268/08 – MODIFICATION P350: METHODOLOGY FOR LOAD PERIODS AND SAMPLE SETTLEMENT PERIODS

MEETING NAME	BSC Panel Meeting
Date of meeting	13 July 2017
Owner/author	Riccardo Lampini
Purpose of paper	Decision
Classification	Public
Summary	At its May 2017 meeting, we presented to the BSC Panel a methodology to identify Load Periods and Sample Settlement Periods, as required by Approved Modification P350 'Introduction of a seasonal Zonal Transmission Losses scheme'. Following the meeting, the proposed methodology was sent out for consultation, and some concerns were raised. We have amended the proposed methodology to address these concerns, and now invite the BSC Panel to approve it. We have also used the proposed methodology to determine Load Periods and Sample Settlement Periods for the Reference Year ending 31 August 2017, and invite the BSC Panel to approve these.

1. Introduction

1.1 Approved Modification P350 'Introduction of a seasonal Zonal Transmission Losses scheme' will introduce a Transmission Loss Factor (TLF) for each TLF Zone and BSC Season. The TLF Zones are aligned with the existing Grid Supply Point (GSP) Groups so transmission losses can be allocated on a geographical basis. The Competition and Markets Authority (CMA) is mandating, through secondary legislation and licence changes, an implementation date of 1 April 2018. This modification was approved by Ofgem on 24 March 2017.

1.2 P350 requires that seasonal Zonal TLF values for each BSC Year (1 April to 31 March) are calculated in advance, using historic data from a 'Reference Year' (RY), running from 1 September to 31 August. Rather than using data for every half-hour Settlement Period in the RY, the P350 legal text (paragraph 7 of Annex T-2) requires the BSC Panel to identify representative Sample Settlement Periods (SSPs).

1.3 In order to do this, the BSC Panel must (after consultation with Transmission Company and other Parties) divide the RY into a number of different Load Periods (LPs), each "*representing (in the opinion of the Panel) typically different levels of load on the AC Transmission System, defined by time of day, day of week, season and such other factors as the Panel considers relevant*". The Panel must also specify a number of SSPs from each LP.

1.4 These LPs and SSPs, when used to derive TLFs, will result in a representative annual average TLF for each zone. Note the RY will be divided in to BSC Seasons[1].

1.5 On or before 31 August, ELEXON will notify the TLFA, the Transmission Company and CDCA of the LPs and SSPs for the Reference Year, and publish them on the BSC website.

[1] BSC Seasons are defined as: BSC Spring is 1 March to 31 May inclusive; BSC Summer is 1 June to 31 August inclusive; BSC Autumn is 1 September to 30 November inclusive; and BSC Winter is 1st December to 28th (or 29th, as the case may be) February inclusive, provided that the first relevant BSC Season shall be the period from the Go-live Date to the end of the next following BSC Season.

2. Consultation results

2.1 At the May 2017 BSC Panel meeting, we presented a methodology for setting both the LPs and SSPs.

2.2 In accordance with BSC Section T, Annex T-2, paragraph 7, following the Panel meeting, we issued the agreed methodology for consultation with the Transmission Company and BSC Parties for 11 Working Days. We received two responses, included in Attachment A of this paper, representing the Transmission Company and three BSC Parties.

2.3 The first respondent approved the proposed methodology and suggested to specify the number of decimal places that should be used to determine the average. Actual demand should be also specified, along with a selection priority when more than one Settlement Period appears to have the same demand, e.g. first or last by time.

2.4 The second respondent raised two concerns. The first was that chunking each week into two LPs (one for Business days and one for non-Business Days) would not satisfactorily account for intra-week variability (such as systematic differences between different days of the week). The second was that selecting the Settlement Period with the closest Indicative National Demand Out-turn (INDO) value to the average for an EFA Block/LP as the representative SSP for this EFA Block/LP takes out any outliers in the data and normalises the analysis too much.

2.5 The P350 Project team believes these may be valid concerns. For example, we calculated indicative TLF values for the Winter 2015/16 BSC Season, and found that there were small but noticeable differences between different days of the week (suggesting that a methodology which was biased towards picking particular days of the week could lead to non-representative SSPs, and hence non-representative TLF values).

2.6 The underlying issue behind both of the concerns raised appears to be that our original proposal (which dates back to the development of Modification Proposal P82 in 2003) did not approach the task of choosing representative SSPs as a statistical sampling problem, which it clearly is.

2.7 To address this concern, we proposed a revised methodology based on random sampling, rather than selecting Settlement Periods with a 'typical' demand value. The methodology can be summarised as follows:

2.7.1 Divide the BSC Year into EFA Days (23.00 – 23.00), and group the EFA Days within each week into Working and Non-Working Days. This has the effect of dividing the BSC Year into c. 104 blocks of consecutive EFA Days (each week will have a block with five Business Days and one block with two non-Business Days, except where there are Bank Holidays).

2.7.2 Split each of these blocks of days into six time bands, corresponding to the six four-hour blocks within the EFA Day. Each time band within each block of days will be treated as a Load Period, so there will be c. 624 Load Periods within the Reference Year[2].

2.7.3 Randomly select Sample Settlement Periods from each Load Period. We propose to randomly select one Settlement Period within EFA Block 1 and one Settlement Period within EFA Block 2, but two Settlement Periods within each of the remaining EFA Blocks. This will increment the sample representativeness of all the Settlement Periods in the population and will better represent demand over peak times when it is more variable. At the same time it reduces the risk of skewing the results by always picking an 'average' SSP within each LP and EFA Block.

[2] The previous methodology (presented to the Panel in May) defined the Load Periods as the blocks of days, rather than the individual time bands within each day. This approach does not allow different numbers of Settlement Periods to be sampled from different time bands, which is why we now propose to treat each time band as a Load Period in its own right (so 10-14 July 2017 EFA Block 1 would be a LP, 10-14 June 2017 EFA Block 2 would be another LP, and so on).

2.8 National Demand data is no longer needed because we are sampling at random, rather than picking periods with 'typical' demand.

2.9 The new methodology will increase the number of SSPs in a Reference Year from c. 630 to c. 1,050. This will increase the workload for the TLFA, but the increase falls within the contracted limits (so no contractual change will be required).

2.10 We have considered the possibility of picking SSPs from every day of the Reference Year (as suggested by one of the respondents). But we believe our sample (1,050 Settlement Periods from 17,520) is large enough to be statistically representative, and increasing it further would require a change to the TLFA contract.

3. Next Steps

3.1 The Panel is invited to delegate ownership of the methodology for determining LPs and SSPs to the Imbalance Settlement Group (ISG), which would then be responsible for the approval of any future changes to this document.

3.2 ELEXON will notify the TLFA, the Transmission Company and the CDCA the actual LPs and SSPs by 31 August 2017.

4. Recommendations

4.1 We invite the BSC Panel to:

a) **APPROVE** the amended methodology for defining LPs and SSPs;

b) **APPROVE** the actual LPs and SSPs to be used in the calculation of TLFs for BSC Year 2018/19; and

c) **AGREE** to delegate ownership of the methodology for defining LPs and SSPs to the ISG.

Attachments

Attachment A – Consultation responses

Attachment B – Actual LPs and SSPs for BSC Year 2018/19

For more information, please contact:

Riccardo Lampini, Market Analyst

Riccardo.Lampini@elexon.co.uk

020 7380 4172

