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CEO's Message

We have now settled into our new office at Novena Square and have already had the pleasure of welcoming several of our market participants here. Apart from the move, EMC has also been busy with the end of our financial year; we will publish the results in our next Bulletin.

The Uniform Singapore Energy Price (USEP) decreased in February and March compared to January, despite rising fuel prices. For details on the prices and factors contributing to the decline, please read the article on pages 5 and 6.

Over the past three months, the Rules Change Panel's (RCP) work plan was updated and approved at the March RCP meeting. This annual work plan prioritization exercise with

stakeholders is always a key focus for EMC's Market Administration team in the beginning of each year; the article on pages 2 and 3 has full details on this year's agreed-upon work plan.

EMC had the privilege of hosting the inaugural meeting for Asia Pacific members of the Association of Power Exchanges (APEX) on 31 March at the Grand Hyatt. Representatives from the Philippine Electricity Market Corporation (PEMC), the Korea Power Exchange (KPX), The Market Place Company Ltd (M-co) New Zealand, the Independent Market Operator (IMO) of Western Australia, the EMA and EMC provided updates on their respective markets, shared challenges and opportunities the markets are facing, and discussed possible regional co-operations. This meeting has definitely laid the foundation for APEX members in our region to share ideas and practices for better operation of our competitive electricity

markets and to forge closer ties between our markets. I would like to thank again all participating organizations for their support, and I hope that even more Asia Pacific APEX members will be able to join next year's event.

The 2007 National Electricity Market of Singapore (NEMS) Market Report and the Market and Surveillance Annual Report 2007 have recently been published on the EMC website at www.emcsg.com. We invite you to take a look at both reports if you have not already done so.

Dave Carlson
Chief Executive Officer

First Tri-generation Embedded Generator in the NEMS

Pfizer Asia Pacific registered its 4.8MW embedded generator on 18 December 2007, with EMC as a non-injecting generation facility (NIGF). The Pfizer generator is the first tri-generation embedded generator in the NEMS. An embedded generator produces electricity to its onsite load for self-consumption. Pfizer is also the first company to be able to take advantage of the rule change on net treatment of non-reserve charges for non-injecting embedded generators (see *Bulletin 41*) that took effect on 4 December 2007.

Embedded generators have the choice to export or not to export power into the grid. The rule change cited above applies only to embedded generators that do not export power into the grid. Such generators are required to gain approval from the EMA and register with EMC to administer their non-reserve charges (EMC and PSO fees and Monthly Energy Uplift Charges) on their net withdrawal (consumption) from the grid.



RCP Work Plan Prioritisation Exercise 2008

In January and February 2008, EMC conducted a Rules Change Panel (RCP) work plan prioritisation exercise with the NEMS stakeholders, a group comprised of market participants, SP Services, the Power System Operator and the Energy Market Authority. The purpose of the exercise was to update the RCP work plan, which occurs on a two-year rolling basis, and present it to the RCP for consideration.

Issue identification

The first stage of the prioritisation exercise involved consulting the stakeholders to identify issues to be included in the updated work plan. In addition to issues carried over from the previous work plan, stakeholders have added several new issues for consideration.

These include:

- (1) Mixed Integer Programming (MIP) for reserves,
- (2) Implementation of a lower regulation price cap,
- (3) Number of business days for Suspension Order Hearing,
- (4) Multiple generating units of less than 10MW each at the same physical location, but with an aggregate capacity of more than 10MW, being subject to central dispatch,
- (5) Whether generating units scheduled by the Market Clearing Engine (MCE) to provide regulation reserve must have a minimum scheduled regulation reserve of 5MW,
- (6) Introduction of tie-breaking,
- (7) Guidelines for registration and settlement of Generation Registered Facility (GRF) / Generation Settlement Facility (GSF) with alternative fuels,
- (8) Electricity Vending System's (EVS) impact on market rule changes,
- (9) De-registration of generation facilities within a market participant's premises,
- (10) Review of price disparity between market network nodes (MNNs) and
- (11) Engaging academic institutions to look at alternative reserve payment methodologies between Interruptible Loads (ILs) and gencos.

