

Bulletin 115

March-April 2020

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CEO's Message



We are currently into the second month of the Covid-19 circuit breaker period which started on 7 April in Singapore. With the exception of those providing essential services, most workplaces are closed to curb the spread of the virus.

I declared a work-from-home order for all EMC colleagues from 6 April as it is important for all of us to do our part in this fight against Covid-19. I am very pleased that we have been able to operate the wholesale electricity market effectively despite this unprecedented move. I am also heartened that our colleagues have adapted well and have continued to engage our stakeholders and one another meaningfully from the safety of their homes.

We have been monitoring the market's performance in the light of the current Covid-19 pandemic. Our Markets and Operations team has put together a special analysis on the impact of the pandemic on the National Electricity Market of Singapore (NEMS). The analysis is available on [our website](#) for anyone who is interested in Singapore's power sector.

At the monthly level, the Uniform Singapore Energy Price (USEP) dropped for two consecutive months and registered below \$60/MWh in April, which is the lowest monthly level this year so far. April's USEP was driven by the lower demand arising from the circuit breaker measures.

In the wholesale market, we registered two new intermittent generation source facilities in March, and in the following month, obtained the Energy Market Authority's approval for a rule change on the review of timelines in relation to the provision of credit support.

In addition, we completed two key projects in the first quarter of the year. One was the annual Rules Change Panel (RCP) work plan prioritisation exercise which ranks the issues to be reviewed by the RCP in the next 12 months. The other was the publication of two annual reports on the NEMS – the [NEMS Market Report](#) and the [Market Surveillance and Compliance Panel \(MSCP\) Annual Report 2019](#). Both were completed in March and are available on the EMC website.

Finally, EMC also co-hosted a business analytics challenge with the National University of Singapore (NUS) Business Analytics Centre between February and April. Partnerships like these help to increase awareness of the power sector, and foster collaborations between the industry and academia which could bring about innovative solutions to real-life challenges.

I am sure all of us are looking forward to the end of Singapore's circuit breaker on 1 June. Even so, we must be prepared for continued uncertainty and disruptions in the months ahead as many measures are likely to remain in place until the Covid-19 pandemic can be better controlled. In the meantime, let's continue to stay at home and stay safe. I wish everyone good health until we meet again.

Toh Seong Wah
Chief Executive Officer

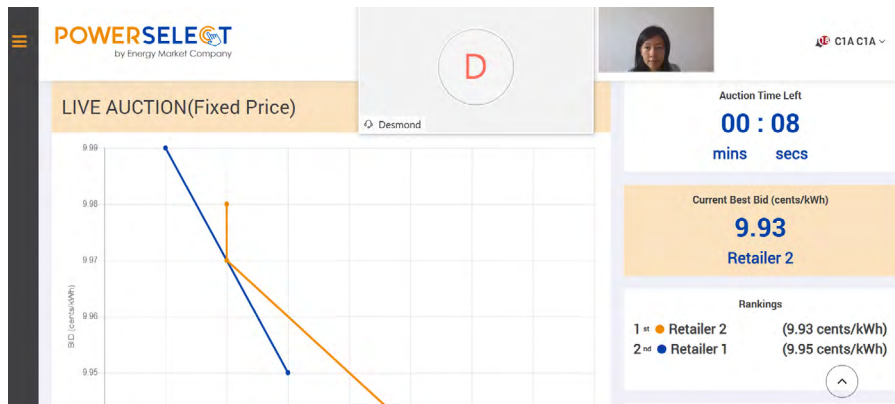
Business Continuity During the Covid-19 Circuit Breaker

The Covid-19 pandemic has, undoubtedly, disrupted businesses and lives globally.

At EMC, two months of split team work arrangements which started in February progressed into a company-wide work-from-home order for all staff from 6 April – a day before the start of Singapore’s Covid-19 circuit breaker period.

Over the past weeks, we have made some minor adjustments to our processes as we continue to operate the National Electricity Market of Singapore (NEMS) from home. Beyond market operations, we are also leveraging on technology to continue engaging with our stakeholders and colleagues.

Our PowerSelect team now meets customers online and conducts demonstrations of our electricity procurement portal using tools like Skype and WebEx. This is a big shift for our colleagues in sales and marketing who are more accustomed to face-to-face discussions and on-site demonstrations. Nevertheless, the team has adapted quickly to keep the conversations going with customers, and has even managed to conduct a few successful auctions during the circuit breaker.



