

# Bulletin 127

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## CEO's Message



The further easing of Covid-19 measures on 26 April represents a significant milestone in Singapore's fight against Covid-19. While all staff are allowed to return to their workplace, EMC is taking a phased approach in welcoming staff back to the office. This is to minimise any potential disruptions to critical business functions in the event of Covid-19 transmission within EMC, while at the same time encouraging in-person interactions and promote better work collaborations.

Following the dip in the monthly average Uniform Singapore Energy Price (USEP) in February, the monthly average USEP in March and April rebounded to \$309.52/MWh and \$365.53/MWh respectively. This was due to a decrease in the supply cushion and an increase in fuel oil price.

In April, we also published the [National Electricity Market of Singapore \(NEMS\) Market Report 2021](#) and the [Market Surveillance and Compliance Panel's annual report](#). The reports provide valuable insights and assessment on the market performance, efficiency and competitiveness of Singapore's wholesale electricity market.

We completed the Rules Change Panel (RCP) work plan prioritisation exercise in the first quarter of the year. During the exercise, EMC consulted the stakeholders to identify key issues that the RCP should focus on and made our recommendations to the Panel.

The inaugural *Singapore Electricity Network and Market* Course in March was well-received by participants. We are working with the Singapore Institute of Power and Gas to organise more sessions later this year. With the easing of Covid-19 measures, we look forward to organising physical workshops and training programmes again.

As we take big strides towards normalcy, I am encouraged that Singapore was able to weather the most challenging phases of the pandemic. I believe that we are stronger and more resilient as individuals and as a nation because of the lessons we have learned. Let us remain vigilant and continue to be socially responsible for everyone around us.

**Toh Seong Wah**  
Chief Executive Officer

# Rules Change Panel Work Plan Prioritisation Exercise 2022

Throughout January and February this year, stakeholders of the National Electricity Market of Singapore (NEMS), including market participants (MPs), Singapore Power (SP) Services, SP PowerGrid, EMC and the Power System Operator (PSO), have been consulted 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 13 new issues were raised for inclusion in the updated work plan:

1. Modelling of on-site ambient temperature into the market clearing engine (MCE) such that gas turbines/combined-cycle plants' (GT/CCP) maximum capacity are adjusted dynamically (Proposed by: PSO);
2. Introduction of SWIFT as a form of bank guarantee (Proposed by: Senoko Energy);
3. Alignment of performance standards of Interruptible Load scheme and spinning reserves (Proposed by: Sembcorp Cogen);
4. Additional market re-run for meter data error discovered between first and second nominated day (Proposed by: PacificLight Energy);
5. Definition of "failure to synchronise" (Proposed by: Senoko Energy);
6. Holistic review of the Market Rules related to cessation of business, liquidation and insolvency (Proposed by: EMC, Market Assessment Unit);
7. Review of the timeline for suspension hearing (Proposed by: EMC, Market Assessment Unit);
8. Review of provisions on suspension and termination orders (Proposed by: EMC, Market Assessment Unit);
9. Review of regulation effectiveness factor or similar compensation scheme to reward greater responsiveness of facilities for regulation (Proposed by: Sunseap Energy Ventures);
10. Review of rules governing participation and offers for batteries and distributed energy resources (Proposed by: Sunseap Energy);
11. Exemption from Automatic Financial Penalty Scheme (AFPS) during Fuel Changeover (FCO) directed by PSO (Proposed by: PSO);
12. Adjustment for regulation charges and price neutralisation after final settlement (Proposed by: SP Services); and
13. Review of handling the metering adjustment payment arising from settlement re-runs on a defaulting MP (Proposed by: EMC, Markets and Operations).

## 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 2022 to March 2023

After incorporating feedback from the stakeholders, EMC presented the proposed update to the one-year work plan to the RCP for consideration at its 127<sup>th</sup> meeting in March.

At the meeting, issues that received a significant number of votes for them to be removed were highlighted to the RCP. After further deliberation, the RCP decided to remove two issues from the RCP work plan.

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

1. Imposition of minimum net tangible asset as a condition of participation for retailers;
2. Holistic review of the current prudential requirement obligations and their enforcement process under the Market Rules;
3. Provision/clearing of ancillary services without active power generation;
4. Introduction of solar forecast in the existing MCE;
5. Holistic review of the Market Rules related to cessation of business, liquidation, and insolvency;
6. Exemption from Automatic Financial Penalty Scheme (AFPS) during Fuel Changeover (FCO) directed by the PSO;
7. Review of scope and framework for compensation under Chapter 5;
8. Price revision (re-run) to market price cap for periods with real-time load shedding and periods whereby PSO issues overriding dispatch instructions;
9. Definition of "failure to synchronise"; and
10. Review of regulation effectiveness factor or similar compensation scheme to reward greater responsiveness of facilities for regulation.

