



# **Market Operator Monthly Report**

## **July 2016**

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### 1. Executive Summary

This Single Electricity Market Operator's (SEMO) report covers the month of operation of Jul 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 July 2016, Settlements had no late publications as per the Trading and Settlement code.

164 general queries were received in July 2016. During the same period 164 general queries were resolved.

There were 14 defaults by Participants during July 2016. The largest of these was an Energy Initial invoice for €689,681.65 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	14	-
	Credit Risk Management	-	-
SEMO	Pricing & Scheduling	-	-
	Settlement	-	-
	Funds Transfer	-	-
	Credit Risk Management	-	1
	Other	-	-
<b>Total</b>		<b>14</b>	<b>1</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***

One party joined the Market in July 2016

- PY\_000153 Sliabh Bawn Supply DAC
- PY\_000156 Green Grid Limited
- PY\_000157 Gurteen Energy Supply Limited
- PY\_000158 Meenacloghspar Supply Limited

There were no terminating parties in July 2016.

No new units went effective in the Market in July 2016.

No units de-registered from the Market in July 2016.

### ***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

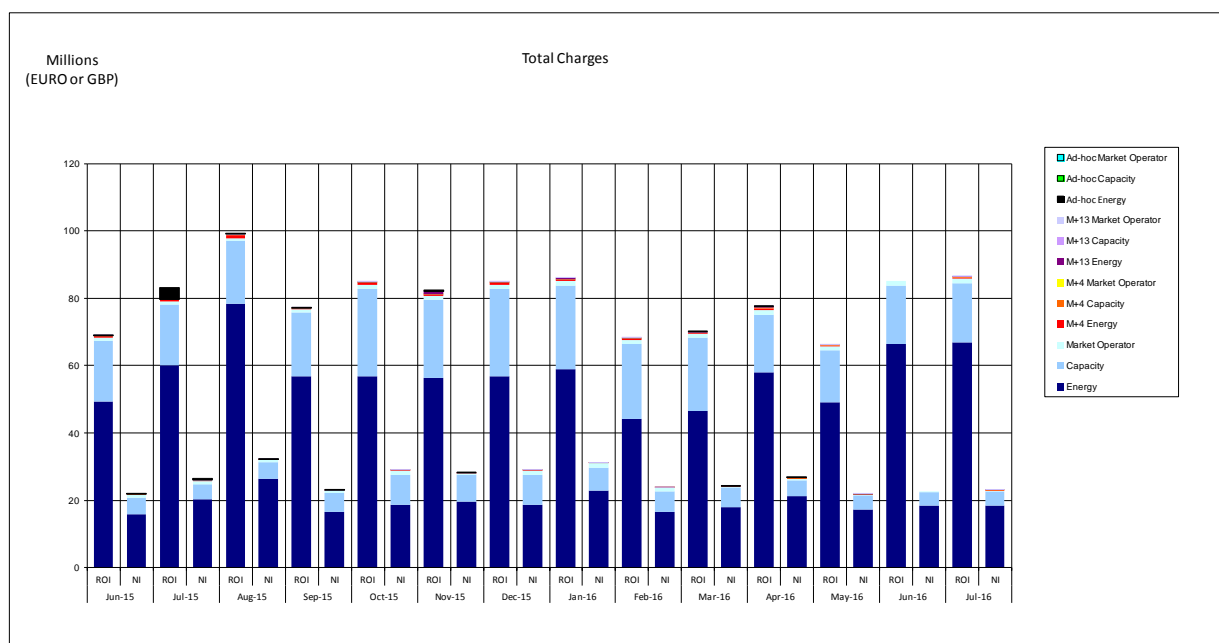


Figure 1 - Total Charges for Each Currency

Market	July 2016	
	ROI	NI
Energy	€66,819,094.97	£18,641,474
Capacity	€17,673,967	£4,051,401
Market Operator	€1,354,173	£324,404
M+4 Energy	€328,924	£58,948
M+4 Capacity	€191,079	£45,179
M+4 Market Operator	€4,447	£794
M+13 Energy	€74,936	£97,185
M+13 Capacity	€34,798	£61,958
M+13 Market Operator	€544	£641
Ad-hoc Energy	€0	£0
Ad-hoc Capacity	€0	£0
Ad-hoc Market Operator	€0	£0
<b>Total</b>	<b>€86,481,963</b>	<b>£23,281,982</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