Meeting with stakeholders

The second stage of the prioritisation exercise involved EMC meetings with 18 separate stakeholders between 28 January and 14 February. Stakeholders were asked to prioritise the issues to be included in the

updated work plan in terms of importance and urgency. They were also given the opportunity to clarify or define the scope of the issues. The consensus that emerged from the consultation was that it makes sense for EMC to finish the work on items already started, with the aim of timely completion before embarking on new issues.

Approach to prioritisation

EMC then consolidated the priority rankings and stakeholders' feedback. In drawing up the updated work plan, EMC took into account the following:

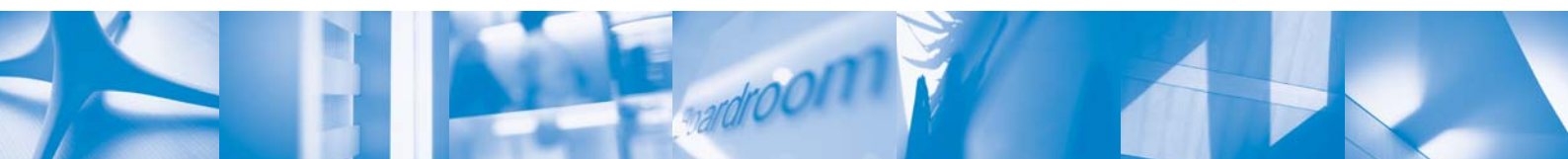
1. Priority rankings and feedback received from stakeholders during the consultation process: The stakeholders' rankings indicate which issues are likely to provide the most value to those parties that are directly affected by the performance of the market.
2. The need for EMC to complete the ongoing work streams, even though they may not be ranked highly by stakeholders: Since work has already begun for these ongoing work streams, it makes sense to complete them before EMC starts new ones. This decision is also in line with the message conveyed by many stakeholders during the consultation process asking EMC to focus on consolidation in the short run, i.e., to complete work on issues already in progress.
3. Views of the RCP members on which work streams are likely to contribute most to the long-term evolution of the NEMS: It is usually beneficial to pursue work streams that address current and urgent issues, as well as those contributing to the long-term evolution of the market.
4. Feedback from the industry for the work plan to classify issues into those to be commenced/completed within 12 months and those to be re-prioritised to the next year: This time frame departs from the previous arrangements of 9 month, 10-15 month and 16-24 month time frames.

New issues not included in the consultation exercise

EMC received two additional issues submitted by stakeholders for consideration in the updated work plan. However, these submissions did not reach EMC in time to be included in the prioritisation exercise. These two issues are:

- Review EMC fee methodology to charge fee to Interruptible Loads (ILs) providers and
- Meter tampering cases - Settlement of Adjustments.

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Updated RCP Work Plan 2008

At its 36th meeting on 11 March 2008, EMC presented the updated RCP work plan to the RCP for consideration. The table below presents the updated work plan¹ agreed upon by the RCP.

