06 August 2012

Australian Energy Market Operator

Submission to AEMO - NEM - Credit Limit Procedures Consultation

Thank you for the opportunity to respond to the AEMO Consultation on NEM - Credit Limit Procedures 18 June 2012.

Progressive Green *strongly* opposes the new draft credit limit procedures. We believe that, rather than more accurately reflecting the credit risk associated with trading in the NEM for particular participants, the draft credit limit procedures completely opposes a true and accurate assessment of risk of participants trading in the market. This is of utmost concern to Progressive Green and we urgently and firmly suggest a review of the proposed draft procedures and computation that make up the MCL!

It is important to add that Progressive Green is **completely** in support of a proposed rule change and credit limit procedure that includes consideration of such participants (and their customers) who manage load according to market price as is stated in the rule change request - "*If participants' MCL amounts more accurately reflect the credit risk associated with trading in the NEM, this could free up their capital in certain seasons and give them the opportunity to invest it more efficiently*" (8. AEMO Rule request: EM 2011/003).

However, the current draft procedures do not achieve this objective and in fact, simply adds more barriers to entry to those participants who are of the **lowest trading risk** to AEMO!

Participant Risk Adjustment Factor (PRAF)

It is understood that the Participant Risk Adjustment Factor (PRAF) introduced in the new draft credit limits procedures is designed to consider a participant's correlation between energy use and market price (RRP) by comparing a participants load weighted price against the regional load weighted price to assess the risk of the participant having higher outstandings when higher price events occur. However the way in which the PRAF is calculated is of critical importance in assessing the true risk of a participant to the market. **There are two underlined major issues with the draft PRAF calculation methodology:**

1. Half-Hour Averaging of Load and Price Profiles for PRAF

The draft procedure uses an *average* load and pricing profile over the particular season to calculate a participants' PRAF. This averaging of the entire season's load and price into a averaged half-hourly profile, **all but removes** the major benefit of having a PRAF at all, particularly for participants who provide Demand Side Participation (DSM) services to consumers.   The ratio of a participants' load weighted average price to that of the region is the core computation of the PRAF. By averaging across the half-hour for both load and profile prior to the computation of the load weighted average, the load weight average estimation is diluted to such a significant level that the *true* risk of the participant relative to the region is not accurately measured.

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The estimation of the MCL includes a variable for the Outstandings Limit Volatility Factor ($VFOSL_R$) and the Prudential Margin Volatility Factor ($VFPM_R$) which has a material multiplier effect on the results of the MCL and PM computation. The calculation for the $VFOSL_R$ and $VFPM_R$ has as its crux a statistical calculation of the volatility of payments for each season.   In section 11.2.4 of the Credit Limit Procedures which contains the derivation of the $VFOSL_R$, it states:

"1. For *each season calculate last year's actual volatility ($AVFOSL_R$) using* **actual** *half-hourly RRP and regional load*.
   a. *For the relevant season, calculate half hourly values of the product of the RRP and total load in the region."*

We note that that there is NO averaging occurring in this important variable in the calculation that would diffuse the calculation of the volatility factor. **Yet where the participants' relative risk is concerned in the PRAF, the draft procedures use a diluted averaging approach, thereby rendering the entire inclusion of a variable to estimate a participants' relative risk, almost meaningless which amazingly, is the major issue that the actual procedures and, in fact, the entire rule change was written to address and rectify!**

To back up Progressive Green's vigorous opposition to this calculation - Appendix 1 contains a detailed explanation (including a simplified example) of this issue. The example in the Appendix assumes that the participants' load profile is *not* determined using the current draft procedures but is determined using the previous *like* season. This point is further elucidated in point 2 below.

The conclusion of the example in Appendix 1 that the simple change in this averaging of the load and price profile can add an added expense in the form of capital cost of <u>hundreds of thousands of dollars (and possibly millions)</u> for absolutely no reason!

