



# **Market Operator Monthly Report**

## **November 2016**

## Table of Contents

<b>EXECUTIVE SUMMARY .....</b>	<b>4</b>
<b>MONTHLY STATISTICS .....</b>	<b>5</b>
<b>TRADING AND SETTLEMENT CODE BREACHES .....</b>	<b>5</b>
<b>JOINING AND TERMINATING PARTIES AND UNITS .....</b>	<b>6</b>
<b>SUSPENSION OF PARTICIPANTS .....</b>	<b>6</b>
<b>FINANCIAL STATISTICS .....</b>	<b>7</b>
<b>TOTAL CHARGES FOR EACH CURRENCY .....</b>	<b>7</b>
<b>TOTAL PAYMENTS FOR EACH CURRENCY .....</b>	<b>8</b>
<b>TOTAL BALANCING COSTS .....</b>	<b>8</b>
<b>TOTAL CURRENCY COSTS .....</b>	<b>11</b>
<b>CUMULATIVE IMPERFECTIONS COSTS Vs BUDGET .....</b>	<b>12</b>
<b>FINANCIAL CHANGES BETWEEN INITIAL SETTLEMENT AND SUBSEQUENT RERUNS .....</b>	<b>13</b>
3.1.1 <i>Energy Market</i> .....	13
3.1.2 <i>Capacity Market</i> .....	16
<b>HELPDESK CALL STATISTICS .....</b>	<b>21</b>
<b>DISPUTES AND QUERIES .....</b>	<b>22</b>
5.1.2 <i>Data Queries</i> .....	22
5.1.3 <i>Settlement Queries</i> .....	22
<b>CENTRAL SYSTEMS .....</b>	<b>23</b>
<b>6.1 PROPORTION OF DEFAULT DATA USED .....</b>	<b>23</b>
<b>6.2 PROPORTION OF ESTIMATED METER DATA USED IN INITIAL SETTLEMENT AND RESETTLEMENT .....</b>	<b>23</b>
<b>6.3 LIST OF SYSTEM ERRORS AND RE-RUNS .....</b>	<b>23</b>
6.3.1 <i>Re-Pricing and Resettlement Runs</i> .....	23
6.3.2 <i>System Errors</i> .....	23
<b>6.4 OPERATIONAL TIMINGS .....</b>	<b>23</b>
1.4.1 <i>MSP Postings November 2016</i> .....	24
6.4.2 <i>MSP Algorithms</i> .....	27
1.4.1 <i>Settlement Postings November 2016</i> .....	28
<b>OCCASIONAL COMPONENTS .....</b>	<b>30</b>
<b>7.1 DISASTER RECOVERY/BUSINESS CONTINUITY TESTS .....</b>	<b>30</b>
<b>7.3 COMMUNICATIONS OR SYSTEMS FAILURES .....</b>	<b>30</b>
<b>7.4 DENIAL OF SERVICE ATTACKS .....</b>	<b>30</b>
<b>7.5 SUBMISSION OF PARAMETERS TO RAs FOR APPROVAL .....</b>	<b>30</b>
<b>APPENDIX A: DETAIL OF TRADING AND SETTLEMENT CODE BREACHES .....</b>	<b>31</b>
DATA PROVIDER .....	31
MARKET PARTICIPANT .....	31
SEMO - PRICING AND SCHEDULING .....	31
SEMO – SETTLEMENTS .....	31
SEMO - FUNDS TRANSFER .....	31
SEMO - CREDIT MANAGEMENT .....	31
SEMO – OTHER .....	31
<b>APPENDIX B: LIST OF QUERIES BY TYPE .....</b>	<b>32</b>
<b>APPENDIX D: DETAILS OF OPERATIONAL TIMINGS .....</b>	<b>34</b>
<b>MARKET SCHEDULE AND PRICE RUNS .....</b>	<b>34</b>
<b>SETTLEMENT RUNS .....</b>	<b>35</b>
<b>APPENDIX E: IMPERFECTIONS CHARGE .....</b>	<b>36</b>
<b>APPENDIX F: DEFAULT COMMERCIAL OFFER DATA USED .....</b>	<b>42</b>

## Market Operator Monthly Report

---

APPENDIX G: TOTAL CHARGES AND PAYMENTS DATA.....	46
APPENDIX H: FULL BALANCING COSTS .....	49
TRADING MARKET .....	49
CAPACITY MARKET.....	50
APPENDIX I: MSP ALGORITHMS .....	52

### Executive Summary

This Single Electricity Market Operator's (SEMO) report covers the month of operation of November 2016 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 2016, Settlements had zero late publications as per the Trading and Settlement code.

178 general queries were received in November 2016. During the same period 173 general queries were resolved.

There were 17 defaults by Participants during November 2016. The largest of these was an Energy Week 46 2016 Initial invoice for £5,672.88 which was remedied the same day.

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

**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	14	-
	Credit Risk Management	3	-
SEMO	Pricing & Scheduling	-	-
	Settlement	-	-
	Funds Transfer	-	-
	Credit Risk Management	-	-
	Other	-	-
<b>Total</b>		<b>17</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.

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

The following parties joined the Market in November 2016:

- PY\_000167 Pallas Energy Supply Limited
- PY\_000168 Brookfield Green Energy NI Limited
- PY\_000169 Budget Energy Limited (ROI)

There were no terminating parties in November 2016.

The following units went effective in the Market in November 2016:

- PT\_500021 Airtricity Energy Supply NI Ltd Generation – GU\_501500 Tievenameenta Wind Farm
- PT\_400183 Meenacloghspar (Wind) Supply Limited – SU\_400198 Meenacloghspar (Wind) Supply Limited
- PT\_400194 Lantanier Limited – SU\_400204 Lantanier Limited
- PT\_400066 Bord Gais Energy Supply – GU\_401890 Grove Hill Windfarm
- PT\_400189 Glencarbry Supply Company Limited – GU\_401970 Glencarbry Windfarm
- PT\_400191 Glencarbry Supply Company Limited – SU\_400202 Glencarbry Supply Company Limited

No units de-registered from the Market in November 2016

### ***Suspension of Participants***

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

Financial Statistics

Total Charges for Each Currency

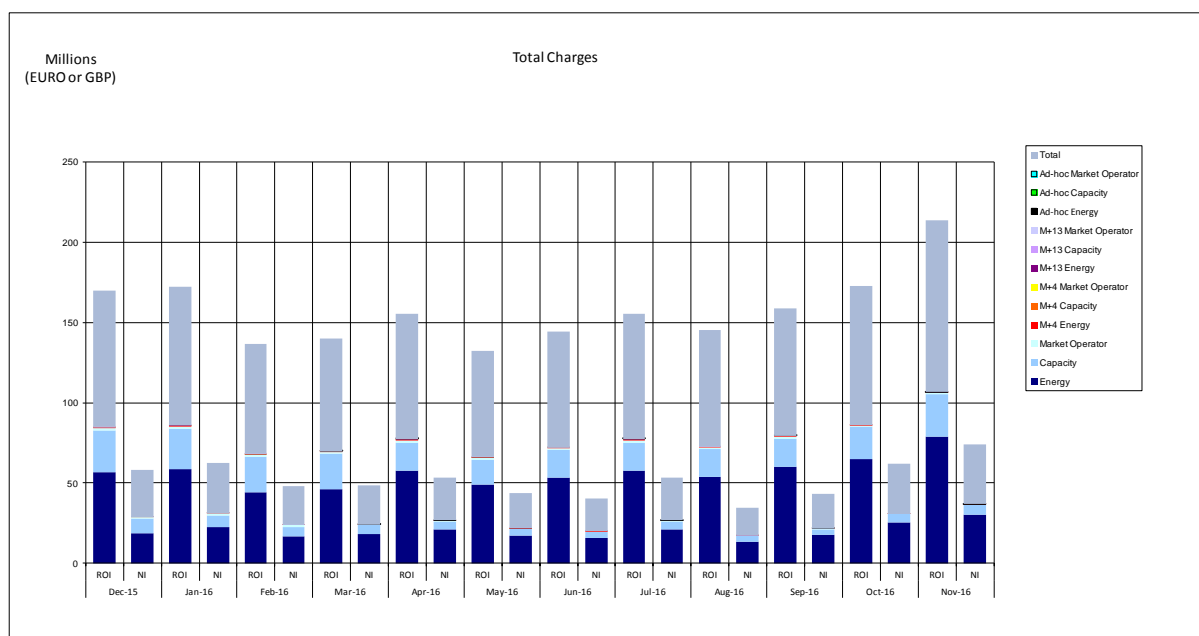


Figure 1 - Total Charges for Each Currency

Market	Nov 2016	
	ROI	NI
Energy	€79,083,042	£30,128,694
Capacity	€26,426,844	£6,448,578
Market Operator	€746,953	£206,908
M+4 Energy	€256,784	£173,676
M+4 Capacity	€97,151	£60,272
M+4 Market Operator	€3,452	£2,148
M+13 Energy	€77,643	£42,709
M+13 Capacity	€35,169	£23,836
M+13 Market Operator	€618	£422
Ad-hoc Energy	€325,964	£835
Ad-hoc Capacity	€0	£0
Ad-hoc Market Operator	€0	£0
<b>Total</b>	<b>€107,053,621</b>	<b>£37,088,079</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](#).

## Total Payments for Each Currency

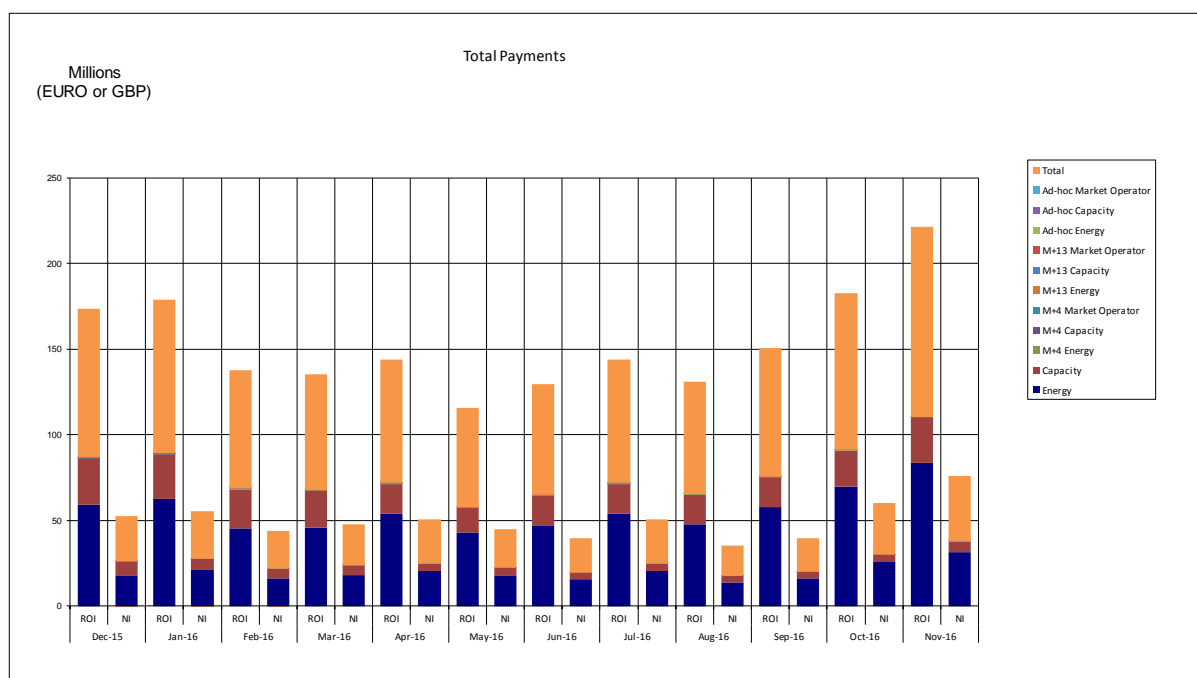


Figure 2 - Total Payments for Each Currency

Market	Nov 2016	
	ROI	NI
Energy	€83,487,123	£31,306,402
Capacity	€26,395,540	£6,468,680
M+4 Energy	€257,668	£173,738
M+4 Capacity	€80,165	£74,786
M+4 Market Operator	€3,418	£2,148
M+13 Energy	€94,356	£43,017
M+13 Capacity	€39,305	£20,271
M+13 Market Operator	€618	£422
Ad-hoc Energy	€301,690	£833
Ad-hoc Capacity	€0	£0
Ad-hoc Market Operator	€72	£0
<b>Total</b>	<b>€110,659,957</b>	<b>£38,090,297</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.



## Market Operator Monthly Report

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 2016	
Imbalance (Energy Only)	€2,781,970.75

Table 4 - Balancing Costs for Energy Settlement

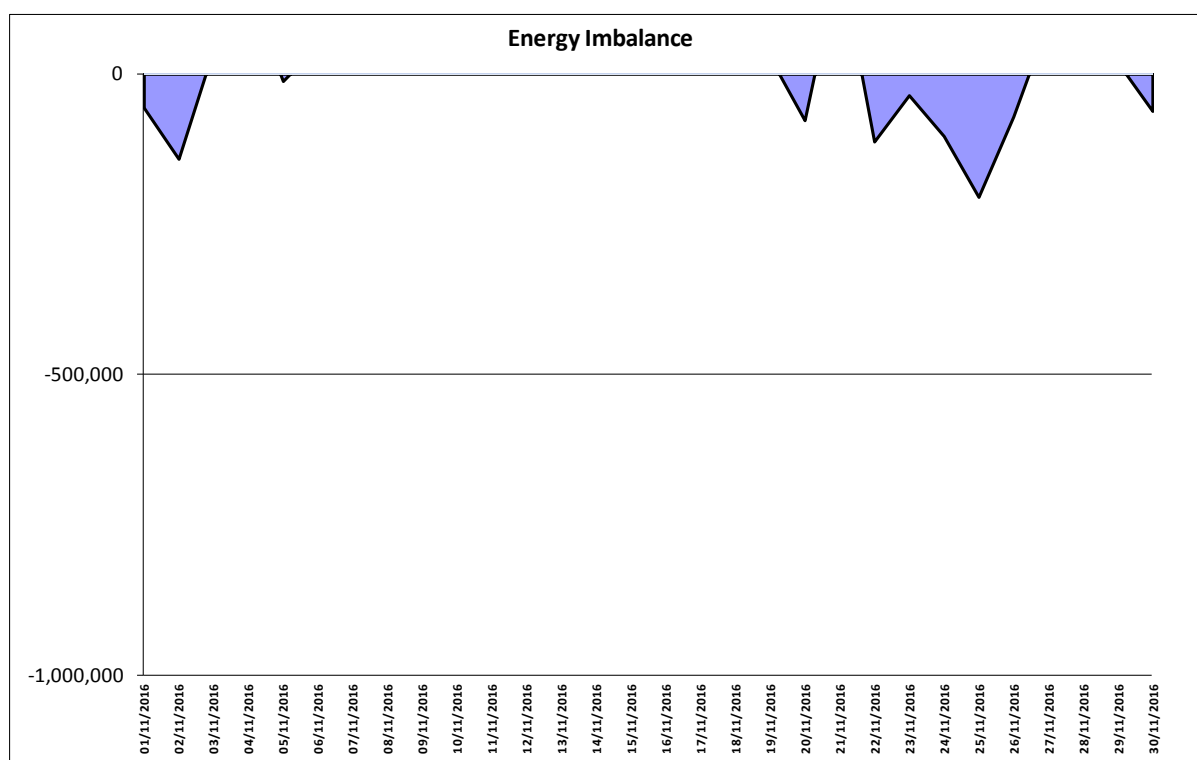


Figure 3 – Energy Imbalances

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,

## Market Operator Monthly Report

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
04/11/2016	43	€949,596.13	-€0
11/11/2016	44	€965,954.97	-€0
18/11/2016	45	€3,223,731.55	-€0
25/11/2016	46	€1,696,852.72	-€0

**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 2016	
Capacity Charges	-€52,547,099.85
Capacity Payments	€52,546,704.57
Balancing Costs	-€395.27
VAT	€0

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

## Market Operator Monthly Report

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) 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
29/10/2016	04/11/2016	43	<b>-£15,806.21</b>	<b>£3,700.00</b>	<b>-£12,106.21</b>
05/11/2016	11/11/2016	44	<b>£11,146.61</b>	<b>-£1,760.00</b>	<b>£9,386.61</b>
12/11/2016	18/11/2016	45	<b>-£47,386.17</b>	<b>-£13,500.00</b>	<b>-£60,886.17</b>
19/11/2016	25/11/2016	46	<b>£27,366.66</b>	<b>-£3,700.00</b>	<b>£23,666.66</b>

**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 £23,666.66 and a cost of -£60,886.17. 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
09/12/2016	November 2016	-£118,380.69

**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 2016. The values expressed in Euros are as follows.

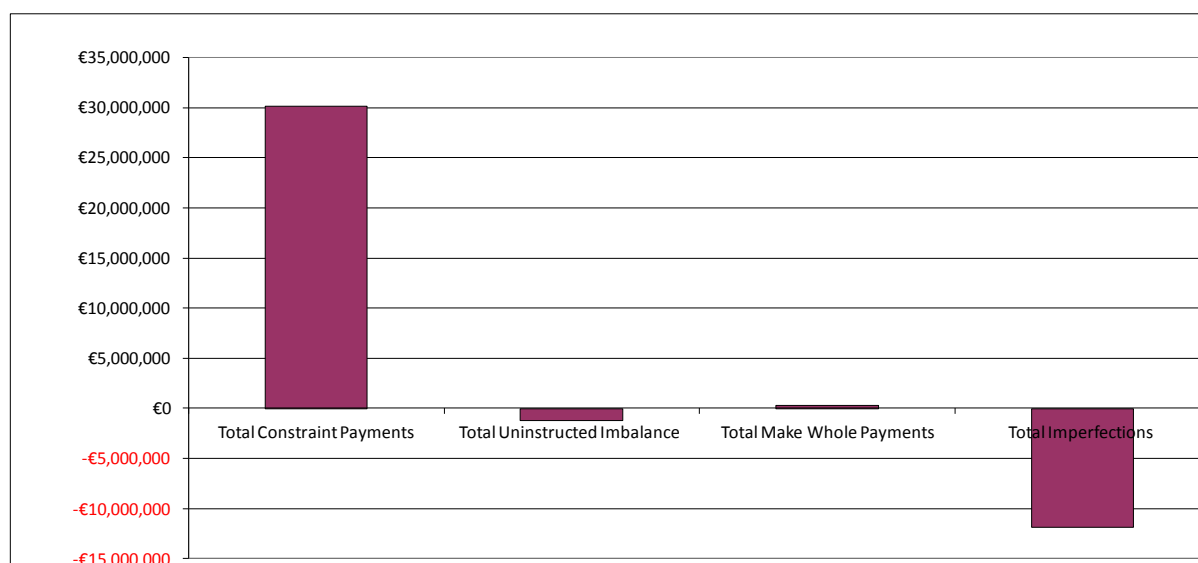
This table makes use of the values taken from the Initial Settlement Run of Trading payments and charges.

