Information and Incentives Project

Review of Proposals for Rebasing of Targets – EPN

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1 Summary

Ofgem has appointed the Consortium of Mott MacDonald and British Power International to provide an audit opinion on the re-basing of IIP targets for those electricity distribution companies that have a re-opener clause in their licences.

EPN is one such electricity distribution company and the present report provides a final audit opinion on the submission that EPN has lodged with Ofgem in support of its claim for the re-basing of its IIP targets.

The Consortium is of the opinion that EPN has, in conjunction with its service provider 24seven, adopted a sound approach to the comparison of incidents between the old and new measurement systems.

The Consortium is also of the opinion that EPN's submission is an accurate representation of the step changes in reported performance that it has experienced as a result of introducing its IIP-compliant measurement systems.

The Consortium therefore concludes that Ofgem can have confidence in using these figures as the basis for calculating the re-basing of EPN's IIP targets.

2 Introduction

As part of the final proposals for the IIP incentive scheme, Ofgem made a number of revisions to companies' 2004/5 targets for the number and duration of interruptions to supply to take into account the effects of:

- changes to definitions that were introduced in February 2001 to improve the consistency of reporting; and
- changes in measurement systems that companies had made, or were introducing, to improve the accuracy of their reporting.

Ofgem has advised the Consortium that there is still uncertainty over the impact of the changes that have been made to the measurement systems of several companies. Ofgem has appointed the Consortium to assess this aspect of these changes within specified companies. The distribution licences of these companies provide for each of the companies re-opening discussions with Ofgem if it considers that the introduction of the new measurement systems mean that its existing targets are inappropriate.

EPN, the company that holds the electricity distribution licence for operating the distribution network in the 'Eastern' area, is one of the companies with this re-opener clause in its licence.

EPN and LPN are both owned by the LE Group and operate with a combined management structure operating across the two companies. Whilst both companies have lodged submissions with Ofgem under the re-opener clauses of their licences, the audit work on the re-basing of their IIP targets will be dealt with on a company specific basis.

EPN has contracted with 24seven to carry out services including the operation and maintenance of its network. Consequently, 24seven is responsible for providing the information to EPN that, in turn, EPN reports to Ofgem under IIP.

This report provides a review of the submissions that EPN has made to Ofgem in support of its request for the re-basing of its IIP targets.

3 Audit Process

This section illustrates the audit process.

3.1 Resources

The Consortium was present at a meeting held on 05 July 2002 when a joint EPN/LPN/24seven team presented its initial submissions to Ofgem. At that meeting, the companies emphasised that their new IIP-compliant connectivity models had been introduced during March 2002. Thus the evidence they were able to present at that time was only an initial indication of the changes being experienced in their reported performances.

The significant changes that the companies have experienced concern the number of customers affected by an incident and they have concluded that the changes are due to the consistent application of the newly introduced measurement systems.

At the request of EPN/LPN, it was agreed that they would be able to gain more experience with their new measurement systems before finalising their submissions to Ofgem.

It was also agreed that a meeting would be held at the offices of 24seven, the EPN/LPN service provider, to explore and audit the methodology used by the companies to gather the evidence that is contained in their initial submissions.

This meeting was held at 24seven's offices in Ipswich on 22 August 2002.

The visiting auditors were:

- Geoff Stott of British Power International
- Blair Walter of Mott MacDonald.

Chris Watts, Ofgem's senior manager for IIP and Quality of Supply was present throughout the visit.

Following EPN's further experience with its IIP-compliant measurement systems and a final submission to Ofgem dated 17 January 2003, a follow-up meeting was held at 24seven's offices in Ipswich on 21 January 2003.

The visiting auditors were:

- Geoff Stott of British Power International
- Blair Walter of Mott MacDonald.

Chris Watts and James Hope from Ofgem's Quality of Supply Team were present throughout this follow-up meeting.

3.2 Induction

By way of induction for the visiting auditors at the meeting held on 22 August 2002, the EPN/24seven team used an opening presentation to illustrate how the new measurement systems operate and how

these relate to the IIP requirements for reporting incidents. This included a real-time demonstration of the newly introduced connectivity model.

A comprehensive introduction to the company systems had already been given to the joint British Power International / Mott MacDonald consortium during the visit to audit the sample of incidents as part of the wider IIP audit work being undertaken during 2002. It is not intended to reproduce that team's findings here.

3.3 Evidence submitted by EPN

3.3.1 General

EPN has experienced two sets of changes in reported performance due to the impact of new measurement systems. Firstly, there was significant increase in both reported CI and CML performance before full connectivity was introduced. There were then further increases in performance after full connectivity was achieved in March 2002.

In order for EPN/24seven to understand the reasons for the initial changes they had experienced in reported performance the companies had undertaken a considerable amount of internal auditing and study. This work entailed a re-assessment of some of the reported incidents that had affected the 11kV network in each of the three reporting years; 1999/2000, 2000/2001 and 2001/2002. The companies had elected to only study incidents at 11kV as these are seen to have the major impact upon EPN's reported performance in terms of both CI and CML.

Inspection of EPN's reported performance for the 2001/2002 reporting year shows that incidents occurring at 11kV account for 72% of CI and 75% of CML. Against this background, the company's decision to study incidents at only the HV level is considered to be reasonable.

In order to provide an element of consistency to the approach, incidents that occurred on the first Wednesday of each month were analysed, except where that week contained a Bank Holiday. In these instances, the second Wednesday in the month was used instead. This approach yielded a sample of 130 11 kV incidents for the 1999/2000 period and a similar number for the 2000/2001 and 2001/2002 periods. The auditors consider this to be a reasonable sample size for the analysis. The use of incidents from the first Wednesday in a month is also considered reasonable, as any step change in figures would be equally likely to show up if an alternative day of the month was compared across the three-year period.

