

# **Market Operator Monthly Report**

# September 2014

# **Table of Contents**

1	EXECUTIVE SUMMARY	4
2	MONTHLY STATISTICS	5
	CODE BREACHES	5
	JOINING AND TERMINATING PARTIES AND UNITS	6
	SUSPENSION OF PARTICIPANTS	6
3	FINANCIAL STATISTICS	7
-		
	TOTAL CHARGES FOR EACH CURRENCY TOTAL PAYMENTS FOR EACH CURRENCY	
	TOTAL PATMENTS FOR EACH CORRENCT	
	TOTAL BALANCING COSTS	
	CUMULATIVE IMPERFECTIONS COSTS VS BUDGET	12
	FINANCIAL CHANGES BETWEEN INITIAL SETTLEMENT AND SUBSEQUENT REFUNS	
	3.1.1 Energy Market	
	3.1.2 Capacity Market	
4	HELPDESK CALL STATISTICS	21
_	DISPUTES AND QUERIES	
5	-	
	LIST OF DISPUTES BY TOPIC	
	LIST OF QUERIES BY TOPIC	
	5.1.1 Data Queries	
	5.1.2 Settlement Queries	
	UNRESOLVED QUERIES	23
6	CENTRAL SYSTEMS	24
	PROPORTION OF DEFAULT DATA USED	
	PROPORTION OF ESTIMATED METER DATA USED IN INITIAL SETTLEMENT AND RESETTLEMENT	
	LIST OF SYSTEM ERRORS AND RE-RUNS.	
	6.1.1 Re-Pricing and Resettlement Runs	
	6.1.2 System Errors	
	6.2.1 MSP Postings September 2014	
	6.2.2 MSP Algorithms	
	6.2.3 Settlement Postings September 2014	
	6.5 MARKET SYSTEM RELEASES	30
	6.5.1 Release SEM R2.5.0 (Proposed Deployment: November 14 <sup>th</sup> , 2014)	
	6.5.2 Release SEM R2.6.0 (Proposed Deployment: April 2015)	31
7	OCCASIONAL COMPONENTS	32
	7.1 DISASTER RECOVERY/BUSINESS CONTINUITY TESTS	32
	7.2 Administered Settlement	
	7.3 COMMUNICATIONS OR SYSTEMS FAILURES	32
	7.4 DENIAL OF SERVICE ATTACKS	
	7.5 SUBMISSION OF PARAMETERS TO RAS FOR APPROVAL	33
8	APPENDIX A: DETAIL OF CODE BREACHES	34
	MARKET PARTICIPANT	34
	DATA PROVIDER	
	SEMO - PRICING AND SCHEDULING	
	SEMO – SETTLEMENTS	
	SEMO - FUNDS TRANSFER	
	SEMO - CREDIT MANAGEMENT	
	SEMO – OTHER	36
9	APPENDIX B: LIST OF QUERIES BY TYPE	37
	DATA QUERIES	37

S	Settlement Queries	38
10	APPENDIX C: LIST OF ALL SYSTEM ERRORS AND FAILURES	39
11	APPENDIX D: DETAILS OF OPERATIONAL TIMINGS	40
N S	Market Schedule and Price Runs	40 41
12	APPENDIX E: IMPERFECTIONS CHARGE	42
13	APPENDIX F: DEFAULT COMMERCIAL OFFER DATA USED	52
14	APPENDIX G: TOTAL CHARGES AND PAYMENTS DATA	56
15	APPENDIX H: FULL BALANCING COSTS	58
٦	RADING MARKET	58
	CAPACITY MARKET	
16	APPENDIX I: MSP ALGORITHMS	60

### **1** Executive Summary

This Single Electricity Market Operator's (SEMO) report covers the month of operation of September 2014 and is published in accordance with the Single Electricity Market (SEM) Committee decision and Clause 2.144 of the Trading and Settlement Code. Trading and Settlement Code

During the month of September 2014, Settlements had one late publication as per the Trading and Settlement code.

192 general queries were received in September 2014. During the same period 191 general queries were resolved.

There were nine defaults by Participants during September 2014. The largest of these was an Energy Initial invoice for €2525.69 which was remedied on the same day.

Formal queries continue to be answered well within the timelines stipulated in the Trading and Settlement (Code).

## 2 Monthly Statistics

#### Code Breaches

Breaches of the Trading & Settlement Code were noted in the following areas.

Code Breaches						
	Area					
Data Providers		-	3			
Market Participants	Pricing & Scheduling	-	-			
	Settlement	-	-			
	Funds Transfer		-			
	-	-				
SEMO	Pricing & Scheduling	-	3			
	Settlement	-	1			
	Funds Transfer	-	-			
	Credit Risk Management	-	-			
	Other	-	-			
Total	•	9	7			

Table 1 - Code Breaches

Further details of each of the code breaches noted above are set out in Appendix A

Key:

- Major Breach late publishing of invoices, default notices issued for non-payment or similar.
- Minor Breach deadlines not met, but any financial implication to Participants. This includes late posting of pricing and settlement runs.

#### Joining and Terminating Parties and Units

No parties joined the Market in September 2014

There were no terminating parties in September 2014.

Seven new units became effective in the Market in September 2014

- Activation Energy (AE2) DSU (PT\_400090/DSU\_401610)
- Activation Energy (AE3) TSSU (PT\_400091/SU\_400176)
- Activation Energy (AE3) DSU (PT\_400090/DSU\_401620)
- Activation Energy (AE3) TSSU (PT\_400091/SU\_400177)
- Kill Hill Wind Farm APTG (PT 400062/GU 401650)
- Lendrums Bridge Wind Farm APTG (PT\_500021/GU\_501320)
- Empower Generation AGU (PT\_500067/GU\_501230)

One unit was de-registered from the Market in September 2014

- Lendrums Bridge Wind Farm – APTG – (PT\_500034/GU\_500260)

#### Suspension of Participants

There have been no Suspension Orders issued by the Market Operator at this time.

## **3** Financial Statistics

#### Total Charges for Each Currency

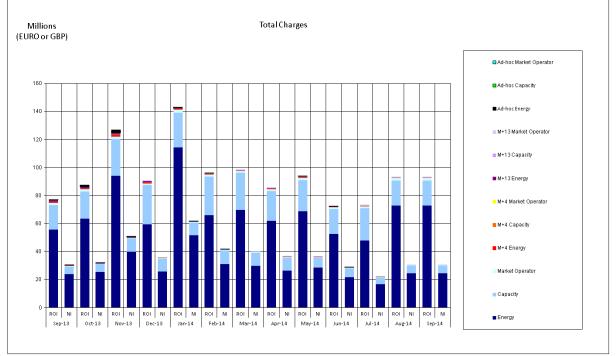


Figure 1 - Total Charges for Each Currency

Devilent	Septem	ber 2014
Market	ROI	NI
Energy	€73,166,500	£24,828,028
Capacity	€17,774,079	£5,414,450
Market Operator	€1,638,146	£421,681
M+4 Energy	€285,506	£62,719
M+4 Capacity	€62,432	£15,276
M+4 Market Operator	€3,367	£567
M+13 Energy	€92,321	£41,391
M+13 Capacity	€30,020	£13,195
M+13 Market Operator	€728	£661
Ad-hoc Energy	€0	£0
Ad-hoc Capacity	€0	£0
Ad-hoc Market Operator	€0	£0
Total	€93,053,099	£30,797,968

Table 2 - Total Charges for Each Currency

Notes relating to Table 2 and 3:

- Month of inclusion based on Invoice Date.
- Amounts are after application of Settlement Reallocations.
- Previous month's data is available in <u>Appendix G</u>.

Total Payments for Each Currency

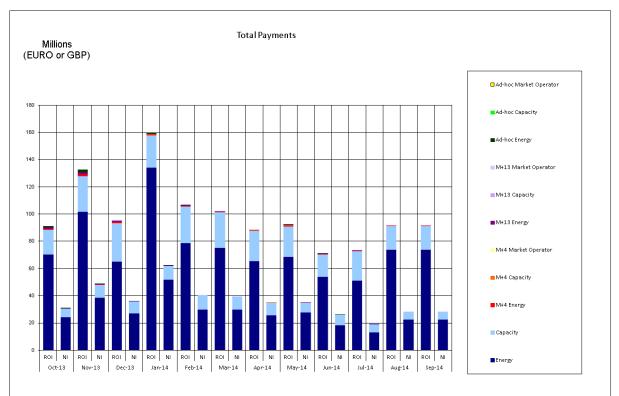


Figure 2 - Total Payments for Each Currency

Marilant	Septemb	oer 2014
Market	ROI	NI
Energy	€73,630,247	£22,272,153
Capacity	€17,405,067	£5,742,483
M+4 Energy	€261,367	£49,070
M+4 Capacity	€62,925	£14,962
M+4 Market Operator	€3,377	£718
M+13 Energy	€73,034	£41,405
M+13 Capacity	€11,846	£13,672
M+13 Market Operator	€728	£509
Ad-hoc Energy	€0	£0
Ad-hoc Capacity	€0	£0
Ad-hoc Market Operator	€0	£0
Total	€91,448,591	£28,134,971

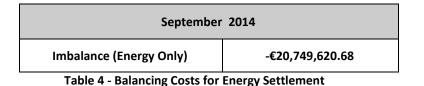
Table 3 - Total Payments for Each Currency

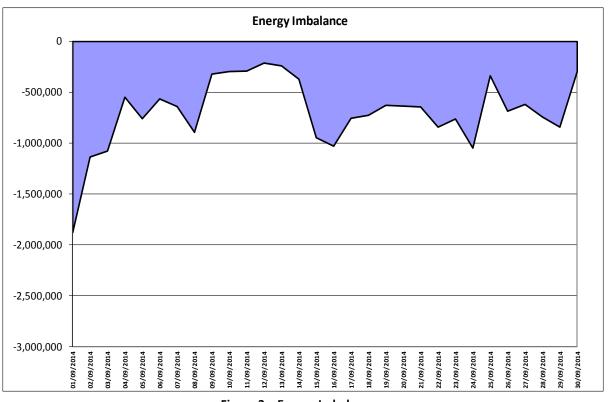
#### **Total Balancing Costs**

Balancing Costs arise in the Energy and Capacity markets when the summed payments to the SEM from Participants in respect of their Supplier Units do not meet the summed payments to Participants from the SEM in respect of their Generator Units.

Although, it is intended the Energy Payments and Energy Charges should be balanced through the mechanism of the Error Supplier Unit in each jurisdiction, because Energy Payments are made against Market Schedule Quantities while the Error Supplier Unit volumes are calculated against Metered Generation, the different application of Loss Factors means that there is frequently an imbalance between the Energy Payments and Energy Charges.

With regard to the Energy Settlement, the Balancing Costs have been calculated as follows for the entire month:





#### Figure 3 – Energy Imbalances

The full Balancing Cost of the SEM is determined by the summation of the daily payment amounts for Energy Imbalance, Constraint Payments, Uninstructed Imbalance Payments, and Imperfections Charges combined with the weekly Make Whole Payments and Testing Charges. Historical values for testing charges have been provided in Appendix E.

The figures for the full Balancing Cost of the SEM since the last Market Operator report are shown below, as well as the VAT Balancing Costs.

In tables 5 and 6 below:

- Positive values indicate Payments were greater than Charges.
- Negative values indicate Charges were greater than Payments.

Date Of Invoice	Week No	SEM Balancing Costs	VAT Balancing Costs
05/09/2014	34	€114,448.94	-€54,535.19
12/09/2014	35	-€671,027.53	€10,735.30
19/09/2014	36	-€1,194,440.43	€149,695.20
26/09/2014	37	-€360,014.03	€113,693.93

 Table 5 - Balancing Costs for Trading Payments and Charges

SEM Balancing Costs are provided based on daily exchange rates, VAT Balancing Costs are based on the Invoicing day exchange rate. VAT Balancing costs exclude Currency Cost related VAT.

It is intended that the algorithms set out in the Trading and Settlement Code will lead to a balanced Capacity Market. However, rounding precisions within the systems may result in an imbalance being introduced into the equations. This imbalance may lead to funding requirements to ensure that all payments out are made as per the terms of the Code.

With regard to the Capacity Settlement, the Balancing Costs have been as follows:

September 2014				
Capacity Charges	-€40,590,187.22			
Capacity Payments	€40,589,940.33			
Balancing Costs	€-246.89			
VAT	€-1324.55			

Historical figures, the current financial year full Balancing Costs for both Trading and Capacity are provided in <u>Appendix H</u>. VAT Balancing costs exclude Currency Cost related VAT.

### Total Currency Costs

Currency Costs in the SEM are calculated with respect to the difference in Exchange Rates due to two components:

1) Invoice Currency Costs: - in respect of the difference between the Trading Day Exchange Rate (and Annual Capacity Exchange Rate in respect of Capacity Settlement) and the Exchange Rate on the Date of Invoice (being the date of issue of the Invoice) for Trading Payments and Charges.

2) Payment Period Currency Costs: - in respect of the difference between the Exchange Rates between the Date of Invoice and the Date of Payment.

Although the Code uses the term Currency Cost, the currency differences may end up as a benefit or a cost to the Participant depending on how the Exchange Rate fluctuates between the Billing Period, Invoice Date and Payment Date. In the table below, where this value is positive this means there was an overall benefit to Participants, negative values mean there was an overall cost to Participants resulting from trading in two currencies. Figures are shown in Sterling (£).

Last Date Of Billing Period	Date Of Invoice	Week No	Currency Costs For Energy Settlement (Invoice and Payment) Currency Cost Adjustment for Inter- jurisdictional SRAs		Total Currency Cost
30/08/2014	05/09/2014	34	-£3,221.07	£0	-£3,221.07
06/09/2014	12/09/2014	35	-£2,398.82	£0	-£2,398.82
13/09/2014	19/09/2014	36	£29,778.21	£0	£29,778.21
20/09/2014	26/09/2014	37	-£851.16	£10,770.78	£9,919.62

 Table 7 - Total Currency Costs for Trading Payments and Charges

The Total Currency Cost figures detailed above show the Currency Cost for each Billing Period including Invoice Currency Costs, Payment Period Currency Costs, and Interjurisdictional SRA Currency Costs.

Over the period of this report Currency Costs for each week represented a benefit to Participants of up to £29,778.21 and a cost of -£3,221.07. Whether Currency Costs are a cost or benefit to Participants is directly related to whether the currency is rising or falling between the billing period, invoice date and payment dates.

Settlement Reallocation Agreements between the two currency zones continue to present volatility in the Currency Costs that appear in the Energy market each week. The value of these adjustments is detailed separately above in each Billing Period.

The Currency Costs, for the current financial year, with respect to Initial Capacity Settlement are set out below. Figures are shown in Sterling (£).

Date Of Invoice	Capacity Month	Currency Costs For Capacity Settlement
09/09/2014	August 2014	£-66,050.94

Table 8 - Total Currency Costs for Capacity Payments and Charges

#### **Cumulative Imperfections Costs Vs Budget**

The value of Cumulative Imperfections Costs Vs Budget is calculated as the sum of Total Constraint Payments, Total Uninstructed Imbalance Payments, Total Testing Charges and Total Make Whole Payments, as compared against the Total Imperfections Charges, being the weekly budget for these Imperfections Costs.

