



**Single Electricity Market
(SEM)**

SEMO Key Performance Indicators

Decision Paper

SEM-19-033

04 July 2019

EXECUTIVE SUMMARY

On 8 March 2019, the RAs published a Consultation Paper, SEM-19-011, concerning the Key Performance Indicators to apply to SEMO, the Single Electricity Market Operator. SEMO is responsible for the operation of the Balancing Market, Imbalance Settlement and Capacity Market Settlement and is required to administer and maintain the Single Electricity Market Trading and Settlement Code. SEMO is subject to a revenue control with approximate revenues of €11 million per year.

Key Performance indicators are used to incentivise improvements in performance by attaching financial rewards to specific measures of performance. This allows for increased visibility of the operation of a regulated entity which can help inform future price reviews and lead to better outcomes for market participants and consumers. In order to set out KPIs to apply under the SEMO price control three areas have been considered by the RAs, including the definitions of KPIs, the weightings of the different KPIs, and targets to apply to each KPI.

In the Consultation Paper, a number of proposed definitions were set out for each KPI with the aim of ensuring these were relevant to market conditions, specific and measurable. Weightings and upper and lower targets were proposed for each KPI, based on analysis of SEMO's past performance against KPIs applied in preceding price controls.

A summary of the final six KPIs, their definitions, weightings and targets to be applied is provided in the table below and the rationale for these decisions is outlined in this Decision Paper. The SEM Committee has decided that these KPIs will apply from the beginning of the next tariff year, in October 2019, until the end of the current SEMO price control in 2021. These will be linked to a maximum award of 4% of total Operational Expenditure (Opex) in each tariff year. The total allowed Opex for the 2018/19 tariff year is approximately €9,860,000 so the full award in this case would amount to just under €400,000.

Summary of SEMO KPIs

Number	SEMO KPIs	Definition	Weighting	Lower Bound Target	Upper Bound Target
1	Invoicing	<p>The percentage of occurrences where invoices to participants are published on time.</p> <ul style="list-style-type: none">• The target for the weekly energy markets and Variable Market Operator Charge invoices is 12:00 each Friday.• The target for Capacity settlement documents is 12:00 seven working days after the end of each month.• The target for the Fixed Market Operator Charge settlement documents is the first Friday after the end of the month at 12:00.	15%	97%	100%

2	Credit Cover Increase Notices	<p>The percentage of occurrences where credit cover increase notices are published on time.</p> <ul style="list-style-type: none"> Three credit reports should be issued each day, with publication of each required by 9.45am, 12.45pm and 4.15pm. 	10%	97%	100%
3	SEMO Resettlement Queries	<p>The number of upheld formal queries from market participants which have identified errors in settling the market which are attributed to SEMO's operations and processes, including defects and pricing issues. Correction of such errors is completed in either scheduled Resettlement (M+4 and M+13) or in an ad hoc Resettlement.</p> <p>Measurement of this KPI is related to the number of SEMO upheld query incidents and Resettlements per Quarter. Multiple Upheld Queries for one incident shall be classified as one Upheld Query Incident. A Formal Query referencing a number of days shall be classified as Multiple Upheld Queries Incidents.</p>	20%	<15 incidents per quarter	<5 incidents per quarter
4	General Queries	<p>The percentage of occurrences where a General Query is not resolved within 20 business days. A General Query is defined within this metric as any request logged at the SEMO helpdesk.</p>	5%	95% resolved within 20 business days	99% resolved within 20 business days
5	System Availability	<p>Availability of central market systems which the Market Operator has responsibility for according to their required availability. This is the ratio of the time systems are said to be in a functioning condition to the total time they are required to be available and covers the following;</p> <ol style="list-style-type: none"> Balancing Market systems on a 24-hour basis Monday to Sunday. Settlement and Credit Clearing system between 9am-5pm Monday to Friday. Reporting and Market Monitoring system between 9am-5pm Monday to Friday. 	15%	99%	99.9%

		<div>4. Registration system between 9am-5pm Monday to Friday.</div> <div>5. Website availability between 8am-6pm Monday to Friday.</div>															
6	Timely publication of key market information	<div>Publication of complete and accurate market information as specified in the table below in a timely manner will be required in order to achieve 75% of this KPI. This will be measured based on the percentage of occurrences where the market information listed as part of the KPI is published on time and is accurate and complete at the time of publication.</div> <table><tr><td>Commercial Offer Data</td></tr><tr><td>Four Day Aggregated Rolling Wind Unit Forecast</td></tr><tr><td>Hourly Dispatch Instructions Report</td></tr><tr><td>Imbalance Price</td></tr><tr><td>Imbalance Price Supporting Information Report</td></tr><tr><td>Half Hourly PNs</td></tr><tr><td>Long Term Schedules Operational Schedule Report</td></tr><tr><td>RTUC Operational Schedule Report</td></tr><tr><td>PN and BOD data for the full trading day and day ahead</td></tr><tr><td>Hourly Forecast Imbalance Report</td></tr><tr><td>Four Day Rolling Wind Power Unit Forecast aggregated by Jurisdiction</td></tr><tr><td>Metered Generation by Jurisdiction</td></tr></table> <div>A review of the list of key reports required to achieve 75% of the target for this KPI will be conducted as part of the 2020/21 tariff period.</div> <div>In order to achieve 100% of this KPI, publication of complete and accurate market information in a timely manner as set out in the Trading and Settlement Code and I-SEM Data Publication Guide will be required. This will be based on the percentage of occurrences where such market information is published on time and is accurate and complete at the time of publication.</div>	Commercial Offer Data	Four Day Aggregated Rolling Wind Unit Forecast	Hourly Dispatch Instructions Report	Imbalance Price	Imbalance Price Supporting Information Report	Half Hourly PNs	Long Term Schedules Operational Schedule Report	RTUC Operational Schedule Report	PN and BOD data for the full trading day and day ahead	Hourly Forecast Imbalance Report	Four Day Rolling Wind Power Unit Forecast aggregated by Jurisdiction	Metered Generation by Jurisdiction	35%	90% ¹	100%
Commercial Offer Data																	
Four Day Aggregated Rolling Wind Unit Forecast																	
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Imbalance Price Supporting Information Report																	
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PN and BOD data for the full trading day and day ahead																	
Hourly Forecast Imbalance Report																	
Four Day Rolling Wind Power Unit Forecast aggregated by Jurisdiction																	
Metered Generation by Jurisdiction																	

¹ A maximum of 75% of the award can be considered only if the 90% lower bound target is met for each of the key reports listed as part of the KPI. In addition to this, if the 90% lower bound target is met for all reports required under the TSC and Data Publication Guide, 100% of the award can be achieved. The final amount awarded is dependent on where the outturn performance percentage is within the target bounds.

		<p>The requirement for accuracy entails the information contained in reports being correct at the time of publication, while the requirement for completeness entails reports containing full information as required, except where demonstrably outside of the Market Operator’s control.</p>			
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1. Introduction

1.1 Background

On 8 March 2019, the RAs published a Consultation Paper, SEM-19-011, concerning the Key Performance Indicators to apply to SEMO, the Single Electricity Market Operator. The Final Determination Paper for the SEMO price control from 2018-2021, SEM-18-003, outlined the SEM Committee's high-level views with respect to Key Performance Indicators to apply to SEMO but it was stated that further consultation was required on this issue in order to define their scope and parameters in the context of the new wholesale electricity market. This includes associated timelines and identifying appropriate weightings and targets for each indicator.

As part of the consultation process on the KPIs to apply under the current price control, SEMO was requested to submit a proposal for performance standards to apply under its price control, which was published with SEM-19-011.

The Consultation Paper presented a number of proposed changes from the eight KPIs outlined in SEM-18-003, particularly in relation to publication of key market information. Weightings and upper and lower targets for each KPI were also proposed, based on analysis of SEMO's past performance against KPIs applied in preceding price controls. Two options were presented for the application of targets for each KPI, the first involving the same targets being applicable for each remaining tariff period of the SEMO price control, with the second considering different targets being applied for each period to reflect the development of the market.

A total of 9 responses were received to the Consultation Paper, from;

- Bord Gáis Energy
- Electricity Association of Ireland
- Energia
- ESB GWM
- Power NI
- PPB
- SEMO
- SSE Airtricity
- One response marked as confidential

The SEM Committee's Decisions with respect to the definitions, weightings, targets and timing of the KPIs to apply to SEMO are outlined in this Decision Paper. The overall aim of the KPIs presented in this Decision Paper is to further incentivise a high standard of performance and service for the benefit of market participants and other stakeholders e.g. improving performance, promoting customer service, increasing efficiencies and value to customers.

1.2 Role of SEMO

SEMO has a number of responsibilities in the Single Electricity Market (SEM) and exists as a jurisdictional joint venture between EirGrid Plc and SONI Ltd, as Market Operator (MO) licence holders in ROI and NI respectively.

The current SEMO price control (SEM-18-003) which applies to SEMO accounts for the revised roles and responsibilities of SEMO in the current market, which went live on 1 October 2018. The roles and responsibilities of SEMO under the new market arrangements have been set out in a number of Decision Papers, the Trading and Settlement Code and in the Market Operator licences granted to EirGrid and SONI.

