



**Single Electricity Market  
(SEM)**

**Repricing and Price Materiality  
Threshold Parameter Consultation**

**Response from SEMO to  
SEM-19-042**

**27 September 2019**

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## 2. EXECUTIVE SUMMARY

SEMO is a contractual joint venture entered into by EirGrid plc and SONI Ltd, who are each licensed respectively by the Commission for Regulation of Utilities and the Utility Regulatory with respect to their Market Operation Activities.

The European Union (EU) is building an internal market for electricity and gas, to help deliver energy supplies that are affordable, secure and sustainable, set in place provisions for the implementation of the European Electricity Target Model (EU Target Model). The EU Target Model is a set of harmonised arrangements for the cross-border trading of wholesale energy and balancing services across Europe.

In implementing this EU Target Model and to ensure efficiency in cross-border trading for the Single Electricity Market (SEM), the SEM Committee introduced a revised set of trading arrangements (revised SEM arrangements) across forwards, ex-ante and balancing markets. The arrangements for the Balancing Market are set out in the SEM Trading and Settlement Code (TSC or the Code), a multiparty contract binding market participants in the SEM.

The revised SEM arrangements went live on 30<sup>th</sup> September 2018.

The TSC has outlined a number of rules for the treatment of a manifest error in the SEM, to ensure certainty in the market. These rules, contained in section E.3.8 of the TSC, require repricing by the Market Operator within 5 Working Days of the discovery of such a manifest error. In addition, if a manifest error is determined to exist as part of an upheld Pricing Dispute, then repricing is mandated.

In this consultation, consideration has been given by the SEM Regulatory Authorities (RAs) to options regarding repricing in the context of manifest errors as set out in the TSC, and the materiality threshold parameters that might govern the application of any such re-pricing.

In this response, SEMO notes the importance of striking a balance between price certainty and price accuracy, and is of the view that the options presented by the Regulatory Authorities should be considered within this broader context and with the aim of facilitating the efficient, economic and coordinated operation, administration and development of the Single Electricity Market in a financially secure manner.

SEMO also considers that any option must be influenced by the practicalities including feasibility and achievability of delivery within the timeframe. The existing Central Market Systems are not capable of determining if the materiality threshold of 5% has been reached and an automated solution to determine the repricing materiality will not be delivered until the end of 2020 at the earliest, therefore any solution needs to be pragmatic given the underlying factors.

With these principles in mind, SEMO supports the proposed Option 3, whereby an Urgent Modification be proposed on a temporary basis to the TSC with the effect that repricing for the post-Go-live period of 1 October 2018 to 11 June 2019 does not now take place at all. SEMO also considers that where an IT solution to deliver the prescribed Price Materiality Threshold of 5% is not deliverable before M+13 resettlement, that such repricing should not be attempted. This option is presented in the SEM Committee's proposed Option 4. This interpretation of Option 4 as presented would mean that where repricing is not achievable by M+13 using the

existing Price Materiality Threshold of 5% (as is currently the case from a Central Market System perspective), then no re-pricing should occur either (a) at all or (b) until such time as a market solution is in place in late 2020 or early 2021.

In this context and in the interests of maximising certainty to market participants, SEMO considers that option 4(a) as detailed above would provide the most commercial certainty to market participants.

In this response, SEMO contextualises this consultation, engagement with stakeholders on this issue at the Market Operator User Groups (MOUGs) and presents the challenges and complexities which frame the constructive discussion of which this consultation consists.

## 3. INTRODUCTION

### 3.1. BACKGROUND

Under the SEM Trading and Settlement Code, if, as part of an upheld Pricing Dispute it is determined that there is a manifest error in the pricing calculation which leads to a change in price greater than a defined Price Materiality Threshold, the price is recalculated and included in resettlement. Within the Consultation Paper and SEMO's response, this process of recalculation of prices is referred to as 'repricing'.

Settlement Reruns adjust the financial positions of Participants to reflect any differences between the data used for Initial Settlement and any updated data received by the time of the Settlement Rerun (for example, final meter data). Settlement Reruns are scheduled to take place in the fourth month after Initial Settlement (known as "M+4") and in the thirteenth month after Initial Settlement (known as "M+13" and *ad hoc* as necessary). Within the Consultation Paper and SEMO's response, this process is referred to as 'resettlement'.

