



**Regulatory Authority Quarterly Report**

**Market Operator Performance Criteria**

**December 2016**

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# 1 Introduction

The Single Electricity Market has been in operation since the 1st November 2007. Under the licence conditions of both EirGrid and SONI to operate the Single Electricity Market (SEM), SEMO has to report to the Regulatory Authorities (RAs) on critical performance metrics. These critical metrics were identified in a letter dated 18th October 2007 from the RAs to SEMO. The letter outlined four main categories of metric:

- Manage Change
- Service Delivery
- Manage Stakeholders
- Provide Information

Following the third quarterly meeting with the RAs, some of the metrics were revised under discussion with SEMO. This report has taken these comments on board in its preparation.

Quarters in this report are defined according to the financial year outlined below:

- Q1 = 1st October to 31st December
- Q2 = 1st January to 31st March
- Q3 = 1st April to 30th June
- Q4 = 1st July to 30th September

## 2 Manage Change

### 2.1 Software Deployments

#### 2.1.1 Release SEM R2.8.0 (Deployed June 17<sup>th</sup> 2016)

SEM R 2.8.0 Release was deployed successfully on Friday 17<sup>th</sup> June. No issues have resulted following this deployment.

The following Change Requests were deployed as part of the SEM R 2.8.0

Change Request Reference	Summary	Business Case for Change
SEM_PC_CR351 (2014 Market Audit)	Eligible Availability Audit Change	<p>During the 2014 Market Audit an observation relating to the optimisation of Eligible Generation Availability (and therefore Capacity Payments) for Energy Limited (EL) and Pumped Storage (PS) Units was identified. Due to incorrect prioritisation of Trading Periods where either Ex-Ante or Ex-Post Loss of Load Probability (LOLP) is zero the resulting assignment of availability for the affected units is sub-optimal. This is not a strict non-compliance with the algebraic formulation of the mechanism. It could, however, be considered contrary to the intent of the rules which is to optimise revenue in relation to generation availability.</p> <p>Where LOLP is zero this indicates a diminished need for generation availability so that Capacity revenues are lower in these periods. These Trading Periods should be considered lowest priority for the assignment of availability for affected EL/PS units. Due to a “divide by zero” in the maximised function, where LOLP is zero, the function cannot be evaluated. As a result these Trading Periods are in some cases given top priority for the assignment of availability where they should be given lowest priority. This change will correct this feature.</p>
SEM_PC_CR354 (Revenue)	Irish Revenue – Electricity VAT Change	<p>Revenue has introduced new rules as to how VAT is applied to supplies of wholesale electricity in the domestic ROI area. In summary, for domestic “business to business” supplies of electricity, the generator no longer applies VAT to supplies of electricity, rather the entity receiving the supply is liable to account for VAT.</p> <p>The new rules became effective on January 1<sup>st</sup>, 2016.</p>

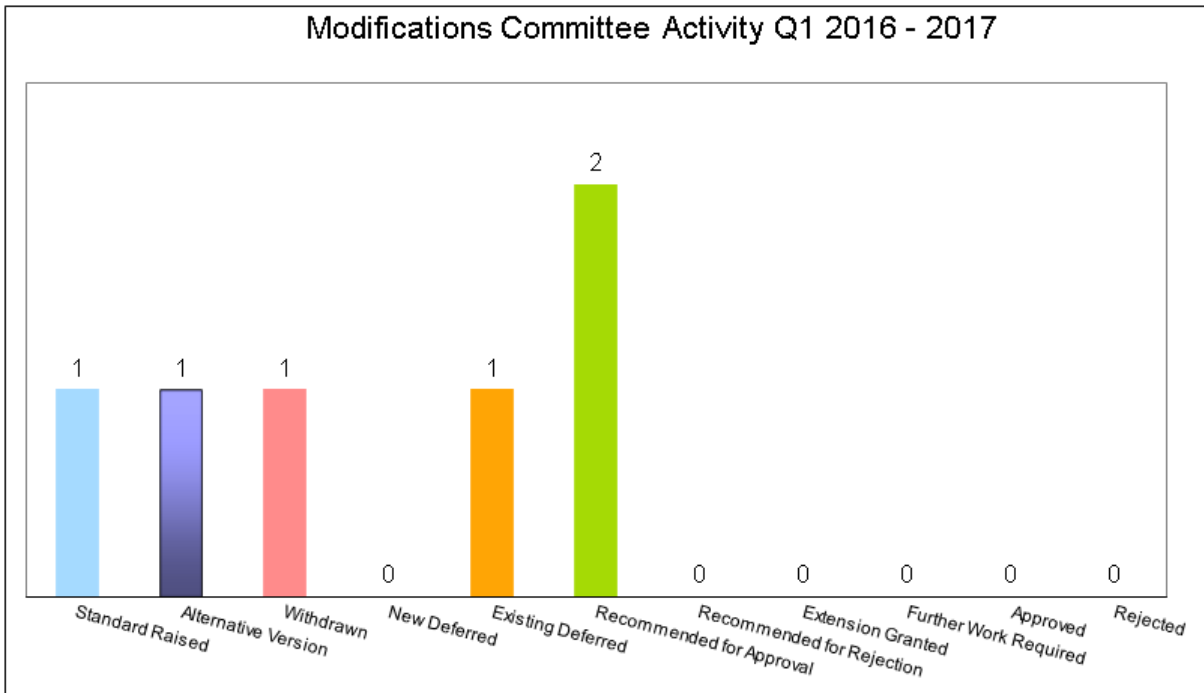
**Table 1: Approved Scope for SEM R2.8.0 – Change Requests**

## 2.1.2 Modification Management

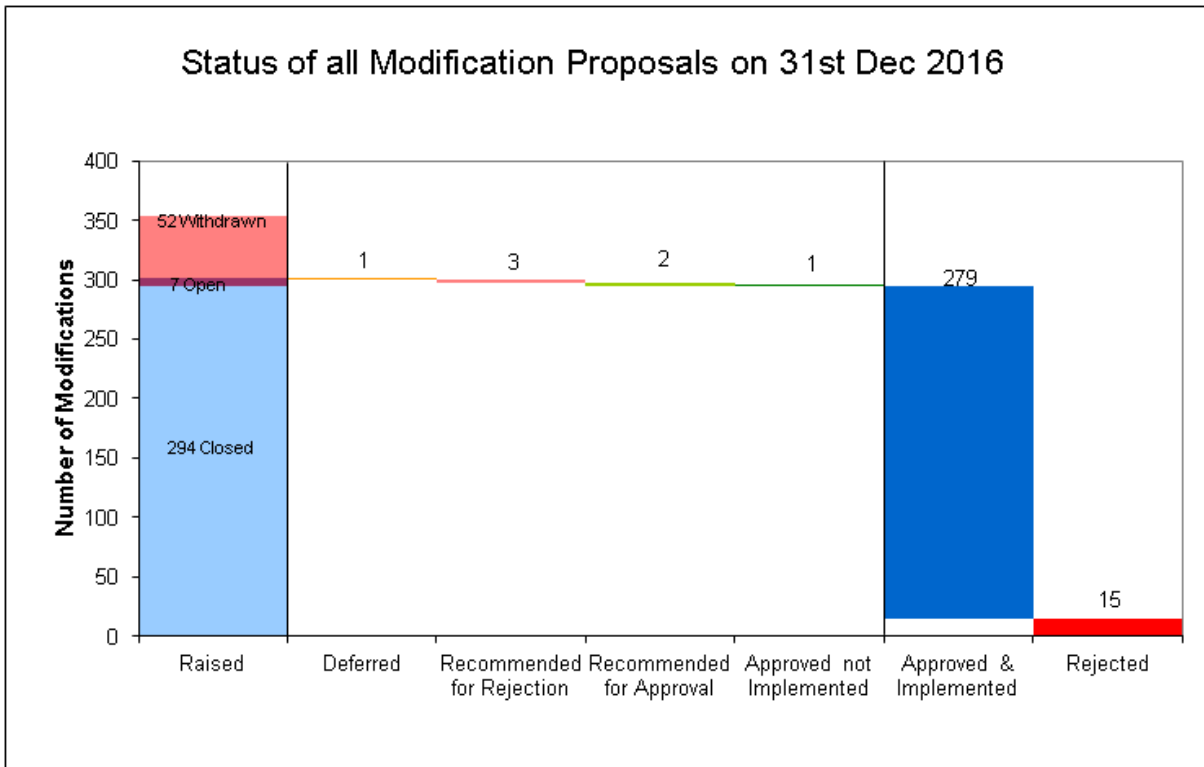
<b>SEMO Modifications Committee Report Period: 01 October 2016 to 31 December 2016</b>	
<b>Modification Committee Summary</b>	<b>Total</b>
Number of Meetings held	2
<ul style="list-style-type: none"> <li>• Modifications Committee Meeting 70 – 14<sup>th</sup> October</li> <li>• Modifications Committee Meeting 71 – 9<sup>th</sup> December</li> </ul>	
<b>Modification Proposal Activity in this period</b>	
Standard Modification Proposals raised	1
Alternative Versions of Proposals raised	1
Urgent Modification Proposals raised	0
Modification Proposals 'Withdrawn'	1
New Modification Proposals 'Deferred' as of end of this period	1
Existing Modification Proposals 'Deferred' as of end of this period	1
Existing Modification Proposals 'Further Work Required' as of end of this period	0
Modification Proposals 'Recommended for Approval'	2
Modification Proposals 'Recommended for Rejection'	0
<b>RA Determinations in this period</b>	
RA Decision Papers 'Extension Granted'	0
RA Decision Papers 'Further Work Required'	0
RA Decision Papers 'Approved'	2
RA Decision Papers 'Rejected'	1
<b>Summary of All Modifications to Date (31<sup>st</sup> Dec 2016)</b>	
Total raised to date	353
Total 'Withdrawn' to date	52
Currently 'New or Deferred' in process (includes anything deemed "further work required")	1
Currently 'Recommended for Rejection'	3
Currently 'Recommended for Approval'	0
Currently 'Approved' (awaiting Implementation)	1
Total 'Implemented' to date	279
Total 'Rejected' to date	15

Details of all Modifications Proposals can be found at: <http://www.sem-o.com/MarketDevelopment/Modifications/Pages/Modifications.aspx?Stage=Active>

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**Figure 1: Modifications Summary Quarter 4 2016**



**Figure 2: Modifications Status to Date on 30<sup>th</sup> September 2016**

## **2.2 Modifications Process Development**

### ***Modifications in Quarter 4 2015/2016***

Two Modifications Committee Meetings took place in Q1 of 2016/2017. Modifications Committee Meeting 70 took place on 14<sup>th</sup> October 2016 and Modifications Committee Meeting 71 took place on 9<sup>th</sup> December 2016.

### ***Modifications Recommended for Approval***

#### ***Mod\_01\_16 version 1: AP07 Mod\_08\_14) Clarification of Location of SEM Collateral Reserve Accounts***

MO Member was thanked for providing historic dispute data in relation to this proposal. The Committee were happy to vote on this proposal. The proposal was recommended for approval. The Secretariat is drafting a Final Recommendation Report.