Under the previous price control framework which applied under the old set of market arrangements, SEMO was incentivised to manage performance through Key Performance Indicators (KPIs). These KPIs were aimed at improving performance, promoting customer service, increasing efficiencies and delivering value to customers. Between each price control from 2009, changes were made to the number of KPIs and their weightings to reflect SEMO's performance in line with achievable targets and the development of the market.

A key difference for KPIs to apply to SEMO within this 2018-2021 price control period as opposed to the previous price control period relates to SEMO's reporting requirements and the differences in the key market information it will need to publish under the new market arrangements.

2. KPI Parameters

2.1 Background

It was stated in SEM-18-003, the Final Determination for the SEMO Price Control, that further consultation was required on the KPIs to apply to SEMO in the new market, particularly in relation to the weightings and targets to apply to each indicator and the definitions of key market information and data provision. Given the period of time that has passed since the Price Control Decision Paper was published, respondents' were invited to comment on the continued applicability of the indicators proposed and how they should be specifically defined and measured. Therefore, the Consultation Paper considered the assumptions for KPIs to be applied to SEMO, including when a measure of performance should be taken for each KPI.

2.2 Summary of RAs Proposals

The assumptions for any KPIs applied to SEMO under the current price control were considered by the SEM Committee in SEM-18-003, which led to the following proposed parameters for KPIs;

1. Where applicable, metrics should be delivered within one hour of the targeted time.
2. External factors which are demonstrably outside of the Market Operator's direct control are to be excluded e.g. Limited Communication failure by Market Participants, late provision of data by the Meter Data Provider, Government policy changes, Regulatory Authorities' policy changes etc.
3. In terms of assessing the KPIs, a measure is to be taken at the end of each Quarter using the average value of each KPI over that period.
4. The KPI incentive pot will be set at 4% of total Opex revenue for each year. Any KPI reward will be recovered through an adjustment to the K-Factor.

In the Consultation Paper, the RAs did not propose any changes to parameters 1, 2, and 4 but noted that further consideration of parameter 3 was merited in terms of when a measure of performance against each KPI should be taken, noting SEMO's proposal in this area in SEM-19-011a. The view set out in SEM-18-003 was that a measure should be taken at the end of each quarter, based on the average value of each KPI over that period. This was based on the precedent from previous price controls.

An alternative was outlined based on SEMO's proposal to take a measure of performance at the end of each month, based on the average value of each KPI during this period. It was noted that this could potentially allow SEMO to access a higher KPI reward as failure to meet its targets within one or two months would not preclude SEMO receiving a KPI reward for that quarter.

2.3 Summary of Responses to Consultation Question 1

Consultation Question 1: Comments are invited from interested stakeholders on the parameter to be used for assessment of KPIs.

Under Option 1, a measure would be taken at the end of each quarter using the average value of each KPI over that period.

Under Option 2, a measure would be taken at the end of each month using the average value of each KPI over that period.

Overall, six respondents supported Option 1, for a measure to be taken at the end of each quarter using the average value of each KPI over that period. In their response, SEMO stated that they were in support of Option 2, whereby a measure should be taken at the end of each month using the average value of each KPI over that period. Another respondent also supports Option 2, as in their view it makes more sense to measure performance at the end of each month as sub-optimal performance is more likely to be ironed out over a longer period.

Energia's view is that a measure should be taken at the end of each quarter rather than at the end of each month, based on the rationale that if a measure is taken at the end of each month based on the average value of a KPI during that period, this could result in SEMO receiving a portion of the KPI reward even if they fail to meet the target in one or two months in the quarter. In their view, a quarterly measurement is more likely to incentivise SEMO to meet their KPI targets more consistently and for a longer period of time. SSE Airtricity are also of the view that a measure at the end of each quarter appears to be the most realistic option for the assessment of KPIs. In their view, there should be sufficient time between measurement periods to allow SEMO to address poor performance and see change. BGE's preference would be for a measure to be taken at the end of each quarter using the average value of each KPI over that period, as a quarterly assessment would allow SEMO additional time to address and fix issues and would not preclude SEMO from earning a reward if they failed to meet a target within 1-2 months. While a monthly assessment might place more pressure on SEMO to find solutions, this may lead to quick fixes which may not be the optimum solution in the longer term. As targets become more easily achievable, a move to a monthly assessment could be considered.

In their response, ESB GT provided an additional comment on the KPI implementation period, which in their view should apply from the start of the new market on 1 October 2018. In their view, SEMO should not be prevented from recovering an incentive payment if it achieved the appropriate standards during the first two quarters of the new market. In response to Consultation Question 1, ESB GT stated that a measure should continue to be taken on a quarterly basis on the average value of each KPI over that period. The introduction of a shorter length would be inconsistent with RAs

precedent with regards to performance monitoring. ESB GT also noted that taking a measure of performance at the end of each month based on the average value of each KPI during this period could allow SEMO to access an artificially higher KPI reward without necessarily performing any better.

ESB GT is also of the view that Parameter 1, which states that '*where applicable, metrics should be delivered within one hour of the targeted time*' should be reviewed as some reports should be delivered within a shorter timeframe, such as the five-minute balancing price. ESB GT also highlighted that there may be a delay between publication on SEMO's MPI and the SEMO website and stressed the importance of publishing on both platforms simultaneously to ensure transparency and a level playing field for current and prospective market participants.

Power NI stated that they support Option 1, involving a quarterly assessment of KPIs, as this is consistent with the approach adopted in the market prior to 1 October 2018 and provides an incentive for SEMO to perform at a high level over a longer time frame. PPB also support Option 1 as it gives SEMO an incentive to perform over a longer time period. PPB also suggested another option whereby SEMO could receive payments on a monthly basis but if they failed to keep performance high over the quarter, some of this payment could be clawed back.

In their response, EAI noted the view of their members that the performance of the market's IT Systems to date has been far from satisfactory and this is posing an issue for participants in terms of daily trading decisions, cash-flow and financial reporting. In their view, the performance of SEMO to date has been below participant's expectations and KPIs should be implemented and measured as early as practically possible. Similar views on this topic were expressed by a number of respondents to the paper.

2.4 RAs' Response

The RAs note that the majority of respondents support Option 1, for a measure of performance to be taken in each quarter using the average value of each KPI over that period, consistent with previous SEMO price controls. A number of reasons have been provided for this, including regulatory precedent for measurement of performance and the risk that monthly measurements may not incentivise SEMO to perform at a high level over a longer timeframe. A number of respondents also highlighted a potential issue whereby SEMO could receive a higher level of incentive payments through monthly measurements being taken rather than quarterly measurements, without necessarily improving on overall performance.

In considering this parameter, the RAs are conscious that any incentives applied to SEMO sufficiently encourage performance improvement over time. The RAs have considered a scenario whereby SEMO fails to meet its' KPI targets early in a quarter and whether this would reduce any incentive to

meet its targets for the rest of the quarter. In such an instance, application of monthly measurements of the average value of KPIs might be preferable. However, on balance, given respondents comments to the Consultation Paper and some of the concerns raised around incentivising performance over a longer time period, in the RA's view the continued application of a quarterly measurement is most practical at this time and has been effective in terms of providing a measurement and performance incentive to date.

In response to ESB GT's suggestion that the KPI implementation period should apply from the go-live date of the new market on 1 October 2018, the RA's are of the view this would be difficult to achieve in practice, as SEMO would not necessarily have been measuring KPIs according to the definitions which are presented in this Decision Paper. In response to the suggestion that Parameter 1 should be reviewed to accommodate some reporting requirements within a shorter timeframe, the RAs note this useful feedback and agree that this parameter may need to be refined in order to account for the greater diversity of reporting requirements under the new market arrangements. The RAs will consider these parameters and their applicability further as part of the next price control to apply from 2021. Respondents' comments in relation to publication of market information will be addressed further in Section 3 of this Decision Paper.

The RAs also note PPBs' suggestion whereby SEMO could receive payments on a monthly basis but if they failed to keep performance high over the quarter, money could be clawed back. As this would represent a more complex design for this parameter, it would need to be demonstrated that this solution would allow for a greater incentive than the application of measurement at the end of each quarter in order to be considered.

The RAs also note the feedback received from a number of respondents concerning performance of systems under the new market arrangements to date. While the KPIs outlined in this paper are an appropriate mechanism to incentivise improvements in performance, this does not account for the system issues that have arisen to date which SEMO are also incentivised to address in order to progress to normal market operations.

The RAs will review these issues in more detail as part of the yearly audit of compliance from the commencement of the new market arrangements. This audit will cover the operation of the Trading and Settlement Code and implementation of the operations, trading arrangements, procedures and processes under the Code by SEMO and a Consultation on the terms of reference for this audit will be published shortly. Interested stakeholders will be invited to provide comment on a number of options for the scope of the 2018/19 audit.