Between 1 October 2018 and 11 June 2019, there are a significant number of Imbalance Pricing Periods (i.e. related to 5-minute Imbalance Prices) and Imbalance Settlement Periods (i.e. related to 30-minute Imbalance Settlement Prices) that are subject to an upheld Dispute, and therefore require repricing, as per Section E.3.8 of the Trading and Settlement Code. Any such repricing carried out would be accounted for in resettlement.

### 3.2. SUMMARY OF OPTIONS

Consultation Paper SEM-19-042 aims to consider the impact of four different scenarios on repricing and in particular on M+13 resettlement processes (scheduled for November 2019). The Consultation Paper elicits feedback from interested stakeholders with respect to a number of proposals which might be implemented by the SEM Committee following consultation and decision. The options put forward by the SEM Committee are summarised as follows:

- Option 1:** The first option is to apply repricing for the period from 1 October 2018 to 11 June 2019 using the currently approved 5% Price Materiality Threshold.
- Option 2:** SEMO has submitted a proposal to the RAs to change the value of the Price Materiality Threshold from 5% to 0%. This is published with this Consultation Paper. SEMO's submission proposes to change the value of the Price Materiality Threshold to 0% on a temporary basis, until such time as an I.T. solution that is capable of applying materiality is delivered.
- Option 3:** The third option is to raise an Urgent Modification to the Trading and Settlement Code, to amend Section E.3.8 on a temporary basis with the intention of not carrying out repricing from 1 October 2018 to 11 June 2019.
- Option 4:** The fourth option is to raise an Urgent Modification to the Trading and Settlement Code, to amend Section E.3.8 on an enduring basis in order to require any repricing to be completed by the thirteenth month after Initial Settlement at the latest.

In this response, SEMO considers the options proposed by the SEM Committee by both providing general comments with respect to each option and in responding specifically to the questions addressed to stakeholders.

## 4. GENERAL OBSERVATIONS

### 4.1. GENERAL OBSERVATIONS ON REPRICING AND THE OPTIONS PRESENTED IN THE CONSULTATION PAPER

SEMO recognises that the price in any energy market must strike a balance between price certainty and accuracy. The intention in electricity market design is that prices should prompt commercial decision-making from participants and act as a reference price for forwards trading. Therefore the criteria governing any subsequent repricing should ideally be explicit and time-bound. It is significant that this consultation considers the timing of any repricing and in its response SEMO has endeavoured to provide further detail on this issue. Furthermore SEMO is of the view that exposing the market to repeated repricing of the same trading periods cannot ensure certainty for market participants. For this reason, in the short-term as the Central Market Systems in the revised SEM arrangements are stabilised, SEMO is of the view that a trading period should only be re-priced on at most one occasion.

In applying these general principles to the options proposed by the SEM Committee, SEMO considers that Option 3 represents a pragmatic way forward providing certainty for market participants. Option 3 proposes to raise an Urgent Modification to the TSC, amending Section E.3.8 of the TSC on a temporary basis with the intention of not carrying out repricing from 1 October 2018 to 11 June 2019. SEMO is of the view that a distinction should be drawn between business as usual Central Market Systems operation in an established market and Central Market Systems operation in the period following go-live and stabilisation of that market, i.e. from 1 October 2018 to 11 June 2019. By focussing vendor attention on Central Market System issues as and when they arise, this approach will ensure that investment is made in delivering the maximum impact for market participants, providing fixes for defects if required, rather than repricing periods well outside of established timelines with a corresponding impact on resettlement.

