



# **Market Operator Monthly Report**

## **November 2015**

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### 1. Executive Summary

This Single Electricity Market Operator's (SEMO) report covers the month of operation of November 2015 and is published in accordance with the Single Electricity Market (SEM) Committee decision and Clause 2.144 of the Trading and Settlement Code.

During the month of November 2015, Settlements had no late publications as per the Trading and Settlement code.

140 general queries were received in November 2015. During the same period 135 general queries were resolved.

There were 12 defaults by Participants during November 2015. The largest of these was an Energy Initial invoice for €1382.84 which was remedied the same day.

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

## 2. Monthly Statistics

### *Trading and Settlement Code Breaches*

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

Trading and Settlement Code Breaches			
Area		Major	Minor
Data Providers		-	-
Market Participants	Pricing & Scheduling	-	-
	Settlement	-	-
	Funds Transfer	12	-
	Credit Risk Management	-	1
SEMO	Pricing & Scheduling	-	2
	Settlement	-	2
	Funds Transfer	-	-
	Credit Risk Management	-	-
	Other	-	-
<b>Total</b>		<b>12</b>	<b>6</b>

**Table 1 – Trading and Settlement Code Breaches**

Further details of each of the Trading and Settlement 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 no financial implication to Participants. This includes late posting of pricing and settlement runs.

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### ***Joining and Terminating Parties and Units***

No parties joined the Market in November 2015

There were no terminating parties in November 2015.

There were four new units effective in the Market in November 2015.

- PT\_400165/ GU\_401840 DWL Energy Supply Limited
- PT\_400166/SU\_400186 DWL Energy Supply Limited
- PT\_400170/PT\_400170\_I\_RIEWIC- Gaelectric Interconnector Trading ROI Limited
- PT\_500088/PT\_500088\_I\_NIMOYLE- Gaelectric Interconnector Trading ROI Limited

There were no units which de-registered from the Market in November 2015.

### ***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

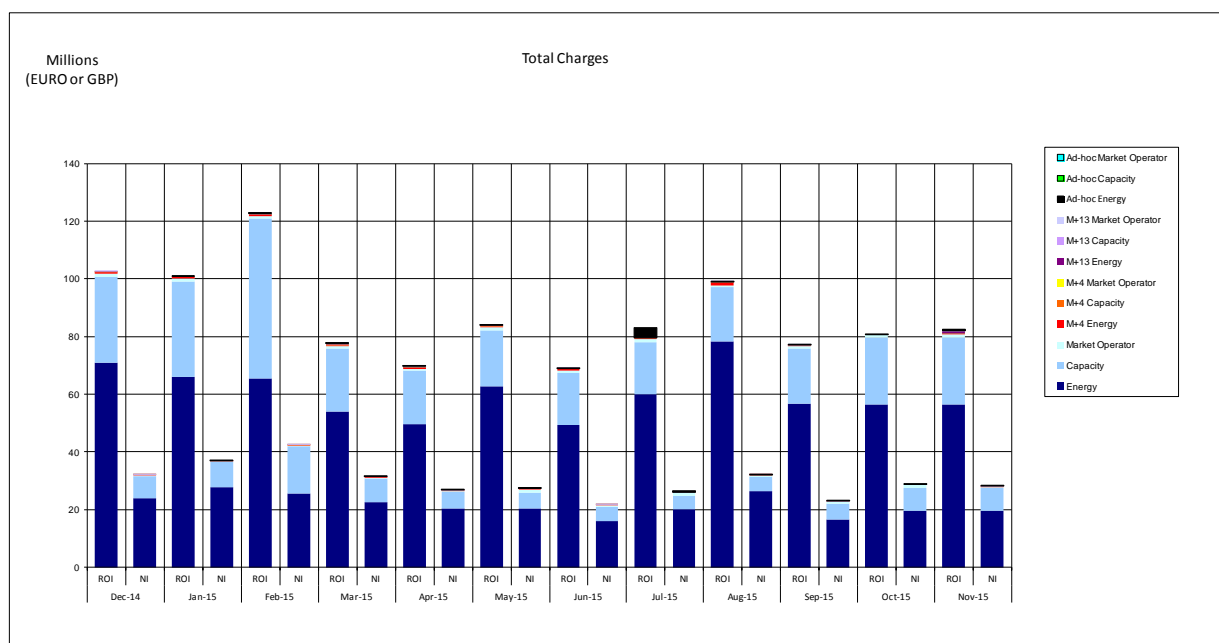


Figure 1 - Total Charges for Each Currency

Market	November 2015	
	ROI	NI
Energy	€56,463,736.52	£19,619,288
Capacity	€23,128,442.30	£8,142,114
Market Operator	€1,100,826.75	£256,488
M+4 Energy	€429,995.20	£118,896
M+4 Capacity	€99,296.34	£40,963
M+4 Market Operator	€2,542.49	£778
M+13 Energy	€702,840.25	£24,802
M+13 Capacity	€20,038.40	£11,150
M+13 Market Operator	€309.43	£150
Ad-hoc Energy	€293,116.81	£21,409
Ad-hoc Capacity	€0.00	£0
Ad-hoc Market Operator	€380.36	£2
<b>Total</b>	<b>£82,241,525</b>	<b>£28,236,040</b>

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 [Appendix G](#).

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## Total Payments for Each Currency

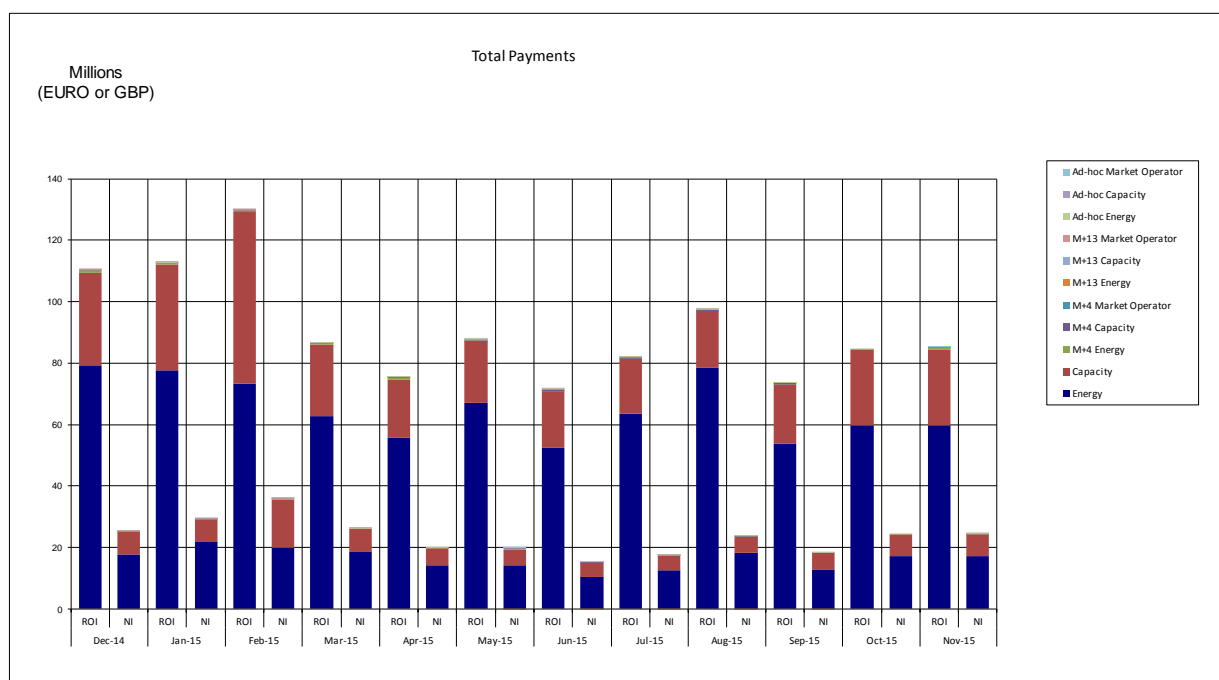


Figure 2 - Total Payments for Each Currency

Market	November 2015	
	ROI	NI
Energy	€59,724,443	£17,210,572
Capacity	€24,802,345	£7,020,974
M+4 Energy	€433,220	£117,530
M+4 Capacity	€100,607	£40,056
M+4 Market Operator	€2,695	£765
M+13 Energy	€76,939	£30,378
M+13 Capacity	€22,197	£9,649
M+13 Market Operator	€318	£169
Ad-hoc Energy	€37,920	£1,973
Ad-hoc Capacity	€0	£0
Ad-hoc Market Operator	€373	£0
<b>Total</b>	<b>€85,201,058</b>	<b>£24,432,067</b>

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.



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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:

November 2015	
Imbalance (Energy Only)	-€8,199,047.16

Table 4 - Balancing Costs for Energy Settlement

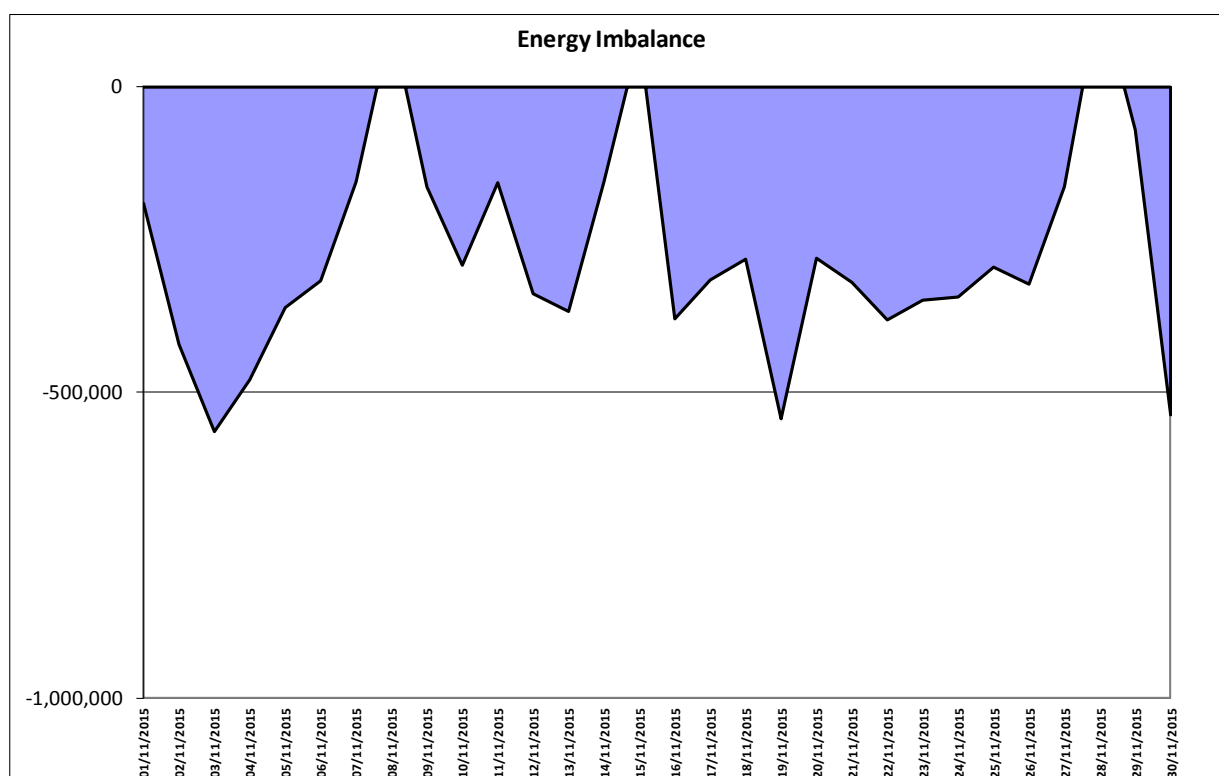


Figure 3 – Energy Imbalances

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.

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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
06/11/2015	43	€559,788.60	€38,427.78
13/11/2015	44	-€49,013.58	€13,013.70
20/11/2015	45	€760,249.70	€98,639.75
27/11/2015	46	€808,399.38	€71,687.58

**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 Trading and Settlement Code.

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

November 2015	
Capacity Charges	-€58,220,283.61
Capacity Payments	€58,219,897.09
Balancing Costs	-€386.53
VAT	-€20,938.81

**Table 6 - Balancing Costs for Capacity Settlement**

Historical figures, the current financial year full Balancing Costs for both Trading and Capacity are provided in [Appendix H](#). 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)

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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 Trading and Settlement 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
31/10/2015	06/11/2015	43	£44,042.00	£7,087.27	£51,129.27
07/11/2015	13/11/2015	44	-£40,216.69	£8,493.46	-£31,723.23
14/11/2015	20/11/2015	45	-£22,372.48	£ -	-£22,372.48
21/11/2015	27/11/2015	46	£27,834.17	£ -	£27,834.17

**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 Inter-jurisdictional SRA Currency Costs.

Over the period of this report Currency Costs for each week represented a benefit to Participants of up to £51,129.27 and a cost of £31,723.23. 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
09/12/2015	Nov 2015	£40,043.07

**Table 8 - Total Currency Costs for Capacity Payments and Charges**

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### **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 2015. The values expressed in Euros are as follows.

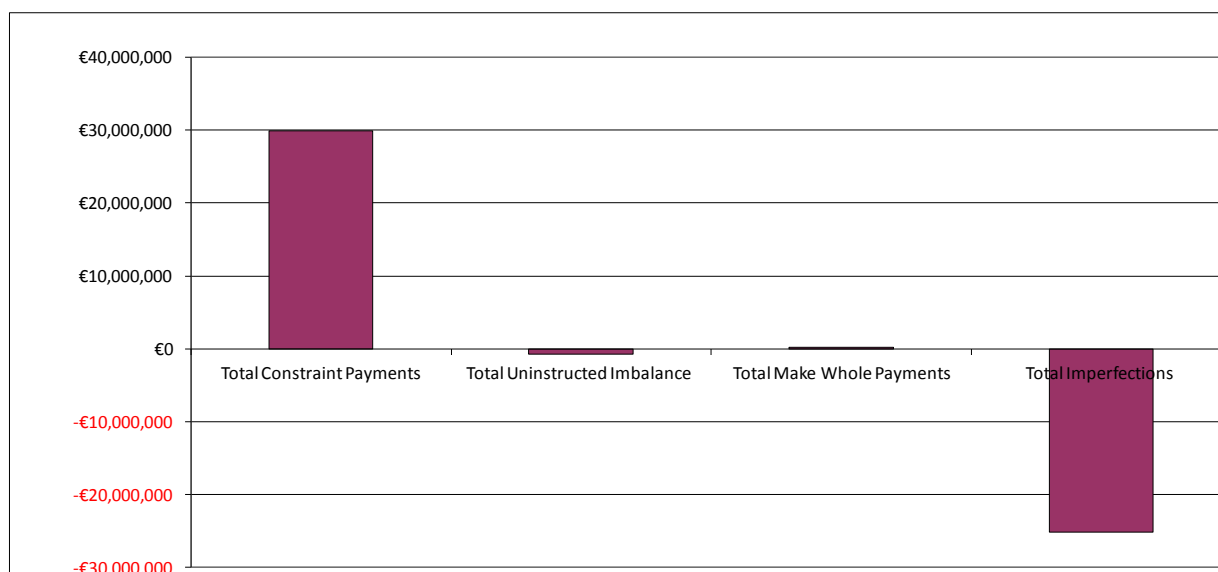
This table makes use of the values taken from the Initial Settlement Run of Trading payments and charges.

Total Constraint Payments	Total Uninstructed Imbalance	Total Make Whole Payments	Total Imperfections
€29,970,768.03	-€656,830.67	€295,805.18	-€25,144,233.77

**Table 9 – Cumulative Imperfections Costs Vs Budget**

Note: The Total Constraints Payment figure above has been updated to contain Interconnector Unit Gate variables.

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 [Appendix E](#).