2.5 SEM Committee Decision

The following parameters will apply to KPIs for the current price control period;

1. Where applicable, metrics should be delivered within one hour of the targeted time.

2. External factors which are demonstrably outside of the Market Operator's direct control are to be excluded e.g. Limited Communication failure by Market Participants, late provision of data by the Meter Data Provider, Government policy changes, Regulatory Authorities' policy changes etc.
3. In terms of assessing the KPIs, a measure is to be taken at the end of each Quarter using the average value of each KPI over that period.
4. The KPI incentive pot will be set at 4% of total Opex revenue for each year. Any KPI reward will be recovered through an adjustment to the K-Factor.

3. KPI Definitions

3.1 Background

Eight KPIs were presented in the Final Determination for the SEMO Price Control, SEM-18-003. Within the SEMO KPI Consultation Paper, SEM-19-011, a number of revised definitions to each of these KPIs were outlined along with the rationale for these proposed changes. Comments were invited from interested stakeholders on the revised definitions of KPIs.

3.2 Summary of RAs' Proposals

Taking the eight KPIs which were set out in the SEMO price control decision paper (SEM-18-003), further considerations were made concerning the definition and content of KPIs with a number of proposals being made in the SEMO KPI Consultation Paper. In most cases, amendments to the definition of KPIs were proposed which included the following:

- Feedback was requested from interested stakeholders on whether the timelines for dealing with resettlement queries should also be considered as part of the 'SEMO Resettlement Queries' KPI or as a separate KPI.
- Two options were outlined for the definition of the 'Publication of Key Market Information' KPI; to include all reports which SEMO is required to publish within certain timelines as part of this indicator, or to focus on a specific subset of key market information.
- The RAs proposed the removal of the website availability KPI in order to allow for higher weightings to be applied to other indicators.
- The RAs proposed revising the 'Timely and accurate data provision for use in public user systems' KPI which related to publication of data on the website such that it can be accessed by both the RAs and market participants. The proposed revision was to focus on data provision and reporting to the RAs, SEM Committee and assisting the Market Monitoring Unit and be renamed "Timely information provision to the RAs and SEM Committee"

A more detailed description of the proposed changes and definitions for each indicator is provided below.

1. **Invoicing:** The RAs proposed further defining the Invoicing metric to include targets for publication of invoices and settlement documents.

KPI	Proposed Description
Invoicing/ settlement documents	<p>The percentage of occurrences where invoices/settlement documents to participants are published on time.</p> <ul style="list-style-type: none">• The target for the weekly energy markets and Variable Market Operator Charge invoices is 12:00 each Friday.

	<ul style="list-style-type: none"> • The target for Capacity settlement documents is 12:00 seven working days after the end of each month. • The target for the Fixed Market Operator Charge settlement documents is the first Friday after the end of the month at 12:00.
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2. **Credit Cover Increase Notices:** The RAs proposed further defining this metric to include specific targets for publication of Credit reports, including Credit Cover Increase Notices which inform market participants that their posted collateral cover is less than their required collateral cover.

KPI	Proposed Description
Credit Cover Increase Notices	<p>The percentage of occurrences where credit cover increase notices are published on time.</p> <p>Three credit reports should be issued each day, with publication of each required by 9.45am, 12.45pm and 4.15pm.</p>

3. **SEMO Resettlement Queries:** The RAs proposed to further define this metric to include clarification of how this should be measured where there are multiple upheld queries for one incident and one upheld query which references a number of days. Feedback was also requested from interested stakeholders on whether the timelines for dealing with resettlement queries should also be considered as part of this KPI or form another KPI.

KPI	Proposed Description
SEMO Resettlement Queries	<p>The number of upheld formal queries from market participants which have identified errors in settling the market which are attributed to SEMO's operations and processes, including defects and pricing issues.</p> <p>Correction of such errors is completed in either the scheduled Resettlement (M+4 and M+13) or in an ad hoc Resettlement.</p> <p>Measurement of this KPI is related to the number of SEMO upheld query incidents and Resettlements per Quarter.</p> <p>Multiple Upheld Queries for one incident shall be classified as one Upheld Query Incident. A Formal Query referencing a number of days shall be classified as Multiple Upheld Queries Incidents.</p>

4. **General Queries:** The RAs proposed revising the measurement of this KPI to the percentage of occurrences where a general query is not addressed within 20 business days.

KPI	Proposed Description
General Queries	The percentage of occurrences where a General Query is not addressed within 20 business days. A General Query is defined within this metric as any request logged at the SEMO helpdesk.

5. **System Availability:** The RAs proposed further definition of the metric to take into account the required availability for market systems under the responsibility of the Market Operator. It was proposed that planned or ad hoc outages would be removed from availability calculations.

KPI	Proposed Description
System Availability	<p>Availability of central market systems which the Market Operator has responsibility for according to their required availability. This is the ratio of the time systems are said to be in a functioning condition to the total time they are required to be available and covers the following;</p> <ol style="list-style-type: none"> 1. Balancing Market systems on a 24-hour basis Monday to Sunday. 2. Settlement and Credit Clearing system on a 24-hour basis Monday to Sunday. 3. Reporting and Market Monitoring system on a 24-hour basis Monday to Sunday. 4. Registration system between 9am-5pm Monday to Friday. 5. Capacity Auction Platform availability as required during each auction.

6. **Timely Publication of Key Market Information:** The RAs set out two options for defining measurable targets for this indicator. For both option 1 and 2 it was proposed that the KPI would require all data to be accurate at the time of publication.

The first option outlined was to include all reports which SEMO is required to publish within certain timelines as part of this indicator, both ex-ante and ex-post publications. The I-SEM Data Publication Guide and Appendix E of Part B of the Trading and Settlement Code refer to specific requirements to ensure that key market information is published according to scheduled timelines. Under this first option, the definition of timely reporting of key market information would be *'Publication of ex-ante and ex-post market information in a timely manner relating to the capacity and balancing markets, as set out in the Trading and Settlement Code and ISEM Data Publication Guide.'*

The second option which was considered was to identify the most important information in order to include measurable targets for publication of certain reports within a particular timeframe for this indicator. A number of potential publications to include under this second option were provided for comment. Under this second option, the definition of timely reporting of key market information proposed was *'Publication of the following market information in a timely manner as set out in the Trading and Settlement Code'*, with an

associated list of required market information under this KPI. This would be measured based on the percentage of occurrences where the market information listed as part of the KPI is published on time and accurate at the time of publication.

Proposed ex-ante and ex-post information to include as part of this KPI was presented under the second option, including;

- Commercial Offer Data
- Four Day Aggregated Rolling Wind Unit Forecast
- Hourly Dispatch Instructions Report
- Imbalance Price
- Imbalance Price Supporting Information Report
- Half Hourly PNs
- Long Term Schedules Operational Schedule Report
- RTUC Operational Schedule Report
- PN and COD data for the full trading day and day ahead
- Hourly Forecast Imbalance Report
- Four Day Rolling Wind Power Unit Forecast aggregated by Jurisdiction
- Metered Generation by Jurisdiction

KPI	Proposed Description
Timely publication of key market information	<p>The RAs have identified two options for the definition of this indicator and have added a requirement around the accuracy of such publications;</p> <p>Option 1: <i>'Publication of ex-ante and ex-post market information in a timely manner relating to the capacity and balancing markets, as set out in the Trading and Settlement Code and ISEM Data Publication Guide.'</i> This would be measured based on the percentage of occurrences where all reports are published on time and accurate at the time of publication.</p> <p>Option 2: <i>Publication of the following market information in a timely manner as set out in the Trading and Settlement Code'</i>, with an associated list of required market information under this KPI. This would be measured based on the percentage of occurrences where the market information listed as part of the KPI is published on time and accurate at the time of publication.</p>

- 7. Website Availability:** The RAs proposed that the indicator related to website availability should be removed in order to allow higher weightings to be applied to other indicators.

KPI	Proposal
Website availability	The RAs are seeking feedback from interested stakeholders on whether this KPI is required or if it should be removed to allow for higher weightings being applied to other indicators.

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- 8. Timely and accurate data provision for use in public user systems:** The RAs proposed changing this KPI from timely reporting of accurate data to the website such that it can be accessed by both the RAs and market participants, to focus on data provision to the RAs and SEM Committee and assisting the Market Monitoring Unit. The RAs noted that some information provision under the revised indicator would be ad hoc in nature, making it difficult to define a specific target, but requested feedback on the revised definition.

KPI	Description (as per SEM-18-003)	Changes Proposed
Timely and accurate data provision for use in public user systems	Timely posting of accurate data to the website such that the MMU and market participants are able to smoothly automate (from the client side) the accessing of data reports from SEMO.	<p>It is proposed that this indicator is revised to focus on reporting to the RAs and assisting the Market Monitoring Unit.</p> <p>On this basis, the KPI would be called 'Timely information provision to the RAs and SEM Committee' and would be defined as 'Timely provision of detailed quarterly reports to the RAs on market performance and trends and provision of additional data reporting requested by the RAs. This would also require timely reporting to the RAs where market anomalies and potential instances of market abuse and/or insider trading have been identified.'</p> <p>This would be measured against specific submission dates for quarterly reports and provision of information within the timelines set out by the RAs for any ad hoc information requests.</p> <p>Timely reporting where market anomalies have been identified would entail notification within 1 day of the issue being identified.</p>

Each of the Consultation Questions presented in relation to KPI definitions is dealt with individually from Section 3.3 to Section 3.14 of this paper.