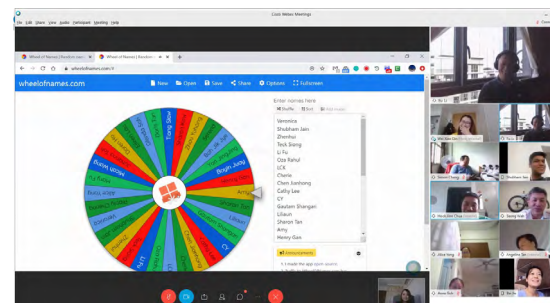
An online demonstration of a 'live' auction on PowerSelect

In addition, regular industry meetings like the Rules Change Panel (RCP) meetings, the Market Surveillance and Compliance Panel (MSCP) meetings, as well as briefings for new market participants (MPs), have also gone online. We would like to thank all our Panel members and MPs for their participation in these virtual meetings, which have enabled us to continue our work of evolving the market and monitoring the market’s activities during this period.

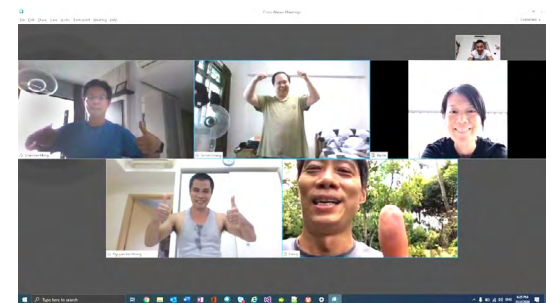


MSCP virtual meeting in progress

Even as we keep our operations running, it is critical to stay connected as a company and not lose the camaraderie among our colleagues. We resumed our weekly staff meetings online to keep each other updated on our projects. Some colleagues organised recreational activities like quizzes and exercise sessions through WebEx to remind everyone to take a break from time to time, as the line between office and home becomes increasingly blurred.



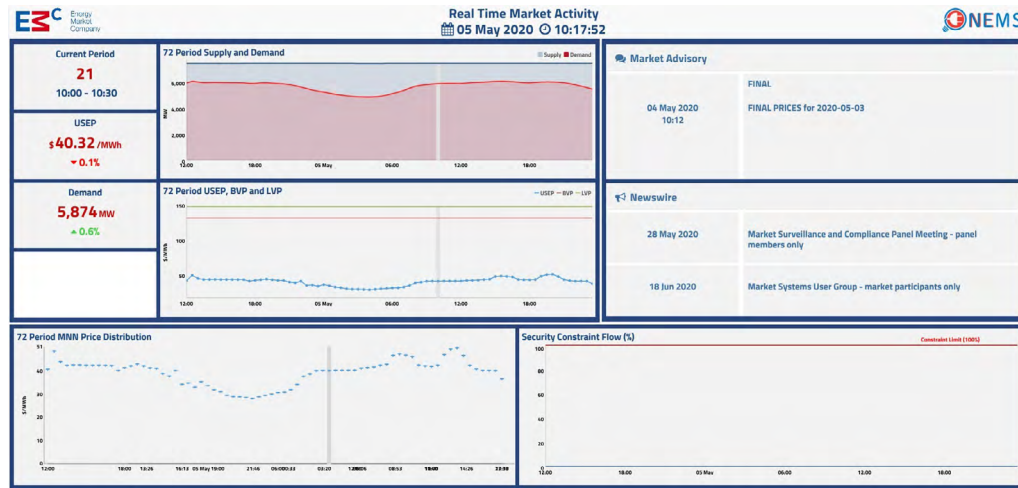
Our colleagues participating in an online quiz



Some colleagues stay fit together through weekly exercise sessions

It has certainly been business *un*-usual for organisations across all sectors since January this year. But who knows, the learnings from this experience could well establish new norms and work arrangements for the future.

Operating the NEMS – From Home



One of the tools that our colleagues use to monitor the market remotely is this real-time dashboard

The Covid-19 pandemic has required organisations worldwide to adapt their operations rapidly, as governments around the world introduced new measures to contain the spread of the virus.

EMC commenced split team work arrangements on 10 February after Singapore's Disease Outbreak Response System Condition (DORSCON) level for Covid-19 was raised to Orange. As the pandemic continued to unfold, the entire company started working from home from 6 April, to further support the government's efforts in the fight against Covid-19.