Total Constraint Payments	Total Uninstructed Imbalance	Total Make Whole Payments	Total Imperfections
€30,192,992.24	-€1,204,428.97	€332,173.94	-€11,859,620.53

**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**

## Market Operator Monthly Report

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 2016 and M+13 resettlement period of October 2015 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

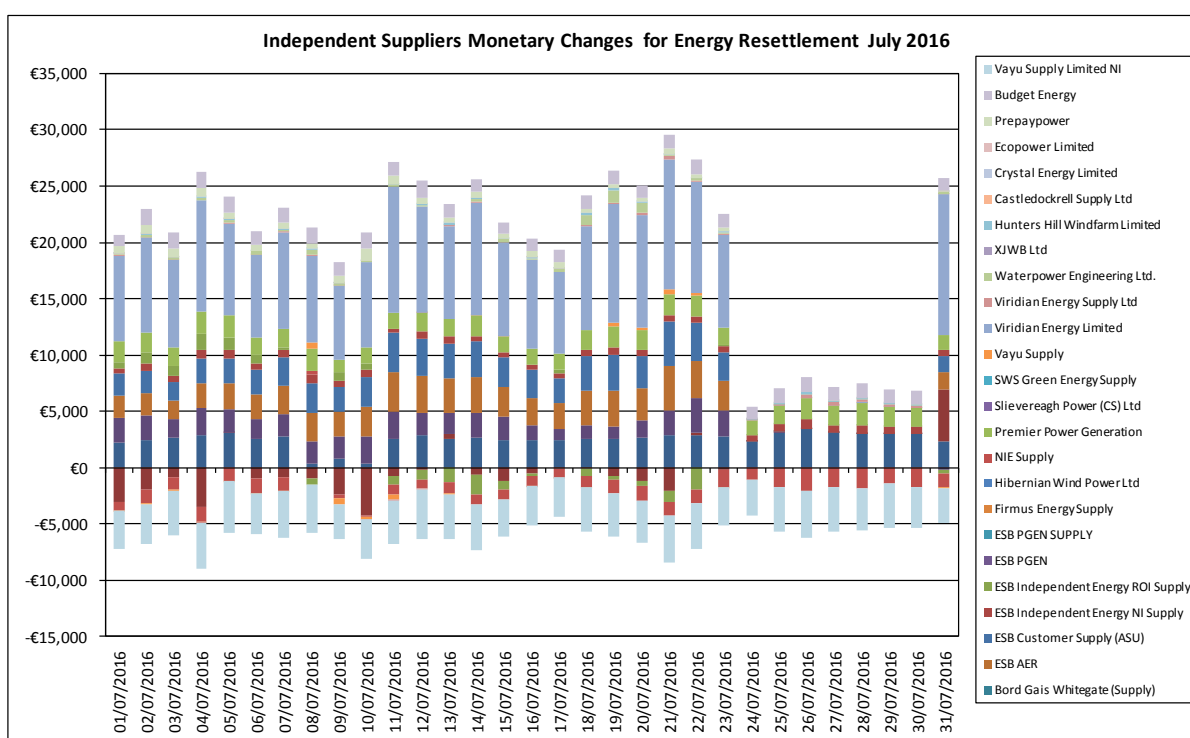


Figure 5 – Independent Suppliers Monetary Changes for Energy Resettlement – July 2016

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

# Market Operator Monthly Report

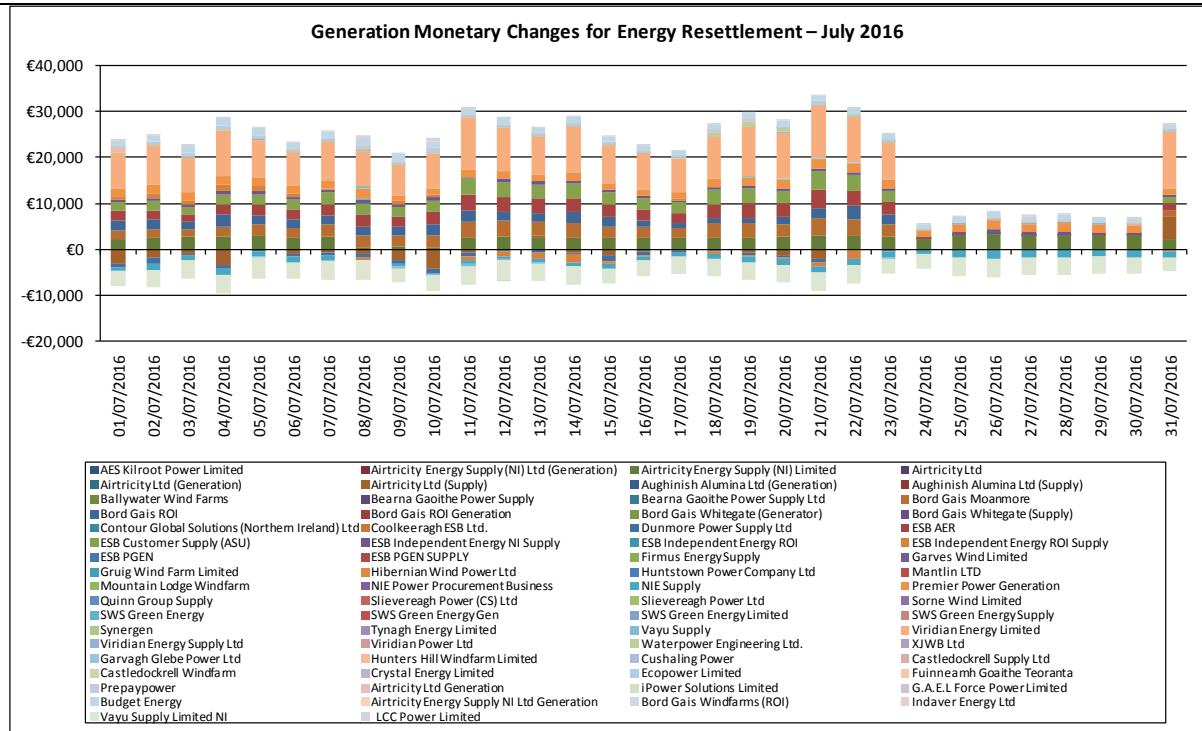


Figure 6 – Generation Monetary Changes for Energy Resettlement – July 2016

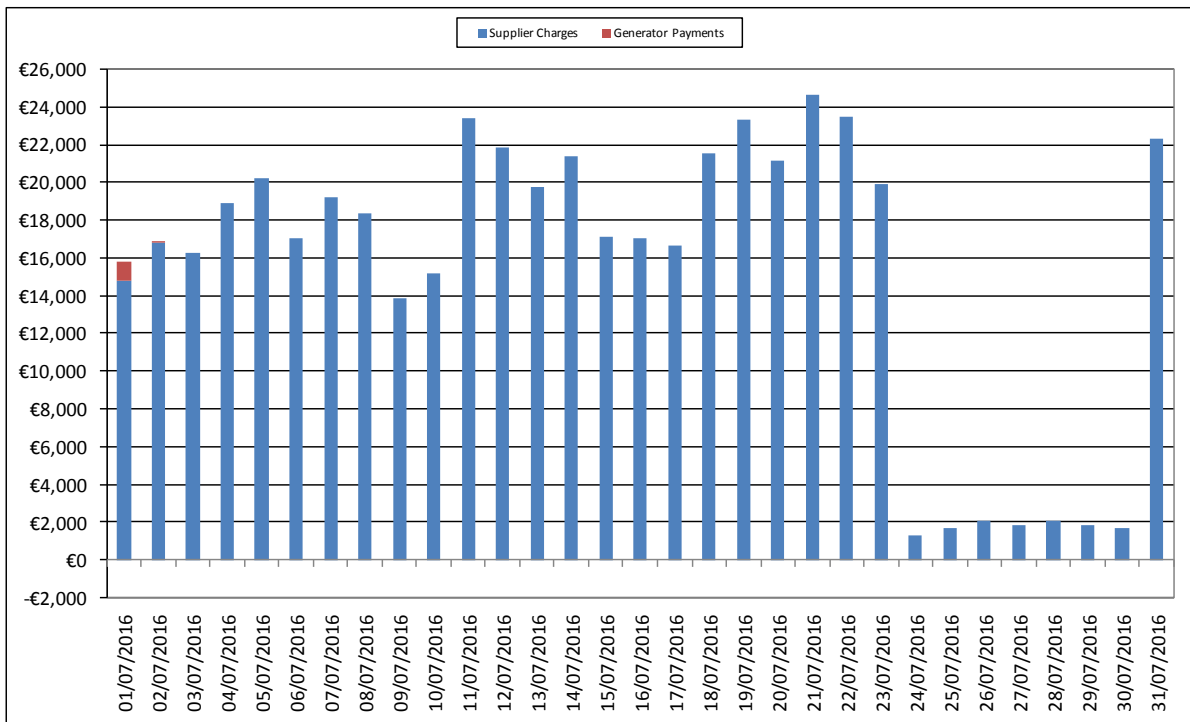


Figure 7 – Total Monetary Changes for Energy Resettlement – July 2016

M+13 Resettlement

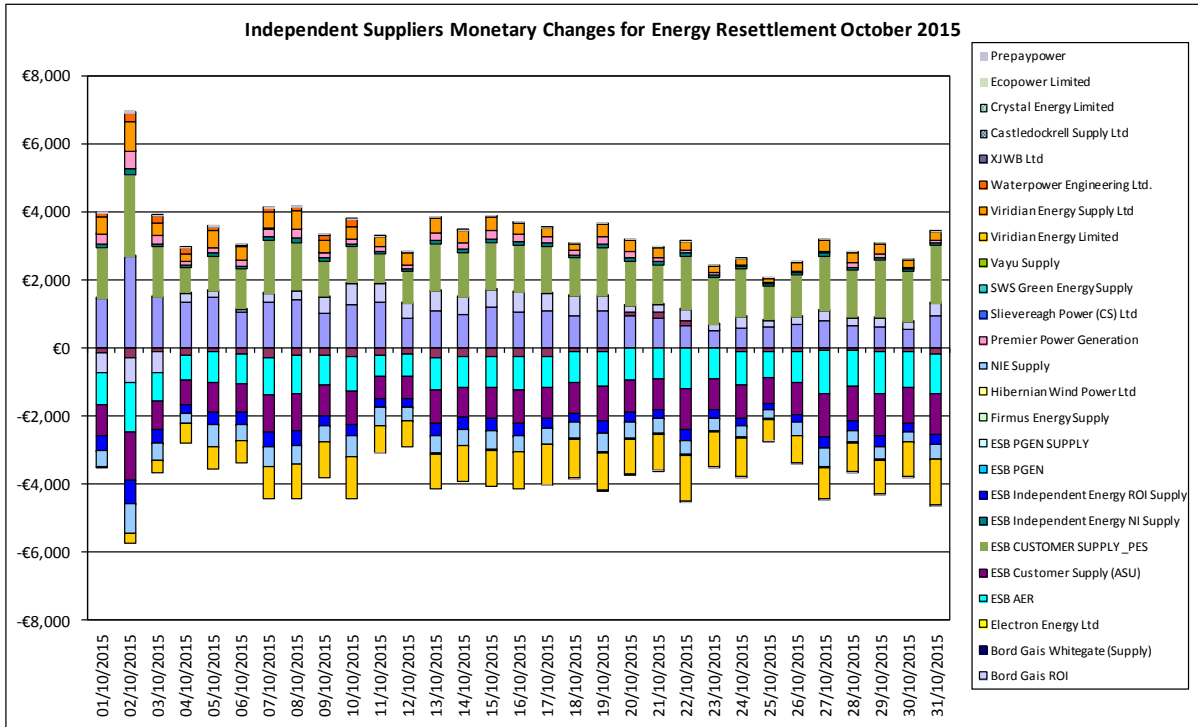


Figure 8 - Independent Suppliers Monetary Changes for Energy Resettlement – October 2015

