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APPENDIX B - INPUT DATA FOR THE MARKET CLEARING ENGINE

B.1 INTRODUCTION

B.1.1 The information described in sections B.2 to B.9 of this Appendix shall be used as input data for the *market clearing engine* for each *dispatch period* for which the *market clearing engine* is required to produce schedules and prices.

B.2 MARKET PARTICIPANT DATA

B.2.1 All valid *energy offers* and valid *energy bids* for *registered facilities* for that *dispatch period*.

B.2.2 All valid *reserve offers* for each *reserve class* for *registered facilities* for that *dispatch period*.

B.2.3 All valid *regulation offers* for *registered facilities* for that *dispatch period*.

B.2.4 All valid *standing capability data* corresponding to *registered facilities* for the *trading day* within which to that *dispatch period* occurs.

B.3 NODAL LOAD FORECAST

B.3.1 The relevant *nodal load forecast* prescribed in the provisions of Chapter 6.

B.4 INTERTIE SCHEDULE DATA

B.4.1 For each *intertie*, up to ten *price-quantity pairs*, represented as included in an *energy offer*, where the *price-quantity pairs* shall be specified by the *EMC* so that the schedules produced by the *market clearing engine* will reasonably correspond to the scheduled flow as provided by *PSO* into Singapore on the *intertie* for that *dispatch period* to the extent that it is possible for the *market clearing engine* to produce such an outcome.

B.4.2 For each intertie, up to ten *price-quantity pairs*, represented as included in an *energy bid* except that the prices shall decrease with increasing cumulative quantity, where the *price-quantity pairs* shall be specified by

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the *EMC* so that the schedules produced by the *market clearing engine* will reasonably correspond to the scheduled flow as provided by *PSO* out of Singapore on the *intertie* for that *dispatch period* to the extent that it is possible for the *market clearing engine* to produce such an outcome.

> **Explanatory Note: Interchange schedules will be represented as a dummy market participant with imports represented as a conventional energy offer while exports are represented as a dispatchable load energy bid would be represented, i.e. like an energy offer but as prices increase then less MWs are scheduled, not more. The price-quantity pairs could be defined so that the schedule only deviated from the desired flow if prices went to their maximum or minimum levels (i.e. shortage or over-supply). Thus the MCE would always schedule the required flow unless there was not enough generation to supply power for export, or not enough load to consume imported power. The availability of ten price-quantity pairs does allow for more price sensitive schedules if these are ever required.**

B.5   PSO CONTROLLED GRID DATA

B.5.1   The set of *dispatch network lines* that are in service in that *dispatch period* as specified by the *PSO* in accordance with Appendix 6G.

B.5.2   The resistance, reactance and fixed losses for each *dispatch network line* that is in service in that *dispatch period* as specified by the *PSO* in accordance with Appendix 6G.

B.5.3   The thermal line ratings and operational flow limits on each *dispatch network line* for each direction of flow for that *dispatch period* as specified by the *PSO* in accordance with Appendix 6G.

B.5.4   An estimate of the reactive power flows on each *dispatch network line* for that *dispatch period* as specified by the *PSO* in accordance with Appendix 6G.

B.6   GENERATOR DATA

B.6.1   Initial output levels for each *generation registered facility* as at the start of that *dispatch period* as specified by the *PSO* in accordance with Appendix 6G.

B.6.2   The set of all *generation fixing constraints* and such additional *generic constraints* as may be specified by the *PSO* in accordance with Appendix 6G to apply within that *dispatch period*.

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B.7   SECURITY, RESERVE AND REGULATION DATA

B.7.1   The set of all *security constraints* specified by the *PSO* in accordance with Appendix 6G to apply within that *dispatch period*.

B.7.2   The set of *reserve provider groups* with the *reserve class* and the set of *registered facilities* to which each such *reserve provider group* is associated as specified by the *PSO* in accordance with Appendix 6G for that *dispatch period*.

B.7.3   Piece-wise linear effectiveness functions specified by the *PSO* in accordance with Appendix 6G for each *reserve provider group*, describing the expected effectiveness of different levels of *reserve* quantity scheduled from that *reserve provider group* for that *dispatch period*.

B.7.4   The minimum required *reserve* for each *reserve class* specified by the *PSO* in accordance with Appendix 6G for that *dispatch period*.

B.7.5   For each *reserve class*, a risk adjustment factor specified by the *PSO* in accordance with Appendix 6G that scales the contingency risk determined within the *market clearing engine* to reflect special conditions within that *dispatch period*.

B.7.6   The total *regulation* requirement and minimum required *regulation* specified by the *PSO* in accordance with Appendix 6G for that *dispatch period*.

B.8   VIOLATION COST AND PRICE CAP DATA

B.8.1   *Constraint violation costs* as specified in Appendix 6J, or as established by the *PSO* in accordance with section 2.3 of this Chapter 6, as the case may be, where the specific values to apply in that *dispatch period* shall be specified by the *EMC* except where specified by the *PSO* in accordance with Appendix 6G.

B.8.2   The *settlement* price limits specified in Appendix 6J.

B.9   MARKET CLEARING ENGINE PARAMETERS

B.9.1   Such parameters as may be required to indicate the sources of input data and the destinations of output data for the production of each of the *market outlook scenarios*, the *pre-dispatch schedules*, the *short-term schedules* and the *real-time dispatch schedules*.