



professional transparent cost-effective people ideas integrity commitment teamwork

CEO's Message

The last two months of 2011 were eventful for all of us at EMC.

The EMC Board made a series of new and re-appointments in November, to members of the Rules Change Panel (RCP), the Market Surveillance and Compliance Panel (MSCP), and the Dispute Resolution Counsellor (DRC). The RCP, MSCP and DRC are critical in supporting the evolution and governance of the National Electricity Market of Singapore (NEMS). For details of the changes, see article on pages 2 and 3.

At EMC, we are constantly enhancing our market operations and systems, and reviewing the Market Rules to ensure we meet the changing needs of the NEMS and our market

participants (MPs). Over the past two months, three IT system changes and enhancements were implemented following feedback and review, and four rule changes were approved by the Energy Market Authority following recommendations by the RCP. Read about them on pages 3 and 4, and 1 and 2 respectively.

With regard to the market's performance, preliminary data indicates that the average demand for the year is only marginally more than 2010's figure. More details on the NEMS' performance in the last quarter can be found on page 5.

Work aside, we did not forget to have fun during the festive month of December. On top of the annual Christmas office lunch, some of

our colleagues also celebrated Christmas with clients of the Movement for the Intellectually Disabled of Singapore (MINDS) at Ang Mo Kio. Their fun and very fulfilling experience can be read about on page 4.

Finally, in this last issue of the 2011 EMC Bulletin, I would like to thank all our MPs and other NEMS stakeholders for your tremendous support throughout the year. All of us at EMC are looking forward to another year of successful partnership in 2012.

Dave Carlson
Chief Executive Officer

Rule Change Updates

The following rule changes were approved by the Energy Market Authority in December.

Deregistration of a generation facility not directly connected to the transmission system

The current deregistration process requires the transmission licensee to physically disconnect a generation facility (GF) from the transmission system before that GF can be deregistered from the Singapore Wholesale Electricity Market (SWEM). This requirement is not feasible in instances where the GF's cable point is not directly connected to the transmission system. On the other hand, disconnecting the direct line to fulfil this requirement may prevent other attached facilities from being able to convey electricity into the transmission system.

To address such situations, a rule change was made to remove this requirement from deregistration procedures entirely. A requirement to notify the Power System Operator (PSO), transmission licensee and market support licensee upon deregistration of a GF was also introduced.

Review of exemption to allow affiliates of Temasek Holdings to be concurrently represented on the Rules Change Panel (RCP)

To ensure fair representation on the RCP, affiliated companies should ideally not be represented concurrently on the panel. But to ensure adequate representation at the commencement of the SWEM, exemption was given to Market Participants (MPs) and the Market Support Services Licensee (MSSL) that were affiliates of Temasek Holdings (Private) Limited. This exemption is subject to an annual review by the RCP, EMC Board and the EMA.

A rule change was made to narrow the exemption to apply only to non-competitive service providers (i.e. the transmission licensee and the MSSL) on the grounds that following divestment, there is no longer a concentration of MPs affiliated to Temasek. In addition, adequate representation on the RCP is possible even when the exemption is only applied to non-competitive service providers. The requirement for an annual review of this narrowed exemption was also removed.

(continued on page 2)



Publication of generation registered capacity by facility

Currently, EMC publishes information on the generation registered capacity in our annual NEMS market report. However, this information is not at the same level of detail as the information on licenced capacity published by the EMA on its website.

The RCP assessed that publishing the data supported data transparency, which allowed interested parties to make more informed decisions and enhanced competition. Moreover, given that the information is static data, it would not have any adverse impact on market efficiency or any parties. The RCP also decided that the publication of registered capacity data should be extended to load registered facilities.

Following the RCP's review, the following data will be published for generation facilities moving forward:

1. The identity of the MP of that facility*
2. The identity of the facility*
3. Whether the facility is a generation registered facility, generation settlement facility or commissioning generation facility
4. The type of generation facility (i.e. technology)
5. Whether the facility is an embedded generation facility
6. The maximum generation capacity
7. The maximum reserve capacity for each class of reserve (primary/secondary/contingency) that the facility is registered to provide*
8. The maximum regulation capacity that the facility is registered to provide
9. Whether the facility is frequency responsive

* These data fields will also be published for load registered facilities

Removal of requirement to withdraw market advisory notices

EMC produces dispatch and forecast schedules with different coverage horizons. It also publishes market advisory notices if the following types of incidents are expected for any period(s) within these horizons:

Type 1: Surplus/Shortfall/Price Warning – When the MCE forecasts either energy surplus or energy/reserve/regulation shortfall. In conjunction with these surplus/shortfall situations which will likely lead to price spikes, price warning advisories will be issued informing the market that prices may be subject to revisions.