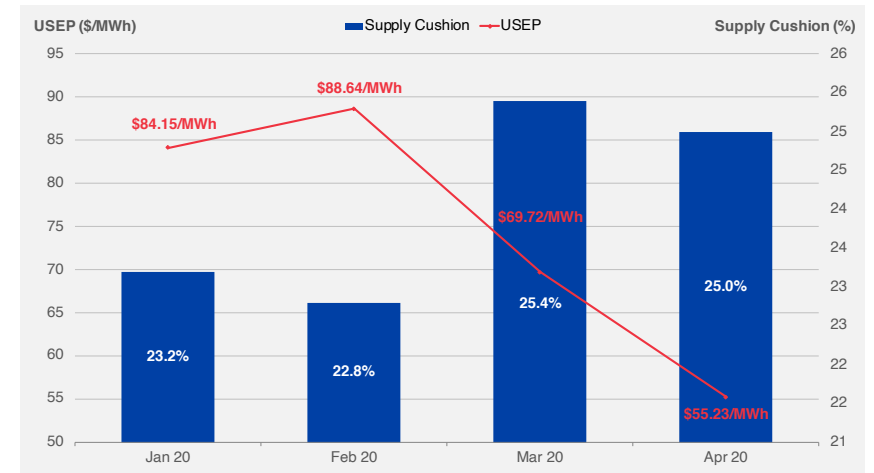
The daily operations of the National Electricity Market of Singapore (NEMS) involve many routine yet critical tasks. For example, daily price checks need to be performed to ensure that there are no price abnormalities; key market data such as transmission equipment specifications and generators' capabilities need to be kept updated at all times; settlement reports and invoices need to be checked for accuracy; and daily trading and settlement reports need to be published by a certain time each day.

While operating the NEMS entirely from home for a prolonged period is unprecedented, the rigorous Business Continuity Plan (BCP) exercises that we conduct several times each year, coupled with our robust systems and processes, have enabled us to keep the wholesale market running smoothly with some minor adjustments. For example, certain tasks which used to be done through hard copies have since been digitised. Also, regular team meetings to discuss issues or work-in-progress are now conducted virtually through tools like Skype or WebEx.

We are thankful for our colleagues' ability to adapt, and are committed to keeping the market operating throughout this period. We look forward to the day when we can all return to work in the office again.

Market Update

Overview of USEP and supply cushion – Jan to Apr 2020



The daily average Uniform Singapore Energy Price (USEP) ranged between \$52.09/MWh and \$102.21/MWh in March, and between \$41.80/MWh and \$95.36/MWh in April. The monthly average USEP, which dropped 21.3 percent to \$69.72/MWh in March, decreased a further 20.8 percent to \$55.23/MWh in April.

The drop in March's USEP can be attributed to a higher supply cushion. March's supply cushion rose 2.6 percentage points as a result of a 5.0 percent increase in supply which outweighed a 1.3 percent drop in demand.

The daily demand for the first six days of April averaged 6,028MW. After the start of Singapore's Covid-19 circuit breaker period on 7 April, it dropped about 400MW to 5,629MW on average daily for the rest of April. Driven by a lower demand, the monthly average USEP declined further in April despite a slight decrease of 0.4 percentage point in the supply cushion.

A special and more detailed analysis on the impact of the Covid-19 pandemic on the NEMS is available on the [EMC website](#).

Rule Change Panel Work Plan Prioritisation Exercise 2020

In January and February this year, EMC consulted stakeholders of the National Electricity Market of Singapore (NEMS), including market participants (MPs), Singapore Power (SP) Services, SP PowerGrid and the Power System Operator (PSO), for the annual Rules Change Panel (RCP) work plan prioritisation exercise.

Issue identification

The first stage of the prioritisation exercise involved seeking inputs for new issues which stakeholders wished to address. The following 16 new issues were raised for inclusion in the updated work plan:

1. Calculation of the market energy price for a multi-unit facility when one of the constituent generating units is islanded (Proposed by: EMC);
2. Improve the efficiency of generation facility registration process by an MP (Proposed by: Sun Electric Energy Assets and Sun Electric Power);
3. Provision/clearing of ancillary services without active power generation (Proposed by: Senoko Energy);
4. Market Support Services Licensee (MSSL) to get access to meter(s) prior to registration of generation facility by EMC (Proposed by: Sun Electric Energy Assets and Sun Electric Power);
5. Opening a generation account instead of load account prior to the commissioning of a photovoltaic (PV) standalone generator to avoid security deposits (Proposed by: Sun Electric Energy Assets and Sun Electric Power);
6. Review of expected net exposure formula and application (Proposed by: EMC);
7. Review of the submission of bilateral contract quantities (Proposed by: EMC);
8. Request for EMC to publish filtered reserve and regulation supply curves (Proposed by: Senoko Energy and PacificLight Power);

