

professional transparent cost-effective people ideas integrity commitment teamwork

CEO's Message

This is my first message as CEO of Energy Market Company (EMC) — I look forward to leading EMC into the future and being part of the National Electricity Market of Singapore (NEMS).

The NEMS performed well in the first half of this year and continues to evolve. Evolution over the last few months has taken the forms of a new Interruptible Load facility entering the market, strong growth in demand and a 28% rise in the average electricity price of the wholesale market (USEP). However, the benefits of Singapore's electricity liberalisation have also manifested themselves, as this latest increase in the USEP is much less than the

50% increase in our oil benchmark, HSFO. Full details are in the articles on page 6.

EMC's Market Administration Team was busy with the Rules Change Panel's (RCP) work plan prioritisation exercise with stakeholders and updating the RCP work plan, before getting the RCP's agreement during its meeting in May. This work plan — described in the article on page 3 — represents an important schedule for addressing issues, whether ongoing or urgent, as well as those measures that would contribute to the long-term evolution of our market.

In June, EMC was able to share the success of the NEMS in Hanoi, where we conducted a customised version of our EMC training programme for Electricity of Vietnam. It is the first time that we have taken our popular

training programme overseas and a testament to the programme's success as well as international recognition of Singapore's leadership in this field.

Lastly, I am proud to highlight the excellent performance results that EMC achieved for FY2005-2006, outlined on page 2. I would like to thank all EMC staff for their hard work and dedication and Market Participants for their continued support of EMC. We will continue to strive to provide Singapore with a world-class market operation, while ensuring that EMC is run effectively and efficiently.

Dave Carlson
CEO, Energy Market Company

CEO Appointment

EMC has welcomed its new Chief Executive Officer, Dave Carlson, whose appointment by the EMC Board was announced on 9 June. Dave took over on 12 June from Jomar Eldoy, who was EMC's interim CEO and who will now be free to concentrate on his role as Group CEO of M-co, one of EMC's shareholders.

Dave has already gained a thorough understanding of EMC and the NEMS, as he managed EMC as interim COO for the past seven months. Through his involvement in the establishment of EMC in 2001, he is well aware of the changing focus of our business and the opportunities and challenges that are part of an evolving marketplace.

Dave leaves M-co after eight years, where he held a number of senior management roles, including head of business development and managing M-co's subsidiary in South Africa. He also spent 12 years in the financial services sector, where he held a number of senior corporate positions in sales, finance, marketing and strategy, making him the ideal candidate to lead EMC into the future.

With this appointment Dave Carlson has also taken over the chairmanship of the Rules Change Panel.



Excellent Performance Results for FY2005-2006

EMC exceeded its performance results — as measured by the Energy Market Authority (EMA) using the industry-approved performance incentive management system targets (PIMS) — for the financial year 1 April 2005 to 31 March 2006 (FY2005-2006) in all areas but one.

Dave Carlson, CEO of EMC, was very pleased with the results, “This performance rating reflects the high standard of service we want to achieve. We will continue to strive to improve our performance further and provide excellent service, despite the growing demands of our maturing market.

“EMC achieved an unblemished performance for its pricing accuracy and recorded a near perfect score for its settlement function. Our IT system availability was 99.96%, which is highly commendable, especially when considering that several major enhancements to the market clearing engine and settlement systems took place during the year.”

In the qualitative areas, EMC improved its satisfaction rating for the market assessment function. Although we exceeded our target for customer responsiveness, it was below what we achieved last year. Our performance for the rules change support was below target. While we recognise that, with the NEMS maturing and EMC’s evolving role, there will increasingly be situations where there will be different interests among the various parties within the market, we will strive to lift our performance in this area (see Table 1).

Table 1: EMC’s performance against targets

Targets and Performance (%)	FY2004-2005		FY2005-2006	
	Approved target	Actual performance	Approved target	Actual performance
Quantitative Measure:				
System availability	99.60	99.98	99.75	99.96
Pricing accuracy	99.40	99.82	99.60	100.00
Settlement accuracy	99.90	99.99	99.90	99.99
Qualitative Measure (satisfaction rating):				
Customer responsiveness	70.00	91.30	75.00	80.80
Market assessment	70.00	93.75	75.00	94.12
Rule changes	80.00	80.95	80.00	73.90

The PIMS bonus for the year amounted to \$420,000 compared to \$480,000 last year. The reduction is a result of both a decline in the EMC revenue used for computing the PIMS bonus and EMC’s PIMS achievement. Tan Zing Yuen, CFO, explained, “Lower EMC revenue is the desired outcome of the market’s economic regulation regime, which encourages EMC to reduce its costs through operational efficiency.”