These values have been collected across the months since the start of the new financial year, 1st October 2013. The values expressed in Euros are as follows.

This table makes use of the values taken from the Initial Settlement Run of Trading payments and charges.

Total Cor Payme	 Total Uninstructed Imbalance	Total Make Whole Payments	Total Imperfections
€181,919	 -€2,660,332.37	€4,593,000.73	-€142,809,118.78

Table 9 – Cumulative Imperfections Costs Vs Budget

This is demonstrated in the figure below.

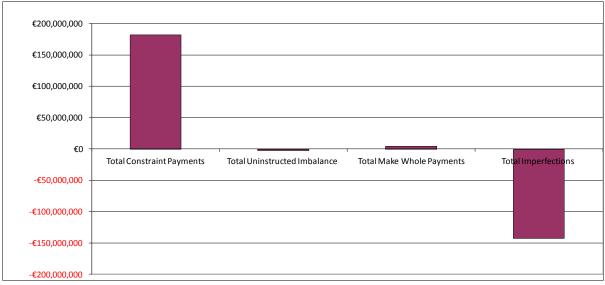


Figure 4 - Cumulative Imperfections Costs Vs Budget

The daily and weekly data that comprised these values is shown in <u>Appendix E</u>.

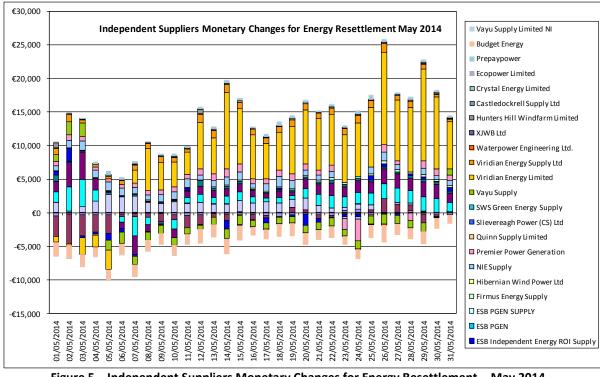
### Financial Changes between Initial Settlement and Subsequent Reruns

The following graphs provide a breakdown of resettlement amounts for the M+4 resettlement period of May 2014 and M+13 resettlement period of August 2013 for Energy and Capacity.

#### 3.1.1 Energy Market

Note: - For Figure 6, 8, 9, net values are shown.

- Positive amounts indicate net additional payments by Participants (Charges).
- Negative amounts indicate net additional payment to be made to Participants • (Payments).



The reverse is true for Figure 7 & 10.

Figure 5 – Independent Suppliers Monetary Changes for Energy Resettlement – May 2014

The above variances relates purely to rounding for Participants between Initial and M+4 Resettlement.

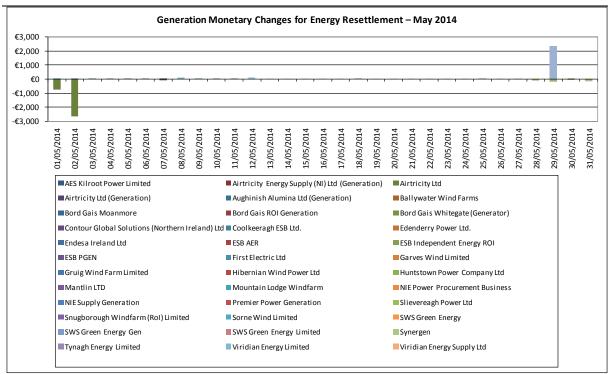
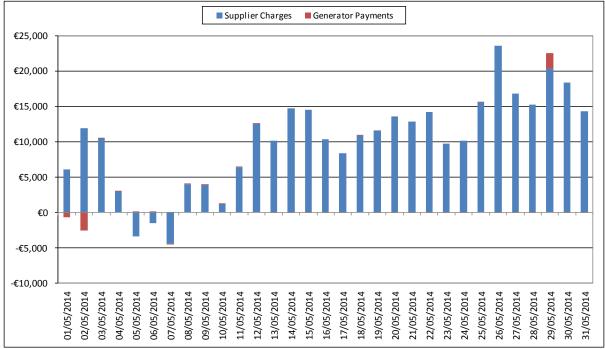


Figure 6 – Generation Monetary Changes for Energy Resettlement – May 2014



Changes noted above are driven by updates to Meter Data.

Figure 7 – Total Monetary Changes for Energy Resettlement – May 2014

#### M+13 Resettlement

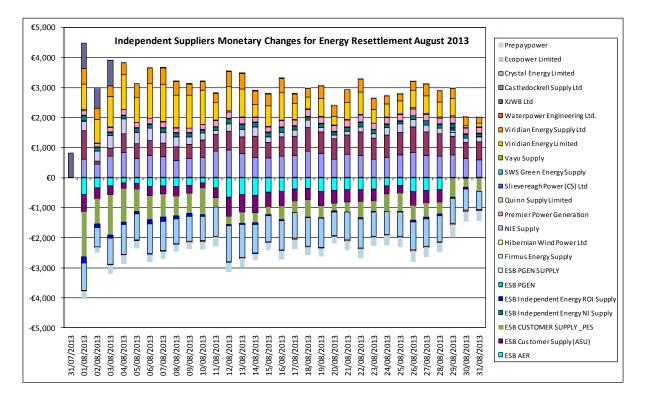


Figure 8 - Independent Suppliers Monetary Changes for Energy Resettlement – August 2013

The above variances relates purely to rounding for Participants between M+4 and M+13 Resettlement.

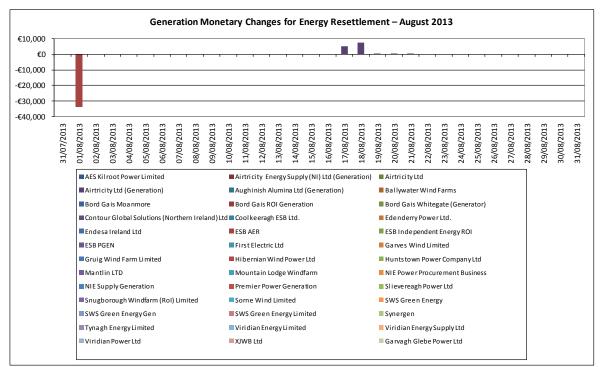


Figure 9 - Generation Monetary Changes for Energy Resettlement – August 2013

Changes noted above are due to updated Meter Data, Loss Factors and Dispatch Quantities.

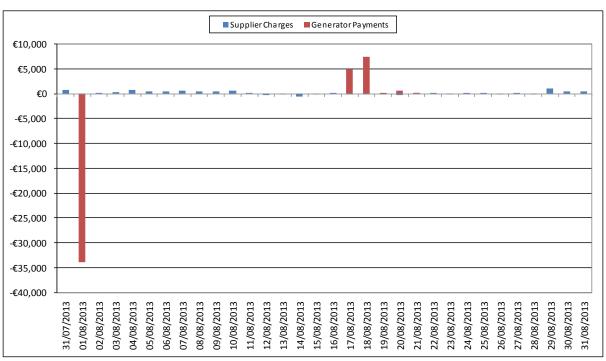


Figure 10 - Total Monetary Changes for Energy Resettlement – August 2013

#### 3.1.2 Capacity Market

Note: - For Figure 12, 13 & 16 net values are shown.

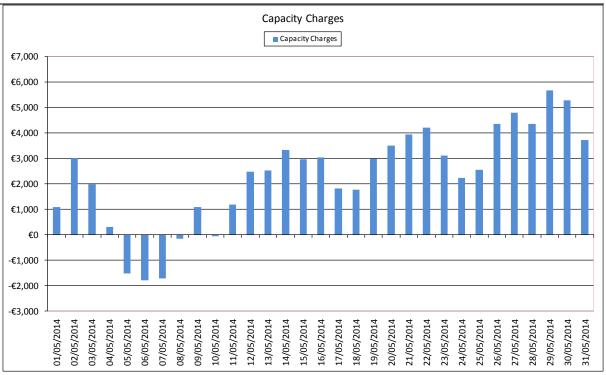
- Positive amounts indicate net additional payments by Participants (Charges).
- Negative amounts indicate net additional payment to be made to Participants (Payments)

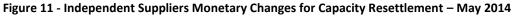
The reverse is true for Figure 14 & 22.

The changes in Capacity are graphed below showing the variance in monetary terms as opposed to percentage terms. As the Jurisdictional Error Supply Units can be significantly affected by resettlement, this is more reflective of the monetary redistribution in M+4 and M+13. Please also note that as of June 2011 the Jurisdictional Error Supply Unit (ROI) is now a Retail Supply unit. The Jurisdictional Error Supply Unit (NI) is unchanged.

#### M+4 Resettlement

Under resettlement, charges originally attributed to the Jurisdictional Error Supplier Units, have now been redistributed among Market Participants.





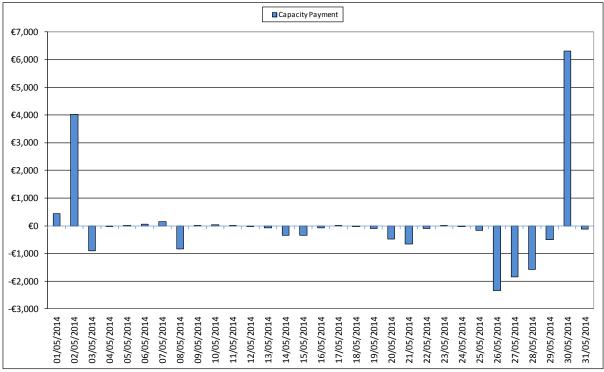


Figure 12 - All Generation Monetary Change for Capacity Resettlement – May 2014

The changes above are driven by updated meter data for Autonomous Price Taker Generators.

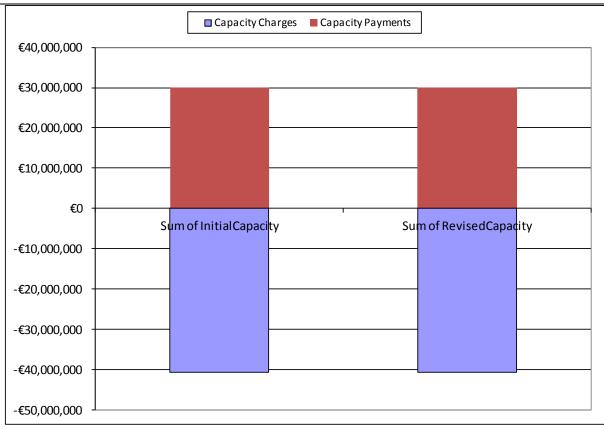


Figure 13 - Comparison of Distribution of Monetary Amounts between Capacity Initial and Resettlement May 2014

The above graph demonstrates that due to all the individual changes to payment and charge amounts on a Supplier or Generator Unit basis, the overall Capacity Market resettlement Charge and Payment amounts have not changed due to resettlement.

#### M+13 Resettlement

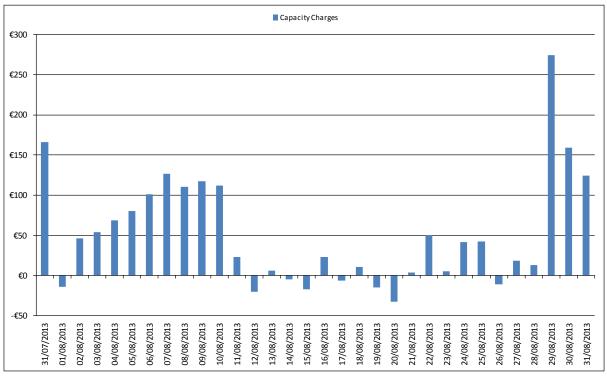


Figure 14 - Independent Suppliers Monetary Changes for Capacity Resettlement – August 2013

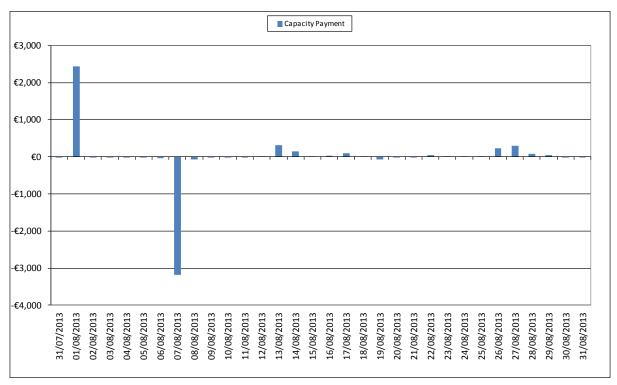


Figure 15 - All Generation Monetary Change for Capacity Resettlement – August 2013

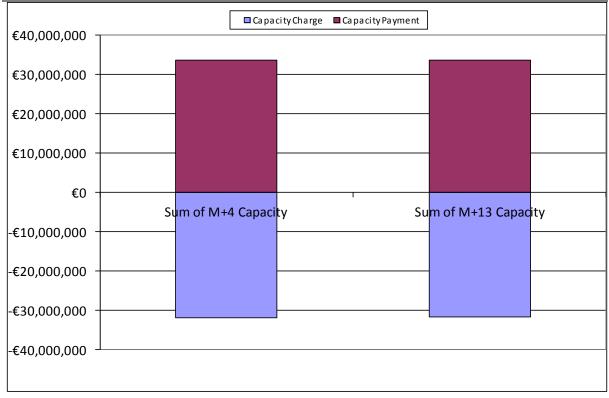


Figure 16 - Comparison of Distribution of Monetary Amounts between M+4 Capacity Resettlement and M+13 Capacity Resettlement – August 2013

The above graph demonstrates despite all the individual changes to payment and charge amounts on a Supplier or Generator Unit basis, the overall Capacity Market resettlement Charge and Payment amounts have not changed due to resettlement.

## 4 Helpdesk Call Statistics

The statistics presented in Table 10 - Helpdesk Call Statistics covers the month of September 2014.

	Received	Resolved within the period	Not Resolved	Resolved in the period	Resolution Time (Working Days)	Resolved On Time
Normal	181	159	22	180	1.73	163
Important	2	2	0	2	0.72	2
Urgent	9	9	0	9	0.34	9
Settlement	6	4	2	8	5.74	7
Credit	0	0	0	0	0.00	0
Dispute	1	0	1	0	0.00	0
Data	2	2	0	2	0.21	2
Total/Average	201	176	25	201	1.75	183

#### Table 10 – Helpdesk Statistics

Definitions:

- *Resolved within the Period* refers to queries raised and resolved within the calendar month of September 2014.
- *Resolved in the Period* refers to queries resolved within September 2014, and includes queries raised before this time.
- *Resolution Time (Working Days)* refers to average time to resolve, in working days, for this category of query. It is calculated based on all queries for the category, not just September 2014.
- Not Resolved refers to queries raised but not resolved within September 2014.
- Urgent are general queries which may have an impact on market operations. SEMO has an internal objective to resolve these within 3 working days; however, this is not mandated service level under the Trading & Settlement Code.
- *Disputes* are where a dispute has been raised over the outcome of a data or settlement query.

The average resolution time for General Queries has decreased by 1.26 working days in September from 2.91 working days in August to 1.65 working days in September. SEMO has a metric to resolve General Queries within 20 Working Days. These include queries received over the phone and e-mail. There were no queries logged in September 2014 that took over 20 working days to resolve.