### **Financial Changes between Initial Settlement and Subsequent Reruns**

The following graphs provide a breakdown of resettlement amounts for the M+4 resettlement period of July 2015 and M+13 resettlement period of October 2014 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

M+4 Resettlement

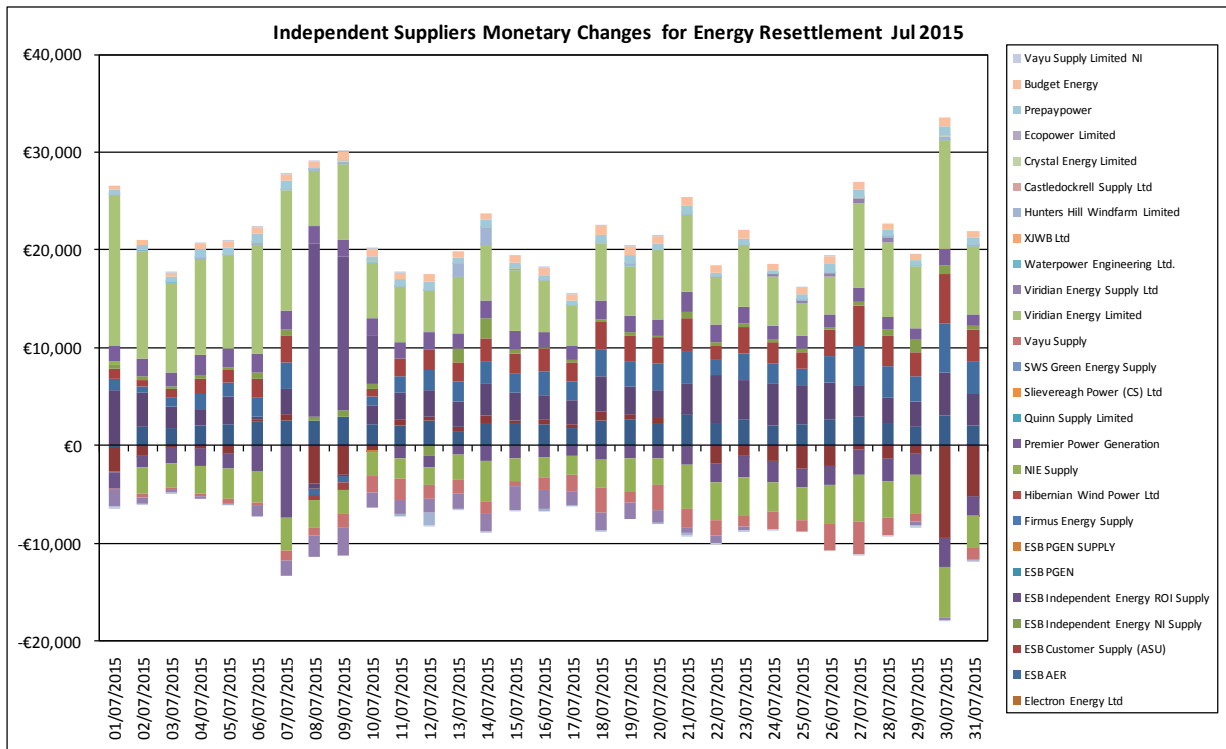
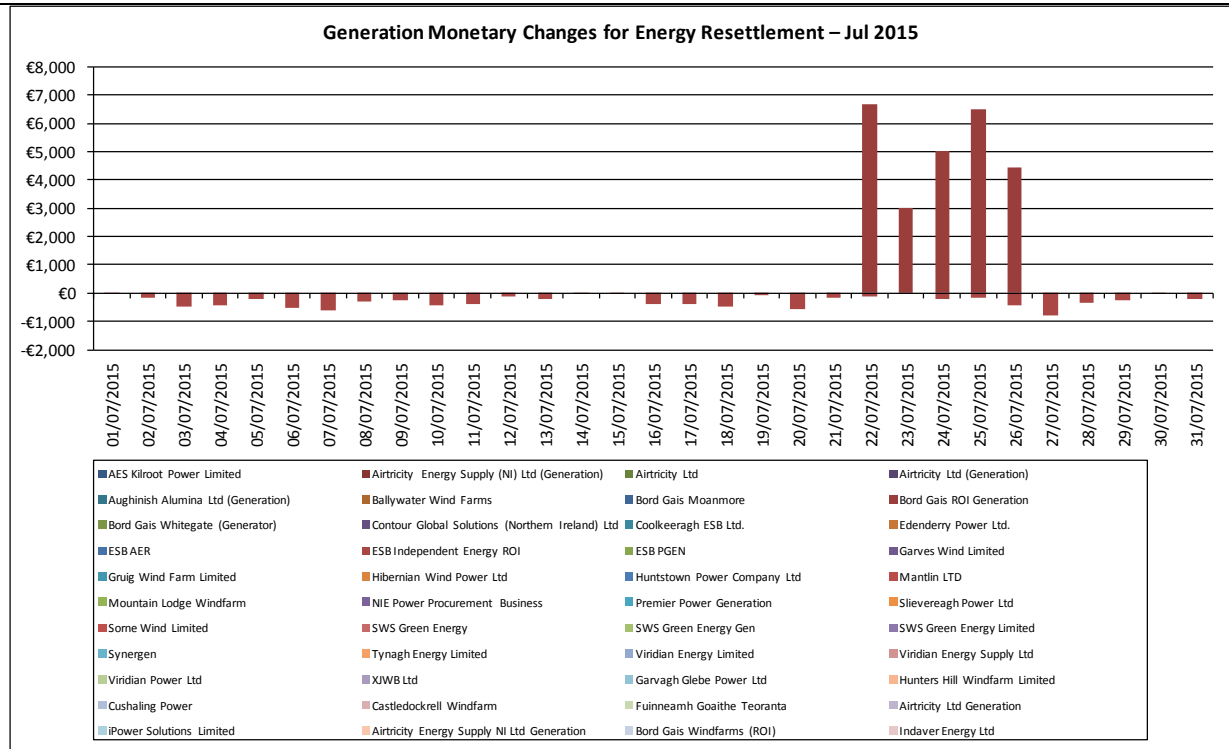


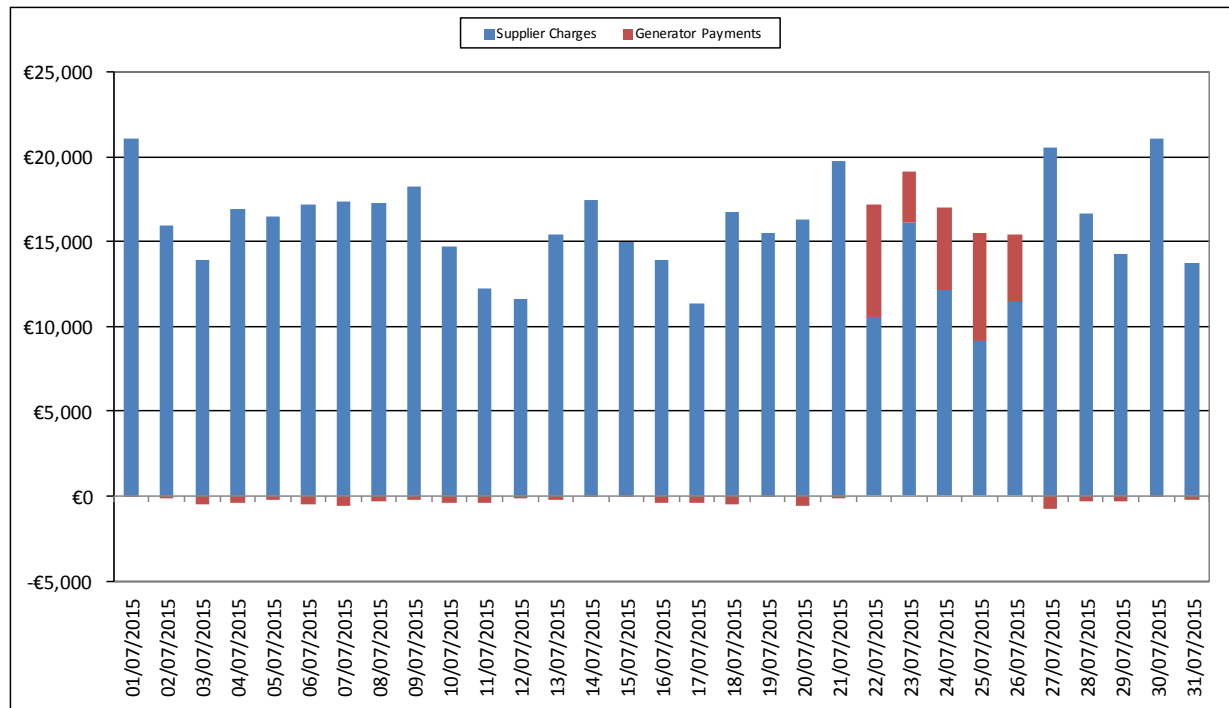
Figure 5 – Independent Suppliers Monetary Changes for Energy Resettlement – Jul 2015

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

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**Figure 6 – Generation Monetary Changes for Energy Resettlement – Jul 2015**



**Figure 7 – Total Monetary Changes for Energy Resettlement – Jul 2015**

M+13 Resettlement

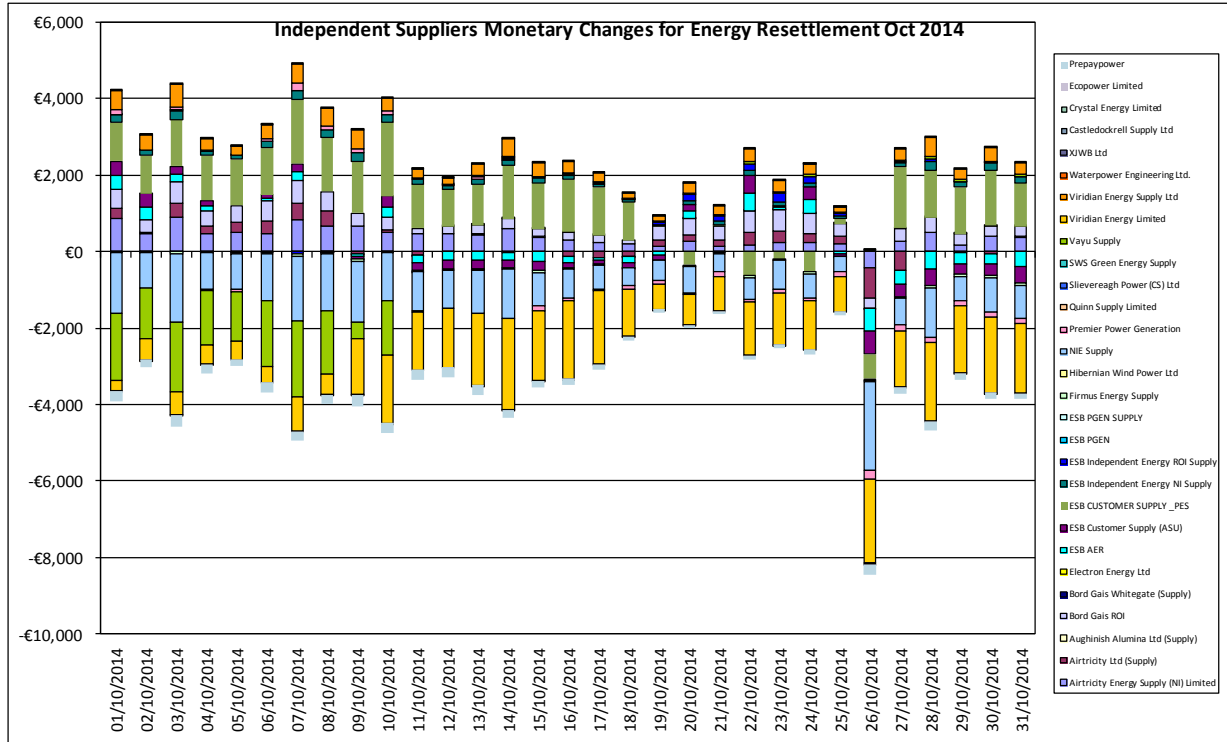


Figure 8 - Independent Suppliers Monetary Changes for Energy Resettlement – Oct 2014

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

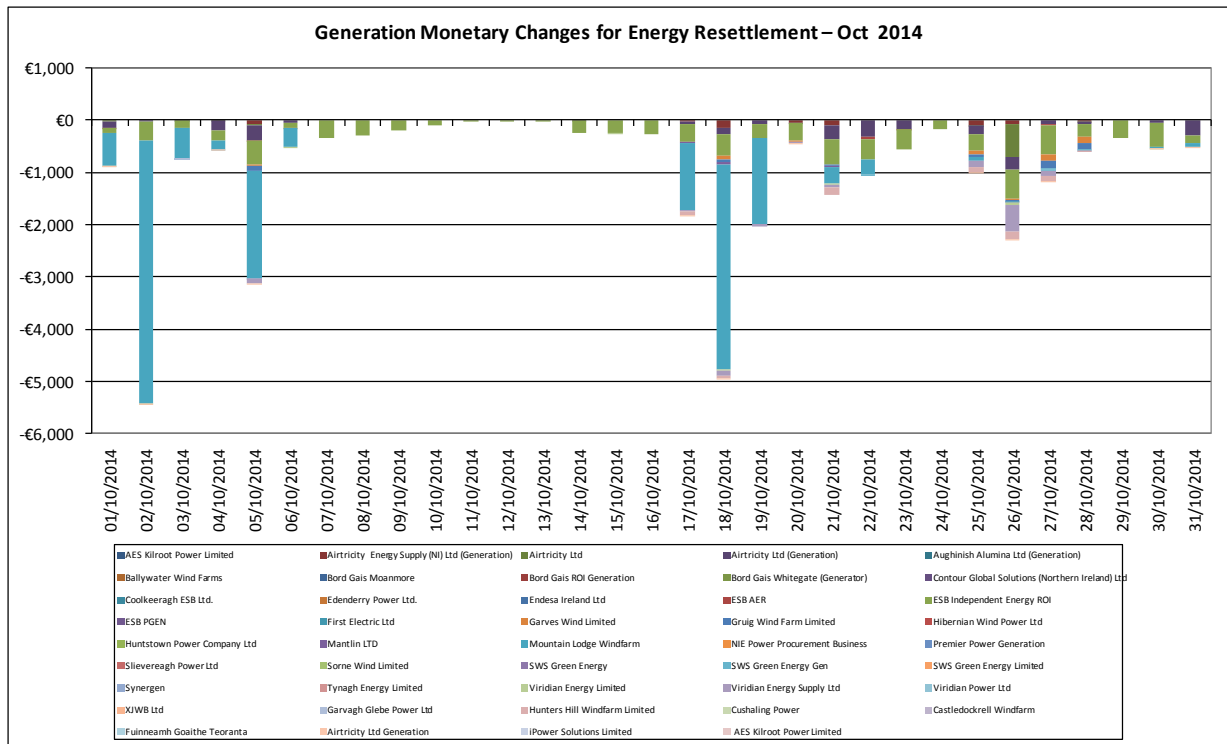


Figure 9 - Generation Monetary Changes for Energy Resettlement – Oct 2014

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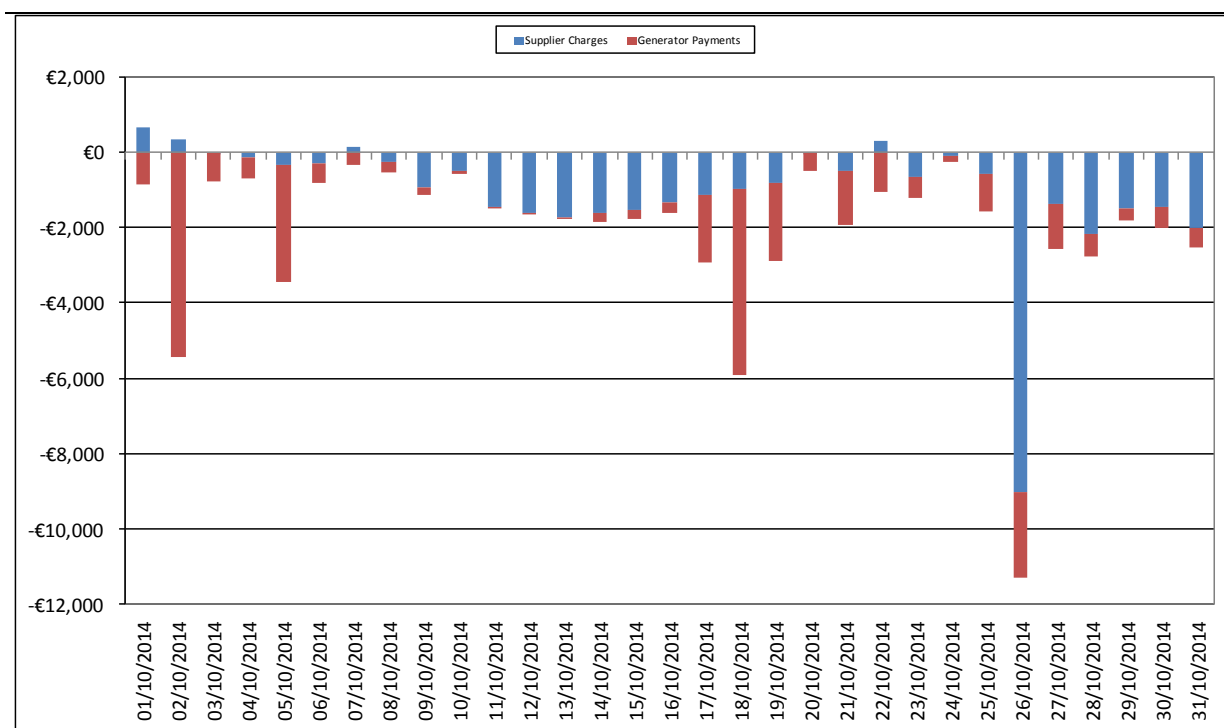