2. Usage of Different Season to Estimate Half-Hourly Participant Load

The current draft procedure proposes to calculate the PRAF using a participants' Estimated Half Hourly Load ($EL_{HH,R}$) from a different season than both the Half Hourly Regional Load Profile ($ERL_{HH,R}$) and the season that the PRAF is to be applied to. To illustrate by example, for Summer 2013/14, the Market Participants Estimated Half Hour Load ($EL_{HH,R}$) will be based on a *Shoulder* season (Sep/Oct 2013) while the Half Hourly Regional Price ($P_{HH,R}$) and the Half Hourly Regional Load Profile ($ERL_{HH,R}$) will be based on the previous *Summer* seasons. This seems a perverse methodology given the desired outcomes is to "*more accurately reflect the credit risk associated with trading in the NEM*" and will have two significant impacts on the PRAF that is calculated for the participant:

   I.   Participants that have high percentage of peak summer loads would generally have a higher load weighted price than the regional load weighted price therefore the PRAF calculated over this period *should* be higher, however according to the draft rule, the participant would not in fact have that PRAF applied to their MCL calculation during that summer period, they would have had the PRAF calculated using their load from the immediately previous shoulder season where the higher peakiness of the load is not apparent, thereby under-estimating their PRAF.

   II. Participants who are assisting customers to save money through using Demand Side Participation (DSM) through load shedding in response to high price events (which more often occur in summer) will be disadvantaged. To illustrate, if in a summer season, there are high price events and this participants' customers shed load, the PRAF for this customer could legitimately be less than 1.   Given the summer periods generally have higher Volatility Factors for both outstandings and prudential margin, if the shoulder season

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(where there is much lower probability of spikes and load shedding) prior to the summer is used to calculate the participant's PRAF for the following summer(s), the PRAF would possibly be over 1 and the participant will have a *higher* MCL in a period where they actually have a *lower* risk of prudential exceedance. Hence, this participant who is providing a service to customers' that the market was designed to encourage will be disadvantaged for providing this service.

Again, as in the issue described in point 1, this use of the wrong type of season could actually do the opposite of what the rule change sets out to do, and assess a participant with HIGHER risk as LOWER and vice versa. Using a wrong season type to set the profile seems almost nonsensical.

Proposed Solution to Calculation of PRAF

If the intention of the PRAF is to determine a participants risk in relation to load weighted price against regional load weighted price, then there needs to be two changes made:

1. There should be **no averaging of the load** and price profiles for the season for the calculation of the load weighted price ratio. Each half-hour price and load should be fully multiplied out so that the true relative risk is estimated. Although this will mean some more computations in terms of the MCL calculations, surely this is the more accurate calculation and therefore we cannot envisage a reason why it would not be used, considering the dollars at stake on the outcome (see Appendix 1 for a simple calculation of the amount of funding that this change in the calculation means for a participant).
2. The calculation should be based on the same season that it is being applied to. This should be the participant's load weighted price from the previous like season (previous year) applied to the current season. This will then ensure that both higher market risk participants (for example, participants with peakier load and no DSM capability) have a correctly higher MCL and participants focussing on innovative technologies to assist customers to DSM area not given unequitable barriers to entry for providing this beneficial service.

The proposed NEM Prudential Standard and Framework addresses this issue in clause 6.1.2 of EM 2011/003, by including "The correlation between energy, reallocations and the RRP" as a key factor in determining the participants MCL requirements. We propose that AEMO include in the new credit limit procedure, and the method it uses to assess the participants risk and credit support, calculation of a factor which *truly* – not "*sort of*" - reflects any demonstrable change in the participant's load in response to high market prices.

Progressive Green cannot see any rationale why these two changes could not be put into place in the new rule. It is far _more_ likely that a participants load is NOT going to change from one summer to the following year, However using a shoulder season profile is NOT going to be representative of participants summer or winter season profile!

Increase in Credit Time Period

Through the rule change, the new standard will remove the ability for a participant as part of the rule to reduce their MCL Credit Period to 28 days, calculating all MCL's off a 42 day credit period. This change, alone adds an extra 50% capital required to fund a participant's MCL.

Once again, for participants who manage load (DSM) in response to high spot prices, we would energetically argue that a 28 day period is more than adequate to calculate the MCL, as we understand the proposed change in the draft procedures is there to prevent too many SDA calls being required

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from AEMO by increasing the MCL amount to account for more volatility. However for participants that manage load (DSM) in response to price, their SDA's are rarely (if ever called) and this means a large proportion of the new MCL calculation (which is due to the multiplier effect of the volatility factors) **would not be required to support the risk of these participants.**   If the calculation of the PM and Outstanding volatility factors were calculated using the load of a participant who decreases load by 80-100% in response to any more than 1-2 settlement periods of high prices, it is certain that the volatility factors for these participants would be dramatically decreased.