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

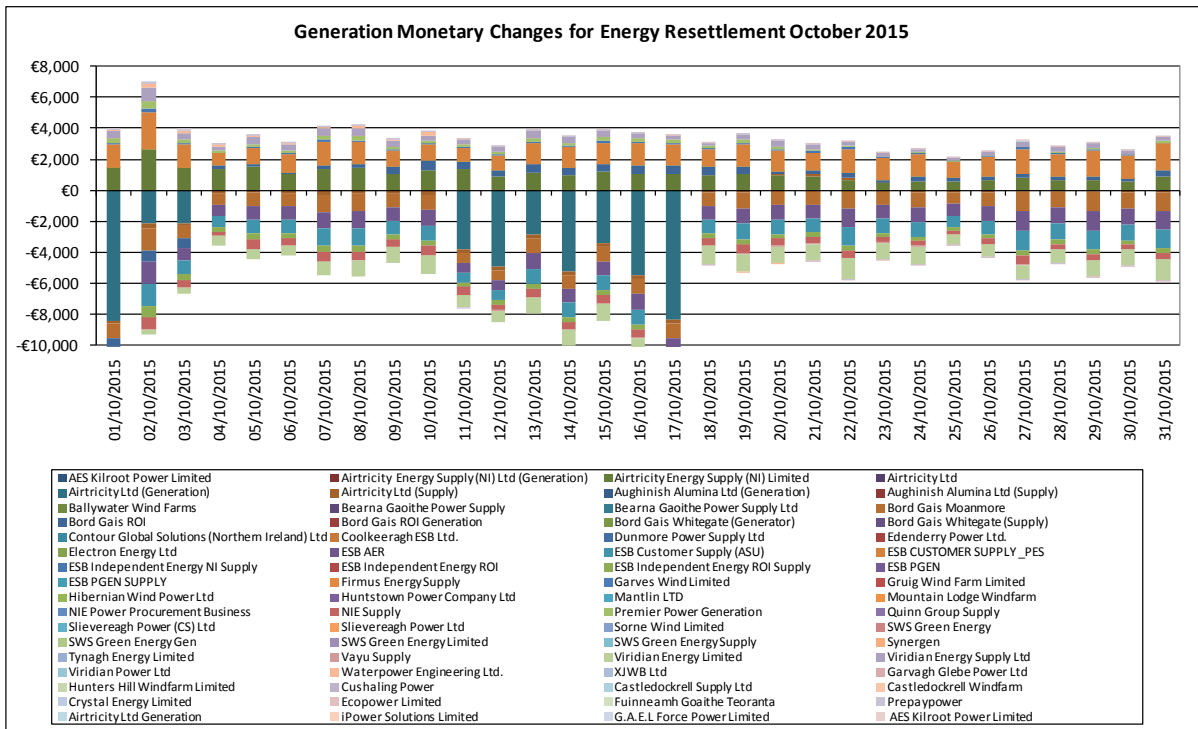


Figure 9 - Generation Monetary Changes for Energy Resettlement – October 2015

## Market Operator Monthly Report

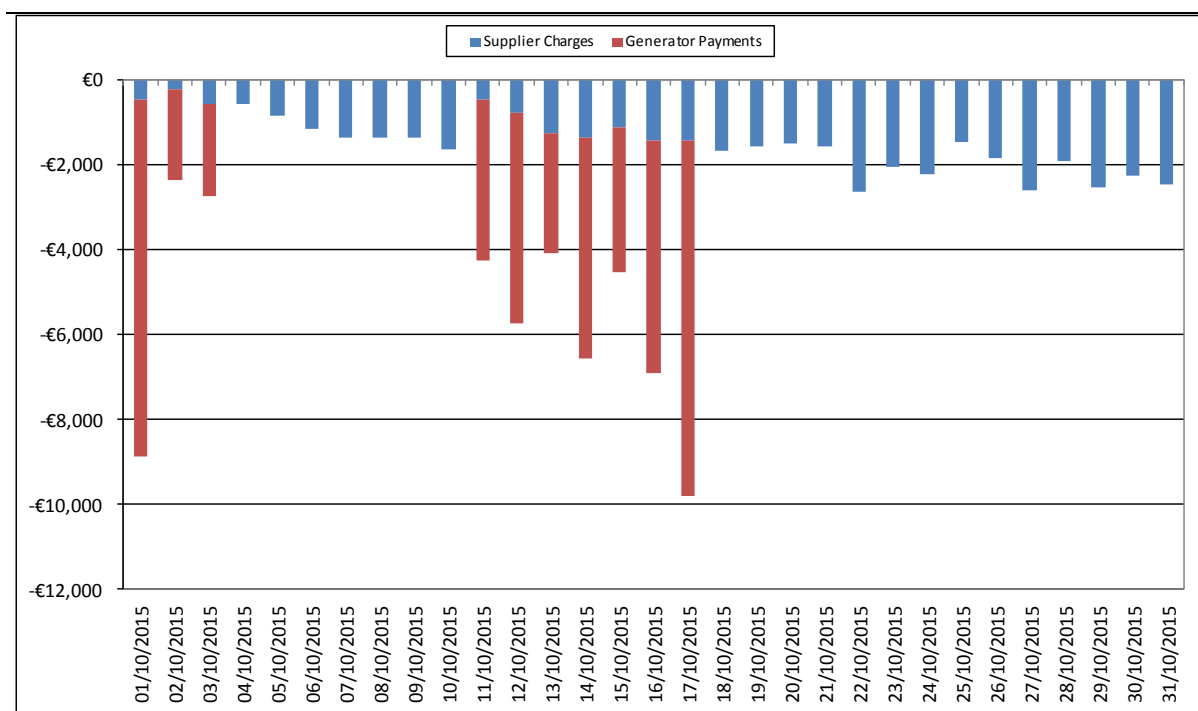


Figure 10 - Total Monetary Changes for Energy Resettlement – October 2015

### 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.



# Market Operator Monthly Report

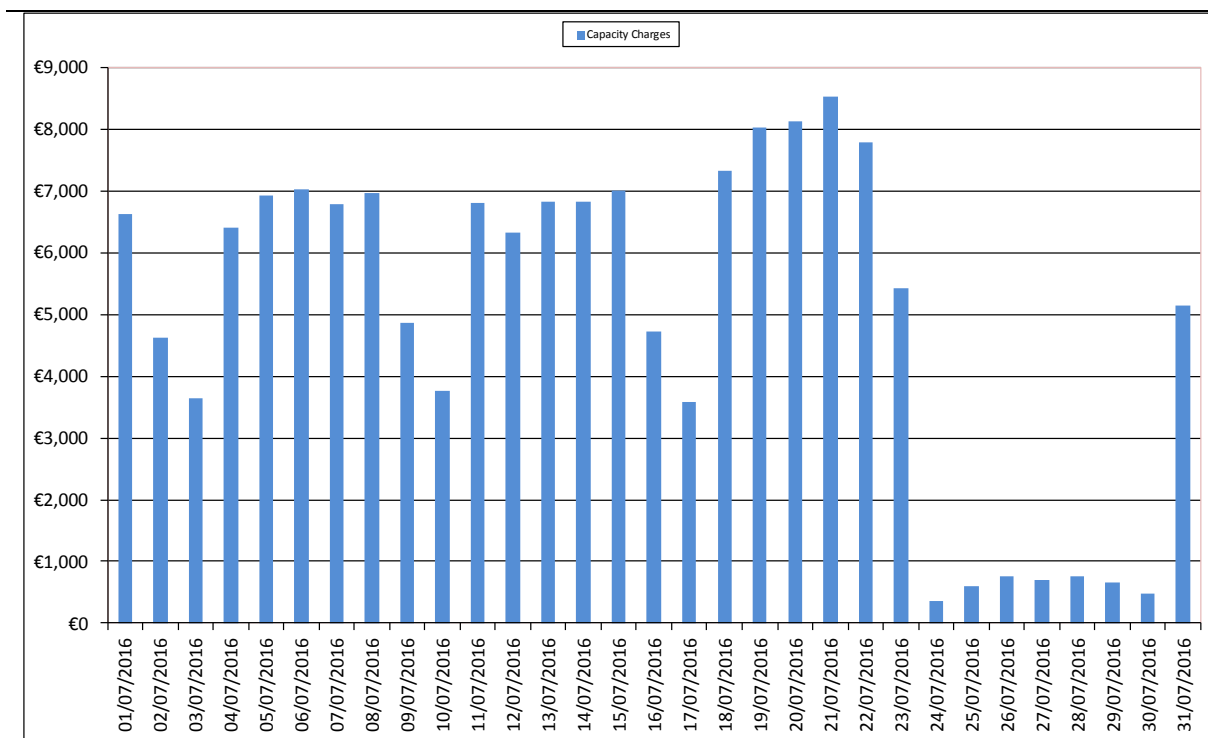


Figure 11 - Independent Suppliers Monetary Changes for Capacity Resettlement – July 2016

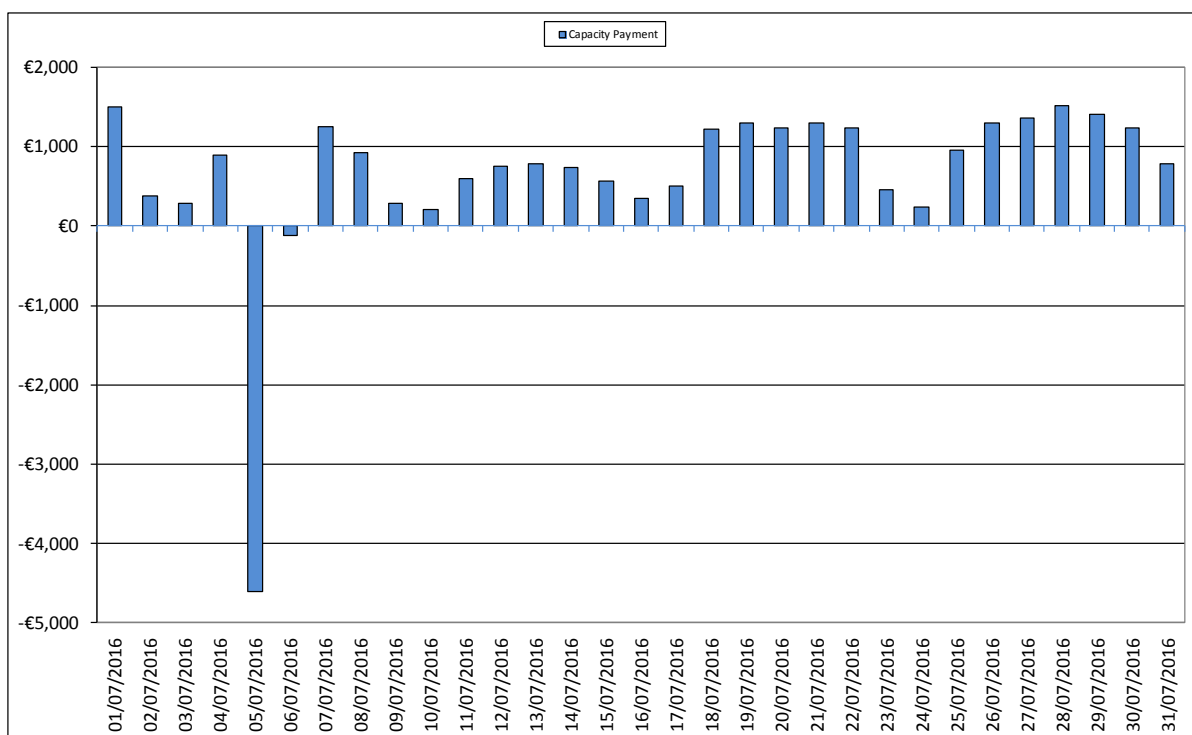
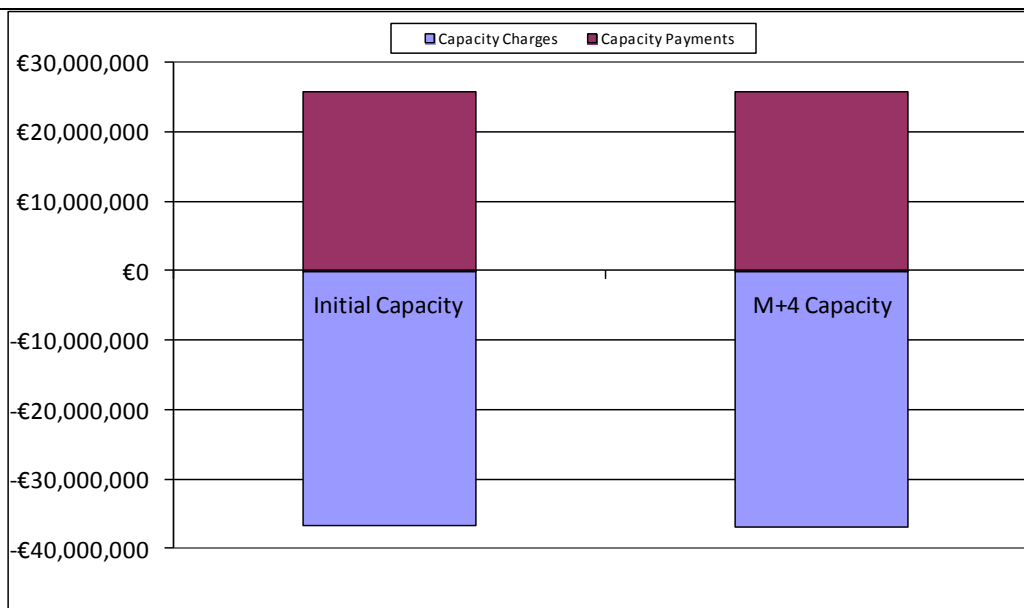


Figure 12 - All Generation Monetary Change for Capacity Resettlement – July 2016

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

## Market Operator Monthly Report



**Figure 13 - Comparison of Distribution of Monetary Amounts between Capacity Initial and Resettlement July 2016**

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

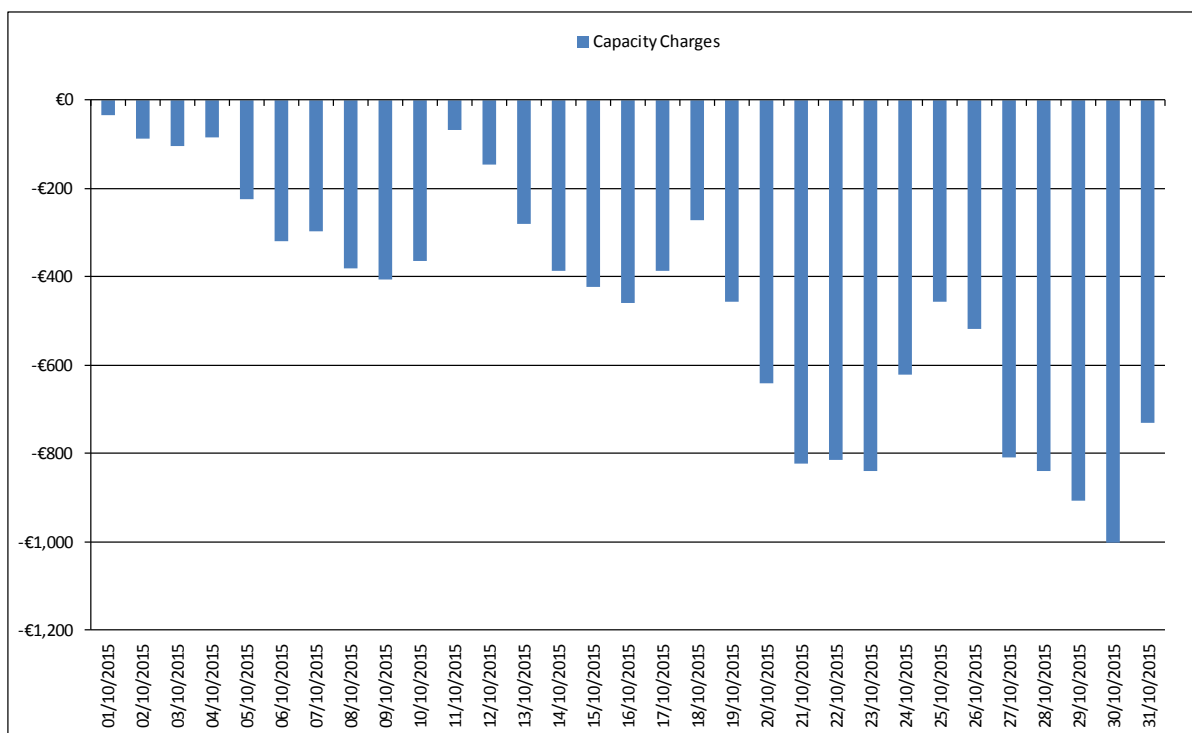


Figure 14 - Independent Suppliers Monetary Changes for Capacity Resettlement – October 2015

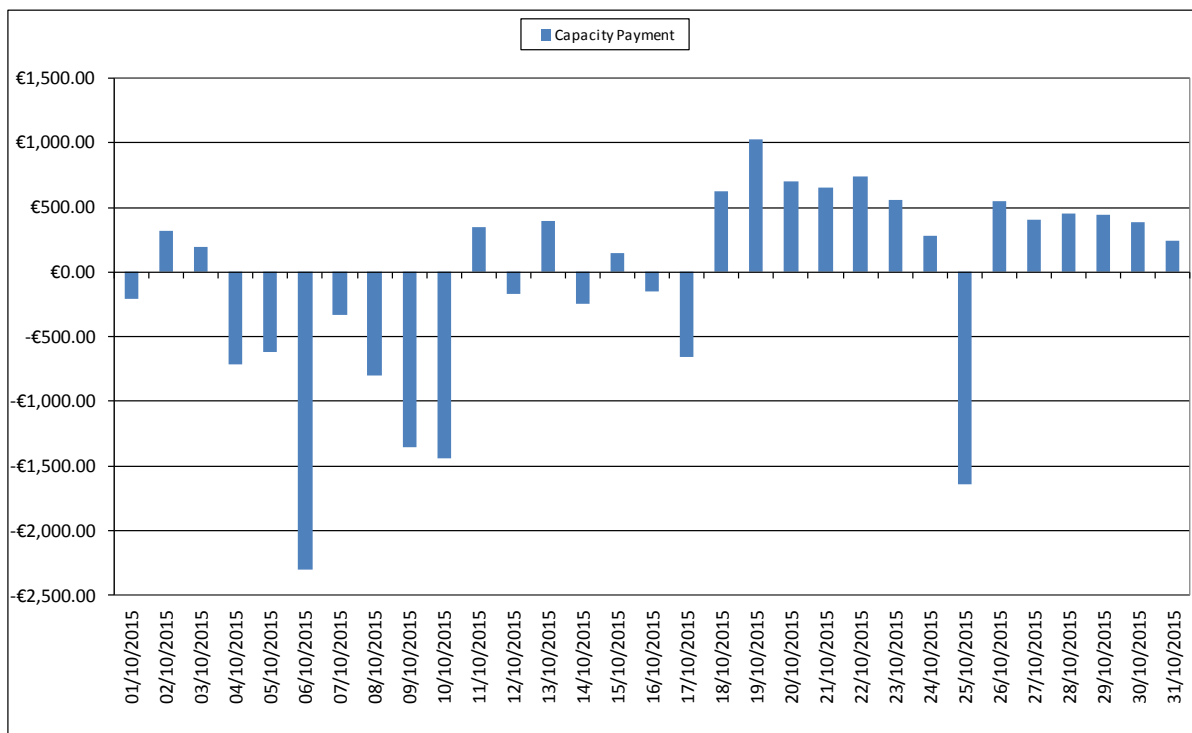


Figure 15 – All Generation Monetary Change for Capacity Resettlement – October 2015