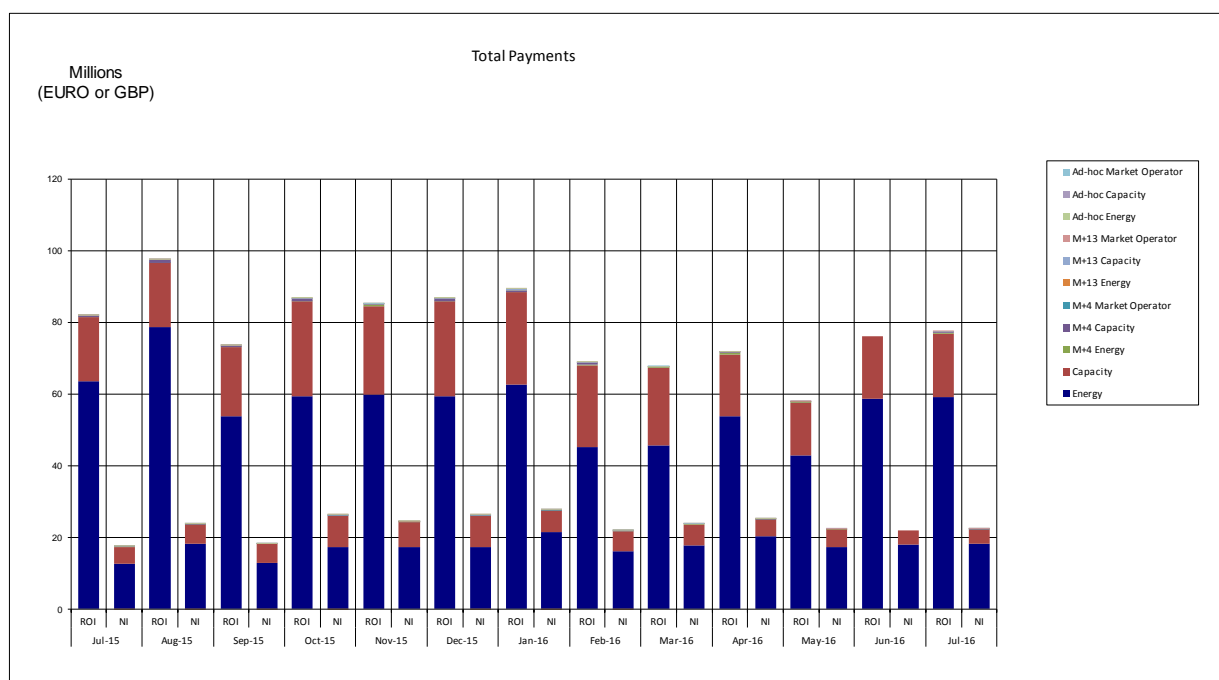


Figure 2 - Total Payments for Each Currency

Market	July 2016	
	ROI	NI
Energy	€59,086,838	£18,161,542
Capacity	€17,690,587	£4,072,634
M+4 Energy	€329,429	£58,787
M+4 Capacity	€192,736	£44,758
M+4 Market Operator	€4,365	£793
M+13 Energy	€75,450	£96,559
M+13 Capacity	€36,676	£61,134
M+13 Market Operator	€527	£636
Ad-hoc Energy	€0	£0
Ad-hoc Capacity	€0	£0
Ad-hoc Market Operator	€0	£0
<b>Total</b>	<b>€77,416,608</b>	<b>£22,496,844</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:

