



The Value of Lost Load (VoLL) Questionnaire Peer Review

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VERSION HISTORY

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APPROVAL

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GLOSSARY OF TERMS

Abbreviation	Term
CE	Choice experiment
CV	Contingent Valuation
DNO	Distribution Network Operator
GB	Great Britain
LCT	Low carbon technology
MRS	Market Research Society
Ofgem	Office of Gas and Electricity Markets
VoLL	Value of Lost Load
WTA	Willingness to accept
WTP	Willingness to pay

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1. EXECUTIVE SUMMARY

The Impact Research VoLL pilot survey aims to assess value of lost load (VoLL), as Great Britain moves towards an economy increasingly reliant on electricity, whilst being driven by a decarbonisation agenda.

The questionnaire developed by Impact Research is an admirable and rigorous tool to estimate the VoLL to different segments of customers.

The questionnaire provides sufficient information to customers to enable them to provide accurate and reliable answers to questions. The combination of factual and attitudinal questions allows the respondent to fully consider the issues before answering the stated choice experiment questions.

The stated preference choice experiment (CE) question sets proposed by Impact Research will allow estimates of WTP to be made for variations in frequency, duration, notification, and timing of outages. There are some minor issues, related to screening and presentation of the CE cards, which Impact Research might consider in the application of the CE, and in the analysis of the data.

The research methodology and analysis proposed by Impact Research, to estimate the VoLL based on the future needs of customers, is a practical and effective way of investigating if a single uniform value of lost load (VoLL), applied to all customer segments, remains appropriate, as Great Britain moves towards an economy increasingly reliant on electricity. The questionnaire is comprehensive and rigorous in its approach to trying to derive accurate information from customers, and customers' preferences for electricity supply characteristics.

2. THE OBJECTIVES OF THIS PEER REVIEW

The Impact Research VoLL pilot survey seeks to investigate if a single uniform value of lost load (VoLL), applied to all customer segments, remains appropriate, as Great Britain moves towards an economy increasingly reliant on electricity, whilst being driven by a decarbonisation agenda.

The purpose of this peer review is to assess the appropriateness of the customer survey instrument proposed by Impact Research; and whether it provides a comprehensive assessment of the VoLL across a range of customer segments to inform a potential revised framework to assist DNOs better plan their network investment and customer strategies.

This review has been undertaken by Professor Ken Willis, who is Emeritus Professor of Environmental Economics at Newcastle University. His research concentrates on environmental valuation (using stated preference, and revealed preference travel-cost and hedonic price models) and cost-benefit analysis; covering biodiversity, cultural heritage, energy, forests, landscape, quarries, recreation, transport, waste disposal, and water quality and supply.

He is currently the Editor of the *Journal of Environmental Economics & Policy*. He has undertaken research projects on Renewable Energy and Its Impact on Rural Development

and Sustainability in the UK, for the Department of Trade and Industry; on The Growth Potential for Micro-generation in England, Wales and Scotland, for the Department of Business, Enterprise & Regulatory Reform; and a Cost-Benefit Analysis of Sustainable Public Procurement, for the Department for Environment, Food & Rural Affairs.

Ken Willis has a wealth of experience in evaluating the suitability of market research methodologies and the application of advanced statistical analysis and econometric techniques in analysing consumer preferences and choices.

The rest of this report focuses on an assessment of the questionnaire proposed by Impact Research to assess the VoLL.

3. QUESTIONNAIRE

The questionnaire proposed by Impact Research provides an appropriate vehicle to assess the preferences and choices of customers in relation to electricity power supply and outages. It should allow the VoLL to be estimated accurately, reliably and robustly. The questionnaire includes screening questions; factual questions to assess the frequency with which customers have been affected by electricity outages and their duration; attitudinal questions on customers' satisfaction with electricity supply; their preferences for future supply characteristics; and a choice experiment to assess customers' utility for the characteristics of electricity supply (type of cut: planned or unplanned; advance warning of power cut; frequency of power cut; duration of power cut; time of day; day of week; and payment (to avoid the scenario or compensation for scenario occurring)).

The show card material presents customers with sufficient information to inform them about electricity supply structure and frequency of power cuts; and to enable them to make rational choices. Show card information needs to be adequate to ensure customers have accurate information on which to base their choices, but not excessive such that it begins to alienate people with too much detail to read and absorb. The questionnaire by Impact Research seems to me to achieve the right balance in the information it provides.

There are a small number of issues which might be clarified on the questionnaire.

A screening question asks if the respondent is the person responsible for paying the electricity bill. If the respondent is not that person, it might be worth assessing, in the analysis of the data, the extent to which this affects willingness-to-pay (WTP) and willingness-to-accept (WTA) compensation.

The survey instrument includes a question regarding whether households have solar panels installed and whether they are in use. I can't really imagine many cases of households having them and the solar panels not being in use. Would a more appropriate question not be: whether the household owns the panels (and benefits from electricity generation and sale of electricity to the National Grid), or whether the solar panels are owned by someone else?

Slide 5 of the Pilot Show Cards shows three stylised family groups: representing low, medium and high energy use. The stylisation is very good, but will all family groups

recognise one of these groups as representing them. For example, there is a large minority of two person pensioner households who might be similar to group two, all day medium energy users, since they use heating and electrical appliances such as TV throughout the day.

In the choice cards, respondents might interpret the time of day and outage duration in different ways. Some of the time outages are quite broad e.g. “up to 8 hours”, or “12 to 24 hours”. Respondents might interpret the actual outage within these bands in different ways, depending on their optimism and attitude to risk. The outage length can be either interpreted as categorical or as a mean value. If the latter then maybe it would be better to use numerical values e.g. “4 hours” rather than “up to 8 hours; or “18 hours” instead of “12 to 24 hours”. The analysis would then estimate utility loss per hour of outage.

Similarly, in the time of day attribute, would a respondent interpret an outage duration of “up to 8 hours” as covering all of the 6.00am to 9.00am time of day cut, or just part of this 3 hour time block? Clearly an outage starting at 6.00am and lasting to 2 pm, is quite different from one starting at 08.45 and lasting until 16.45, for most working adults and even for adults with school age children.

4. CONCLUSION

The questionnaire proposed by Impact Research is an appropriate vehicle to estimate the VoLL to different segments of customers. The questionnaire is a practical and effective way of investigating if a single uniform value of lost load (VoLL), applied to all customer segments, remains appropriate, as Great Britain moves towards an economy increasingly reliant on electricity. The questionnaire is comprehensive and rigorous in its approach to trying to derive accurate information from customers and preferences of customers for electricity supply characteristics.