Detailed descriptions of all issues can be found on EMC's [website](#).

# Rule Change Updates



## Mode of Payment for Annual Market Participant and PSO Fees

EMC collects fees from applicable market participants, market support services licensees (MSSL), and other organisations to recover EMC's and the Power System Operator's (PSO) administrative costs. One of the component of these fees is a fixed amount collected annually, hereafter referred to as Annual Fees.

Current market rules do not specify any payment methods for Annual Fees. A lack of clarity over the payment method may hinder operations. Therefore, a rule change was proposed to specify that the primary payment method for Annual Fees would be via electronic funds transfer, a method market players are familiar with. It was also proposed that EMC retain flexibility to provide for valid exceptional cases.

This rule change proposal was supported by the Rules Change Panel (RCP) and approved by the Energy Market Authority (EMA) on 3 March. It took effect on 4 March.

## Designation of Default Bus of Generation Settlement Facilities

When a generation settlement facility (GSF) and both of its default buses are disconnected, the Market Clearing Engine (MCE) produces anomalous ex-ante prices that necessitates ex-post MCE re-runs with redesignations of default buses of GSF. EMC assessed that when network status information leading to GSFs being islanded can be pre-empted, such re-runs could be eliminated by allowing PSO to designate the main and alternate default buses of GSFs to be in different substations such that at least one of the substations are connected.

The proposal improves price certainty and saves costs for the market, especially if the substation to which the main default bus is connected is on maintenance for multiple consecutive periods.

This rule change proposal was supported by the RCP and approved by EMA on 3 March. It took effect on 4 March.

## Incorporation of Solar Generation Forecasts in the Market Clearing Engine

This proposal aims to incorporate solar generation forecasts in the MCE to produce more accurate dispatch schedules.

As solar energy gradually becomes a more significant portion of the energy generation in Singapore, EMC will need better visibility of non-dispatchable solar generation to determine the dispatchable generation resources required to meet total load.

A rule change has thus been introduced for the PSO to provide EMC with half-hourly solar forecasts.

The PSO has planned to upgrade its Energy Management System by 2023 to incorporate solar forecast capability. Upon completion of the upgrade, PSO will be able to provide solar generation forecasts to EMC for each dispatch period. EMC will then be able to factor in solar generation into the market clearing process and produce more accurate schedules for dispatchable resources.

This rule change proposal was supported by the RCP and approved by EMA on 14 April. EMC will update the industry of the effective date in due course.

For more details on the rule changes mentioned and for future updates, please visit [our website](#).

# Market Update

## Overview of USEP and supply cushion – Jan to Apr 2022



The daily average Uniform Singapore Energy Price (USEP) ranged between \$154.91/MWh and \$561.71/MWh in March, and between \$174.16/MWh and \$924.17/MWh in April. The monthly average USEP rose 18.3 percent to \$309.52/MWh in March and increased another 18.1 percent in April to \$365.53/MWh due to the tightened supply cushion and rising fuel oil price. The fuel oil price increased 23.9 percent and 8.5 percent in March and April respectively. March and April's monthly average USEP were the sixth and fourth highest level since the market started.

In March, demand increased 2.5 percent to 6,352MW while supply remained relatively unchanged as compared to the previous month. As a result, the supply cushion dipped 2.0 percentage points, contributing to the increase in the USEP.

In April, both demand and supply decreased 0.8 percent and 1.7 percent respectively, with the demand averaging at 6,303MW. The larger drop in supply led to a further tightening of the supply cushion by 0.8 percentage point to 16.8 percent. As a result, the USEP in April rose to \$365.53/MWh.

# New Entrants to the NEMS

## One new market participant and two new facilities registered in the NEMS



We welcomed one new market participant in the National Electricity Market of Singapore (NEMS) in March:

Market Participant	Market Participant Class	Date Registered
PSA Corporation Limited	Wholesale Market Trader	11 March

With the above addition, there are now 17 wholesale market traders in the NEMS.

Market Participant	Facility Type	Capacity (MW)	Date Registered
Sembcorp Solar Singapore Pte Ltd	Intermittent Generation Source (IGS)	6.5	17 March
Singapore District Cooling Pte Ltd	Load Registered Facility	4.0	12 April

With the addition of the IGS facility and Load Registered Facility, the total registered capacity of IGS facilities and the maximum load curtailment capacity stands at 365.1MW and 44.0MW respectively.