July 2016	
Imbalance (Energy Only)	€733,084.97

Table 4 - Balancing Costs for Energy Settlement

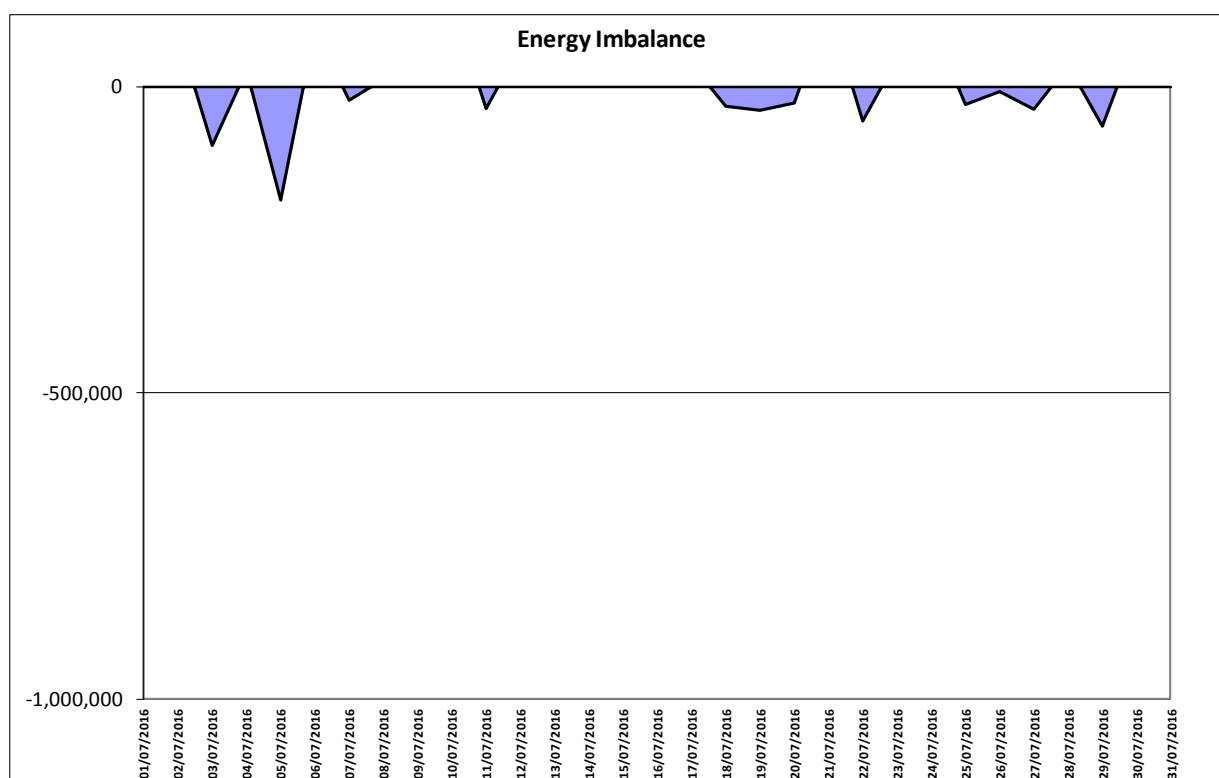


Figure 3 – Energy Imbalances

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
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
22/07/2016	28	-€859,485.92	-€0
29/07/2016	29	-€407,934.96	-€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:

July 2016	
Capacity Charges	-€33,092,861.10
Capacity Payments	€33,092,658.72
Balancing Costs	-€202.38
VAT	€0

**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.

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### **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
25/06/2016	01/07/2016	25	-£15,339.98	-£4,225.00	-£19,564.98
02/07/2016	08/07/2016	26	-£57,345.58	£ -	-£57,345.58
09/07/2016	15/07/2016	27	£55,596.89	-£430.00	£55,166.89
16/07/2016	22/07/2016	28	-£44,537.34	-£8,150.00	-£52,687.34
23/07/2016	29/07/2016	29	£25,837.41	£1,200.00	£27,037.41

**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 £55,166.89 and a cost of -£57,345.58. 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 (£).

