

PUBLIC CONSULTATION ON PROPOSED CATALOGUE OF DATA

The Singapore Electricity Market Rules provide for the Market Assessment Unit (“MAU”), under the supervision and direction of the Market Surveillance and Compliance Panel (“MSCP”), to develop an information requirements system and criteria for evaluation to enable effective monitoring of the market. One of the documents to be developed is a catalogue of the data to be collected by the MAU for monitoring purposes. The market rules provide for the proposed catalogue of data to be published by the EMC for public comment prior to its adoption.

The purpose of this paper is to seek comments on a proposed catalogue of data which has been developed by the MAU under the supervision and direction of the MSCP. The proposed catalogue of data is attached at the end of this paper.

Market participants, the market support services licensee, the PSO, the EMC and other interested parties are invited to provide comments on the proposed catalogue of data to the MSCP by **20 March 2003** at the following address:

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7 March 2003

INTRODUCTION

The purpose of this paper is to seek comments from market participants, the market support services licensee, the PSO, the EMC and other interested parties on a proposed catalogue of data developed by the Market Assessment Unit ("MAU") under the supervision and direction of the Market Surveillance and Compliance Panel ("MSCP"). The proposed catalogue of data is attached at the end of this paper.

MONITORING OBJECTIVES

The Singapore Electricity Market Rules provide for the MSCP to carry out market monitoring with the assistance of the MAU.

It is important to consider, at the outset, what are the monitoring objectives of the MSCP and MAU. These are laid down in the market rules. Section 4.1.1 of Chapter 3 provides that the purpose of monitoring and/or investigating activities in the wholesale electricity markets and the conduct of market participants, the market support services licensee, the PSO and the EMC is to:

- (a) identify breaches of the market rules, any market manual or system operation manual;
- (b) assess whether the underlying structure of the wholesale electricity markets is consistent with the efficient and fair operation of a competitive market; and
- (c) recommend remedial actions to mitigate the conduct and inefficiencies referred to above.

In particular, section 4.3.1 of Chapter 3 provides for the MSCP, with the assistance of the MAU, to monitor and investigate the conduct of market participants, the market support services licensee, the EMC and the PSO and the structure and performance of, and activities in, the wholesale electricity markets, including conduct or activities that provide indications of:

- (a) breaches of the market rules, a market manual or system operation manual;
- (b) actual or potential design or other flaws and inefficiencies in the market rules, market manuals, the system operation manual and other rules and procedures of the EMC or the PSO; and
- (c) actual or potential design or other flaws in the overall structure of the wholesale electricity markets.

MONITORING TOOLS

To enable effective market monitoring, section 4.3.2 of Chapter 3 provides for the MAU, under the supervision and direction of the MSCP, to develop an information requirements system and criteria for evaluation.

Catalogue of data

In particular, section 4.3.2.1 requires the development of a detailed catalogue of all of the data or categories of data the MAU will have the need or means of acquiring. The catalogue of data is required to be published by the EMC for public comment prior to its adoption. This paper has been prepared for the purpose of introducing the proposed catalogue of data that the MSCP and MAU have developed and to seek public comments on it. The catalogue of data that the MSCP adopts after public consultation is also required to be published by the EMC.

Once the catalogue of data adopted by the MSCP has been published, market participants, the market support services licensee, the EMC and the PSO are required to provide the MAU with the data referred to in the catalogue within or at the time or times specified in the catalogue.

The market rules contemplate an ongoing process of re-evaluation and modification of the catalogue. This will be undertaken by the MAU, under the supervision and direction of the MSCP, as may be appropriate. The process of consultation and publication will similarly apply to any modifications made to the catalogue of data adopted by the MSCP.

Catalogue of Monitoring Indices

Besides the catalogue of data, section 4.3.2.2 of Chapter 3 provides for the development of a catalogue of monitoring indices that the MAU will use to evaluate the data acquired.

To develop appropriate monitoring indices, a period to observe the correlation between different market data and test the usefulness of different indices will be necessary. The catalogue of monitoring indices will therefore be available a few months later.

Monitoring Not Limited By Catalogues

The development of the above catalogues does not limit the scope of the monitoring that may be carried out by the MSCP. In this regard, section 4.3.9 of Chapter 3 makes it clear that nothing in section 4.3 precludes the MSCP from conducting such monitoring, evaluation or analyses as it deems appropriate at any given time.