#### ***Mod\_08\_15 Clarification of Outturn Availability***

This modification had previously been deferred pending the outcome of both Grid Code modifications. As both Grid Code proposals have now been approved by the respective RAs, the Committee were happy to vote on this proposal. The proposal was recommended for approval. The Secretariat is drafting a Final Recommendation Report.

### ***Deferred Modifications***

#### ***Mod\_02\_16 : Changes to MEC for DSU***

SO Member advised that the issue of hybrid DSU sites, was raised at the DS3 Demand Side Management Industry Forum on 25/10/2016. It was one of the top three issues raised. The TSO raised the point at the forum that this issue requires a holistic approach involving all stakeholders to analyse the full impact of these sites. EirGrid TSO is currently reviewing options for the next steps required to progress this analysis and will update industry as soon possible.

Proposer explained the rationale behind submitting version 2. It was explained that changes were made to take into consideration the current Trading and Settlement Code and the I-SEM version currently under consultation as Part B. Proposer also discussed changes to the proposal removing the potential for capacity to grow beyond 10 MW or 10% of the site capacity. It was understood that there were wider ranging implications of going above this and therefore not adequate under the Code.

RA Member raised the issue presented by ongoing proposals and the current Trading and Settlement Code and the version of the Code under consultation. It was stressed that the Modifications Committee can only approve proposals in the current Trading and Settlement Code. Any proposals voted prior to the designation of the new version of the Code (part B) cannot be considered and are only decisions on the current Code are valid. After designation,

the current Code will be referred to as Part A with the Code under consultation being referred to as Part B.

If current proposals are approved after the designation they will be applicable to both Part A and Part B otherwise it will only be valid for the current Code. Question was raised by Supplier Alternate as to what happens to the proposal approved at this meeting. RA Member advised that if this is voted prior to the consultation decision being published, they could include this in the proposal in Part B by reflecting this in the RA Decision. Members were asked to reflect any comments they had through the open consultation process.

It was agreed that this proposal be deferred pending the TSO review of options to progress the analysis of hybrid sites. This proposal will be discussed at Meeting 72.



### 3 Service Delivery

This metric is to indicate how timely SEMO was in producing reports to Participants

#### 3.1 Core Market Operations Function Performance excluding ad-hoc Re-pricing and Re-settlement

SEMO's daily obligations include closing the market gate, issuing Ex-Ante Indicative schedules, running Indicative and Initial pricing runs and issuing Initial and Indicative Settlement runs. The following series of graphs shows the percentage of all reports issued in the Quarter that were on time, late by less than an hour or late by over an hour. In summary, the majority of reports are published on time or within an hour of the required time. Priority is given to the Initial Reports (Ex-Post Initial Pricing Schedule and Initial Settlement Statements).

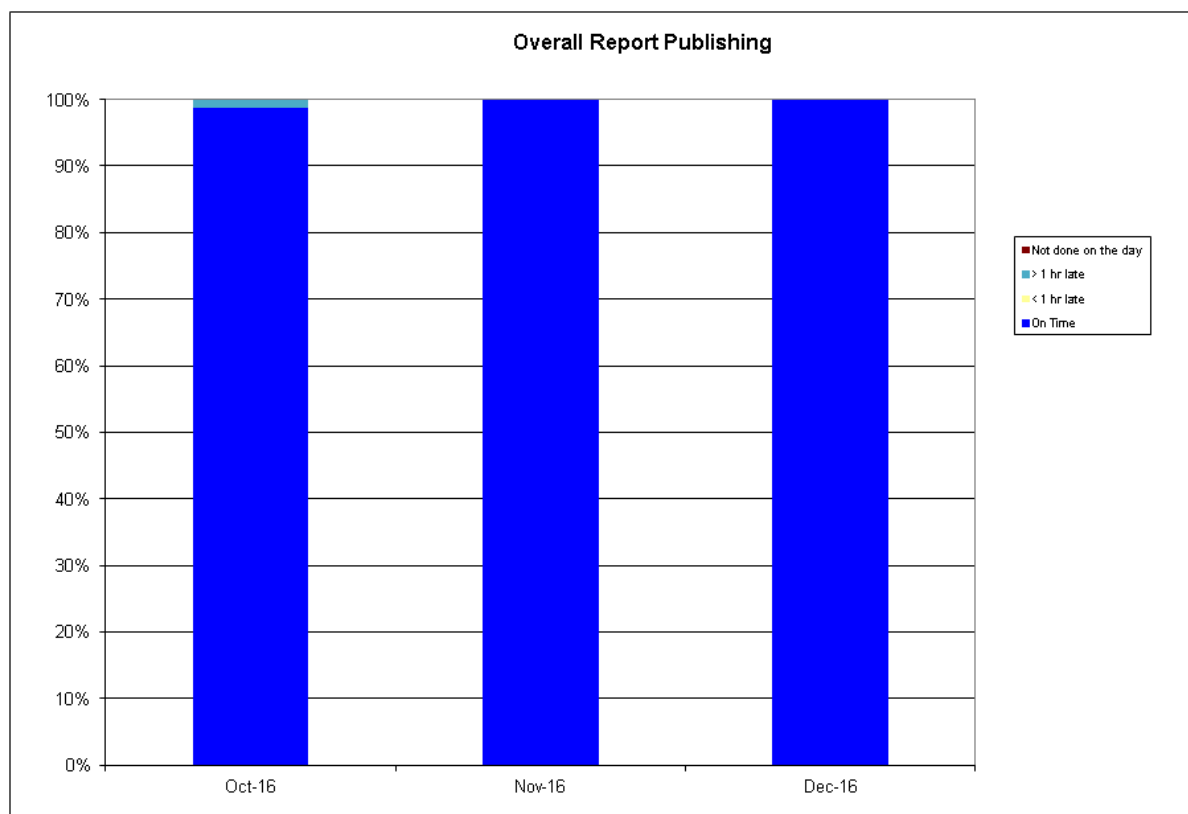
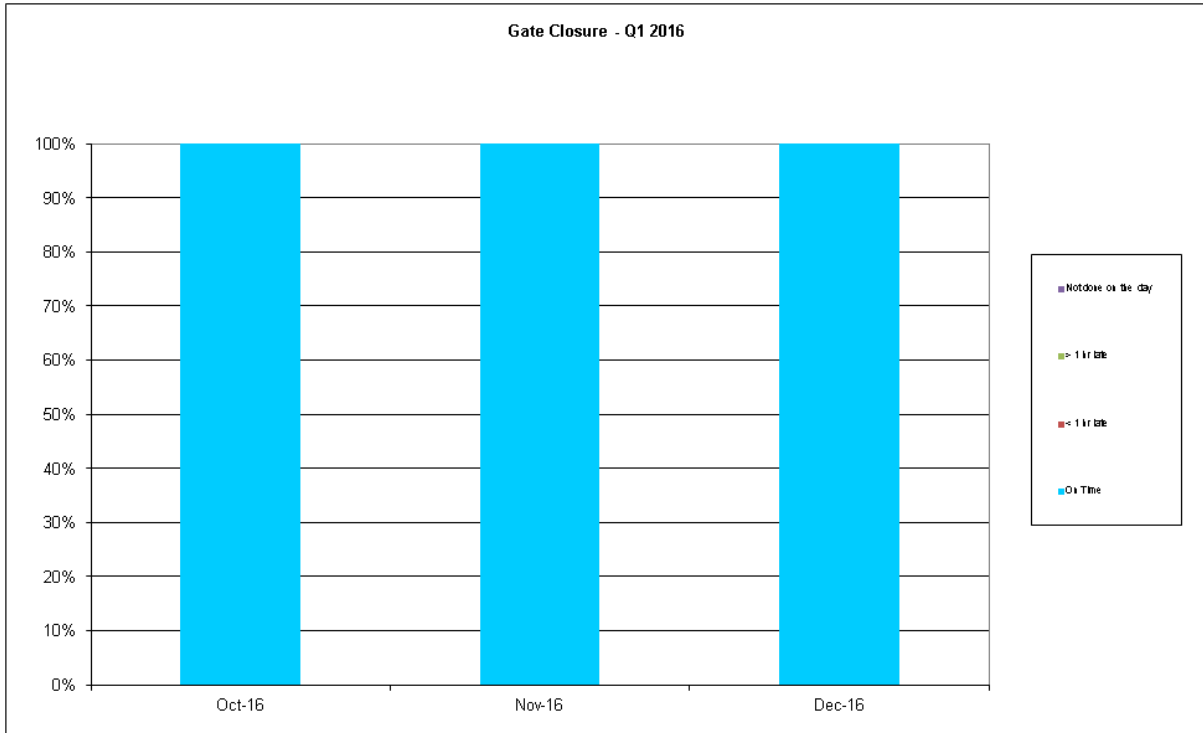


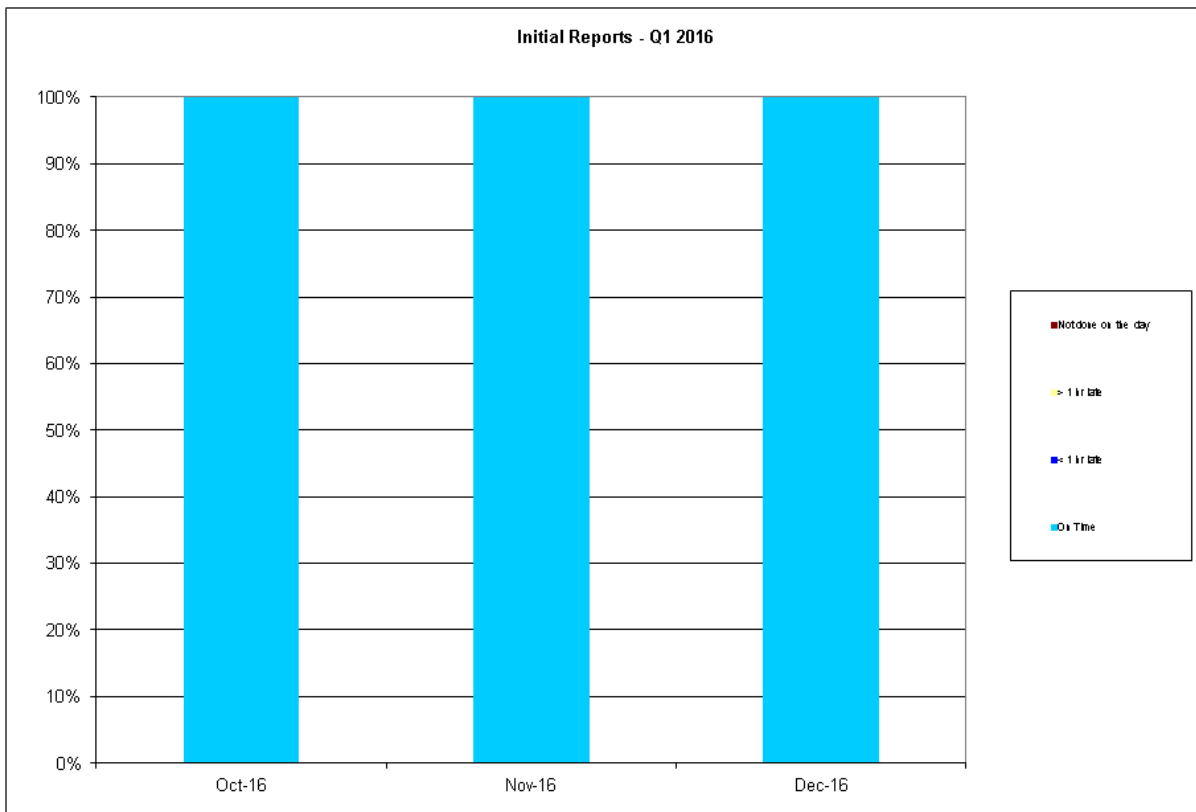
Figure 3 - Overall Daily Report Publication

Gate closure is a significant market event as all bids and offers are required to be captured at that point.