Data and Settlement Queries generally continue to be responded to within the timelines required by the Code, i.e. one calendar month. No Formal Query timeline extensions were required during September 2014 with regard to formal Settlement Queries.

## 5 Disputes and Queries

#### List of Disputes by Topic

As of the 6<sup>th</sup> October there is one outstanding Dispute.

Dispute	Raised	Resolved					
F0060396	2014-09-25	Open					

Table 11 – List of Disputes

#### List of Queries by Topic

#### 5.1.1 Data Queries

There were three formal Data Queries raised during the month of September 2014.

Торіс	Number Of Queries
Dispatch Instructions	1
Availability	1

#### Table 12 – Upheld Data Queries by topic

• One Data Query in relation to Loss Factors was not upheld; queries regarding Transmission Loss Adjustment Factors (TLAFs) cannot be raised as Data Queries, query to be resubmitted as a Settlement Query.

#### 5.1.2 Settlement Queries

There were five Settlement Queries raised in September 2014. Of the five, two were upheld, one query was not upheld, one query was rejected and one query is still open. As at 6<sup>th</sup> October 2014 there are two open Settlement Queries.

Торіс	Number Of Queries
Metered Generation	1
Availability	1

- One query relating to Metered Generation was raised. This query was deemed to be of no Materiality for Energy and was settled correctly for Indicative Capacity.
- One Query relating to Actual Availabilities was raised. This query was deemed to be of low Materiality and will be settled in M+4.
- One query relating to SMP was not upheld.
- One query relating to Settlement Statements was rejected.

## Unresolved Queries

There are two unresolved Settlement Queries as at 6<sup>th</sup> October, 2014.

A full list of all the Data and Settlement queries raised is contained in Appendix B.

## 6 Central Systems

#### Proportion of Default Data Used

On review of the Commercial Offer Data used in the MSP runs, 69.53% of data used was submitted by Participants through the normal Bid-Offer process. 30.47% of the data used was based on Standing Commercial Offer Data. 0% of the data used was based on adjusted offer data. None of the data used was based on Default Commercial Offer Data (Default differs from Standing in that it is based on the initial Default data submitted during registration process and not on more recent Standing Data submitted by the Participant through the Market Participant Interface). Details by unit are provided in <u>Appendix F</u>.

#### Proportion of Estimated Meter Data used in Initial Settlement and Resettlement

This is not calculable presently.

#### List of System Errors and Re-runs

#### 6.1.1 Re-Pricing and Resettlement Runs

There were no Re-Price runs carried out in September 2014.

There were no Resettlement runs carried out in September 2014.

#### 6.1.2 System Errors

There were no defects identified in September 2014 that required Resettlement. There were no system defects identified in September 2014 that required re-pricing.

Details are provided in <u>Appendix C</u>: List of All System Errors and Failures.

#### 6.2 Operational Timings

This section lists the operation timings of MSP software runs and Settlement runs.

There are five run types for MSP software,

- Ex-Ante 1 Indicative, run on Trading Day 1 calendar day,
- Ex-Ante 2 Indicative, run on Trading Day 1 calendar day,
- With In Day 1 Indicative, run on Trading Day,
- Ex-Post Indicative, run on Trading Day + 1 calendar day, and
- Ex-Post Initial, run on Trading Day + 4 calendar days.

The following tables and graphs provide details for the postings of the MSP for September 2014.

Process	On Time	< 1 hr late	> 1 hr late	Not done
Gate Close EA	30-31	1-31	0-31	0
Post EA1	31-31	0-31	0-31	0
Post EA2	31-31	0-31	0-31	0
Post WD1	31-31	0-31	0-31	0
Post EP1	31-31	0-31	0-31	0
Post EP2	31-31	0-31	0-31	0

#### 6.2.1 MSP Postings September 2014

Table 14 - Operational Timings

Process	On Time	< 1 hr late	> 1 hr late	Not done
Gate Close	97%	3%	0%	0%
Post EA1	100%	0%	0%	0%
Post EA2	100%	0%	0%	0%
Post WD1	100%	0%	0%	0%
Post EP1	100%	0%	0%	0%
Post EP2	100%	0%	0%	0%

Table 15 - Operational Timings (% on time)

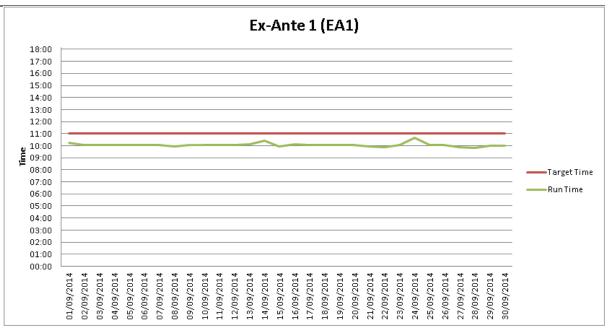


Figure 17 – Ex-Ante 1

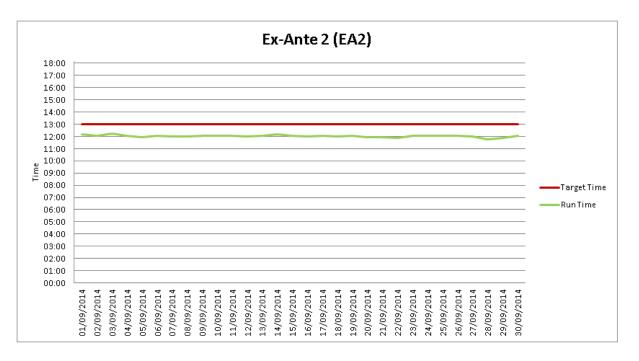


Figure 18 – Ex-Ante 2

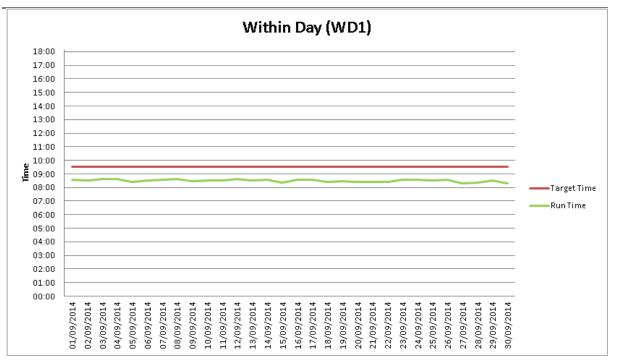


Figure 19 – Within Day 1

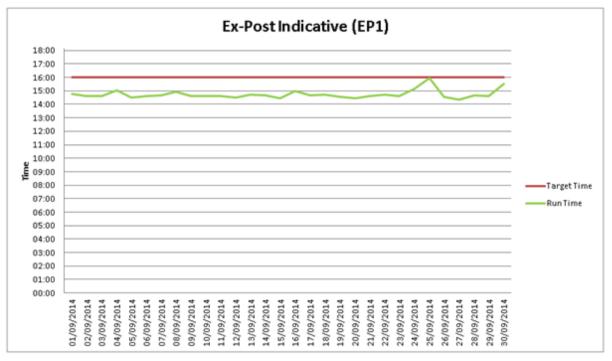


Figure 20 - Ex-Post Indicative

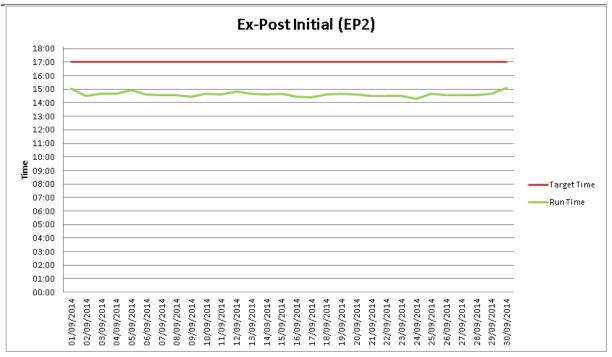


Figure 21 - Ex-Post Initial

Details of the operational timings of the Market System and Price (MSP) runs and Gate Closure are provided in <u>Appendix D</u>.

#### 6.2.2 MSP Algorithms

The Market Operator has two different certified solvers used to determine Unit Commitment. These solvers use the Lagrangian Relaxation (LR) and Mixed Integer Programming (MIP) methodologies.

The primary solver used in the SEM is Lagrangian Relaxation (LR). Under certain schedule outcomes where a significant pricing event is observed, the MSP software is re-run using the Mixed Integer Programming (MIP) solver. The outcomes of the two solvers are compared. Where solution determined using the MIP solver provides a better overall solution, this solution may be selected for publishing. An updated policy document on the use of MIP has been published and is available on the SEMO website <u>here</u>.

In September 2014, there were four instances of publishing with the MIP solver.

A detail of historical runs and dates where the MIP algorithm has been used for published results is provided in <u>Appendix I</u>.

#### 6.2.3 Settlement Postings September 2014

The publication timings for Settlement runs are provided below.

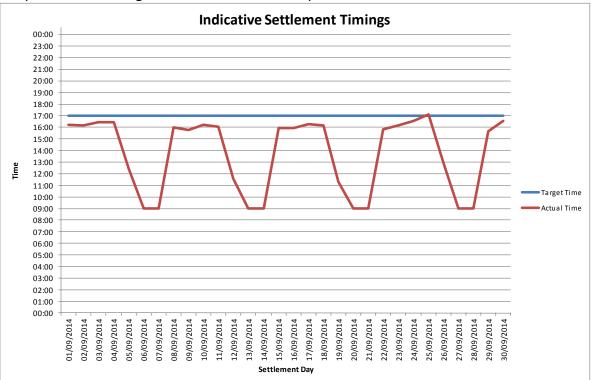


Figure 22 - Indicative Settlement Postings

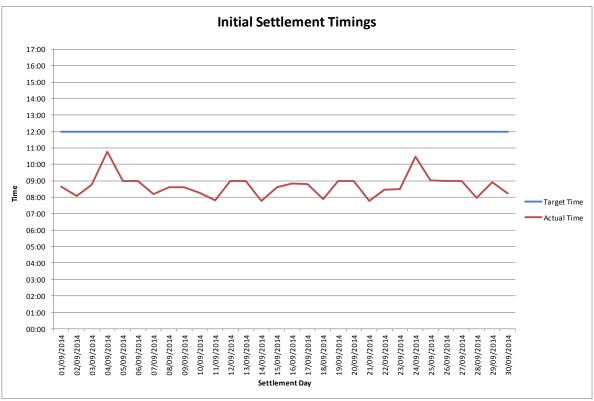


Figure 23 - Initial Settlement Postings

Further details of any delays noted above are provided in Appendix A

#### 6.5 Market System Releases

### 6.5.1 Release SEM R2.5.0 (Proposed Deployment: November 14<sup>th</sup>, 2014)

Approval for the proposed scope for this release was received from the Regulatory Authorities on May 1<sup>st</sup>, 2014. The High Level Impact Assessment (HLIA) was published to the industry on May 7<sup>th</sup>, 2014.

CR Ref.	System	Description
SEM_PC_CR322	STL	Eligible Availability for Energy Limited Units Under Test
SEM_PC_CR327	MI	Event Queuing
SEM_PC_CR333	STL	Functionality to apply PUGDOG, TTariff on a Trading Day
		basis
SEM_PC_CR332	STL	Issue Zero Invoices
SEM_PC_CR330	MI	Changes to IART Report
SEM_PC_CR336	STL	HMRC VAT Change
SEM_PC_CR340	MA	DSI-Processing of Bids
SEM_PC_CR344	MA	SPOT ATC to override ATC Interval file in UUC

The approved scope for this release is as follows:

The software was delivered by our vendors on July 31<sup>st</sup>.

During June we were advised that HMRC were introducing new rules with respect to the application of VAT to supplies of wholesale electricity in the domestic UK market. As a result CR336 – HMRC VAT Change was added to the release scope. Information in relation to this was published to the industry on June 25th. In addition the following two Change Requests (CR340 and CR344) were added to scope in September:

- SEM\_PC\_CR340 to ensure optimisation data is handled correctly in DSI and
- SEM\_PC\_CR344 to ensure interval ATC data is utilized in UUC when required (e.g. when an Interconnector Trips).

The software was delivered by our vendors on July 31<sup>st</sup>.

System Integration test commenced to schedule and runs from August 5<sup>th</sup> to October 31<sup>st</sup>.

There will be a brief phase of Market Test which is scheduled to commence on October 13<sup>th</sup> and conclude on October 24<sup>th</sup>. The additional change requests outlined above do not impact Market Test.

The software is scheduled for deployment to our Production systems on Friday, November 14<sup>th</sup> 2014, subject to successful completion of all testing.

#### 6.5.2 Release SEM R2.6.0 (Proposed Deployment: April 2015)

The release cut-off date for the SEM R2.6.0 release was Friday September 5<sup>th</sup>, 2014.

As at the Cut-Off Date there were no:

- Approved Modification Proposals or
- New Change Requests submitted to the SDS

As there are no functional changes being proposed, a Change Control Forum (CCF) meeting will not be required. Three technical changes have been proposed by SEMO IT and these are currently being assessed by our vendors. Once assessments are complete SEMO will issue a scope proposal to the Regulatory Authorities and if approved, this will be published to the industry.

#### 7 Occasional Components

#### 7.1 Disaster Recovery/Business Continuity Tests

There was no Business Continuity Tests performed during September 2014.

#### 7.2 Administered Settlement

There was no requirement to run Administered Settlement during September 2014.

#### 7.3 Communications or Systems Failures

There were a number of Market Interface System issues during September 2014;

A feed submission to the AMP web service by SONI TSO was displaying an error on the SONI side of operations. The AMP web service was checked and verified, and all interfaces were up and running; no issue was discovered. The issue was then determined to have been a 'false-positive' from the TSO\_SONI side.

The MIUN calculator failed during an EA2 run on the 25/09/2014. Upon investigation by MS IT and the 3rd party vendor, the issue was determined to be a software bug, and a defect has been opened up with the 3rd party vendor to prevent a re-occurrence.

CHCC reported an issue with RCUC, stating that the screen appeared to have frozen. Upon investigation, a problem was discovered with the tomcat hosting service for the RCUC GUI. The service was restarted to correct the issue (affected Belfast only).

RCUC team reported that a feed from the CMS (sent to the CMS web service from TSO\_Eirgrid) had not been received. The CMS web service was checked and verified, and all interfaces were up and running; no issue was discovered. The issue was then determined to have been an issue on the TSO\_Eirgrid side with the original submission of the file.

NCC reported that a minute NTC update to AMP (due to the extension of the EWIC outage) had not been reflected in the resulting produced schedule. Upon investigation, the issue appears to have been caused by a number of elements (including the time taken for the MIUN calculation), and this is being followed up (and escalated to the appropriate people) to ensure this situation does not occur again. The NCC completed the run using manual entry of the outage extension to allow business continuity.

#### 7.4 Denial of Service Attacks

There was no Denial of Service Attacks during September 2014.

## 7.5 Submission of Parameters to RAs for Approval

No parameters were submitted to the Regulatory Authorities during September 2014.