EMC’s auditors, Ernst & Young surveyed market participants in May on the three qualitative measures and audited the results of the three quantitative measures in accordance with the PIMS.

We are presently working with the EMA to set our targets for our new financial year, which commenced on 1 April 2006.

EMC’s financial performance

EMC’s financial performance for FY2005-2006 is shown in Table 2. EMC’s operational expenses were lower than the budget for FY2005-2006 by \$2.98m and lower than the actual expenses for FY2004-2005 by \$0.5m. EMC’s CEO Dave Carlson remarked, “EMC continuously looks for ways to become more efficient and cost effective in the way we operate.

Table 2: EMC’s financial performance for FY2005-2006

	FY2004-2005	FY2005-2006	
	Actual (\$m)	Budget (\$m)	Actual (\$m)
Administration fees	27.99	28.59	27.22
PIMS bonus	0.48	0.00	0.42
Revenue from rendering services	28.47	28.59	27.64
Manpower costs	7.37	8.05	7.76
Amortisation and depreciation	6.51	6.34	5.95
Market operator licence	2.20	2.29	2.24
IT services	3.68	4.17	3.46
Rental leases	0.95	0.93	0.93
Audit, legal and professional fees	0.89	1.07	0.97
Others	2.25	3.49	2.05
Total costs	23.85	26.34	23.36
Efficiency gains	1.55	na	1.42
Refund to the market	1.09	na	0.95
Net EMC fee (\$ per MWh) ¹	0.392	0.394	0.381

¹ Based on 6.05m MWh of energy traded per year.

We continuously question the status quo, we adopt appropriate management strategies to mitigate against exposure to risks of operational cost increase and we put in place procedures and corporate governance processes to ensure that EMC is run effectively and efficiently.

Our management and board conduct a thorough budget review before we present it to the Rules Change Panel for review and finally to the EMA for approval.”

Summary of efficiency gains

The areas where EMC delivered efficiency gains in FY2005-2006 are shown below:

Areas of efficiency	\$'000
1 Manpower	344
2 Director’s expenses	109
3 Communications and public relations	162
4 Professional fees	13
5 Panel expenses	72
6 Maintenance expenses (IT)	539
7 Insurance	130
8 Business critical planning exercises (BCP)	49
Total	1,418

In identifying these efficiencies, we have adopted the definition of efficiency gains outlined by the EMA. That is, an efficiency gain is a:

“positive variance between budget and actual expenditure that arises as a result of a deliberate EMC decision to reduce costs without reducing service delivery or standards.”

On 3 May 2006, EMC submitted detailed justifications to both the RCP and the EMA of the claims for the above efficiency gains. The EMA approved the efficiency gain and PIMS bonus on 19 June 2006.

EMC will distribute the variances that are not due to efficiency gains to the market participants through a reduction in our market fees. Our market fees will be reduced by \$0.95m in total or \$0.013/MWh² on an annualised basis. The refund will be made from 1 October 2006 to 31 March 2007.

EMC is currently in discussion with the EMA on the multi-year adjustments that will affect the revenue cap for the regulatory period FY2005-2006 to FY2007-2008.

² Based on the average volume traded of 6.05mn MWh per month. For comparability, this is the same volume used in the budget for FY2005-2006.

RCP Work Plan Prioritisation Exercise 2006

In February 2006, EMC conducted a Rules Change Panel (RCP) work plan prioritisation exercise with stakeholders, i.e., market participants, SP Services, the PSO and the EMA. The purpose was to update the RCP work plan 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. Apart from issues that remained in the last work plan, stakeholders have also raised several new issues for consideration. These include:

- phase shifting transformer;
- review of treatment of embedded generators;
- review of scarcity pricing;
- review of prudential requirement arrangement;
- facility violation penalty fix and
- equity between Interruptible Load (IL) providers and Gencos for reserve payment.

Meeting with stakeholders

The second stage of the prioritisation exercise involved EMC meeting with the stakeholders individually. 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 following themes/messages have emerged during the consultation process:

- Stakeholders indicated a strong support for evolution to enhance market efficiency; However, they felt EMC should continue to work on issues/rule changes that were already in progress and complete them before starting work on new issues;
- Stakeholders felt that the priority ranking of new issues should be determined by the net benefits of addressing those issues. Changes should only be made if they result in net benefits, and priority should be given to those with highest net benefits. Also, the main objective for

mooting a change should be on improving economic efficiency and reducing the total cost of energy to the end user.