Expected completion/ commencement date	Issue No.	Issue Title
Within 12 Months (by March 2009)	24	Review of Price Disparity between MNNs
	8	Implementation of Agreed Changes Arising from the Review of Price Revision in the NEMS
	1	Simultaneous/Consecutive Tripping of Multiple GRFs
	2	Reserve Requirement to meet largest risk, not just the largest (scheduled output + reserve) online GRF: power station with only one remaining generation connection to the grid
	4	Payment for Black Start Capability Service
	5	Providing Historical Gencos' Offer Prices
	3	Trial of Proposed Prudential Methodology
	18	Multiple generating units of less than 10MW each at the same physical location, but with an aggregate capacity of more than 10MW, shall be subject to central dispatch
	6	Shortening of Settlement Cycle
	15	Mixed Integer Programming (MIP) for Reserves
	26	Meter Tampering Cases – Settlement of Adjustments
Within 13 - 24 months (by March 2010)	25	Engaging academic institutions to look at alternative reserve payment methodologies between Interruptible Loads (ILs) and Gencos
	12	Review of Scarcity Pricing
	23	De-registration of Generation Facilities within a Market Participant's Premises
	7	Compensation for Excess Regulation
	17	Number of Business Days for Suspension Order Hearing
	19	Generating units scheduled by the MCE to provide regulation reserve must have a minimum scheduled regulation reserve of 5MW
	11	New Forms of Collateral
	22	Electricity Vending System's (EVS) Impact on Market Rule Changes
	20	Introduction of Tie-Breaking
	9	Composition of RCP
	21	Guidelines for Registration and Settlement of GRF/GSF with Alternative Fuels
	14	Review the Need for a Detailed Design and Implementation of a Financial Transmission Rights (FTR) Regime
	10	Incremental Enhancement of Rulebook Drafting (on-going)
	13	Review the Need for a Rewrite of the Rulebook
27	Review EMC fee methodology to charge fee to Interruptible Loads (ILs) providers	

¹The issue: Implementation of Lower Regulation Price Cap exercise was removed from the work plan on the RCP's request. This was because it was anticipated to be in the form of a direction by EMA and thus would not go through normal rule change process.



User Forum

Market Information Sharing Forum (MISF)

The MISF held on 19 March was well-received by the more than 30 industry players in attendance. In addition to the regular market performance updates for the last two months, the key focus of the forum was the price separation events that had occurred between late January and early February. This forum was also the last to be held at Republic Plaza; the next MISF is scheduled for Wednesday, 21 May 2008, at EMC's new office at Novena Square.

Market Systems User Group (MSUG) Update

Market participants gathered on 17 April for the bi-monthly MSUG forum. The forum covered the regular update on the National Electricity Market of Singapore (NEMS) systems performance. Attendees were also informed on the progress and schedules for the testing of the new NEMS Offer Management and Web Services systems.

At the end of May, the EMC IT department will be conducting a user training session for the new NEMS offer management system. Exact dates for the training session will be announced to all participants via email.

The next MSUG is scheduled for Thursday, 19 June 2008.

EMC Training Programme – Next Course on 15 and 16 May

EMC will be holding its two-day training course *Understanding Electricity Markets* on 15 and 16 May. Our staff will be conducting six sessions covering the following topics:

- Understanding Electricity
- Overview of the Electricity Sector
- The NEMS and its Unique Features
- Pricing in Detail
- Settlement
- The Demand Side

Further courses are scheduled for:

21-22 August 2008

20-21 November 2008

We advise you to book early to secure your place in the course of your choice and benefit from our early-bird discount.

Further details on the programme and on how to register are on our website, www.emcsg.com. For enquiries, please e-mail trainingprogramme@emcsg.com or contact Jan Lee at +65 6779 3000.

Data Subscription Service Update

EMC is pleased to announce that an additional subscription package, Data Sets 2003-2007, is now available for those who wish to analyze historic NEMS data. Spreadsheets containing MNN, energy and ancillary prices, as well as energy and ancillary demand, are conveniently accessible from one single source.

Whether for data mining or for creating bespoke charts, the Data Sets will allow subscribers to slice, dice and combine NEMS data to suit their needs. The Data Sets are available in Excel spreadsheets on CD-ROM and conveniently arranged by period, day, month, quarter and year.

For more information on the Data Sets and other available subscription packages, please visit our website at www.emcsg.com/subscriptions.



Market Update

First quarter 2008

Both the Uniform Singapore Energy Price (USEP) and the Weighted Average Settlement Price (WASP) dropped in Q1, in the midst of rising 180-centistoke high sulphur fuel oil (180-CST HSFO) prices.