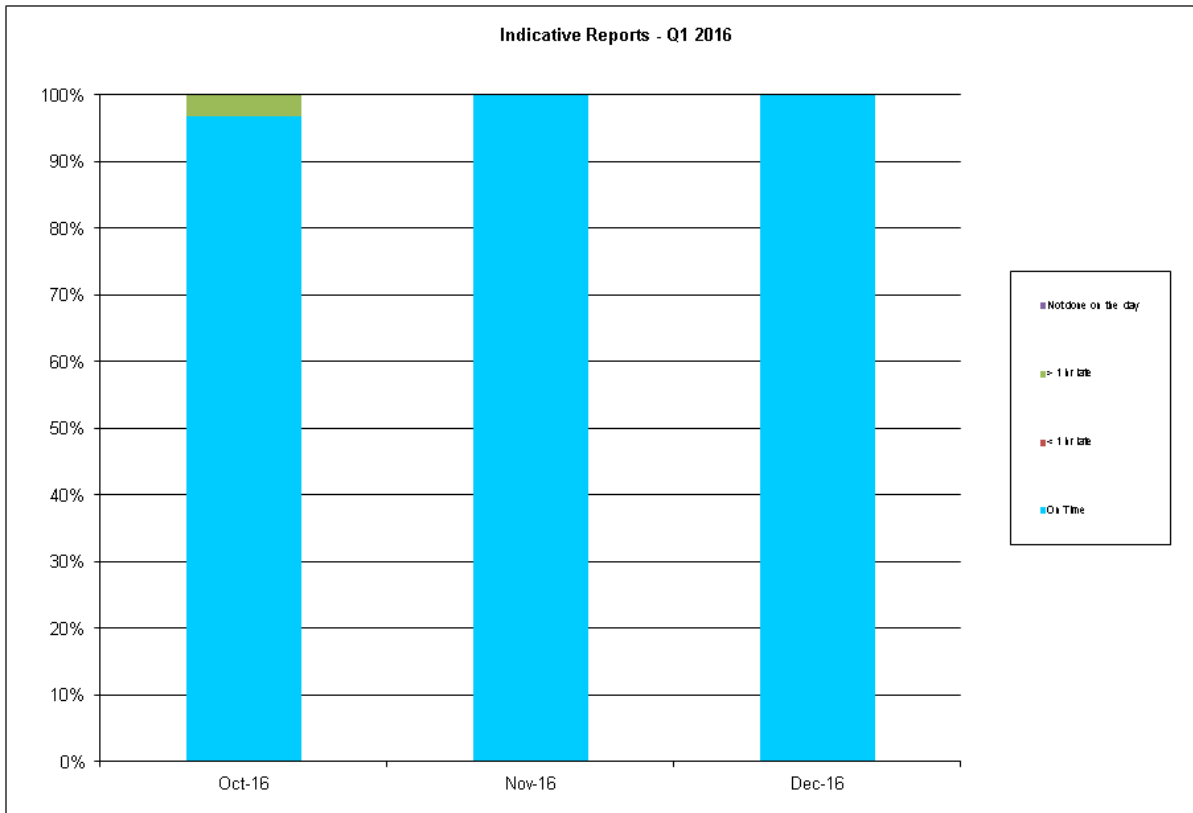
**Figure 4 - Gate Closure performance**

The Initial Reports (Pricing and Settlement) are published on a calendar and Working Day respectively. It is these reports that are used in the final settlement of the market.



**Figure 5 - Initial report performance**

All Initial Market Schedules were published within the Trading and Settlement Code time scales.

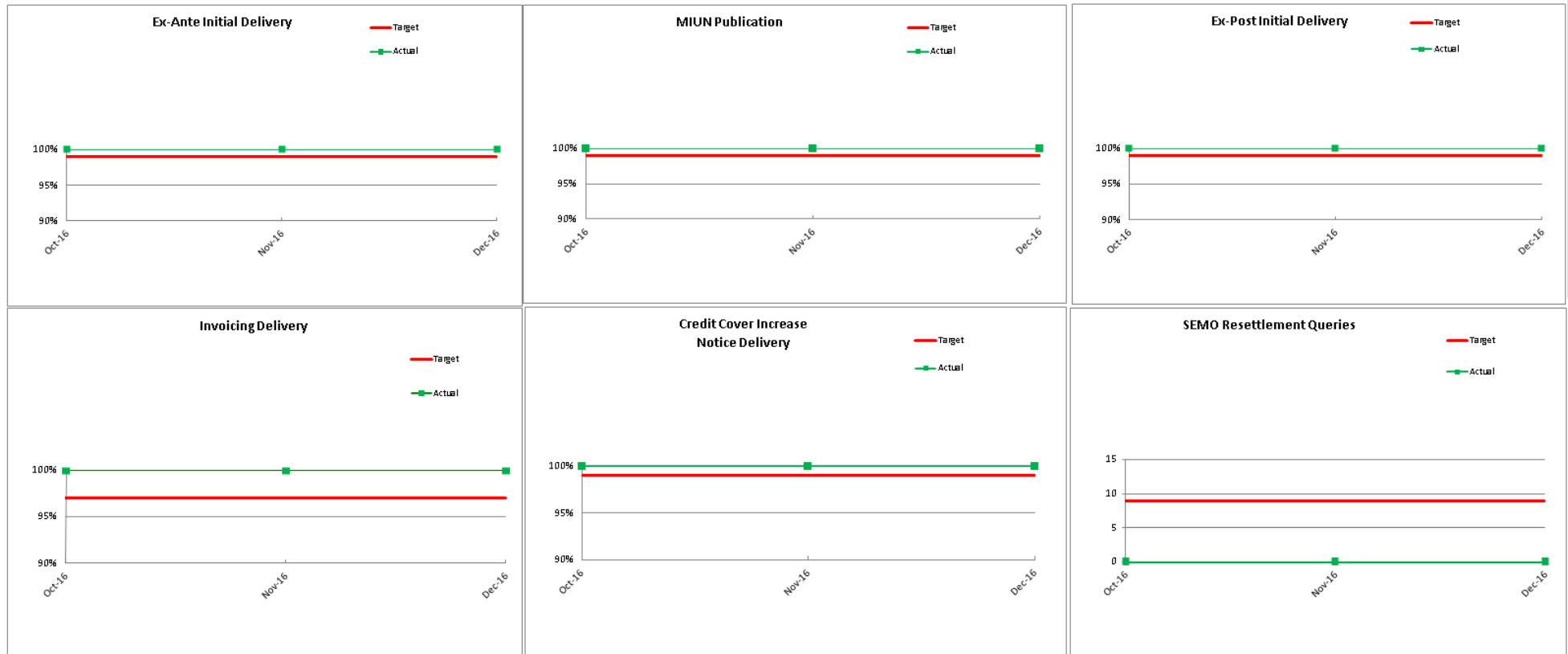


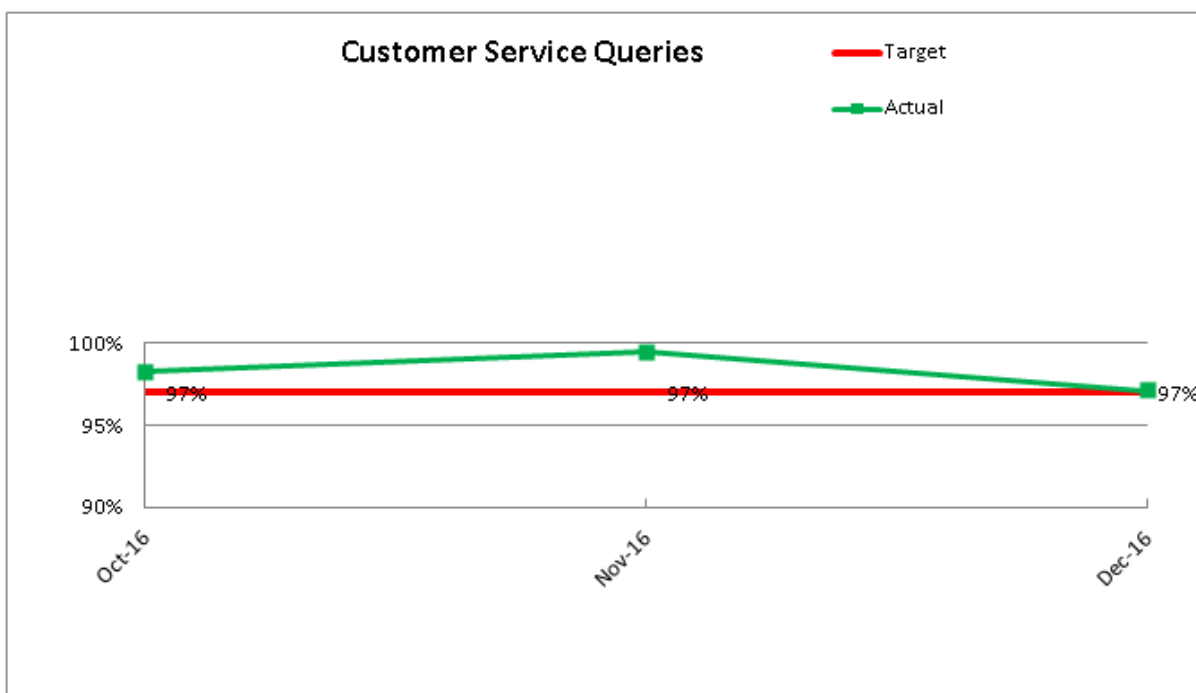
**Figure 6 - Indicative report performance**

### 3.2 SEMO Key Performance Indicators

The following graphs display SEMO performance in line with the Key Performance Indicators as set out in the SEM Revenue & Tariffs decision paper.

SEMO Revenue and Tariffs - Key Performance Indicators





### 3.2 *Planned Resettlement M+4 and M+13*

Scheduled Re-Settlement has continued to run on time and on schedule.