3.3 Summary of Responses to Consultation Question 2

Consultation Question 2: Should the timelines for addressing resettlement queries be considered under the ‘SEMO Resettlement Queries’ indicator or a separate indicator?

In response to Consultation Question 2, SEMO stated that it was unclear what the RAs are seeking to address by proposing to include timelines. In their response, ESB GT stated that they would like to see a definition of what ‘address’ means in the context of this KPI, as the meaning of address could change the determination of the incentive and how it should be measured.

One respondent was of the view that a separate indicator should be used for timelines for addressing resettlement queries and that ‘Resettlement Queries’ is a fundamental KPI considering the number of resettlement queries since the new market went live.

Energia were of the view that it would be logical to have the timeline for addressing a resettlement query, as defined within the TSC, referred to within the definition of this KPI.

SSE Airtricity support the revised description of the ‘Resettlement Queries’ KPI as it references defects and pricing issues, however greater clarity was requested regarding how multiple upheld queries are determined to be one upheld query. In SSE’s view the current definition also lacks clarity as to how highly material settlement queries should be dealt with. SSE requested consideration of a materiality threshold under which significant queries should be monitored with specific targets for delivery, under a separate indicator.

BGE agrees with the changes proposed for the ‘Resettlement Queries’ KPI but requested confirmation that upheld formal queries will include, but not be limited to, defects and pricing issues. With regard to the timelines for addressing resettlement queries, BGE are of the view that these could be dealt with in a separate KPI, to address timing from the perspective of how long it takes to resolve an issue as well as how quickly that resolution is implemented. In their view this could be applied if a query was both resolved within 20 business days and where resettlement would be carried out on an ad-hoc basis falling into the next timetabled settlement run. In this case, zero reward would apply for any resettlement queries not resolved within 20 business days and where resettlement forms part of the solution, not implemented in re-runs in an ad hoc or M+4 basis.

In Power NI’s view, the timelines for addressing resettlement queries are set out in the TSC and therefore do not need to be included in this indicator. PPB also noted that the timelines should be as set out in the TSC and that the purpose of this KPI is to incentivise the quality of the settlement process and minimise the number of resettlements.

3.4 RAs’ Response

Overall, two respondents were of the view that timelines for addressing resettlement queries should be considered under a separate KPI, while a number of respondents noted that these timelines should reflect the requirements as set out in the TSC and do not necessarily need to be outlined

separately. The RAs are conscious of the importance of this KPI given the number of resettlement queries since go live. At this stage, the RAs are not minded to introduce an additional KPI related to the timelines for addressing resettlement queries given the challenging requirements and targets which have been set out in this Decision Paper. In relation to the timelines for Settlement Queries, section G.3.2 of the TSC states that;

‘The Market Operator must resolve a Settlement Query within one month after the Settlement Query is raised with it unless the Party concerned agrees to give the Market Operator more time (not exceeding 10 Working Days) to resolve the Settlement Query. If the Market Operator does not resolve the Settlement Query within one month or such longer period, then it shall be deemed to give rise to a Dispute and the provisions of section B.19 shall apply.’

In relation to SSE Airtricity’s suggestion to include consideration of a materiality threshold within this KPI or a separate KPI, under which significant queries should be monitored with specific targets for delivery, the RAs note that section G.3.2 of the TSC also addresses requirements for the Market Operator with regard to Settlement Items with Low Materiality and High Materiality.

SSE requested further clarity on how multiple upheld queries are determined to be one upheld query. The aim of this KPI is to help ensure the market is settled correctly through incentivising a reduction in the number of SEMO related issues. Therefore Upheld Queries which relate to the same incident will not be classified as separate Upheld Query Incidents for the measurement of this KPI, so as to avoid this KPI being affected simply by the number of Queries raised in relation to an incident rather than the overall number of incidents. If a query referencing a number of days is upheld, this is classified as Multiple Upheld Queries Incidents.

In response to BGE’s request for confirmation that that upheld formal queries will include, but not be limited to, defects and pricing issues, as per section G.3.2.1 of the TSC, the RAs confirm that a Settlement Query may be raised in respect of any element of data included in a Settlement Statement.

3.5 SEM Committee Decision

The description of the ‘SEMO Resettlement Queries’ will be ‘The number of upheld formal queries from market participants which have identified errors in settling the market which are attributed to SEMO’s operations and processes, including defects and pricing issues. Correction of such errors is completed in either the scheduled Resettlement (M+4 and M+13) or in an ad hoc Resettlement.

Measurement of this KPI is related to the number of SEMO upheld query incidents and Resettlements per Quarter. Multiple Upheld Queries for one incident shall be classified as one Upheld Query Incident. A Formal Query referencing a number of days shall be classified as Multiple Upheld Queries Incidents.

3.6 Summary of Responses to Consultation Question 3

Consultation Question 3: The RAs have identified two options for the definition of the ‘Timely Publication of Key Market Information’ KPI and have added a requirement around the accuracy of publications.

Feedback is requested from interested stakeholders on whether this should be measured against all required publications (Option 1) or against a specific list of key market information (Option 2). Feedback is also requested on the RAs’ proposed list of key market information.

In SEMO’s view, a limited and specific set of reports should be included in this KPI target as setting a target against a broad range of reporting requirements would not be specific or achievable. In their response SEMO provided a list of the following reports which SEMO could commit to publishing;

Report Name	MPI Ref	Website Ref
Commercial Offer Data	REPT_013: Member Public REPT_053: Member Private	BM-034
Four Day Aggregated Rolling Wind Unit Forecast	REPT_028	BM-013
Hourly Dispatch Instructions Report	REPT_102	BM-160
Imbalance Price	Settlements (30 min): REPT_009 Pricing (5-min): REPT_008	Settlements (30 min): BM-026 Pricing (5-min): BM-025
Imbalance Price Supporting Information Report	REPT_050	BM-027
Half Hourly PNs	REPT_052: PN Report – Member Public	BM-023: Final PN Report BM-020: Aggregated Final PN
LTS Operational Schedule Report	REPT_001b	BM-162
RTUC Operational Schedule Report	REPT_002b	BM-163
PN and BOD data	PN reports listed above COD: REPT_013: COD Report, Member Public REPT_053: COD Report, Member Private	PN reports listed above COD BM-034

In one respondent’s view, this KPI should be measured against a key list of reports with the following list proposed;

- LTSD Operational Schedule
- RTD Operational Schedule
- RTC Operational Schedule
- Daily Commercial Offer Data
- Daily Physical Notification
- Daily Meter Data D1
- Daily Meter Data D5
- Daily Technical Offer Data
- Daily Dispatch Quantity

- SR Bal Imb P48, SS Bal Imb P48, SD Bal Imb P48,
- Daily Load Forecast
- 30 Minute Average Imbalance Price
- Outturn Availability
- 5 Min Imbalance Price Supp Info
- Four Day Aggregated Rolling Wind Unit Forecast
- Hourly Dispatch Instructions Report
- Hourly Forecast Imbalance Report.

The respondent also stated that in terms of provision of accurate information, where inaccurate reports arise due to a reported bug against a key report, it is the responsibility of SEMO to fix the issue urgently.

SSE Airtricity stated in their response that the realistic option would be for the KPI to list the specific reports that need to be met under this indicator, ensuring such reports need to be published in a timely manner in order to meet the KPI target. They noted that this means that the list would not be completely exhaustive and additional reports may need to be added in future. SSE Airtricity also considers that greater detail on disputes should be included in the list of 'key market information' to be published as part of this KPI. In their view, the high-level email circulars regarding the count of disputes currently being handled by SEMO do not completely reflect the requirements in the TSC which states '*A Notice of Dispute may be served on any number of Parties. Where the Market Operator reasonably determines that the resolution of a Disputed Event will impact a third Party who has not been served a Notice of Dispute, the market Operator will inform that third Party of the existence, nature and progress of the Dispute, while maintaining the confidentiality of the Disputing Parties*'. In their view, the majority of market disputes raised with SEMO impact market participants and SSE would welcome greater disclosure relating to disputes. Greater detail concerning disputes would provide market participants, RAs and the MMU with transparency relating to this process and highlight trends.

In Energia's view, the 'timely publication of key market information' KPI should relate to all reports in relation to the balancing and capacity markets that SEMO are required to publish, rather than a subset of selected publications. Each of these reports have a relevant timeline for publication and it would be appropriate to measure this KPI against such timelines. Energia's view is that it would not be appropriate to apply a subset of data reports as market participants will have different views and opinions as to what constitutes the most important data reports to be published by SEMO. To apply this KPI to a selected set of reports deemed more important than others would not treat market participants in an equitable and fair manner.