# 8 Appendix A: Detail of Code Breaches

#### Market Participant

Ops Date Identified	Run Type	Quality or Timing	Party	Issue Type	Description	Cause	Resolution	T and SC Breach
10/09/2014	Money In	Timing	Participant	Payment Default	Waterpower Engineering PT_400045 defaulted on an M+4 Energy invoice.	Participant error	A default notice was issued	Major
12/09/2014	Money In	Timing	Participant	Payment Default	Activation Energy DSU PT_400090 defaulted on an August 2014 Initial FMOC invoice.	Participant error	A default notice was issued	Major
12/09/2014	Money In	Timing	Participant	Payment Default	Electricity Exchange Limited PT_400116 defaulted on an August 2014 Initial FMOC invoice.	Participant error	A default notice was issued	Major
12/09/2014	Money In	Timing	Participant	Payment Default	Endeco Technology Limited PT_400133 defaulted on an August 2014 Initial FMOC invoice.	Participant error	A default notice was issued	Major
12/09/2014	Money In	Timing	Participant	Payment Default	Quinn Supply Limited PT_500041 defaulted on an August 2014 Initial FMOC invoice.	Participant error	A default notice was issued	Major
17/09/2014	Money In	Timing	Participant	Payment Default	Activation Energy DSU PT_400090 defaulted on a Initial Energy invoice.	Participant error	A default notice was issued	Major
17/09/2014	Money In	Timing	Participant	Payment Default	Ecopower Energy PT_400068 defaulted on an Initial and a M+4 Energy invoice.	Participant error	A default notice was issued	Major
24/09/2014	Money In	Timing	Participant	Payment Default	Danske Commodities PT_500070 defaulted on Initial and M+4 Energy invoices.	Participant error	A default notice was issued	Major
26/09/2014	Money In	Timing	Participant	Payment Default	Waterpower Engineering PT_400045 defaulted on an Initial Energy invoice.	Participant error	A default notice was issued	Major

Table 16 - Code Breaches – Market Participants

#### Data Provider

Ops Date Identified	Run Type	Quality or Timing	Party	Issue Type	Description	Cause	Resolution	T and SC Breach
23/09/2014	EA1	Timing	sone MDP	File Submission	The SONII Wind Forecast for Trading Day 23/09/2014 was not received by 09:30.	Faled submission due to a unit missing from the Wind Forecast file.	SONI submitted a corrected file at 10:30 after gate window closure	Minor
30/09/2014	EA1	Timing	sone MDP	File Submission	The SONII Wind Forecast for Trading Day $01/10/2014\ {\rm was}$ not received by 09:30 gate window closure.	Failed submission due to a unit missing from the Wind Forecast file.	SONI submitted a corrected file at 10:45.	Minor
30/09/2014	WD1	Quality	EWIC IA	Operational	There was a change to ATC for EWIC on 30/09/2014	The change was due to a forced outage on the EWIC Interconnector.	IT provided a revised MUN files. These were uploaded to the CMS and MUN's were published on 01/10/2014 at 13:34.	Minor

Table 17 - Code Breaches – Data Providers

#### Market Operator Monthly Report

#### SEMO - Pricing and Scheduling

Ops Date Identified	Run Type	Quality or Timing	Party	Issue Type	Description	Cause	Resolution	T and SC Breach
25/09/2014	EA2	Timing	SEMO	Operational	There was a delay to the publication of EA2 MIUN's for Trading Day 26/09/2014.	The MIUN calculator did not return MIUNs for EWIC.	MIUN's were set to zero and published at 14:55.	Minor
26/09/2014	WD1	Quality	SEMO	Operational	WD1 EWIC and MOYLE MIUN's were set to zero.	EWIC and MOYLE MILWs could not be processed due to the failure of the calculator to find a feasible solution.	A zero file was submitted and published before the 09:30 deadline.	Minor
26/09/2014	EA1	Timing	SEMO	Operational	There was a delay to the publication of EA1 MIUN's for Trading Day 27/09/2014 past the 11:00 deadline.	The MIUN calculator did not return MIUN's for EWIC or MOYLE.	MIUN's were published at 11:25.	Minor

#### Table 18 - Code Breaches – Pricing and Scheduling

#### SEMO – Settlements

Ops Date Identified	Run Type	Quality or Timing	Party	Issue Type	Description	Cause	Resolution	T and SC Breach
26/09/2014	SE1	Timing	SEMO	Operational	Initial VMOC Statements and Participant Information Reports for Settlement Day 25/09/2014 were delayed.	There was a delay in the receipt of meter data files from SONI.	Indicative VMOC Statements and Participant Information Reports for Settlement Day 25/09/2014 were published at 17:09 on Friday, 26/09/2014	Minor

Table 19 - Code Breaches – Settlements

#### SEMO - Funds Transfer

There were no issues to report in September 2014

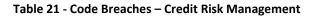


Table 20 - Code Breaches – Funds Transfer

#### SEMO - Credit Management

There were no issues to report in September 2014

Ops Date Identified	Run Type	Quality or Timing	Party	Issue Type	Description	Cause	Resolution	T and SC Breach		
There are no items to show in this view of the "Issues Log" list. To create a new item, click "New" above.										



#### SEMO – Other

There were no issues to report in September 2014

Ops Date Identified	Run Type	Quality or Timing	Party	Issue Type	Description	Cause	Resolution	T and SC Breach
There are no items to show in this view of the "Issues Log" list. To create a new item, click "New" above.								

Table 22 - Code Breaches – Other

# 9 Appendix B: List of Queries by Type

Data Queries

Summary Title	Description	ID	Logged On	Date sent to MP
TLAF	GU_400272 (Moneypoint Unit 3). TLAF Query. There is a difference in the TLAF values between Market Operator and our system. The file sent in for 2nd Sept. has a TLAF value of 0.988 for MP3 which differs to our 1.001. This value has not changed since June 2014. There are a number of units affected by this problem.	PT_400030	2014-09-04	2014-09-04
Dispatch Instructions	Incorrect DIs were sent to the SEM on D+3 for GU_400203 (Ardnacrusha Unit 4) on the 05/09/2014. GU_400203 (Ardnacrusha Unit 4) should have been dispatched to 0MW for the entire day as the unit was testing.	Eirgrid	2014-09-09	2014-09-09
Availability	Data query in relation to ACTA data for the 12/09/2014, reference; RBE 122	Eirgrid	16/09/2014	16/09/2014

Table 23 - Data Queries

#### Settlement Queries

Summary Title	Description	ID	Logged On	Date sent to MP
Availability	Incorrect Availability Declarations were sent to the SEM for GU_400530 (Tynagh Combined) for the 30/05/2014.	Eirgrid	2014-09-03	2014-09-08
SMP	High SMP due to pumped storage units in schedule - not as expected	PT_400028	12/09/2014	15/09/2014
Statement	Change in settlement statement, from indicative to initial	PT_400028	16/09/2014	17/09/2014
Meter Generation	The meters were uncontactable for GU_400630 (Knockawarriga Windfarm Phase 1) and GU_400600 (Tournafulla Windfarm Phase 2), this resulted in SCADA data being sent to the SEM for all day (00:00- 23:59) on the 12/09/2014.Meter data is now available.	Eirgrid	22/09/2014	26/09/2014
Meter Generation Error Unit	Querying the MGEU_IA_ROIEWIC_I_ROIEWIC values in PIR for settlement date 26/09/2014 for trading periods 05:00–05:30 and 05:30-06:00. The values in the Error report in AMP are different to the PIR for this settlement date	Interconnector Administrator	30/09/2014	

Table 24 - Settlement Queries

## **10** Appendix C: List of All System Errors and Failures

The definitions of the statuses used for the List of All System Errors and Failures are:

- In Progress: Fix being identified and implemented.
- Resolved: Fix has been implemented, but reruns have not been performed.
- Closed: Required reruns have been performed and error-failure has been completely rectified.

Note: Items in the List of All System Errors and Failures that have status 'Closed' in this months report will not appear in subsequent Monthly Market Operator Reports as they are no longer open issues.

Issue No.	Description	Effect	Fixed from	Re-Pricing	Resettlement	Status
-	There were no system defects identified in September 2014 that required repricing or resettlement	-	-	-	-	-

Table 25 - List of System Errors and Failures

# **11** Appendix D: Details of Operational Timings

# Market Schedule and Price Runs

	EA1 Po	ostings	EA2 Po	ostings	WD1 P	ostings	EP1Pa	ostings	EP2 Po	ostings
Operational										
Day	Target	Actual	Target	Actual	Target	Actual	Target	Actual	Target	Actual
01/09/2014	11:00	10:15:00	13:00	12:10	09:30	08:34	16:00	14:47	17:00	15:02
02/09/2014	11:00	10:05:00	13:00	12:04	09:30	08:32	16:00	14:38	17:00	14:31
03/09/2014	11:00	10:02:00	13:00	12:13	09:30	08:37	16:00	14:36	17:00	14:40
04/09/2014	11:00	10:02:00	13:00	12:03	09:30	08:38	16:00	15:04	17:00	14:40
05/09/2014	11:00	10:02:00	13:00	11:58	09:30	08:25	16:00	14:31	17:00	14:56
06/09/2014	11:00	10:04:00	13:00	12:04	09:30	08:31	16:00	14:37	17:00	14:36
07/09/2014	11:00	10:04:00	13:00	12:01	09:30	08:34	16:00	14:39	17:00	14:34
08/09/2014	11:00	09:58:00	13:00	12:01	09:30	08:36	16:00	14:57	17:00	14:35
09/09/2014	11:00	10:03:00	13:00	12:02	09:30	08:29	16:00	14:36	17:00	14:27
10/09/2014	11:00	10:03:00	13:00	12:02	09:30	08:32	16:00	14:36	17:00	14:40
11/09/2014	11:00	10:03:00	13:00	12:02	09:30	08:32	16:00	14:37	17:00	14:37
12/09/2014	11:00	10:04:00	13:00	12:01	09:30	08:36	16:00	14:31	17:00	14:50
13/09/2014	11:00	10:07:00	13:00	12:02	09:30	08:31	16:00	14:43	17:00	14:41
14/09/2014	11:00	10:25:00	13:00	12:11	09:30	08:34	16:00	14:39	17:00	14:38
15/09/2014	11:00	09:57:00	13:00	12:05	09:30	08:22	16:00	14:27	17:00	14:41
16/09/2014	11:00	10:06:00	13:00	12:01	09:30	08:35	16:00	14:58	17:00	14:28
17/09/2014	11:00	10:02:00	13:00	12:05	09:30	08:34	16:00	14:40	17:00	14:24
18/09/2014	11:00	10:03:00	13:00	12:01	09:30	08:24	16:00	14:43	17:00	14:37
19/09/2014	11:00	10:04:00	13:00	12:03	09:30	08:29	16:00	14:33	17:00	14:41
20/09/2014	11:00	10:02:00	13:00	11:58	09:30	08:23	16:00	14:26	17:00	14:36
21/09/2014	11:00	09:56:00	13:00	11:58	09:30	08:26	16:00	14:38	17:00	14:32
22/09/2014	11:00	09:53:00	13:00	11:54	09:30	08:25	16:00	14:44	17:00	14:31
23/09/2014	11:00	10:03:00	13:00	12:02	09:30	08:35	16:00	14:38	17:00	14:31
24/09/2014	11:00	10:40:00	13:00	12:02	09:30	08:35	16:00	15:09	17:00	14:18
25/09/2014	11:00	10:02:00	13:00	12:02	09:30	08:32	16:00	15:57	17:00	14:40
26/09/2014	11:00	10:02:00	13:00	12:02	09:30	08:34	16:00	14:34	17:00	14:33
27/09/2014	11:00	09:52:00	13:00	12:00	09:30	08:17	16:00	14:21	17:00	14:35
28/09/2014	11:00	09:51:00	13:00	11:46	09:30	08:22	16:00	14:41	17:00	14:34
29/09/2014	11:00	10:00:00	13:00	11:53	09:30	08:31	16:00	14:36	17:00	14:41
30/09/2014	11:00	10:00:00	13:00	12:04	09:30	08:18	16:00	15:30	17:00	15:06

Table 26 – MSP Runs

# Settlement Runs

	INDICATIVE				INITIAL	-		
Trading	Target	Actual	Target	Actual	Trading	Actual	Target	Actual
Day	Date	Date	Time	Time	Day	Date	Time	Time
01/09/2014	02/09/2014	02/09/2014	17:00	16:12	01/09/2014	08/09/2014	12:00	08:38
02/09/2014	03/09/2014	03/09/2014	17:00	16:09	02/09/2014	09/09/2014	12:00	08:04
03/09/2014	04/09/2014	04/09/2014	17:00	16:27	03/09/2014	10/09/2014	12:00	08:46
04/09/2014	05/09/2014	05/09/2014	17:00	16:27	04/09/2014	11/09/2014	12:00	10:46
05/09/2014	08/09/2014	08/09/2014	17:00	12:26	05/09/2014	11/09/2014	12:00	11:46
06/09/2014	08/09/2014	08/09/2014	17:00	14:57	06/09/2014	11/09/2014	12:00	12:49
07/09/2014	08/09/2014	08/09/2014	17:00	16:19	07/09/2014	12/09/2014	12:00	08:12
08/09/2014	09/09/2014	09/09/2014	17:00	15:59	08/09/2014	15/09/2014	12:00	08:36
09/09/2014	10/09/2014	10/09/2014	17:00	15:46	09/09/2014	16/09/2014	12:00	08:37
10/09/2014	11/09/2014	11/09/2014	17:00	16:13	10/09/2014	17/09/2014	12:00	08:17
11/09/2014	12/09/2014	12/09/2014	17:00	16:03	11/09/2014	18/09/2014	12:00	07:49
12/09/2014	15/09/2014	15/09/2014	17:00	11:33	12/09/2014	18/09/2014	12:00	11:24
13/09/2014	15/09/2014	15/09/2014	17:00	13:29	13/09/2014	18/09/2014	12:00	13:08
14/09/2014	15/09/2014	15/09/2014	17:00	15:51	14/09/2014	19/09/2014	12:00	07:47
15/09/2014	16/09/2014	16/09/2014	17:00	15:56	15/09/2014	22/09/2014	12:00	08:36
16/09/2014	17/09/2014	17/09/2014	17:00	15:57	16/09/2014	23/09/2014	12:00	08:50
17/09/2014	18/09/2014	18/09/2014	17:00	16:17	17/09/2014	24/09/2014	12:00	08:48
18/09/2014	19/09/2014	19/09/2014	17:00	16:11	18/09/2014	25/09/2014	12:00	07:54
19/09/2014	22/09/2014	22/09/2014	17:00	11:18	19/09/2014	25/09/2014	12:00	11:25
20/09/2014	22/09/2014	22/09/2014	17:00	13:04	20/09/2014	25/09/2014	12:00	13:19
21/09/2014	22/09/2014	22/09/2014	17:00	15:34	21/09/2014	26/09/2014	12:00	07:46
22/09/2014	23/09/2014	23/09/2014	17:00	15:49	22/09/2014	29/09/2014	12:00	08:27
23/09/2014	24/09/2014	24/09/2014	17:00	16:09	23/09/2014	30/09/2014	12:00	08:29
24/09/2014	25/09/2014	25/09/2014	17:00	16:32	24/09/2014	01/10/2014	12:00	10:29
25/09/2014	26/09/2014	26/09/2014	17:00	17:05	25/09/2014	02/10/2014	12:00	09:01
26/09/2014	29/09/2014	29/09/2014	17:00	12:54	26/09/2014	02/10/2014	12:00	11:37
27/09/2014	29/09/2014	29/09/2014	17:00	13:57	27/09/2014	02/10/2014	12:00	13:20
28/09/2014	29/09/2014	29/09/2014	17:00	15:48	28/09/2014	03/10/2014	12:00	07:58
29/09/2014	30/09/2014	30/09/2014	17:00	15:39	29/09/2014	06/10/2014	12:00	08:54
30/09/2014	01/10/2014	01/10/2014	17:00	16:33	30/09/2014	07/10/2014	12:00	08:13

Table 27 - Settlement Runs

# **12** Appendix E: Imperfections Charge

This appendix provides daily data for the Constraint Payments, Uninstructed Imbalance Payments and Imperfections Charges, and as well as the weekly values of Make Whole Payments and Testing Charges.