Figure 10 - Total Monetary Changes for Energy Resettlement – Oct 2014

### 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.



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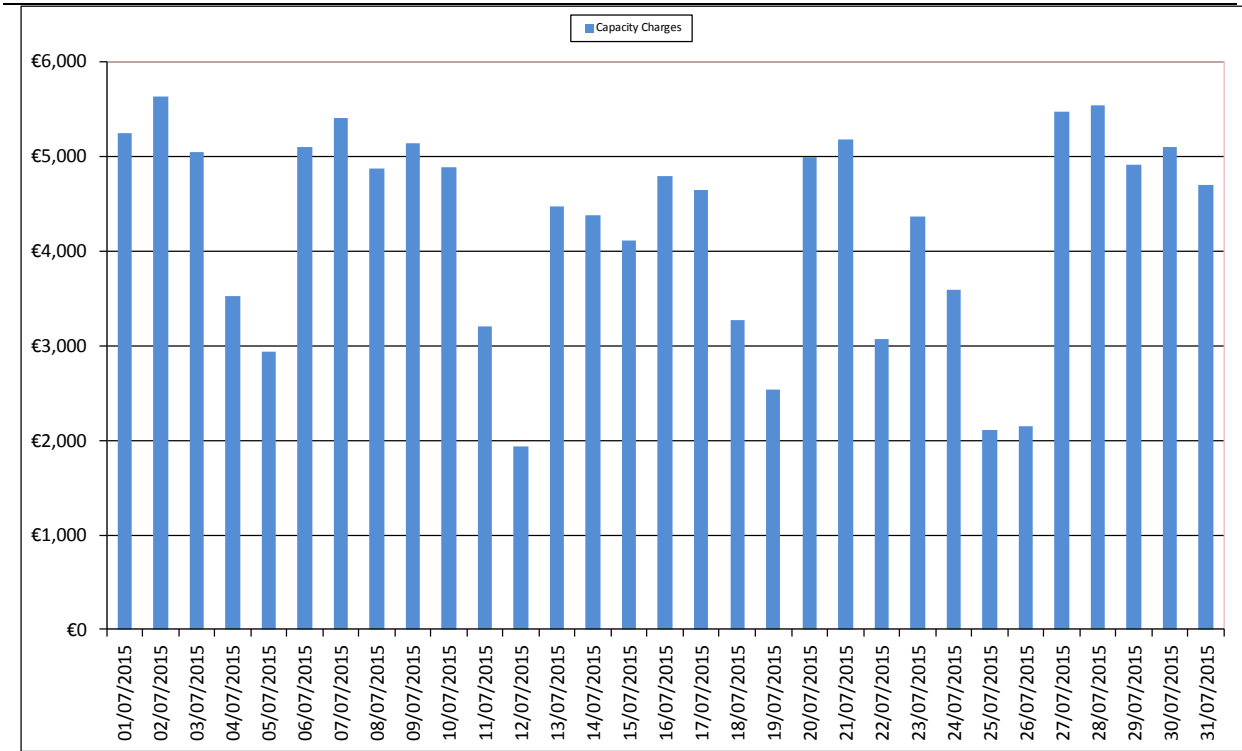


Figure 11 - Independent Suppliers Monetary Changes for Capacity Resettlement – Jul 2015

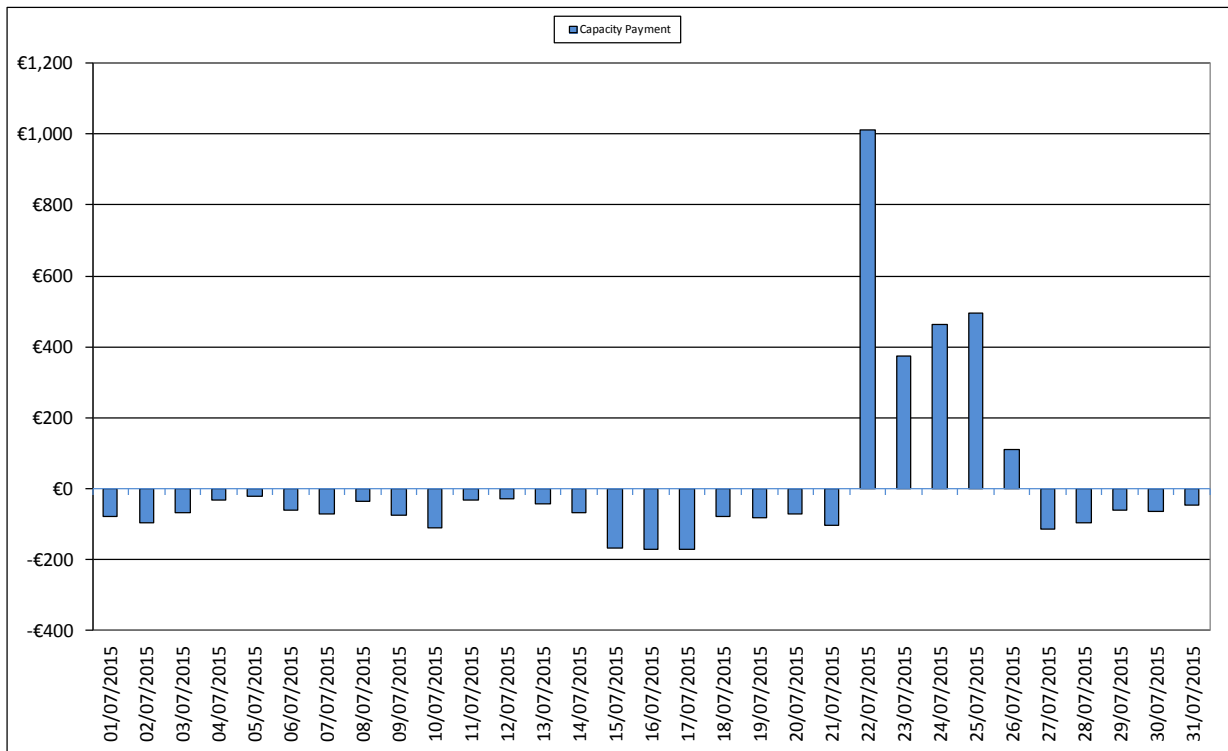
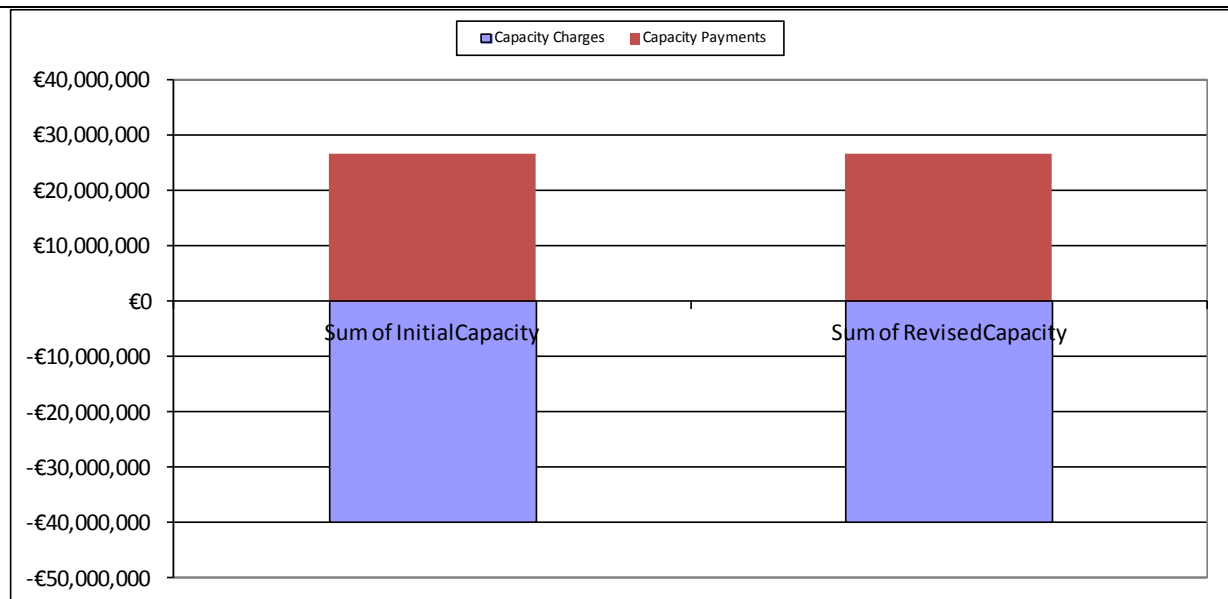


Figure 12 - All Generation Monetary Change for Capacity Resettlement – Jul 2015

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

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**Figure 13 - Comparison of Distribution of Monetary Amounts between Capacity Initial and Resettlement Jul 2015**

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

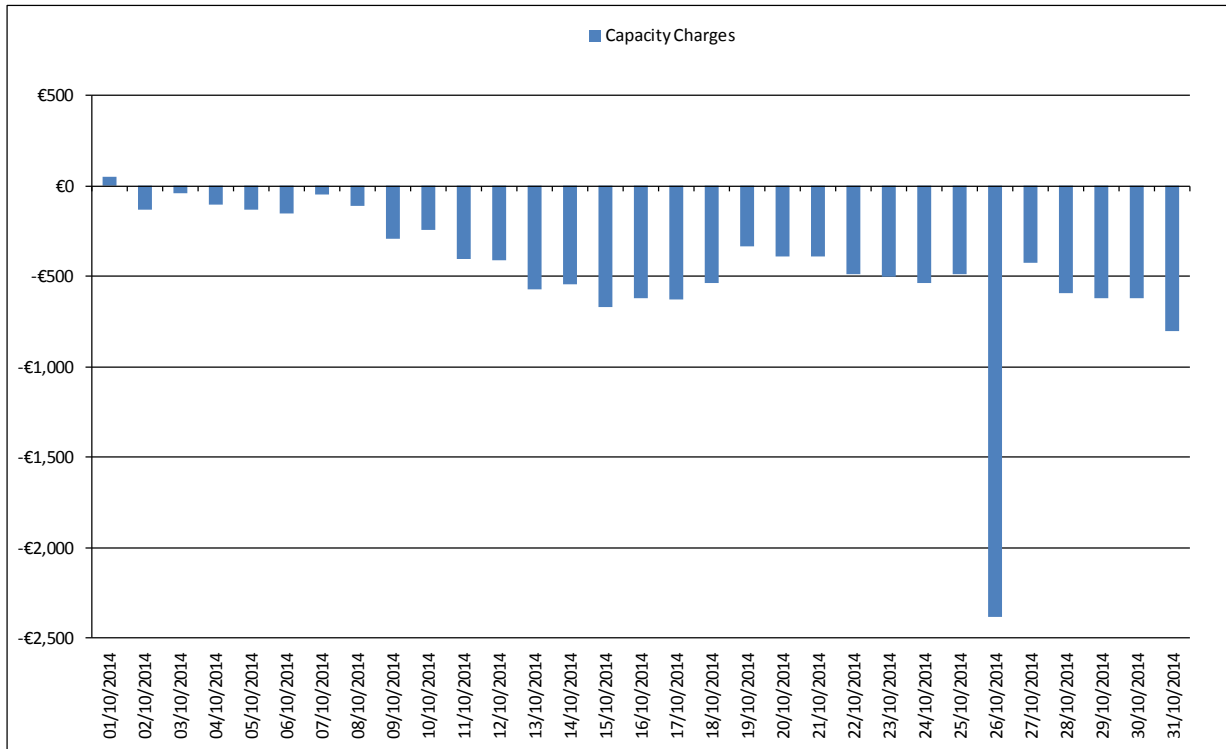


Figure 14 - Independent Suppliers Monetary Changes for Capacity Resettlement – Oct 2014

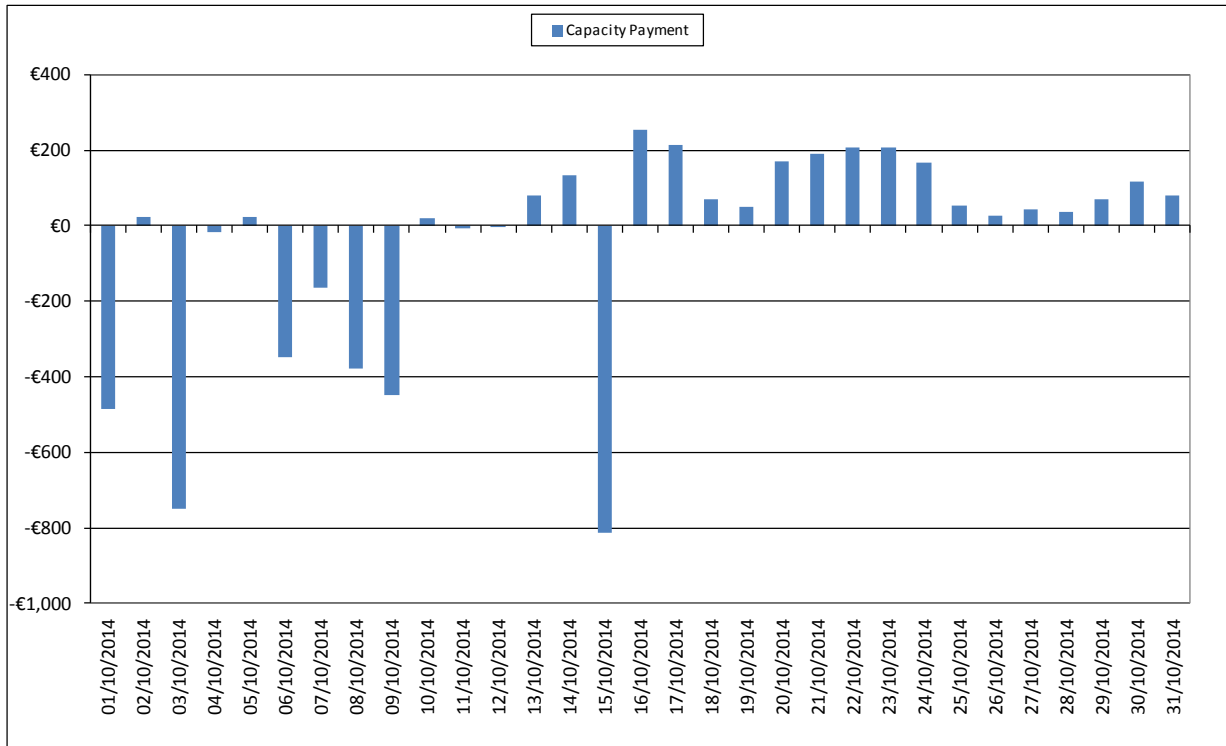


Figure 15 – All Generation Monetary Change for Capacity Resettlement – Oct 2014

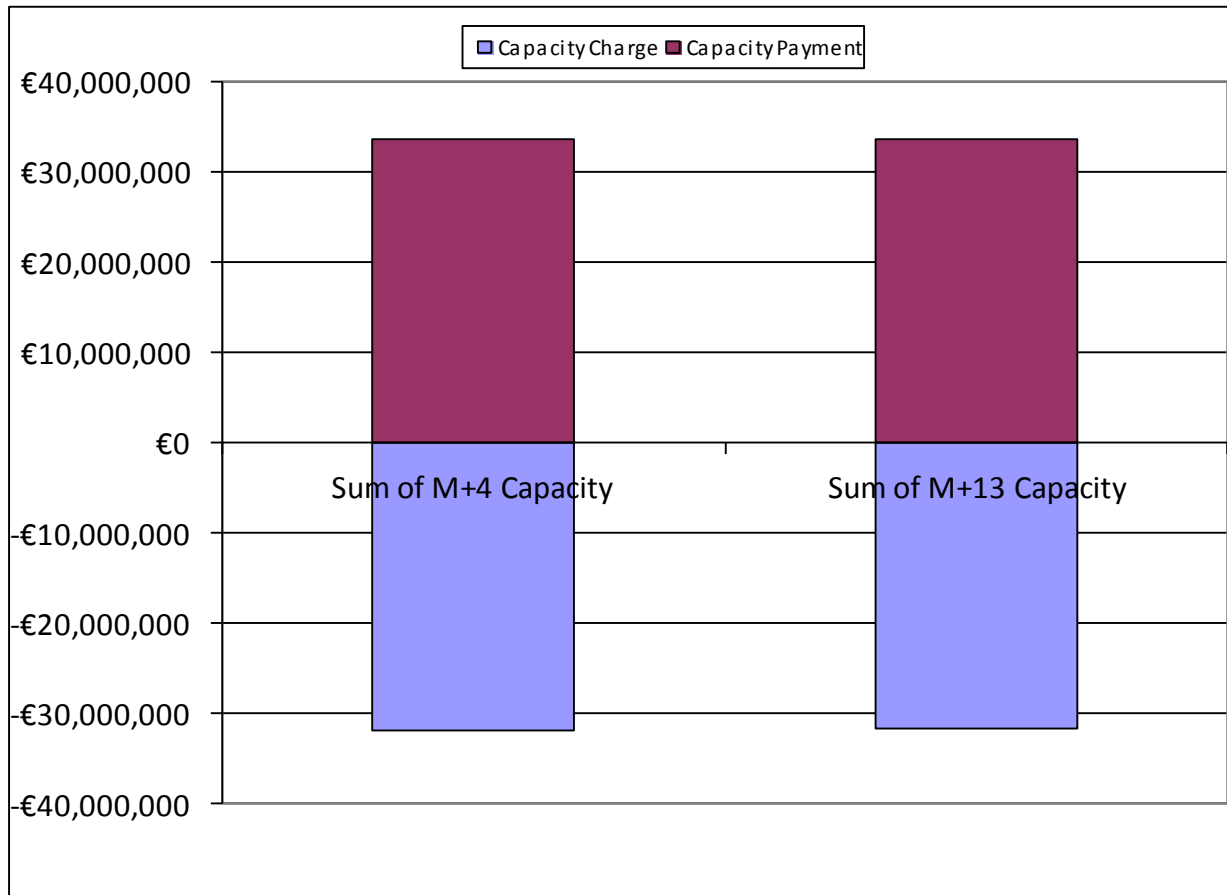


Figure 16 - Comparison of Distribution of Monetary Amounts between M+4 Capacity Resettlement and M+13 Capacity Resettlement – Oct 2014

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 November 2015.