- Stakeholders suggested that the issue on Improving Transparency in Transmission Planning and Augmentation should be removed from the updated work plan. According to them, this issue was addressed in the Statement of Opportunities by the EMA and hence, there is no need for the RCP to look into this issue.

Approach to prioritisation

The EMC then consolidated the priority ranking and feedback obtained from all stakeholders. In drawing up the updated work plan for the RCP to consider, the EMC took into account the following:

1. Priority ranking and feedback received from stakeholders during the consultation process. The priority ranking by stakeholders indicates 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 these 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 embarks on new issues. This 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 which are already in progress.

Updated RCP Work Plan 2006

At its 26th meeting on 11 May 2006, EMC presented the updated RCP work plan to the RCP for consideration. In supporting the updated work plan, the RCP has considered the need to address issues that are ongoing or urgent as well as those that will contribute to the long-term evolution of the market.

The table below presents the updated work plan agreed by the RCP.

Updated work plan agreed by the RCP

Expected completion	Issue No.	Issue Title
Within 9 Months (by December 2006)	3.	Whether Default Levy Should Be Charged to Retailers
	12.	Phase Shifting Transformer
	13.	Review of Treatment of Embedded Generators
	17.	Equity between IL and Gencos for Reserve Payment
	16.	Facility Violation Penalty Fix
	18.	Review of Price Revision in Singapore Wholesale Electricity Market (SWEM)
	8.	Review of RCP structure
	1.	Incremental Enhancement of Rulebook Drafting
Within 10-15 months (by June 2007)	5.	Regulation Anomaly – Generators “Trapped” at Regulation Minimum and Being Constrained On for Energy Generation and Being Paid at Market Clearing Price Below its Offer Price
	9.	Compensation for providing Regulation in excess of scheduled quantity
	7.	Providing Historical Gencos’ Offer Prices
	15.	Review of Prudential Requirement Arrangement
	6.	Accurate Profiling of Regulation Requirement
	11.	The Real Time Pricing Schedule No Longer Reflects Energy Shortfall After EMC Adjusted Nodal Load Forecasts Following a PSO Energy Shortfall Forecast
Within 16-24 months (by February 2008)	14.	Review of Scarcity Pricing
	4.	Review the Need for Detailed Design and Implementation of a Financial Transmission Rights (FTR) Regime
	10.	Review the Need for a Rewrite of the Rulebook

Bringing the EMC Training Experience to Hanoi

EMC held its first customised training programme in Hanoi on 8 and 9 June 2006, when our in-house training experts conducted a special two-day session for the Electricity of Vietnam (EVN).

EVN is wholly owned by the Vietnamese government and is responsible for the generation, transmission and distribution of electricity in Vietnam. It has 14 power plants, four transmission companies and seven distribution companies.

Facilitated by Parsons Brinkerhoff, EMC crafted a programme tailored to meet the needs of the Vietnamese participants. Leading the training session was Senior Vice President of Market Administration, Paul Poh, accompanied by Vice President of Pricing and Information, Henry Gan.

With Singapore's excellent track record of successfully liberalising its electricity market and the National Electricity Market of Singapore (NEMS) being recognised as the leading market in Asia, EMC was well placed to provide the Vietnamese with a comprehensive understanding of the challenges of a new market.

Speaking to an audience of 30 EVN staff and industry players, both Paul and Henry covered extensive ground and provided participants with an in-depth understanding of the NEMS, the market clearing engine, nodal pricing and the reserve and regulation markets, among other topics.

The Singapore market is not new to the Vietnamese – EVN staff delegations visited EMC's office in 2005, where they gained first-hand exposure. With a view to eventually commercialising and corporatising both EVN's power plants and its distribution companies, the company decided to better equip its management for the evolution of its current day-ahead electricity market by engaging with EMC to learn from its expertise.

Vietnam's legislature passed the Electricity Law in 2005, in accordance with the country's Strategy for Electricity Development. The intent of the law is to facilitate development and diversify investment in the electricity sector, encourage economic use of electricity, protect the country's electricity infrastructure and develop a competitive electricity market.

The Vietnamese proved to be eager and committed students, despite the language barrier. With an interpreter present throughout the two days, our trainers were highly impressed with the engaging manner in which the attendees raised questions and issues for discussion.

Paul shared, "I was very impressed by the in-depth questions that the Vietnamese raised. This demonstrated to me that they have a keen interest in learning about other markets' experiences and are committed to building a good foundation for Vietnam."