We strongly oppose an increase of the MCL from 28 to 42 days for participants that significantly reduce their trading risk to AEMO by reducing load in response to high price periods. This proposed change would add a significant financial burden to these types of retailers.

Estimated Average Daily Load for Participants

Currently the Estimated Load has some level of subjectivity involved in the process due to the fact that participants are at different stages of growth and may have increasing or reducing load. There is no mention of any change to this level of subjectivity and discussion with Market Participants in the new credit limit methodology.

We would like to request that for participants whose load may be both growing but that also may have large movements in quantity of load across seasons (due to the type of customers it attracts) that this ability to use the most recent history to estimate the average daily participant load (EL_R)and to be therefore have a variable MCL due to seasonal variation, be **explicitly stated** **as a valid part of the methodology** that will be included in the procedures notwithstanding that this involves some level of unavoidable subjectivity.

Vertically Integrated Participants and Non-Integrated Participants

At the commencement of the NEM, the market was disaggregated and deregulated (or perhaps more correctly, "re-regulated) due to the mandate of providing competition in the electricity market which subsequently created a more efficient electricity market for all consumers. As various participants in the NEM have been privatised and/or corporatised away from Government hands, we have more recently seen a re-aggregation of many of these entities to the point where we are now left with three large vertically integrated players in AGL, TRU Energy and Origin.

In, and of itself, this is not a negative outcome as through this disaggregation and re-aggregation process, *some* in-efficiencies in the supply/demand chain have been slowly weeded out and the market is overall more productive and a provider of more efficient and reliable energy.

However, with this more recent re-aggregation comes the danger of "the big three" flexing their muscle to hold onto market share and to build up more barriers to entry to new, more efficient, more innovative (and also normally smaller) players who will continue to be at the innovative edge of providing cleaner, more cost effective and reliable energy services.

It is our view that regulation and the subsequent market systems and procedures should always have on their "radar" this potentially negative side of regulated competitive markets and to not be distracted by the political and regulatory influence exerted by those with more people, resources that may be able to push their invested interests more and who may not always have as its front-of-mind the provision of lower cost energy to consumers.

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For a vertically integrated player, this change in the MCL will have negligible impact due to their ownership of opposing generation and retail assets in regards to settlement with AEMO.

A newer player (generator or retailer) who may have fresh ideas and may have much more customer-oriented philosophies is left via this new credit limit procedures with larger barriers to entry.

In addition, the fact that there are very large generation assets in the hands of single companies can make them very unwilling to incur the cost (in terms of administration and resources) of dealing with a significant smaller player and more specifically, to reallocate load for them even if they are hedging it. This is a further barrier to entry as reallocation of retail load via a generator is one of the main ways to manage MCL for a participant (as well as prudent way to manage high pool price risk).

Going Forward

Credit Support to AEMO is one of the most substantial financial obligations for a participant, especially for specialist participants such as Progressive Green who manage customer price exposure through DSP rather than through reallocations. Section 8 of AEMO Rule request: EM 2011/003 describes a new credit limit procedure which would *"Take into account factors affecting the risk of a participants' portfolio, for example, a participants' load characteristics. Including factors that better reflect the credit risk participants pose to the NEM encourages them to make appropriate business decisions regarding risk management strategies of operations".* Progressive Green is in support of a proposed rule change that recognises the participant's ability to manage (reduce) load in response to high market prices in AEMO's calculation of the required credit support. In our view this more accurately reflects the intended operation of the energy market to send clear pricing signals during times of constraint to encourage DSP and efficient use of the NEM. The current prudential and settlement system may have been appropriate in the past; but in our view will not serve the community in the future.

Removal of the above barriers will facilitate new and innovative systems to be developed, perhaps allowing new participants to enter the market. However without reform, the system will prevent the potential improvements that will deliver cost-effective improvements and efficiency to the NEM.

Progressive Green understands that demand side response is not something that has been considered on any scale in the NEM previously. We strongly feel that it is now time to consider these types of customers and the lower trading risk they present to the market and allocate prudentials accordingly.

We would be very happy to arrange a meeting with AEMO representative and any relevant consultants to discuss our concerns further.