**Market Helpdesk Report: 01/11/15 to 30/11/15**

	Received	Resolved within the period	Not Resolved	Resolved in the period	Resolution Time (Working Days)	Resolved On Time
Normal	137	120	17	132	0.89	132
Important	2	2	0	2	0.32	2
Urgent	1	1	0	1	0.04	1
Settlement	8	5	3	7	3.91	7
Credit	0	0	0	0	0.00	0
Dispute	0	0	0	0	0.00	0
Data	0	0	0	0	0.00	0
<b>Total/Average</b>	<b>148</b>	<b>128</b>	<b>20</b>	<b>142</b>	<b>1.03</b>	<b>142</b>

**Table 10 – Helpdesk Statistics**

Definitions:

- *Resolved within the Period* refers to queries raised and resolved within the calendar month of November 2015.
- *Resolved in the Period* refers to queries resolved within November 2015, 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 November 2015.
- *Not Resolved* refers to queries raised but not resolved within November 2015.
- *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 and 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 0.59 working days from 1.43 in October 2015 to 0.84 working days in November 2015. 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 November 2015 that took over 20 working days to resolve.

Data and Settlement Queries generally continue to be responded to within the timelines required by the Trading and Settlement Code, i.e. one calendar month. No Formal Query timeline extensions were required during November 2015 with regard to formal Settlement Queries.

### 5. Disputes and Queries

#### 5.1.1 Disputes

There were no Disputes raised during the month of November 2015.

#### 5.1.2 Data Queries

There were no formal Data Queries raised during the month of November 2015

#### 5.1.3 Settlement Queries

There were eight formal Settlement Queries raised in November 2015. Seven of the queries were upheld and have all been resolved.

Topic	Number Of Queries
Actual Availability	2
Dispatch Instructions	2
CLAFs	2
Eligible Availability	1

**Table 11 - Upheld Settlement Queries by topic**

- Two queries relating to Actual Availabilities were raised. These were deemed to be of low materiality and will be corrected within M+4 & M+13 Resettlement.
- Two queries relating to Dispatch Instructions were raised. These were deemed to be of low materiality and will be corrected within M+13 Resettlement.
- Two queries relating to CLAFs were raised. These were deemed to be of low materiality and will be corrected within M+4 Resettlement.
- One query relating to Eligible Availability was raised. This was deemed to be of high materiality and will be corrected within M+4 & Adhoc Resettlement.

#### Unresolved Queries

There are no unresolved data queries or settlement queries as of the 8th December 2015.

A full list of all the Data and Settlement queries raised is contained in [Appendix B](#).

### 6. Central Systems

#### 6.1 Proportion of Default Data Used

On review of the Commercial Offer Data used in the MSP runs, 70.64% of data used was submitted by Participants through the normal Bid-Offer process. 29.36% of the data used was based on Standing Commercial Offer Data. 0.0% 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 [Appendix F](#).

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

This is not calculable presently.

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

##### 6.3.1 Re-Pricing and Resettlement Runs

There were no Re-Price runs carried out in November 2015.

There were eleven Resettlement runs carried out in November 2015.

##### 6.3.2 System Errors

There were two Market Application defects found in November 2015.

ABB2015-142976	IP HEAT STATE - DOWN TIME
ABB2015-143445	Availability Profile - Dual Energy Unit

Table 12 – System Errors

Details are provided in Appendix C: List of All System Errors and Failures

#### 6.4 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 November 2015.

6.4.1 MSP Postings November 2015

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

Table 13 - Operational Timings

Process	On Time	< 1 hr late	> 1 hr late	Not done
Gate Close	100%	0%	0%	0%
Post EA1	99%	0%	1%	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 14 - Operational Timings (% on time)