### 3.3 *Ad hoc Pricing and Ad-hoc Resettlement Runs*

#### Ad-hoc Re-prices

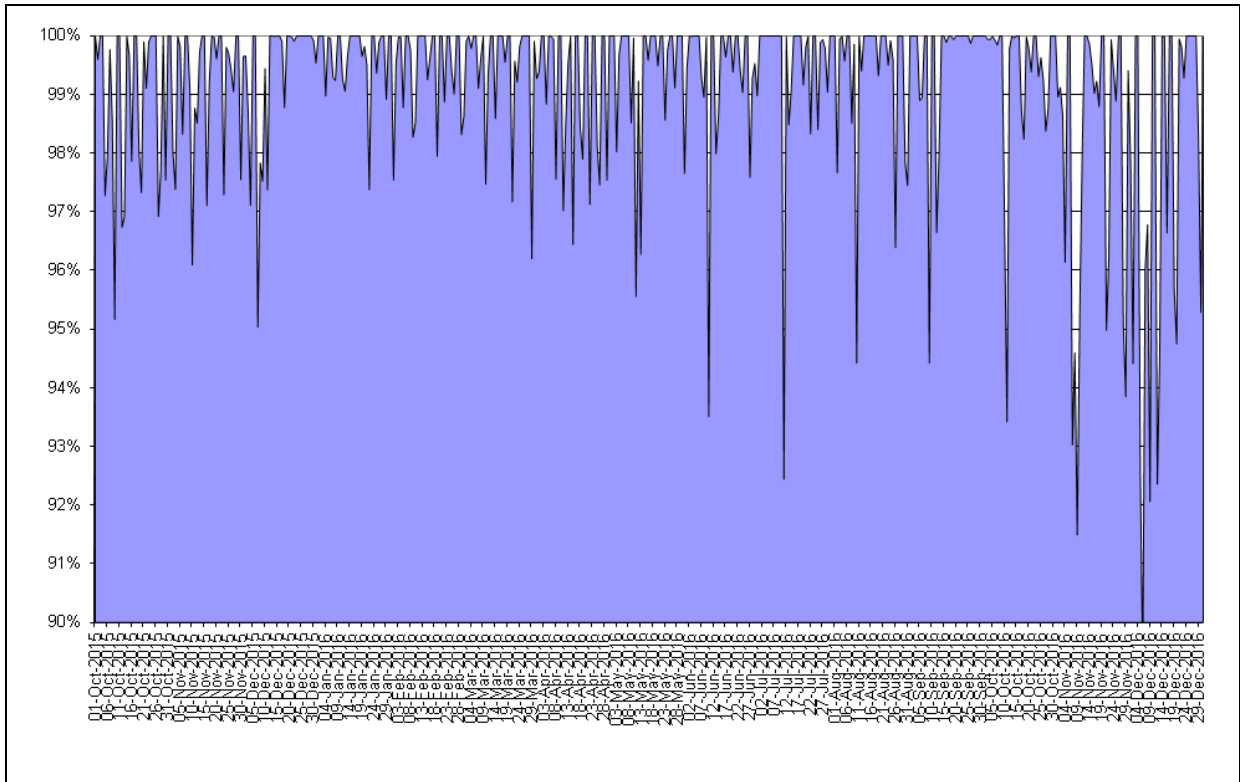
There was no Ad hoc re-prices required for Quarter 1.

#### Ad-hoc Re-settlement

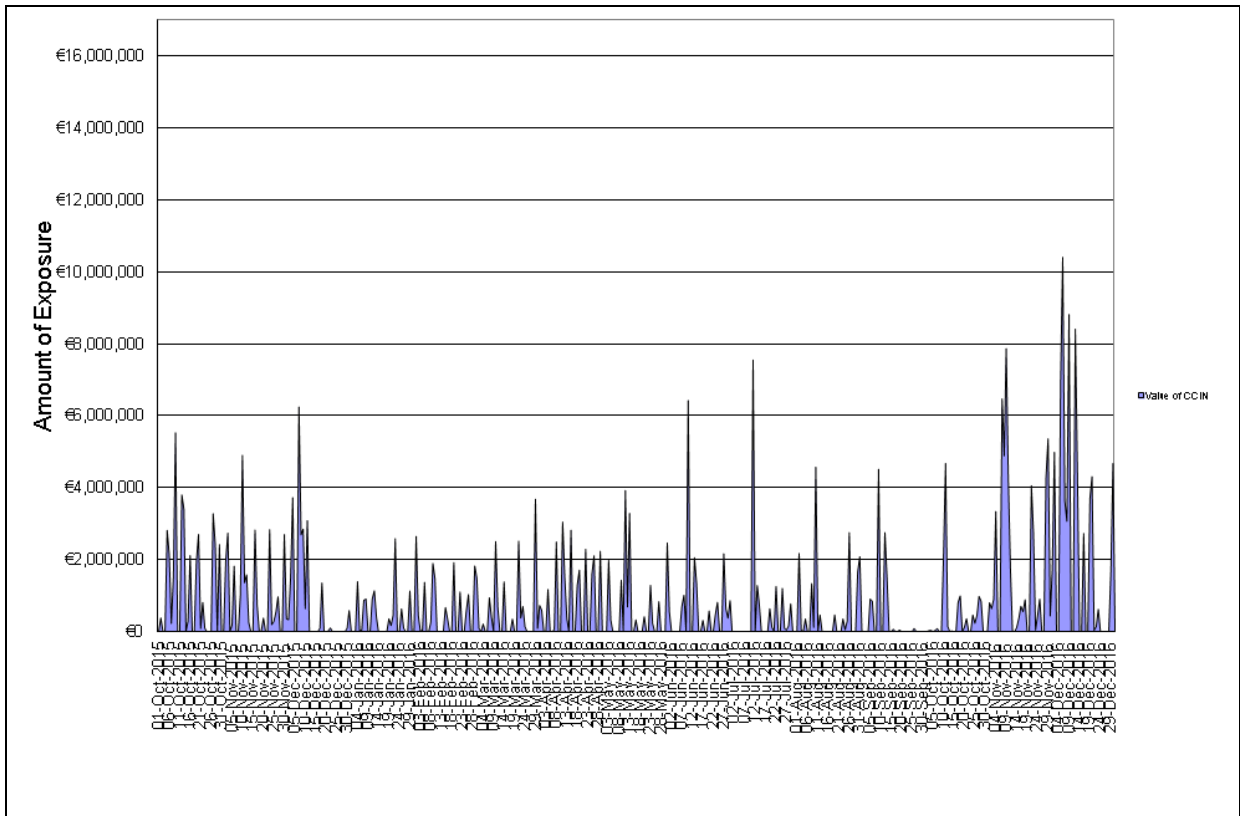
There were six Ad hoc resettlement runs for Energy in Quarter 1.

### 3.4 *Administration of Credit Cover*

The SEM has been fully collateralised according to the Trading and Settlement Code provisions during Q1, Oct 2016 – Dec 2016. However, at times Posted Credit Cover may be less than the calculated requirement leading to Participants being issued with Credit Cover Increase Notices (CCINs). All CCINs were fully honoured within Q4. For more information on Credit Cover in the SEM, please refer to [section 6](#).



