

ELECTRICITY INDUSTRY ACT

ELECTRICITY INDUSTRY (WHOLESALE ELECTRICITY
MARKET) REGULATIONS 2004

WHOLESALE ELECTRICITY MARKET RULES

Power System Operation Procedure:

Short Term Projected Assessment
of System Adequacy (ST PASA)

Commencement: This Market Procedure is to have effect from 8:00am (WST) on the same date as the Wholesale Electricity Market Rule, in which this procedure is made in accordance with, commences.

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1. SHORT TERM PROJECTED ASSESSMENT OF SYSTEM ADEQUACY ('ST PASA')

This Procedure, Power System Operating Procedure Short Term Projected Assessment of System Adequacy ('ST PASA'), details procedures that System Management and Rule Participants must follow in the preparation and publication of the Short Term Projected Assessment of System Adequacy report.

2. RELATIONSHIP WITH MARKET RULES

1. This Procedure has been developed in accordance with, and should be read in conjunction with clause 3.17 of the Wholesale Electricity Market (WEM) and Rules (Market Rules).
2. References to particular Market Rules within the Procedure in bold and square brackets **[MR XX]** are current as at 16 October 2008. These references are included for convenience only, and are not part of this procedure.
3. In performing its functions under the Market Rules, System Management may be required to disclose certain information to Market Participants and Network Operators. In selecting the information that may be disclosed, System Management will utilize best endeavours and act in good faith to disclose only the information reasonably required by the application of the Market Rules.

3. SCOPE

The ST PASA Procedure details processes that Rule Participants and System Management must follow in conducting Short Term PASA studies to assist System Management in setting Ancillary Service requirements, assessing final approval of Planned outages, assessing the availability of capacity holding Capacity Credits amongst other functions associated with the management of Power System Security and Power System Reliability in the SWIS. The Short Term PASA studies are based on a three week planning horizon.

Similarly, Medium Term Projected Assessment of System Adequacy studies are derived from a common formulation, but are instead based on a longer three year planning horizon.

4. ASSOCIATED PROCEDURES AND OPERATION STANDARDS

The following Power System Operation Procedures are associated with this ST PASA procedure:

- a. Power System Operation Procedure – Power System Security
- b. Power System Operation Procedure – Facility Outages
- c. Power System Operation Procedure – MT PASA

5. TIMETABLE FOR ST PASA

1. The timing requirements that System Management must follow when completing and reviewing a Short Term PASA study, the provision of this information to the Independent Market Operator ('IMO'), and the IMO's obligation to publish the relevant information are defined in the Market Rules **[MR 3.17.1, MR 3.17.2 and MR 3.17.6]**.
2. Where a Rule Participant becomes aware that information submitted in accordance with the Market Rules **[MR 3.17.5]** has materially changed during the first week covered by the previous ST PASA study, System Management shall modify the ST PASA study and resubmit to the IMO.
3. A material change may be quantified as being equivalent to a loss of a major generator capable of generating more than 300 MW or other circumstances which System Management deems necessary.
4. System Management will prepare and maintain an internal process detailing how and by which method the ST PASA results are transmitted to the IMO.

6. INFORMATION REQUIREMENTS

6.1 General Requirements

1. System Management may direct Rule Participants in writing from time to time to provide the information specified in the Market Rules **[MR 3.17.5]**. A Rule Participant must respond to this request within two days following the date it was issued.
2. A Market Customer must provide information on demand forecasts for loads designated as Significant loads, where these Market Customers are anticipating a major change to the demand pattern of the Significant Load. In defining a Significant Load System Management will consider the following:
 - a) a consumer load will be deemed a Significant Load when its peak demand exceeds 20MW or connection is made to a transmission system consuming in excess of 10 MW;
 - b) a major change to the demand pattern of a Significant Load to be an increase or decrease of at least 10 MW in profile of a load exceeding 20MW, where that change is anticipated to occur in one or more of the periods set out in the table below; or

Season	Weekday Morning	Weekday Evening
Winter	7.00-9.00 AM	5.00-8.00 PM
Summer	-	Midday to 6.00 PM

- c) Market Customers must provide System Management with the load change information for each Significant Load for the applicable period.

3. Rule Participants must use reasonable endeavours to provide System Management with a reasonable estimate of the amount of demand side management capacity that can be provided.
4. With the exception of demand side management, where information is provided by Network Operators, Market Generators and Market Customers this information must be provided via the System Management Market Information Technology ('SMMITS') web interface system, unless otherwise directed.
5. Rule Participants must provide demand side management related information to System Management via email, unless otherwise directed.

6.2 Allowable Use of System Management Data

System Management may utilise its own information in certain circumstances in substitution of information submitted by Rule Participants in accordance with the Market Rules [MR 3.17.8], and shall document reasons for doing so in the ST PASA report.

6.3 Submission of Revised Data

1. When a Rule Participant becomes aware of circumstances relating to material changes in ST PASA detailed in the Market Rules, Rule Participants must submit revised data including:
 - a) any variations to capacity or performance from Standing Data; and
 - b) changes from the details in the outage plans submitted to System Management.

6.4 Possible Errors or Omissions

1. Where System Management has not received information from a participant in the time required, or the information contains either omissions or possible errors, System Management may use reasonable endeavours to contact the participant to seek clarification or further details.
2. The participant must respond to this request in the earliest time practical.

6.5 Situations where System Management can use its own information

In addition to information provided by a Rule Participant, System Management may use information that it develops pursuant to the Market Rules [MR 3.17.7], and any other information System Management considers necessary.