# Market Operator Monthly Report

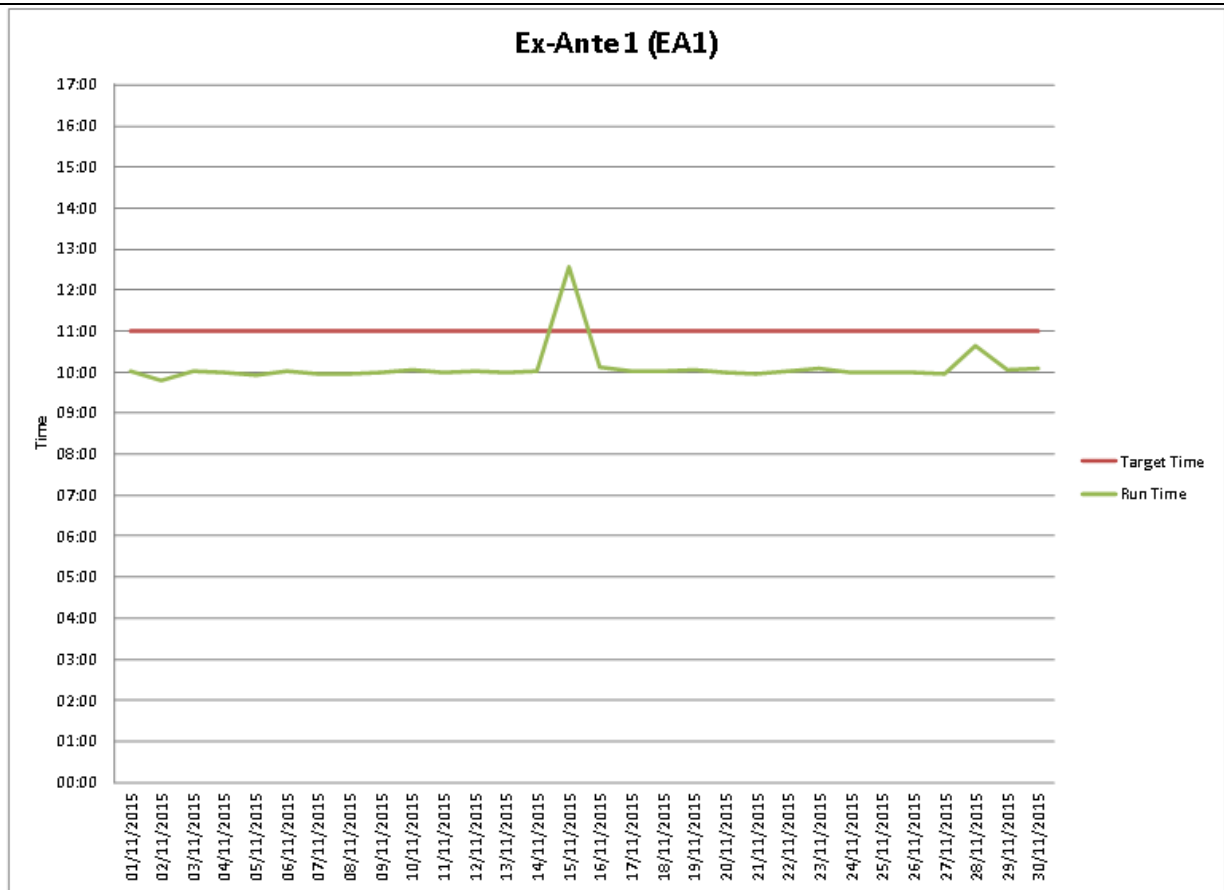


Figure 17 – Ex-Ante 1

# Market Operator Monthly Report

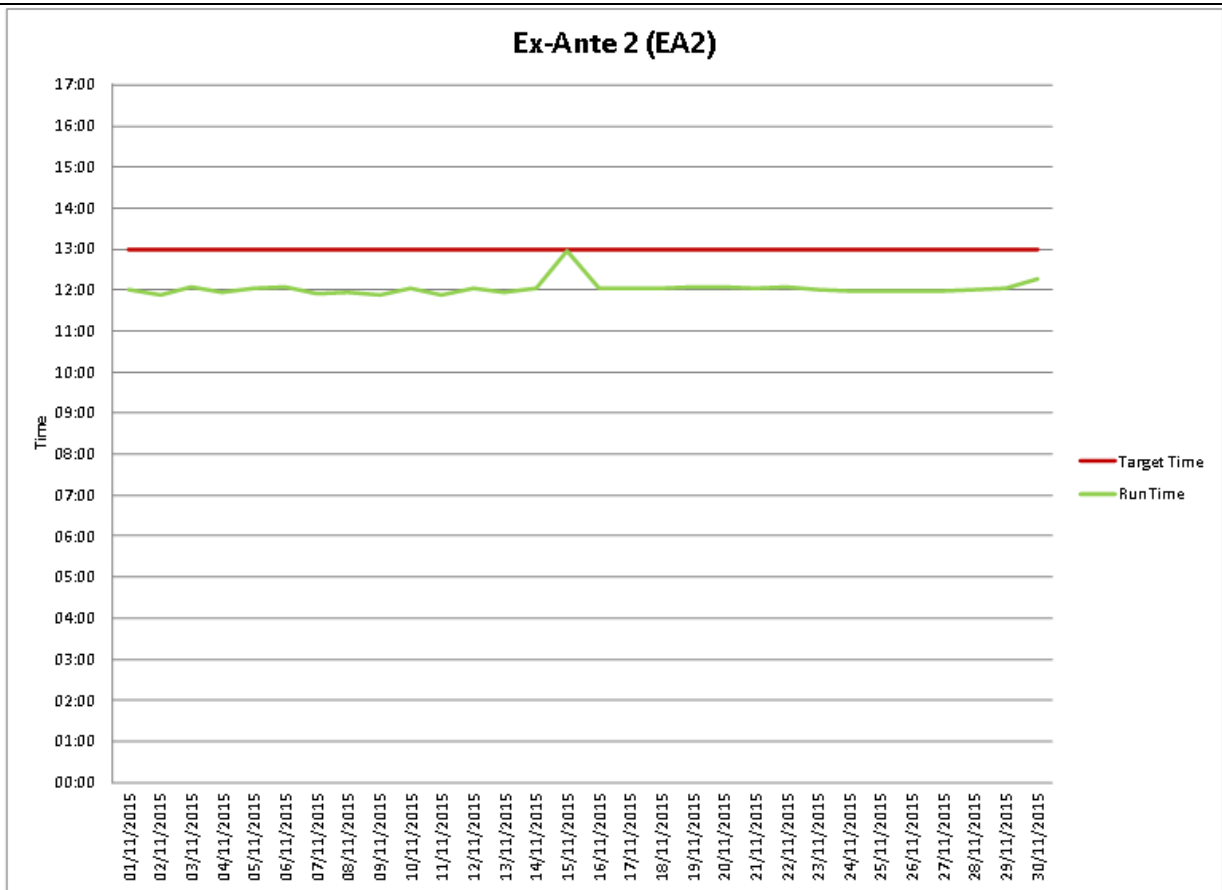


Figure 18 – Ex-Ante 2

# Market Operator Monthly Report

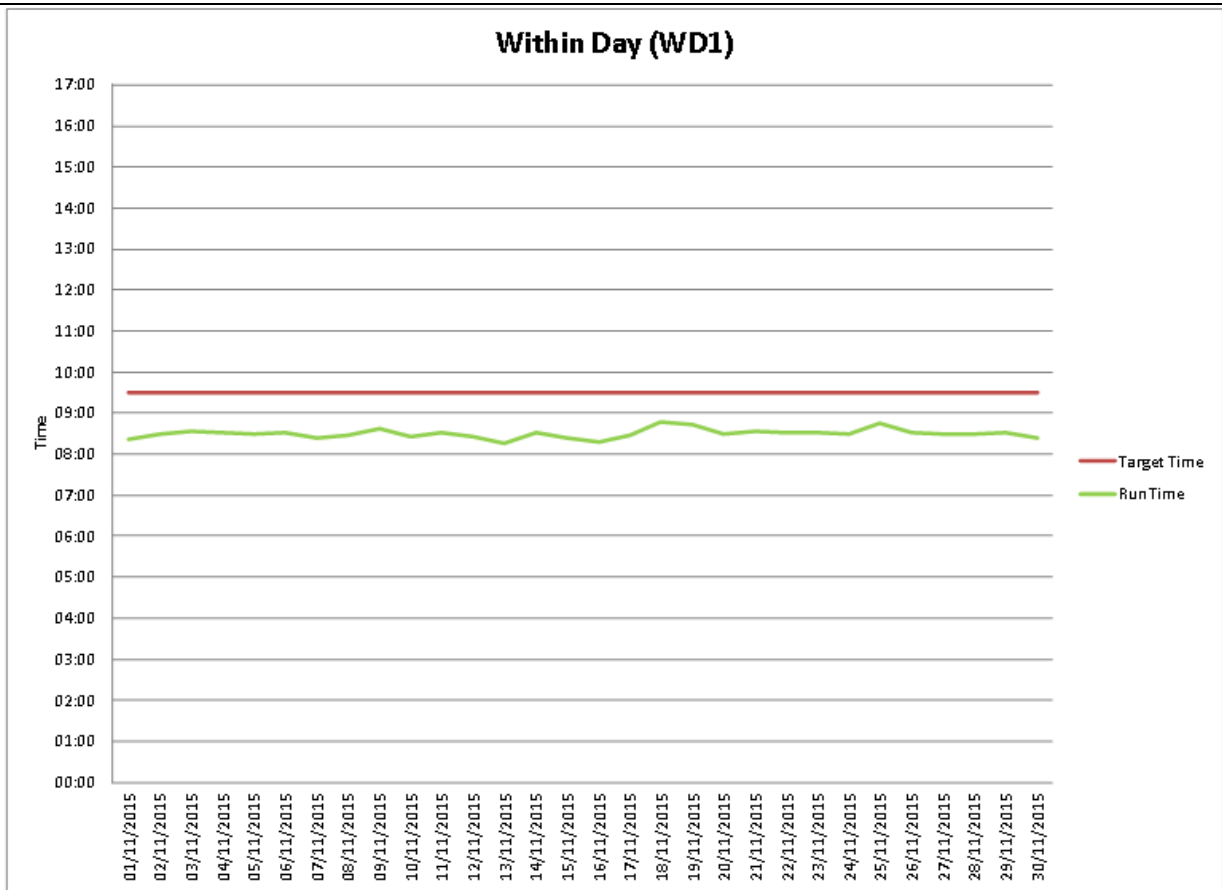


Figure 19 – Within Day 1

# Market Operator Monthly Report

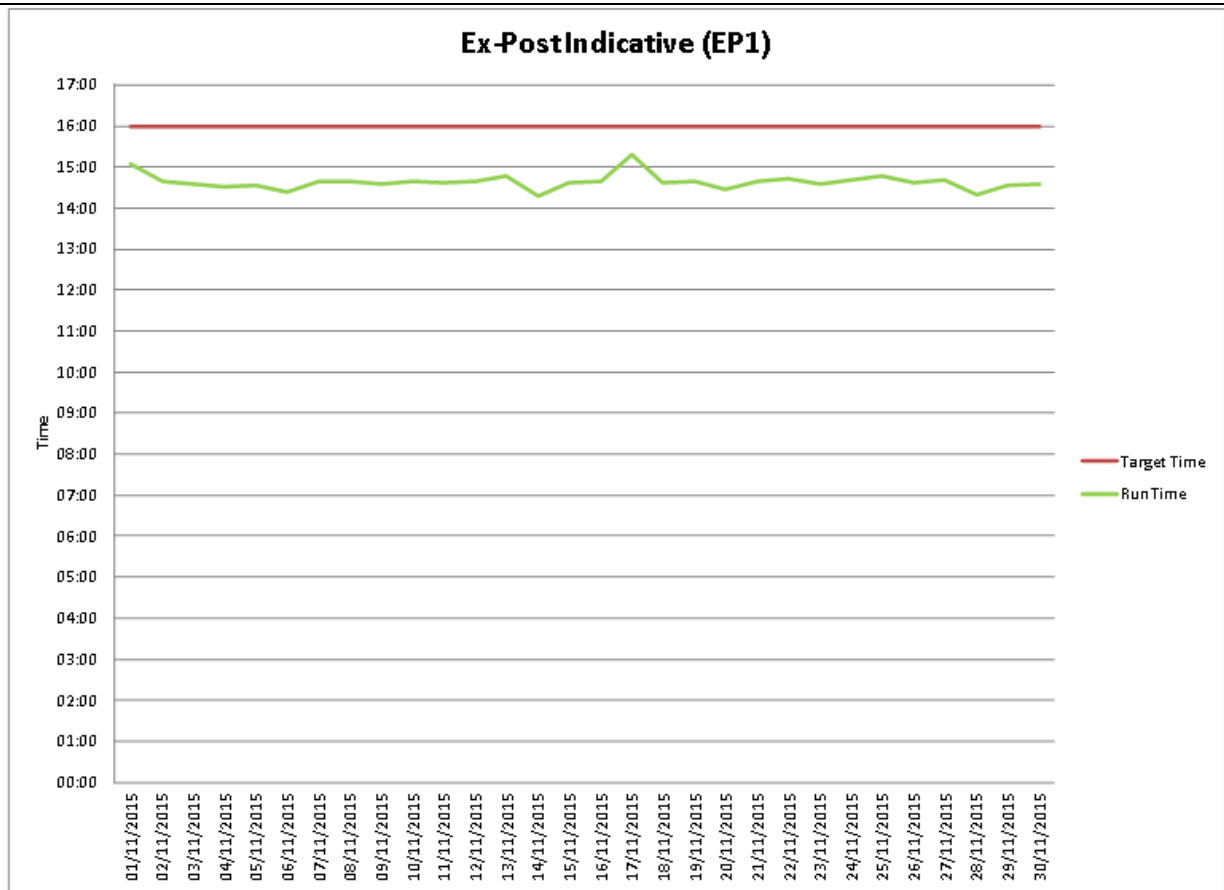


Figure 20 - Ex-Post Indicative

## Market Operator Monthly Report

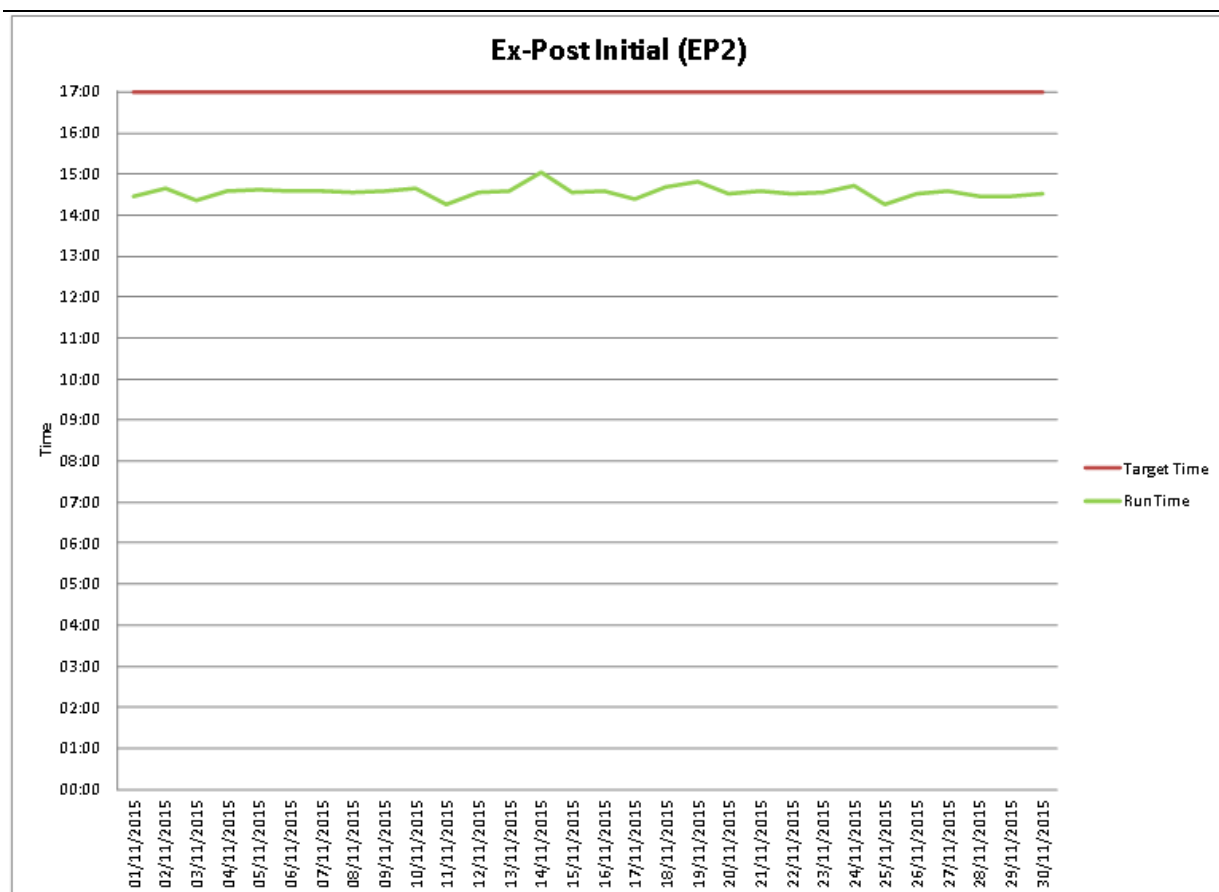


Figure 21 - Ex-Post Initial

Details of the operational timings of the Market System and Price (MSP) runs and Gate Closure are provided in [Appendix D](#).

### 6.4.2 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 [here](#).

In November 2015, there were 3 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 [Appendix I](#).

6.4.3 Settlement Postings November 2015

The publication timings for Settlement runs are provided below.

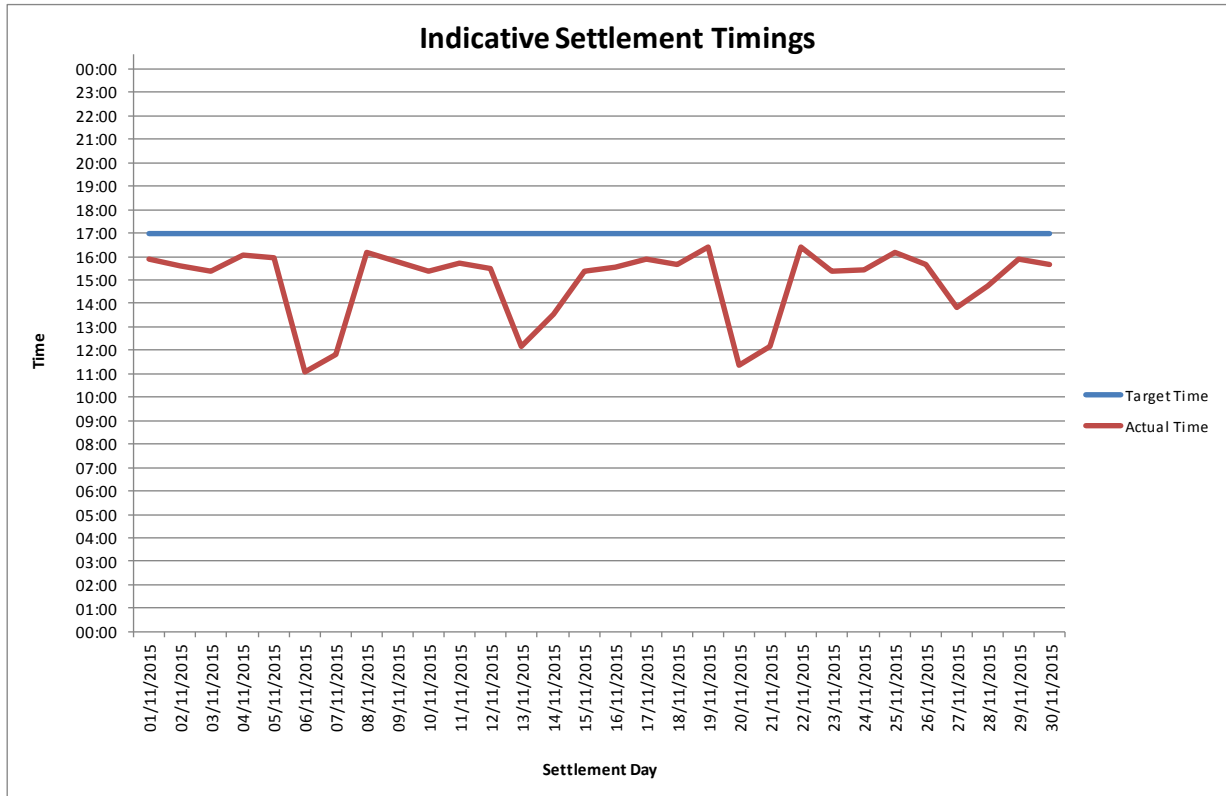


Figure 22 - Indicative Settlement Postings

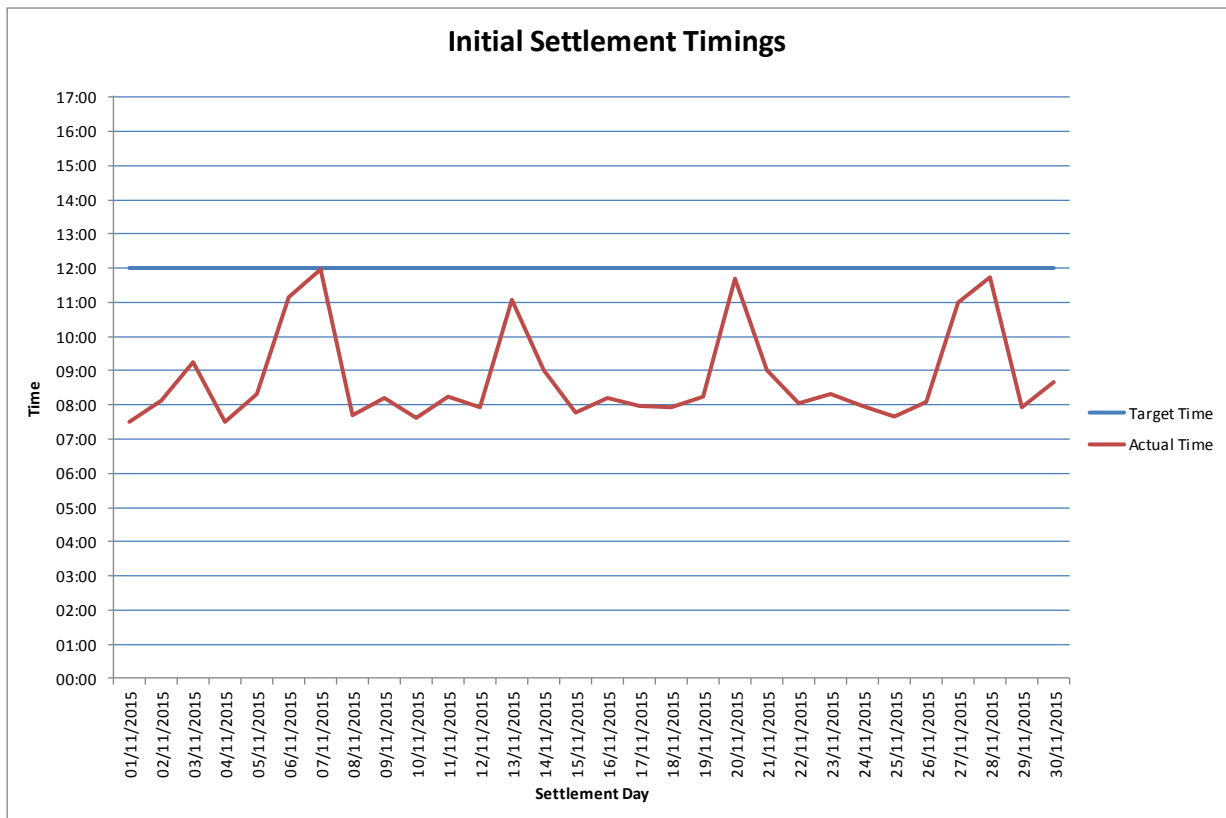


Figure 23 - Initial Settlement Postings

Further details of any delays noted above are provided in [Appendix A](#)

### **6.5.1 Release SEM R2.7.0 (Deployed: November 2<sup>nd</sup> 2015)**

SEM R2.7.0 went live on Friday November 2<sup>nd</sup> with no issues

### **6.5.2 Release SEM R2.8.0 (TBC May 2015)**

SEM 2.8.0 cut-off date for participants was November 6<sup>th</sup> 2015:

So far one Change Request has been raised internally

- **CR351 Eligible Availability** - The PRE-ELIGIBLE-AVAIL and ELIGIBLE-AVAIL preprocessing modules in Pomax involve the calculation of a FACTOR value for each interval of the Trading Day. These values are then sorted in decreasing order for later use in the algorithms. The algorithm does not handle the scenario where the FACTOR calculation involves a division by zero. This change request requires that when this scenario occurs, the FACTOR value should be treated as a zero for the purposes of sorting.

**7. Occasional Components**

***7.1 Disaster Recovery/Business Continuity Tests***

There were no scheduled Business Continuity tests performed during November 2015.

***7.3 Communications or Systems Failures***

There were no communications or systems failures during November 2015.

***7.4 Denial of Service Attacks***

There was no Denial of Service Attacks during November 2015.

***7.5 Submission of Parameters to RAs for Approval***

There was no submission required in November 2015.



## 8. Appendix A: Detail of Trading and Settlement Code Breaches

### Market Participant

Ops Date Identified	Run Type	Quality or Timing	Party	Issue Type	Description	Cause	Resolution	T and SC Breach
03/11/2015	CRM	Timing	Participant	Credit	Panda Power Ltd (PT_400161) defaulted on a CCIN issued on 30.10.2015.	Participant error	A default notice was issued.	Minor
04/11/2015	Money In	Timing	Participant	Payment Default	Electricity Exchange Limited (PT_400116) defaulted on a June 2015 M+4 Capacity invoice.	Participant Error	A default letter was issued to the participant.	Major
04/11/2015	Money In	Timing	Participant	Payment Default	Snugborough Windfarm RoI Limited (PT_500029) defaulted on a Week 43 2013 Ad hoc Energy invoice.	Participant Error	A default letter was issued to the participant.	Major
11/11/2015	Money In	Timing	Participant	Payment Default	Cloghboola Wind Farm (PT_400162) defaulted on a Week 27 2015 M+4 Energy invoice.	Participant Error	A default letter was issued to the participant.	Major
11/11/2015	Money In	Timing	Participant	Payment Default	EirGrid Interconnector Administrator (IA_ROIEWIC) defaulted on a Week 43 2015 Initial Energy invoice.	Participant Error	A default letter was issued to the participant.	Major
11/11/2015	Money In	Timing	Participant	Payment Default	Snugborough Windfarm RoI Limited (PT_500029) defaulted on a Week 44 2013 AdHoc Energy invoice.	Participant Error	A default letter was issued to the participant.	Major
13/11/2015	Money In	Timing	Participant	Payment Default	Panda Power Limited (PT_400161) defaulted on a October 2015 Initial Capacity invoice.	Participant Error	A default letter was issued to the participant.	Major
13/11/2015	Money In	Timing	Participant	Payment Default	Arden Energy (PT_400149) defaulted on an October 2015 Initial Capacity invoice.	Participant Error	A default letter was issued to the participant.	Major
13/11/2015	Money In	Timing	Participant	Payment Default	Aughrim Power Supply Limited (PT_400119) defaulted on an October 2015 Initial Capacity invoice.	Participant Error	A default letter was issued to the participant.	Major
13/11/2015	Money In	Timing	Participant	Payment Default	Indaver Energy Ltd (PT_400088) defaulted on an October 2015 Initial Capacity invoice.	Participant Error	A default letter was issued to the participant.	Major
18/11/2015	Money In	Timing	Participant	Payment Default	Castledockrell Supply Ltd (PT_400082) defaulted on a Week 46 2013 Ad hoc Energy invoice.	Participant Error	A default letter was issued to the participant.	Major
18/11/2015	Money In	Timing	Participant	Payment Default	Erova Energy Limited (PT_500083) defaulted on a Week 28 2015 M+4 Energy invoice.	Participant Error	A default letter was issued to the participant.	Major
25/11/2015	Money In	Timing	Participant	Payment Default	Snugborough Windfarm RoI Limited (PT_500029) defaulted on a Week 48 2013 Ad hoc Energy invoice.	Participant Error	A default letter was issued to the participant.	Major

Table 15 – Trading and Settlement Code Breaches – Market Participants

### Data Provider

There were no issues to report in November 2015

## 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
14/11/2015	EA1	Timing	SEMO	System	There was a delay to the publication of the Ex-Ante 1 (EA1) Market Schedule for Trading Day 15/11/2015.	The EA1 Market Schedule could not be initiated until Within Day (WD1) Modified Interconnector Unit Nominations (MIUNs) were published for Trading Day 14/11/2015.	The EA1 Market Schedule was published at 12:31.	Minor
30/11/2015	WD1	Timing	SEMO	System	A revision was required for Within Day (WD1) EWIC Modified Interconnector Unit Nominations (MIUNs) for Trading Day 30/11/2015.	The MIUN calculator produced an error requiring a revision to EWIC MIUNs.	EWIC MIUN were revised to zero and published at 09:38.	Minor

**Table 16 - Trading and Settlement 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
18/11/2015	Adhoc ENG Invoice	Quality	SEMO	System	Statements and Participant Information Reports (PIRs) for Ad hoc Week 49, 2013 due to be published 19/11/2015 were postponed until 26/11/2015.	There were unexpected materiality variances showing up in the Analysis.	Further Analysis is required to ensure that correct values are published in Statements and PIR's as part of Ad hoc resettlement.	Minor
23/11/2015	M+13 ENG & VMOC Statements	Timing	SEMO	Operational	M+13 Energy & VMOC Resettlement Statements and Participant Information Reports (PIRs) for Week 43, 2014 were published after the 17:00 deadline on 23/11/2015.	An issue was experienced during the processing of M+13 Energy and VMOC Resettlement.	M+13 Energy & VMOC Resettlement Statements and PIRs were published at 18:20 on 23/11/2015.	Minor