Henry had a similarly enriching experience. He said, "What struck me most was how inquisitive and attentive the participants were, as there were many lively discussions and exchanges of ideas. And the students were particularly astute — I had to use increasingly complex examples and scenarios for each set of exercises."

This was indeed a good start to bringing EMC's training programme into the region.



EMC's Paul Poh illustrates the finer points of the market to an attentive crowd.



Market Update for First Half of 2006

Electricity demand for the first half of 2006 grew by about 3% compared to the previous year. As shown in Chart 1, very strong growth was seen in February, March and May. Demand in these months rose by between 4% and 5% compared to last year, with a record peak demand of 5,446 MW recorded on 9 May 2006.

This increase in demand is in line with the robust Singapore economy. A GDP growth rate of 10.6% was posted for the first quarter of 2006, prompting the Ministry of Trade and Industry to increase its 2006 GDP forecast from 4-6% to 5-7%.

In line with the higher demand, the average

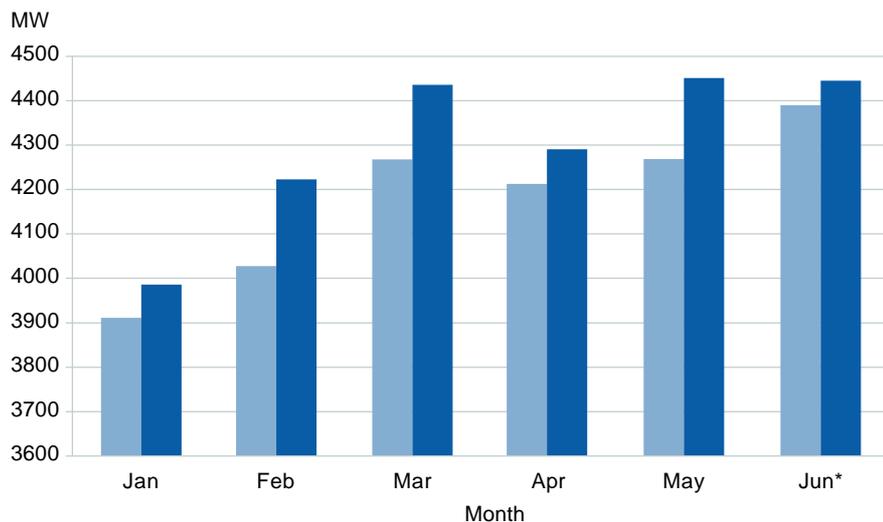
energy price of the wholesale market (USEP) for the first half of 2006 jumped 28% compared to the first half of 2005. As shown in Table 1, average monthly energy prices for the first half of 2006 all cleared above \$100/MWh and hit a high of \$155/MWh in May. Prices in May were driven up by higher demand and lower CCGT supply resulting from generator trips and maintenance shutdowns.

The primary reserve price for the first half of 2006 increased nearly five-fold compared to the previous year, mainly due to trade-offs between the energy price and the reserve price during tight supply periods. Primary (Pri Res), secondary (Sec Res) and contingency reserve (Con Res) are provided to cover for unexpected losses of generation.

While regulation prices (Reg) began the year at a high of \$90/MWh, due to the commissioning of new units, prices returned to the more typical range of \$30/MWh to \$40/MWh before rising to \$88/MWh in May, when tight supply conditions dominated.

As shown in Table 2, the 28% rise in the energy price for the first half of 2006 is still significantly lower than the 50% rise in the most relevant oil benchmark for the Singapore electricity industry, the 180-centistoke high sulphur fuel oil (180-CST HSFO).

Chart 1: Demand comparison for 1H 05 and 1H 06



*June 06 figure is up to 15 June

Table 1: Half yearly market prices summary

	Year 2005					Year 2006				
	USEP	Pri Res	Sec Res	Con Res	Reg	USEP	Pri Res	Sec Res	Con Res	Reg
Jan	78.56	2.41	0.20	2.20	37.62	109.74	10.96	0.40	5.61	90.33
Feb	83.55	3.18	0.23	1.13	37.43	106.70	8.13	0.27	2.69	35.91
Mar	97.74	8.15	0.13	10.20	40.82	124.29	21.52	0.34	6.61	34.43
Apr	99.75	0.92	0.09	12.37	56.94	127.38	25.68	1.14	8.64	44.16
May	113.54	9.03	0.08	10.88	48.73	154.97	49.15	2.33	13.99	87.68
Jun	113.77	3.60	0.18	6.11	44.91	129.99	16.50	0.74	3.08	31.52
Jan-Jun	97.82	4.55	0.15	7.15	44.41	125.51	21.99	0.87	6.77	54.00

*June 06 figure is up to 15 June

Table 2: Half yearly market prices summary

	HSFO 180*	USEP
1H 2005/2006	50% up	28% up

* 180-CST HSFO data is only from January - May

New Interruptible Load Provider

Diamond Energy entered the reserve market in May as a wholesale trader in the National Electricity Market of Singapore (NEMS). It is a new Interruptible Load (IL) provider and trades the newest IL facility in the market. This brings the total count of facilities providing IL to three.