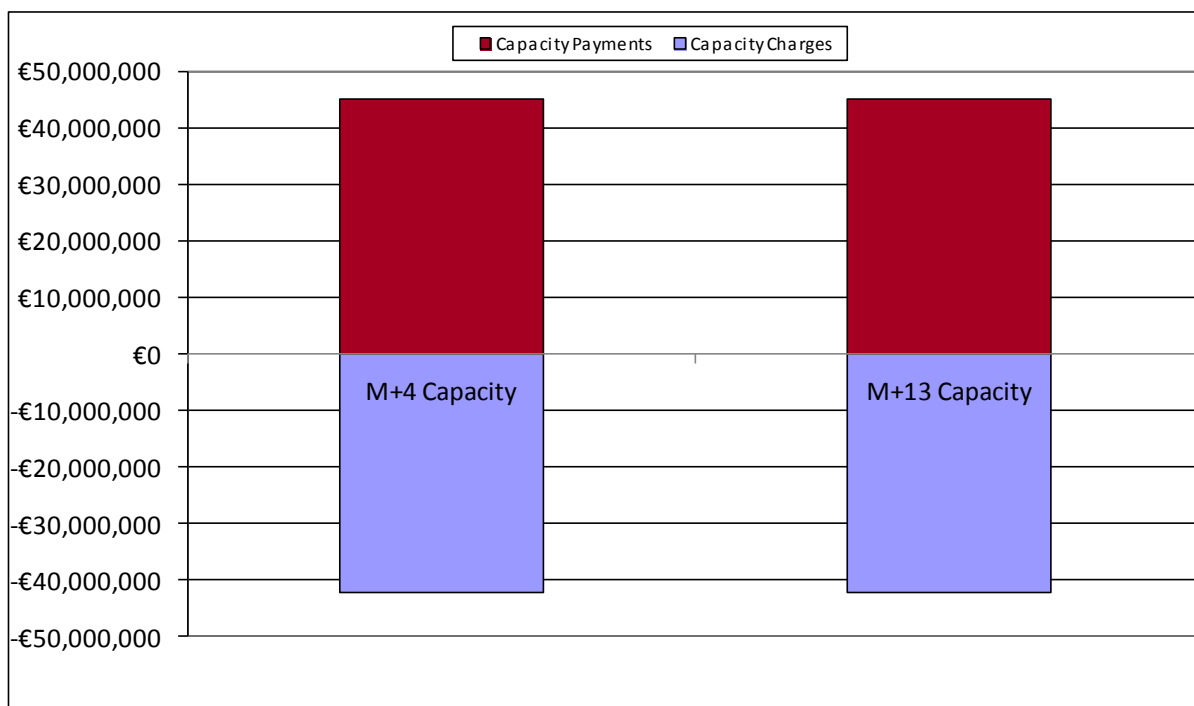


Figure 16 - Comparison of Distribution of Monetary Amounts between M+4 Capacity Resettlement and M+13 Capacity Resettlement – October 2015

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.

### Helpdesk Call Statistics

The statistics presented in Table 10 - Helpdesk Call Statistics covers the month of November 2016.

#### Market Helpdesk Report: 01/11/16 to 30/11/16

	Received	Resolved within the period	Not Resolved	Resolved in the period	Resolution Time (Working Days)	Resolved On Time
Normal	173	150	23	168	1.64	160
Important	5	5	0	5	1.03	3
Urgent	0	0	0	0	0.00	0
Settlement	4	4	0	5	6.85	5
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>182</b>	<b>159</b>	<b>23</b>	<b>178</b>	<b>1.90</b>	<b>168</b>

**Table 10 – Helpdesk Statistics**

#### Definitions:

- Resolved within the Period refers to queries raised and resolved within the calendar month of November 2016.
- Resolved in the Period refers to queries resolved within November 2016, 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 2016.
- Not Resolved refers to queries raised but not resolved within November 2016.
- 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 a 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 increased by 0.58 working days from 1.00 in October 2016 to 1.58 working days in November 2016. SEMO has a metric to resolve General Queries within 20 Working Days. These include queries received over the phone and e-mail.

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 2016 with regard to formal Settlement Queries.

### Disputes and Queries

#### 5.1.1 Disputes

No Disputes were raised during the month of November 2016.

#### 5.1.2 Data Queries

There were no formal data query raised during the month of November 2016.

#### 5.1.3 Settlement Queries

There were four formal Settlement Queries raised in November 2016. All four queries were upheld and have since been resolved.

Topic	Number Of Queries
Dispatch Instructions	2
Meter Generation	2

**Table 12 - Upheld Settlement Queries by Topic**

- Two queries relating to incorrect Dispatch Instructions were raised. These were deemed to be of Low Materiality and will be corrected within M+4 and M+13 resettlement.
- Two queries relating to incorrect Metered Generation were raised. One query was deemed to be of Low Materiality and will be corrected within M+4 resettlement. The second query was deemed to be of High Materiality and will be corrected within an Ad Hoc resettlement.

#### Unresolved Queries

There are no unresolved settlement queries as of the 12<sup>th</sup> December 2016.

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

### Central Systems

#### 6.1 Proportion of Default Data Used

On review of the Commercial Offer Data used in the MSP runs, 65.29% of data used was submitted by Participants through the normal Bid-Offer process. 34.71% 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

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

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

There were no Re-Price runs carried out in November 2016.

There were 6 Ad hoc Re-Settlement run carried out in November 2016.

##### 6.3.2 System Errors

There were no Market Application defects found in November 2016.

Details are provided in Appendix C : List of All Systems 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 October 2016.

**1.4.1 MSP Postings November 2016**

Process	On Time	< 1 hr late	> 1 hr late	Not done
Gate Close	30-30	0	0	0
Post EA1	30-30	0	0	0
Post EA2	30-30	0	0	0
Post WD1	30-30	0	0	0
Post EP1	30-30	0	0	0
Post EP2	30-30	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	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 14 - Operational Timings (% on time)**