**Table 17 - Trading and Settlement Code Breaches – Settlements**

### SEMO - Funds Transfer

There were no issues to report in November 2015

### SEMO - Credit Management

There were no issues to report in November 2015

### SEMO – Other

There were no issues to report in November 2015

9. Appendix B: List of Queries by Type

Summary Title	Description	ID	Logged On	Date sent to MP	Type
Dispatch Instructions	Unit GU_400182. Difference in timing of sync instructions between initial and month +4 resettlement.	PT_400030 (ESB PGN)	2015-11-03	2015-11-09	Settlement
Dispatch Instructions	Incorrect Dispatch Instructions were sent to the SEM for GU_400202 (Ardnacrusha Unit 3) on the 14/07/2015.	EirGrid	2015-11-19	2015-11-25	Settlement
Actual Availabilities	Incorrect Availability Declarations were sent to the SEM for GU_400202 (Ardnacrusha Unit 3) on the 14/07/2015.	EirGrid	2015-11-19	2015-11-25	Settlement
Actual Availabilities	Incorrect Availability Declarations were sent to the SEM for GU_400430, GU_400730 and GU_400731 (Coomagearlaghy Wind Farm Phase 1, 2 & 3) on the 29/10/2015.	EirGrid	2015-11-19	2015-11-27	Settlement
Dispatch Instructions	Incorrect Dispatch Instructions were sent to the SEM for GU_401770 (Knockacummer Wind Farm Phase 1) on the 31/07/2015. No Dispatch Instructions at all should have been sent to the SEM for GU_401770 (Knockacummer Wind Farm Phase 1) on the 31/07/2015.	EirGrid	2015-11-19	2015-11-24	Settlement
CLAFs	The calculation of ENPEX for GU_401150/GU_401240/GU_401790 (within PT_400050) appears to be incorrect for 12-14 November 2015. The error appears to be occurring for each half hour period within these affected dates.	PT_400050	2015-11-24	2015-11-24	Settlement
CLAFs	<p>1. GU_400630 is a DSO connected windfarm but as this is a price effecting Generator Eirgrid are the export Meter Data Provider. The 2015/2016 Distributon Loss Factor values applied to the unit from 01/10/2015 onwards are incorrect. Incorrect Values: Day 1.0039 &amp; Night 0.9999 Correct Values: Day 0.9772 &amp; Night 0.9772</p> <p>2. GU_401770 is a DSO connected windfarm but as this is a price effecting Generator Eirgrid are the export Meter Data Provider. The 2015/2016 Distributon Loss Factor values applied to the unit from 01/10/2015 onwards are incorrect. Incorrect Values: Day 1.0039 &amp; Night 0.9999 Correct Values: Day 0.9772 &amp; Night 0.9772</p> <p>3. GU_400600 is a DSO connected windfarm but as this is a price effecting Generator Eirgrid are the export Meter Data Provider. The 2015/2016 Distributon Loss Factor values applied to the unit from 01/10/2015 onwards are incorrect. Incorrect Values: Day 1.0093 &amp; Night 1.0053 Correct Values: Day 0.9779 &amp; Night 0.9779</p> <p>4. GU_401150 is a DSO connected windfarm but as this is a price effecting Generator Eirgrid are the export Meter Data Provider. The 2015/2016 Distributon Loss Factor values applied to the unit from 01/10/2015 onwards are incorrect. Incorrect Values: Day 0.9607 &amp; Night 0.9567 Correct Values: Day 1.0165 &amp; Night 1.0125</p> <p>5. 3 new stations have been added to the market system for 2015/13. that is Spion Kop 1 WF GU_400070 with</p>	EirGrid	2015-11-25	2015-12-07	Settlement
Eligible Availability	Following on from correspondance in query number F0065361, tynagh's recorded Actual Availability has been equal to it's Availability Profile since 10-09-2015. Availability Profile should always be higher by approx. 10 MW. This has a material impact on the capacity payment to Tynagh - in October for example this has left Tynagh €95k short.	PT_400041	2015-11-27	1900-01-00	Settlement

Table 18 - Formal 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 month's 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
ABB2015-142976	IP HEAT STATE - DOWN TIME	-	-	N	N	In Testing
ABB2015-143445	Availability Profile - Dual Energy Unit	-	-	N	N	In Testing

**Table 19 - List of System Errors and Failures**

## 11. Appendix D: Details of Operational Timings

### Market Schedule and Price Runs

Trading Day	EA1 Postings		EA2 Postings		WD1 Postings		EP1 Postings		EP2 Postings	
	Target	Actual	Target	Actual	Target	Actual	Target	Actual	Target	Actual
01/11/2015	11:00	10:02	13:00	12:01	09:30	08:22	16:00	15:05	17:00	14:28
02/11/2015	11:00	09:48	13:00	11:52	09:30	08:29	16:00	14:38	17:00	14:38
03/11/2015	11:00	10:02	13:00	12:04	09:30	08:34	16:00	14:36	17:00	14:22
04/11/2015	11:00	09:59	13:00	11:57	09:30	08:32	16:00	14:32	17:00	14:36
05/11/2015	11:00	09:56	13:00	12:02	09:30	08:30	16:00	14:34	17:00	14:37
06/11/2015	11:00	10:02	13:00	12:05	09:30	08:32	16:00	14:24	17:00	14:36
07/11/2015	11:00	09:58	13:00	11:55	09:30	08:23	16:00	14:39	17:00	14:35
08/11/2015	11:00	09:57	13:00	11:57	09:30	08:28	16:00	14:38	17:00	14:33
09/11/2015	11:00	09:59	13:00	11:53	09:30	08:38	16:00	14:36	17:00	14:35
10/11/2015	11:00	10:03	13:00	12:02	09:30	08:26	16:00	14:39	17:00	14:39
11/11/2015	11:00	10:00	13:00	11:52	09:30	08:32	16:00	14:37	17:00	14:16
12/11/2015	11:00	10:02	13:00	12:02	09:30	08:26	16:00	14:38	17:00	14:34
13/11/2015	11:00	10:00	13:00	11:56	09:30	08:16	16:00	14:47	17:00	14:36
14/11/2015	11:00	10:02	13:00	12:03	09:30	08:31	16:00	14:17	17:00	15:03
15/11/2015	11:00	12:33	13:00	12:58	09:30	08:24	16:00	14:37	17:00	14:34
16/11/2015	11:00	10:07	13:00	12:03	09:30	08:18	16:00	14:39	17:00	14:35
17/11/2015	11:00	10:02	13:00	12:02	09:30	08:28	16:00	15:19	17:00	14:23
18/11/2015	11:00	10:01	13:00	12:03	09:30	08:48	16:00	14:37	17:00	14:40
19/11/2015	11:00	10:04	13:00	12:04	09:30	08:43	16:00	14:38	17:00	14:48
20/11/2015	11:00	09:59	13:00	12:04	09:30	08:30	16:00	14:27	17:00	14:32
21/11/2015	11:00	09:58	13:00	12:02	09:30	08:34	16:00	14:39	17:00	14:36
22/11/2015	11:00	10:01	13:00	12:05	09:30	08:32	16:00	14:43	17:00	14:32
23/11/2015	11:00	10:06	13:00	12:00	09:30	08:32	16:00	14:35	17:00	14:33
24/11/2015	11:00	10:00	13:00	11:58	09:30	08:30	16:00	14:40	17:00	14:43
25/11/2015	11:00	10:00	13:00	11:58	09:30	08:45	16:00	14:46	17:00	14:16
26/11/2015	11:00	09:59	13:00	11:59	09:30	08:32	16:00	14:37	17:00	14:32
27/11/2015	11:00	09:57	13:00	11:59	09:30	08:30	16:00	14:40	17:00	14:35
28/11/2015	11:00	10:39	13:00	12:00	09:30	08:29	16:00	14:20	17:00	14:28
29/11/2015	11:00	10:03	13:00	12:03	09:30	08:32	16:00	14:34	17:00	14:27
30/11/2015	11:00	10:06	13:00	12:17	09:30	08:23	16:00	14:35	17:00	14:31

Table 20 – MSP Runs

**Settlement Runs**

Trading Day	INDICATIVE				INITIAL			
	Target Date	Actual Date	Target Time	Actual Time	Trading Day	Actual Date	Target Time	Actual Time
01/11/2015	02/11/2015	03/11/2015	17:00	15:54	01/11/2015	06/11/2015	12:00	07:30
02/11/2015	03/11/2015	04/11/2015	17:00	15:35	02/11/2015	09/11/2015	12:00	08:07
03/11/2015	04/11/2015	05/11/2015	17:00	15:24	03/11/2015	10/11/2015	12:00	09:16
04/11/2015	05/11/2015	06/11/2015	17:00	16:03	04/11/2015	11/11/2015	12:00	07:30
05/11/2015	06/11/2015	09/11/2015	17:00	15:56	05/11/2015	12/11/2015	12:00	08:20
06/11/2015	07/11/2015	09/11/2015	17:00	11:06	06/11/2015	13/11/2015	12:00	11:08
07/11/2015	08/11/2015	09/11/2015	17:00	11:50	07/11/2015	13/11/2015	12:00	11:59
08/11/2015	09/11/2015	10/11/2015	17:00	16:10	08/11/2015	13/11/2015	12:00	07:43
09/11/2015	10/11/2015	11/11/2015	17:00	15:48	09/11/2015	16/11/2015	12:00	08:11
10/11/2015	11/11/2015	12/11/2015	17:00	15:24	10/11/2015	17/11/2015	12:00	07:38
11/11/2015	12/11/2015	13/11/2015	17:00	15:44	11/11/2015	18/11/2015	12:00	08:15
12/11/2015	13/11/2015	16/11/2015	17:00	15:29	12/11/2015	19/11/2015	12:00	07:55
13/11/2015	14/11/2015	16/11/2015	17:00	12:10	13/11/2015	20/11/2015	12:00	11:04
14/11/2015	15/11/2015	16/11/2015	17:00	13:34	14/11/2015	20/11/2015	12:00	12:06
15/11/2015	16/11/2015	17/11/2015	17:00	15:24	15/11/2015	20/11/2015	12:00	07:46
16/11/2015	17/11/2015	18/11/2015	17:00	15:34	16/11/2015	23/11/2015	12:00	08:12
17/11/2015	18/11/2015	19/11/2015	17:00	15:54	17/11/2015	24/11/2015	12:00	07:57
18/11/2015	19/11/2015	20/11/2015	17:00	15:38	18/11/2015	25/11/2015	12:00	07:56
19/11/2015	20/11/2015	23/11/2015	17:00	16:24	19/11/2015	26/11/2015	12:00	08:15
20/11/2015	21/11/2015	23/11/2015	17:00	11:23	20/11/2015	27/11/2015	12:00	11:42
21/11/2015	22/11/2015	23/11/2015	17:00	12:11	21/11/2015	27/11/2015	12:00	12:22
22/11/2015	23/11/2015	24/11/2015	17:00	16:24	22/11/2015	27/11/2015	12:00	08:03
23/11/2015	24/11/2015	25/11/2015	17:00	15:24	23/11/2015	30/11/2015	12:00	08:20
24/11/2015	25/11/2015	26/11/2015	17:00	15:27	24/11/2015	01/12/2015	12:00	07:59
25/11/2015	26/11/2015	27/11/2015	17:00	16:12	25/11/2015	02/12/2015	12:00	07:39
26/11/2015	27/11/2015	30/11/2015	17:00	15:38	26/11/2015	03/12/2015	12:00	08:05
27/11/2015	28/11/2015	30/11/2015	17:00	13:50	27/11/2015	04/12/2015	12:00	10:59
28/11/2015	29/11/2015	30/11/2015	17:00	14:43	28/11/2015	04/12/2015	12:00	11:45
29/11/2015	30/11/2015	01/12/2015	17:00	15:54	29/11/2015	04/12/2015	12:00	07:55
30/11/2015	01/12/2015	02/12/2015	17:00	15:38	30/11/2015	07/12/2015	12:00	08:40

**Table 21 – 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	Constraint Payments	Uninstructed Imbalance Payments	Imperfections Charges
01/11/2015	€219,117.61	-€16,496.48	-€370,314.93
02/11/2015	€418,967.95	-€965.50	-€422,957.41
03/11/2015	€375,447.29	-€8,157.08	-€443,867.51
04/11/2015	€401,223.42	-€20,165.19	-€446,024.38
05/11/2015	€326,445.86	-€1,493.30	-€443,483.97
06/11/2015	€461,976.61	-€30,206.25	-€413,708.71
07/11/2015	€776,346.02	-€22,596.69	-€388,100.95
08/11/2015	€351,184.98	-€7,740.85	-€356,069.06
09/11/2015	€637,710.42	-€15,306.58	-€410,651.49
10/11/2015	€346,932.55	€18,683.61	-€423,279.30
11/11/2015	€413,412.33	-€1,064.81	-€424,401.75
12/11/2015	€529,981.98	-€242.98	-€418,872.75
13/11/2015	€569,259.07	-€8,771.45	-€422,080.80
14/11/2015	€774,203.83	€7,975.32	-€400,612.57
15/11/2015	€652,155.86	-€1,432.95	-€362,387.34
16/11/2015	€393,453.63	-€59.62	-€426,655.42
17/11/2015	€722,783.23	-€4,356.33	-€445,955.61
18/11/2015	€656,773.28	-€14,208.65	-€430,119.19
19/11/2015	€574,200.46	€5,810.96	-€443,090.07
20/11/2015	€502,887.86	-€13,637.60	-€434,712.02
21/11/2015	€329,836.85	-€38,020.15	-€414,867.81
22/11/2015	€409,044.29	-€33,132.32	-€401,644.24
23/11/2015	€544,326.53	-€41,817.18	-€458,997.21
24/11/2015	€672,152.53	-€33,178.27	-€447,378.21
25/11/2015	€499,335.30	-€28,725.98	-€443,985.11
26/11/2015	€513,763.56	-€25,251.46	-€450,711.04
27/11/2015	€517,347.42	€5,245.16	-€433,116.49
28/11/2015	€528,876.77	-€26,426.01	-€399,484.36
29/11/2015	€778,321.27	-€1,046.20	-€383,956.46
30/11/2015	€479,044.79	-€9,894.47	-€463,918.12

Table 22 - Constraint Payments, Uninstructed Imbalance Payments, and Imperfections Charges

## Market Operator Monthly Report

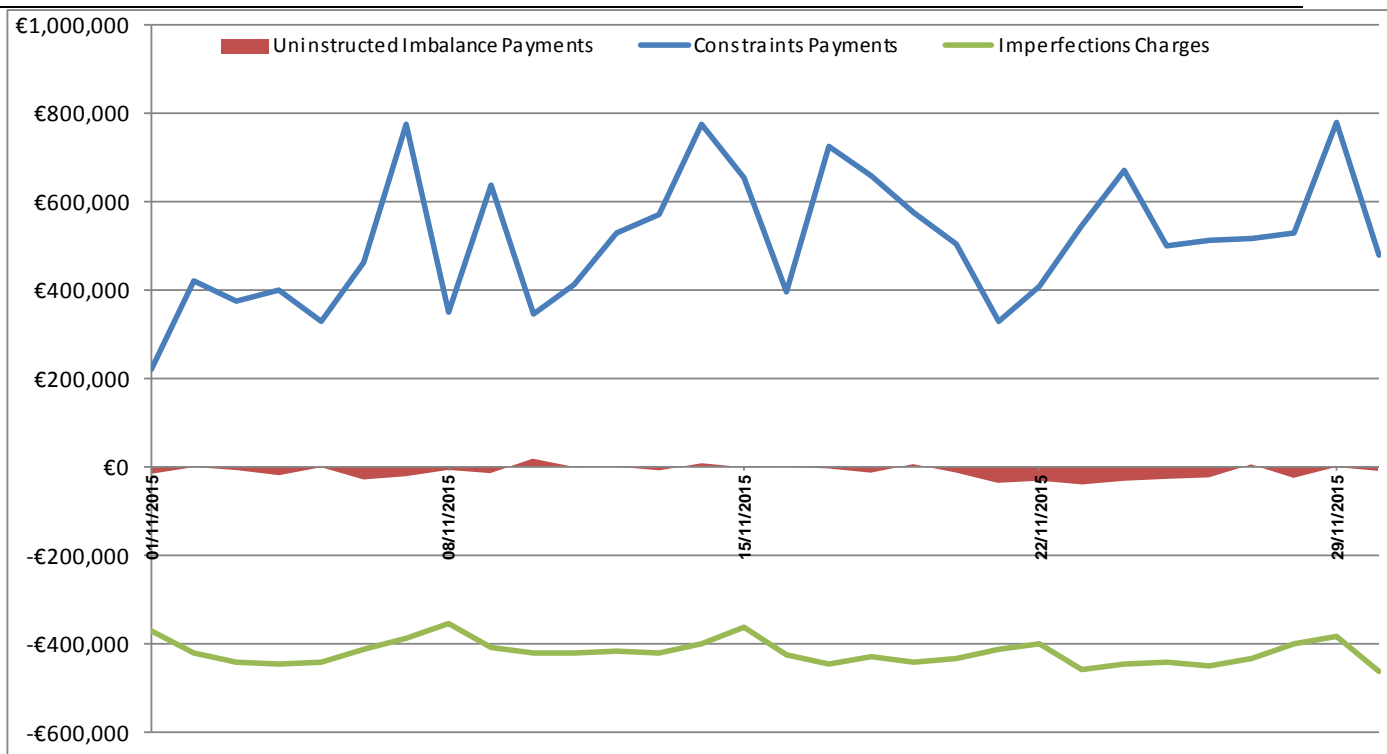


Figure 24 - Constraint Payments, Uninstructed Imbalance Payments, and Imperfections Charges