Type 2: System Status – When PSO expects a major equipment outage, load shedding or other abnormal conditions

Type 3: Communications Warning – When EMC expects difficulties in delivering/receiving communications between EMC and the PSO, or between EMC and MPs

The advisories are intended to give MPs advance notice, so that they are given the opportunity and time to react. Conversely, so long as the (expected) conditions cease to exist, the Market Rules provide for withdrawal of these advisories so as not to mislead MPs.

After discussion, the RCP decided that it was not necessary to withdraw Type 1 advisory notices which were issued in respect of MCE schedules. Since the MCE schedules run at regular intervals, the latest market conditions and any related advisories are continually being updated. Thus, MPs should just refer to the most recent advisories. However, there is still a requirement for the withdrawal of the other two types of notices as they are not subject to regular updates.

Appointments in Governance Panels

Appointment of the 2012-2014 Rules Change Panel

The Rules Change Panel (RCP) plays an integral role in shaping the Singapore Wholesale Electricity Market (SWEM) by enhancing its efficiency and maintaining a level playing field. As the term of the current members ends on 31 December, the EMC Board has appointed the following members to the RCP for the new term that runs from 1 January 2012 to 31 December 2014.



(continued from page 2)

Member category	Nominated by	Member
Chief Executive Officer of EMC (Chairman of Panel)	-	Dave Carlson
Employee of the EMC not being the Chief Executive	EMC Board Chairman	Toh Seong Wah
Representative of the PSO	PSO	Kng Meng Hwee
Representatives of the generation licensee class of market participant	PowerSeraya	Daniel Lee
	Senoko Energy	Luke Peacocke
	Shell Eastern Petroleum	Pak-Juan Koe
Representative of the transmission licensee class of market participant	SP PowerGrid (agent of SP PowerAssets)	Chan Hung Kwan
Representatives of the retail electricity licensee class of market participant	Keppel Electric	Sean Chan
	SembCorp Power	Loh Chin Seng
	Tuas Power Supply	Wong Ho Ming, Michael
Representative of the wholesale electricity trader class of market participant	Diamond Energy	Dallon Kay
Representative of the market support services licensee	SP Services	Lawrence Lee Siew Ming
Person experienced in financial matters in Singapore	Institute of Certified Public Accountants of Singapore (ICPAS)	Philip Tan Eng Siong
Persons representing the interests of consumers of electricity in Singapore	Consumers Association of Singapore (CASE)	Dr Toh Mun Heng
	Association of Small & Medium Enterprises (ASME)	Low Cheong Kee

EMC takes this opportunity to thank all outgoing members for their invaluable contributions and commitment to the RCP.

Re-appointment of MSCP Members

EMC is pleased to announce that the EMC Board has re-appointed T. P. B. Menon and Philip Chua to the Market Surveillance and Compliance Panel (MSCP). Their new terms run for three years from 1 January 2012.

EMC expresses its appreciation to Mr Menon and Mr Chua for continuing to devote their time and effort to support the functioning of the National Electricity Market of Singapore (NEMS).

The MSCP comprises L. P. Thean (Chair), Lee Keh Sai, Professor Lim Chin, T. P. B. Menon and Philip Chua.

Re-appointment of the DRC

The EMC Board has re-appointed George Lim as the Dispute Resolution Counsellor (DRC) for another term of three years from 1 January 2012.

EMC expresses its gratitude to Mr Lim for his continued commitment to the NEMS.

NEMS System Changes & Enhancements

There were three National Electricity Market of Singapore (NEMS) system changes and enhancements implemented in the month of November, as described below.

Use of Vesting Contract Hedge Price (VCHP) for administrative reruns

Under the Market Rules, in the event of a market suspension, an administered pricing scheme will be applied. The VCHP will be used in the settlement of energy prices, while zero price will be used for ancillary services.

Following the introduction of competitive tender for portions of the non-contestable load in 2010, there are now two different vesting contract prices – the Allocated Vesting Contract and the Tendered Vesting Contract prices. An enhancement to the market clearing engine (MCE) was implemented so that the system can correctly identify the Allocated Vesting Contract price when executing administered pricing reruns for the market.

(continued on page 4)



Regulation Eligibility Check

This system change resulted from a Market Rule change proposal which was approved by the Energy Market Authority (EMA) in August.

At the start of every period, the MCE determines if a Generation Registered Facility (GRF) is at a level where it will be able to provide regulation throughout the dispatch period. The MCE Regulation Eligibility Check enhancement was made to allow a more accurate determination of the GRF's ability to provide for regulation, thereby reducing the number of instances when it is considered ineligible. At the market level, the enhancement is expected to bring greater stability to regulation prices.