9. Forced outage without final approval/consent exemption after an actual forced outage (Proposed by: ExxonMobil Asia Pacific);
10. Compensation in the event of load shedding for Embedded Generators (Proposed by: ExxonMobil Asia Pacific);
11. Total review of Demand Response related Market Rules, including compensation and penalty provisions (Proposed by: Red Dot Power);
12. Inclusion of distributed energy resources that could be offered under the Forward Capacity Market (FCM) regime and how these could be integrated with existing market (Proposed by: Red Dot Power);
13. Cross-border electricity trade (Proposed by: Red Dot Power);
14. Review of current requirements on regulation/reserves vis-à-vis frequency control arising from the proliferation of solar generation in the grid (Proposed by: YTL PowerSeraya);
15. Broaden exemptions of Automatic Financial Penalty Scheme (AFPS) to include de-loading due to refuse characteristics (Proposed by: Keppel Seghers Tuas Waste-To-Energy Plant); and
16. Deterrence of settlement payment default by MPs (Proposed by: EMC).

Meeting with stakeholders

In the second stage of the prioritisation exercise, EMC conducted joint briefing sessions with stakeholders to clarify and refine the scope of both existing and new issues. Stakeholders also ranked each issue according to its importance and urgency, and/or voted for issues to be removed.

Updated RCP work plan from April 2020 to March 2021

After incorporating feedback from the stakeholders, EMC presented the proposed update to the one-year work plan to the RCP for consideration at its 114th meeting in March.

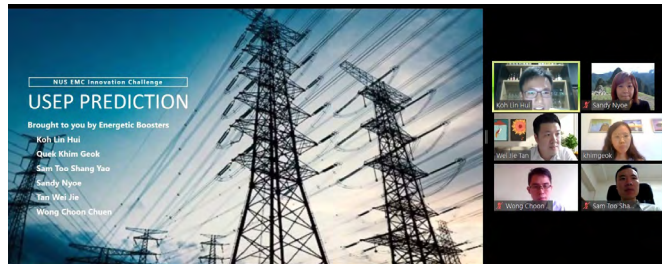
At the meeting, the RCP decided to refer those issues that were not under the RCP's purview to the Energy Market Authority and remove them from the RCP work plan.

The RCP agreed to work on the following issues within the next 12 months:

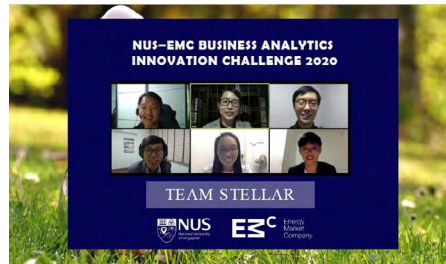
1. Review of AFPS and related issues;
2. Imposition of minimum net tangible asset as a condition of participation for retailers;
3. Compensation guidelines for interruptible load facilities interrupted for prolonged duration;
4. Holistic review of the current prudential requirement obligations and their enforcement process under the Market Rules;
5. Deterrence of settlement payment default by MPs;
6. Review allowable remedies for default events;
7. Proposed review of constraint violation penalty (CVP) structure;
8. Framework for determining compensation claims amount for MPs in compliance with the PSO's directions;
9. Request for EMC to publish filtered reserve and regulation supply curves;
10. Provision of real-time estimates of the Reserve Responsibility Share (RRS) for each Generation Registered Facility (GRF); and
11. Provision/clearing of ancillary services without active power generation.

Detailed descriptions of all issues can be found on EMC's website at <https://www.emcsg.com/marketrules/ruleschangepanel/workplan>.

NUS-EMC Business Analytics Innovation Challenge 2020



Presentation by one of the eight finalists



Winning team for the NUS-EMC Business Analytics Innovation Challenge 2020

Every year, the National University of Singapore Business Analytics Centre (NUS BAC) hosts the Business Analytics Innovation Challenge. The competition invites NUS undergraduates, postgraduates, researchers, and alumni of the NUS Masters of Science in Business Analytics (MSBA) programme to put their learning into practice by resolving real-world problems. The challenge also helps to develop innovative, proof-of-concept (POC) solutions for industry partners, thereby fostering collaboration between the industry and academia.

This year, EMC co-hosted the analytics challenge with the Centre. The NUS-EMC Business Analytics Innovation Challenge 2020 required participants to develop a Uniform Singapore Energy Price (USEP) forecasting model by employing innovative ways of applying artificial intelligence to improve the accuracy of forecasts. On top of that, participants were also required to create a market information dashboard.