In their response, BGE noted their concerns regarding the number of defects and system improvement/implementation delays which are hindering the efficient running of the market. In their view, while SEMO provides an overview of items which are due to be fixed and implemented in their system through the weekly Known Issues Report, more steps could be taken to enhance transparency of what defects or issues are known to SEMO and will need to be fixed. BGE requested that SEMO publishes a detailed plan of all known issues and defects along with dates as to when the item will be resolved within systems or otherwise. BGE view this plan as a gateway (i.e 'pass threshold') to SEMO being able to then earn an incentive payment under this KPI.

BGE supports the definition of the KPI in terms of information being published in a timely and accurate manner but also suggested that this definition should include the requirement for information to be 'complete' at the time of publication in light of a number of gaps seen in information currently being published. BGE's preference is that the measurement taken for this KPI is against all required publications as opposed to a specific list of publications. If a measurement is taken against a specific list of information there is a risk that a lower focus will be placed on delivering information outside of the KPI. Should new reports be required, they may not be progressed immediately if they are not included in a specific list under this KPI. In BGE's view, over time consideration could be given to focusing on a narrower set of information if for example there were persisting gaps in some areas of information. Narrowing the KPI to a specific list raises the risk of overlooking important information at this point in time and BGE cautioned against deciding what information is more important. BGE provided the example of the report on rolling demand forecast which was not included on the list and their view that this is an important data item.

In ESB GT's view, all data reports which SEMO is required to publish as key market information should be included in this KPI and importance should be placed on the accuracy of these reports as they are used in making commercial trading decisions. On this basis, ESB GT propose that the 'accuracy' of the publications should be included in this incentive and detail should be provided on how the accuracy of publications should be measured.

Power NI considers that the metric should apply to all requirements contained within the TSC and Data Publication Guide, as these publication requirements were carefully considered during the I-SEM design. In their view, it would be inequitable to give priority to certain indicators over others and SEMO are mandated to deliver on all reporting needs of the market. PPB also supports Option 1, on the basis that different participants require different reports, with careful consideration given during the design phase to establish the list of reports to be published and the timescales for these.

3.7 RAs' Response

The RAs note that three respondents, SEMO, SSE Airtricity and one confidential respondent, support the application of a limited set of key reports as part of the measurement of this indicator. The majority of respondents stated that it would be preferable for all of SEMO's publication requirements under the TSC and in the Data Publication Guide to be measured under this indicator, arguing that these publication requirements were carefully considered during the I-SEM design and it would be inequitable to give priority to certain indicators over others as different participants may have different data requirements. Respondents also highlighted the risk that if a limited set of reports are required, this may not incentivise wider reporting requirements or timely publication of any new reports.

The RAs understand the importance of this KPI for market participants and are also cognisant of ensuring that this KPI is specific, measurable and achievable while not impacting on SEMO's broader reporting requirements. The RAs are of the view that it would be practical to focus on a specific set of reporting requirements under this indicator, at least for the remaining period of the current SEMO price control, but take on board respondent's views that all reporting requirements should be

adhered to. In order to address concerns raised by a number of respondents the RAs have taken a number of steps to assess the key reports required by market participants in the short term while also ensuring SEMO's broader reporting requirements are included as part of the KPI;

1. The RAs have revised the proposed indicator to take account of the preference of the majority of respondents for all of SEMO's publication requirements to be measured under this KPI. The measurement of this indicator will be split into two elements; the first element, where the market information listed as part of the KPI is published on time and accurate at the time of publication, will be measured in order to achieve a maximum of 75% of the award under this KPI. The second element, which will allow SEMO to achieve the remaining 25%, will be measured based on the percentage of occurrences where all reports required under the TSC and data publication guide are published on time and accurate at the time of publication. In effect, this combines the two proposals considered in the Consultation Paper but weights the measurement and associated award towards a key set of reports.
2. Data was requested from SEMO on the number of queries received to date on each report, either related to publication timelines, or queries on data, to use as a proxy for the key market information currently required by market participants.
3. The RAs recognise that different market participants may have different reporting requirements and that the specification of a key list of reports to be measured under this indicator until the next SEMO price control in 2021 may not account for changes to SEMO's reporting requirements during this time. On this basis, this KPI will include a provision for review of the list of key reports required to achieve 75% of the target for this KPI as part of the 2020/21 tariff period.

A number of respondents supported the requirement for reports to be timely and accurate, while ESB GT suggested that detail of how the accuracy of publications should be measured should be included as part of the KPI. BGE also suggested that this definition should include the requirement for information to be 'complete' at the time of publication. The RAs have reflected these proposals in the final revisions to the definition of this indicator.

With regard to the concerns raised by BGE on the number of defects and system implementation delays to date and the request for SEMO to publish a detailed plan regarding all known defects or issues, the definition of additional SEMO reporting requirements is out of scope of the definition of Key Performance Indicators, however the RAs note the concern raised by BGE and a number of other respondents in this area.

3.8 SEM Committee Decision

The description of 'Timely publication of key market information' will be as follows;

Publication of complete and accurate market information as specified in the table below in a timely manner will be required in order to achieve 75% of this KPI. This will be measured based on the

percentage of occurrences where the market information listed as part of the KPI is published on time and is accurate and complete at the time of publication.

Commercial Offer Data
Four Day Aggregated Rolling Wind Unit Forecast
Hourly Dispatch Instructions Report
Imbalance Price
Imbalance Price Supporting Information Report
Half Hourly PNs
Long Term Schedules Operational Schedule Report
RTUC Operational Schedule Report
PN and BOD data for the full trading day and day ahead
Hourly Forecast Imbalance Report
Four Day Rolling Wind Power Unit Forecast aggregated by Jurisdiction
Metered Generation by Jurisdiction

A review of the list of key reports required to achieve 75% of the target for this KPI will be conducted as part of the 2020/21 tariff period.

In order to achieve 100% of this KPI, publication of complete and accurate market information in a timely manner as set out in the Trading and Settlement Code and I-SEM Data Publication Guide will be required. This will be based on the percentage of occurrences where such market information is published on time and is accurate and complete at the time of publication.

The requirement for accuracy entails the information contained in reports being correct at the time of publication, while the requirement for completeness entails reports containing full information as required, except where demonstrably outside of the Market Operator's control.

3.9 Summary of Responses to Consultation Question 4

Consultation Question 4: The RAs are minded to revise the KPI on 'Timely and accurate data provision for use in public user systems' to 'Timely Information Provision to the RAs and SEM Committee'. This would be measured based on provision of market information requested by the RAs within a set timeframe. Feedback is invited on this proposal.

In their response, SEMO noted their concern that this KPI is not specific enough to be measurable and achievable and that further engagement was required on this indicator. SEMO also noted that reports associated with the ex-ante markets are the responsibility of SEMOpx and reports associated with the capacity market are the responsibility of the TSOs to produce and that SEMO could not accept responsibility for delays outside of its control.

A respondent stated that they see very little benefit to the Market as a whole in having the RAs utilising SEMO resources to research market anomalies and that an additional KPI should not be introduced for provision of information to the RAs and SEM Committee.

Energia stated that they were opposed to the proposed change to this KPI and that this proposal fails to recognise that market participants bear the cost of any failure by SEMO to provide timely and accurate information. Energia recommended that the KPI either remains in line with the original definition or that the original KPI is widened to include an additional requirement to provide information to the RAs.

In SSE's view, the ad hoc nature of RA, MMU or SEM Committee requests for information would not lend itself well to a KPI and the provision of information would appear to be a matter for licence compliance rather than something that should be incentivised. SSE stated that it may make sense to apply such a KPI in future, once the market is more experienced.

In BGE's view, if the KPI on 'timely publication of key market information' is applied to all reports, this should provide sufficient market information and in this instance they would support this proposed change. If a more limited set of information is required under the 'timely publication of key market information' KPI, BGE would not support the revision to this KPI. BGE also suggested that a requirement for the information to be accurate in addition to being timely and complete is added to the performance description.

ESB GT is not in favour of the introduction of this revised KPI and in their view it would duplicate work being undertaken by the Market Monitoring Unit (MMU) and obligated parties providing market monitoring and surveillance such as SEMOpx. In ESB GT's view, all information provided by SEMO should be in a format that is accessible to all market participants and not just the MMU and in the interest of transparency and clarity, the existing KPI on 'timely and accurate data provision for use in public user systems' should be retained.

Power NI is not in support of the removal of the requirement on SEMO to publish data to public user systems and suggest that the original KPI is augmented with the additional requirement proposed in the Consultation Paper. Public provision of information is important in particular for participants that may not have extensive IT solutions in place. PPB noted that the removal of the requirement to ensure timely and accurate data provision for use in public user systems would be detrimental to participants who rely on the website for their source of information, and do not agree with the removal of this requirement.

3.10 RAs' Response

The RAs note the feedback received from respondents concerning the difficulty of ensuring this indicator is specific or measurable. The RAs noted in the Consultation Paper that the work items proposed as part of the revised KPI would be ad-hoc in nature, making it difficult to define a specific target for this KPI. On the basis of further engagement with SEMO on this matter and the responses received the RAs will not introduce this revised KPI at this time and the MMU will further engage

with SEMO on the aims discussed in the Consultation Paper to provide information and assist the MMU.