The following table is updated to take account of the values calculated in the Initial Settlement runs only.

Historical information will be shown in Appendix E until completion of the current financial year. Information prior to that can be found in previous Monthly Market Operator Reports.

Date	Constraints Payments	Uninstructed Imbalances Payments	Imperfections Charges
01/01/2014	€955,074.54	€15,701.02	-€363,523.63
02/01/2014	€869,584.76	-€51,270.96	-€411,223.19
03/01/2014	€981,299.90	-€6,763.65	-€416,729.57
04/01/2014	€842,597.58	-€984.25	-€406,468.19
05/01/2014	€1,017,892.87	-€3,304.71	-€374,451.32
06/01/2014	€1,027,467.78	€69,008.95	-€421,209.86
07/01/2014	€1,131,050.74	-€4,313.68	-€429,731.89
08/01/2014	€652,565.38	-€39,328.22	-€457,907.14
09/01/2014	€748,152.68	-€40,827.41	-€453,780.43
10/01/2014	€803,817.65	-€48,315.21	-€448,048.96
11/01/2014	€915,704.71	-€4,318.18	-€411,522.40
12/01/2014	€921,530.28	-€9,195.15	-€379,307.86
13/01/2014	€641,244.74	-€20,649.97	-€453,955.42
14/01/2014	€570,633.32	-€31,654.28	-€466,747.71
15/01/2014	€789,788.53	-€3,878.25	-€443,384.59
16/01/2014	€619,904.29	-€24,560.52	-€456,869.59
17/01/2014	€515,211.70	-€66,689.58	-€454,608.47
18/01/2014	€520,405.35	-€19,031.76	-€421,586.87
19/01/2014	€808,100.39	-€9,045.86	-€397,800.00
20/01/2014	€917,028.91	-€62,048.37	-€448,388.85
21/01/2014	€976,768.66	-€27,263.63	-€444,554.65
22/01/2014	€617,107.10	-€48,174.53	-€447,356.40
23/01/2014	€636,348.17	€11,856.06	-€449,699.08
24/01/2014	€858,787.11	-€3,889.75	-€436,805.26
25/01/2014	€867,668.14	€24,013.08	-€387,936.33
26/01/2014	€1,067,111.91	€8,950.68	-€369,381.21
27/01/2014	€667,942.56	-€16,961.92	-€434,460.28
28/01/2014	€857,567.91	-€2,690.66	-€447,652.80
29/01/2014	€700,070.05	-€18,250.06	-€461,431.27
30/01/2014	€686,455.61	-€5,466.72	-€462,829.04
31/01/2014	€777,271.35	€2,344.09	-€442,761.53
01/02/2014	€1,092,287.94	€46,296.79	-€399,482.81
02/02/2014	€1,040,876.64	-€7,906.04	-€372,329.72
03/02/2014	€814,552.07	-€23,152.17	-€442,954.07
04/02/2014	€765,620.92	-€4,186.12	-€446,429.95
05/02/2014	€619,745.34	-€24,997.27	-€447,492.36

00/02/2011		<i>C( 1 22C 22</i>	CAE 4 470.00
06/02/2014	€570,059.13	-€14,226.00	-€454,172.29
07/02/2014	€733,072.53	-€5,600.31	-€442,576.92
08/02/2014	€1,126,907.52	€1,739.38	-€390,725.34
09/02/2014	€654,441.39	€49,019.47	-€374,840.33
10/02/2014	€769,918.90	-€26,132.58	-€448,629.96
11/02/2014	€743,530.15	€740.24	-€449,191.11
12/02/2014	€790,821.83	-€29,220.96	-€445,981.56
13/02/2014	€730,779.98	-€898.33	-€445,971.03
14/02/2014	€698,505.74	-€1,078.62	-€458,004.41
15/02/2014	€634,027.20	€15,043.38	-€395,023.34
16/02/2014	€566,490.77	-€9,244.53	-€388,347.11
17/02/2014	€650,193.75	-€11,780.63	-€447,842.88
18/02/2014	€546,435.98	-€32,788.64	-€454,115.28
19/02/2014	€661,463.66	€2,436.11	-€441,435.28
20/02/2014	€627,222.04	-€36,929.66	-€429,485.89
21/02/2014	€772,285.98	-€33,430.62	-€424,158.80
22/02/2014	€1,047,041.63	€15,965.37	-€384,643.79
23/02/2014	€647,688.10	€6,359.48	-€365,258.95
24/02/2014	€593,693.03	€32,810.10	-€427,977.07
25/02/2014	€673,092.66	€47,042.36	-€425,753.08
26/02/2014	€737,469.64	€33,371.98	-€427,771.92
27/02/2014	€599,427.86	€18,597.29	-€438,598.48
28/02/2014	€486,170.94	€35,027.71	-€436,398.07
01/03/2014	€551,273.11	€13,733.62	-€402,126.07
02/03/2014	€253,643.88	€21,061.91	-€380,791.02
03/03/2014	€838,469.31	€31,907.86	-€440,202.27
04/03/2014	€532,230.85	-€34,892.63	-€449,787.29
05/03/2014	€569,397.10	€23,555.80	-€438,585.32
06/03/2014	€627,047.33	€28,301.63	-€445,574.58
07/03/2014	€791,058.04	-€23,188.94	-€422,122.27
08/03/2014	€524,758.24	€10,428.20	-€373,550.80
09/03/2014	€757,796.75	-€45,810.91	-€384,189.33
10/03/2014	€554,422.76	-€50,527.70	-€435,033.51
11/03/2014	€490,320.26	-€80,176.23	-€441,302.05
12/03/2014	€474,930.61	-€50,381.14	-€448,528.36
13/03/2014	€535,105.11	-€90,832.92	-€452,732.25
14/03/2014	€750,264.06	-€16,885.72	-€425,233.91
15/03/2014	€565,699.81	€6,798.70	-€370,939.19
16/03/2014	€260,949.62	€8,107.37	-€352,376.53
17/03/2014	€564,851.76	€17,272.05	-€364,550.61
18/03/2014	€461,877.22	-€10,830.22	-€397,299.39
19/03/2014	€638,241.59	€2,103.82	-€404,183.93
20/03/2014	€366,615.71	-€20,983.02	-€414,658.34
21/03/2014	€596,761.02	-€1,539.05	-€422,392.61
22/03/2014	€421,180.67	€3,792.17	-€386,455.45
23/03/2014	€533,746.14	-€13,893.35	-€370,919.40
24/03/2014	€556,053.41	-€5,517.38	-€412,252.02
25/03/2014	€499,032.80	-€21,665.91	-€424,799.72
26/03/2014	€645,898.84	-€47,573.09	-€436,022.93
27/03/2014	€618,021.01	-€94,304.81	-€440,855.08

		1	
28/03/2014	€474,746.28	-€19,091.39	-€428,576.54
29/03/2014	€396,800.83	-€14,274.61	-€390,148.61
30/03/2014	€601,577.41	-€5,279.56	-€347,892.04
31/03/2014	€709,881.34	-€36,965.35	-€413,090.30
01/04/2014	€493,506.80	-€62,047.30	-€420,270.95
02/04/2014	€390,689.63	€1,285.10	-€416,199.09
03/04/2014	€805,100.52	-€7,736.37	-€419,384.63
04/04/2014	€480,942.40	-€9,391.04	-€410,276.35
05/04/2014	€437,083.55	€30.09	-€365,827.83
06/04/2014	€361,422.25	-€11,522.38	-€330,325.19
07/04/2014	€548,948.94	-€31,726.93	-€399,979.51
08/04/2014	€424,359.83	-€13,685.38	-€398,299.01
09/04/2014	€549,232.01	-€5,003.33	-€401,907.82
10/04/2014	€419,557.15	-€21,387.03	-€413,392.52
11/04/2014	€464,961.09	-€16,069.99	-€403,394.20
12/04/2014	€538,279.15	-€1,971.04	-€349,655.90
13/04/2014	€429,660.02	€4,249.05	-€337,368.15
14/04/2014	€173,425.17	-€19,212.43	-€398,627.50
15/04/2014	€409,386.74	-€5,372.55	-€388,585.54
16/04/2014	€387,544.85	-€8,738.90	-€391,905.20
17/04/2014	€353,527.14	-€21,038.69	-€393,877.38
18/04/2014	€406,743.60	-€11,653.05	-€383,249.86
19/04/2014	€326,411.09	€1,994.99	-€351,174.26
20/04/2014	€542,284.63	-€4,968.48	-€321,329.94
21/04/2014	€612,266.82	€2,530.54	-€311,006.56
22/04/2014	€507,354.80	-€13,928.47	-€373,861.21
23/04/2014	€468,135.27	-€29,267.76	-€380,271.71
24/04/2014	€406,217.05	-€12,686.25	-€386,511.77
25/04/2014	€522,164.29	€890.22	-€371,853.20
26/04/2014	€316,953.67	€8,739.69	-€338,460.42
27/04/2014	€434,994.12	-€842.19	-€338,502.78
28/04/2014	€471,489.47	-€34,016.83	-€395,652.40
29/04/2014	€367,047.29	-€4,206.25	-€395,371.12
30/04/2014	€366,195.91	-€27,414.20	-€393,628.42
01/05/2014	€246,053.16	-€19,877.85	-€403,408.92
02/05/2014	€164,891.37	-€16,241.91	-€394,309.86
03/05/2014	€313,454.83	-€6,018.51	-€355,317.37
04/05/2014	€430,617.78	€1,155.53	-€327,028.46
05/05/2014	€347,517.05	-€10,044.89	-€326,831.33
06/05/2014	€487,998.49	-€8,440.55	-€373,854.74
07/05/2014	€397,934.98	€2,071.56	-€379,285.51
08/05/2014	€592,137.89	€9,579.27	-€392,179.12
09/05/2014	€298,375.07	-€6,659.56	-€374,231.73
10/05/2014	€309,315.85	€11,549.56	-€342,295.24
11/05/2014	€349,749.11	-€5,463.16	-€325,086.80
12/05/2014	€166,271.11	-€239.14	-€385,574.87
13/05/2014	€279,317.38	-€5,163.93	-€392,422.70
14/05/2014	€237,720.41	-€23,285.90	-€403,609.34
15/05/2014	€222,011.67	-€24,282.91	-€398,967.77
16/05/2014	€233,415.69	-€3,024.00	-€377,298.82

17/05/2014	€308,186.07	-€6,138.88	-€332,321.56
18/05/2014	€234,907.17	€1,363.53	-€333,272.56
19/05/2014	€192,322.12	-€20,970.09	-€388,734.22
20/05/2014	€234,992.31	-€9,746.08	-€399,176.24
21/05/2014	€173,709.13	-€13,617.56	-€389,481.89
22/05/2014	€214,372.91	-€5,978.99	-€381,807.55
23/05/2014	€429,485.31	€104.55	-€368,448.27
24/05/2014	€120,386.81	€3,517.61	-€340,924.69
25/05/2014	€431,999.65	-€7,602.62	-€338,246.61
26/05/2014	€176,577.63	-€25,612.19	-€392,322.04
27/05/2014	€308,483.53	-€15,136.56	-€392,314.32
28/05/2014	€352,011.89	-€13,476.82	-€391,502.13
29/05/2014	€99,509.99	€11,099.11	-€395,064.51
30/05/2014	€255,905.57	€89.21	-€386,852.62
31/05/2014	€379,068.63	€152.04	-€343,634.28
01/06/2014	€261,003.12	€571.99	-€318,603.87
02/06/2014	€165,838.14	-€15,541.65	-€344,586.55
03/06/2014	€331,556.56	-€56,629.79	-€378,964.60
04/06/2014	€429,071.88	-€4,314.04	-€379,297.07
05/06/2014	€358,997.74	-€5,038.60	-€383,585.81
06/06/2014	€487,730.63	€2,802.43	-€360,546.63
07/06/2014	€220,520.47	-€751.79	-€336,252.03
08/06/2014	€361,149.72	€16,474.04	-€315,278.89
09/06/2014	€315,698.15	-€9,318.41	-€370,824.11
10/06/2014	€251,984.32	-€8,421.60	-€386,114.43
11/06/2014	€310,158.70	-€29,461.16	-€389,098.29
12/06/2014	€226,996.18	-€9,451.22	-€385,744.09
13/06/2014	€171,777.03	€2,805.23	-€389,471.04
14/06/2014	€188,321.32	-€5,152.64	-€349,441.32
15/06/2014	€149,192.87	-€2,456.74	-€324,494.04
16/06/2014	€256,838.15	-€3,466.28	-€370,984.94
17/06/2014	€189,683.98	-€661.51	-€388,732.17
18/06/2014	€548,711.45	€3,978.34	-€391,485.74
19/06/2014	€477,957.50	-€1,625.21	-€378,462.71
20/06/2014	€171,599.50	-€8,288.37	-€373,735.56
21/06/2014	€212,960.89	€2,244.01	-€335,411.92
22/06/2014	€344,462.96	-€1,044.99	-€323,495.35
23/06/2014	€214,222.79	-€4,890.90	-€376,348.18
24/06/2014	€323,543.08	-€13,536.72	-€389,182.42
25/06/2014	€312,334.26	-€3,592.78	-€393,119.37
26/06/2014	€357,703.94	-€71.89	-€380,628.72
27/06/2014	€259,711.86	-€1,302.11	-€374,028.78
28/06/2014	€223,536.38	€3,657.05	-€337,593.94
29/06/2014	€291,603.87	-€30,266.41	-€321,113.40
30/06/2014	€315,767.89	-€12,389.49	-€365,692.35
01/07/2014	€341,754.52	€4,505.16	-€380,516.77
02/07/2014	€230,371.72	€3,066.03	-€368,999.36
03/07/2014	€320,576.73	-€8,129.69	-€372,575.19
04/07/2014	€305,992.28	€22,482.93	-€366,743.08
05/07/2014	€230,663.65	€4,480.07	-€331,817.59

