To distribution network operators

Promoting choice and value for all gas and electricity customers

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Dear colleague

Further information on requirements when applying for restatement of 2009-10 distribution losses data

In the Annex to our decision letter on the losses data cleansing consultation, published on 9 March 2012, we outlined the method we will be applying for the assessment of restatement applications[1]. This letter offers further details on the process for applications, including a statistical test we have devised for this process.

Statistical test to identify normal and abnormal levels of settlement data corrections

In our decision letter we stated that any licensee applying for restatement of 2009-10 data must provide statistical evidence that abnormal levels of settlements data corrections have occurred in that year in their distribution area. We also stated that licensees would need to use a statistical process to help select an appropriate normal period for applying the SP methodology. We are hereby providing further guidance on the type of statistical evidence that is required of licensees.

Outline and theory

The test is based on analysis of the monthly settlement reconciliation corrections from Initial Settlement (SF) to the latest run type (LRT) for the five years of the fourth distribution price control (DPCR4). The statistical test that we have devised for this purpose is designed to assess the statistical significance of the deviation in average annual reconciliation corrections of units distributed compared with their average level for the entire DPCR4 period.

We recognise some degree of randomness in settlement data reconciliation runs, such that the annual movement between years will be variable. The test quantifies the expected extent of this variability by calculating confidence intervals around the average reconciliation corrections recorded for each year.

The deviation for a given year is statistically significant where the five-year period average lies outside the 95% confidence interval for the average of that year. The lower and upper bounds of the 95% confidence interval can therefore be used to identify periods of abnormal data corrections.

[1] Ref 29/12, available at: http://www.ofgem.gov.uk/Pages/MoreInformation.aspx?docid=660&refer=Networks/ElecDist/PriceCntrls/DPCR5

The approach for calculating the confidence interval assumes that the data are normally distributed. Our analysis suggests that this assumption is valid for reconciliation run corrections. The formula used to calculate the upper and lower bounds of the 95% confidence interval is shown below.

$$\bar{x} \pm 1.96 \times \left(\frac{\sigma_t}{\sqrt{n}}\right)$$

Where:

$\bar{x}$ is the annual average
σ_t is the sample standard deviation in year t
n is the annual sample size

We have chosen the 95% confidence interval as a conventional level in such circumstances. We consider a 95% confidence level to be a minimum requirement for any test of statistical significance for the purpose of this exercise.

Identifying abnormal movements in annual reconciliation runs

As noted above, the upper and lower bounds of the confidence intervals can be used to identify normal and abnormal annual reconciliation corrections compared with the five-year average. For example, if the upper bound of the confidence interval for a single year is below the five-year average, then this indicates statistically significant abnormally negative reconciliation run corrections. This is the test required for establishing abnormality in 2009-10 for the purposes of restatement.

Identifying a potential normal period

Once abnormality in 2009-10 has been established, it should be possible to identify a potential normal period from the years during which the five-year average lies within the annual upper and lower bounds of the confidence intervals. Years where abnormally positive or negative reconciliation run corrections are indicated should not be included as part of the normal period. Once identified, the candidate years for the normal period will need to be assessed against the principles in the decision letter (ie the period should be at least two years long and contain credible losses performance).

Illustration

Figure 1 (below) demonstrates one possible scenario for a theoretical licensee. In this example, it is statistically significant that 2009-10 reconciliations are abnormally negative, as the upper bound of the confidence interval for 2009-10 is below the five-year average. The licensee therefore passes the first statistical test. The chart also shows that 2005-06 is abnormal since the lower bound of the confidence interval is above the five year average (ie it is statistically significant that reconciliation corrections are abnormally positive). This suggests the middle three years of DPCR4 are candidates for the normal period (subject to satisfying the principles described in the Annex to the decision letter).

