing techniques proposed were sufficiently broad to reach a representative yet diverse customer base.

Citizens Advice specifically recommended that Impact Research ensure a combination of online self-completion and face-to-face, computer aided interviews are used to survey fuel-poor customers which, based on its experience, are typically a ‘difficult-to-reach group’.

DECC also requested that any differences in responses correlated with the survey method are calibrated in the final VoLL model, as part of interpreting and disseminating the final survey results. This will ensure that any difference in VoLL by customer segment is a genuine reflection of customer preference and is not affected by any form of research bias.

The importance of qualitative research to contextualise VoLL

The VoLL customer engagement plan (published on the project [webpage](#)) outlines the importance of both qualitative and quantitative market research techniques. Qualitative research is primarily exploratory by nature and employed to acquire an understanding of underlying reasons, opinions and motivations. Quantitative research is a more logical and data-led approach which provides a measure of customers' perceptions from a statistical and numerical point of view.

DECC acknowledged that the strong 'quantitative direction' of the methodology was necessary to deliver the granularity of results required. However, it also emphasised the value of qualitative research in understanding how customers articulate concepts such as reliability of supply.

The proposed methodology includes convening an ECP comprising customers who are likely to have had similar experiences of supply interruptions (eg SMEs, worst-served customers and vulnerable customers) prior to the customer survey. Such focus groups were seen as an appropriate platform for exploring complex concepts and encouraging informed discussions.

DECC suggested an amendment to the planned approach, to enhance the research, through further consultation with the ECP after the customer survey analysis has been completed:

"A report may include a statistic with a positive affirmation that customers are willing to spend more money for a specific level of service. However, I think we need to almost double back and share the outcomes with the panel and test their perceptions to contextualise the numbers." DECC

2.4 Successful project outcomes

Stakeholders placed a high degree of importance on the successful outcomes of the VoLL project and how they might be utilised to drive investment strategy and future decision making.

DECC advised that DNOs are relatively sophisticated organisations in terms of asset management and anticipated that a revised VoLL would be "*plugged in to well-established investment management processes*". Its main concern was the extent to which DNOs would utilise the additional granularity generated from the study to change their strategies.

Citizens Advice supported this view and questioned how a revised VoLL could be systemised to incorporate its many 'moving parts':

"For us, one of the key things to understand is how DNOs can mechanically use the figures in practice and systemise the learning." Citizens Advice

The VoLL customer engagement plan references the intention of Electricity North West to work with its partners and key stakeholders to disseminate the learning outcomes from the project. The implication of the feedback regarding successful project outcomes is that extra care should be taken to demonstrate how a revised VoLL model, included as part of the project closedown report, will help other DNOs to better plan their network investment and compensation strategies.

2.5 On-going consultation and dissemination of key findings and lessons learned

DECC and Citizens Advice indicated a willingness and appetite to engage in further discussion regarding the VoLL project and provide feedback on the interpretation of key findings at strategic intervals during the course of the project.

3 MODIFICATIONS TO THE PLANNED APPROACH

The stakeholder engagement exercise, conducted as part of the review of the proposed VoLL methodology, was extremely valuable in providing clear and objective feedback. The two-way nature of the exchange was transparent, enabling joint learning, decision-making and refinement of the VoLL approach.

The VoLL research approach was refined as a direct result of stakeholder feedback as follows, and version 2 of the VoLL methodology statement was produced:

Increased clarity regarding the scope of the project

Customer engagement in the VoLL project aims to include research across a comprehensive range of customer segments, representative of demographic and geographical variations in all DNO operating regions, with the notable exception of I&C customers. The rationale for the deliberate omission of this customer segment in the scope of the project was accepted by stakeholders; however, the justification for the decision was clarified in the revised method.

A table of definitions was also incorporated into the method to define the scope of the project and improve transparency. This included terms about which the stakeholders had queried and sought clarification. These included LCT users, the classification of business size, geographic areas and worst-served customers.

Inclusion of SDIs in the VoLL CE

Stakeholders concurred that the overall reliability of electricity networks is improving through the implementation of smart grid technology, utilising computer-based remote control and automation technology to reconfigure networks. Due to the application of interconnected configurations of high voltage networks and more recent innovative development of new low voltage interconnectivity, it is likely that an increasing proportion of customers will experience momentary supply interruptions or SDIs, when their supply is restored within three minutes. Customer responses to such SDIs will be tested as part of the CE in the customer survey.

Expansion of the role of the ECP

In response to feedback from DECC, the role of the ECP will be expanded to include an evaluation of the customer engagement outcomes and their implications for the VoLL project. The ECP will be re-convened to review, interpret and contextualise the research findings with the aim of:

- Informing – educating the panel
- Engaging – obtaining further input/feedback from the panel
- Promoting – ‘selling’ the project outputs and results before wider dissemination
- Sustaining – ensuring that the project will achieve successful outcomes.