06/07/2014 07/07/2014	€157,028.98 €349,983.04	€3,082.29 -€19,684.18	-€311,006.38 -€367,069.24
08/07/2014	€648,535.51	-€9,533.23	-€366,319.74
09/07/2014	€480,400.86	€1,653.14	-€376,128.54
10/07/2014	€372,278.39	-€15,065.54	-€382,651.68
11/07/2014	€344,824.34	-€4,120.89	-€376,325.49
12/07/2014	€136,771.90	-€3,431.31	-€327,580.04
13/07/2014	€201,133.37	€6,137.62	-€307,581.16
14/07/2014	€153,757.97	€7,705.05	-€339,646.20
15/07/2014	€369,139.11	-€15,673.85	-€361,070.34
16/07/2014	€168,610.28	€3,847.17	-€361,468.94
17/07/2014	€209,677.62	-€8,375.49	-€376,557.76
18/07/2014	€300,548.99	-€23,516.12	-€366,989.74
19/07/2014	€83,088.47	-€3,674.51	-€345,018.63
20/07/2014	€447,093.33	-€17,991.86	-€323,054.54
21/07/2014	€322,037.33	-€12,039.17	-€372,830.00
22/07/2014	€83,770.61	€3,681.89	-€372,830.00
23/07/2014	€204,584.49	-€1,931.74	-€386,845.54
24/07/2014	€237,529.82	€4,124.77	-€387,470.89
25/07/2014	€335,890.74	-€13,483.89	-€380,964.94
26/07/2014	€246,314.53	€4,284.30	-€339,115.54
27/07/2014	€282,009.26	-€1,936.28	-€308,222.21
28/07/2014	€158,834.62	-€7,303.63	-€361,105.39
29/07/2014	€352,826.94	-€19,061.68	-€366,657.54
30/07/2014	€126,068.01	-€2,383.07	-€366,112.56
31/07/2014	€283,337.90	-€3,756.17	-€373,644.96
01/08/2014	€274,360.75	-€12,033.45	-€372,980.02
02/08/2014	€258,118.92	€4,893.50	-€327,949.98
03/08/2014	€327,040.90	€8,442.64	-€305,457.30
04/08/2014	€167,115.44	-€6,733.11	-€330,974.11
05/08/2014	€274,621.46	-€12,985.82	-€373,825.40
06/08/2014	€216,881.05	-€9,878.98	-€373,500.80
07/08/2014	€307,226.38	-€1,891.78	-€374,506.90
08/08/2014	€235,640.71	€672.95	-€367,387.52
09/08/2014	€201,641.79	€5,963.74	-€332,273.59
10/08/2014	€282,529.44	€5,921.25	-€312,786.06
11/08/2014	€375,549.84	€12,876.98	-€346,454.02
12/08/2014	€316,498.63	€7,662.02	-€365,270.42
13/08/2014	€249,885.09	€4,545.93	-€370,347.81
14/08/2014	€426,874.88	-€15,255.54	-€374,499.26
15/08/2014	€289,488.19	€78.03	-€369,512.95
16/08/2014	€303,833.71	€12,298.72	-€324,082.55
17/08/2014	€585,195.25	€6,128.79	-€299,215.76
18/08/2014	€305,925.65	-€183.47	-€354,775.23
19/08/2014	€97,795.36	-€7,672.07	-€374,889.12
20/08/2014	€464,644.88	-€16,070.06	-€382,405.91
21/08/2014	€251,980.11	€901.79	-€374,877.46
22/08/2014	€538,626.00	€4,694.69	-€374,542.51
23/08/2014	€179,253.95	-€5,928.60	-€343,834.10
24/08/2014	€298,618.37	€2,240.04	-€323,264.23

25/08/2014	€549,249.29	-€3,951.96	-€367,421.97
26/08/2014	€278,024.56	-€1,213.37	-€383,317.40
27/08/2014	€309,992.50	-€31,179.21	-€375,986.29
28/08/2014	€431,344.29	€42,127.14	-€372,404.90
29/08/2014	€533,760.55	-€28,910.34	-€364,130.20
30/08/2014	€266,051.80	-€3,826.06	-€341,353.68
31/08/2014	€316,000.98	-€4,472.78	-€331,718.96
01/09/2014	€429,411.55	-€55,456.28	-€388,215.13
02/09/2014	€83,379.55	€8,877.74	-€402,541.19
03/09/2014	€295,600.23	-€19,192.49	-€400,936.42
04/09/2014	€457,685.14	-€26,047.11	-€402,668.68
05/09/2014	€269,629.51	-€13,548.31	-€394,873.79
06/09/2014	€252,536.39	€4,274.72	-€348,752.20
07/09/2014	€356,428.71	-€1,332.76	-€332,256.54
08/09/2014	€90,516.87	-€7,717.92	-€386,508.18
09/09/2014	€213,614.40	-€3,037.72	-€395,664.64
10/09/2014	€282,831.75	-€34,522.08	-€394,075.39
11/09/2014	€230,291.03	-€24,295.98	-€395,486.53
12/09/2014	€256,230.84	€5,188.75	-€385,616.50
13/09/2014	€83,484.89	-€1,659.73	-€350,853.69
14/09/2014	€224,639.34	-€6,350.57	-€330,976.51
15/09/2014	€441,271.55	€925.42	-€386,454.74
16/09/2014	€423,603.51	-€38,522.17	-€396,900.76
17/09/2014	€293,985.94	€22,813.17	-€393,496.72
18/09/2014	€408,577.38	-€21,497.46	-€399,257.21
19/09/2014	€354,441.70	-€7,063.49	-€401,682.87
20/09/2014	€207,419.28	-€6,506.70	-€348,982.13
21/09/2014	€220,494.59	-€15,476.02	-€341,016.39
22/09/2014	€519,036.21	-€21,275.94	-€388,345.47
23/09/2014	€538,544.01	-€68,009.77	-€397,479.18
24/09/2014	€271,797.08	€35,592.84	-€394,694.92
25/09/2014	€147,509.48	-€9,864.56	-€392,361.44
26/09/2014	€516,727.10	-€4,588.83	-€384,011.79
27/09/2014	€400,339.58	€5,321.69	-€353,801.62
28/09/2014	€272,739.99	€19,943.51	-€347,094.23
29/09/2014	€489,821.93	-€3,649.46	-€395,271.56
30/09/2014	€294,295.80	-€18,604.66	-€390,142.09

Table 28 - Constraint Payments, Uninstructed Imbalance Payments, and Imperfections Charges

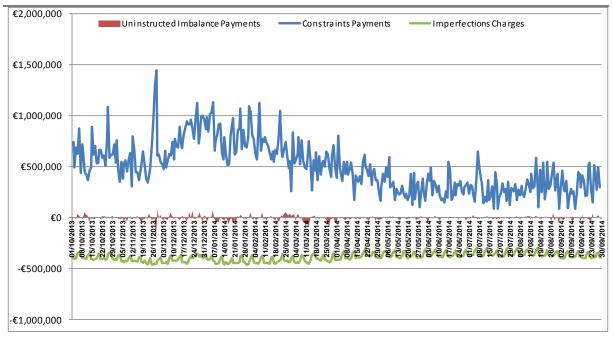


Figure 24 - Constraint Payments, Uninstructed Imbalance Payments, and Imperfections Charges

Week No	Make Whole Payments	
39	€157,154.18	
40	€100,559.86	
41	€93,700.82	
42	€34,755.70	
43	€91,699.33	
44	€48,763.34	
45	€29,311.13	
46	€51,580.95	
47	€47,924.57	
48	€18,836.02	
49	€2,320.81	
50	€50,370.62	
51	€88,625.27	
52	€80,442.97	
1	€11,198.45	
2	€3,215.89	
3	€2,907.21	
4	€45,212.77	
5	€0.24	
6	€0.21	
7	€86,074.69	
8	€65,438.76	
9	€82,008.00	
10	€58,736.16	
11	€46,720.09	
12	€154,971.87	
13	€6,346.71	
14	€17,151.75	
15	€35,987.24	

16	€101,005.68
17	€91,892.49
18	€54,274.01
19	€66,864.22
20	€77,322.61
21	€97,206.32
22	€215,071.80
23	€218,478.64
24	€269,996.77
25	€250,003.28
26	€294,555.17
27	€290,810.60
28	€186,206.55
29	€108,164.63
30	€196,259.40
31	€148,066.69
32	€116,569.71
33	€256,681.50
34	€41,555.04
35	€187,371.85
36	€195,673.43
37	€256,702.47
38	€202,188.33

Table 29 - Make Whole Payments

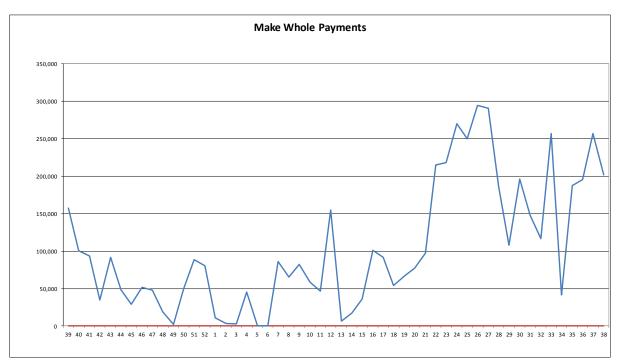


Figure 25 - Make Whole Payments

Week No	Testing Charges
39	€0.00

40	€0.00
41	€0.00
42	€0.00
43	€0.00
44	-€464.74
45	-€4,169.12
46	-€4,361.08
47	-€13,358.69
48	€0.00
49	-€983.42
50	€0.00
51	€0.00
52	€0.00
1	€0.00
2	€0.00
3	€6,382.50
4	€0.00
5	€0.00
6	€0.00
7	-€971.99
8	-€14,525.39
9	€0.00
10	-€10,047.37
10	€0.00
11	
	-€4,842.44 -€452.54
13	
14	€0.00
15	€0.00
16	€0.00
17	-€6,369.87
18	-€42,879.16
19	-€55,135.72
20	€0.00
21	-€29,681.62
22	-€32,784.19
23	-€52,367.06
24	-€52,022.02
25	€0.00
26	€0.00
27	€0.00
28	€0.00
29	€0.00
30	€0.00
31	€0.00
32	-€32,737.93
33	€0.00
34	€0.00
35	€0.00
36	€0.00
37	-€5,569.12
38	-€19,903.71

Table 25 - Testing Charges

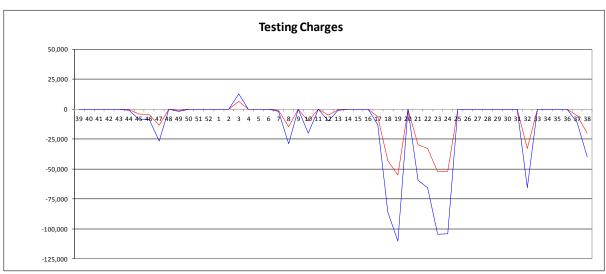


Figure 26 - Testing Charges

# 13 Appendix F: Default Commercial Offer Data Used

The table below lists for each unit the number of times in operations during September 2014 where the Commercial Offer Data was based on a Participant submission within the Market window, or based on Standing Data or Default Data submitted.

PNAME	RNAME	Manual	Adjusted	Standing	COUNT
PT_400116	DSU_401400		-	7	7
PT_400090	DSU_401620			2	2
PT_400090	DSU_401610	31			31
PT_400116	DSU_401400	23			23
PT_400090	DSU_401620	29			29
PT_400090	DSU_401610			1	1
PT_400090	DSU_401270	31			31
PT_400106	DSU_401330	35			35
PT_400101	DSU_401300	30			30
PT_400133	DSU_401530			23	23
PT_400133	DSU_401530	8			8
PT_400024	GU_400120	30			30
PT_400024	GU_400121	30			30
PT_400026	GU_400140	30			30
PT_400030	GU_400180	42			42
PT_400030	GU_400181	45			45
PT_400030	GU_400182	43			43
PT_400030	GU_400183	43			43
PT_400030	GU_400200	37			37
PT_400030	GU_400201	37			37
PT_400030	GU_400202	38			38
PT_400030	GU_400203	37			37
PT_400030	GU_400210	37			37
PT_400030	GU_400211	37			37
PT_400030	GU_400220	37			37
PT_400030	GU_400221	37			37
PT_400030	GU_400240	37			37
PT_400030	GU_400250	37			37
PT_400030	GU_400251	37			37
PT_400030	GU_400252	38			38
PT_400030	GU_400260	37			37
PT_400030	GU_400270	36			36
PT_400030	GU_400271	38			38
PT_400030	GU_400272	39			39
PT_400030	GU_400280	37			37
PT_400030	GU_400281	37			37
PT_400030	GU_400290	38			38
PT_400030	GU_400300	43			43
PT_400030	GU_400311	43			43
PT_400030	GU_400323	45			45
PT_400030	GU_400360	36			36
PT_400030	GU_400361	37			37
PT_400030	GU_400362	36			36
PT_400030	GU_400363	37			37

T			
PT_400030	GU_400370	38	38
PT_400030	GU_400850	43	43
PT_400032	GU_400430	28	28
PT_400034	GU_400940	28	28
PT_400034	GU_401090	28	28
PT_400034	GU_401440	28	28
PT_400035	GU_400480	57	57
PT_400037	GU_400500	32	32
PT_400041	GU_400530	53	53
PT_400044	GU_400540	57	57
PT_400054	GU_400620	28	28
PT_400055	GU_400630	28	28
PT_400064	GU_400750	30	30
PT_400064	GU_400751	30	30
PT_400064	GU_400752	30	30
PT_400064	GU_400753	30	30
PT 400064	GU 400754	30	30
 PT_400064	 GU_400760	30	30
 PT_400064	 GU_400761	30	30
PT 400064	GU 400762	30	30
PT 400064	GU 400770	30	30
PT 400064	GU 400771	30	30
PT 400064	GU 400780	30	30
PT 400064	GU 400781	30	30
PT 400075	GU 400930	36	36
PT_400077	GU 400950	28	28
PT 400078	GU 401010	30	30
PT 400078	GU 401011	30	30
PT 400087	GU 401230	2	2
PT_500024	GU_500040	36	36
PT 500024	GU 500041	30	30
PT 500027	GU 500130	86	86
PT 500027	GU 500131	86	86
PT 500027	GU 500140	86	86
PT_500040	GU 500280	30	30
PT_500040	GU_500281	30	30
PT 500040	GU_500282	30	30
PT_500040	GU_500283	30	30
PT 500040	GU 500284	30	30
PT 500045	GU_500820	30	30
PT 500045	GU_500821	30	30
PT_500045	GU_500821	30	30
PT_500045	GU 500823	30	30
PT_500045 PT_500045	GU_500823	30	30
PT_500045 PT_500045	GU_500825	30	30
PT_500045 PT_500048	GU 500904	51	51
PT_500048 PT_500050	GU_501040	28	28
PT_500050 PT_500050	GU_501040		28
	GU_501050 GU_501150	28	28
PT_500050		28	28
PT_500050	GU_501190 GU_501130	28 30	30
PT_500053 PT_500066	GU_501130 GU_501210	28	28
F1_000000	G0_301210	20	20