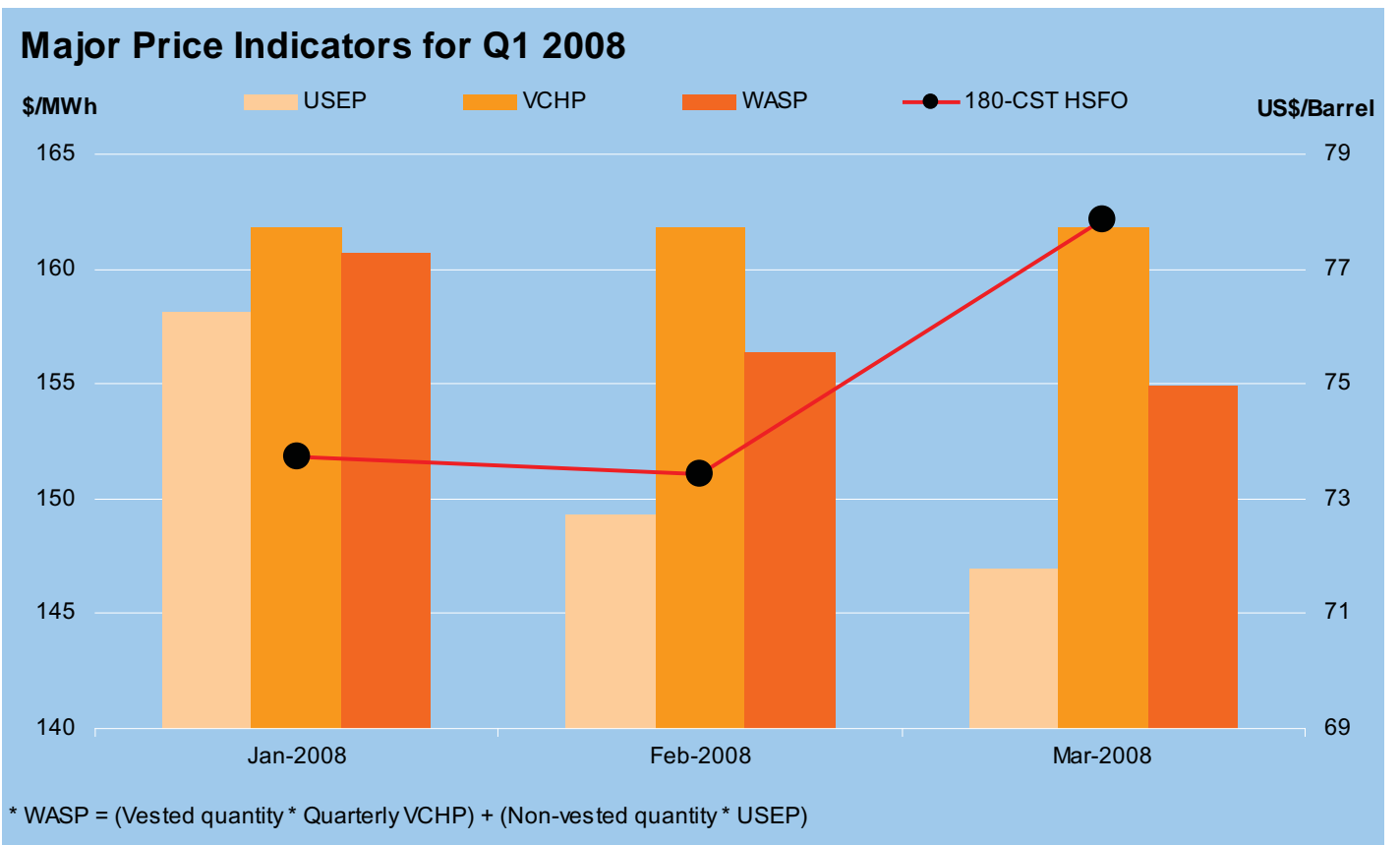
As already reported in *Bulletin 42*, January saw volatility, with a series of price spikes that contributed to the USEP registering \$158/MWh. However, over the following two months, the average monthly USEP declined; as compared to January, the USEP fell by 7 percent to end at \$147/MWh in March. The fall in the USEP was in line with the decline in the WASP, which dropped 3.6 percent in March

to \$155/MWh as compared to \$161/MWh in January 2008. The WASP takes into account the vested percentage of the energy market (presently 55 percent) settled at the vesting contract hedge price (VCHP) and the remaining un-vested percentage that is settled at the USEP. The drop in prices occurred despite the fact that the 180-CST HSFO price crossed the US\$77/barrel mark in March.