The total IL registered capacity is now 19.7MW in each of the three reserve classes, i.e., primary, secondary and contingency reserve. IL was introduced into the NEMS on 1 January 2004, and this latest addition raises the IL component to just under 5% of the total reserve market.

Diamond Energy is the first new entrant to the NEMS since it was established in 2003 (see article in *Bulletin 29*).



EMC Training Programme — Next Course on 17 and 18 August

EMC will be holding its regular two-day training course Understanding Electricity Markets on 17 and 18 August. 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

A further course is scheduled on 22 and 23 November in conjunction with the Singapore Electricity Roundtable on 20 and 21 November (see details on this page).

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 Ong Pui Sze at +65 6779 3000.

Market Participants Meet for Industry Updates

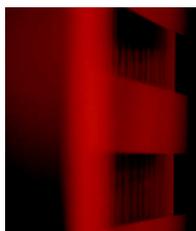
The industry players met for their regular update at EMC's Market Information Sharing Forum (MISF) on 17 May.

Attendees were kept abreast of March and April's market performance through a briefing given by Henry Gan, Vice President of Pricing and Information. Henry updated the group on how the conditions of demand and supply resulted in a rise in prices during March and April.

Participants were also provided with updates on market clearing enhancements, such as the status of the Phase Shift Transformer Modelling and its target delivery timeframe.

The next MISF will be hosted at EMC on Wednesday 19 July at 2.30 pm.

Save the Date — Singapore Electricity Roundtable 2006



Monday, 20 November 2006
Tuesday, 21 November 2006
Grand Hyatt

Energy Market Company will host the Singapore Electricity Roundtable on 20 and 21 November. We have invited several distinguished speakers, which include some of the industry's leading practitioners and thinkers. Topics will range from regional developments, integrated gas and electricity markets to privatisation and retail competition. The panel discussion will consider what Singapore's electricity market may look like five years down the road.

Confirmed already are:

- Lasse Holopainen, President, Philippine Electricity Market Corporation
- Mike Nikkel, Chief Executive Officer, OneEnergy Ltd.
- Professor Winston Koh, Associate Dean & Associate Professor of Economics, Singapore Management University.

Last year's inaugural event was very well received, with over 120 participants from Singapore, other countries in Asia Pacific, Europe and the US. Participants included presidents, CEOs, managing directors and others from governments, the electricity and energy industry, financial institutions, law firms and consultancies as well as from our NEMS.

Mark your calendar so you won't miss this year's high-profile event dedicated to the electricity industry. More information will soon be available on our website www.emcsg.com and all *EMC Bulletin* recipients will receive full details shortly.

NEMS Initiative — Coming Together for a Good Cause

American anthropologist Margaret Mead once said, "Never doubt that a small group of thoughtful, committed citizens can change the world. Indeed, it is the only thing that ever has."

Perhaps the world is too ambitious a target, but a few community-minded folks from the NEMS (National Electricity Market of Singapore) have been gathering together to make a difference in the lives of the less privileged.

The NEMS initiative is an effort by some market participants to pool resources to jointly support a good cause. The first effort took place last year in August, at the Very Special Walk 2005, which benefited the Pathlight School (see article in *EMC Bulletin* 27). With one of the biggest industry delegations at the walk, the NEMS group certainly made an impression on the thousand-strong crowd.

Encouraged by that positive experience, the NEMS movement has been gathering momentum. The group — consisting at the moment of Diamond Energy, PowerSeraya, Senoko Power and EMC — organised an event on 20 June for the children of Child at Street 11, a childcare and after-school centre for underprivileged children.

Twenty volunteers from the four organisations took 50 children between ages three and twelve and their teachers to the Singapore Science Centre. The children were enthralled by the prehistoric exhibition entitled "*Dinosaurs! A T. Rex named Sue and Friends.*"

The next event will be the *Very Special Walk 2006* on Saturday, 5 August at the Pasir Ris Park, again to raise funds for the Pathlight School. The group hopes to better last year's NEMS contribution and encourage more NEMS participants to join in. If you or your company are interested in joining this event, please contact us for more details.