While recognising some respondents proposed retaining the original KPI, 'Timely and accurate data provision for use in public user systems', the RAs do not see significant added benefit to retaining this KPI. Reasons for this view include the revisions to the KPI on 'Timely publication of key market information' which has been strengthened to require the publication of complete and accurate market information in a timely manner. In addition, the 'System Availability' KPI has been revised in this Decision Paper to include a requirement for website availability. Furthermore, the removal of this KPI at this stage of the market will allow for a more focused set of KPIs with comparatively higher weightings to be implemented.

Respondents comments in relation to website availability will be addressed in Section 3.12 where the final definitions of KPIs which have not yet been discussed are outlined. Given that the standalone KPIs on 'Website Availability' and 'Timely and accurate data provision for use in public user systems' are not being retained, the 'System Availability' KPI has been expanded to include a requirement for website availability given the focus on website availability in ESB GT's response and the point raised by Power NI that some participants may rely on the website for information.

3.11 SEM Committee Decision

The KPI on 'Timely and accurate data provision for use in public user systems' and the revised KPI on 'Timely information provision to the RAs and SEM Committee' will not be included in the final set of KPIs to be applied to SEMO under the current price control.

3.12 Summary of Responses to Consultation Question 5

Consultation Question 5: Feedback is invited from stakeholders on each of the KPIs and definitions of KPIs proposed to apply to SEMO from Q2 2019. The RAs request feedback from interested stakeholders on any additional KPIs to apply to SEMO or any revision to the proposed definitions which are summarised in Table 3.

In their response, SEMO noted that their KPI suggestions submitted and published with SEM-19-011 are, in their view, the most appropriate set of KPIs for the 2018-2021 Price Control Period. In relation to the proposed KPI on 'System Availability', in their response, SEMO stated that only the Balancing Market Management System is supported on a 24-hour basis Monday to Sunday. Currently, SEMO's settlement systems and systems supporting Reporting and Market Monitoring are supported 9am to 5pm Monday to Friday. SEMO recommended that the current support approach should continue.

Energia highlighted their view that the provision of fully functioning and reliable systems, primarily in respect of pricing and settlement, should be considered as a priority but noted the importance of having appropriate and measurable KPIs in place.

Another respondent communicated their view that the KPIs proposed should apply to SEMO from 1st October 2018, given market participants have been exposed to the full risk since market go live.

In their response, SSE Airtricity were generally supportive of the KPIs as drafted, noting comments that they provided in relation to specific drafting of some definitions. SSE Airtricity also welcomed the proposal for KPIs to be applied from Q2 2019. SSE Airtricity would support the removal of the KPI relating to website availability if the KPI relating to timely information being provided to facilitate public user systems is retained in its original format. SSE Airtricity stated that they would also welcome a KPI relating to pricing queries in addition to settlement and general queries, in light of the tight timescales associated with SEMO engaging and responding to these queries.

In response to this consultation question, BGE noted that it had provided its view on KPIs related to 'SEMO re-settlement', 'Timely Publication of Key Market Information' and 'Timely and accurate data provision for use in public user systems' in response to preceding consultation questions. In relation to the System Availability KPI, BGE support the suggested refinement to the description to better reflect the timing of the relevant systems' availability. BGE are of the view that given the 'Timely publication of key market information KPI' a separate 'website availability' KPI may not be as relevant. However, BGE are of the view that if the stand-alone status of this KPI is removed, it should at least form part of the measurement of performance assessment under the 'Timely publication of key market information' KPI.

With respect to the 'General queries' KPI, BGE support the reduction from 30 business days to 20 business days for dealing with the query but think that the KPI would be more effective if the obligation was to 'resolve' a query rather than to 'address' it. BGE also noted a discrepancy between

the description for assessment purposes (percentage of occurrences where a General Query is not addressed within 20 business days) compared to the proposed weightings and targets table (which references the percentage answered within 20 business days). With respect to the 'Invoicing' KPI and 'Credit Cover Increase Notices' KPI, BGE believes that the requirement for invoices and CCINs to be accurate and complete should be added.

ESB GT believes that website availability is an important KPI as there should be a focus on maintaining publicly accessible information. In their view, non-MPI access holders should be able to access the same data as incumbent market participants, with all reports available via the website. In ESB GT's view, the website should be explicitly referenced in the KPIs.

In relation to the Invoicing KPI, Power NI highlighted that capacity, which is invoiced monthly, is included with energy within a single invoice and the Fixed Market Operator invoice is handled in the same manner. On this basis, SEMO should produce two invoices per week, one for energy/capacity and one for market operator fees.

3.13 RAs' Response

In the preceding sections of this decision paper, the KPIs on 'SEMO Resettlement Queries', 'Timely publication of key market information' and 'Timely information provision to the RAs and SEM Committee' were discussed with SEM Committee decisions for each of these provided.

Final definitions of the KPIs on 'Invoicing', 'Credit Cover Increase Notices', 'General Queries' and 'System Availability' are discussed here in relation to changes to the proposals outlined in the Consultation Paper and responses received.

SEMO's response to the Consultation Paper in relation to the System Availability KPI which referenced the availability of the Balancing Market, Settlement and Credit Clearing system, Reporting and Market Monitoring System, Registration system and Capacity Auction Platform noted that only the Balancing Market Management System is supported on a 24-hour 7-day basis. Therefore, in their view, any requirement for changes to these support periods would require additional resources and an understanding of systems impacts. The RAs have taken on board this feedback and adjusted the System Availability KPI to reflect the current support in place. The Capacity Auction Platform availability requirement has been removed as the auction process is set out in the Capacity Market Code and is a TSO responsibility rather than SEMO's direct responsibility. In relation to a number of respondents' comments concerning the importance of website availability, the final definition of this System Availability KPI includes a requirement for the website to be supported from 8am to 6pm between Monday and Friday.

In relation to the 'General Queries' KPI, the RAs described this KPI as the percentage of occurrences where a General Query is not addressed within 20 business days. In response to BGE's proposal to change the wording of this indicators to 'resolve' a query rather than to 'address' it, in the RAs' view the word 'resolve' better reflects the intent of this KPI and on this basis have amended the description.

With regard to BGE's proposal for a requirement for invoices and Credit Cover Increase Notices to be accurate and complete, this may be difficult to measure in practice for the purpose of KPI reporting as it would involve assessment of all invoices and Credit Cover Increase Notices for all market participants in a Quarter. While the requirement for accuracy and completeness was included as part of the 'Timely reporting of key market information KPI', different reports would not be required for different market participants in this instance.

In relation to Power NI's statement regarding the invoices SEMO should produce for energy, capacity and market operator fees, the RAs are of the view that this is sufficiently described within the definition of the KPI.

Table 1 below summarises the decisions outlined in relation to the KPIs to be applied to SEMO and their definitions.

3.14 SEM Committee Decision

The final description of each of the KPIs addressed in this Section is detailed below;

Invoicing and settlement documents: The percentage of occurrences where invoices and settlement documents to participants are published on time.

- The target for the weekly energy markets and Variable Market Operator Charge invoices is 12:00 each Friday.
- The target for Capacity settlement documents is 12:00 seven working days after the end of each month.
- The target for the Fixed Market Operator Charge settlement documents is the first Friday after the end of the month at 12:00.

General Queries: The percentage of occurrences where a General Query is not resolved within 20 business days. A General Query is defined within this metric as any request logged at the SEMO helpdesk.

Credit Cover Increase Notices: The percentage of occurrences where credit cover increase notices are published on time. Three credit reports should be issued each day, with publication of each required by 9.45am, 12.45pm and 4.15pm.

System Availability: Availability of central market systems which the Market Operator has responsibility for according to their required availability. This is the ratio of the time systems are said to be in a functioning condition to the total time they are required to be available and covers the following;

1. Balancing Market systems on a 24-hour basis Monday to Sunday.
2. Settlement and Credit Clearing system between 9am-5pm Monday to Friday.

3. Reporting and Market Monitoring system between 9am-5pm Monday to Friday.
4. Registration system between 9am-5pm Monday to Friday.
5. Website availability between 8am-6pm Monday to Friday.