**Figure 7 Market Collateralisation in Accordance with Trading and Settlement Code Requirements**



**Figure 8 Credit Cover Increase Notice Total Amounts per Day**

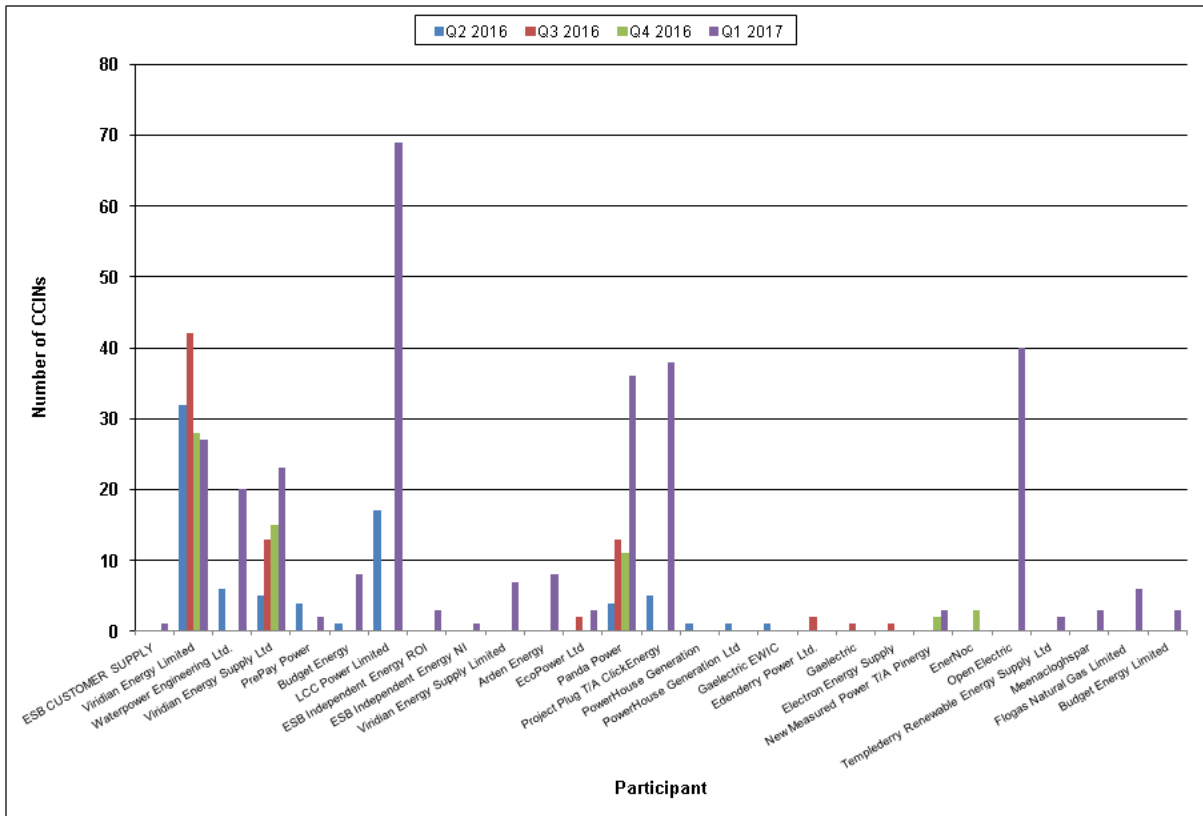


Figure 9 –Number of Credit Cover Increase Notices Issued

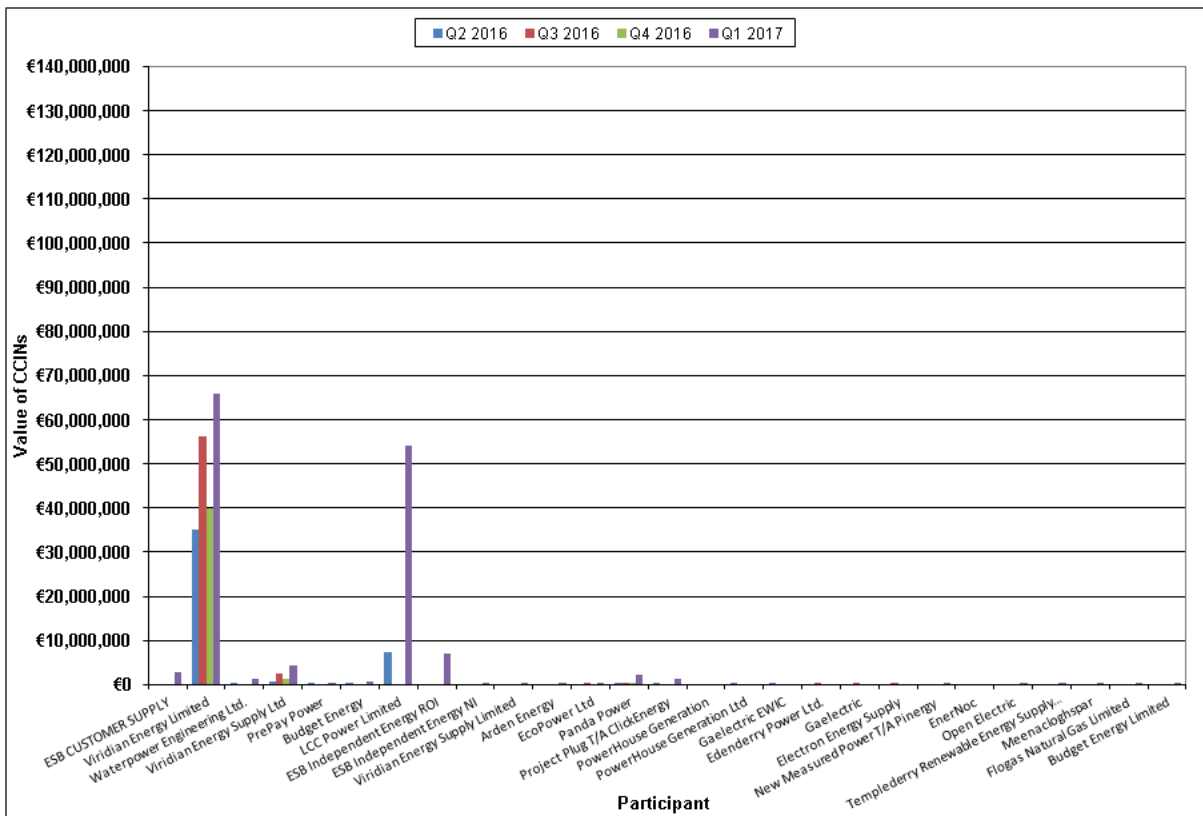


Figure 10 -Value of Credit Cover Increase Notices

The frequency of CCINs increased in Q1 2017 compared to Q4 2016 (303 compared to 59 last quarter) with the greatest number of CCINs issued in November 2016 (131).

These CCINs were distributed across 22 Participants this quarter compared to 5 last quarter. The total value of the CCINs issued was €134.9 million compared to €41.5 million last quarter.

### 3.5 Breaches of the Trading and Settlement Code

There were 37 breaches of the Trading & Settlement Code in Q1 2017 that SEMO is aware of. This is up 9 from 28 in Q4 2016.

SEMO was responsible for a total of 1 breach in this quarter; this is down 2 from 3 in Q4 2016.

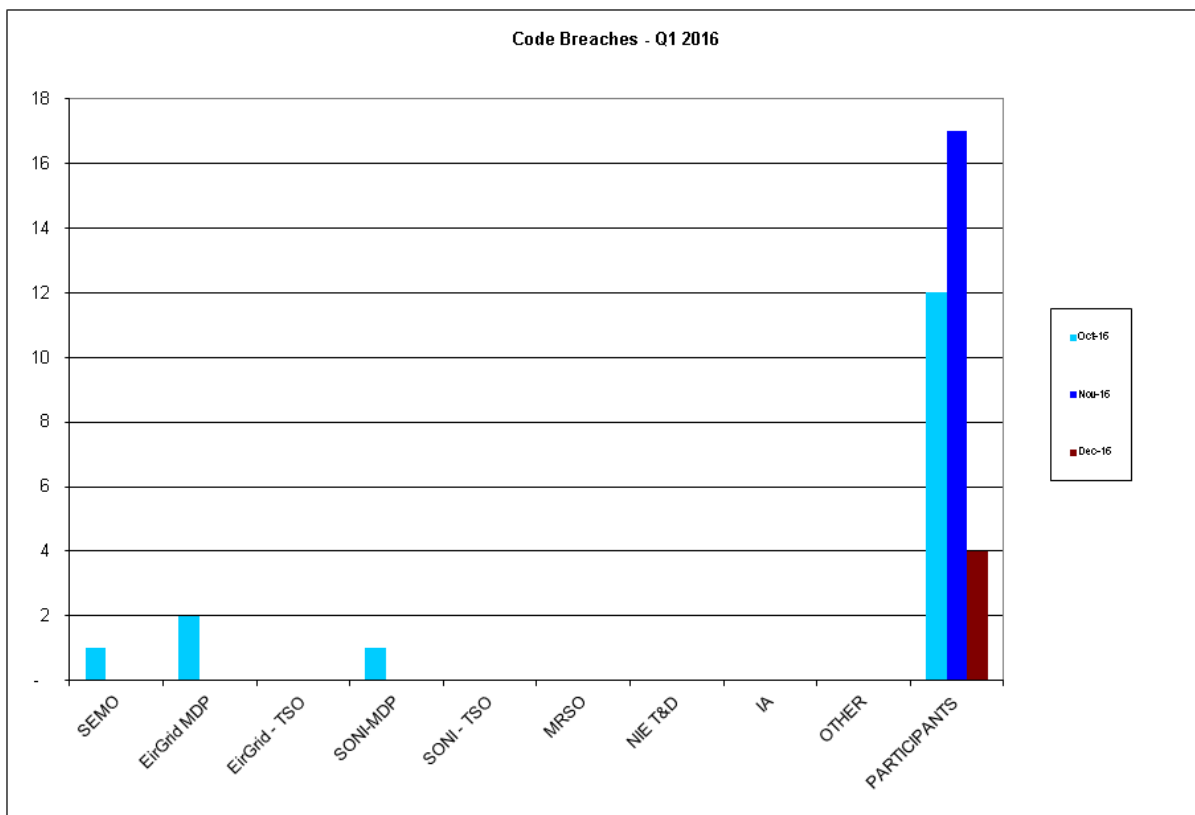
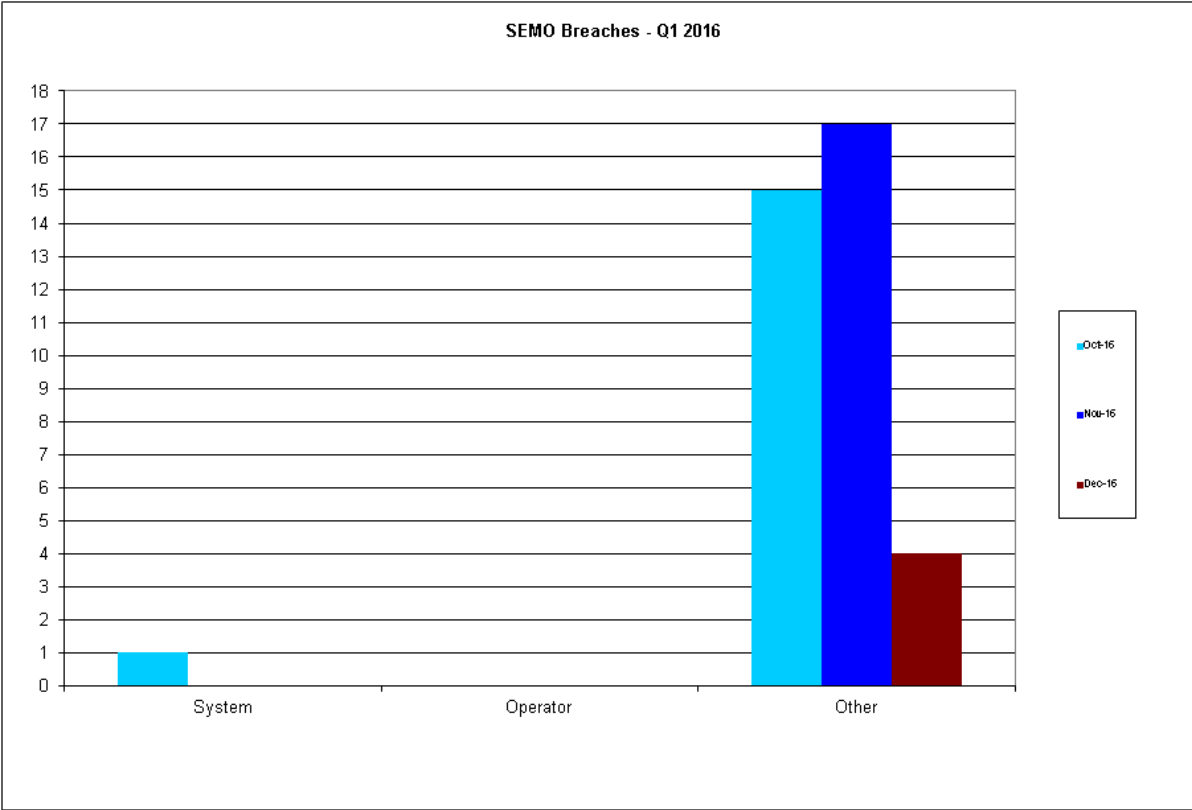


Figure 11 - Number of Trading and Settlement Code Breaches





**Figure 12 - Source of SEMO Trading and Settlement Code Breaches**

## **4 Regulatory Affairs**

On the 9th of December 2016, the Regulatory Authorities have published a Decision Paper on Operational Parameters which will apply for the calendar year 2017.

Both MSP Parameters and Credit Cover Parameters have been confirmed to be the same as in 2016.

The Annual Capacity Exchange Rate has been published on the 21<sup>st</sup> December 2016 and the rate that will apply for the year 2016 is **0.8627**.

## 5 Provide Information

The Trading and Settlement Code obligates SEMO to answer Data Queries and Settlement Queries within a given time line. Since 1st November 2007, with the exception of two Settlement Queries, all such queries have been answered within the timelines prescribed. This is still the case for this quarter. General queries have no prescribed timeline for response; however, SEMO aims to answer these within 15 working days. We aim to answer Urgent General Queries within 3 working days; the number of queries answered within SEMO guideline timeframes continues to be a focus for SEMO.

There were no Disputes raised within this quarter.

### 5.1 Customer Queries in a Timely Manner

Details of Data, Settlement and General Queries can be found in the below table and graphs for the Quarter ending 31/12/2016.