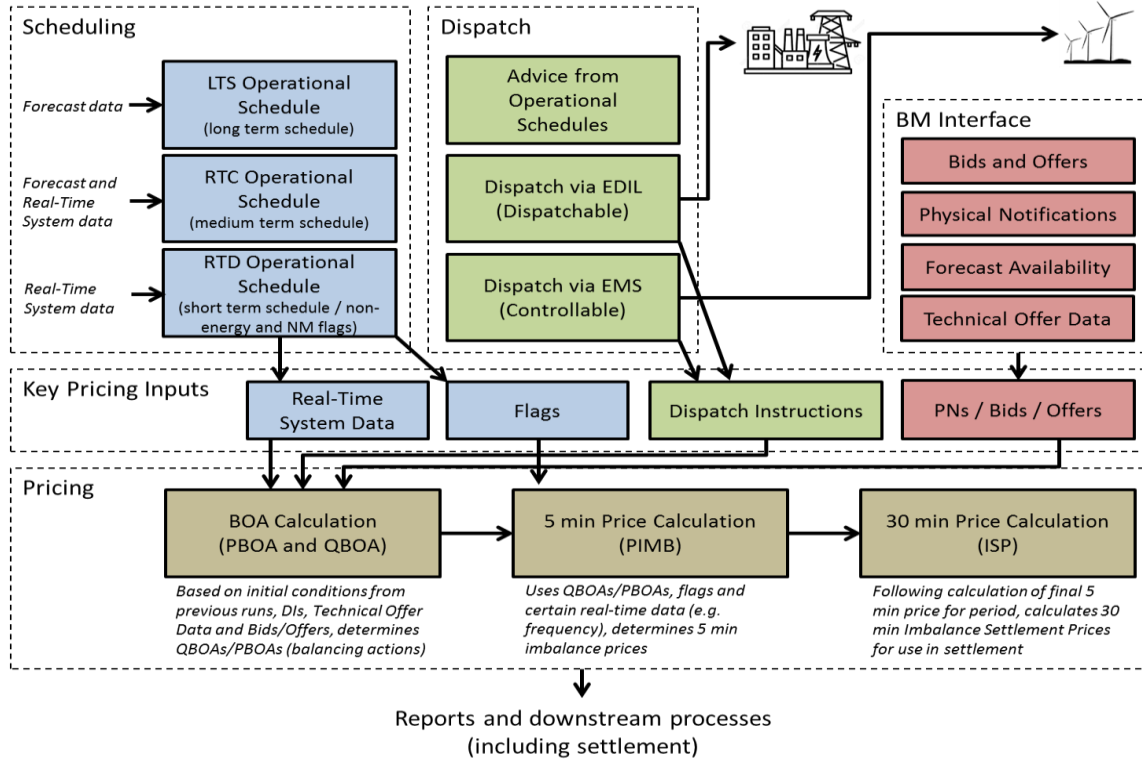
SEMO also supports an interpretation of Option 4 (which it terms '*Option 4(a)*') which proposes an Urgent Modification to the TSC to amend Section E.3.8 on an enduring basis in order to require any repricing to be completed by the thirteenth month after Initial Settlement at the latest. SEMO considers that where a systematic IT solution to deliver 5% Price Materiality Threshold is not available (as is currently the case) and which is unlikely to be available by M+13, that such repricing should not occur at all. Repricing in these circumstances would, in SEMO's view, be to open the market to a cycle of repeated repricing subsequent to M+13, whereby *ad hoc* repricing would be required and would not be deliverable for a significant period.. In SEMO's view, this would open the SEM to continued and perhaps indefinite price uncertainty.

SEMO has been communicating with participants and the Regulatory Authorities for many months regarding known market issues identified through the Known Issues Log at the Market Operator User Group (MOUG) meetings as well as detailing the practicality of repricing activities and the systems changes needed to support such activities.

## 4.2. KEY FUNCTIONAL COMPONENTS OF PRICING

In order to support consideration of the options, SEMO provides the following high level overview of the processes feeding pricing and the key functional components of pricing:

**Figure 1 Key Functional Components of Pricing**



It is important to appreciate that the issues that may result in a repricing are varied in nature and affect different parts of the Central Market Systems. These are broadly summarised in Table 2 below:

**Table 2 Repricing and the Central Market System**

Repricing Issue	Affected Parts of the Central Market System(s)
Determination of Non-Energy Flags	RTD Operational Schedule
Instruction profiling	BOA Calculation
Determination of QBOA initial conditions	BOA Calculation
Availability of input data	BOA Calculation, 5 min Price Calculation
Price Calculation	5 min Price Calculation, 30 min Price Calculation

#### 4.3. MARKET DESIGN PRINCIPLES OF REVISED SEM ARRANGEMENTS

The market design of the revised SEM arrangements is such that the RTD Operational Schedule and pricing are closely coupled, in that both are dependent on real-time data and pricing is dependent on the outputs of the RTD Operational Schedule. Furthermore, the market design requires that non-energy flagging and non-marginal flagging is an automatic rules-based process based on defined rules, rather than being subject to any manual intervention by operators. These design principles increase the challenges of repricing when it is required.