Offer effectiveness in market clearing engine (MCE)

In the past, there have been reported instances of the MCE using the wrong offers in look-ahead schedules, when an offer was submitted at exactly the same time as the start of the look-ahead schedule. In such rare situations, the MCE would fall back on the standing offer that was available in the system.

The design of the MCE was reviewed and changes were implemented so that the latest offer submitted before or at the start of the look-ahead schedule will always be accepted by the system. This logic applies to the real-time schedule as well, although it is less likely that the situation will happen in the real-time schedule as market participants have to comply with the 65 minute gate closure Market Rule.

Christmas With a Heart, at MINDS



Putting the snowman together

For the past eight years, EMC has engaged in different ways with the Movement for the Intellectually Disabled of Singapore (MINDS) at Ang Mo Kio. In 2011, we bought a sound system for the centre to enhance its outdoor activities. In addition, to enable MINDS to ensure regular physical workouts and games for its clients, we also sponsored bowling vouchers, swimsuits and T-shirts.

On 16 December, 10 EMC volunteers celebrated Christmas at the centre. MINDS at Ang Mo Kio prepared a slew of events for us and their other invited guests, from magic shows and competitions to Christmas carols and special performances by its clients. Teaming up with EMC volunteers and guests, its clients competed to create the best-looking snowman and the most interesting log cake using materials that were provided. This was followed by a round of Christmas carols, a special X'mas dress parade and a birthday celebration for clients born in December.



Decorating the log cake

The celebrations with MINDS at Ang Mo Kio are always a heartening experience for all of us. It shows us how EMC's support has improved lives, and in turn strengthens our own commitment to continue our support for MINDS Ang Mo Kio into the future.

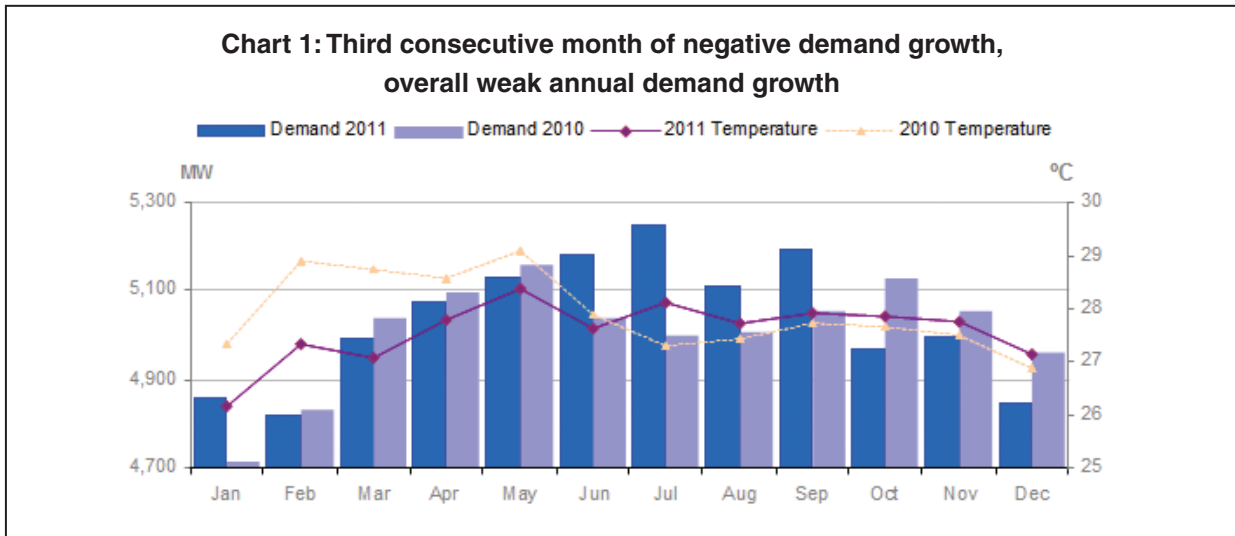
EMC Receives Volunteer Recognition Award

In recognition of EMC's continued support of Chaoyang School over the past seven years, we received the Excellent Service Award (Silver) from the Children's Charities Association in October.

We have been supporting Chaoyang since 2005 by sponsoring events such as its annual sports day and student outings. These activities are as popular with the students as they are with our colleagues who take time off from their busy schedules to volunteer and help at each event. Over the years, our colleagues have built a strong relationship with Chaoyang's teachers and students, and we intend to continue this meaningful partnership in the years to come.