#### Market Helpdesk Report: 01/10/16 to 31/12/16

	Received	Resolved within the period	Not Resolved	Resolved in the period	Resolution Time (Working Days)	Resolved On Time
Normal	480	463	17	481	1.29	465
Important	6	6	0	6	0.86	4
Urgent	3	3	0	3	0.65	2
Settlement	12	11	1	11	4.87	11
Credit	0	0	0	0	0.00	0
Dispute	0	0	0	0	0.00	0
Data	2	2	0	2	2.47	2
Total/Average	503	485	18	503	2.03	484

Table 2: Query Statistics for Quarter

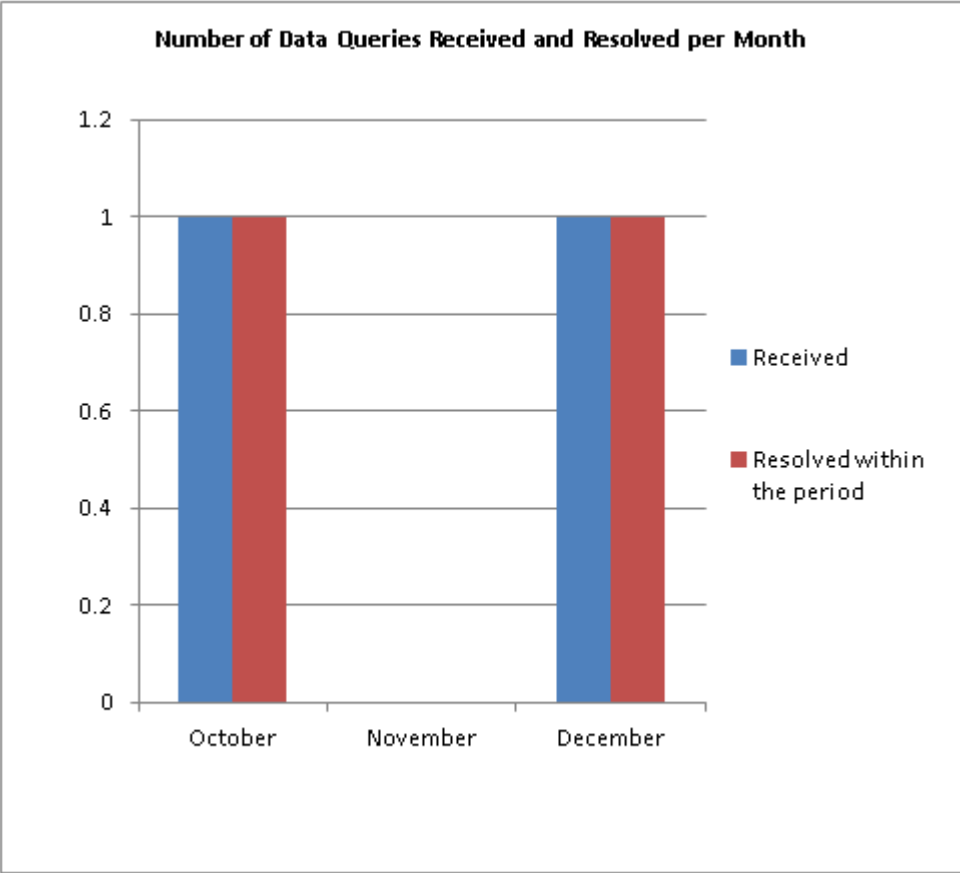
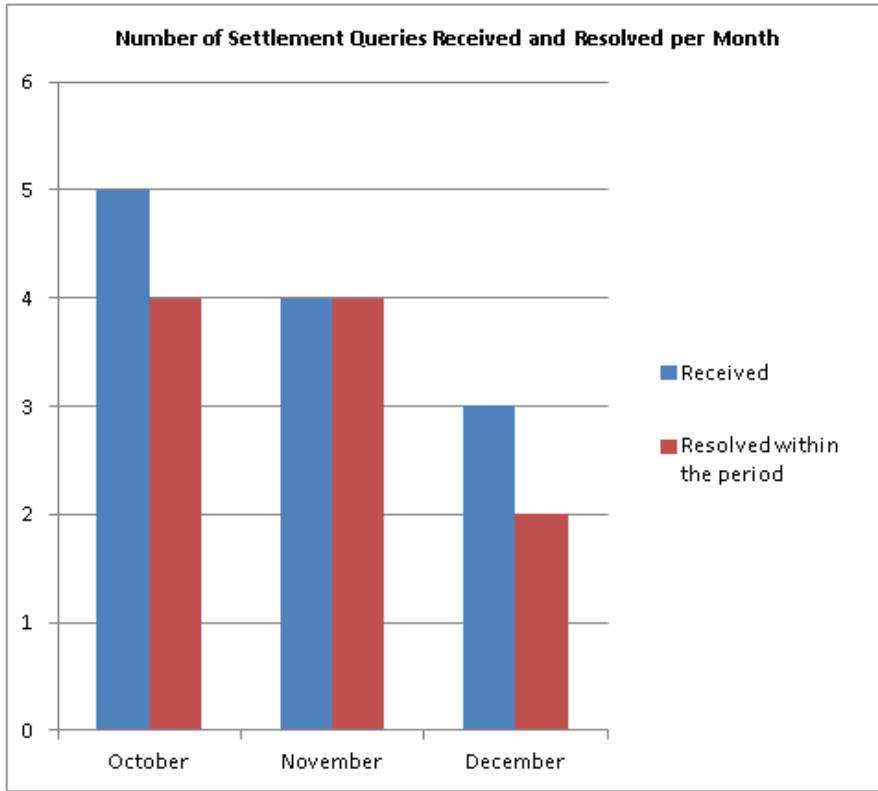
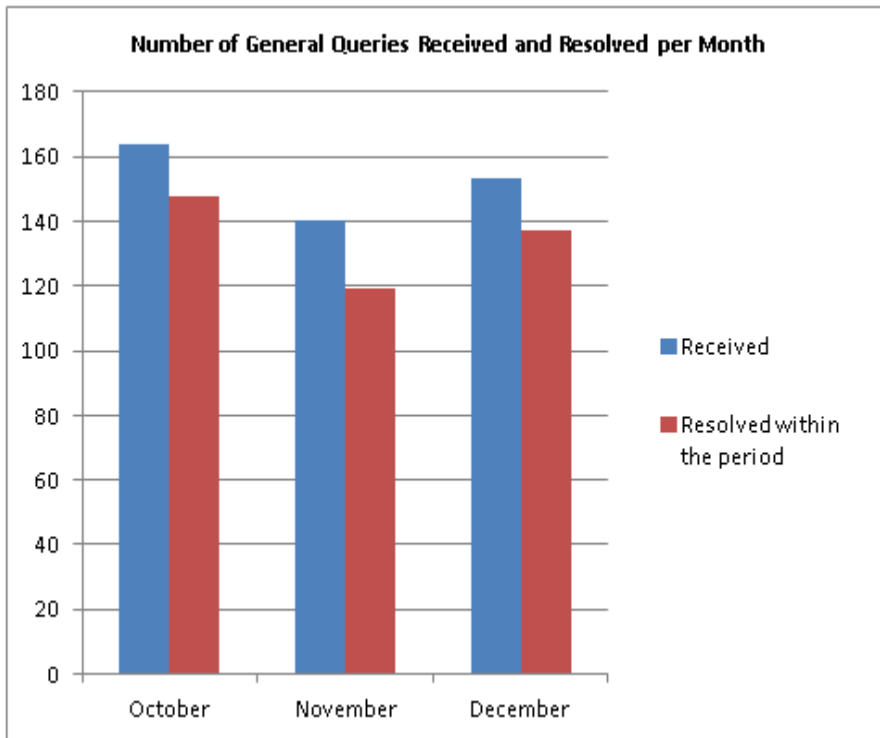


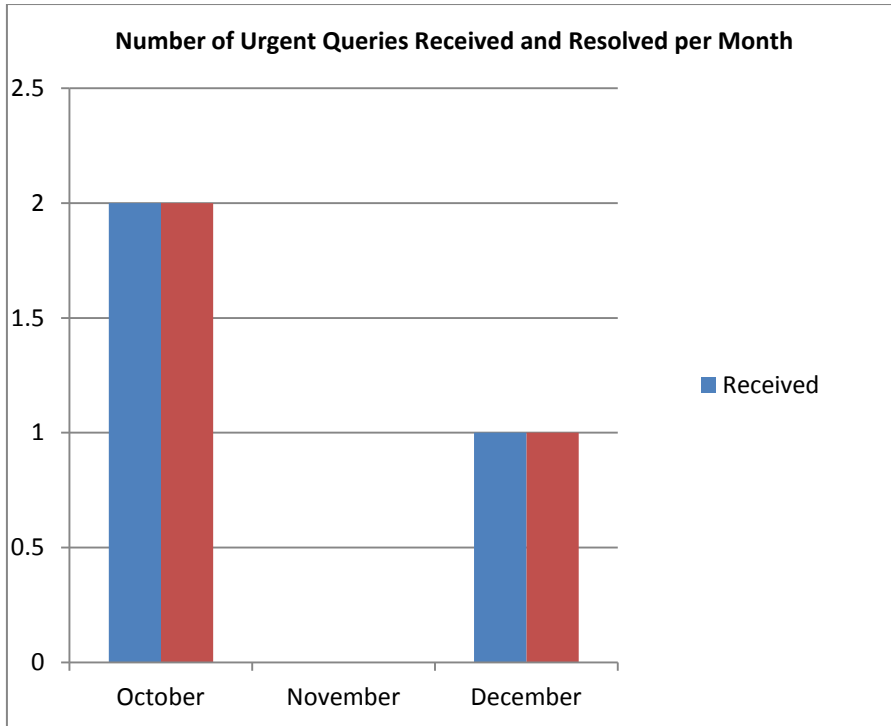
Figure 13 - Number of Data Queries submitted and Resolved per month



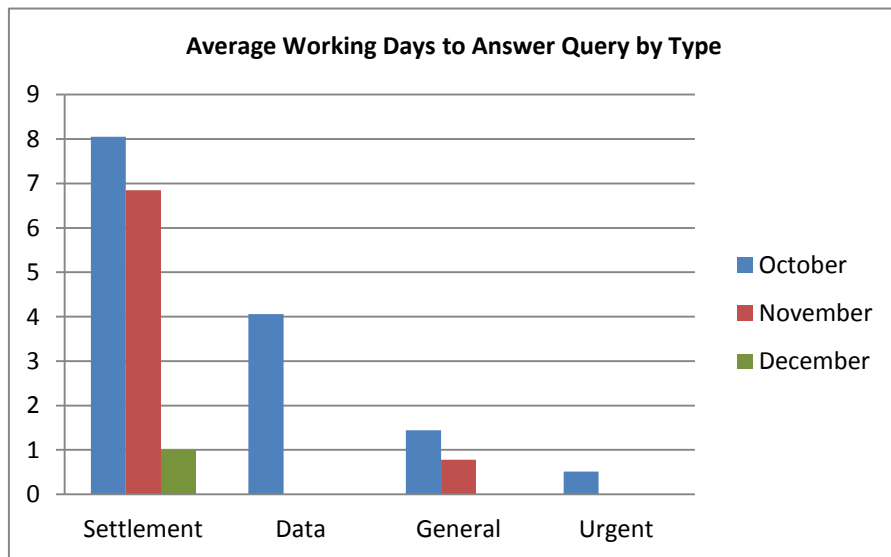
**Figure 14 - Number of Settlement Queries submitted and resolved per month**



**Figure 15 - Number of General Queries submitted and resolved per month**



**Figure 16 - Number of Urgent Queries submitted and resolved per month**



**Figure 17 - Average Working Days to answer query type per month**

### ***5.1 Facilitate and Educate Participants to accede to the Code***

The following acceded to the Code in Quarter 1 2016-2017:

PY\_000165 Glencarbry Supply Company Limited  
PY\_000166 Megawatts Power Trading Ltd  
PY\_000167 Pallas Energy Supply Limited  
PY\_000168 Brookfield Green Energy NI Limited  
PY\_000169 Budget Energy Limited (ROI)

### ***5.2 Facilitate Interaction with Customers Stakeholder Events***

SEMO organised individual stakeholder information meetings as requested during registration activities.