SEMO KPIs		
Number	SEMO KPIs	Definition
1	Invoicing	<p>The percentage of occurrences where invoices to participants are published on time.</p> <ul style="list-style-type: none"> The target for the weekly energy markets and Variable Market Operator Charge invoices is 12:00 each Friday. The target for Capacity settlement documents is 12:00 seven working days after the end of each month. The target for the Fixed Market Operator Charge settlement documents is the first Friday after the end of the month at 12:00.
2	Credit Cover Increase Notices	<p>The percentage of occurrences where credit cover increase notices are published on time.</p> <ul style="list-style-type: none"> Three credit reports should be issued each day, with publication of each required by 9.45am, 12.45pm and 4.15pm.
3	SEMO Resettlement Queries	<p>The number of upheld formal queries from market participants which have identified errors in settling the market which are attributed to SEMO's operations and processes, including defects and pricing issues. Correction of such errors is completed in either the scheduled Resettlement (M+4 and M+13) or in an ad hoc Resettlement.</p> <p>Measurement of this KPI is related to the number of SEMO upheld query incidents and Resettlements per Quarter. Multiple Upheld Queries for one incident shall be classified as one Upheld Query Incident. A Formal Query referencing a number of days shall be classified as Multiple Upheld Queries Incidents.</p>

4	General Queries	The percentage of occurrences where a General Query is not resolved within 20 business days. A General Query is defined within this metric as any request logged at the SEMO helpdesk.												
5	System Availability	<p>Availability of central market systems which the Market Operator has responsibility for according to their required availability. This is the ratio of the time systems are said to be in a functioning condition to the total time they are required to be available and covers the following;</p> <ul style="list-style-type: none">6. Balancing Market systems on a 24-hour basis Monday to Sunday.7. Settlement and Credit Clearing system between 9am-5pm Monday to Friday.8. Reporting and Market Monitoring system between 9am-5pm Monday to Friday.9. Registration system between 9am-5pm Monday to Friday.10. Website availability between 8am-6pm Monday to Friday.												
6	Timely publication of key market information	<p>Publication of complete and accurate market information as specified in the table below in a timely manner will be required in order to achieve 75% of this KPI. This will be measured based on the percentage of occurrences where the market information listed as part of the KPI is published on time and is accurate and complete at the time of publication.</p> <table><tr><td>Commercial Offer Data</td></tr><tr><td>Four Day Aggregated Rolling Wind Unit Forecast</td></tr><tr><td>Hourly Dispatch Instructions Report</td></tr><tr><td>Imbalance Price</td></tr><tr><td>Imbalance Price Supporting Information Report</td></tr><tr><td>Half Hourly PNs</td></tr><tr><td>Long Term Schedules Operational Schedule Report</td></tr><tr><td>RTUC Operational Schedule Report</td></tr><tr><td>PN and COD data for the full trading day and day ahead</td></tr><tr><td>Hourly Forecast Imbalance Report</td></tr><tr><td>Four Day Rolling Wind Power Unit Forecast aggregated by Jurisdiction</td></tr><tr><td>Metered Generation by Jurisdiction</td></tr></table>	Commercial Offer Data	Four Day Aggregated Rolling Wind Unit Forecast	Hourly Dispatch Instructions Report	Imbalance Price	Imbalance Price Supporting Information Report	Half Hourly PNs	Long Term Schedules Operational Schedule Report	RTUC Operational Schedule Report	PN and COD data for the full trading day and day ahead	Hourly Forecast Imbalance Report	Four Day Rolling Wind Power Unit Forecast aggregated by Jurisdiction	Metered Generation by Jurisdiction
Commercial Offer Data														
Four Day Aggregated Rolling Wind Unit Forecast														
Hourly Dispatch Instructions Report														
Imbalance Price														
Imbalance Price Supporting Information Report														
Half Hourly PNs														
Long Term Schedules Operational Schedule Report														
RTUC Operational Schedule Report														
PN and COD data for the full trading day and day ahead														
Hourly Forecast Imbalance Report														
Four Day Rolling Wind Power Unit Forecast aggregated by Jurisdiction														
Metered Generation by Jurisdiction														

		<p>A review of the list of key reports required to achieve 75% of the target for this KPI will be conducted as part of the 2020/21 tariff period.</p> <p>In order to achieve 100% of this KPI, publication of complete and accurate market information in a timely manner as set out in the Trading and Settlement Code and I-SEM Data Publication Guide will be required. This will be based on the percentage of occurrences where such market information is published on time and is accurate and complete at the time of publication.</p> <p>The requirement for accuracy entails the information contained in reports being correct at the time of publication, while the requirement for completeness entails reports containing full information as required, except where demonstrably outside of the Market Operator's control.</p>
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Table 1

4. KPI Weightings

4.1 Background

The Consultation Paper proposed weightings for each key performance indicator, based on a review of the weightings applied to the KPIs for SEMO in the SEM, a review of SEMO's performance between 2013 and 2016 and an assessment of each indicator based on participant's responses to the SEMO Price Control Draft Determination.

4.2 Summary of RAs' Proposals

The following proposals in relation to each of the seven KPIs proposed were outlined;

1. *Invoicing*: The RAs understand that timely invoicing is important both from a balance of market payments perspective and for practical purposes for market participants. However, given that the target for this KPI was consistently met by SEMO between 2013 and 2016 it was proposed that the weighting for this indicator be reduced to 15%.
2. *Credit Cover Increase Notices*: Noting the importance of ensuring an appropriate level of market collateralisation and provision of timely notifications to market participants, it was proposed that the weighting for this indicator would be reduced to 5% as this KPI was consistently met by SEMO in the 2013-2016 price control.
3. *SEMO Resettlement Queries*: It was proposed that the current weighting of 20% for this indicator would be retained in order to minimise the number of resettlement queries and reduce the need for ad hoc resettlements.
4. *General Queries*: A weighting of 10% was proposed for this indicator.
5. *System Availability*: A weighting of 10% was proposed for this indicator, as the RAs view this as a key requirement given the dynamic nature of the market and balance responsibility for market participants.
6. *Timely publication of key market information*: This was identified as one of the most important KPIs to apply to SEMO and on this basis a weighting of 35% was proposed.
7. *Timely information provision to the RAs and SEM Committee*: A weighting of 5% was proposed for this indicator, which aims to enable the RAs to carry out their functions of market monitoring.

The proposed weightings are summarised in Table 2 below.

Proposed Weightings		
Number	SEMO KPI	Proposed Weighting
1	Invoicing	15%
2	Credit Cover Increase Notices	5%

3	SEMO Resettlement Queries	20%
4	General Queries	10%
5	System Availability	10%
6	Timely publication of key market information	35%
7	Timely information provision to the RAs and SEM Committee	5%

Table 2

4.3 Summary of Responses to Consultation Question 6

Consultation Question 6: Feedback is requested on the proposed weightings for each indicator.

In their response, Energia noted that the publication of invoicing documentation since go-live has repeatedly not been in line with stated publication timelines. However, based on the importance on some of the other KPIs to the performance of the market Energia were satisfied with the proposed weighting of 15% for this indicator. In Energia's view, it is appropriate for the SEMO Resettlement Queries KPI to have a high weighting given the issues with settlement to date and an increased weighting was proposed. Energia also recommended a reduction in the general queries KPI given that general queries have less of an impact on the performance of the market. Energia also recommended an increased weighting for the system availability KPI to reflect the increased importance of access to systems in the new market.

SSE are supportive of the weightings proposed by the RAs under the scenario where the associated targets remain the same for the duration of the current price control, rather than being increased over time.

BGE proposed alternative weightings for the KPIs set out in the Consultation Paper, noting in particular their proposed weighting of 50% for the KPI on 'timely publication of key market information'. In BGE's view, if market information is provided in a timely, accurate and complete manner it should incidentally improve SEMO's performance in relation to resettlement queries, invoicing and general queries. BGE also noted in their response that a requirement for a SEMO report on system issues and resolution timelines should be met before consideration of any payment under this KPI.

ESB GT believes that the weighting given to General Queries should be reduced to 5% and System Availability should be increased to 15%. ESB GT agrees with the RAs that this is a key requirement given the dynamic nature of the market and balance responsibility for market participants. It is ESB GT's view that ensuring the availability of the system is fundamental to the operability and success

of the market. Availability of central market systems which the Market Operator has responsibility for is commercially necessary and should be incentivised more heavily than general queries.

Power NI supports the majority of the weightings proposed, however in their view the KPI on Invoicing is a critical task performed by SEMO to ensure appropriate cash flow throughout the market. Power NI suggest a 25% weighting level for this indicator. PPB do not support the reduction of the weighting of the Invoicing KPI to 15% and in their view the weighting should remain at 20%.

Alternative weightings proposed in response to the Consultation Paper are summarised in Table 3 below.

Proposed KPIs	Proposed Weighting (SEM-19-011)	SEMO Response	Confidential response	Energia	SSE	BGE
Invoicing	15%	20%	15%	15%	15%	10%
Credit Cover Increase Notices	5%	20%	5%	5%	5%	5%
SEMO Resettlement Queries	20%	0	20%	25%	20%	15%
General Queries	10%	20%	5%	5%	10%	10%
System Availability	10%	10%	15%	15%	10%	15%
Timely publication of key market information	35%	10%	40%	30%	35%	50%
Timely information provision to the RAs and SEM Committee	5%	10%	0%	5%	5%	5%

Table 3

4.4 RAs' Response

The RAs have adjusted the weightings to be applied to each KPI having considered the range of consultation feedback received. The majority of respondents agreed with the proposed weighting for 'Invoicing' and 'Credit Cover Increase Notices'.

The RAs have also retained the high weighting for SEMO Resettlement Queries given the issues experienced in the new market to date. A number of respondents proposed that the weighting for the 'General Queries' KPI should be reduced and the RAs have amended this to 5% in order to

increase the weighting applied to both 'System Availability' and 'Timely publication of key market information'.

4.5 SEM Committee Decision

The SEM Committee's decision with regard to the weightings applied to each KPI is set out in Table 4 below.