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Date Of Invoice	Capacity Month	Currency Costs For Capacity Settlement
10/08/2016	July 2016	£43,048.20

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

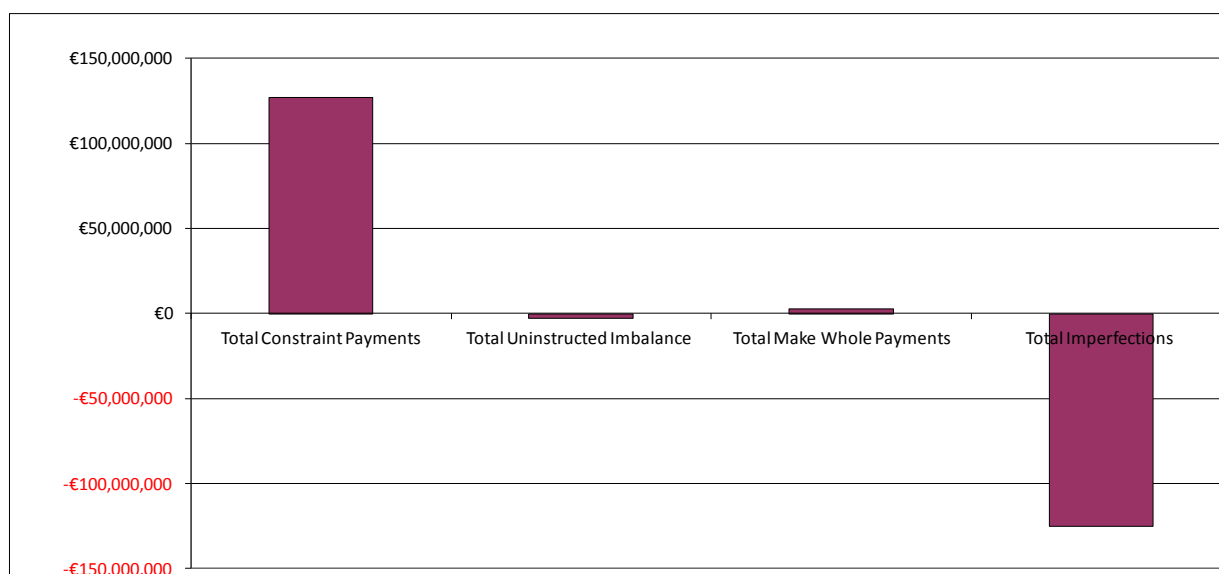
This table makes use of the values taken from the Initial Settlement Run of Trading payments and charges.

Total Constraint Payments	Total Uninstructed Imbalance	Total Make Whole Payments	Total Imperfections
€127,335,641.69	-€2,634,488.73	€2,954,750.54	-€124,947,568.35

**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](#).

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## Financial Changes between Initial Settlement and Subsequent Reruns

The following graphs provide a breakdown of resettlement amounts for the M+4 resettlement period of March 2016 and M+13 resettlement period of June 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