## **6 Required Credit Cover Coverage Analysis**

### ***6.1 Foreword on Required Credit Cover Coverage***

On a quarterly basis the Market Operator (MO) is obliged under decision paper SEM/07/10 to "compare the extent to which calculated RCC was sufficient to meet the actual liabilities realised in respect of each Participant". This report compares how well the calculated Required Credit Cover (RCC) matches the actual (or realised) RCC in the SEM.

Given the complex nature and volumes of data involved in performing an exact comparison of calculated to realised RCC, the modelling performed was based on a number of assumptions which simplified the analysis. Full details of the assumptions used in the RCC Coverage modelling are provided in Appendix A.

In the results below the term 'under-estimation' refers to situations where the calculated RCC was less than the realised RCC meaning the RCC at the time of calculation was less, in hindsight, than it should have been. The reverse is true for 'over-estimation' where the calculated RCC was more than what was actually required.

Occurrences of under-estimation identified in the analysis do not necessarily mean that the market itself was under-collateralised as this is dependent on the level of Posted Credit Cover. The majority of Participants tend to have sufficient levels of Posted Credit Cover to meet fluctuations in RCC. The under-estimation merely identifies where the calculation of RCC was less than ideal relative to the realised RCC.

### ***6.2 Summary of Required Credit Cover Coverage Analysis***

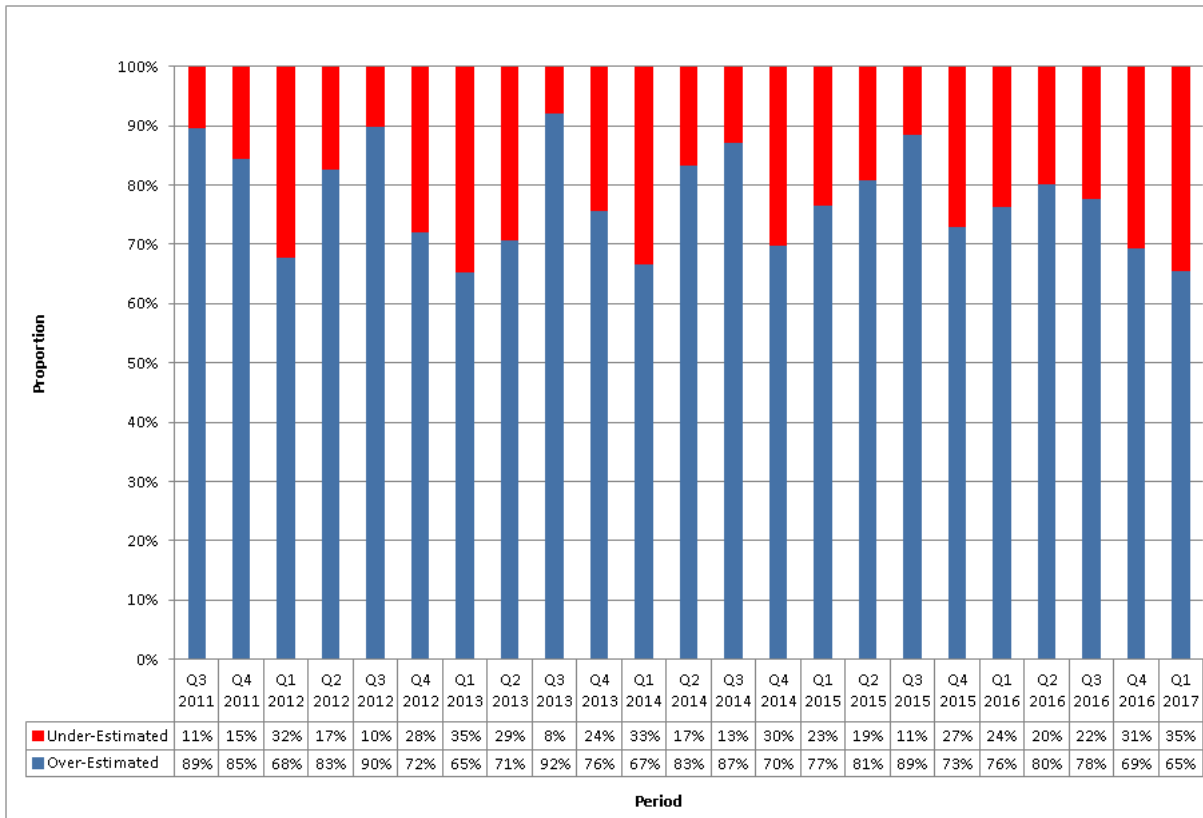
The key conclusions on the RCC Coverage are:

- RCC Coverage was under-estimated 35% of the time in Q1 2017. This showed an increase of 4% compared against Q4 2016. This figure is higher than the long term average of 21% under-estimation since market start. It is higher than the values seen in the same quarter last year.
- The value of each occurrence of under-estimation has decreased from the previous quarter from -3.09% to -2.23%, higher than the long term average of -0.82%.
- In Q1 2017, where the RCC Coverage is not sufficient, the market is under-estimated by an average of approximately €1.9 million on a total market exposure of just over €208million. The long term average equates to an under-estimation of approximately €1.9 million on a total average market exposure of €265 million from the beginning of the market.

### ***6.3 Occurrences of Under or Over Estimation***

Figure 17 below illustrates the trend in the number of RCC calculations under or over-estimated. For the SEM as a whole, Q1 2017 period has seen the RCC under-estimated on 35% of credit cover calculations. This value is higher than the same period last year and is greater than the previous quarter reported. The average SMP price increased and the demand increased compared to the previous quarter.





**Figure 17- Occurrences of Under or Over Estimation**

As discussed in previous reports on RCC Coverage the key factor in the proportion of under or over estimation is the historical SMP relative to the current period SMP.

Figure 18 below illustrates the trend in average daily SMP for Q1 2017. The daily time weighted average was €54, which is higher than Q4 2016. The SMP has historically been higher and more volatile in the first years of the market. It had then stabilised at lower values from around Oct 14 until Sept 2016. From this time on, we have seen SMP slightly increases in average value; however, there has been less deviation with higher peak prices being seen a few times in Q1 2017.

Another factor impacting on the proportion of under or over estimation is the variation in the System Demand which, in this quarter, has increased by 13% from previous quarter.

These variations have increased the amount of under estimation in the current quarter, particularly as demand shows an increasing trend across the Q1 2016.

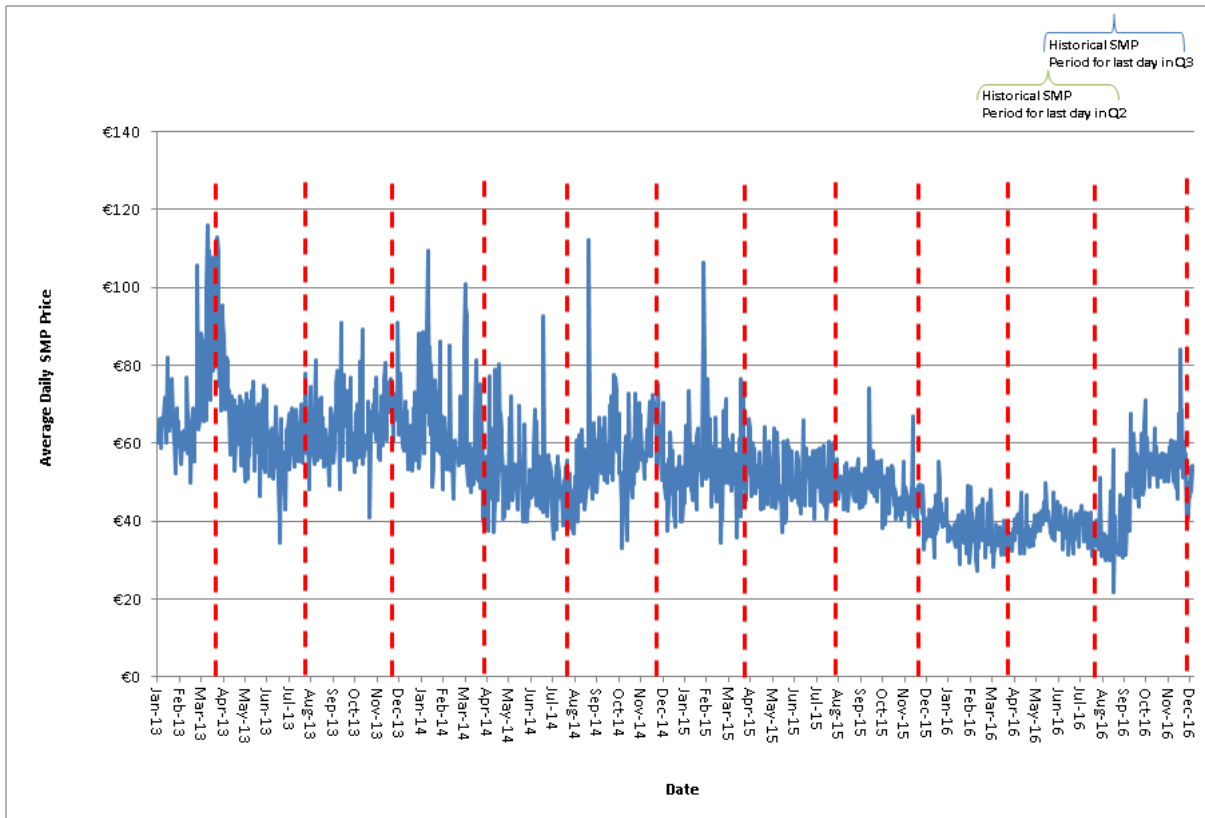


Figure 18- Trend in Average Daily SMP

#### 6.4 Extent of Under and Over Estimation

Figure 19 below illustrates the trend in the extent to which RCC is under or over-estimated, when it occurs.