# Market Operator Monthly Report

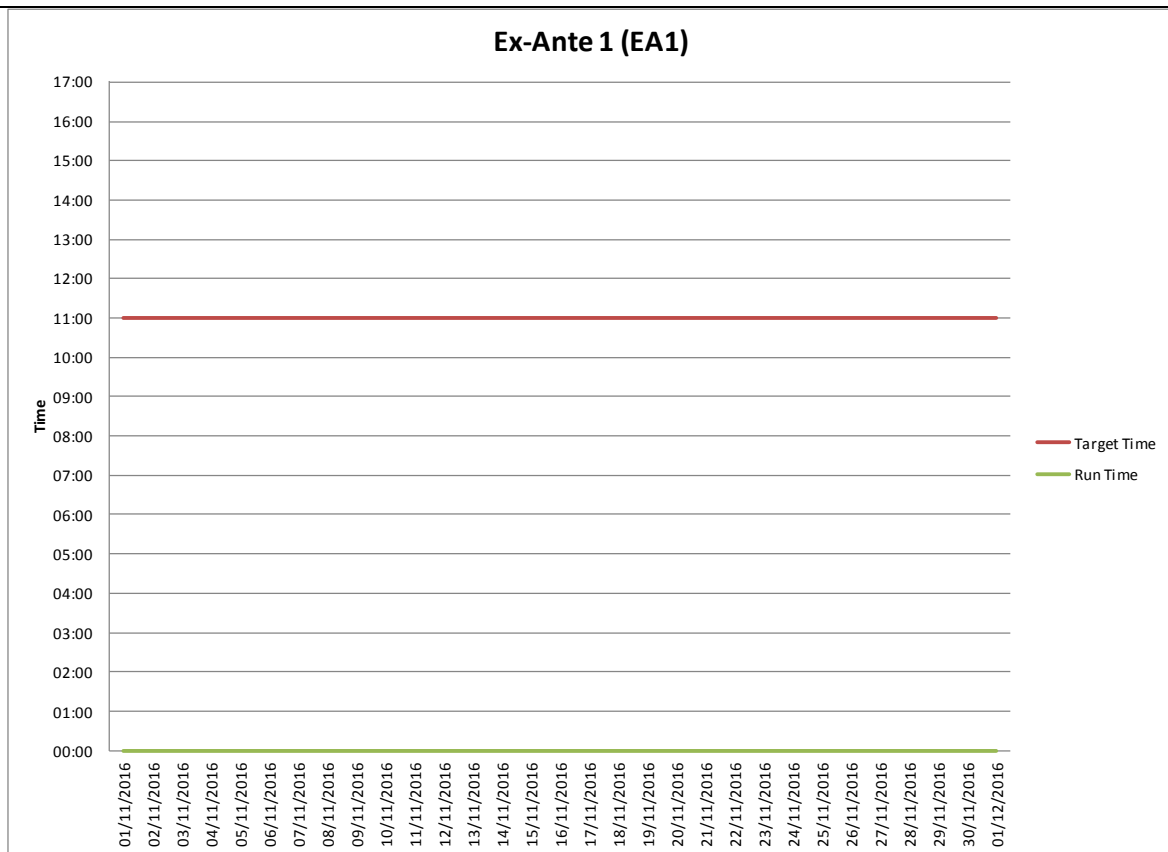


Figure 17 – Ex-Ante 1

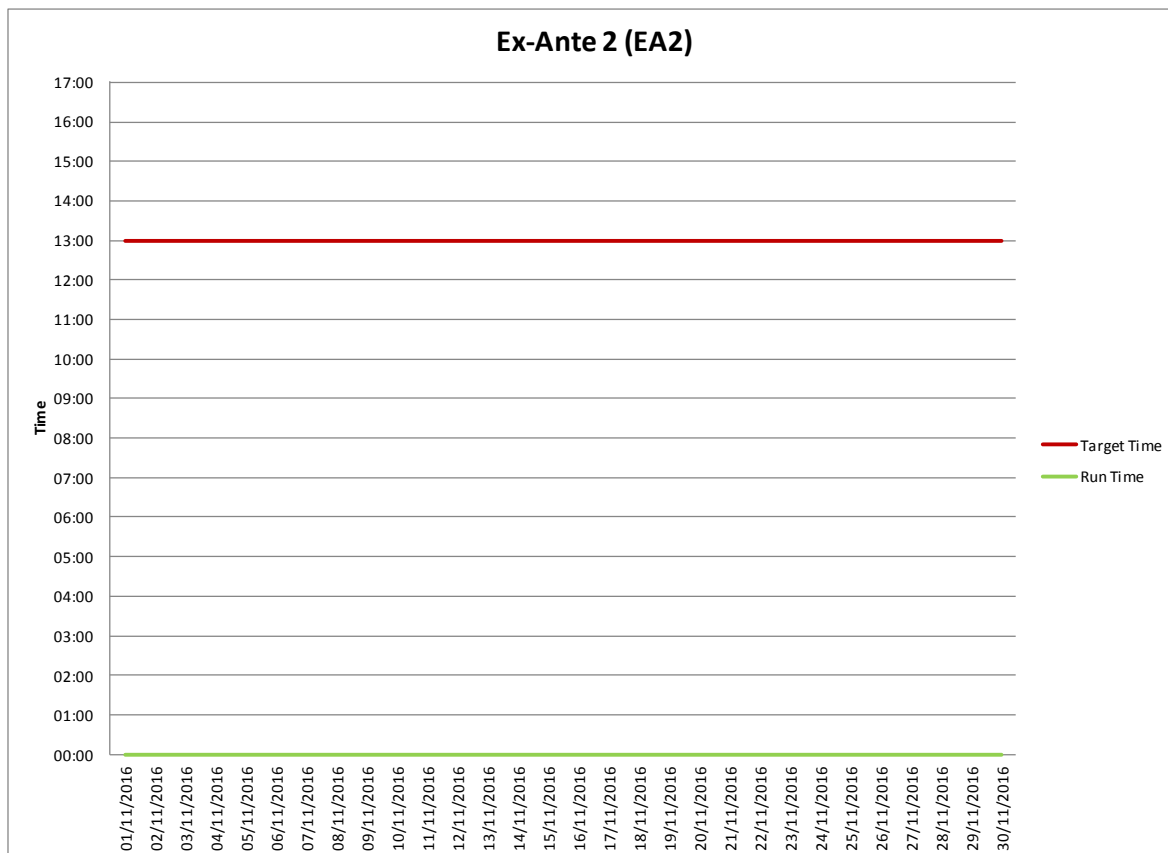


Figure 18 – Ex-Ante 2

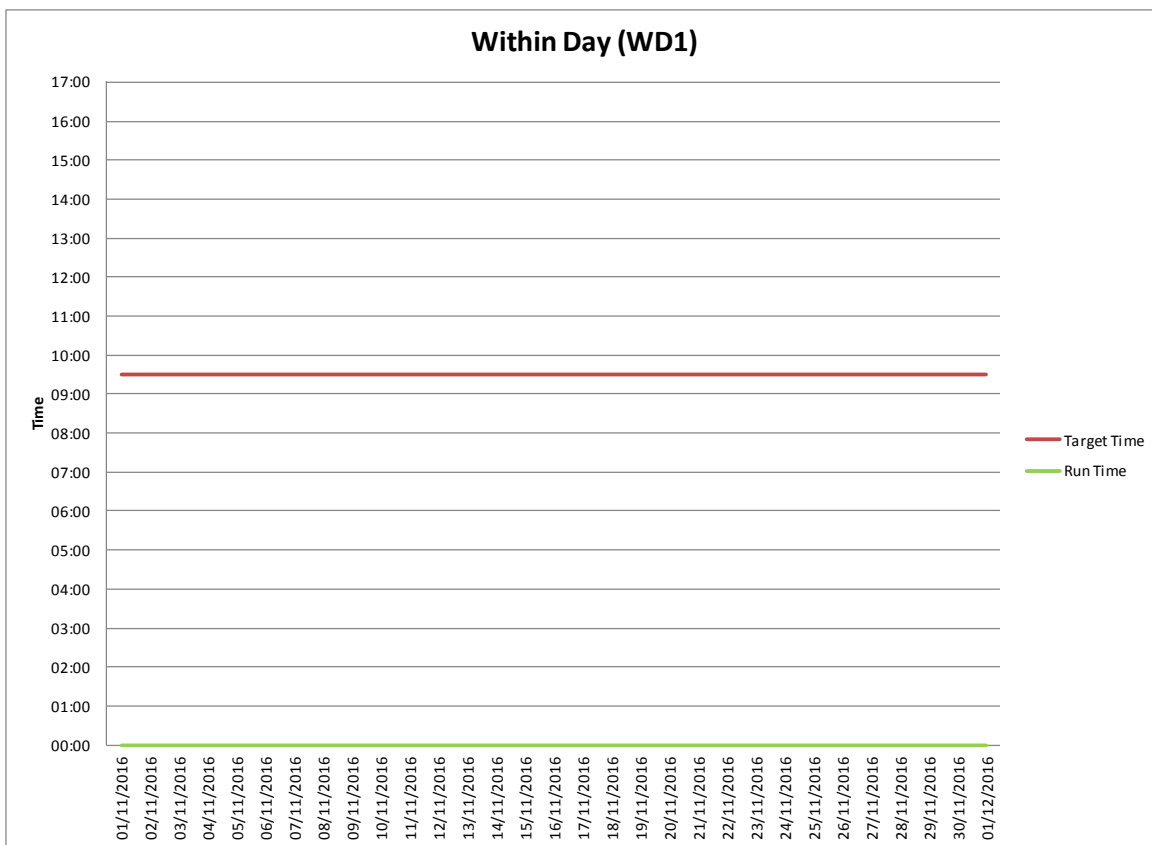


Figure 19 – Within Day 1

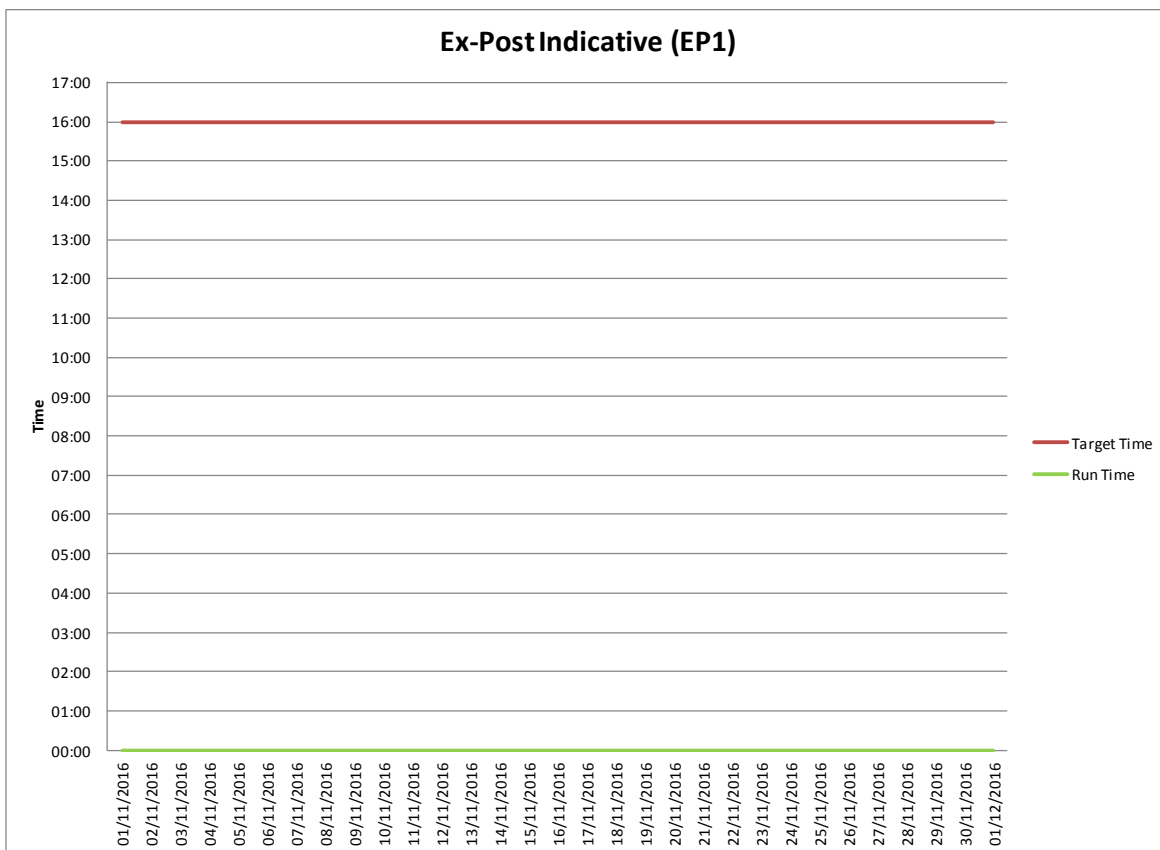


Figure 20 - Ex-Post Indicative

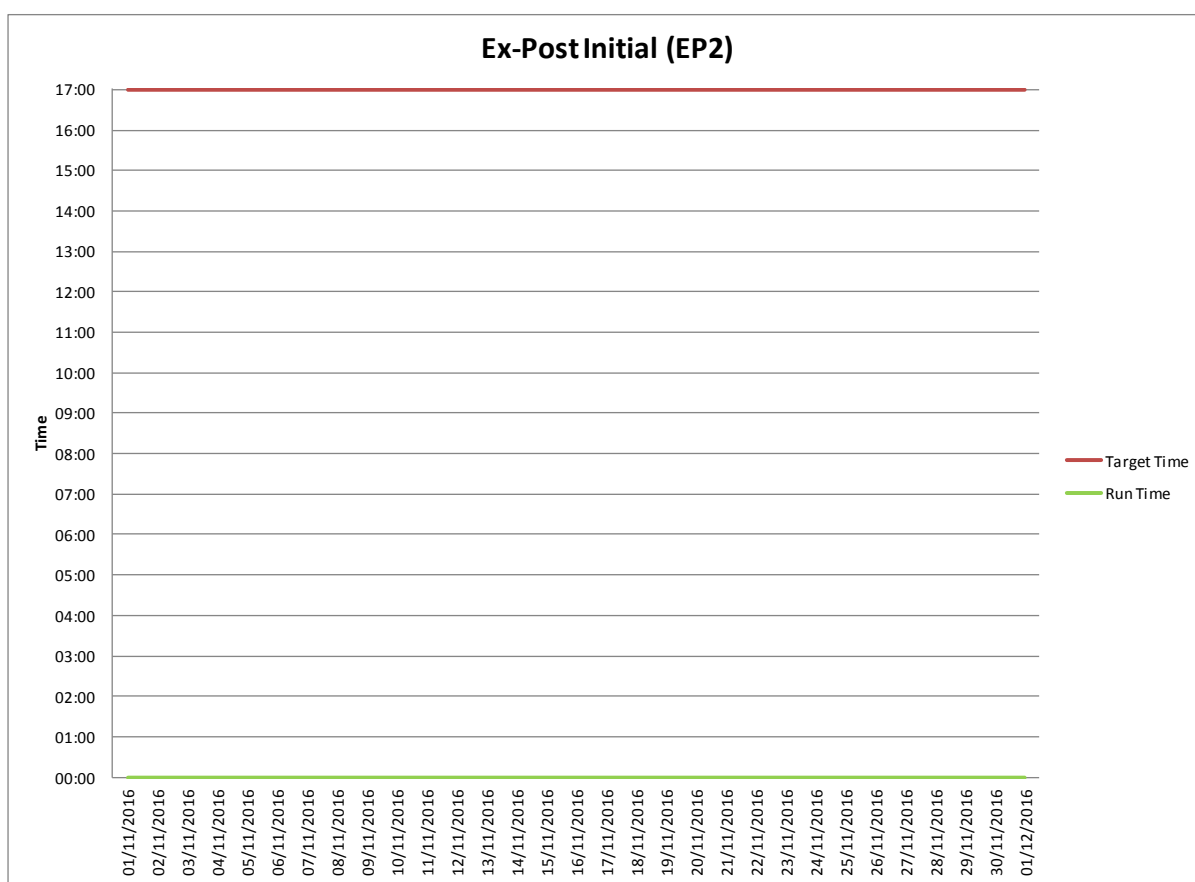


Figure 21 - Ex-Post Initial

Details of the operational timings of the Market System and Price (MSP) runs and Gate Closure are provided in [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 2016, there were 16 instance 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](#).

1.4.1 Settlement Postings November 2016

The publication timings for Settlement runs are provided below.

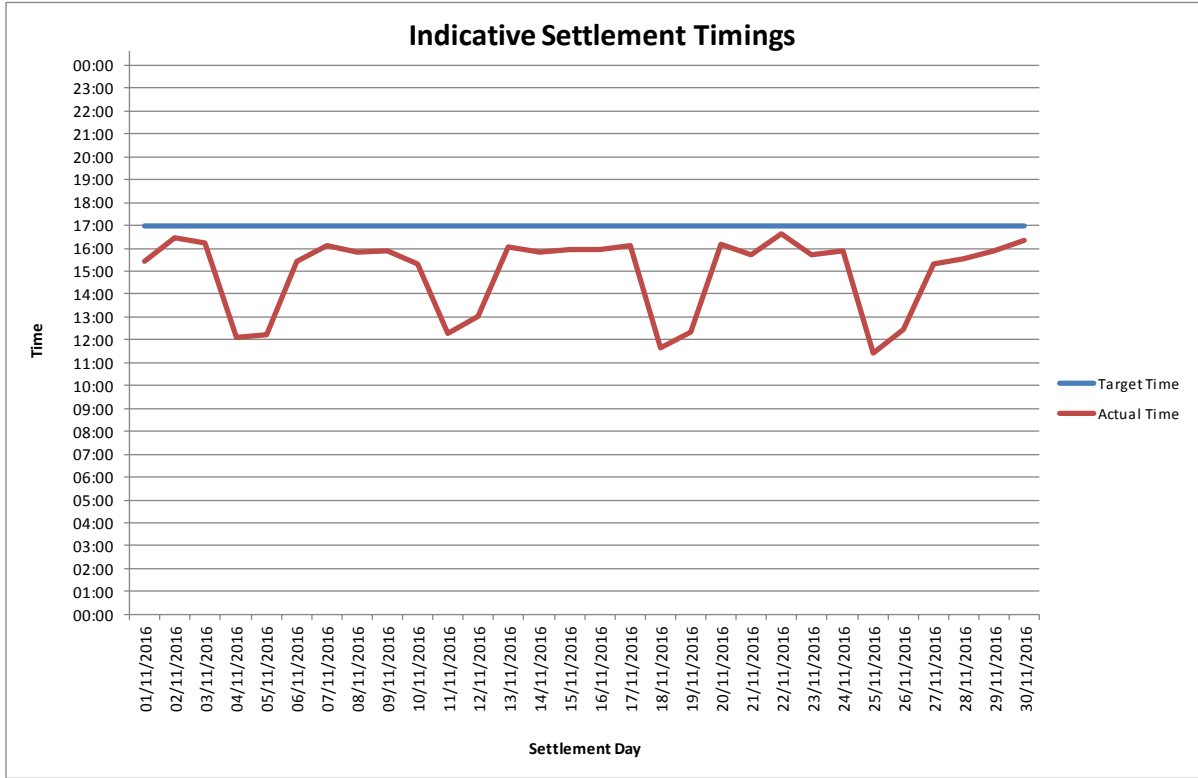
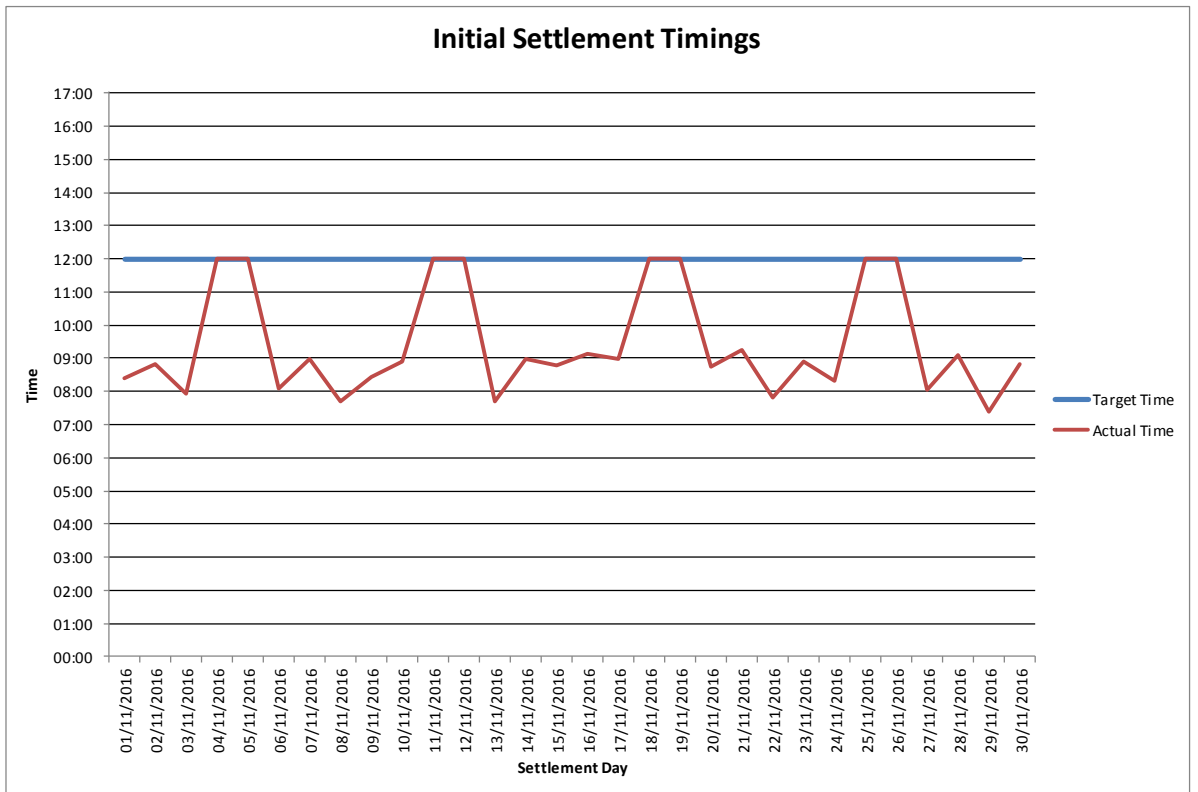


Figure 22 - Indicative Settlement Postings



### Figure 23 - Initial Settlement Postings

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

#### **6.5.1 - UUC 3.7.2 – (Deployed September 6<sup>th</sup> 2016)**

UUC 3.7.2 was deployed on September 6<sup>th</sup> 2016 and the following defect fixes were applied.

- ABB2016144177 – Warning in EP2 sequence messages
- ABB2016144139 – Dispatch Quantity Calculations in IP for VPTG units

### **Occasional Components**

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

There were no scheduled Business Continuity tests performed during November 2016.

#### **7.3 Communications or Systems Failures**

There were no Communications Failures in November 2016

#### **7.4 Denial of Service Attacks**

There was no Denial of Service Attacks during November 2016.

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

The following yearly reports were submitted to the Regulatory Authorities in line with SEMO's obligations under the T&SC:

1. MSP Software Penalty Parameters Report 2017
2. Credit Cover Parameters Report 2017

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

### Data Provider

There were no issues to report in November 2016.

### Market Participant

Ops Date Identified	Run Type	Quality or Timing	Party	Issue Type	Description	Cause	Resolution	T and SC Breach
03/11/2016	Money In	Timing	Participant	Payment Default	Electricity Exchange Ltd (PT_400116) defaulted on a September 2015 M+13 Capacity invoice.	Participant Error	A default letter was issued to the Participant.	Major
03/11/2016	Money In	Timing	Participant	Payment Default	Empower Generation defaulted on a September 2015 M+13 Capacity Invoice.	Participant Error	A default letter was issued to the Participant.	Major
09/11/2016	Money In	Timing	Participant	Payment Default	Shell Energy Europe Limited (PT_500087) defaulted on a Week 43 2016 Initial Energy.	Participant Error	A default letter was issued to the Participant.	Major
11/11/2016	Money In	Timing	Participant	Payment	Activation Energy TSSU (PT_500097) defaulted on a FMOC October 2016 Initial.	Participant Error	A default letter was issued to the Participant.	Major
11/11/2016	Money In	Timing	Participant	Payment Default	Activation Energy DSU (PT_500098) defaulted on a FMOC October 2016 Initial.	Participant Error	A default letter was issued to the Participant.	Major
14/11/2016	CRM	Timing	Participant	Credit	Panda Power (CP_400161) defaulted on a CCIN issued on 09/11/2016.	CCIN was not resolved within the T&SC timeframes	Panda Power (CP_400161) paid outstanding invoices on the 14/11/2016 which closed the CCIN.	Major
23/11/2016	Money In	Timing	Participant	Payment Default	Aughrim Power Supply Limited (PT_400119) defaulted on a Energy Week 45 2016 Initial Invoice.	Participant Error	A default letter was issued to the Participant.	Major
23/11/2016	Money In	Timing	Participant	Payment Default	Axpo Trading AG (PT_400164) defaulted on an Energy Week 29 2016 M+4 Invoice.	Participant Error	A default letter was issued to the Participant.	Major
28/11/2016	CRM	Timing	Participant	Credit	Waterpower Engineering Ltd (CP_400045) defaulted on a CCIN issued on 24/11/2016.	CCIN was not resolved within the T&SC timeframes	Waterpower Engineering Ltd (CP_400045) paid an outstanding invoice on the 29/11/2016 which closed the CCIN.	Major
29/11/2016	CRM	Timing	Participant	Credit	Open Electric (CP_500082) defaulted on a CCIN issued on 25/11/2016.	CCIN was not resolved within the T&SC timeframes	Open Electric (CP_500082) paid an outstanding invoice on the 30/11/2016 which closed the CCIN.	Major
30/11/2016	Money In	Timing	Participant	Payment Default	Arden Energy Limited (PT_400149) defaulted on an Energy Week 46 2016 Initial and an Energy Week 40 2016 Ad Hoc Invoice.	Participant Error	A default letter was issued to the Participant.	Major
30/11/2016	Money In	Timing	Participant	Payment Default	New Measured Power Limited TA Pinergy (PT_400173) defaulted on an Energy Week 46 2016 Initial Invoice.	Participant Error	A default letter was issued to the Participant.	Major
30/11/2016	Money In	Timing	Participant	Payment Default	Dan Twomey Waterpower Engineering Limited (PT_400045) defaulted on an Energy Week 30 2016 M+4 Invoice.	Participant Error	A default letter was issued to the Participant.	Major
30/11/2016	Money In	Timing	Participant	Payment Default	Powerhouse Generation Limited (PT_400144) defaulted on a Capacity July 2016 M+4 and a Capacity October 2015 M+13 Invoice.	Participant Error	A default letter was issued to the Participant.	Major
30/11/2016	Money In	Timing	Participant	Payment Default	Axpo Trading AG (PT_400164) defaulted on a Capacity July 2016 M+4 Invoice.	Participant Error	A default letter was issued to the Participant.	Major
30/11/2016	Money In	Timing	Participant	Payment Default	Open Electric Ireland (PT_500082) defaulted on an Energy Week 46 2016 Initial Invoice and a Week 30 2016 M+4 Invoice.	Participant Error	A default letter was issued to the Participant.	Major
30/11/2016	Money In	Timing	Participant	Payment Default	Powerhouse Generation Limited (PT_500078) defaulted on a Capacity October 2015 M+13 Invoice.	Participant Error	A default letter was issued to the Participant.	Major

**Table 15 – Trading and Settlement Code Breaches – Market Participants**

### SEMO - Pricing and Scheduling

There were no issues to report in November 2016.

### SEMO – Settlements

There were no issues to report in November 2016.

### SEMO - Funds Transfer

There were no issues to report in November 2016.

### SEMO - Credit Management

There were no issues to report in November 2016.

### SEMO – Other

There were no issues to report in November 2016.