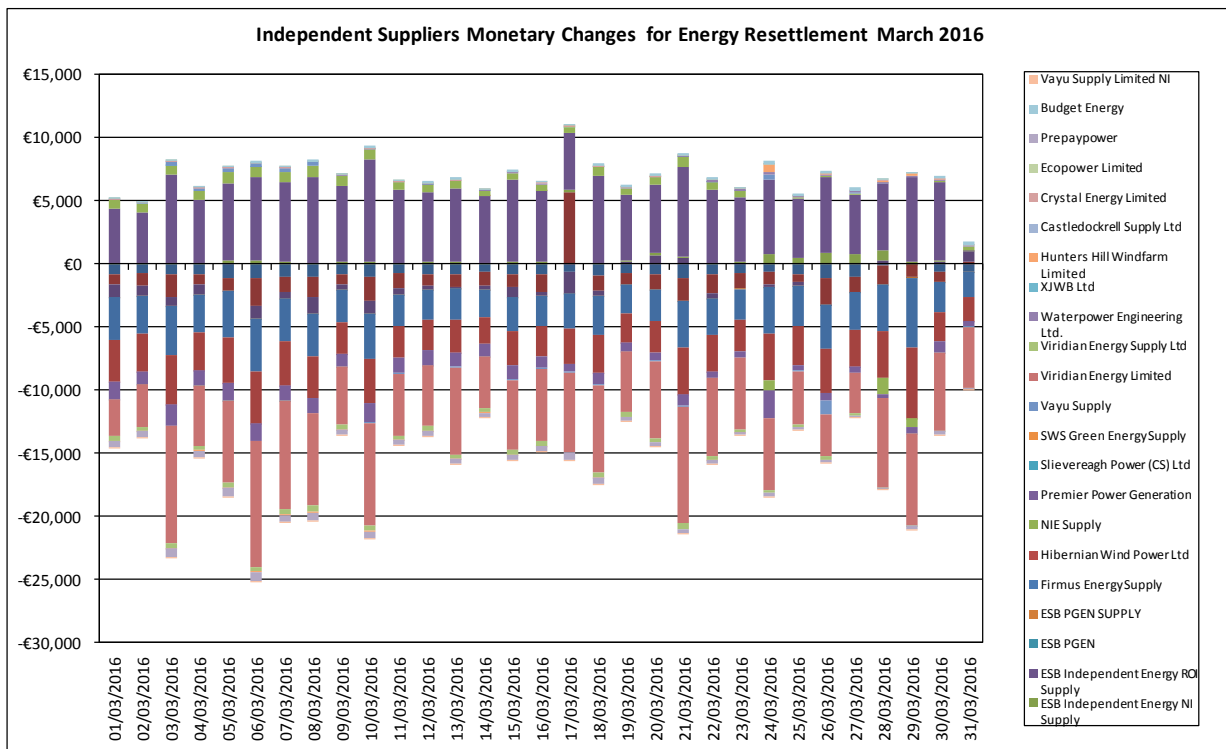
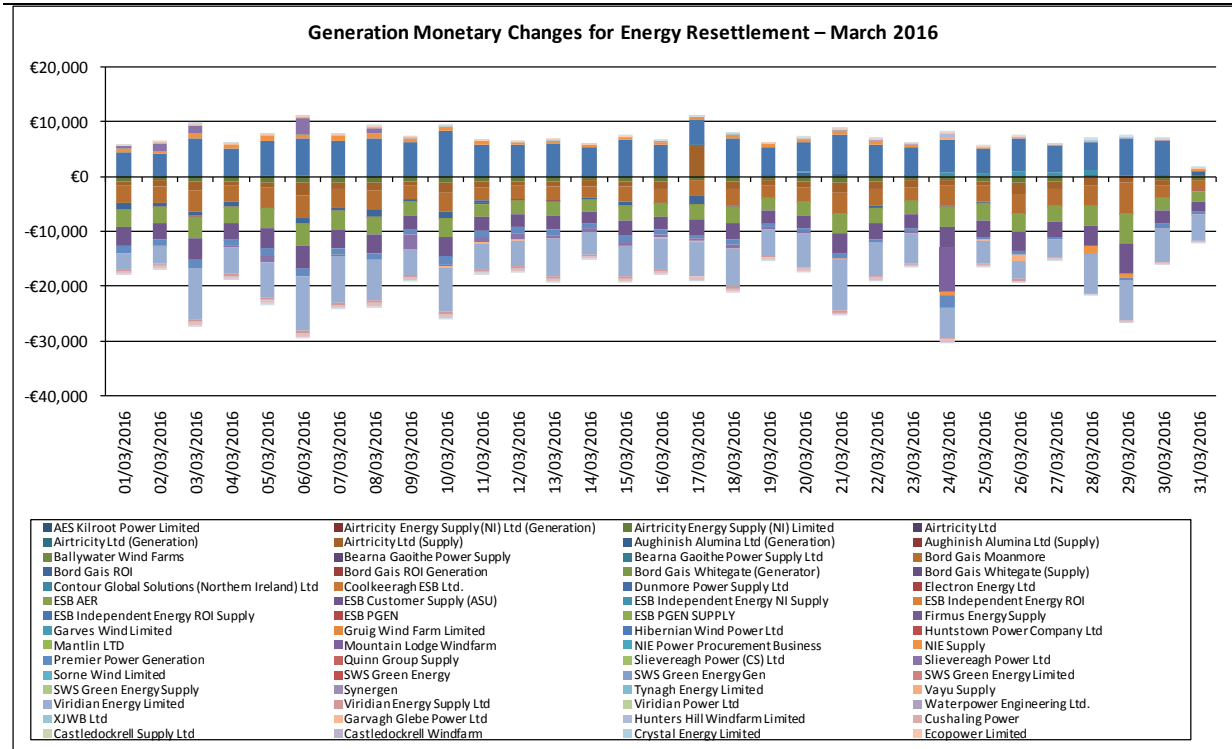