The SEM TSC provides for repricing also in limited circumstances for example where the Market Operator identifies a manifest error in a published Imbalance Settlement Price within 5 Working Days of its publication or as part of the resolution of a Pricing Dispute. Section E. 3.8.1 of the TSC provides:

*“If the Market Operator identifies a manifest error in a published Imbalance Settlement Price:*

- (a) within 5 Working Days of its publication (whether or not as a result of a Settlement Query or a Pricing Dispute); or*
- (b) as part of the resolution of a Pricing Dispute as per paragraph B.19.2.2 (a)*

*The Market Operator shall correct the manifest error and shall publish the corrected Imbalance Settlement Price as soon as possible and within 1 Working Day of making the correction.”*

SEMO considers that this reluctance to reprice is featured in other energy markets outside of specific, limited and time bound exceptions.



#### 4.4. THE CHALLENGES AND COMPLEXITY ASSOCIATED WITH REPRICING

In assessing any of the options proposed by the SEM Committee in its consultation, SEMO is of the view that an understanding of existing challenges and the surrounding complexities is crucial in contextualising options. To this end by way of background, SEMO has included in Appendix 2 to this submission, links to information provided at Market Operator User Groups relating to issues which will be resolved in Release D, Release E and those issues that will continue to be outstanding thereafter. Nonetheless, a number of preliminary points should be highlighted:

- There is no pragmatic solution which enables the recalculation of flags, as these flags are calculated in the RTD Operational Schedule. The RTD software is a tool enabling short term scheduling of units, primarily utilising real-time data (including from the EMS) produce an economic dispatch schedule. This software is not designed to be re-run in a manner which enables new data to be derived for use in downstream operations; primarily as such updated data could have serious impacts on future LTS, RTC or RTD Operational Schedules (which have dependencies on each other). As a result, there is no system solution for recalculation of flags to support repricing where required.
- With respect to repricing, SEMO currently adopts a manual mechanism to determine the materiality of manifest errors in repricing. This approach is impacted by the volume of required repricing and by potential additional risk due to the lack of automation in the process. SEMO has a solution for mass repricing which is currently in test and is due for deployment to production in October 2019.
- It is also important to consider the time that will be required to conduct the repricing process. Initial estimates by SEMO are that it will take one day to reprice a day, which includes the time to prepare the batch information, execute the price calculation runs and perform some level of checking of the results. Given that a very significant number of trading periods appear to require repricing, it seems unlikely that repricing would be completed before the end of Q3 2020.
- A number of pricing issues have been identified since the go-live of the revised SEM arrangements. Whilst many of these have already been resolved, SEMO recognises that some software issues will remain or be identified beyond the time at which repricing is carried out. However, it is very important to note that the number of software issues continues to reduce in both number and impact.
- Given the existing provisions in sections E.3.8 of the TSC, the potential continued existence of some software issues suggests that in the short-term, the TSC may require numerous iterations of re-pricing. Therefore a pragmatic approach in this consultation is paramount to ensure price certainty and prioritisation and delivery of system issues in the short term to make way for a business-as-usual approach in the longer term.

## 5. CONSULTATION QUESTIONS

### 5.1. QUESTION 1

**Is your preference for re-pricing from 1 October 2018 to 11 June 2019 (and from 11 June 2019 onwards) to proceed based on the current Price Materiality Threshold of 5%?**

In 2017 the SEM Committee in [SEM-17-029](#) consulted on the value of the Price Materiality Threshold for the revised SEM arrangements. In its consultation response, SEMO proposed a Price Materiality Threshold of 15%. The approach used by SEMO to calculating this proposed value was to consider the level of a change in the imbalance price required to lead to a financial impact equal to or greater than the proposed value for the Settlement Recalculation Threshold set out in the SEMO Recommendation Report. The SEMO Report noted that as volumes within a specific imbalance settlement period are generally relatively low for any particular participant, the level of the change in the imbalance price required to meet the threshold proposed is met only at a relatively high percentage of change to the imbalance price. The SEM Committee rejected this assessment and opted for the existing Price Materiality Threshold of 5%. SEMO is of the view that a higher Price materiality threshold such as it proposed in 2017 is preferable to a lower Price Materiality Threshold.

SEMO believes that the regulatory decision at that time was based on stable systems and isolated instances of repricing, covering a limited number of prices. It therefore follows that although a higher Price Materiality Threshold may be preferable on an enduring basis for a business as usual balancing market, a different approach may be justifiable for a limited period in the SEM to allow for adjustment to the revised SEM arrangements and the stabilisation of the Central Market Systems as required.