## Appendix B: List of Queries by Type

Summary Title	Description	ID	Logged On	Date sent to MP	Type
Dispatch Instructions	GU_400360 (TH1) and GU_400361 (TH2). Dispatch Instructions at 18:22 on 8th Oct 2016 to go to 55mw. Please confirm that these instructions (55mw) for both units are valid and also dispatch instruction of 45mw at 18:22 which were cancelled is also correct.	PT_400030	2016-11-02	2016-11-23	Settlement
Dispatch Instructions	We have been doing a bit of analysis on Fail Sync's and noticed that there was a mistake with one for B31. B31 was given a sync at 06:00 and tripped at 07:11 before reaching min gen. As per the Fail Min process a Fail Sync has been within 1 hour of the Sync time. The issue times need to be corrected so the instruction can be paired and processed correctly. Please see changes for calendar date 22/01/2016 below. As we are passed M+4 I will raise this as a SEM Query for resetting M+13.	TSO_SONI	2016-11-09	1900-01-00	Settlement
Meter Generation	GU_401940 (Raheenleagh Wind Farm). Weeks 42 to 44 have no MG values for Raheenleagh. On investigating with Eirgrid we have been advised that meter data has not been polled for month of October. Weeks prior to 42 have previously been queried and ad-hoc settlement will be run shortly. Please advise for weeks 42 to 44.	PT_400055	2016-11-14	2016-11-17	Settlement
Meter Generation	GU_401940 (Raheenleagh Windfarm) This unit went live on 20th September 2016 and to-date no capacity payments have been received. There have been problems with polling data from the meter but it appears this has been fixed. Can you please advise the values involved and also if there will be Ad-Hoc settlements. Please note this query covers September, October and possibly November	PT_400055	2016-11-17	2016-11-17	Settlement

**Table 16 - Formal Queries**



### 9. 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.

There were no Market Application defect found in November 2016.

Issue No.	Description	Effect	Fixed from	Re-Pricing	Resettlement	Status
-	-	-	-	-	-	-

**Table 17 - List of System Errors and Failures**

## Appendix D: Details of Operational Timings

### Market Schedule and Price Runs

Operational Day	EA1 Postings		EA2 Postings		WD1 Postings		EP1 Postings		EP2 Postings	
	Target	Actual	Target	Actual	Target	Actual	Target	Actual	Target	Actual
01/11/2016	11:00	10:03	13:00	12:06	09:30	08:25	16:00	14:36	17:00	14:45
02/11/2016	11:00	09:52	13:00	11:59	09:30	08:18	16:00	15:22	17:00	14:17
03/11/2016	11:00	09:53	13:00	11:53	09:30	08:44	16:00	14:59	17:00	14:37
04/11/2016	11:00	09:53	13:00	11:54	09:30	08:34	16:00	14:56	17:00	14:27
05/11/2016	11:00	10:03	13:00	11:53	09:30	08:11	16:00	14:20	17:00	14:56
06/11/2016	11:00	09:47	13:00	11:51	09:30	08:42	16:00	14:35	17:00	14:39
07/11/2016	11:00	09:58	13:00	12:00	09:30	08:39	16:00	14:30	17:00	14:25
08/11/2016	11:00	10:01	13:00	12:00	09:30	08:18	16:00	14:56	17:00	14:42
09/11/2016	11:00	09:57	13:00	12:01	09:30	08:36	16:00	14:42	17:00	14:40
10/11/2016	11:00	10:04	13:00	12:02	09:30	08:49	16:00	14:28	17:00	14:33
11/11/2016	11:00	09:53	13:00	11:55	09:30	08:33	16:00	14:39	17:00	14:37
12/11/2016	11:00	10:03	13:00	11:56	09:30	08:33	16:00	14:31	17:00	14:20
13/11/2016	11:00	10:03	13:00	11:56	09:30	08:46	16:00	14:37	17:00	14:27
14/11/2016	11:00	10:02	13:00	12:03	09:30	08:34	16:00	14:40	17:00	15:04
15/11/2016	11:00	09:57	13:00	11:48	09:30	08:29	16:00	14:24	17:00	14:26
16/11/2016	11:00	09:53	13:00	11:48	09:30	08:39	16:00	14:29	17:00	15:19
17/11/2016	11:00	10:22	13:00	11:51	09:30	08:33	16:00	15:06	17:00	15:02
18/11/2016	11:00	10:04	13:00	12:01	09:30	08:42	16:00	14:37	17:00	14:34
19/11/2016	11:00	09:53	13:00	11:53	09:30	08:20	16:00	15:06	17:00	16:41
20/11/2016	11:00	09:50	13:00	11:58	09:30	08:30	16:00	15:12	17:00	14:35
21/11/2016	11:00	10:13	13:00	11:52	09:30	08:33	16:00	14:35	17:00	14:38
22/11/2016	11:00	09:52	13:00	11:54	09:30	08:54	16:00	15:47	17:00	14:23
23/11/2016	11:00	09:54	13:00	11:51	09:30	08:51	16:00	14:37	17:00	14:18
24/11/2016	11:00	09:52	13:00	11:54	09:30	08:31	16:00	14:41	17:00	14:28
25/11/2016	11:00	10:04	13:00	12:07	09:30	08:22	16:00	14:26	17:00	14:30
26/11/2016	11:00	10:08	13:00	11:44	09:30	08:27	16:00	14:21	17:00	14:48
27/11/2016	11:00	09:54	13:00	11:56	09:30	08:22	16:00	14:33	17:00	15:20
28/11/2016	11:00	09:50	13:00	11:47	09:30	08:41	16:00	14:31	17:00	14:22
29/11/2016	11:00	10:03	13:00	11:50	09:30	08:43	16:00	14:58	17:00	14:30
30/11/2016	11:00	10:05	13:00	11:50	09:30	08:47	16:00	15:12	17:00	14:40
01/12/2016	11:00	10:04	13:00	#N/A	09:30	08:26	16:00	14:28	17:00	14:21

Table 18 – MSP Runs

## Market Operator Monthly Report

### Settlement Runs

Indicative				Initial			
Trading Day	Actual Date	Target Time	Actual Time	Trading Day	Actual Date	Target Time	Actual Time
01/11/2016	02/11/2016	17:00	15:27	01/11/2016	08/11/2016	12:00	08:24
02/11/2016	03/11/2016	17:00	16:27	02/11/2016	09/11/2016	12:00	08:50
03/11/2016	04/11/2016	17:00	16:15	03/11/2016	10/11/2016	12:00	07:56
04/11/2016	07/11/2016	17:00	12:06	04/11/2016	11/11/2016	12:00	12:00
05/11/2016	07/11/2016	17:00	12:13	05/11/2016	11/11/2016	12:00	12:00
06/11/2016	07/11/2016	17:00	15:26	06/11/2016	11/11/2016	12:00	08:06
07/11/2016	08/11/2016	17:00	16:06	07/11/2016	14/11/2016	12:00	08:59
08/11/2016	09/11/2016	17:00	15:51	08/11/2016	15/11/2016	12:00	07:41
09/11/2016	11/11/2016	17:00	15:53	09/11/2016	16/11/2016	12:00	08:26
10/11/2016	14/11/2016	17:00	15:20	10/11/2016	17/11/2016	12:00	08:55
11/11/2016	14/11/2016	17:00	12:16	11/11/2016	18/11/2016	12:00	12:00
12/11/2016	14/11/2016	17:00	13:00	12/11/2016	18/11/2016	12:00	12:00
13/11/2016	15/11/2016	17:00	16:03	13/11/2016	18/11/2016	12:00	07:41
14/11/2016	16/11/2016	17:00	15:50	14/11/2016	21/11/2016	12:00	08:59
15/11/2016	17/11/2016	17:00	15:56	15/11/2016	22/11/2016	12:00	08:46
16/11/2016	18/11/2016	17:00	15:58	16/11/2016	23/11/2016	12:00	09:09
17/11/2016	21/11/2016	17:00	16:06	17/11/2016	24/11/2016	12:00	08:58
18/11/2016	21/11/2016	17:00	11:38	18/11/2016	25/11/2016	12:00	12:00
19/11/2016	21/11/2016	17:00	12:22	19/11/2016	25/11/2016	12:00	12:00
20/11/2016	21/11/2016	17:00	16:09	20/11/2016	25/11/2016	12:00	08:45
21/11/2016	22/11/2016	17:00	15:42	21/11/2016	28/11/2016	12:00	09:14
22/11/2016	23/11/2016	17:00	16:37	22/11/2016	29/11/2016	12:00	07:48
23/11/2016	24/11/2016	17:00	15:44	23/11/2016	30/11/2016	12:00	08:55
24/11/2016	25/11/2016	17:00	15:55	24/11/2016	01/12/2016	12:00	08:18
25/11/2016	28/11/2016	17:00	11:26	25/11/2016	02/12/2016	12:00	12:00
26/11/2016	28/11/2016	17:00	12:26	26/11/2016	02/12/2016	12:00	12:00
27/11/2016	28/11/2016	17:00	15:18	27/11/2016	02/12/2016	12:00	08:02
28/11/2016	29/11/2016	17:00	15:32	28/11/2016	05/12/2016	12:00	09:05
29/11/2016	30/11/2016	17:00	15:53	29/11/2016	06/12/2016	12:00	07:23
30/11/2016	01/12/2016	17:00	16:22	30/11/2016	07/12/2016	12:00	08:50

Table 19 – Settlement Runs

### 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.

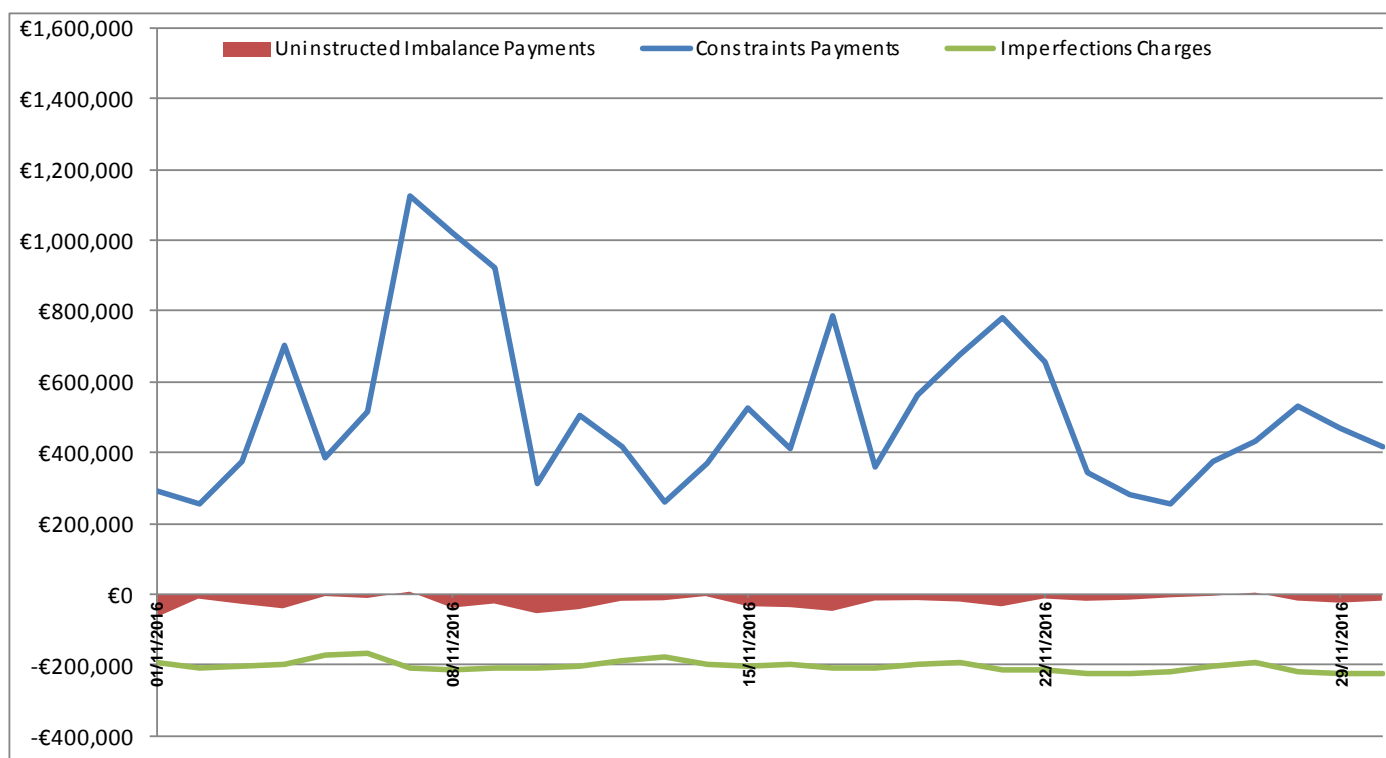
Historical information will be shown in Appendix E until completion of the current financial year. Information prior to that can be found in previous Monthly Market Operator Reports.

Date	Constraint Payments	Uninstructed Imbalance Payments	Imperfections Charges
01/10/2016	€588,508.40	-€8,918.87	-€171,588.78
02/10/2016	€695,496.65	-€14,324.68	-€158,400.40
03/10/2016	€851,843.59	€2,513.28	-€172,492.23
04/10/2016	€1,458,136.05	-€34,126.64	-€183,940.10
05/10/2016	€1,034,632.58	€28,642.11	-€182,957.87
06/10/2016	€501,418.38	-€23,710.92	-€183,057.63
07/10/2016	€768,598.93	-€12,609.20	-€187,080.24
08/10/2016	€764,269.17	€15,163.35	-€176,626.63
09/10/2016	€694,695.21	€184.58	-€170,378.25
10/10/2016	€528,141.01	€25,875.53	-€191,875.15
11/10/2016	€284,246.21	-€13,606.74	-€187,454.92
12/10/2016	€447,514.99	-€30,842.25	-€192,961.10
13/10/2016	€151,134.33	-€13,355.34	-€195,221.64
14/10/2016	€430,183.76	-€22,566.32	-€191,485.94
15/10/2016	€300,656.23	-€29,668.35	-€175,296.27
16/10/2016	€468,094.80	-€16,032.98	-€158,815.86
17/10/2016	€438,579.40	-€37,843.71	-€183,515.17
18/10/2016	€342,696.70	€3,554.83	-€190,005.81
19/10/2016	€146,197.27	-€20,059.24	-€202,058.88
20/10/2016	€258,466.43	-€48,963.68	-€204,159.57
21/10/2016	€249,643.69	-€14,592.68	-€201,002.64
22/10/2016	€530,986.82	-€15,298.38	-€177,531.31
23/10/2016	€561,694.17	-€26,065.05	-€164,730.74
24/10/2016	€401,362.80	€4,719.88	-€196,833.81
25/10/2016	€391,214.46	-€62,462.63	-€206,345.53
26/10/2016	€287,150.00	-€33,111.56	-€199,012.87
27/10/2016	€218,712.06	-€10,630.05	-€193,358.45
28/10/2016	€292,296.47	-€28,006.72	-€199,180.70
29/10/2016	€307,630.66	-€17,377.78	-€178,068.51
30/10/2016	€227,610.21	-€16,193.66	-€177,139.60
31/10/2016	€252,091.74	-€21,699.82	-€178,099.86
01/11/2016	€293,474.45	-€67,609.76	-€192,085.13
02/11/2016	€254,535.38	-€13,376.75	-€206,892.91
03/11/2016	€376,079.69	-€28,308.61	-€204,403.02
04/11/2016	€701,523.69	-€41,594.81	-€198,063.82
05/11/2016	€387,249.31	-€5,984.13	-€175,157.62
06/11/2016	€514,425.63	-€11,534.84	-€169,837.55
07/11/2016	€1,127,011.52	€6,794.54	-€209,253.46
08/11/2016	€1,021,388.24	-€39,628.91	-€212,137.87
09/11/2016	€921,181.60	-€27,519.93	-€209,544.14

## Market Operator Monthly Report

10/11/2016	€310,229.18	-€55,721.01	-€206,766.44
11/11/2016	€506,203.82	-€43,946.39	-€204,980.25
12/11/2016	€414,326.65	-€19,769.46	-€187,189.37
13/11/2016	€257,734.16	-€18,328.87	-€179,141.49
14/11/2016	€368,139.79	-€5,955.88	-€198,410.11
15/11/2016	€528,083.74	-€35,284.03	-€203,149.83
16/11/2016	€411,276.23	-€38,193.18	-€197,590.61
17/11/2016	€788,278.79	-€49,085.05	-€208,289.70
18/11/2016	€358,565.21	-€18,943.55	-€211,003.95
19/11/2016	€564,213.97	-€17,743.72	-€198,319.19
20/11/2016	€675,744.97	-€21,901.30	-€194,169.93
21/11/2016	€779,665.98	-€35,682.18	-€214,687.03
22/11/2016	€656,315.79	-€12,939.39	-€212,700.96
23/11/2016	€344,337.98	-€19,727.41	-€225,407.06
24/11/2016	€282,546.78	-€16,647.67	-€224,027.98
25/11/2016	€252,998.24	-€9,616.94	-€221,510.91
26/11/2016	€376,722.73	-€5,239.17	-€203,512.05
27/11/2016	€432,458.81	€4,094.90	-€191,553.33
28/11/2016	€528,694.39	-€19,113.09	-€219,070.96
29/11/2016	€470,092.65	-€25,198.34	-€224,612.99
30/11/2016	€415,589.69	-€19,310.35	-€225,474.43