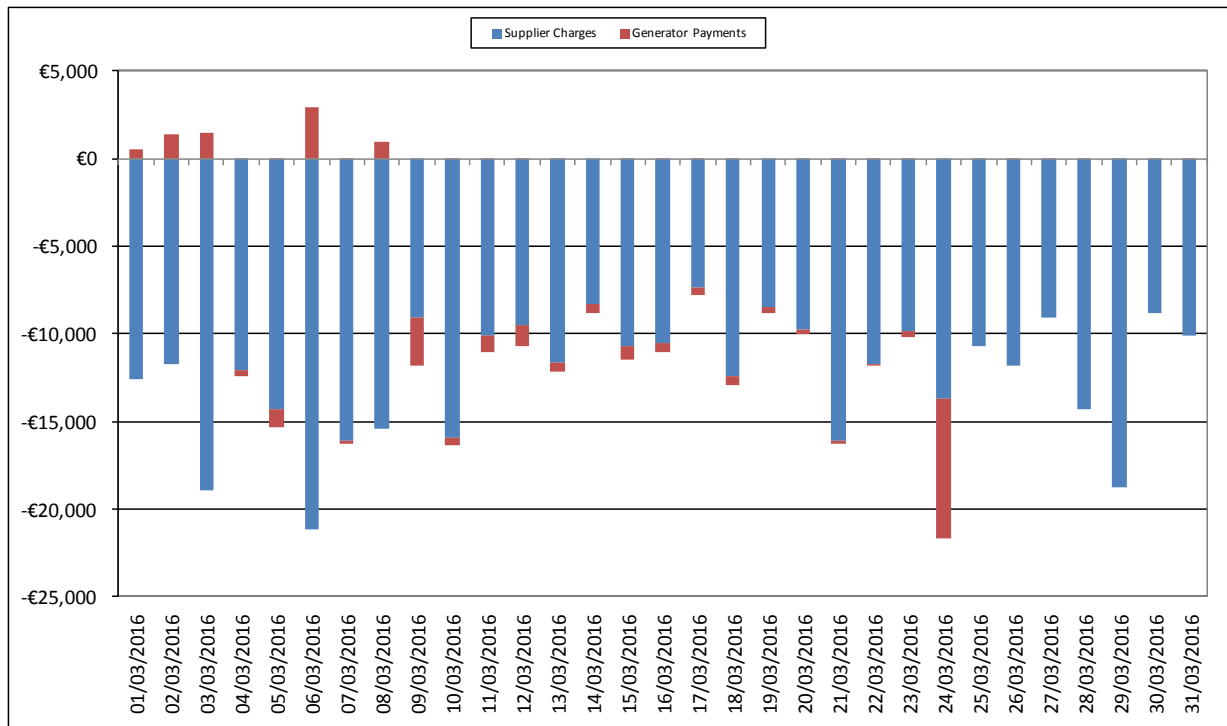
Figure 5 – Independent Suppliers Monetary Changes for Energy Resettlement – Mar 2016

