Information and Incentives Project

Review of Proposals for Rebasing of Targets – YEDL

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Issue and Revision Record

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A	24 Jan 2002	G. Stott	B. Walter	S. Harrison	Draft Issue
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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.

YEDL is one such electricity distribution company and the present report provides an audit opinion on the submissions that YEDL has lodged with Ofgem in support of its claim for the re-basing of its IIP targets at the LV level.

YEDL has observed a significant increase in the number of faults per day occurring on its network and the number of customers per fault, which it believes are a result of the recent introduction of its IIP-compliant measurement systems. However, it has not been possible for YEDL to report incidents using both the old and new systems over the period in question to allow the effect of measurement system changes to be directly measured. YEDL has therefore based its analysis on trends indicated by a cumulative sum (cusum) analysis.

Significant changes in both the number of faults per day and the reported number of customers per fault at the beginning of 1995 are evident from YEDL's cusum analysis. The company cannot identify the cause of these changes with any confidence, other than that a significant reorganisation occurred at that time.

The Consortium is of the opinion that YEDL has adopted a reasonable methodology for analysing trends in the number of reported incidents and the number of customers affected by reported incidents at the LV level. Furthermore, the Consortium has found no reason to disagree with the figures presented by YEDL in its final submission to Ofgem on 2 January 2003 on the impact of measurement system changes and the effects of the definitional change concerning re-interruptions.

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 during 2001/02 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 its new, IIP-compliant, measurement systems will have an impact upon its reported performance.

YEDL, the company that holds the electricity distribution licence for operating the distribution network in the 'South and West Yorkshire' areas, is one of the companies with this re-opener clause in its licence.

This report provides a review of the submissions made by YEDL 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 visiting auditors made an initial technical visit to YEDL's offices in Leeds on 04 September 2002 following YEDL's initial submission to Ofgem in August 2002.

At the time of this visit, the company had insufficient data to complete its final submission to Ofgem and an early draft of its proposed approach was tabled and discussed during the visit.

The visiting auditors were:

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

The people from YEDL were:

- Jim Morrell
- Stephen Murray

YEDL accumulated further data with its IIP-compliant measurement systems during the last quarter of 2002 and made a final submission to Ofgem on 2 January 2003. A follow-up meeting was held at YEDL's offices in Castleford on 14 January 2003 to discuss the final submission.

The visiting auditors were:

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

The people from YEDL were:

- Jim Morrell
- Stephen Murray
- Andrew Spencer

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

3.2 Induction

As an introduction for the visiting auditors to the meeting held on 04 September 2002 the YEDL team explained the way that the company's measurement systems operate. This included a real-time demonstration of the methods used to capture incidents at the LV and HV levels and the fact that, once captured, a record cannot be deleted from the measurement systems without leaving an audit trail.

A real-time demonstration of the company's PC-NaFIRS system for capturing incident data and a demonstration of the new connectivity model were also provided.

A comprehensive introduction to the company systems had already been given to the joint British Power International / Mott MacDonald team 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.

At the follow-up meeting held on 14 January 2003 the Consortium carried-out dipstick tests on the source and accuracy of the data that YEDL has used in its cusum analysis.

3.3 Evidence submitted by YEDL

YEDL has noticed significant increases in both the number of incidents it is reporting per day and in the numbers of customers affected by each of those incidents.

In order for YEDL to understand the reasons for these changes, the company has undertaken a cumulative sum analysis (cusum) on the reported numbers of customers per incident and on the number of reported incidents per day. The intention of this analysis is to expose trends by identifying a "seed" value for different periods of data. Step changes in data are more readily visible by this method than by examination of the raw data. However, it must be recognised that the setting of seed values requires a degree of judgement.

Incidents that affected the company's underground cables were separated from the incidents that affected the company's overhead networks and the analysis was completed on the underground incidents only. By this means, weather-related incidents were excluded from the study to enable examination of a more stable sample. Underground cables form approximately 93% of YEDL's total LV network.

To gain confidence in its approach, YEDL began by studying the reporting of incidents at the HV level over a ten-year period. The associated cusum trend lines highlighted areas where a known change had occurred, such as the introduction of a different method of counting customers in 1993.

The YEDL study then considered reported incidents at the LV level. As for the HV study, the cusum trend lines highlight areas where known changes have occurred. For example, they indicate that a significant upward step change occurred at the time that the GIS system was introduced to count affected customers in May 2001 and also following the introduction of fully IIP-compliant measurement systems in April 2002. Insufficient data after April 2002 was available at the time of the initial YEDL submission to be confident of the trends observed on the new measurement systems and further analysis was carried-out and included in the company's final submission of 02 January 2003.

YEDL has been unable to provide any physical evidence to corroborate the figures indicated by the cusum analysis such as the use of fuses provided in support of the NEDL analysis. In addition, YEDL has also been unable to provide a robust explanation for a number of the step changes in reported incidents observed during the 1990s. However, a comparison with the NEDL results indicates that the numbers are broadly consistent with expectations.

The company concludes that the perceived increases in its reported performance at both the LV and HV levels are due to the introduction of IIP-compliant measurement systems. Whilst the increase in

reported performance at the higher voltages is in line with that already agreed with Ofgem, the increase at the LV level is not.

YEDL also tabled evidence in support of its claim for an element of re-basing of CI to take account of the definitional changes affecting re-interruptions at both the LV and higher voltage levels.

At the follow-up meeting YEDL tabled documentary evidence that it wished the auditors to consider in support of its claims that the step changes it had identified during the cusum analysis coincide with known organisational changes within the company.

4 Summary of Findings

The exclusion of weather-related incidents is judged to be sound as this eliminates an unpredictable variable from the analysis without significantly reducing the size of the sample analysed.

During the follow-up meeting on 14 January 2003, the Consortium carried-out dipstick checks on the accuracy of the data contained in YEDL's final submission and found no inconsistencies.

The visiting auditors also examined the documentary evidence that was tabled at the follow-up meeting. This was compared to YEDL's cusum trend lines for the incidents at both the LV and the HV levels. From this examination the visiting auditors agree that step changes in the cusum trend lines appear to coincide with known changes in YEDL's organisational structure, although some step changes observed cannot be explained by YEDL.

Based on the evidence provided by YEDL in its two submissions to Ofgem, detailed discussions with YEDL on the observed trends and dip-stick testing of the data used in the analysis, the Consortium is satisfied that YEDL has adopted a reasonable approach to identifying the changes in its reported performance due to the implementation of new measurement systems.

From the discussions held at the follow-up meeting, the Consortium is also satisfied that YEDL has adopted a reasonable approach to identifying the changes in its reported performance due to the changes in definition of a re-interruption.

The Consortium has therefore found no reason to disagree with the results presented by YEDL in its final submission to Ofgem on 2 January 2003.