The 19 teams that submitted the POCs were given five weeks to work on their solutions, following which eight teams were chosen to pitch their ideas to a panel of judges from EMC and the NUS during the final presentation and award ceremony which took place virtually on 28 April.

The winner of this year's challenge, Team Stellar, is made up of six NUS MSBA alumni who developed a comprehensive market information dashboard that included natural language generation capability to generate commentaries. The dashboard also featured a natural language processing programme to retrieve relevant news from the internet. The winning team was awarded a cash prize of \$5,000, while the first runner-up and second runner-up won \$3,000 and \$1,000 cash respectively for their solutions.

New Entrants to the NEMS

Two new facilities registered in the NEMS

One market participant registered two new facilities in the National Electricity Market of Singapore (NEMS) in March:

Market Participant	Facility Type	Capacity (MW)	Date Registered
Sembcorp Solar Singapore	Intermittent Generation Source (IGS)	0.240	6 March
		0.660	

With these additions, the total registered capacity of IGS facilities stands at 147.987MW, or 1.2 percent of the total registered generation capacity in the NEMS.

Rule Change Update

Review of timelines in relation to provision of credit support

Every market participant (MP) that is a net debtor in the Singapore Wholesale Electricity Market (SWEM) needs to provide and maintain credit support with EMC. The adequacy of each MP's credit support is assessed by EMC every business day.

MPs are notified by EMC if their risk exposure levels cross certain thresholds and are required to provide additional credit support within timelines as stipulated in the Market Rules. For MPs who provide credit support in the form of a Standby Letter of Credit (SBLC) or Banker's Guarantee (BG), they are also required to provide replacement credit support prior to the expiry of the existing SBLC or BG within stipulated timelines.

EMC reviewed the current set of timelines associated with the provision of credit support in the Market Rules, and proposed changes to mitigate the potential uncovered risk exposure of MPs beyond the credit support pledged to EMC. The rule changes were supported by the Rules Change Panel in January and approved by the Energy Market Authority on 6 April. They will come into effect on 21 October this year.

User Forums

Market Information Sharing Forum (MISF)

Due to the Covid-19 pandemic, the Markets and Operations team was not able to host the 110th session of the bi-monthly MISF on 10 March.

The presentation slides for the March MISF, which were shared with the market participants (MPs) of the National Electricity Market of Singapore (NEMS) through EMC's website, covered the following topics:

- Market performance and key highlights in January and February;
- System enhancements and projects; and
- Feature topics:
 - Offer Price Index (OPI); and
 - Hourly Energy Uplift Charge (HEUC) and metering error.

We would like to thank all participants for their continuous support and strong interest in the MISF. We will be conducting a virtual MISF via WebEx in May to discuss the market's performance in March and April as well as feature topics.

MPs who are interested in presenting at future MISFs are encouraged to come forward.

Market Systems User Group (MSUG)

The bi-monthly MSUG forum which was scheduled on 16 April was cancelled. Instead, EMC's Technology team updated market participants via email on the following topics:

- Overview of NEMS systems availability year-to-date for FY2019/2020;
- Overview of NEMS systems service desk calls received between April 2019 and March 2020;
- Overview of change releases deployed between April 2019 and March 2020;
- NEMS systems incidents;
- Planned NEMS maintenance;
- Disaster Recovery Preparedness Exercise;
- Status updates on Technology (infrastructure) projects:
 - Network technology refresh; and
 - Tier 3 network segregation.
- Status updates on Technology (applications) projects:
 - Review of default levy arrangements;
 - Risk exposure report enhancement for display of payment default information;
 - Review of credit support requirements align with Retailer of Last Resort (RoLR) framework; and
 - Webservices for additional data release.
- Disabling of Transport Layer Security (TLS) 1.0 and TLS 1.1 for Single Electronic Window (SEW) and Webservices.

The next MSUG forum is tentatively scheduled for Thursday, 18 June via WebEx. We will update all participants via email ahead of the forum.

EMC Training Programme

Next course on 20 and 21 August 2020

The next run of the two-day course *Understanding Electricity Markets* is tentatively scheduled* on 20 and 21 August. Our trainers will be conducting six sessions covering the following topics:

- Understanding Electricity
- Why Reform and Regulation is Essential in the Electricity Industry
- The National Electricity Market of Singapore and its Unique Features
- Pricing Mechanism and Economic Dispatch
- Market Settlement and Credit Risk Management
- How Consumers can Influence Electricity Markets

The course dates* for the second half of 2020 are as follows:

- 20 and 21 August
- 19 and 20 November

**Subject to changes arising from developments in the Covid-19 pandemic*

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

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.