PT_500073	GU_501230	1			1
PT_400021	GU_400021			30	30
PT_400021	GU_400050			30	30
PT_400021	GU_400060			30	30
PT_400021	GU_400070			30	30
PT_400021	GU_400080			30	30
PT_400021	GU_400591			30	30
PT_400021	GU_400600			30	30
PT_400021	GU_400910			30	30
PT_400021	GU_400920			30	30
PT_400021	GU_401080			30	30
PT_400021	GU_401380			30	30
PT_400021	GU_401600			30	30
PT_400021	GU_401640			30	30
PT_400025	GU_400130			30	30
PT_400030	GU_400310			30	30
PT_400032	GU_400430			2	2
PT_400034	GU_400940			2	2
PT_400034	GU_401090			2	2
PT_400034	GU_401440			2	2
PT_400038	GU_400550			30	30
PT_400050	GU_400650			30	30
PT_400050	GU_400660			30	30
PT_400050	GU_401000			30	30
PT_400050	GU_401060			30	30
PT_400050	GU_401150			30	30
PT_400050	GU_401240			30	30
PT_400050	GU_401250			30	30
PT_400050	GU_401290			30	30
PT_400054	GU_400620			2	2
PT_400055	GU_400630			2	2
PT_400062	GU_400730			30	30
PT_400062	GU_400731			30	30
PT_400062	GU_400840			30	30
PT_400062	GU_401310			30	30
PT 400062	GU_401550			30	30
PT 400062	GU 401551			30	30
PT 400062	GU 401560			30	30
PT 400062	GU 401570			30	30
PT 400062				30	30
PT 400077	GU 400950			2	2
PT 400082	 GU_401100			30	30
PT_400087	GU_401230			28	28
PT 500021	GU 500010			30	30
PT_500021	GU 500740			30	30
PT 500021	GU_501160			30	30
PT 500032	GU 500211			30	30
PT_500032	GU_501120			30	30
PT_500039	GU 500270			30	30
PT 500044	GU 500720		+ +	30	30
PT_500047	GU_500790			30	30
PT_500050	GU 501040			2	2
		I		£	<u> </u>

	Percentage	69.53%	0.00%	30.47%	100%
	Total	3275	0	1435	4710
PT_400099	I_ROIEWIC	30			30
PT_400030	I_ROIEWIC	53			53
PT_500070	I_NIMOYLE	46			46
PT_400108	I_ROIEWIC	40			40
PT_400136	I_ROIEWIC	46			46
PT_400115	I_ROIEWIC	30			30
PT_400113	I_ROIEWIC	40			40
PT_400096	I_ROIEWIC	74			74
 PT_500037	I_NIMOYLE	30			30
 PT_500058	 I_NIMOYLE	44			44
PT_500069	I_NIMOYLE	90			90
PT 500031	I NIMOYLE	30			30
PT 500021	I NIMOYLE	30			30
 PT_500075	 I_NIMOYLE	57			57
PT 500024	I NIMOYLE	62			62
PT_500071	I NIMOYLE	3			3
PT 400021	I ROIEWIC	30			30
PT 500074	GU 501250			30	30
PT 500066	GU 501210			2	2
PT 500062	GU 501180			30	30
PT 500061	GU_501170			30	30
PT 500050	GU_501190			2	2
PT_500050 PT 500050	GU_501050 GU_501150			2	2

Table 30 - Default Commercial Data Used

### 14 Appendix G: Total Charges and Payments Data

The tables below list historical values for Total Charges and Total Payments in the SEM by month and currency since start of the SEM.

- Month of inclusion based on invoice date.
- Amounts are after application of Settlement Reallocation.

Market		Energy	Capacity	Market Operator	M+4 Energy	M+4 Capacity	M+4 Market Operator	M+13 Energy	M+13 Capacity	M+13 Market Operator	Ad-hoc Energy	Ad-hoc Capacity	Ad-hoc Market Operator	Total
Jul-13	ROI	£62,352,631.32	£18,204,333.81	£1,583,236.61	£975,631.58	£172,502.45	£7,848.20	£63,562.31	£16,373.37	£690.66	£904,389.43	£100,791.99	£0.00	84,381,991.73
	NI	£23,916,092.51	£6,533,901.21	£432,681.38	£92,026.95	£16,773.81	£694.39	£14,400.35	£3,081.82	£130.14	£204,040.13	£152.19	£0.00	31,213,974.88
Aug-13	ROI	£56, 496, 937. 96	£18,035,531.87	£1,912,592.26	£627,109.44	£97,756.86	£9,727.88	£15,214,588.11	£12,273.00	£808.64	£0.00	£0.00	£0.00	92,407,326.02
1108 10	NI	£27,126,182.07	£5,775,203.97	£544,995.28	£40,928.60	£52,444.19	£3,674.11	£6,235,909.64	£5,483.53	£223.46	£0.00	£0.00	£0.00	39,785,044.85
Sep-13	ROI	£55,820,919.05	£17,453,995.09	£1,590,840.77	£871,046.03	£104,726.26	£5,239.42	£999,727.04	£165, 703. 71	£11,019.16	£0.00	£324,142.04	£0.00	77,347,358.57
	NI	£24,090,106.60	£5,421,565.87	£449,859.41	£232,772.49	£25,268.64	£1,265.21	£119,141.06	£13,356.37	£112.60	£0.00	£78,558.74	£0.00	30,432,006.99
Oct-13	ROI	£63,823,874.40	£19,230,805.66	£1,459,680.53	£665,669.95	£112,389.91	£4,962.50	£1,056,400.80	£25,936.14	£883.81	£1,141,610.70	£0.00	£0.00	87,522,214.40
	NI	£25,790,053.14	£5,439,039.21	£415,013.56	£77,362.24	£11,759.56	£437.51	£286,637.75	£5,978.86	£356.54	£375,245.80	£0.00	£0.00	32,401,884.17
Nov-13	ROI	£94,237,410.27	£26,111,830.04	£1,768,924.89	£1,095,479.88	£186,255.41	£10,667.03	£1,203,541.15	£58,436.00	£1,881.53	£2,162,845.35	£0.00	£0.00	126,837,271.55
	NI	£40,120,956.32	£9,383,627.04	£512,345.05	£79,171.25	£13,455.28	£753.82	£304,333.70	£18,778.73	£614.32	£591,913.98	£0.00	£0.00	51,025,949.49
Dec-13	ROI	£59,731,699.86	£27,864,400.43	£1,135,385.04	£777,997.00	£175,711.33	£8,515.85	£874,795.89	£44,746.05	£1,825.43	£0.00	£0.00	£0.00	90,615,076.88
00015	NI	£26,108,999.75	£9,220,782.35	£325,646.22	£58,193.58	£77,917.35	£571.58	£137,253.25	£14,599.87	£487.47	£0.00	£0.00	£0.00	35,944,451.42
Jan-14	ROI	£114,421,340.65	£24,793,160.86	£2,129,762.27	£798,055.27	£127,352.61	£7,984.34	£204,139.96	£36,418.59	£1,561.86	£473,584.35	£0.00	£0.00	142,993,360.76
	NI	£51,824,850.54	£9,142,377.84	£617,870.56	£62,006.75	£10,003.11	£595.49	£67,335.86	£14,491.45	£574.85	£141,821.26	£0.00	£0.00	61,881,927.71
Feb-14	ROI	£66,102,607.16	£27,393,747.26	£1,496,376.58	£305,733.65	£76,911.71	£2,819.89	£479,013.35	£22,451.87	£9,128.65	£381,194.91	£0.00	£0.00	96,269,985.03
	NI	£31,130,342.59	£9,846,758.26	£422,869.99	£25,720.60	£3,900.39	£240.37	£187,918.65	£15,303.03	£942.92	£235.51	£0.00	£0.00	41,634,232.31
Mar-14	ROI	£70,041,213.49	£26,285,336.21	£1,449,159.95	£261,906.17	£61,216.38	£2,226.19	£92,283.95	£30,407.22	£960.16	£0.00	£0.00	£0.00	98,224,709.72
	NI	£30,175,818.70	£9,293,564.48	£406,620.40	£46,940.79	£7,639.04	£408.77	£52,408.32	£11,933.67	£470.83	£0.00	£0.00	£0.00	39,995,805.00
Apr-14	ROI	£62,098,778.40	£21,155,742.39	£1,388,175.41	£528,104.58	£142,466.39	£4,901.73	£242,053.48	£38,030.86	£1,783.00	£0.00	£0.00	£0.00	85,600,036.24
	NI	£26,448,426.91	£9,644,850.74	£386,840.18	£307,948.88	£77,962.26	£2,649.15	£53,805.05	£9,613.13	£381.03	£0.00	£0.00	£0.00	36,932,477.33
May-14	ROI	£68,945,192.38	£22,029,381.87	£1,615,436.17	£629,905.18	£213,410.99	£7,659.07	£192,421.65	£21,030.53	£1,110.05	£429,407.30	£0.00	£0.00	94,084,955.19
	NI	£28,649,957.73	£7,313,397.03	£439,831.96	£149,812.37	£34,908.87	£997.82	£58,386.93	£9,959.93	£468.77	£0.03	£0.00	£0.00	36,657,721.44
Jun-14	ROI	£52,841,750.77	£17,596,854.80	£1,312,068.35	£423,771.26	£115,750.72	£4,162.65	£89,169.46	£18,685.28	£1,014.73	£28,526.30	£0.00	£0.00	72,431,754.32
541114	NI	£21,944,762.06	£6,361,219.34	£345,120.63	£120,971.43	£44,784.33	£1,003.03	£41,125.48	£9,461.42	£415.67	£2,532.18	£0.00	£0.00	28,871,395.57
Jul-14	ROI	£48,255,770.91	£22,988,780.17	£1,292,701.68	£332,606.61	£88,357.34	£2,943.28	£85,242.72	£17,526.18	£1,047.39	£0.00	£0.00	£0.00	73,064,976.28
541-14	NI	£16,832,807.07	£5,122,118.14	£325,108.62	£91,338.63	£25,719.39	£870.76	£34,166.04	£7,520.83	£436.14	£0.00	£0.00	£0.00	22,440,085.62
Aug-14	ROI	£73,166,499.86	£17,774,079.00	£1,638,145.68	£285,506.09	£62,431.70	£3,367.28	£92,320.83	£30,020.38	£728.19	£0.00	£0.00	£0.00	93,053,099.01
~38-14	NI	£24,828,028.32	£5, 414, 449. 74	£421,681.34	£62,719.19	£15,276.27	£566.66	£41,391.12	£13,194.54	£660.78	£0.00	£0.00	£0.00	30,797,967.96
Sep-14	ROI	£73,166,499.86	£17,774,079.00	£1,638,145.68	£285,506.09	£62,431.70	£3,367.28	£92,320.83	£30,020.38	£728.19	£0.00	£0.00	£0.00	93,053,099.01
369-14	NI	£24,828,028.32	£5, 414, 449. 74	£421,681.34	£62,719.19	£15,276.27	£566.66	£41,391.12	£13,194.54	£660.78	£0.00	£0.00	£0.00	30,797,967.96

Table 31 - Total Charges by Month

Mark	et	Energy	Capacity	M+4 Energy	M+4 Capacity	M+4 Market Operator	M+13 Energy	M+13 Capacity	M+13 Market Operator	Ad-hoc Energy	Ad-hoc Capacity	Ad-hoc Market Operator	Total
Jul-13	ROI	€64,373,421.59	€18,247,432.96	€964,041.86	€173,902.58	€7,906.35	€55,507.11	€17,916.41	€690.80	€924,828.19	€100,969.43	€0.00	€84,866,617.28
501-15	NI	€24, 434, 329. 71	€6,507,406.51	€94,802.99	€15,679.58	€710.78	€12,978.92	€1,777.48	€130.12	€206,821.52	€0.00	€0.00	€31,274,637.61
Aug-13	ROI	€63,981,400.27	€17, 490, 496.02	€574,908.31	€103,763.23	€10,083.25	€16,006,162.20	€10,709.76	€808.95	€986.69	€0.00	€0.00	€98,179,318.68
	NI	€23,798,215.28	€6,256,493.76	€56,417.87	€47,293.31	€2,768.68	€5,757,671.12	€6,849.67	€223.45	€18, 449. 41	€0.00	€0.00	€35,944,382.55
Sep-13	ROI	€62,051,092.84	€16,936,760.25	€1,068,679.90	€128,081.30	€7,144.86	€971,541.05	€151,818.04	€11,020.17	€0.00	€416,852.38	€0.00	€81,742,990.79
36p-13	NI	€21,229,997.89	€5,817,250.40	€156,880.27	€5,515.98	€108.46	€19,000.09	€25,023.77	€112.65	€0.00	€92.64	€0.00	€27,253,982.15
Oct-13	ROI	€70,147,828.86	€18,147,894.98	€704,498.56	€112,615.82	€6,476.59	€907,795.23	€25,996.67	€883.97	€1,040,063.76	€0.00	€0.00	€91,094,054.44
	NI	€24,161,387.51	€6,338,740.34	€71,964.41	€11,643.56	€445.89	€216,015.53	€5,767.60	€356.54	€303,081.27	€0.00	€0.00	€31,109,402.65
Nov-13	ROI	€101,727,467.69	€26,117,243.83	€1,224,763.25	€189,998.42	€12,263.50	€1,215,831.35	€57,206.41	€1,470.22	€2,187,635.43	€0.00	€0.00	€132,733,880.10
	NI	€38,593,632.08	€9,396,822.98	€111,667.01	€10,330.33	€754.66	€405,512.07	€19,818.44	€503.29	€523,998.04	€0.00	€0.00	€49,063,038.90
Dec-13	ROI	€65,016,104.57	€28,265,983.93	€814,481.63	€237,772.30	€8,560.54	€742,019.49	€45,101.88	€1,753.62	€0.00	€0.00	€0.00	€95,131,777.96
	NI	€26,883,033.60	€8,854,167.97	€62,225.77	€25,458.47	€563.46	€254,389.50	€14,183.48	€467.80	€0.00	€0.00	€0.00	€36,094,490.05
Jan-14	ROI	€134,009,133.84	€23,642,517.67	€793,440.19	€126,432.23	€7,824.65	€221,578.57	€36,894.00	€1,646.36	€479,971.01	€0.00	€0.00	€159,319,438.52
	NI	€51, 714, 479.92	€10,157,332.65	€82,843.03	€10,154.76	€543.56	€66,035.81	€14,046.97	€605.11	€109,684.36	€0.00	€0.00	€62,155,726.17
Feb-14	ROI	€78,679,881.12	€26,819,095.36	€304,687.52	€76,805.50	€2,536.46	€531,739.65	€29,343.21	€10,349.43	€443,421.38	€0.00	€0.00	€106,897,859.63
100 14	NI	€29,747,186.53	€10,347,544.45	€37,918.21	€4,082.15	€214.26	€179,315.25	€9,737.45	€350.80	€3.55	€0.00	€0.00	€40,326,352.65
Mar-14	ROI	€75,149,006.14	€26,180,620.54	€259,644.98	€60,397.08	€2,170.67	€127,303.70	€28,200.28	€960.40	€0.00	€0.00	€0.00	€101,808,303.79
10101 14	NI	€29,749,446.42	€9,292,032.85	€46,950.40	€8,326.93	€408.65	€52,017.29	€13,760.80	€471.08	€0.00	€0.00	€0.00	€39,163,414.42
Apr-14	ROI	€65,482,679.64	€21,981,963.17	€549,302.08	€147,627.43	€4,399.40	€259,726.57	€38,566.49	€1,783.33	€0.00	€0.00	€0.00	€88,466,048.11
	NI	€25,517,456.45	€8,979,409.88	€303,950.50	€73,719.22	€2,138.60	€56,294.66	€9,188.57	€381.08	€0.00	€0.00	€0.00	€34,942,538.96
May-14	ROI	€68,502,489.93	€22,405,052.21	€652,683.44	€210,307.65	€7,807.32	€249,029.58	€16,425.79	€1,110.17	€9,581.32	€0.00	€0.00	€92,054,487.41
	NI	€27,515,054.00	€7,036,489.15	€150,145.26	€37,452.65	€999.79	€81,713.52	€13,718.04	€468.77	€3.89	€0.00	€0.00	€34,836,045.07
Jun-14	ROI	€53,863,542.49	€16,268,861.66	€424,333.36	€121,415.36	€4,245.54	€106,227.35	€17,318.53	€1,014.63	€10,805.33	€0.00	€0.00	€70,817,764.25
341114	NI	€18,301,490.12	€7, 464, 864. 99	€121,134.45	€40,186.30	€1,005.32	€50,770.87	€10,564.39	€415.66	€29.76	€0.00	€0.00	€25,990,461.86
Jul-14	ROI	€50,929,138.15	€21,772,067.06	€326,631.36	€82,858.43	€2,938.18	€123,130.56	€17,118.42	€1,016.51	€0.00	€0.00	€0.00	€73,254,898.67
501-14	NI	€12,936,147.70	€6,035,816.09	€91,479.13	€29,875.87	€813.16	€67,310.27	€7,807.37	€427.29	€0.00	€0.00	€0.00	€19,169,676.88
Aug-14	ROI	€73,630,247.02	€17,405,067.16	€261,367.00	€62,924.88	€3,377.33	€73,033.72	€11,845.94	€728.13	€0.00	€0.00	€0.00	€91,448,591.18
	NI	€22,272,153.08	€5, 742, 482.51	€49,069.86	€14,962.35	€717.66	€41,404.59	€13,672.05	€509.28	€0.00	€0.00	€0.00	€28,134,971.38
Sep-14	ROI	€73,630,247.02	€17,405,067.16	€261,367.00	€62,924.88	€3,377.33	€73,033.72	€11,845.94	€728.13	€0.00	€0.00	€0.00	€91,448,591.18
30p 14	NI	€22,272,153.08	€5,742,482.51	€49,069.86	€14,962.35	€717.66	€41,404.59	€13,672.05	€509.28	€0.00	€0.00	€0.00	€28,134,971.38

Table 32 - Total Payments by Month

# **15 Appendix H: Full Balancing Costs**

Historical figures for full Balancing Costs of both the Trading and Capacity Markets, for the current financial year (October to September), are provided below. Information related to periods before this is available in previous Monthly Market Operator Reports.