**Table 20 - Constraint Payments, Uninstructed Imbalance Payments, and Imperfections Charges**



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

Week No	Make Whole Payments
38	€156,663.13
39	€99,549.05
40	€104,371.05

## Market Operator Monthly Report

---

41	€9,305.58
42	€17,237.57
43	€18,614.74
44	€23,589.25
45	€5,513.20
46	€17,624.74
47	€27,403.03
48	€98,619.60
49	€82,787.86
50	€82,380.81
51	€68,751.08
52	€17,797.93
1	€71,533.60
2	€71,588.15
3	€22,455.89
4	€73,659.85
5	€44,834.21
6	€94,935.70
7	€71,991.91
8	€89,850.72
9	€187.41
10	€57,226.62
11	€24,353.24
12	€17,519.03
13	€18,413.95
14	€99,351.71
15	€67,571.67
16	€51,800.46
17	€44,459.11
18	€90,358.30
19	€18,448.89
20	€6,824.56
21	€131,010.25
22	€102,162.37
23	€125,869.44
24	€84,547.01
25	€111,163.70
26	€93,228.84
27	€120,087.37
28	€111,064.38
29	€87,089.42
30	€120,954.18
31	€48,552.68
32	€83,561.36
33	€100,430.47
34	€314,113.57
35	€45,208.88
36	€60,068.39
37	€9,584.60
38	€13,717.29
39	€9,584.60
40	€13,717.29
41	€114,729.43
42	€3,055.91

43	€71,345.79
44	€40,053.00
45	€12,438.62
46	€50,083.01

Table 21 - Make Whole Payments

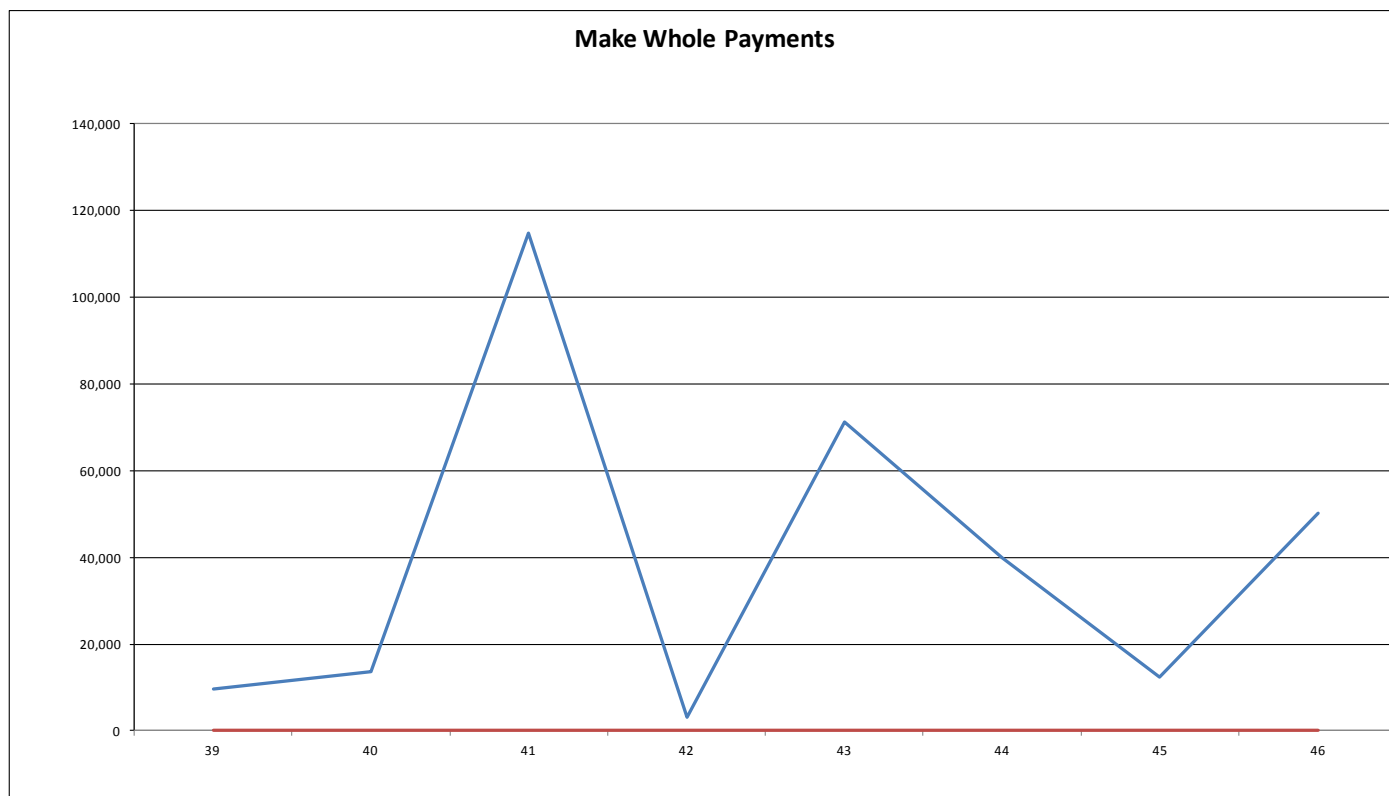


Figure 25 - Make Whole Payments

Week No	Testing Charges
38	-€12,688.71
39	-€1,257.57
40	-€19,812.53
41	-€21,021.55
42	-€10,419.94
43	-€13,069.61
44	-€16,635.14
45	-€16,770.11
46	-€27,151.66
47	€69,699.23
48	€0.00
49	-€13,909.92
50	-€740.68
51	-€353.00
52	-€456.00
1	-€470.00
2	-€582.00
3	€0.00
4	€0.00
5	€0.00

6	€0.00
7	-€4,381.00
8	-€313.00
9	€0.00
10	-€85,485.01
11	-€187,782.43
12	-€5,476.37
13	€0.00
14	-€904.60
15	-€95,270.20
16	€0.00
17	-€16,655.87
18	€0.00
19	€0.00
20	-€843.00
21	€0.00
22	€0.00
23	-€10,166.13
24	€0.00
25	€17,762.06
26	€0.00
27	-€789.58
28	-€134,653.05
29	-€87,783.63
30	-€175,504.34
31	-€2,364.71
32	€0.00
33	-€59,190.05
34	€0.00
35	€0.00
36	-€5,559.69
37	-€65,398.63
38	€0.00
39	-€65,398.63
40	€0.00
41	€0.00
42	-€6,444.66
43	-32739.69
44	106,406.47
45	-177,289.91
46	€0.00

**Table 22 - Testing Charges**



### Testing Charges

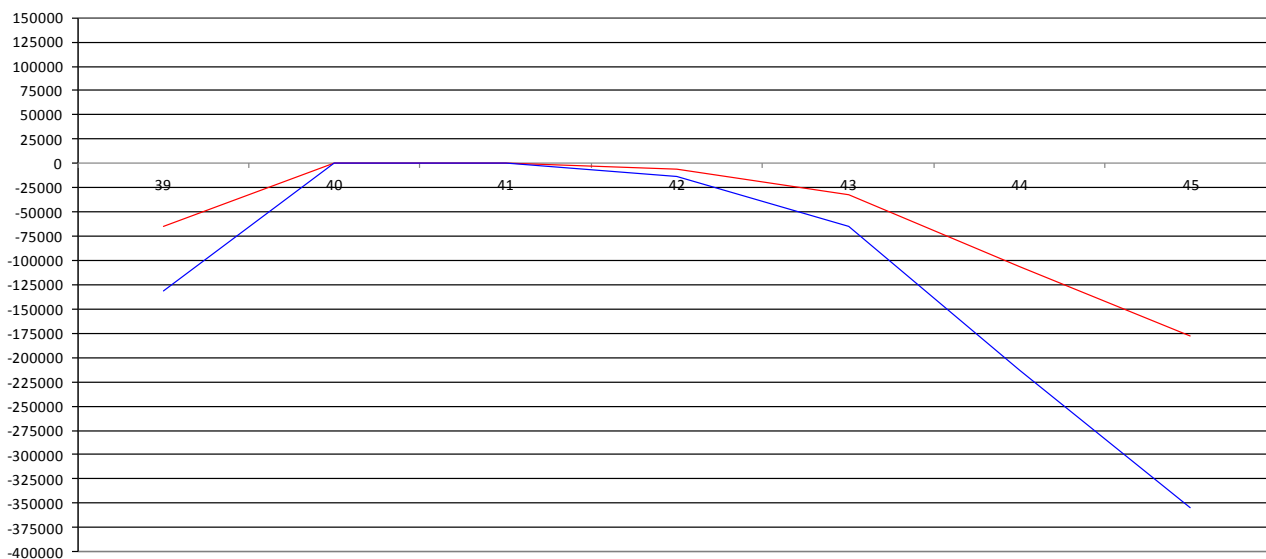


Figure 26 - Testing Charges

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

The table below lists for each unit the number of times in operations during November 2016 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_400090	DSU_401610	30			30
PT_400138	DSU_401590	30			30
PT_400090	DSU_401620	30			30
PT_400116	DSU_401400	30			30
PT_500098	DSU_501450	25			25
PT_400090	DSU_401270	30			30
PT_400106	DSU_401330	30			30
PT_400133	DSU_401530	25			25
PT_400124	DSU_401490	30			30
PT_400024	GU_400120	30			30
PT_400024	GU_400121	30			30
PT_400030	GU_400180	41			41
PT_400030	GU_400181	41			41
PT_400030	GU_400182	41			41
PT_400030	GU_400183	41			41
PT_400030	GU_400200	34			34
PT_400030	GU_400201	36			36
PT_400030	GU_400202	34			34
PT_400030	GU_400203	36			36
PT_400030	GU_400210	33			33
PT_400030	GU_400211	33			33
PT_400030	GU_400220	33			33
PT_400030	GU_400221	33			33
PT_400030	GU_400240	33			33
PT_400030	GU_400250	33			33
PT_400030	GU_400251	33			33
PT_400030	GU_400252	33			33
PT_400030	GU_400260	33			33
PT_400030	GU_400270	33			33
PT_400030	GU_400271	33			33
PT_400030	GU_400272	38			38
PT_400030	GU_400280	33			33
PT_400030	GU_400281	33			33
PT_400030	GU_400290	33			33
PT_400030	GU_400300	41			41
PT_400030	GU_400311	41			41
PT_400030	GU_400324	41			41
PT_400030	GU_400325	41			41
PT_400030	GU_400360	33			33
PT_400030	GU_400361	33			33
PT_400030	GU_400362	33			33
PT_400030	GU_400363	33			33
PT_400030	GU_400370	34			34
PT_400030	GU_400850	41			41
PT_400032	GU_400430	28			28
PT_400034	GU_400940	28			28

## Market Operator Monthly Report

PT_400034	GU_401090	28		28
PT_400034	GU_401440	28		28
PT_400034	GU_401680	28		28
PT_400035	GU_400480	55		55
PT_400037	GU_400500	30		30
PT_400041	GU_400530	59		59
PT_400044	GU_400540	55		55
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_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	28		28
PT_400078	GU_401010	31		31
PT_400078	GU_401011	31		31
PT_400172	GU_401860	31		31
PT_500024	GU_500040	32		32
PT_500024	GU_500041	30		30
PT_500027	GU_500130	88		88
PT_500027	GU_500131	88		88
PT_500027	GU_500140	88		88
PT_500034	GU_501350	30		30
PT_500040	GU_500281	41		41
PT_500040	GU_500282	41		41
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	51		51
PT_500050	GU_501040	28		28
PT_500050	GU_501050	28		28
PT_500050	GU_501150	28		28
PT_500050	GU_501190	28		28
PT_500053	GU_501130	30		30
PT_500066	GU_501210	28		28
PT_500073	GU_501230	30		30
PT_500083	I_NIMOYLE	90		90
PT_500075	I_NIMOYLE	62		62
PT_500024	I_NIMOYLE	30		30
PT_500021	I_NIMOYLE	30		30
PT_500069	I_NIMOYLE	90		90
PT_500031	I_NIMOYLE	30		30
PT_500037	I_NIMOYLE	38		38

## Market Operator Monthly Report

PT_400115	I_ROIEWIC	30			30
PT_500081	I_NIMOYLE	30			30
PT_500070	I_NIMOYLE	60			60
PT_500088	I_NIMOYLE	59			59
PT_500092	I_NIMOYLE	57			57
PT_500085	I_NIMOYLE	30			30
PT_400144	DSU_401660			30	30
PT_400090	DSU_401800			30	30
PT_400090	DSU_401850			30	30
PT_500078	DSU_501330			30	30
PT_400111	DSU_401390			30	30
PT_500067	DSU_501380			30	30
PT_400116	DSU_401870			30	30
PT_400124	DSU_401880			30	30
PT_400133	DSU_401530			6	6
PT_500098	DSU_501450			5	5
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_400032	GU_400430			2	2
PT_400034	GU_400940			2	2
PT_400034	GU_401090			2	2
PT_400034	GU_401440			2	2
PT_400034	GU_401680			2	2
PT_400037	GU_400500			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_401280			30	30
PT_400050	GU_401290			30	30
PT_400050	GU_401360			30	30
PT_400050	GU_401790			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_400066	GU_401540			30	30

## Market Operator Monthly Report

PT_400066	GU_401820			30	30
PT_400077	GU_400950			2	2
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_400162	GU_401830			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_500032	GU_501300			30	30
PT_500032	GU_501400			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
PT_500050	GU_501050			2	2
PT_500050	GU_501150			2	2
PT_500050	GU_501190			2	2
PT_500061	GU_501170			30	30
PT_500062	GU_501180			30	30
PT_500066	GU_501210			2	2
PT_500074	GU_501250			30	30
PT_500089	GU_501360			30	30
	<b>Total</b>	<b>3911</b>	<b>0</b>	<b>2079</b>	<b>5990</b>
	<b>Percentage</b>	<b>65.29%</b>	<b>0.00%</b>	<b>34.71%</b>	<b>100.00%</b>

Table 24 – Commercial Offer Data Used

### **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 Operator Monthly Report

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
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	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	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	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	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	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	£0.00	£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	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	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	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	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	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	22,440,085.62
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	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	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	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	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	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	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	£143,364.21	£26,279.71	£995.87	£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	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	£150,921.14	£27,588.16	£819.15	£0.00	£2,703.81	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	36,941,383.70
Feb-15	ROI	£65,650,453.03	£25,349,682.44	£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	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	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	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	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	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	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	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	27,452,453.35
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	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	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	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	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	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	32,247,752.73
Sep-15	ROI	£56,880,935.07	£19,007,006.26	£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	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	23,035,948.98
Oct-15	ROI	£44,227,777.74	£22,236,309.33	£1,235,987.38	£320,699.87	£111,578.50	£2,310.47	£168,670.97	£16,768.91	£473.10	£0.00	£0.00	68,320,576.27
	NI	£16,675,395.96	£6,086,547.11	£1,187,219.91	£53,340.80	£16,688.72	£277.65	£11,014.82	£3,948.74	£76.07	£0.00	£0.00	24,034,509.78
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	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	£1.87	28,236,040.30
Dec-15	ROI	£56,771,584.52	£26,115,101.51	£1,227,682.68	£528,056.78	£108,604.95	£3,426.94	£244,831.00	£43,714.70	£499.00	£0.00	£0.00	85,043,502.08
	NI	£18,807,275.81	£8,947,272.84	£1,177,606.04	£132,697.73	£37,389.03	£908.11	£23,859.97	£15,486.06	£141.18	£0.00	£0.00	29,142,636.77
Jan-16	ROI	£58,962,181.52	£24,712,649.02	£1,489,145.25	£360,735.59	£112,295.73	£2,766.96	£446,172.64	£37,483.70	£461.80	£0.00	£0.00	86,123,892.21
	NI	£22,884,292.07	£6,792,946.67	£1,439,182.95	£61,720.87	£33,725.86	£439.13	£13,953.72	£11,288.27	£91.07	£0.00	£0.00	31,237,640.61
Feb-16	ROI	£44,227,777.74	£22,236,309.33	£1,235,987.38	£320,699.87	£111,578.50	£2,310.47	£168,670.97	£16,768.91	£473.10	£0.00	£0.00	68,320,576.27
	NI	£16,675,395.96	£6,086,547.11	£1,187,219.91	£53,340.80	£16,688.72	£277.65	£11,014.82	£3,948.74	£76.07	£0.00	£0.00	24,034,509.78
Mar-16	ROI	£46,479,736.23	£21,810,284.94	£1,247,077.11	£218,253.91	£0.00	£2,241.73	£325,512.38	£0.00	£184.01	£10,658.28	£0.00	70,093,948.59
	NI	£18,169,780.86	£5,723,642.36	£307,019.09	£92,518.83	£0.00	£1,042.35	£18,464.14	£0.00	£90.30	£35.07	£0.00	24,312,593.00
Apr-16	ROI	£49,184,916.98	£15,501,521.21	£1,127,381.20	£270,121.81	£95,679.82	£3,486.64	£68,851.15	£18,608.43	£470.47	£0.00	£0.00	66,271,037.71
	NI	£17,362,464.69	£4,104,501.10	£265,764.31	£105,262.33	£39,607.51	£1,261.76	£60,590.82	£22,415.09	£387.37	£0.00	£0.00	21,962,254.98
May-16	ROI	£49,184,916.98	£15,501,521.21	£1,127,381.20	£270,121.81	£95,679.82	£3,486.64	£68,851.15	£18,608.43	£470.47	£0.00	£0.00	66,271,037.71
	NI	£17,362,464.69	£4,104,501.10	£265,764.31	£105,262.33	£39,607.51	£1,261.76	£60,590.82	£22,415.09	£387.37	£0.00	£0.00	21,962,254.98
Jun-16	ROI	£79,083,041.86	£26,426,844.27	£746,953.39	£256,783.77	£97,150.99	£3,451.80	£77,643.02	£35,169.15	£618.36	£325,964.05	£0.00	107,053,620.66
	NI	£30,128,694.39	£6,448,578.49	£206,907.51	£173,676.38	£60,271.90	£2,148.44	£42,708.63	£23,836.40	£422.17	£834.57	£0.00	37,088,078.88
Jul-16	ROI	£57,925,825.17	£17,094,463.29	£1,471,499.46	£416,561.74	£228,953.88	£5,030.22	£478,630.27	£28,077.61	£475.98	£105,568.09	£0.00	77,765,085.71
	NI	£21,											