In order for EPN to understand the effects of introducing LV connectivity it ran both its historic and new measurement systems in parallel from March 2002 and directly compared the differences in measured performance. At the time of the initial meeting in July 2002, EPN explained that it had insufficient data on which to base a robust submission for the impact of these changes. The company used the indicative output from the first three months of these studies in support of its initial submission to Ofgem under the re-opener clause in the distribution licence.

EPN has used the output from these studies as the evidence in support of its submission to Ofgem under the re-opener clause in its distribution licence.

3.3.2 Counting of customers affected by incidents on EPN's 11kV system

(i) Measurement systems - capturing re-interruptions

Historically, EPN did not have a reliable method of indicating that a re-interruption had occurred. To overcome this, the company adopted a policy of identification of re-interruptions based upon differences between the incident start time and the interruption times for each restoration stage. If a difference was detected, then the restoration stage was deemed to be a re-interruption. Further analysis by the company has shown that this approach was flawed.

The company's Fault Reporting System, introduced in April 2001, overcomes this shortcoming by providing for a re-interruption flag to be set against any restoration stage that is properly a re-interruption. The company claims that this change will affect its reported performance.

(ii) Measurement systems - numbers of customers affected by an interruption

The company asserted that, historically, the number of customers affected by incidents on its 11kV system was determined by several means:

- use of an algorithm based upon transformer capacity and modified for urban / rural feeders
- reference to a tabulation of customer numbers where a complete 11kV feeder was affected
- a combination of the above where a control engineer had knowledge of single-premise supplies.

The company further asserted that there was no consistency in the application of these methods and that the results were thus erratic.

In support of its assertions, the 24seven team provided information to demonstrate that, since 24seven took-over the operation of the EPN network in April 2000, there has been a consistent upward trend in the average number of customers affected by incidents on the 11kV system. The company's internal auditing regime has also concluded that this is the case and that it is principally due to the consistent application of the algorithm.

As supporting evidence for the submission to Ofgem, EPN/24seven have re-calculated the above-mentioned 11kV incidents using the numbers of customers generated by the correct application of its historic methodology and IIP-compliant connectivity model. These results were then compared with the original reports. The companies' study has also categorised the reasons for the variances in customer numbers.

3.3.3 Measurement systems - connectivity model

EPN's new connectivity model was audited in July 2002 as part of the wider IIP audit work undertaken during 2002, where it was found to be accurate. At that time it was concluded that: "The new model has reduced the number of uncertainties that were apparent with the old approach".

In support of its submission EPN has presented the results of running both its historic and new measurement systems in parallel from March 2002 to January 2003. This shows the differences in measured performance due to the introduction of the new connectivity model.

4 Summary of Findings

4.1 Measurement systems - capturing re-interruptions

The visiting auditors tested the company assertions regarding the identification of re-interruptions against the IIP requirements. They agreed that the historic method was flawed and concluded that the more recently introduced Fault Reporting System would give more accurate and consistent results.

4.2 Measurement systems - historical methods

The visiting auditors tested the company assertions regarding the historic measurement systems against their personal knowledge of the industry and the findings from the IIP audit visits.

The visiting auditors concluded that the reported numbers of customers using these historic methods would produce results that were less accurate than the new systems.

4.3 Measurement systems – correct application of historic methodology

A sample of the company's re-calculated incidents was audited for approach, methodology and accuracy. Incidents were chosen at random from each of the three reporting years so as to investigate the possibility of any bias having been introduced during the three-year period.

For each incident so chosen, the audit trail back to source data on the number of customers affected was subjected to close scrutiny and the methodology checked for consistency of application and reasonableness of approach. The number of customers affected as shown on the original incident report was also checked against the historical method of calculation. The visiting auditors checked the methodology and calculation of the associated CML figures for the incidents that had been checked for accuracy of CI count.

Whilst the majority of the incidents were of a straightforward nature, one of them was of a complex nature that involved an associated incident report. Following further investigation, the 24seven team was able to provide the evidence to satisfy the visiting auditors that the results for this incident had been properly captured.

At the meeting held on 22 August 2002 EPN/24seven agreed to recalculate the CML error figures by individual incidents rather than by the totals for each day selected. The recalculated CML figures showed minor differences from those of the initial submission. The visiting auditors queried this at the meeting held on 21 January 2003 when the discrepancies were found to be due to rounding errors contained within the initial submission. The visiting auditors were satisfied that the updated submission is more accurate than the initial submission.

4.4 Comparison of measurement systems – company methodology

EPN/24seven outlined the methodology that they used to determine the comparative data for submitting to Ofgem in support of EPN's more robust submission. The visiting auditors are of the

opinion that EPN/24seven have adopted a sound approach to the comparison of incidents between the old and new measurement systems and that this provides the basis on which to rebase the EPN targets.

4.5 Conclusions

The Consortium is of the opinion that EPN/24seven have adopted a sound approach to calculating the impact of improvements in reporting before the introduction of fully connectivity. EPN has also adopted a sound approach to the comparison of incidents between the old and new measurement systems for both CI and CML.

The Consortium is of the opinion that EPN/24seven have properly identified the causes of inaccuracy in the historically reported CI and CML figures. This gives further confidence that the tabulation contained within EPN's submission represent a reasonable analysis of the variation between incidents reported on the company's pre- and post- IIP-compliant measurement systems.

The Consortium is of the opinion that EPN's submission is an accurate representation of the step changes in reported performance that it has experienced as a result of introducing IIP-compliant measurement systems.

The Consortium therefore concludes that Ofgem can have confidence in using these figures as the basis for calculating the re-basing of EPN's IIP targets.