- Positive values indicate Payments were greater than Charges.
- Negative values indicate Charges were greater than Payments.

#### Trading Market

Date Of Invoice	Week No	SEM Balancing Costs	VAT Balancing Costs
04/40/2012	20	CC74 C42 C5	67.204.44
04/10/2013	38	-€674,643.65	-€7,304.11
11/10/2013	39	€1,470,454.75	€282,967.81
18/10/2013	40	€1,565,540.72	€261,420.05
25/10/2013	41	€1,216,501.47	-€203,049.68
01/11/2013	42	€1,582,640.50	€227,924.39
08/11/2013	43	€2,175,993.38	€368,919.09
15/11/2013	44	€234,229.47	€89,641.72
22/11/2013	45	€893,912.83	€182,707.89
29/11/2013	46	€112,506.60	€1,606.89
06/12/2013	47	€2,647,032.97	€215,777.46
13/12/2013	48	€752,640.18	€133,576.36
20/12/2013	49	€1,841,603.06	€263,539.44
03/01/2014	50	€2,846,523.20	€390,127.91
03/01/2014	51	€3,745,323.83	€500,276.98
10/01/2014	52	€3,597,778.03	€450,932.98
17/01/2014	1	€3,228,601.37	€473,806.13
24/01/2014	2	€1,326,598.20	€473,806.13
31/01/2014	3	€2,554,714.89	€273,646.36
07/02/2014	4	€2,844,930.59	€413,677.68
14/02/2014	5	€2,595,824.97	€344,267.69
21/02/2014	6	€2,011,856.07	€289,132.53
28/02/2014	7	€1,795,332.18	€260,445.50
07/03/2014	8	€1,243,165.04	€640,903.32
14/03/2014	9	€842,764.84	€498,771.98
21/03/2014	10	€566,483.84	€51,979.84
28/03/2014	11	€604,404.46	€287,653.95
04/04/2014	12	€1,005,736.03	€ 304,802.51
11/04/2014	13	€508,440.18	€ 423,038.98
18/04/2014	14	-€217,860.87	€ 56,687.76
25/04/2014	15	€843,391.20	-€ 37,846.05
02/05/2014	16	-€420,682.47	€188,369.50
09/05/2014	17	€347,401.87	-€241,641.43
16/05/2014	18	-€886,208.32	€41,357.12
23/05/2014	19	-€1,046,996.68	-€292,108.29
30/05/2014	20	-€686,867.47	-€79,044.71
06/06/2014	21	-€326,019.47	-€82,173.40
13/06/2014	22	-€802,412.50	-€18,940.35
20/06/2014	23	-€566,638.49	-€51,931.44
27/06/2014	24	-€559,663.83	-€346,567.51
04/07/2014	25	-€559,663.83	-€77,985.84
11/07/2014	26	-€486,978.50	€30,288.10

Date Of Invoice	Week No	SEM Balancing Costs	VAT Balancing Costs
18/07/2014	27	-€64,357.82	€33,032.13
25/07/2014	28	-€1,005,927.10	-€40,984.50
01/08/2014	29	-€733,534.70	€87,761.77
08/08/2014	30	-€782,697.01	€42,298.74
15/08/2014	31	-€744,168.26	€49,090.55
22/08/2014	32	-€190,165.89	€ 8,449.19
29/08/2014	33	-€99,247.82	-€35,603.87
05/09/2014	34	€114,448.94	-€54,535.19
12/09/2014	35	-€671,027.53	€10,735.30
19/06/2014	36	-€1,194,440.43	€149,695.20
26/09/2014	37	-€360,014.03	€113,693.93

Table 33 – Full Balancing Costs for Trading Charges and Payments

Note: SEM Balancing Costs are provided based on daily exchange rates; VAT Balancing Costs are based on the Invoicing Date Trading Day exchange rate. VAT Balancing costs exclude Currency Cost related VAT.

Invoice Month	SEM Balancing Costs	VAT Balancing Costs
October 2013	-€304.76	-€94.05
November 2013	-€372.56	€2,045.28
December 2013	-€394.40	€-454.73
January 2014	-€424.40	-€1,164.62
February 2014	-€330.78	<i>-</i> €1,955.12
March 2014	-€332.7	€5,757.11
April 2014	-€294.96	-€3,446.68
May 2014	-€278.55	€1,776.78
June 2014	<b>-</b> €238.78	€973.06
July 2014	€-237.70	<b>-€233.18</b>
August 2014	-€236.85	€95.72
September 2014	-€246.89	€-66,050.94

#### Capacity Market

 Table 34 - Balancing Costs for Capacity Settlement

Note: SEM Capacity Balancing Costs and VAT Balancing Costs are provided based on Annual Capacity exchange rate. VAT Balancing costs exclude Currency Cost related VAT.

## **16** Appendix I: MSP Algorithms

The Market Operator has two different certified solvers used to determine Unit Commitment. These solvers use the Lagrangian Relaxation (LR) and Mixed Integer Programming (MIP) methodologies.

The primary algorithm used in the SEM is Lagrangian Relaxation (LR). Under certain schedule outcomes this solution is compared to results achieved using MIP. The SEMO policy on the use of MIP has been updated and is available from the SEMO website <u>here</u>.

Historical information on runs and dates where the MIP algorithm has been used for published results is provided below.

Month	Ex-Ante	Ex-Ante 2	Ex-Post Indicative	Ex-Post Initial	Within Day
May 2013	-	-	-	-	-
June 2013	-	18/06/2013	-	-	-
July 2013	-	-	-	25/07/2013	16/07/2013
August 2013	-	13/08/2013	14/08/2013	-	05/08/2013
September 2013	-	24/09/2013	05/09/2013	12/09/2013	03/09/2013 30/09/2013
October 2013	-	-	30/10/2013	07/10/2013, 24/10/2013 & 30/10/2013	-
November 2013	-	-	14/11/2013 20/11/2013	14/11/2013	17/11/2013 30/11/2013
December 2013	02/12/2013 03/12/2013	02/12/2013	02/12/2013 21/12/2013	-	19/12/2013

Month	Ex-Ante	Ex-Ante 2	Ex-Post Indicative	Ex-Post Initial	Within Day
January 2014	07/01/2014	-	05/01/2014 19/01/2014	04/01/2014 19/01/2014 21/01/2014	-
February 2014	26/02/2014	-	-	-	-
March 2014	-	26/03/2014 27/03/2014	15/03/2014 27/03/2014	22/03/2014	13/03/2014
April 2014	-	11/04/2014	-	07/04/2014	
May 2014	-	-	-	-	26/05/2014
June 2014	17/06/2014	-	18/06/2014 29/06/2014	-	25/06/2014 26/06/2014
July 2014	-	-	-	02/07/2014 03/07/2014 11/07/2014	-
August 2014	-	13/08/2014 14/08/2014 22/08/2014	14/08/2014	27/08/2014	11/08/2014 13/08/2014
September 2014	-	03/09/2014	16/09/2014 24/09/2014	01/09/2014	-

#### Table 35 - MIP Algorithms

Operational				MIP Peak	
Date	Trade Date	Run Type	LR Peak SMP	SMP	Published
04/03/2013	05/03/2013	EA1	€586.55	€301.78	MIP
11/03/2013	11/03/2013	WD1	€629.46	€333.37	MIP
11/03/2013	12/03/2013	EA2	€561.28	€221.27	MIP
12/03/2013	11/03/2013	EP1	€1,350.64	€699.49	MIP
15/03/2013	11/03/2013	EP2	€1,350.64	€699.49	MIP
17/03/2013	18/03/2013	EA1	€576.04	€346.00	MIP
18/03/2013	19/03/2013	EA2	€682.41	€346.00	MIP
19/03/2013	18/03/2013	EP1	€576.04	€372.23	MIP

20/03/2013	24/03/2013	EP2	€625.32	€168.48	MIP
21/03/2013	21/03/2013	WD1	€596.97	€259.45	MIP
27/03/2013	26/03/2013	EP1	€508.83	€265.65	MIP
30/03/2013	30/03/2013	WD1	€556.86	€396.00	MIP
30/03/2013	29/03/2013	EP1	€732.81	€414.64	MIP
30/03/2013	26/03/2013	EP2	€509.19	€265.65	MIP
09/04/2013	09/04/2013	WD1	€710.75	€123.59	MIP
29/04/2013	29/04/2013	WD1	€1000.00	€168.92	MIP
17/06/2013	18/06/2013	EA2	€576.24	€84.08	MIP
16/07/2013	16/07/2013	WD1	583.17	48.11	MIP
29/07/2013	25/07/2013	EP2	€591.29	€97.59	MIP
05/08/2013	05/08/2013	WD1	€1,000	€47.02	MIP
12/08/2013	13/08/2013	EA2	€591.14	€91.37	MIP
15/08/2013	14/08/2013	EP1	€590.51	€79.91	MIP
03/09/2013	03/09/2013	WD1	€591.42	€96.56	MIP
06/09/2013	05/09/2013	EP1	€598.70	€116.29	MIP
16/09/2013	12/09/2013	EP2	€1000.00	€313.90	MIP
23/09/2013	24/09/2013	EA2	€609.58	€98.56	MIP
30/09/2013	30/09/2013	WD1	-€100.00	€31.47	MIP
11/10/2013	07/10/2013	EP2	€1000.00	€77.71	MIP
28/10/2013	24/10/2013	EP2	€517.40	€517.40	MIP
31/10/2013	30/10/2013	EP1	€596.88	€363.43	MIP
03/11/2013	30/10/2013	EP2	€596.88	€363.43	MIP
15/11/2013	14/11/2013	EP1	€555.85	€511.00	MIP
18/11/2013	14/11/2013	EP2	€679.09	€511.00	MIP
17/11/2013	17/11/2013	WD1	€638.64	€572.75	MIP
21/11/2013	20/11/2013	EP1	€ -100.00	€268.28	MIP
30/11/2013	30/11/2013	WD1	€568.78	€283.21	MIP
01/12/2013	02/12/2013	EA1	€569.78	€264.13	MIP
01/12/2013	02/12/2013	EA1	€569.78	€265.85	MIP
02/12/2013	02/12/2013	WD1	€651.62	€205.85	MIP
02/12/2013	03/12/2013	EA1	€1000.00	€311.25	MIP
21/12/2013 23/12/2013	21/12/2013	WD1	€637.14 €633.99	€308.15 €371.89	MIP
	19/12/2013	EP2			MIP
08/01/2014	04/01/2014	EP2	€683.07	€550.00	MIP
06/01/2014	05/01/2014	EP1	€683.07	€550.86	MIP
06/01/2014	07/01/2014	EA1	€609.67	€238.04	MIP
20/01/2014	19/01/2014	EP1	€678.86	€592.00	MIP
23/01/2014	19/01/2014	EP2	€678.86	€592.00	MIP
25/01/2014	21/01/2014	EP2	€683.13	€405.24	MIP
26/02/2014	27/02/2014	EA1	€567.34	€172.40	MIP
13/03/2014	09/03/2014	EP2	€1000.00	€359.19	MIP
15/03/2014	15/03/2014	WD1	€1166.98	€101.84	MIP
22/03/2014	21/03/2014	EP1	€583.98	€337.87	MIP
26/03/2014	27/03/2014	EA2	€1000.00	€337.87	MIP
27/03/2014	27/03/2014	WD1	€1000.00	€486.54	MIP
27/03/2014	28/03/2014	EA2	€1000.00	€179.49	MIP
10/04/2014	11/04/2014	EA2	€539.67	€143.88	MIP
03/04/2014	07/04/2014	EP2	€573.67	€670.25	MIP
26/05/2014	26/05/2014	WD1	€578.28	€301.71	MIP
16/06/2014	17/06/2014	EA1	€562.05	€534.28	MIP
19/06/2014	18/06/2014	EP1	€551.50	€526.61	MIP
30/06/2014	29/06/2014	EP1	€1,000	€956.83	MIP
25/06/2014	25/06/2014	WD1	€930.72	€57.32	MIP

26/06/2014	26/06/2014	WD1	€1,000	€69.50	MIP
02/07/2014	28/06/2014	EP2	€1,000	€338.00	MIP
03/07/2014	29/06/2014	EP2	€1,000	€955.38	MIP
11/07/2014	07/07/2014	EP2	€1,000	€288.48	MIP
11/08/2014	11/08/2014	WD1	€1,000	€68.49	MIP
12/08/2014	13/08/2014	EA2	€1,000	€56.21	MIP
13/08/2014	13/08/2014	WD1	€1,000	€114.89	MIP
13/08/2014	14/08/2014	EA2	€1,000	€377.59	MIP
15/08/2014	14/08/2014	EP1	€1,000	€113.79	MIP
21/08/2014	22/08/2014	EA2	€1,000	€114.35	MIP
31/08/2014	27/08/2014	EP2	-€100	€52.30	MIP
02/09/2014	03/09/2014	EA2	€1,000	€330.00	MIP
17/09/2014	16/09/2014	EP1	€1,000	€188.70	MIP
25/09/2014	24/09/2014	EP1	€1,000	€87.77	MIP
05/09/2014	01/09/2014	EP2	€1,000	€492.00	MIP

Table 36 - MIP Vs LR Peak Price Comparison