# Market Operator Monthly Report

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
Mar-14	ROI	€75,149,006.14	€26,180,620.85	€259,644.98	€60,397.08	€2,170.67	€127,303.70	€28,200.28	€960.40	€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	€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	€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	€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	€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	€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	€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	€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	€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	€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	€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	€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	€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	€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	€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	€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	€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	€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	€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	€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	€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	€691.42	€0.00	€29,292,871.07
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	€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	€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	€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	€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	€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	€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	€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	€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	€71,652,800.73
	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	€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	€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	€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	€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	€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	€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	€18,348,050.15
Oct-15	ROI	€45,263,558.04	€22,785,032.30	€71,204.73	€469,504.52	€120,827.10	€2,298.60	€168,670.97	€17,161.82	€409.35	€0.00	€68,898,667.43
	NI	€16,138,572.90	€5,672,214.93	€22,437.26	€24,123.83	€9,213.97	€-275.84	€11,014.82	€3,591.14	€59.13	€0.00	€21,880,952.14
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	€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	€24,432,066.94
Dec-15	ROI	€59,375,497.41	€26,508,955.84	€71,188.34	€529,556.57	€108,617.22	€3,421.21	€244,831.00	€55,957.02	€455.17	€0.00	€86,898,479.78
	NI	€17,357,006.06	€8,696,074.34	€21,111.70	€132,691.76	€37,359.60	€-907.89	€23,859.97	€6,608.19	€129.44	€0.00	€26,273,933.17
Jan-16	ROI	€62,703,601.66	€25,688,393.77	€71,195.77	€374,077.81	€121,834.36	€2,764.99	€446,172.64	€41,361.35	€392.53	€0.00	€89,449,794.88
	NI	€21,387,445.48	€6,172,081.95	€21,233.47	€63,300.69	€26,884.30	€-439.62	€13,953.72	€8,383.76	€72.48	€0.00	€27,692,916.23
Feb-16	ROI	€45,263,558.04	€22,785,032.30	€71,204.73	€469,504.52	€120,827.10	€2,298.60	€168,670.97	€17,161.82	€409.35	€0.00	€68,898,667.43
	NI	€16,138,572.90	€5,672,214.93	€22,437.26	€24,123.83	€9,213.97	€-275.84	€11,014.82	€3,591.14	€59.13	€0.00	€21,880,952.14
Mar-16	ROI	€45,576,733.11	€21,729,626.52	€256,964.95	€0.00	€2,213.11	€34,217.09	€0.00	€140.55	€104,929.14	€69.37	€67,704,893.84
	NI	€17,860,759.81	€5,776,150.05	€92,747.29	€0.00	€556.70	€16,666.86	€0.00	€79.45	€2.26	€0.00	€23,746,982.78
Apr-16	ROI	€42,783,609.22	€14,666,602.66	€270,868.61	€95,779.49	€3,486.64	€70,280.71	€18,875.44	€440.06	€0.00	€0.00	€57,909,942.83
	NI	€17,390,686.96	€4,751,740.09	€105,176.58	€39,633.85	€1,261.80	€59,561.31	€22,324.84	€380.36	€0.00	€0.00	€22,370,765.79
May-16	ROI	€42,783,609.22	€14,666,602.66	€270,868.61	€95,779.49	€3,486.64	€70,280.71	€18,875.44	€440.06	€0.00	€0.00	€57,909,942.83
	NI	€17,390,686.96	€4,751,740.09	€105,176.58	€39,633.85	€1,261.80	€59,561.31	€22,324.84	€380.36	€0.00	€0.00	€22,370,765.79
Jun-16	ROI	€83,487,123.38	€26,395,539.72	€257,668.44	€80,165.18	€3,418.32	€94,355.82	€39,305.46	€618.26	€301,690.28	€72.04	€110,659,956.90
	NI	€31,306,401.54	€6,468,679.78	€173,737.66	€74,786.08	€2,148.38	€43,017.39	€20,271.13	€422.26	€832.79	€0.00	€38,090,297.01
Jul-16	ROI	€53,840,170.28	€17,104,842.75	€415,112.37	€247,294.27	€5,027.94	€81,626.06	€27,799.39	€410.18	€208,424.28	€0.00	€71,930,707.52
	NI	€20,282,958.20	€4,658,773.71	€111,871.11	€127,753.11	€1,297.25	€52,180.96	€20,969.56	€283.82	€27,450.94	€0.00	€25,228,538.66
Aug-16	ROI	€47,925,137.80	€17,191,335.52	€205,102.11	€45,376.26	€1,900.83	€46,132.09	€12,064.34	€323.00	€0.00	€0.00	€65,427,371.95
	NI	€13,904,887.07	€3,784,287.20	€26,983.41	€6,959.89	€294.55	€2,874.89	€2,261.38	€18.45	€0.00	€0.00	€17,728,566.84
Sep-16	ROI	€57,225,046.88	€17,191,335.52	€316,785.33	€82,962.59	€4,207.29	€47,913.59	€8,957.12	€354.44	€295.52	€0.00	€75,377,858.28
	NI	€15,918,157.70	€3,784,287.20	€32,790.23	€7,927.66	€416.78	€7,847.59	€1,185.01	€33.38	€0.00	€2,875.40	€



## 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
02/10/2015	38	-€1,655,942.38	€ 162,994.80
09/10/2015	39	-€1,135,216.68	€177,381.90
16/10/2015	40	€507,903.08	€106,382.04
23/10/2015	41	€681,099.48	€131,096.53
30/10/2015	42	€405,933.93	-€25,867.40
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
04/12/2015	47	€466,243.69	-€300,749.94
11/12/2015	48	€897,437.38	-€534,740.45
18/12/2015	49	€141,592.08	-€388,379.01
30/12/2015	50	€878,459.85	-€160,949.17
05/01/2016	51	€838,626.05	-€0
08/01/2016	52	€1,134,591.97	-€0
03/01/2016	1	€615,047.23	-€0
22/01/2016	2	€1,273,552.21	-€0
29/01/2016	3	€1,174,521.30	-€0
05/02/2016	4	€504,528.98	-€0
12/02/2016	5	€856,861.27	-€0
19/02/2016	6	€92,167.26	-€0
26/02/2016	7	€255,104.63	-€0
04/03/2016	8	-€265,963.47	-€0
11/03/2016	9	€256,130.58	-€0
21/03/2016	10	-€13,382.85	-€0
25/03/2016	11	€531,976.18	-€0
01/04/2016	12	-€35,023.74	-€0
08/04/2016	13	-€2,353.02	-€0
15/04/2016	14	-€1,306,455.65	-€0
22/04/2016	15	-€1,078,232.88	-€0
29/04/2016	16	-€316,904.19	-€0
06/05/2016	17	€225,399.35	-€0
13/05/2016	18	-€852,085.24	-€0
20/05/2016	19	-€1,030,542.65	-€0
27/05/2016	20	-€835,814.27	-€0
03/06/2016	21	-€1,224,851.34	-€0
10/06/2016	22	-€1,362,326.06	-€0
17/06/2016	23	-€334,215.24	-€0
24/06/2016	24	-€735,443.16	-€0
01/07/2016	25	-€875,900.06	-€0
08/07/2016	26	-€911,184.06	-€0
15/07/2016	27	-€1,059,451.72	-€0

## Market Operator Monthly Report

Date Of Invoice	Week No	SEM Balancing Costs	VAT Balancing Costs
22/07/2016	28	-€859,485.92	-€0
29/07/2016	29	-€407,934.96	-€0
05/08/2016	30	-€186,586.75	-€0
12/08/2016	31	-€117,429.10	-€0
19/08/2016	32	-€511,694.11	-€0
26/08/2016	33	-€338,852.43	-€0
02/09/2016	34	-€945,476.51	-€0
09/09/2016	35	-€544,556.24	-€0
16/09/2016	36	-€636,434.36	-€0
23/09/2016	37	-€1,029,609.73	-€0
30/09/2016	38	€15,000.54	-€0
7/10/2016	39	€224,128.80	-€0
14/10/2016	40	€4,791,387.54	-€0
21/10/2016	41	€1,447,919.59	-€0
28/10/2016	42	€968,340.03	-€0
04/11/2016	43	€949,596.13	-€0
11/11/2016	44	€965,954.97	-€0
18/11/2016	45	€3,223,731.55	-€0
25/11/2016	46	€1,696,852.72	-€0

**Table 26 – 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
October 2015	-€340.35	-€ 7,800.91
November 2015	-€386.53	€20,938.81
December 2015	-€421.62	€0
January 2016	-€365.96	€0
February 2016	-€324.58	€0
March 2016	-€349.99	€0
April 2016	-€246.89	€0
May 2016	-€232.99	€0
June 2016	-€251.6	€0
July 2016	-€202.38	€0
August 2016	-€250.61	€0
September 2016	-€263.46	€0
October 2016	-€373.17	€0
November 2016	-€395.27	€0

**Table 27 - Balancing Costs for Capacity Settlement**

## Market Operator Monthly Report

---

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.

**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>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>	-	-
<u>December 2015</u>	-	<u>08/12/2015</u> <u>17/12/2015</u> <u>21/12/2015</u>	<u>08/12/2015</u> <u>10/12/2015</u> <u>11/12/2015</u> <u>14/12/2015</u>	<u>14/12/2015</u> <u>17/12/2015</u>	-
<u>January 2016</u>	-	<u>05/02/2016</u> <u>13/01/2016</u>	<u>07/01/2016</u> <u>08/01/2016</u>	<u>08/02/2016</u> <u>26/01/2016</u>	-
<u>February 2016</u>	-	-	-	-	<u>10/02/2016</u>
<u>March 2016</u>	-	<u>28/03/2016</u>	<u>10/03/2016</u>	<u>10/03/2016</u>	-
<u>April 2016</u>	-	-	-	-	-
<u>May 2016</u>	-	-	-	-	-

## Market Operator Monthly Report

Month	Ex-Ante	Ex-Ante 2	Ex-Post Indicative	Ex-Post Initial	Within Day
<u>June 2016</u>	-	-	-	<u>15/06/2016</u>	-
<u>July 2016</u>	-	-	-	-	-
<u>Aug 2016</u>	-	-	-	<u>16/08/2016</u>	-
<u>Sept 2016</u>	-	<u>10/09/2016</u> <u>11/09/2016</u> <u>14/09/2016</u>	-	<u>04/09/2016</u> <u>11/09/2016</u>	<u>11/09/2016</u> <u>24/09/2016</u>
<u>Oct 2016</u>	-	<u>03/10/2016</u> <u>26/10/2016</u>	<u>02/10/2016</u> <u>12/10/2016</u> <u>24/10/2016</u> <u>28/10/2016</u>	<u>04/10/2016</u> <u>07/10/2016</u> <u>08/10/2016</u> <u>24/10/2016</u> <u>25/10/2016</u>	<u>01/10/2016</u> <u>25/10/2016</u> <u>26/10/2016</u> <u>28/10/2016</u>
<u>Nov 2016</u>	-	<u>25/11/2016</u>	-	<u>01/11/2016</u> <u>17/11/2016</u>	<u>10/11/2016</u> <u>23/11/2016</u> <u>29/11/2016</u> <u>30/11/2016</u>

Table 28 - MIP Algorithms

Operational Date	Trade Date	Run Type	LR Peak SMP	MIP Peak SMP	Published
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
07/12/2015	08/12/2015	EA2	€1,000	€279.06	MIP
09/12/2015	08/12/2015	EP1	€1,000	€238.81	MIP
11/12/2015	10/12/2015	EP1	€1,000	€279.06	MIP
12/12/2015	11/12/2015	EP1	€1,000	€255.40	MIP
15/12/2015	14/12/2015	EP1	€1,000	€279.06	MIP
16/12/2015	17/12/2015	EA2	€1,000	€203.01	MIP
18/12/2015	14/12/2015	EP2	€1,000	€435.61	MIP
20/12/2015	21/12/2015	EA2	€1,000	€151.53	MIP
21/12/2015	17/12/2015	EP2	€513.81	€412.60	MIP
04/01/2016	05/01/2016	EA2	€1,000	€1,000	MIP
08/01/2016	07/01/2016	EP1	€1,000	€207.75	MIP
09/01/2016	08/01/2016	EP1	€1,000	€279.06	MIP
12/01/2016	13/01/2016	EA2	€1,000	€170.51	MIP

## Market Operator Monthly Report

12/01/2016	08/01/2016	EP2	€1,000	€279.06	MIP
30/01/2016	26/01/2016	EP2	€1,000	€207.85	MIP
10/02/2016	10/02/2016	WD1	€1,000	€176.75	MIP
11/03/2016	10/03/2016	EP1	€1000	€179.85	MIP
14/03/2016	10/03/2016	EP2	€1000	€179.38	MIP
27/03/2016	28/03/2016	EA2	€1000	€114.04	MIP
19/06/2016	15/06/2016	EP2	€1000	€279.06	MIP
20/08/2016	16/08/2016	EP2	€1000	€97.16	MIP
08/09/2016	04/09/2016	EP2	-€100	€37.82	MIP
09/09/2016	10/09/2016	EA2	€548.34	€1000.00	MIP
10/09/2016	11/09/2016	EA2	-€100	€28.68	MIP
11/09/2016	11/09/2016	WD1	-€100	€67.67	MIP
13/09/2016	14/09/2016	EA2	€1000	€46.98	MIP
15/09/2016	11/09/2016	EP2	-€100	€189.67	MIP
24/09/2016	24/09/2016	WD1	-€100	€79.61	MIP
02/10/2016	03/10/2016	EA2	-€100	€213.50	MIP
25/10/2016	26/10/2016	EA2	€1000	€176.89	MIP
03/10/2016	02/10/2016	EP1	-€100	€67.66	MIP
13/10/2016	12/10/2016	EP1	€536.13	€536.13	MIP
25/10/2016	24/10/2016	EP1	€778.40	€542.17	MIP
29/10/2016	28/10/2016	EP1	€514.56	€226.86	MIP
08/10/2016	4/10/2016	EP2	€670.56	€530.47	MIP
11/10/2016	7/10/2016	EP2	€779.29	€279.06	MIP
12/10/2016	8/10/2016	EP2	€761.10	€271.73	MIP
28/10/2016	24/10/2016	EP2	€778.25	€542.17	MIP
29/10/2016	25/10/2016	EP2	€780.46	€436.68	MIP
01/10/2016	1/10/2016	WD1	€629.67	€174.47	MIP
25/10/2016	25/10/2016	WD1	€780.67	€184.41	MIP
26/10/2016	26/10/2016	WD1	€520.07	€520.07	MIP
28/10/2016	28/10/2016	WD1	€523.46	€185.11	MIP
05/11/2016	01/11/2016	EP2	€512.48	€218.59	MIP
10/11/2016	10/11/2016	WD1	€536.74	€190.70	MIP
21/11/2016	17/11/2016	EP2	€531.95	€227.60	MIP
23/11/2016	23/11/2016	WD1	€536.74	€228.93	MIP
24/11/2016	23/11/2016	EA2	€1000	€373.29	MIP
29/11/2016	29/11/2016	WD1	€541.87	€541.87	MIP
30/11/2016	29/11/2016	EA2	€552.76	€181.28	MIP
30/11/2016	29/11/2016	EP1	€541.87	€270.18	MIP

Table 29 - MIP Vs LR Peak Price Comparison