INTERNATIONAL MONITORING PRACTICES

It is useful to refer to the monitoring practices of other electricity markets when developing the catalogue of data for the Singapore market. We have therefore looked at the monitoring programmes of the following electricity markets to understand their scope of coverage:

- (i) Ontario Wholesale Electricity Market;
- (ii) National Electricity Market of Australia;
- (iii) Electricity market operated by the Alberta Power Pool;
- (iv) Electricity market operated by the New York Independent System Operator, Inc;
- (v) Electricity market operated by the ISO New England Inc; and
- (vi) Electricity market operated by the PJM Interconnection, LLC.

Having regard to the monitoring objectives of the MSCP and MAU in the Singapore Electricity Market Rules, we have identified areas in the above monitoring programmes which are relevant. These sources of reference have enabled us to make improvements to the proposed catalogue of data.

SCOPE OF PROPOSED CATALOGUE OF DATA

To fulfil the objectives of monitoring for rule breaches and for flaws and efficiencies in the rules and in the structure of the market, a database on market data is required. Market monitoring will focus on identifying and understanding market outcomes. Issues that require attention may become clear only after the market has been in operation for a period of time. For a start, we are proposing that data be collected in the following areas:

- 1. Characteristics of generation registered facilities;
- 2. Transmission system;
- 3. Supply;
- 4. Demand;
- 5. Pricing; and
- 6. Others (ie relevant data which does not fall within the above categories).

There is significant overlap between the above categories. We have classified the data using the above categories only to provide some structure to and facilitate understanding of the proposed catalogue of data.

Each of these areas are discussed below.

1. Characteristics of Generation Registered Facilities

Data on the characteristics of generation registered facilities and the transmission system provide the context for evaluating the market.

The data we are proposing to collect on each generation registered facility includes its maximum installed capacity, maximum generation capacity, maximum ramp-up rate, maximum ramp-down rate, maximum reserve capacity, maximum combined generation capacity and reserve capacity, maximum regulation capacity and the maximum and minimum energy output at which the PSO's Automatic Generation Control ("AGC") can operate. All these data provide basic information on the physical characteristics of the generation registered facilities.

In addition, we are proposing that the following data be furnished in respect of each generation registered facility: fuel type, heat rate, year that it was first commissioned, historical data as to the annual forced outage hours, annual planned outage hours, annual overhaul hours and annual availability factor. This information is relevant for the purpose of understanding and assessing the current performance of generation registered facilities, and when considering market behaviour in relation to that facility.

2. Transmission System

Some basic information regarding the transmission system is essential for understanding and assessing the market.

We are therefore proposing that the MAU be provided with maps and diagrams of the transmission system showing the ratings of transmission lines, the intertie link with Malaysia and the location of each generation registered facility.

Knowing when a transmission line is not operating at its full capacity would also be relevant. We would therefore like to be kept informed when a transmission line is under forced outage or proposed to be de-rated or not available because of maintenance.

3. Supply

Supply, demand and pricing data are necessary for assessing whether the market is operating in an efficient, fair and competitive manner.

In terms of supply data, offers of energy, reserve and regulation and offers exceeding offer change limits indicate the offer behaviour of market participants.

The scheduled dispatch quantity shows the success of a generation registered facility or generation licensee in being selected by the market clearing engine ("MCE") to supply electricity. The maximum target, minimum target and initial output of a scheduled generation registered facility are parameters which are taken into consideration by the MCE in producing dispatch schedules. The metered generation quantity reflects actual supply.

Discretionary dispatch action taken by the PSO indicates situations of possible system security concern where there are deviations from the dispatch schedules produced by the MCE.

Data on the annual overhaul duration, capacity under maintenance, short-term planned outage, forced outage and de-rating together indicate the total quantity of generation capacity that is not available in the market. Data on security constraints, load shed forecast and load shed advisory notices are situations which may affect market behaviour. Any intertie submission is also proposed to be monitored as it affects supply and therefore market outcomes.

Fuel cost is a major component of the cost of electricity production. Theoretically, there should be a correlation between fuel cost and the cost of electricity. Other cost components applicable to a generation registered facility will also influence the price of electricity. These components include other variable costs and also fixed costs. Such data provides an insight into the efficiency of each generation registered facility and is relevant in understanding the offer behaviour in relation to that facility. Cumulatively, such data enables assessment as to whether the market is efficient and competitive.