SEMO is currently testing the batch repricing solution delivered by the MMS vendor, which is planned for deployment to production in October 2019. This solution enables batch repricing but will not automatically apply the approved 5% Price Materiality Threshold in order to determine which prices should be applied. Indeed, the systems cannot facilitate automatic application of any Price Materiality Threshold other than 0%. As a result, SEMO has discussed with the industry via the Market Operator User Group (MOUG) the proposal to temporarily reduce the Price Materiality Threshold to 0%.

SEMO is currently exploring the potential of automatic assessment within the MMS to enable application of a non-zero Price Materiality Threshold, however this is not finalised or discussed in detail with the MMS vendor, or indeed been impact assessed. That said, SEMO's informal discussions with the MMS vendor suggest that a solution to deliver an automated 5% Price Materiality Threshold assessment within MMS would be unlikely to be delivered to production by the end of 2020. This would then have a consequential impact on *ad hoc* resettlement runs required. Furthermore, it is not known at this time what impact the implementation of this functionality would have on the delivery timescales for other required changes to the Central Market Systems (e.g. resulting from approved Modification Proposals).

As explained in section 4.1, it is likely that it will take one day to reprice a single day. This will mean that it will take until late 2021 to:

- Deliver a solution to facilitate automatic non-zero application of the Price Materiality Threshold for the period 1 October 2018 to 11 June 2019; and
- Execute subsequent repricing for periods meeting the existing Price Materiality Threshold for the period 1 October 2018 to 11 June 2019.

SEMO recognises that a prolonged period where repricing does not occur in order to ensure compliance with the current 5% Price Materiality Threshold would lead to an extended period of time where market prices are not finalised and final resettlement cannot occur.

Based on currently available information, SEMO believes that application of a 0% Price Materiality Threshold provides the most expedient route to meeting obligations its repricing obligations with minimum impact on Participants in terms of price uncertainty and resettlement impacts.

## 5.2. QUESTION 2

**Do you agree with the proposal to apply a 0% Price Materiality Threshold on a temporary basis?**

**If the Price Materiality Threshold is changed to 0% on a temporary basis, stakeholder views are invited on whether this should be applied for repricing required for the period from 1 October 2018 to 11 June 2019 only or until such time as an updated repricing solution to manage the 5% Price Materiality Threshold can be implemented.**

**Do you see any issues with the proposed approach to repricing outlined in the 'Recommended Values for SEM Price Materiality Threshold' Report to the Regulatory Authorities?**

The temporary reduction of the Price Materiality Threshold to 0% has been proposed by SEMO, given the issues with applying a 5% Price Materiality Threshold that are discussed in section 5.1 of this response.

Although SEMO recognises that applying a 0% Price Materiality Threshold on a temporary basis is pragmatic in that such an approach is currently deliverable by the Central Market Systems. Nonetheless this approach is still subjecting the market to potentially numerous iterations of repricing, and all running outside of timelines prescribed in the TSC.

Furthermore, as it will take one day to reprice a single day, the timelines provided for in the TSC would be misaligned for a significant period and continue to be misaligned. Re-pricing of a number of months would take place at some significantly later date. SEMO is of the view that this approach does not provide a realistic or pragmatic solution for market participants. In addition, the option of waiting until an I.T. solution is developed to provide the required Price Materiality Threshold and then to facilitate repricing of Trading Periods does not allow the market the opportunity to prioritise issues of greatest impact to market participants.

### 5.3. QUESTIONS 3 AND 4

**Interested stakeholder's views are invited in relation to the option to raise an urgent modification to the Trading and Settlement Code.**

**This would entail an amendment to Section E.3.8 of the Code to either remove the requirement for repricing for the period from 1 October 2018 to 11 June 2019 (Option 3) or to require any repricing to be completed by the 13th month of the Settlement Calendar at the latest (Option 4), which would have the effect of repricing not being carried out for the period from October 2018 to October 2019 based in a commencement date of M+13 resettlement in November 2019.**

**For both options, the detailed legal drafting of any change would be raised and discussed through the Trading and Settlement Code Modifications Committee.**

SEMO believes that the intention is that Options 3 and 4 are to be considered together and not as independent options. Furthermore, SEMO believes that Option 4 assumes a 5% Price Materiality Threshold.