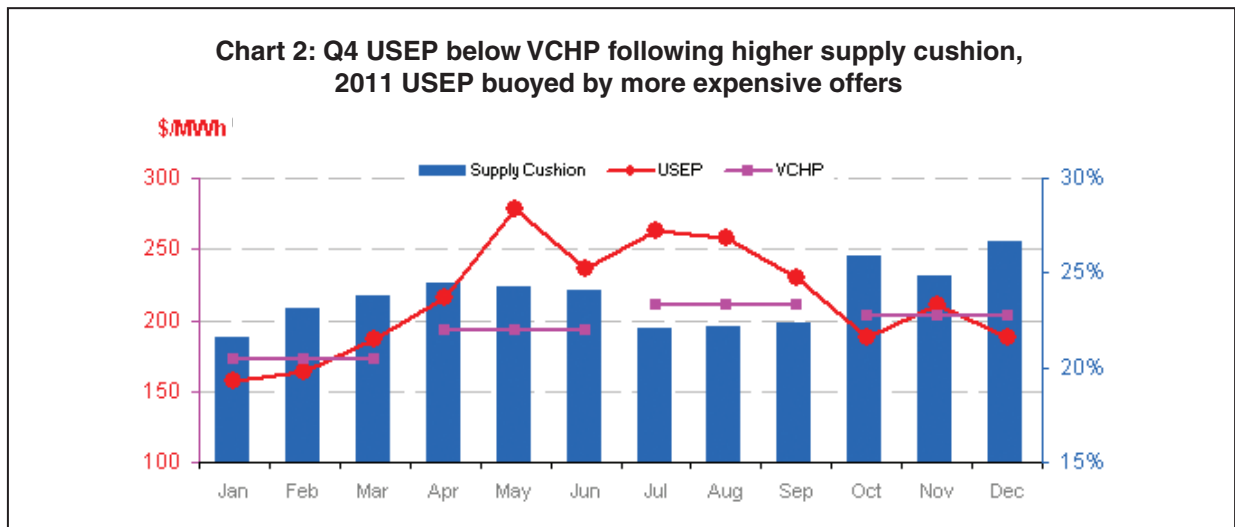
Market Update



Demand in November and December* averaged 4,998MW and 4,849MW, respectively. Comparing month-on-month (MOM) averages, demand rose in November and fell in December on the back of the lowest temperature for the quarter. Year-on-year* (YOY) average demand also fell for November and December.

The average demand of 4,938MW in Q4 2011 fell short of the average demand during the same period last year by 110MW or 2.2 percent. In 2011, Q4 was the only quarter which experienced negative YOY demand growth.

On an annual basis, average demand crept up by only 0.6 percent to 5,036MW.



The Uniform Singapore Energy Price (USEP) in November and December averaged \$211/MWh and \$188/MWh respectively. Comparing MOM averages, the USEP in November moved up with a lower supply cushion[^], while the USEP in December moved down with a more favourable supply cushion. Averaging figures from October to December, Q4 USEP rounded off to \$195/MWh, or 4.1 percent lower than Q4 Vesting Contract Hedge Price (VCHP).

The average annual USEP increased by 25.8 percent compared to 2010, to \$215/MWh.

*Data for December and year 2011 is until 26 December 2011.

[^]Supply cushion measures the percentage of total supply available after matching off demand.



User Forum

Market Information Sharing Forum (MISF)

The 60th session of MISF held on 9 November covered the market performance for the National Electricity Market of Singapore (NEMS) in September and October, and the progress update on system enhancements.

A feature topic – Enhancement of Regulation Offers Eligibility Check – was also shared with the market participants.

The next MISF will be held on Friday, 13 January 2012. All MISF delegates are encouraged to register online.

Market Systems User Group (MSUG)

The bi-monthly MSUG forum was held on 22 December with EMC providing updates on NEMS systems' availability and market incidents. In addition, EMC briefed market participants on system enhancements related to the Recovery and Refund of Reserve and Regulation Payments, the schedule for phasing out older NEMS applications, and the progress of other on-going NEMS systems projects.

The next MSUG is tentatively scheduled for 23 February 2012.

EMC Training Programme – Next Course on 23 and 24 February 2012

EMC will be holding the next run of its two-day course *Understanding Electricity Markets* on 23 and 24 February 2012. Our staff will be conducting six sessions covering the following topics:

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

The course dates for the rest of the year are as follows:

17 – 18 May 2012

16 – 17 August 2012

15 – 16 November 2012

We advise you to book early to secure your place in the course dates 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.

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 questions via e-mail to info@emcsg.com or via fax to +65 6779 3030.

Thank you in advance for your time and effort.

