

LIFE OF NEM REGIONAL MODEL SUPPORTING INFORMATION

CREDIT LIMIT PROCEDURE VOLATILITY FACTOR PERCENTILE DETERMINATION

1. Model Assumptions

The calculation of regional volatility factor (VF) percentiles involves modelling each region as a retailer and determining the level of credit support required to meet the 2% prudential standard over the life of the NEM. Each regional model takes account of the season, regional load, security deposits, regional reference prices (RRP) adjusted for carbon price, outstandings and the settlement calendar. The outstandings limit (OSL) and prudential margin (PM) are adjusted as a function of VF percentile until the prudential standard is met.

The prudential standard requires that on no more than 2% of occasions the credit support would be inadequate to cover the accruing liabilities whilst the default and suspension process is being undertaken. This timeframe is the reaction period which is covered by the PM. A default is assumed to occur each time the outstandings are in excess of the OSL. The 2% prudential standard is also known as the probability of exceedance (POE).

The main assumptions in the regional model are:

- Simplified settlement cycle.
 - Settlement day is always on a Friday 4 weeks after completion of the billing week.
- Exceedance determination
 - Prudential assessment is assumed to occur daily except weekends and the following public holidays:
 - New Year's Day - 1 January
 - Australia Day - 26 January
 - Anzac Day - 25 April
 - Christmas Day - 25 December
 - Boxing Day - 26 December
 - If outstandings are below OSL then no exceedance occurs.
 - If outstandings are above OSL then default is assumed (i.e. no further security deposits paid) and the next 6 days outstandings run through is tested against the PM. If PM is less than run through an exceedance is counted.
 - If the 6 day run through includes a settlement day then settlement is assumed not to occur and outstandings are not reduced by the settlement amount.
 - If outstandings are greater than OSL on settlement day, payment for the billing week is assumed not to occur for determination of an exceedance, otherwise, payment is assumed in full.
- Security Deposits

- On any day, if outstandings (including security deposits balance) are greater than OSL then, following assessment of an exceedance, a security deposit is assumed to be paid to reduce outstandings down to the OSL.
 - Each security deposit amount is maintained in a security deposit balance which reduces outstandings until the settlement day of the billing week in which the security deposit was paid. At this point, the security deposit is considered to be returned.
- The percentiles for PM and OSL are the lowest values consistent with the 2% POE.
 - Historical RRP from 1 July 2012 to 30 June 2014 are adjusted for the carbon price repeal by decreasing \$21 per MWh for regions in mainland and \$12 per MWh for Tasmania.

Additional information on the carbon price repeal can be found at

<http://aemo.com.au/Stakeholder-Consultation/Consultations/Credit-Limit-Procedures-V2-Consultation>

- The seasons are summer (1 December to 31 March), winter (1 May to 31 August) and shoulder (1 April to 30 April and 1 September to 30 November).
- The model start date is 1 December 1999 for NSW, QLD, SA, VIC and 1 April 2006 for TAS.
- The first two seasons' (summer, winter and shoulder) values of estimated load, regional reference price (RRP), outstandings limit volatility factor (VF_{OSL}) and prudential margin volatility factor (VF_{PM}) have been determined by linear regression techniques.

2. Determination of Initial Values

In the credit limit procedures, the estimated regional load and estimated RRP are calculated on a seasonal basis using an exponential weighted moving average process. To avoid the starting point having an unduly high impact the first two seasons' values of estimated load, RRP, VF_{OSL} and VF_{PM} are calculated using multiple linear regressions method. This methodology was developed by an actuarial resource at Seed/Taylor Fry consultants during their development of the credit limit procedures.

Multiple linear regression models the relationship between more than one explanatory variables and a response variable by fitting a linear equation to observed data. The explanatory variables used in this process are years and seasons. The response variables are the actual load, RRP, VF_{OSL} and VF_{PM} .

This process used the regional average load and average RRP for summer, winter and shoulder from the following dates to the last date the final settlement data is available:

NSW/QLD/SA/VIC: 1 December 1999

TAS: 1 April 2006

Data prior to the above periods is not considered in the linear regression in order to avoid non-representative prices at market start.