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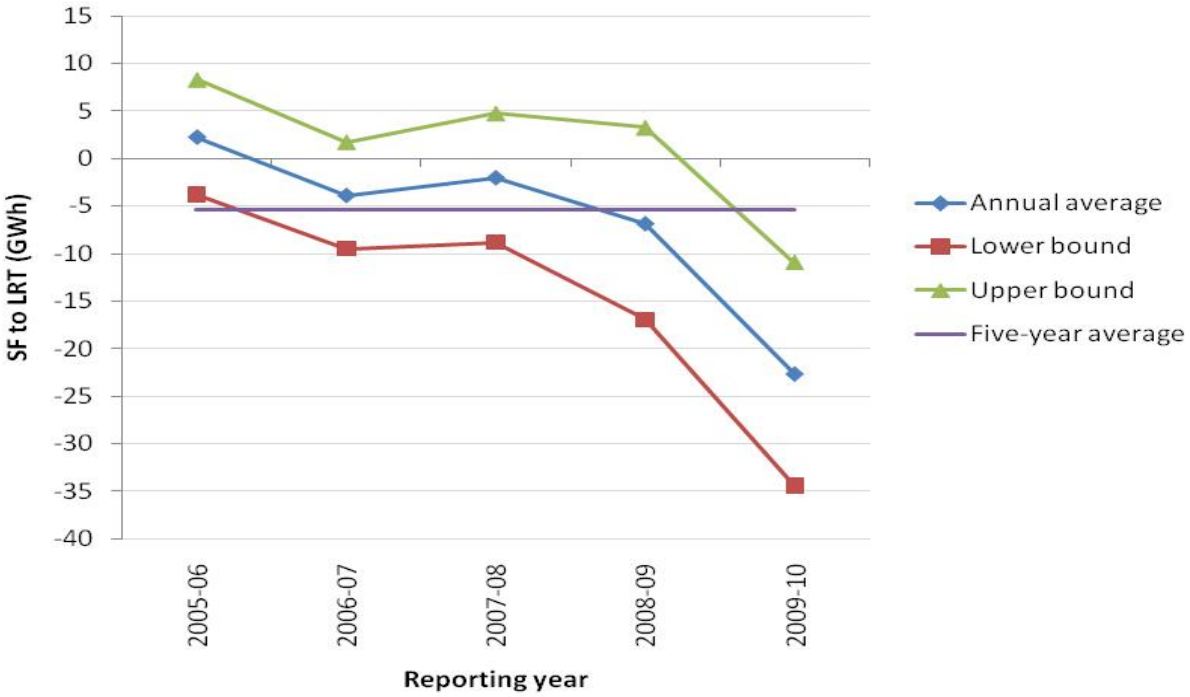

Figure 1 – Illustrative settlement reconciliation corrections

Application in template

We have produced an Excel ® template, available on our website[2], for licensees to apply this test to their own non-half-hourly data. It calculates the confidence intervals and identifies which years are statistically significantly abnormal at the 95% confidence level. It also identifies the years that are candidates for use in the normal period based on this statistical test. The template includes a chart to demonstrate the pattern of the data over the period.

Alternative approach

The template only looks at discrete years. The licensee may choose to adapt this method to look at sample periods with different start and end points in order to better reflect the affect of abnormal data corrections in its area. (Though due to the seasonal pattern to reconciliation corrections, we would expect each discrete period to be at least 12 months long.)

Alternatively, a licensee may devise its own test of statistical significance and provide evidence of this in its submission. The final say on whether to allow an alternative to what we have set out will rest with the Authority and we may require that a licensee works within the framework set out, even if the failing of which means the application may be rejected.

Application of the SP methodology

Once statistically significant abnormality affecting 2009-10 has been identified, alongside a normal period of at least two years and containing credible losses performance, the licensee may apply the SP methodology to restatement of its 2009-10 data.[3]

[2] *Ibid.*

[3] http://www.ofgem.gov.uk/Networks/ElecDist/PriceCntrls/DPCR5/Documents1/SP%20Methodology%20Paper%20by%20Engage%20Consulting%20App%201.pdf

Content of applications

As successful restatement requests may be used to calculate the backwards looking element of the close out position of DPCR4[4], then the 2009-10 data submitted should reflect the requirements of DPCR5 Final Proposals[5]. That is:

- Reported losses ($ACL_{2009\text{-}10}$): losses experienced in 2009-10, excluding any corrections to prior years, but with subsequent corrections to the final year added in (including provision account adjustments);
- Units distributed ($LUD_{2009\text{-}10}$): units distributed in 2009-10 excluding any corrections to prior years, but with subsequent corrections to the final year added in. The application should include a breakdown of restated units distributed by LV1, LV2 and LV3.

The Authority needs to be able to satisfy itself that the applicant has met the tests and principles for restatement as described in the Annex to the decision letter. Applications should therefore provide at least the appropriate raw data and evidence, along with the performance of the licensee over the DPCR4 period.

Next steps

We have set a deadline of submission of applications of 13 April 2012. Please contact Tim Aldridge if you have any queries on 020 7901 7350 or at tim.aldridge@ofgem.gov.uk. Submissions should be sent to the same address. There will be an opportunity to discuss the application process and statistical tests at the workshop on 23 March 2012.

Yours faithfully,

Rachel Fletcher
Acting Senior Partner, Distribution

[4] Five times the incentive for 2009-10 less total incentives over DPCR4.
[5] Ref 148/09, available at: http://www.ofgem.gov.uk/Networks/ElecDist/PriceCntrls/DPCR5/Documents1/FP_6_DPCR5%20Financial%20methodologies.pdf

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