Final Weightings		
Number	SEMO KPI	Weighting
1	Invoicing	15%
2	Credit Cover Increase Notices	10%
3	SEMO Resettlement Queries	20%
4	General Queries	5%
5	System Availability	15%
6	Timely publication of key market information	35%

Table 4

5. KPI Targets

5.1 Background

The Consultation Paper proposed targets and lower and upper bounds for each key performance indicator, based on a review of the weightings applied to the KPIs for SEMO in the SEM, a review of SEMO's performance between 2013 and 2016 and an assessment of each indicator based on participant's responses to the SEMO Price Control Draft Determination.

The options for application of these targets were described with reference to the following proposed periods of application of KPIs to the current price control;

- *Period 1:* From publication of the Decision Paper on KPIs – 30th September 2019
- *Period 2:* 1st October – 30th September 2020
- *Period 3:* 1st October – 30th September 2021

5.2 Summary of RAs' Proposals

The RAs outlined two options for the level of targets to be applied to SEMO's key performance indicators. The first option was to apply the same targets to all three periods described in Section 5.1, while the second option was to apply different targets from period 1 to 3, to allow for increased targets as the market develops. The RAs set out the view that they were minded to apply the same targets to each of the three periods, given that by Q2 2019 the market will have been operational for over six months. In addition, application of the same targets ensures that these KPIs are simple and understandable for the wider market.

It was noted that any targets will need to be balanced in order to be achievable as the I-SEM market matures and may be challenging for SEMO in the initial periods. Table 5 below shows proposals for targets to apply to each KPI based on the same targets being applied for each period.

Proposed Weightings and Targets – Option 1 (same targets for all periods)			
Number	SEMO KPIs	Proposed Lower Bound Target	Proposed Upper Bound Target
1	Invoicing	97%	100%
2	Credit Cover Increase Notices	97%	100%
3	SEMO Resettlement Queries	<15 incidents per quarter	<5 per quarter
4	General Queries	97% resolved within 20 business days	99% resolved within 20 business days
5	System Availability	99.5%	99.9%

6	Timely publication of key market information	95%	100%
7	Timely information provision to the RAs and SEM Committee	95%	100%

Table 5

Table 6 shows proposals for increasing the lower and upper bound targets between period 1 and 3 to allow for the development of the market and improved performance by SEMO over this period.

Proposed Weightings and Targets			
Period	SEMO KPIs	Proposed Lower Bound Target	Proposed Upper Bound Target
1	Invoicing	90%	97%
2		95%	97%
3		98%	100%
1	Credit Cover Increase Notices	90%	95%
2		95%	99%
3		99%	100%
1	SEMO Resettlement Queries	<30	<20
2		<25	<15
3		<10	<8
1	General Queries	90%	95%
2		95%	99%
3		98%	99%
1	System Availability	97%	99%
2		98%	99.5%
3		99.5%	99.9%

1	Timely publication of key market information	90%	95%
2		95%	100%
3		99%	100%
1	Timely information provision to the RAs and SEM Committee	97%	99%
2		98%	99.5%
3		99%	100%

Table 6

5.3 Summary of Responses to Consultation Questions 7 & 8

Consultation Question 7: Feedback is requested on whether targets applied to each KPI should be the same from period 1-3 under the current SEMO price control or if targets should be increased in each period to account for improved performance and market development.

Consultation Question 8: Feedback is requested on the proposed targets applied under each scenario.

In their response, SEMO stated that their position was that targets should be increased in each period to account for improved performance and market development and stated that SEMO's main focus should be on stability and addressing any identified known issues in the market. In relation to the level of the proposed targets, SEMO stated that the targets proposed in SEM-19-011a were based on operational experience and would bring benefits to market participants and other stakeholders while allowing SEMO to prioritise stabilising the market.

BGE is of the view that the targets applied to each KPI should be increased in each period to account for improved performance and market developments year on year. In relation to the proposed target levels, if these are applied to each of the 3 periods separately, BGE believes these are appropriate and become reasonably more demanding towards the end of the price control.

ESB GT supports the proposal that there should be a gradual increase in how SEMO performs with regards to the KPIs. ESB GT understands that there is a bedding in time for the new market regime, and that over time, SEMO is expected to perform to a higher standard over the three years. ESB GT supports flexibility when it comes to reviewing the KPIs in the fast moving and changing market.

Another respondent stated that the applicable KPIs should be the same across each of the three periods.

Energia were also of the view that the target boundaries for each KPI should be set at the same level for all three periods as any bedding in period to account for changes to the new market should be complete by the date of publication of this Decision Paper. In their response, Energia noted that the proposed targets for a number of KPIs are higher in the final year if applied to three separate periods than if applied consistently to each period. Energia are of the view that this is not appropriate and that this higher level of performance should be desirable after approximately 8 months of market operation. Energia also proposed a number of changes to the targets and lower and upper bounds proposed in the Consultation Paper.

In SSE's view, the proposed targets are appropriate and should remain the same from period 1-3 under the current price control. Enough time is needed, in SSE's view, to ensure that targets are being consistently met and given that these KPIs will become effective during a price control cycle, SSE do not consider that this is the right time for iterative changes to targets. However, SSE would be supportive of varying the targets across the price control periods for future SEMO price controls.

Power NI supports the target applied to each KPI being the same for all periods of the current SEMO price control, as the market has been live for a significant period of time and it is reasonable to expect that any bedding in period would have been completed with normal operations established. In response to Consultation Question 8, Power NI states that as the market has now been live for a significant time period it is reasonable for participants to expect a high level of SEMO performance and on this basis stringent targets should apply across the full timeframe.

In response to Consultation Question 7, in PPB's view, as the market has been live for nearly 7 months any bedding in period should have occurred and therefore the target applied to each period of the price control should be the same. In response to Consultation Question 8, in PPB's view the targets from Period 3 as specified in Table 6 should apply from the publication of the decision paper until the end of the price control period and highlighted that the targets for KPI 6 'Timely publication of key market information' and 7 'Timely information provision to the RAs and SEM Committee' are too low at 95% and should be 99%.

5.4 RAs' Response

Of the responses received, SEMO, BGE and ESB GT support increasing the targets applied to the KPIs in each period to account for improved performance and market development, as SEMO's performance would be expected to improve with more experience and bedding in of the new market. Energia, SSE Airtricity, Power NI, PPB and one other respondent support the targets applied to each KPI being the same for all periods of the current SEMO price control, as a sufficiently high level of performance should be in place by the time these KPIs come into effect following a number of months of market operation.

In the RAs' view, there is a balance between incentivising a high level of performance through challenging targets, while acknowledging the difficulties faced by SEMO at the beginning of a market that has a higher level of complexity and reporting requirements than the previous SEM. While the RAs are cognisant that targets should be set to be achievable, they should be challenging to achieve given the financial incentive together with there being no downside in terms of Opex/financial penalties under the current framework if KPIs are not met.

In terms of whether targets should increase over each period or be applied uniformly for the remaining duration of the SEMO price control, the RAs are of the view that it is preferable to apply uniform targets at this stage of the price control in the interest of simplicity while still incentivising a high level of performance. This decision is balanced by the decision that the targets will not come into effect until 1 October 2019 for the two remaining periods of the price control.

This should allow for sufficient time for SEMO to focus on stability in the market and addressing known issues while improving overall performance. A number of respondents supported the stepped increase of targets within the price control to account for improved performance and sufficient bedding in time. On this basis, the uniform targets proposed in the Consultation Paper have been reduced slightly to take account of the early stage of market development and also to account for changes outlined in this Decision Paper concerning the KPIs on 'System Availability' (to include a requirement for website availability) and 'Timely publication of key market information' (where all reporting requirements must be met to receive 100% of the award). The SEM Committee will revisit the issue of flexing KPIs in the next SEMO Price Control.

5.5 SEM Committee Decision

The SEM Committee Decision is for the uniform targets, as set out in Table 7 below, to apply to each KPI for the two remaining periods of the price control commencing on 1 October 2019.

Final Targets			
Number	SEMO KPIs	Lower Bound Target	Upper Bound Target
1	Invoicing	97%	100%
2	Credit Cover Increase Notices	97%	100%
3	SEMO Resettlement Queries	<15 incidents per quarter	<5 per quarter
4	General Queries	95% resolved within 20 business days	99% resolved within 20 business days
5	System Availability	99%	99.9%
6	Timely publication of key market information	90% ²	100%

Table 7

² A maximum of 75% of the award can be considered only if the 90% lower bound target is met for each of the key reports listed as part of the KPI. In addition to this, if the 90% lower bound target is met for all reports required under the TSC and Data Publication Guide, 100% of the award can be achieved. The final amount awarded is dependent on where the outturn performance percentage is within the target bounds.

6. Conclusion and Next Steps

The KPIs determined by the SEM Committee as outlined in this Decision Paper will come into effect from 1 October 2019 and apply for the remaining two periods of the SEMO price control. The KPI incentive pot will be a total of 4% of OPEX revenue for each tariff year, to be awarded based on KPIs that have been met over each quarter by SEMO.