4. Demand

Comparison of the pre-dispatch and real-time load forecasts with the system demand indicates the degree of accuracy of the load forecasts. The historical system demand shows the demand pattern over different times of the year. As there is currently no demand side participation in the market, the ability of the load forecast to provide an accurate signal to and prompt an appropriate response from the supply side is important.

5. Pricing

Data on energy, reserve and regulation prices, the Uniform Singapore Energy Price ("USEP") and the wholesale price¹ will enable studying of trends in electricity prices, with unusual price movements being more closely examined if necessary.

Variations in uplift charges are indicative of unusual market conditions and may warrant further investigation.

Comparison of pre-dispatch schedules and real-time schedules provide an insight into the responsiveness of the market to market outcomes signalled by the pre-dispatch schedules.

¹ The wholesale price, which takes into account USEP, energy uplift charges, monthly uplift charges, the PSO and the EMC's administrative charges and allocated regulation charges, is the approximate price that retailers pay for electricity in the market.

6. Others

We discuss here the other data which is relevant in the monitoring process and is proposed to be collected.

Advisory notices signify market events that warrant special attention such as shortfall of energy, reserve or regulation and market price warnings. Such occurrences are relevant in understanding market behaviour and assessing the efficiency of the market. Information on issuance of notice of default and exercise of rights of credit support by the EMC against any market participant also needs to be monitored. Such situations potentially threaten the stability of the market and warrant special attention.

Information on ancillary service contracts is relevant as the cost of ancillary services contracts affects the wholesale electricity price.

Vesting contracts and bilateral contracts are means of limiting exposure to price volatility in the market. Data regarding vesting contracts and bilateral contracts facilitate understanding of offer and price behaviour and the competitiveness of the market.

Licenses issued under the Electricity Act provide basic information such as restrictions applicable to market participants, the market support services licensee and the EMC. These are essential for understanding and assessing market behaviour and structure.

IMPLEMENTATION

Besides the type of data to be collected, the proposed catalogue of data sets out the frequency of collection of the data. The frequencies are proposed based on the nature of the data to be collected.

The catalogue also indicates the parties we are proposing to collect the data from (ie market participants, the market support services licensee, the PSO or the EMC) and the means of collection.

We are proposing that data be provided according to the catalogue of data from market start. We are also proposing that the catalogue of data takes effect one calendar month after the EMC publishes the catalogue adopted by the MSCP. Therefore, data is to be provided :

- (a) by the day that the catalogue takes effect; or
- (b) by the day applying specifically to that type of data as stated in the catalogue,

whichever is later.

CONFIDENTIALITY

The MSCP and MAU recognise that the data proposed to be collected under the catalogue of data includes data which is confidential or commercially sensitive. Protecting the confidentiality of such data is therefore an important priority for the MSCP and MAU.

REQUEST FOR DATA

Market participants and service providers are entitled under the market rules to request for data collected or created in the course of monitoring activities. The exceptions are:

- (a) confidential information²; and
- (b) data required to be published by the EMC pursuant to the market rules, a market manual or the system operation manual.

The provision of the requested data is subject to the approval of the MSCP and the EMC, and subject to such constraints as may exist on the resources of the MAU or the MSCP. The market rules also provide that where the provision of data imposes a significant burden or expense on the EMC, the data may be provided on payment of a reasonable fee to be determined by the EMC.

Other than the data specified in the proposed catalogue of data to be available on the EMC website, most of the pricing data and data relating to load forecasts is also published by the EMC. Of the rest of the data referred to in the proposed catalogue of data, most would, in its raw form, be confidential. However, when the monitoring system is more fully developed, we will attempt to share information from monitoring activities with the industry where appropriate.

²Chapter 8 of the market rules contains the following definition:
confidential information means information which is or has been provided pursuant to the *market rules*, a *market manual* or the *system operation manual* which is (a) stated by the *market rules*, a *market manual* or the *system operation manual* to be confidential information; (b) otherwise confidential or commercially sensitive; or (c) derived from information referred to in (a) or (b), but shall not include information that is required by the *market rules*, a *market manual* or the *system operation manual* to be published by the EMC or the PSO or otherwise made available to all *market participants*"

PUBLIC CONSULTATION

Market participants, the market support services licensee, the PSO and the EMC and other interested parties are invited to provide comments on the proposed catalogue of data to the MSCP at the following address by **20 March 2003**:

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Market Assessment Unit
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