Week No	Make Whole Payments
43	€18,614.74
44	€23,589.25
45	€5,513.20
46	€17,624.74

Table 23 - Make Whole Payments



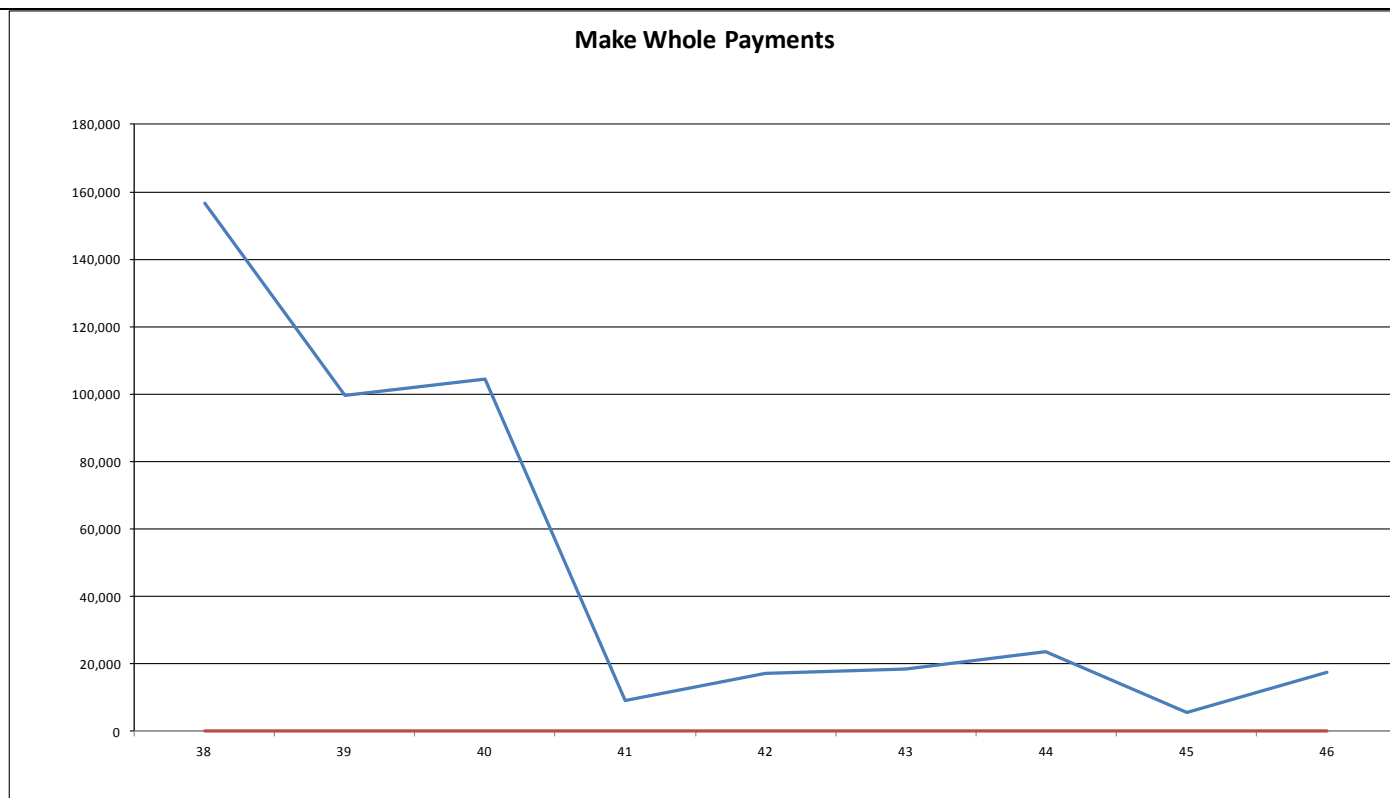


Figure 25 - Make Whole Payments

Week No	Testing Charges
43	-€13,069.61
44	-€16,635.14
45	-€16,770.11
46	-€27,151.66

Table 24 - Testing Charges

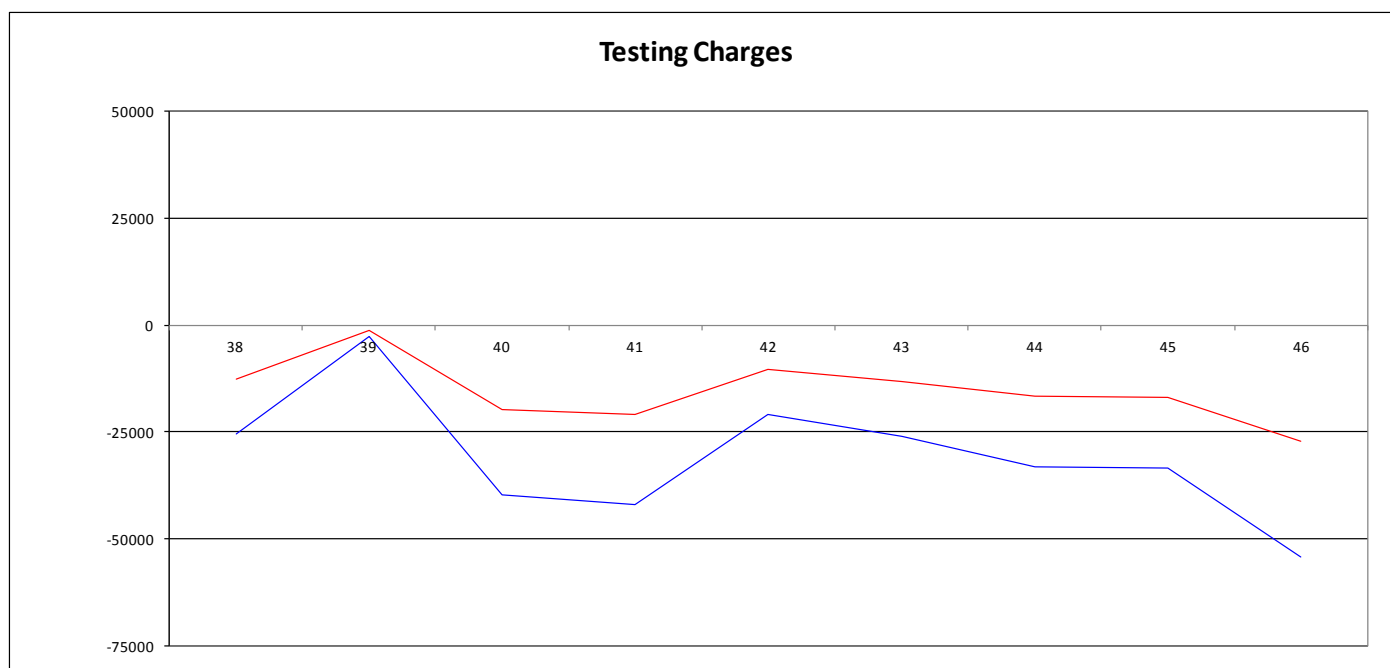


Figure 26 - Testing Charges

**13. Appendix F: Default Commercial Offer Data Used**

The table below lists for each unit the number of times in operations during November 2015 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_400024	GU_400120	30			30
PT_400024	GU_400121	30			30
PT_400026	GU_400140	30			30
PT_400030	GU_400180	38			38
PT_400030	GU_400181	39			39
PT_400030	GU_400182	39			39
PT_400030	GU_400183	39			39
PT_400030	GU_400200	38			38
PT_400030	GU_400201	40			40
PT_400030	GU_400202	41			41
PT_400030	GU_400203	38			38
PT_400030	GU_400210	36			36
PT_400030	GU_400211	36			36
PT_400030	GU_400220	36			36
PT_400030	GU_400221	36			36
PT_400030	GU_400240	36			36
PT_400030	GU_400250	36			36
PT_400030	GU_400251	36			36
PT_400030	GU_400252	36			36
PT_400030	GU_400260	36			36
PT_400030	GU_400270	37			37
PT_400030	GU_400271	37			37
PT_400030	GU_400272	37			37
PT_400030	GU_400280	36			36
PT_400030	GU_400281	36			36
PT_400030	GU_400290	36			36
PT_400030	GU_400300	39			39
PT_400030	GU_400311	39			39
PT_400030	GU_400323	39			39
PT_400030	GU_400360	36			36
PT_400030	GU_400361	36			36
PT_400030	GU_400362	36			36
PT_400030	GU_400363	36			36
PT_400030	GU_400370	36			36
PT_400030	GU_400850	39			39
PT_400032	GU_400430	30			30
PT_400034	GU_400940	30			30
PT_400034	GU_401090	30			30
PT_400034	GU_401440	30			30
PT_400035	GU_400480	51			51
PT_400037	GU_400500	31			31
PT_400041	GU_400530	54			54
PT_400044	GU_400540	52			52
PT_400054	GU_400620	30			30
PT_400055	GU_400630	30			30
PT_400064	GU_400750	30			30

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PT_400064	GU_400751	30		30
PT_400064	GU_400752	30		30
PT_400064	GU_400753	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	65		65
PT_400077	GU_400950	30		30
PT_400078	GU_401010	30		30
PT_400078	GU_401011	30		30
PT_500024	GU_500040	32		32
PT_500024	GU_500041	30		30
PT_500027	GU_500130	81		81
PT_500027	GU_500131	81		81
PT_500027	GU_500140	81		81
PT_500034	GU_501350	30		30
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_500822	30		30
PT_500045	GU_500823	30		30
PT_500045	GU_500824	30		30
PT_500045	GU_500825	30		30
PT_500048	GU_500904	50		50
PT_500050	GU_501040	30		30
PT_500050	GU_501050	30		30
PT_500050	GU_501150	30		30
PT_500050	GU_501190	30		30
PT_500053	GU_501130	30		30
PT_500066	GU_501210	30		30
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_400038	GU_400550		30	30
PT_400050	GU_400650		30	30
PT_400050	GU_400660		30	30
PT_400050	GU_401000		30	30

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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_401280			30	30
PT_400050	GU_401290			30	30
PT_400050	GU_401360			30	30
PT_400050	GU_401790			30	30
PT_400062	GU_400730			30	30
PT_400062	GU_400731			30	30
PT_400062	GU_400840			30	30
PT_400082	GU_401100			30	30
PT_400087	GU_401230			30	30
PT_400148	GU_401690			30	30
PT_400150	GU_401700			30	30
PT_400151	GU_401770			30	30
PT_400151	GU_401780			30	30
PT_400152	GU_401710			30	30
PT_400152	GU_401720			30	30
PT_400152	GU_401730			30	30
PT_400152	GU_401740			30	30
PT_400152	GU_401750			30	30
PT_400152	GU_401760			30	30
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_500032	GU_501280			30	30
PT_500032	GU_501290			30	30
PT_500039	GU_500270			30	30
PT_500044	GU_500720			30	30
PT_500047	GU_500790			30	30
PT_500061	GU_501170			30	30
PT_500062	GU_501180			30	30
PT_500073	GU_501230			30	30
PT_500074	GU_501250			30	30
PT_500083	I_NIMOYLE	61			61
PT_400021	I_ROIEWIC	30			30
PT_500075	I_NIMOYLE	37			37
PT_500024	I_NIMOYLE	30			30
PT_500021	I_NIMOYLE	30			30
PT_500087	I_NIMOYLE	3			3
PT_400163	I_ROIEWIC	89			89
PT_400157	I_ROIEWIC	30			30
PT_500069	I_NIMOYLE	89			89
PT_500058	I_NIMOYLE	29			29
PT_500031	I_NIMOYLE	30			30
PT_500037	I_NIMOYLE	57			57
PT_400096	I_ROIEWIC	90			90
PT_400113	I_ROIEWIC	29			29
PT_400168	I_ROIEWIC	63			63
PT_500081	I_NIMOYLE	30			30
PT_400136	I_ROIEWIC	48			48

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PT_400115	I_ROIEWIC	30			30
PT_500070	I_NIMOYLE	66			66
PT_400108	I_ROIEWIC	67			67
PT_400030	I_ROIEWIC	30			30
PT_400099	I_ROIEWIC	56			56
PT_400138	DSU_401590	30			30
PT_400090	DSU_401610	30			30
PT_400116	DSU_401400	30			30
PT_400090	DSU_401620	30			30
PT_400106	DSU_401330	32			32
PT_400090	DSU_401270	30			30
PT_400133	DSU_401530	16			16
PT_400124	DSU_401490	30			30
PT_400144	DSU_401660			30	30
PT_500078	DSU_501330			30	30
PT_400111	DSU_401390			30	30
PT_400133	DSU_401530			14	14
	<b>Total</b>	<b>4221</b>	<b>0</b>	<b>1754</b>	<b>5975</b>
	<b>Percentage</b>	<b>70.64%</b>	<b>0.00%</b>	<b>29.36%</b>	<b>100.00%</b>

Table 25 – Commercial Offer 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.

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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
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
	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	£26,216.38	£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	94,083,955.19
	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
	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	£22,988,336.17	£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
	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	£75,858,678.54	£17,424,467.63	£1,576,396.05	£255,748.90	£41,217.98	£1,835.23	£112,980.92	£0.00	£1,327.55	£123,147.19	£0.00	£0.00	73,064,976.28
	NI	£20,792,697.59	£5,164,101.59	£404,571.34	£73,223.02	£16,729.14	£695.03	£40,446.87	£0.00	£491.99	£10.52	£0.00	£0.00	22,440,085.62
Sep-14	ROI	£73,166,499.86	£17,774,079.00	£1,638,456.68	£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
	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
Oct-14	ROI	£24,219,443.57	£5,293,829.01	£290,759.61	£125,095.27	£15,188.14	£796.75	£32,076.91	£6,465.54	£355.27	£0.00	£0.00	£0.00	29,984,010.07
	NI	£73,931,567.89	£18,999,271.36	£1,111,306.76	£521,095.61	£105,483.15	£5,765.50	£89,815.40	£9,518.03	£802.55	£0.00	£0.00	£0.00	94,774,626.25
Nov-14	ROI	£57,386,075.03	£21,066,561.05	£829,482.91	£519,431.32	£147,151.65	£6,123.28	£79,434.93	£23,622.83	£721.00	£0.00	£0.00	£0.00	80,058,604.00
	NI	£21,159,632.98	£6,853,966.46	£220,983.06	£50,691.24	£27,250.12	£653.21	£26,795.35	£6,589.23	£253.47	£0.00	£0.00	£0.00	28,346,815.12
Dec-14	ROI	£70,930,088.87	£29,867,271.70	£888,221.25	£635,976.36	£143,088.63	£7,086.94	£116,364.21	£26,279.71	£995.87	£0.00	£0.00	£0.00	102,615,373.54
	NI	£24,123,259.48	£7,725,422.06	£238,369.94	£58,794.95	£14,543.55	£696.33	£34,690.50	£7,234.36	£296.35	£0.00	£0.00	£0.00	32,203,307.52
Jan-15	ROI	£66,217,285.22	£32,948,586.09	£1,048,029.61	£438,657.65	£106,047.92	£3,853.63	£150,902.14	£27,588.16	£819.15	£0.00	£2,703.81	£0.00	100,944,473.38
	NI	£27,989,159.87	£8,572,662.67	£280,425.53	£42,989.83	£9,581.57	£365.00	£37,526.70	£7,104.61	£229.56	£0.00	£1,338.36	£0.00	36,941,383.70
Feb-15	ROI	£65,650,453.03	£55,349,682.44	£856,456.83	£281,934.15	£56,929.88	£1,558.86	£451,006.63	£29,817.73	£839.90	£68,857.79	£0.00	£0.00	122,747,537.24
	NI	£25,773,047.64	£16,395,217.13	£213,118.58	£112,874.22	£37,025.56	£783.98	£25,242.43	£5,150.11	£140.40	£0.00	£0.00	£0.00	42,562,600.05
Mar-15	ROI	£53,956,274.88	£21,836,040.18	£861,676.05	£453,661.43	£115,779.65	£2,416.32	£355,096.34	£39,172.70	£877.23	£111,462.50	£0.00	£0.00	77,732,457.28
	NI	£22,615,725.41	£8,408,410.93	£207,225.41	£147,466.81	£46,471.14	£825.82	£39,513.02	£6,098.32	£183.02	£282.78	£0.00	£0.00	31,472,202.66
Apr-15	ROI	£49,671,449.35	£18,463,469.38	£767,415.15	£442,875.61	£132,859.46	£2,617.91	£174,481.42	£24,018.61	£806.67	£34,066.85	£0.00	£0.00	69,714,060.41
	NI	£20,444,248.38	£5,917,010.08	£191,002.36	£178,167.11	£60,451.34	£1,059.11	£38,565.73	£8,077.48	£245.07	£24,964.25	£0.00	£0.00	26,863,790.91
May-15	ROI	£62,682,234.81	£19,502,808.85	£978,929.74	£496,789.41	£113,309.65	£2,668.35	£257,691.56	£37,913.64	£947.65	£105,628.08	£0.00	£0.00	84,178,921.74
	NI	£20,656,049.28	£5,471,708.22	£941,978.73	£284,714.17	£81,721.34	£1,530.01	£28,297.30	£5,740.95	£255.12	£458.23	£0.00	£0.00	27,472,453.35
Jun-15	ROI	£49,441,454.53	£18,011,748.07	£768,412.90	£525,988.89	£125,343.18	£3,068.91	£83,564.13	£14,743.93	£639.06	£24,047.90	£0.00	£0.00	68,999,011.50
	NI	£16,086,817.66	£4,881,262.27	£731,152.70	£190,327.69	£56,176.06	£1,108.32	£14,086.52	£3,263.83	£136.37	£4.82	£0.00	£0.00	21,964,336.24
Jul-15	ROI	£60,081,065.67	£18,106,345.49	£938,580.42	£392,863.94	£100,250.95	£2,281.34	£70,409.41	£14,571.40	£801.22	£3,383,812.96	£0.00	£0.00	83,090,982.80
	NI	£20,399,899.80	£4,559,620.30	£901,179.27	£122,425.31	£34,196.36	£798.99	£13,983.16	£3,041.83	£170.87	£560,424.72	£0.00	£0.00	26,595,740.61
Aug-15	ROI	£78,361,586.44	£18,780,406.68	£706,070.38	£980,269.55	£57,624.58	£1,113.70	£78,106.89	£15,466.63	£704.85	£100,608.41	£0.00	£0.00	99,081,958.11
	NI	£26,593,706.25	£4,803,877.25	£717,392.01	£96,278.24	£20,145.75	£293.79	£11,711.41	£2,659.00	£109.44	£1,579.59	£0.00	£0.00	32,247,752.73
Sep-15	ROI	£56,880,935.07	£19,007,066.26	£785,990.22	£310,026.85	£107,852.47	£1,796.61	£36,597.16	£9,587.72	£443.17	£15,420.42	£0.00	£0.00	77,155,655.95
	NI	£16,638,373.40	£5,599,036.84	£750,313.33	£28,072.71	£9,405.58	£194.47	£6,674.12	£1,949.58	£89.21	£1,839.74	£0.00	£0.00	23,035,948.98
Oct-15	ROI	£56,463,736.52	£23,128,442.30	£1,100,826.75	£0.00	£0.00	£0.00	£0.00	£0.00	£0.00	£293,116.81	£0.00	£0.00	80,986,122.38
	NI	£19,619,287.90	£8,142,113.54	£1,100,826.75	£0.00	£0.00	£0.00	£0.00	£0.00	£0.00	£21,408.98	£0.00	£0.00	28,883,637.17
Nov-15	ROI	£56,463,736.52	£23,128,442.30	£1,100,826.75	£429,995.20	£99,296.34	£2,542.49	£702,840.25	£20,038.40	£309.43	£293,116.81	£0.00	£380.36	82,241,524.85
	NI	£19,619,287.90	£8,142,113.54	£256,488.48	£118,896.22	£40,962.87	£778.31	£24,801.93	£11,150.14	£150.06	£21,408.98	£0.00	£1.87	28,236,040.30