Several factors contributed to the decline of the USEP over Q1 2008. The USEP was highest in January, when demand was also at its highest for Q1. March saw the highest energy offer availability for Q1, which helped to improve the

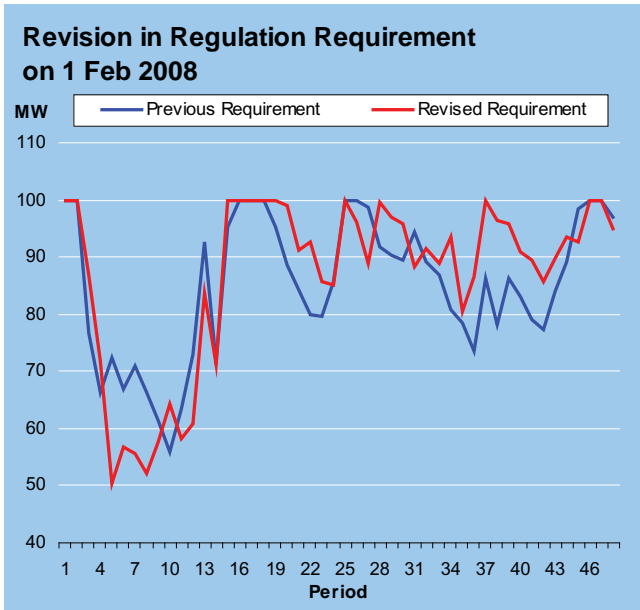
spare capacity. The total maintenance level of generation plants was at its lowest in March and the month had fewer instances of price spikes as compared to January; also, changes in the energy offer price were observed.

Looking at Q1 2008 on the whole, the USEP averaged 21.1 percent higher than during the same period last year, reaching \$152/MWh, and the WASP moved in tandem, showing a 20 percent increase, reaching \$157/MWh. This increase is reflective of the VCHP, which climbed from \$135/MWh in Q1 2007 to \$162/MWh in Q1 2008.



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In addition, the period based regulation requirement was revised by the Power System Operator and took effect on 1 February 2008. Based on 2007 data, the average regulation requirement was revised to 87MW, with a minimum and maximum requirement of 50MW and 100MW respectively. The previous requirement levels were 85MW, 56MW and 100MW for average, minimum and maximum accordingly.

Recently published articles on the EMC website

EMC has published three new articles focusing on market specifics studied in depth by our staff. These articles are available for you to download at www.emcsg.com/articles.

The first article, *Review of Price Revision in the NEMS*, assesses the arguments for and against price revision, and draws comparison to two other ex-ante pricing markets, the Australia National Electricity Market (NEM) and the Argentina Wholesale Electricity Market (WEM). It then presents EMC's recommendations, which strive to balance the interests among all NEMS stakeholders.

The second article, *A Regulation Study*, provides an understanding of what regulation is and how it works in the NEMS. The third, *Nodal Price Difference by Transmission Loss*, explains the relationship between nodal prices and transmission loss. These are the final two articles in a series of six describing specific operational aspects of the market.

Send us Comments, Feedback or Questions

The EMC Bulletin is written by EMC for you and we are always striving to improve our service. Therefore we are interested in any feedback you might have about specific articles and topics covered or comments and suggestions about other areas you would like to see included.

Please send your comments, feedback or any questions either via e-mail to info@emcsg.com or via fax to +65 6779 3030.

Thank you in advance for your time and effort.

