Wholesale Electricity Market
Rule Change Proposal Su bmission Form

RC_2010_25 and RC_2010_37 Calculation of the Capacity Value of Intermittent Generation - Method ology 1 (IMO) an d Methodology 2 (Griffin Energy)

Submitted by

Name:	Brendan Clarke
Phone:	9427 5940
Fax:	9427 4228
Email:	Brendan.Clarke@westernpower.com.au
Organisation:	System Management
Address:	
Date submitted:	21 October 2011

Submission

1. Please provide your views on the proposa l, including any object ions or suggested revisions.

    Draft Rule Change Report Title: Calculation of the Capacity Value of Intermittent Generation - Methodology 1 (IMO) and Methodology 2 (Griffin Energy)

    Ref: RC_2010_25 & RC_2010_37 Standard Rule Change Process

    Standard Rule Change Process

    Date: 18 August 2011

RULE CHANGE PROCESS

System Management believes the proposed rules are a major departure from that initially proposed by the IMO in RC_2010_25. The main changes being

      The introduction of a variability component
      The introduction of using intervals on separate days
      The removal of the fleet concept

System Management is concerned that this sets a precedent for using the IMO s draft report as a mechanism to introduce major changes to an original rule change proposal. System Management believes major changes should only be made as a new rule change submission.

In this instance System Management s comments on the Sapere proposal will not be available to the Public to consider in making their second round submissions.

System Management believes these changes should be submitted as a new rule change proposal.

RULE CHANGE CONCEPT

System Management supports the concept of that capacity value of intermittent generation be based on an average value less a variability adjustment.

System Management previously put forward this concept during the Renewable Energy Generation Working Group (REGWG) deliberations, using a 90% Confidence Level for non scheduled generation.

The concept of using average and adjustment values is supported by evidence illustrated in the graph below which compares the actual and average output of all windfarms during 40+ degree days over the past 3 years between 11am and 7 pm 9as a percentage of their installed capacity).

The average output is around 33% of the installed capacity.

System Management s prime concern is the actual output is less than half of the average output (about 16% of the installed capacity) for 17% of the time and the actual output is less than one third of the average output (about 10% of the installed capacity) for 11% of the time.

KEY ISSUE – SELECTION OF INTERVALS DOES NOT RELATE TO SYSTEM PEAK DEMAND

System Management supports the general methodology proposed in AE 41 Tm .5 fJ 0 -h6.1(e u9) T

this has only occurred once since market start (16 January 2009) and therefore is not a practical option.

System Management believes the proposed selection is not correct as it includes many non-peak intervals. An examination of the peaks during the proposed selection showed intervals selected in which the system demand was 500MW lower than the peak demand for that year.

System Management recommends as an alternative to the method proposed in the IMO s draft report, that an ambient condition based criteria be used for selecting the trading intervals for the average and adjustment values. It suggests selecting trading intervals during the last 3 years between 11 am and 7 pm on days where the Perth peak daily temperature is greater than or equal to 40 deg Celsius. System Management estimates there are 9 days or 144 trading intervals that would fall into this category. It understand that there may be a period of 3 years where this potentially could result in a small number of interval selected so a minimum numbers of days would be selected (say 5) where the number of years would be extended.

ADDITIONAL ISSUES.

1. Facility Adjustment Formulation

The proposed rules use Facility Adjustment Factor based on a coefficient (G) multiplied by the variance of the output.

System Management believes it is better to express the Facility Adjustment Factor as a coefficient multiplied by the standard deviation of the output. This is because it is the more common form that can easily be translated to a confidence level for the variability adjustment. That is a coefficient of 1.00 indicates that the output would be better than given in the formulation 85% of the time.

2. Glide Path

Not withstanding the comment above System Management believes for capacity procurement that the final adjustment coefficients be used. Hence in determining whether there is sufficient capacity procured for 2014/15 and 2015/16 the adjustment factors are k=0.003 and U=0.635. System Management understands commercially that the facility capacity credits however will differ to these.

3. Coefficient Parameters

The propose rule change is critical on the parameters K and U. It is unclear as to how these are determined or how these could be reviewed at a later date by a different consultant. It is surprising that the value of U is determined to 3 decimal places. It is noted that the Sapere report concludes

"The parameter for U is set so that the total of capacity credits matches that given by IMO Proposal modified to select TIs from separate days."

System Management believes that any parameters be set to give a true representation of the contribution intermittent generation makes during the peak days in comparison with the that of the capacity credit based generator being a 160MW open cycle gas turbine whose output availability is equal to its Reserve Capacity Credit with a 90+ % confidence. To this end System management believes the parameters need to be about twice those suggested in the proposed rule change.

SEPARATION OF PHYSICAL AND COMMERCIAL QUANTITIES ALTERNATIVE.

System Management wishes to add that the major concern is not the capacity credits assigned to a facility but rather the contribution that the various types of generation that is procured during the reserve capacity cycle make to system security.

It is understood that this idea was previously discussed at MAC meetings.

System Management believes that the contributions can not be influenced in realtime however it can be done as part of the Reserve Capacity procurement process.

This can be facilitated by predetermining the minimum quantities of various types of generation and demand side resources that must be sourced. This is already taken into account for Demand Side options in development of the availability curve.

System Management s focus is the application of Market Rule 4.5.12(b)

 4.5.12. An Availability Curve for a Capacity Y   ear is to contain the following information:

 (b) the minimum capacity required to be provided by   generation capacity   if Power
System Security and Power System Reliab   ility is to be maintained. This minimum
capacity is to be set at a level such that   it would be possible to satisfy the Planning
Criterion and the criterion for evaluating outage plans :

The term generation capacity should be defined to be the sum of

total Scheduled Generator capacity and
total Non-scheduled Generator capacity multiplied by a reliability factor.

where the reliability factor is determined by taking into account the variability of the output of Non-scheduled Generators and so their contribution to system security.

System Management can also make an estimate for Non-scheduled Generation contributions for the purposes of outage planning.

Under this alternative the market objective of system security can be achieved whilst allowing