# User Forums



## Market Information Sharing Forum

Our Markets and Operations team hosted the 122<sup>nd</sup> session of the bi-monthly Market Information Sharing Forum (MISF) on 10 March.

The following topics were shared with the attendees during the virtual session:

- market performance and key highlights in January and February;
- system enhancements and projects; and
- feature topics:
  - demand response; and
  - electricity import trial from Peninsular Malaysia.

We would like to thank all participants for their continuous support and strong interest in the MISF.

Market participants who are interested in presenting at future MISFs are encouraged to contact the Markets and Operations team.

## Market Systems User Group Forum

The bi-monthly Market Systems User Group (MSUG) forum was held virtually on 21 April. Our Technology team updated participants on the following topics:

- overview of the NEMS systems availability year-to-date for FY2021/2022;
- overview of the NEMS systems service desk calls received between April 2021 and March 2022;
- overview of change releases deployed between April 2021 and March 2022;
- NEMS systems incidents;
- planned NEMS maintenance;
- Disaster Recovery Preparedness (DRP) exercise;
- status updates on Technology (infrastructure) projects:
  - NEMSCAP Refresh Project (NRP); and
  - Settlement Engineer Application Upgrade Project.
- statistics on report downloads (via Web Services);
- setting of hard limit threshold on report downloads (via Web Services) for all market participants from 1 September;
- status updates on Technology (applications) projects:
  - NEMSCAP Refresh Project (NRP);
  - NEMS Applications on Chromium Edge Project;
  - Settlement Engine Application Upgrade Project;
  - Settlements Prepayment Automation Project; and
  - providing real-time estimates of Reserve Responsibility Share (RRS) for each Generation Registered Facility (GRF).

The next MSUG forum is tentatively scheduled for Thursday, 16 June. We will update all participants ahead of the forum.

# EMC Training Programmes

## Singapore Electricity Network and Market Course

On 23 and 24 March, EMC together with Singapore Institute of Power and Gas (SIPG) conducted the *Singapore Electricity Network and Market* Course for technicians, engineers and executives working in Singapore's Power and Gas sector.

The participants learned about Singapore's electricity network and market, and examined some of its unique features. As evidenced from the discussions and feedback received, participants developed a deeper understanding on the operations and constraints in operating the electricity network and market.

The next run will be conducted in June and it will cover the following topics:

- Overview of Singapore Electricity Network
- Electricity Transmission, Distribution Network Configuration and Network Equipment
- Market Reform Milestones and Demand Characteristics
- Market Structure
- Market Operations
- Regulatory Tools and Governance Structure

The course serves as a good primer for participants who are keen to attend the *Understanding Electricity Markets* course, our flagship course which has been conducted since 2005.

To register, please contact SIPG at 6916 7930 or [training-institute@spgroup.com.sg](mailto:training-institute@spgroup.com.sg).

More information about the course is available on our [website](#).

## Market Clearing Workshop

EMC conducted the first hybrid session of the *Market Clearing Workshop* on 26 to 28 April. The workshop consisted of two days of face-to-face interactions followed by half a day of sharing virtually.

The participants learned about the market clearing and price discovery, and developed a deeper understanding and appreciation of Singapore's wholesale electricity market.

The next public run of the *Market Clearing Workshop* will be held over two and a half days, in the fourth quarter of the year. The workshop will be conducted through a mix of physical and virtual sessions.

The nine sessions will cover the following topics:

- Market Clearing Overview
- Market Clearing Engine Mathematical Model
- Generation Dispatch and Marginal Pricing
- Transmission Modelling and Nodal Pricing
- Ancillary Services Markets
- Co-optimisation among Energy and all Ancillary Products
- Constraint Violation Penalties (CVP) and Stepwise CVP
- Tie-Breaking
- Demand Response

More information about the workshop and registration details are available on our [website](#).

## Understanding Electricity Markets

The next public run of the *Understanding Electricity Markets* training programme will be held on 19 and 20 May.

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 programme is also scheduled to be conducted on 18 and 19 August, and 17 and 18 November.

More information about the programme and registration details are available on our [website](#).

For enquiries on private runs of the *Understanding Electricity Markets* training programme or *Market Clearing Workshop*, please email us at [trainingprogramme@emcsg.com](mailto:trainingprogramme@emcsg.com) or contact Jan Lee at 6779 3000.