This key amendment to the research approach represents a change to the way an ECP has traditionally been used by Electricity North West in previous innovation projects. This will be the first example of an ECP participating in active, two-way consultation throughout the lifecycle of an Electricity North West innovation project and the first time customers will be tasked with evaluating key findings.

Definition of successful project outcomes

Consultation with stakeholders highlighted the need to demonstrate how a revised and segmented VoLL model will assist other DNOs in better planning their network investment strategies. More comprehensive detail about how the key project findings are expected to inform DNOs future decision-making is included in the revised method.

4 NEXT STEPS

There will be on-going knowledge sharing and dissemination as the project progresses.

On completion of the project, the stakeholders will be provided with advanced notice of the summary results and the implications for implementing a revised VoLL model.

The project team will be available to answer questions from these stakeholders throughout the life of the project.

5 APPENDIX A

Stakeholder Interview Discussion Guide

Introduction to the research and adherence to Market Research Society code of conduct

Thank the interviewee for attending: Introduce interviewers as being from Impact Research, working in conjunction with Electricity North West on a new research project regarding the measurement of VoLL.

Explain the purpose of the interview: To consult with key stakeholders on the methodology scope and outputs of the VoLL project in advance of customer engagement commencing. Stakeholder views will be used to shape and if necessary amend the approach adopted.

Explain the use of the information provided: The project team at Electricity North West has identified a small number of stakeholders (Citizens Advice and DECC) to approach during this phase of the project as mentioned in the methodology document. The feedback you give will be most useful if we can include the name of the organisation you work for as context to your comments. Can you confirm that you are happy for us to attribute your comments to the organisation you work for within any reports that are published as part of the project findings?

1. Yes
2. No – Continue but explain their individual comments will not be attributed to their organisation, though we will name the companies that were consulted with during this phase of the research.

(If either of the stakeholders answers “no”, then all comments will need to be anonymised to protect the identity of those who answered “no”.)

Ask permission to record the interview: We would like to record the interview to ensure we fully capture all your comments, and, if you agree, to use comments you make as sound bites to provide evidence to support any changes to the research approach. Any sound bites used for project dissemination will be attributed to your organisation rather than you personally. Is it ok if we record the interview today?

1. No – Proceed but will need to take notes carefully.
2. Yes and can use recordings for project team (Impact Research and Electricity North West Future Networks) use only.
3. Yes and can use sound bites for project dissemination including industry events and publication on Electricity North West’s project webpage?

If required, we are able to provide you with an electronic copy of the recorded interview for your information.

Introductions

Ask the stakeholder to tell you about their role and interest in VoLL.

What is their view on a “vanilla view” of VoLL? What are the benefits or drawbacks of a single VoLL in their view? What problems might there be with implementing a more tailored VoLL? How do they think VoLL might vary by segment/customer group or other factors? How do they think VoLL might change with the adoption of LCTs? Do they think this model could be used by DNOs to identify individual customer needs and feed this into more sophisticated decision-making around network investment and customer strategies?

Did they read the method document? Any initial thoughts or queries? What do they feel this project will add, if anything to existing debate? Any potential problems they foresee?

Detail on the method

Talk through a summary of the project on PowerPoint, asking for questions/observations as you go through. Probe on each stage of engagement.

What is their view on the proposed methodology? Comparability of current VoLL vs proposed new more granular model?

Is there anything they feel is missing (within the scope of the research objectives)? Refer to slides again here and method document. Probe on additional factors, customer groups, particular conjoint scenarios.

Assess stakeholder view of omitting large I&C customers from the research. Ask specifically about large I&C customers such as universities or hospitals who may have limited (essential) back up generation and still suffer financial and societal impacts of supply interruptions particularly in large scale events such as flooding etc. Example is Lancaster University (a campus university) who had some back up generation in the university but not in the attached halls of residence.

How robust or otherwise is the proposed methodology, in their opinion? Do they have any views about the results that they expect to be generated?

Project dissemination and success

What would make it a successful project in their eyes?

What would they like to see in the final report and subsequent actions?

Is there anyone else you would be likely to discuss this project with, or recommend that they read the final report? If so, why?

Is there anyone else that we (Impact Research/Electricity North West) should engage with either at this stage, in phase two or later in the process to ensure we have covered all key issues?

Next steps

Thank the interviewee for their time and views. Explain that feedback obtained through consultation with stakeholders will be used to support our recommendations for any changes to the research approach as necessary. Advise any revisions and the reasons for them will be outlined in the final report.

Explain that upon receipt of Ofgem approval of our Customer Engagement Plan we will commence engagement with end consumers. Citizens Advice ONLY: Once the peer review is complete, the methodology document will be re-sent including a summary of the review. If they have any further comments at that point they can contact us to let us know.

Would the stakeholder like the opportunity to comment on the survey instruments before commencement of the full survey?

Yes

No

All project findings will be reported at key stages of the project and published on the NIA website. If you have any further questions about the research at any stage, please feel free to contact us, or Electricity North West:

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