As such, SEMO would like to make the following observations:

#### **Option 3:**

The period covered by Option 3 (1 October 2018 to 11 June 2019) covers a number of manifest errors (as was detailed at various Market Operator User Group meetings, links to the presentation slides for which are set out in the Appendix 2 to this response). These errors were present in Imbalance Prices during this period and influenced subsequent trading decisions made by Participants.

SEMO recognises that Option 3 would mitigate the price uncertainty of the post Go Live period from 1 October 2018 to 11 June 2019. This would also enable SEMO to focus greater attention on addressing any outstanding issues relating to imbalance pricing. Provided that the number of periods for which repricing is required post 11 June 2019 remains low, it may be possible to carry out a manual set of materiality checks and repricing calculations well in advance of the M+13 resettlement timelines for these instances.

#### **Option 4:**

This option would involve raising an Urgent Modification to the TSC, to amend Section E.3.8 on an enduring basis in order to require any repricing to be completed by the thirteenth month after Initial Settlement at the latest. If not completed within this timeline, the Market Operator would be required to write to the Regulatory Authorities to set out the reasons for the delay and requesting approval not to carry out repricing for the period in question.

Application of a 5% Price Materiality Threshold would, in effect, mean that repricing could not occur until the functionality to provide such automatic assessment is delivered. As explained in section 5.1 (response to Question 1), this is unlikely to be available until at least the end of 2020. As such, repricing outcomes would not be able to be incorporated into the M+13 timescales.

SEMO is of the view that the Regulatory Authorities will therefore need to balance the benefits of accuracy in pricing with price certainty in considering these options in particular. One additional interpretation of Options 3 and 4 as presented would mean that where repricing is not achievable by M+13 using the existing Price Materiality Threshold of 5% (as is currently the case from a Central Market System perspective), then no re-pricing should occur either (a) at all or (b) until such time as a market solution is in place in late 2020 or 2021.

In this context and in the interests of maximising certainty to market participants, SEMO considers that option (a) as detailed above would provide the most commercial certainty to market participants.

## 6. APPENDIX 1 – MANIFEST ERRORS

In the interests of transparency SEMO has identified manifest errors relating to this issue grouped as follows:

- the data SEMO receives (TSO Non-RTD);
- TSO calculations (RTD – Non-Energy and Non-Marginal Flagging);
- The application of that data by SEMO (incorrect application of correctly calculated flags); and
- The Imbalance Price calculation itself (MA and MIDB).

<b>Issue Type</b>	<b>Count of Issues</b>	<b>Issue ID</b>
Imbalance Price Calculation	10	5739; 5737; 5831; 5806; 5875; 5817; 5929; 5957; 112877; 6076
TSO (Non-RTD) Data Errors	4	Rpc3; Rpc4; Rpc1; Rpc2
RTD – Non-Energy and Non-Marginal Flagging	2	6105; 6003
Incorrect Application of correctly calculated SO Flags	2	5720; 5973

## 7. APPENDIX 2 – LINKS TO MOUG PRESENTATIONS

<https://www.sem-o.com/documents/general-publications/Market-Operator-User-Group-Presentation-10-October-2018.pdf>

<https://www.sem-o.com/documents/general-publications/Market-Operator-User-Group-Presentation-25-October-2018.pdf>

<https://www.sem-o.com/documents/general-publications/Market-Operator-User-Group-Presentation-8-November-2018.pdf>

<https://www.sem-o.com/documents/general-publications/Market-Operator-User-Group-Presentation-22-November.pdf>

<https://www.sem-o.com/documents/general-publications/Market-Operator-User-Group-Presentation-11-December.pdf>

<https://www.sem-o.com/documents/general-publications/Market-Operator-User-Group-Presentation-17-January.pdf>

<https://www.sem-o.com/documents/general-publications/Market-Operator-User-Group-Presentation-27-February-2019.pdf>

<https://www.sem-o.com/documents/general-publications/Market-Operator-User-Group-Presentation-3-April-2019.pdf>

<https://www.sem-o.com/documents/general-publications/Market-Operator-User-Group-Presentation-16-May-2019.pdf>

<https://www.sem-o.com/documents/general-publications/Market-Operator-User-Group-Presentation-20-June-2019.pdf>

<https://www.sem-o.com/documents/general-publications/Market-Operator-User-Group-Presentation-18-July-2019.pdf>

<https://www.sem-o.com/documents/general-publications/Market-Operator-User-Group-Presentation-11-September-2019.pdf>