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Appendix 1

According to section 10 of the draft Credit Limit Procedures, the "*Participant Risk Adjustment Factor (PRAF) is a Market Participant specific factor calculated by AEMO and used to adjust the PM and OSL for a Market Participant to reflect their relative risk*". This adjustment factor effectively is calculated by the exponential weighted moving average over the life of the NEM of a participants load weighted average price ratio (LWAPR). The LWAPR formula is:

AEMO's estimate of the participant's load weighted price in each region R (adjusted for marginal loss factors)

_____

AEMO's estimate of the regional load weighted price in each region R (adjusted for marginal loss factors)

This ratio is then adjusted using an exponentially weighted moving average over the history of the NEM to approximate the trend. In the example, we will not be adjusting for the moving average or trend so as to keep the example clear and simple. We are aware that this makes the example not a 100% accurate calculation of the PRAF but for the purposes of the illustration, we believe this is sufficient.

In the simplified example below, we are exploring the variation in the PRAF that can occur for a **participant that provides a DSM service to** customers by calculating the load weighted price ratio using two different methods:

Method A: Calculating a 48 half-hourly averaged load and price profile initially, and then calculating the sum-product of these 48 periods and dividing the result by the sum of the half-hour load profile., (as per the proposed rule change).

Method B: Calculating the sum-product of each individual corresponding half-hour load and price interval separately for the summer season (not using a half-hourly averaged load/price profile) and dividing the result by the sum of the total load for the period.

The calculations for this example are contained in the spreadsheet attached to the submission titled *Participant A Example of PRAF Calculations.xls*

Participant A Example

Assume Participant A provides a DSM service that enables customers to turn off load in high priced period and this participant has 1% of the Victorian regional load. Using a sample price trace of the 2008/09 summer season which was a particularly volatile period, we assume that as part of the DSM product, all of Participant A's customers switch load to zero in any half-hour periods where the RRP is above \$300/MWh. We can then calculate the load weighted average estimates via both methods described above. Note that these load weighted average prices have not been adjusted for marginal loss factors to keep the example simple.

Participant A load weighted average price using Method A = \$55.39
Participant A load weighted average price using Method B = \$33.21

Victorian load weighted average price using Method A = \$55.82
Victorian load weighted average price using Method B = \$71.44

Load Weighted Price Ratio (not including marginal loss factors) for Method A = 99.2%
Load Weighted Price Ratio (not including marginal loss factors) for Method B = 46.5%

In this example, we wish to simply illustrate the change that the different methods of calculating a load weighted average price ratio (and subsequently the PRAF) will have on the level of MCL and therefore Participant A's cost of capital.

Using AEMO's MCL Summer Calculator (provided on the AEMO website) created to calculate the PM and MCL for the new draft procedures we see that a 10% decrease/increase in PRAF will decrease/increase the PM by $288k and decrease/increase the MCL by $949k for a Participant with an average daily load of 1% of the total Summer 08/09 Victorian Regional Load (our assumed load size for Participant A).

Although the ratios calculated above are not precisely accurate estimations of PRAFs as described in the draft procedures (the load and prices have not been adjusted for history by using the exponential weighted moving average approach), the illustration is effective in showing the significant different in the load weighted price ratios of the two methods.

If we continue our example, Participant A's average daily load for Summer 08/09 is 2741MWh (1% of the total Victorian average daily summer load). If we enter this load into the MCL summer calculator with the above two variations in the load weighted average ratios (as an approximation of the PRAF) the following PM and MCL would result:

PM for Method A = $2.84M
MCL for Method A = $9.41M

PM for Method B = $1.34M
PM for Method B = $4.41M

Increase of PM of Method A over Method B = $1.52M
Increase of MCL of Method A over Method B = $5.00M

Now, assuming a cost of capital of 7%, *this simple variation in a calculation methodology will cost Participant a $350k to provide extra funding for the MCL! This would mean higher energy cost passed on to the consumers.*

Although the above example is simplified and has not included some parameters of the PRAF calculation, Progressive Green feels it is a powerful depiction of the materially weakening effect that using an averaged load and price profile has on the PRAF and the follow-on effect this would have on a participant's PM, MCL and therefore costs of doing business. Surely it is not in the interests of the community to create a methodology that does not accurately reflect a participant's level of risk in the NEM, particularly a participant who is creating products that assist customers in reducing their energy costs. We strongly urge AEMO to reconsider this calculation of the PRAF and to not use the average load and price profiles but to correctly calculate the load weighted average price ratios using the full half-hour data for each season.