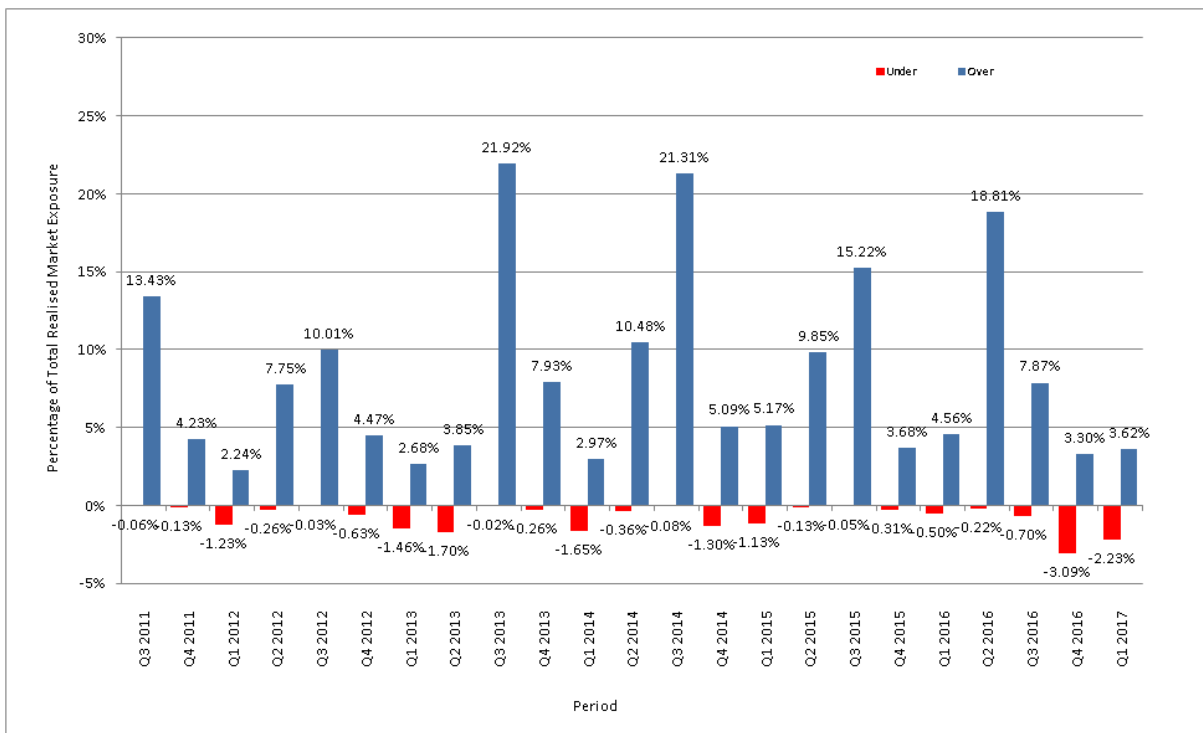


Figure 19 – Extent of Under or Over Estimation when under or Over Estimation Occurs

The majority of under-estimation, since the start of the market, is below -1%. Q1 2017 is higher with a figure of -2.23%.

Where over-estimation occurs, this has been on average between approximately 1.39% and 24% since the start of the market. In the quarter under analysis, the extent of over-estimation increased to 3.62% compared to 3.30% in the previous quarter. This is lower than the long term average of 8.18%.

### 6.5 Market Monetary Exposure

Figure 20 below shows the actual monetary exposure of the SEM (excluding VAT) to these under or over estimations.

In Q1 2017, from an average exposure of the market of just over €208 million, the market has had an average RCC under-estimation of just over €1.9 million and an average RCC over-estimation of €7.3 million on any given day.

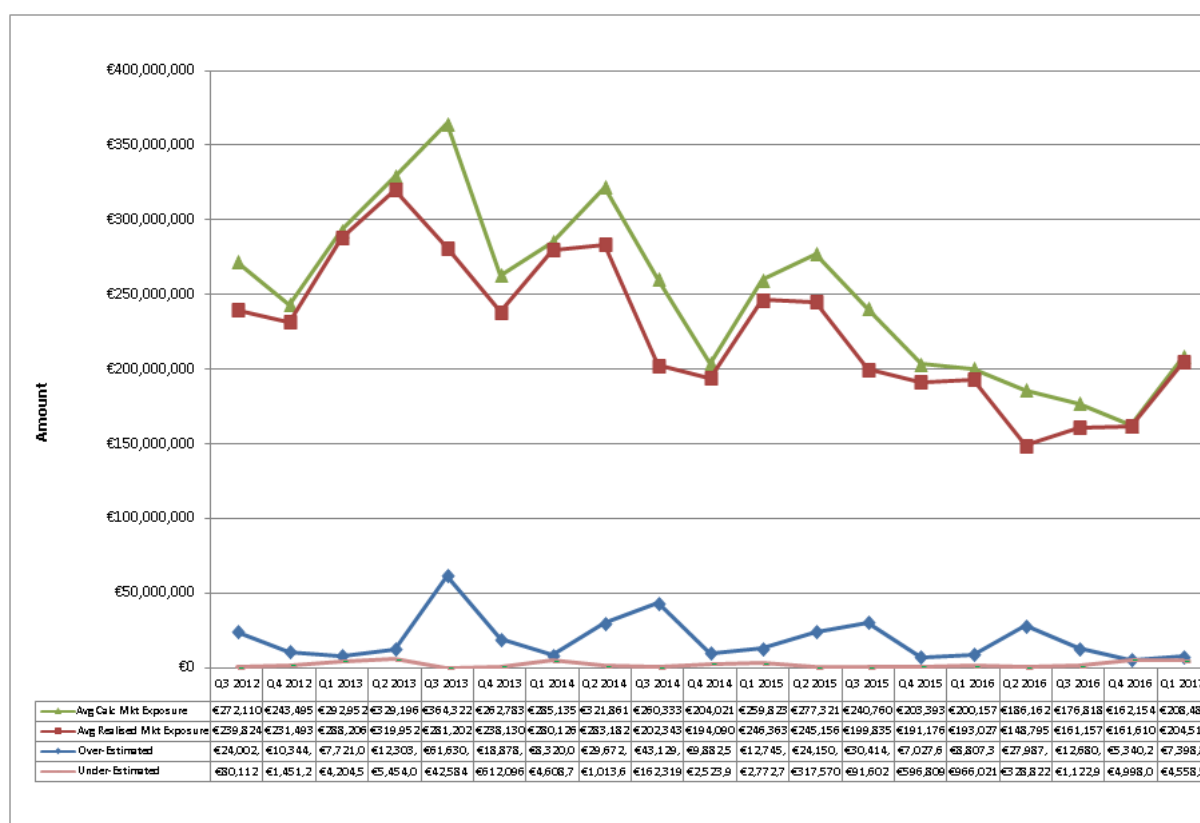


Figure 20 – Monetary Exposure due to Accuracy of Credit Cover Calculations

### 6.6 All Quarters Summary

For the SEM as a whole, from market start to the end of December 2016, RCC has been under-estimated 21% of the time. Of these occurrences the under-estimation as a percentage of the total realised market exposure is on average -2.23%, or €1.9 million out of a total average realised market exposure of €265 million.

With regard to over-estimation, the SEM as a whole has been over-estimated 79% of the time with the over-estimation as a percentage of the total realised market exposure being on average 3.62%, or €7 million out of a total average realised market exposure of €265 million.

## 7 Appendix A: Required Credit Cover Coverage

### a) *Required Credit Cover Coverage Modeling Assumptions*

Given the complex nature and volumes of data involved in performing an exact comparison of calculated to realised RCC, the modelling performed was based on a number of assumptions which simplified the analysis.

- Only Participants with Supply Units were considered in the RCC analysis as they are the only Participants that have a positive RCC liability as a result of initial settlement. Generators are considered to have a negative RCC liability (i.e. no liability) as a result of initial settlement. Generators may have a liability due to resettlement but this is covered in credit cover calculations by the fixed credit cover requirement.
- Analysis was performed on a Participant Account basis for supply accounts only.
- All values were converted into Euros for ease of comparison. The exchange rate used was for trade date 11<sup>th</sup> January 2017. The value was 0.8666 for Euro to Pounds sterling.
- Settlement values used in the analysis are Initial Settlement values, with the exception of some Indicative Settlement values which were used for the last few days of analysis as initial values were not available. This is also the reason for small adjustments to figures published last quarter.
- When compiling the current report, data was available for the retrieval of the realised versus calculated UDE for the whole period up to the end of December 2016.
- Results for previous reporting periods may have changed slightly due to adjustments made to the model. This was to exclude units prior to enough historical data being available for the correct comparison of calculated and actual values. The change in values is not material to the results.
- VAT was not included in calculated or realised figures for Actual, Undefined or total market exposure. Proportions and percentages were determined without the application of VAT. This assumption was deemed to have little bearing on the final results as it is a percentage based tax which would apply to both calculated and realised amounts in the same proportions.
- A methodology was employed that simplified the analysis required in determining Actual Exposure and both calculated and realised Undefined Exposure (UDE). The volumes of processing required would otherwise involve repeating calculations for each day of the market for each Participant for both Energy and Capacity, using the snapshot of inputs for that particular day. This functionality is not available in the Credit Risk Management system implemented for the market and is not practical to perform external to the market systems at this point in time.
  - The Energy UDE and Actual Exposure were determined using settlement amounts for each day of the period being analysed (October 2016 to December 2016).
  - The UDE period for Energy was kept constant at 16 days when comparing calculated and realised RCC. The modelling does not allow for holidays or delays receiving settlement data for weekends, however, the comparison basis

is the same for both calculated and realised RCC. Therefore, this assumption should have minimal effect on the results.

The Actual Exposure for Energy was kept constant at 14 days. This is based on the average Actual Exposure being 7 days invoiced and 7 days un-invoiced.

- Part of the analysis required the comparison of the under or over estimation to the total market exposure. In order to determine the total market exposure the following methodology was used.
  1. Determine Energy UDE
  2. Determine Energy Actual Exposure
  3. Determine Proportion of Total Exposure made up by Energy and Capacity individually
  4. Determine the Capacity contribution to total exposure using the proportions of Energy and Capacity, and the Energy UDE and Energy Actual Exposure.
- The total market exposure proportion was determined using the following assumptions:
  - Energy has a significantly greater effect on the total exposure in the market relative to Capacity. Energy, based on 2016 financial year, is typically 74% of total market exposure, while Capacity is 26% of total market exposure. This is based on the figures for the period Oct 2015 to Sep 2016, of operation of the market, in which the Energy market was approximately €1.5billion and a Capacity market of approximately €530 million.
  - VAT was not included in Total Market Exposure figures.
  - Fixed Credit Cover used to provide collateral for resettlement was not considered as it forms a small proportion of the total exposure and should not affect the calculated versus realised comparisons.
- The first quarter of 2007 only consists of two months, November and December 2007. This is as a result of the market starting on 1<sup>st</sup> November 2007. All subsequent quarters are three months, and align with the standard reporting year for the market.
- There are only 14 days of analysis included in Q4 2007 as 45 days worth of historical data (HAP) are needed before the calculation of UDE can be determined.
- Please note that as of October 2010 report, reporting graphs now reflect the Financial Year not the Calendar Year as previously presented i.e. Quarter 1 (October – December), Quarter 2 (January – March), Quarter 3 (April – June) and Quarter 4( July – Sept).