7. ST PASA LOAD FORECAST

1. System Management must prepare a load forecast for the SWIS system for each of the 21 days covered by ST PASA using System Management's modelling and forecasting system. The load forecast modelling system must forecast daily peaks using statistically derived trends in daily, weekly and monthly demand patterns and weather conditions. Account must be taken of the data on Significant Loads.

7.1 Peak System Load Forecasts

System Management must ensure that the results of a Short Term PASA study includes, for the Short Term PASA Planning Horizon, the peak load forecasts for scenarios stipulated in the Market Rules [MR 3.17.9(a) and MR 3.17.9(b)].

8. ST PASA PLANNING CRITERIA

8.1 Generation Security

System Management must allow for sufficient generation to be available to cater for forced outages of generation facilities. The value of unplanned unavailability will be the loss of the largest total generation, remaining after outages have been accounted for, resulting from a single contingency event.

8.2 Transmission Security

System Management must adjust total generation, to take account of any constraints on the transmission system, after allowing for all credible contingencies specified in the PSOP: Power System Security and maintain operations within the boundaries of the Technical Envelope.

8.3 Ancillary Services

System Management must allow for sufficient Ancillary Services and Ready Reserve generation to be available, taking into account the non-availability of facilities that provide Ancillary Services, to meet the criteria specified in the PSOP: Power System Security and maintain operations within the boundaries of the Technical Envelope.

8.4 Demand Management

System Management must prepare the ST PASA based on a reasonable forecast of the availability of all Interruptible Loads.

9. ST PASA RESERVE MARGIN

System Management must assess the “Reserve Margin” for each study period within the ST PASA planning horizon.

The Reserve Margin is defined as the spare generation available after the forecast peak load has been met, and all security and ancillary service requirements have been satisfied.

9.1 Assessment of the Reserve Margin

1. System Management must estimate the applicable Reserve Margin by forecasting:
 - a) the capacity of the total generation remaining in service after allowing for Planned, Scheduled and any other outages that System Management has knowledge of or has been informed of, less
 - b) the mean plus two standard deviation system load forecast or expected load including a margin for uncertainty and ensuring that,
 - c) the effects of any Generation being constrained due to insufficient transmission capacity remaining in service, less

- d) an allowance for that quantity of generation capacity required to operate as an Ancillary Service, to maintain the frequency standards specified in the PSOP: Power System Security, less
 - e) as quantified within the planning criteria set out in section 8 of this procedure.
2. The facilities remaining in service must allow System Management to operate the Power System within the applicable Technical Envelope and the criteria specified in the PSOP: Power System Security.

10. CONTENT OF SHORT TERM PASA STUDY RESULTS REPORT

1. The ST PASA Study Results Report (ST PASA report) must set out the forecast value of the Short Term Reserve Margin, the data set out in the Market Rules, and other data relevant to the short term security assessment of the SWIS system.
2. Where practical, the information should be presented in graphical form in SMMITS and cover each period of a 3 week ST PASA planning horizon.
3. System Management must highlight in its results those periods within the ST PASA planning horizon where Reserve Margin is zero or negative and where changes to outage plans are needed to restore the Reserve Margin to a positive level.
4. The published study must also provide graphical representation of the information on generation capacity and forecast data from which System Management's estimation of the Reserve Margin was compiled, as well as an estimate of the applicable Reserve Margin.

10.1 Aggregate forecast information on ST PASA

1. System Management must include in the ST PASA report the information set out in the Market Rules [MR 3.17.9] and the additional information listed in Table 1 below for each day of the ST PASA planning horizon.

TABLE 1 ST PASA Reporting Parameter		Description
1.	Reserve Margin	The quantity defined in Rule 3.17.9(d) and being for each study period, the 'mean plus 2 standard deviation peak load forecast, minus the total forecast available generation capacity.
2.	Peak Load Forecasts	The peak load estimate for the SWIS for the following scenarios: i. mean; ii. mean plus one standard deviation; and iii mean plus two standard deviations.
3.	Minimum load forecasts	The minimum overnight load forecasts as estimated for each of the overnight study periods.
4.	Forecast total installed generation capacity	The total installed generation capacity forecast for each study window in the ST planning horizon.
5.	Forecast total available	The total available Generation Capacity available in each

	Generation Capacity	study window.
6.	Forecast total available Demand Management Capacity	The total available Demand Side Management capacity available in each study period.
7.	Transmission Constrained Capacity	Any generation capacity output constrained as a consequence of transmission limitations.
8.	Provision for unplanned loss of Generation Facilities	The provision for unplanned un-availability of generation facilities (forced outages).
9.	Ancillary Services	The quantity of generation capacity diverted to serve as an ancillary service, and not available for energy supply purposes.
10.	Additional Data	Any parameter that System Management considers useful in highlighting information relevant to the adequacy of the SWIS over the study period.

10.2 Explanatory information in ST PASA report

1. System Management may include as an attachment to the ST PASA report additional information to assist Participants in understanding and utilising the information in ST PASA.
2. System Management should use reasonable endeavours to provide explanation of changes where there are significant differences in the level of Reserve Margin between consecutive ST PASA reports

11. AGGREGATION OF INFORMATION

1. In publishing the ST PASA report, System Management will endeavour to ensure that as much as is practical, individual participant's data submitted to the System Management cannot be identified. Information will be published in aggregate form for each class of Market Participant.