Table 26 - Total Charges by Month

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Market		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
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
	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
	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	€128.60	€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
	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
	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	€76,295,371.52	€16,503,906.00	€283,973.76	€42,797.07	€2,738.01	€125,676.42	€0.00	€1,327.83	€29.36	€0.00	€0.00	€93,255,819.97
	NI	€17,954,420.41	€5,911,052.65	€74,371.07	€15,553.63	€863.74	€54,424.97	€0.00	€488.54	€7.43	€0.00	€0.00	€24,011,182.44
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
	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
Oct-14	ROI	€82,250,495.91	€18,220,219.93	€584,729.92	€104,687.01	€6,507.05	€125,335.38	€9,519.24	€1,313.25	€0.00	€0.00	€0.00	€101,302,807.69
	NI	€18,391,944.98	€5,868,972.09	€82,257.95	€15,709.16	€1,031.70	€42,677.16	€6,422.11	€498.29	€0.00	€0.00	€0.00	€24,409,513.44
Nov-14	ROI	€64,818,088.97	€20,480,936.98	€530,386.99	€157,754.12	€6,116.91	€78,674.36	€23,606.67	€1,289.81	€0.00	€0.00	€0.00	€86,096,854.81
	NI	€14,616,605.70	€7,312,194.38	€50,960.79	€18,897.71	€653.20	€37,498.77	€6,592.72	€254.29	€0.00	€0.00	€0.00	€22,043,657.56
Dec-14	ROI	€79,262,340.64	€30,252,803.13	€636,211.01	€143,171.30	€7,087.15	€116,495.94	€25,330.11	€995.97	€0.00	€0.00	€0.00	€110,444,435.25
	NI	€17,625,339.05	€7,511,303.13	€58,743.90	€14,475.87	€679.17	€34,724.44	€7,982.34	€296.61	€0.00	€0.00	€0.00	€25,253,544.51
Jan-15	ROI	€77,706,417.44	€34,394,754.66	€438,764.21	€107,475.98	€4,105.28	€98,914.59	€27,079.30	€830.89	€14,240.78	€3,537.75	€0.00	€112,796,120.88
	NI	€21,735,748.95	€7,476,289.80	€38,275.71	€8,505.48	€324.11	€25,331.16	€7,456.18	€248.46	€0.00	€691.42	€0.00	€29,292,871.27
Feb-15	ROI	€73,470,092.53	€55,924,536.86	€296,450.78	€68,641.91	€1,587.00	€108,844.27	€30,840.66	€843.06	€0.00	€0.00	€0.00	€129,901,837.07
	NI	€19,828,437.97	€15,954,828.70	€108,022.71	€28,545.69	€367.07	€16,957.65	€4,432.19	€141.23	€0.00	€0.00	€0.00	€35,941,733.21
Mar-15	ROI	€62,833,350.60	€23,162,278.12	€454,954.34	€115,622.74	€2,409.00	€95,140.99	€35,705.38	€876.34	€33.87	€0.00	€0.00	€86,700,371.38
	NI	€18,497,389.79	€7,572,263.19	€147,525.82	€46,556.55	€825.97	€19,215.14	€8,635.89	€182.86	€726.16	€0.00	€0.00	€26,293,321.37
Apr-15	ROI	€55,596,682.04	€19,228,984.53	€447,913.03	€132,018.11	€2,588.47	€93,342.92	€23,125.23	€794.27	€27,655.34	€0.00	€0.00	€75,553,103.94
	NI	€14,229,748.35	€5,312,669.68	€178,040.01	€60,667.89	€1,059.24	€28,971.47	€8,624.89	€241.56	€20,785.23	€0.00	€0.00	€19,840,808.32
May-15	ROI	€67,111,651.41	€19,797,771.76	€51,325.57	€496,344.48	€113,479.16	€2,634.87	€257,691.56	€32,517.87	€947.37	€0.00	€0.00	€87,864,364.05
	NI	€14,205,268.80	€5,300,854.82	€14,374.56	€284,573.32	€81,498.12	€-1,531.15	€28,297.30	€9,511.56	€255.00	€0.00	€0.00	€19,923,102.33
Jun-15	ROI	€52,399,988.22	€18,449,916.98	€50,329.66	€524,214.44	€125,353.28	€2,989.03	€83,564.13	€15,091.05	€633.94	€0.00	€0.00	€71,652,080.73
	NI	€10,536,540.86	€4,561,917.57	€13,069.46	€190,224.00	€56,986.34	€-1,109.52	€14,086.52	€3,197.29	€136.59	€0.00	€0.00	€15,375,049.11
Jul-15	ROI	€63,619,222.88	€17,795,388.83	€50,900.02	€368,804.77	€98,198.30	€2,207.87	€70,409.41	€14,587.16	€801.29	€0.00	€0.00	€82,020,520.53
	NI	€12,711,689.30	€4,703,936.76	€13,498.87	€121,756.24	€35,884.73	€-799.78	€13,983.16	€3,045.41	€170.96	€0.00	€0.00	€17,603,165.65
Aug-15	ROI	€78,593,341.57	€17,976,726.62	€1,941.74	€806,815.82	€62,841.79	€1,062.49	€78,106.89	€15,446.53	€704.90	€0.00	€0.00	€97,536,988.35
	NI	€18,174,076.35	€5,392,403.96	€13,263.37	€191,650.14	€15,985.64	€-294.74	€11,711.41	€2,643.17	€109.50	€0.00	€0.00	€23,801,548.80
Sep-15	ROI	€53,901,821.24	€19,234,943.47	€48,776.08	€306,959.54	€78,980.31	€1,722.88	€36,597.16	€9,593.94	€440.27	€0.00	€0.00	€73,619,834.89
	NI	€12,814,817.71	€5,453,049.86	€13,099.19	€28,119.15	€30,434.20	€-195.13	€6,674.12	€1,961.83	€89.22	€0.00	€0.00	€18,348,050.15
Oct-15	ROI	€59,724,442.55	€24,802,345.08	€5,045.02	€0.00	€0.00	€0.00	€0.00	€0.00	€0.00	€0.00	€0.00	€84,531,832.65
	NI	€17,210,572.00	€7,020,973.74	€5,045.02	€0.00	€0.00	€-1.00	€0.00	€0.00	€0.00	€0.00	€0.00	€24,236,589.76
Nov-15	ROI	€59,724,442.55	€24,802,345.08	€433,219.82	€100,606.78	€2,695.40	€76,939.05	€22,197.47	€318.32	€37,920.24	€0.00	€372.94	€85,201,057.65
	NI	€17,210,572.00	€7,020,973.74	€117,530.15	€40,056.46	€765.32	€30,378.43	€9,648.77	€169.03	€1,973.04	€0.00	€0.00	€24,432,066.94

Table 27 - 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 (November 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
06/11/2015	43	€559,788.60	€38,427.78
13/11/2015	44	-€49,013.58	€13,013.70
20/11/2015	45	€760,249.70	€98,639.75
27/11/2015	46	€808,399.38	€71,687.58

**Table 28 – 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.

### Capacity Market

Invoice Month	SEM Balancing Costs	VAT Balancing Costs
November 2015	-€386.53	€20,938.81

**Table 29 - 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 [here](#).

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
<u>November 2014</u>	=	<u>02/11/2014</u> <u>11/11/2014</u> <u>15/11/2014</u> <u>25/11/2014</u>	<u>20/11/2014</u> <u>24/11/2014</u> <u>26/11/2014</u>	<u>12/11/2014</u> <u>20/11/2014</u> <u>26/11/2014</u>	=
<u>December 2014</u>	<u>14/12/2014</u>	<u>04/12/2014</u> <u>14/12/2014</u> <u>25/12/2014</u>	<u>01/12/2014</u>	<u>04/12/2014</u>	=
<u>January 2015</u>	<u>06/01/2015</u>	<u>12/01/2015</u> <u>15/01/2015</u> <u>21/01/2015</u> <u>23/01/2015</u>	<u>03/01/2015</u>	<u>28/01/2015</u>	<u>16/01/2015</u>
<u>February 2015</u>	=	<u>06/02/2015</u> <u>07/02/2015</u> <u>09/02/2015</u> <u>13/02/2015</u> <u>18/02/2015</u> <u>23/02/2015</u>	<u>24/02/2015</u>	<u>28/02/2015</u>	<u>05/02/2015</u> <u>10/02/2015</u>
<u>March 2015</u>	=	=	=	<u>15/03/2015</u>	<u>24/03/2015</u>
<u>April 2015</u>	=	=	<u>20/04/2015</u>	<u>20/04/2015</u>	<u>25/04/2015</u>
<u>May 2015</u>	=	<u>13/05/2015</u>	<u>03/05/2015</u>	=	=

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Month	Ex-Ante	Ex-Ante 2	Ex-Post Indicative	Ex-Post Initial	Within Day
<u>June 2015</u>	-	<u>01/07/2015</u>	<u>22/06/2015</u>	<u>26/06/2015</u>	<u>11/06/2015</u>
<u>August 2015</u>	-	-	<u>23/07/2015</u>	-	-
<u>August 2015</u>	-	-	<u>11/08/2015</u>	<u>11/08/2015</u>	<u>07/08/2015</u> <u>31/08/2015</u>
<u>September 2015</u>	-	<u>18/09/2015</u>	-	<u>10/09/2015</u>	-
<u>October 2015</u>	-	-	-	-	<u>04/10/2015</u>
<u>November 2015</u>	<u>16/11/2015</u>	<u>30/11/2015</u>	<u>26/11/2015</u>	-	-

Table 30 - MIP Algorithms

Operational Date	Trade Date	Run Type	LR Peak SMP	MIP Peak SMP	Published
01/11/2014	02/11/2014	EA2	€1000	€215.23	MIP
10/11/2014	11/11/2014	EA2	€1000	€229.26	MIP
14/11/2014	15/11/2014	EA2	€1000	€369.02	MIP
24/11/2014	25/11/2014	EA2	€572.13	€424.16	MIP
21/11/2014	20/11/2014	EP1	€1000	€228.86	MIP
27/11/2014	26/11/2014	EP1	€1000	€380.87	MIP
25/11/2014	24/11/2014	EP1	€630.52	€560.63	MIP
16/11/2014	12/11/2014	EP2	€1000	€357.67	MIP
24/11/2014	20/11/2014	EP2	€1000	€228.14	MIP
30/11/2014	26/11/2014	EP2	€1,000	€455.21	MIP
01/12/2014	30/11/2014	EP1	€554.66	€841.81	MIP
04/12/2014	05/12/2014	EA2	€1000	€271.08	MIP
04/12/2014	30/11/2014	EP2	€554.65	€439.23	MIP
14/12/2014	15/12/2014	EA1	€585.68	€241.97	MIP
14/12/2014	15/12/2014	EA2	€585.68	€242.87	MIP
25/12/2014	26/12/2014	EA2	€584.33	€71.42	MIP
03/01/2015	02/01/2015	EP1	€560.46	€244.25	MIP
06/01/2015	07/01/2015	EA1	€550.32	€230.74	MIP
12/01/2015	13/01/2015	EA2	€1000	€162.06	MIP

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15/01/2015	16/01/2015	EA2	€1000	€210.05	MIP
16/01/2015	16/01/2015	WD1	€557.82	€176.01	MIP
21/01/2015	22/01/2015	EA2	€554.69	€183.59	MIP
23/01/2015	24/01/2015	EA2	€1000	€361.30	MIP
28/01/2015	24/01/2015	EP2	€1000	€358.00	MIP
05/02/2015	05/02/2015	WD1	€583.65	€461.14	MIP
06/02/2015	07/02/2015	EA2	€1000	€201.17	MIP
07/02/2015	08/02/2015	EA2	€1000	€238.69	MIP
09/02/2015	10/02/2015	EA2	€1000	€211.44	MIP
10/02/2015	10/02/2015	WD1	€1000	€206.00	MIP
13/02/2015	14/02/2015	EA2	€1000	€920.77	MIP
18/02/2015	19/02/2015	EA2	€1000	€475.15	MIP
23/02/2015	24/02/2015	EA2	€1000	€239.26	MIP
24/02/2015	23/02/2015	EP1	€1000	€206.00	MIP
28/02/2015	24/02/2015	EP2	€1000	€418.22	MIP
15/03/2015	11/03/2015	EP2	€1000	€740.26	MIP
24/03/2015	24/03/2015	WD1	€586.24	€195.68	MIP
21/04/2015	20/04/2015	EP1	€589.68	€79.45	MIP
25/04/2015	24/04/2015	WD1	€1,000	€162.18	MIP
24/04/2015	20/04/2015	EP2	€589.68	€80.11	MIP
12/05/2015	13/05/2015	EA2	€590.61	€221.99	MIP
04/05/2015	03/05/2015	EP1	€574.30	€313.07	MIP
11/06/2015	11/06/2015	WD1	€576.50	€206.00	MIP
23/06/2015	22/06/2015	EP1	€579.41	€76.14	MIP
30/06/2015	26/06/2015	EP2	€578.16	€285.24	MIP
30/06/2015	01/07/2015	EA2	€574.22	€110.58	MIP
23/07/2015	22/07/2015	EP1	€1,000	€86.14	MIP
07/08/2015	07/08/2015	WD1	€579.12	€71.44	MIP
12/08/2015	11/08/2015	EP1	€567.94	€76.52	MIP
15/08/2015	11/08/2015	EP2	€576.94	€76.52	MIP
31/08/2015	31/08/2015	WD1	€1,000	€66.29	MIP
14/09/2015	10/09/2015	EP2	-€100	€85.93	MIP
17/09/2015	18/09/2015	EA2	€1,000	€86.51	MIP
08/10/2015	04/10/2015	EP2	€1000	€71.89	MIP
15/11/2015	16/11/2015	EA1	€524.42	€207.35	MIP
27/11/2015	26/11/2015	EP1	€1,000	€219.39	MIP
29/11/2015	30/11/2015	EA2	€1,000	€169.45	MIP

**Table 31 - MIP Vs LR Peak Price Comparison**