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 – March 2016**



**Figure 7 – Total Monetary Changes for Energy Resettlement – March 2016**

M+13 Resettlement

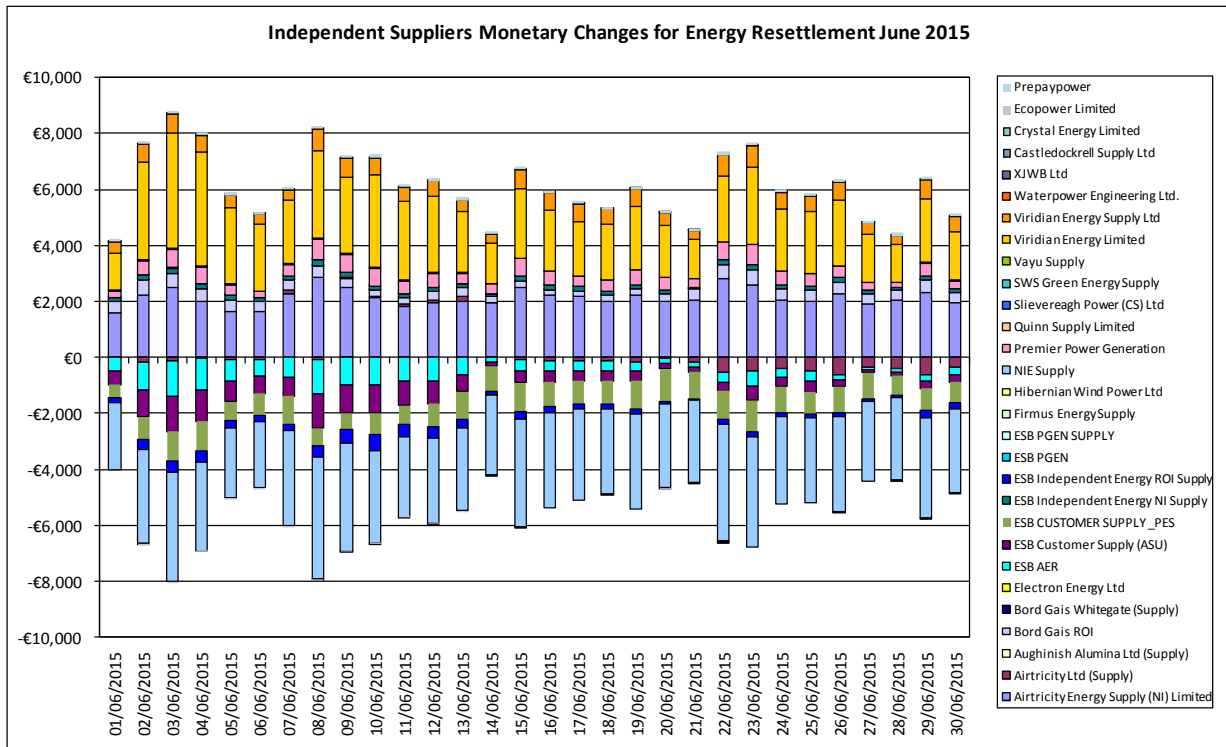


Figure 8 - Independent Suppliers Monetary Changes for Energy Resettlement – June 2015

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

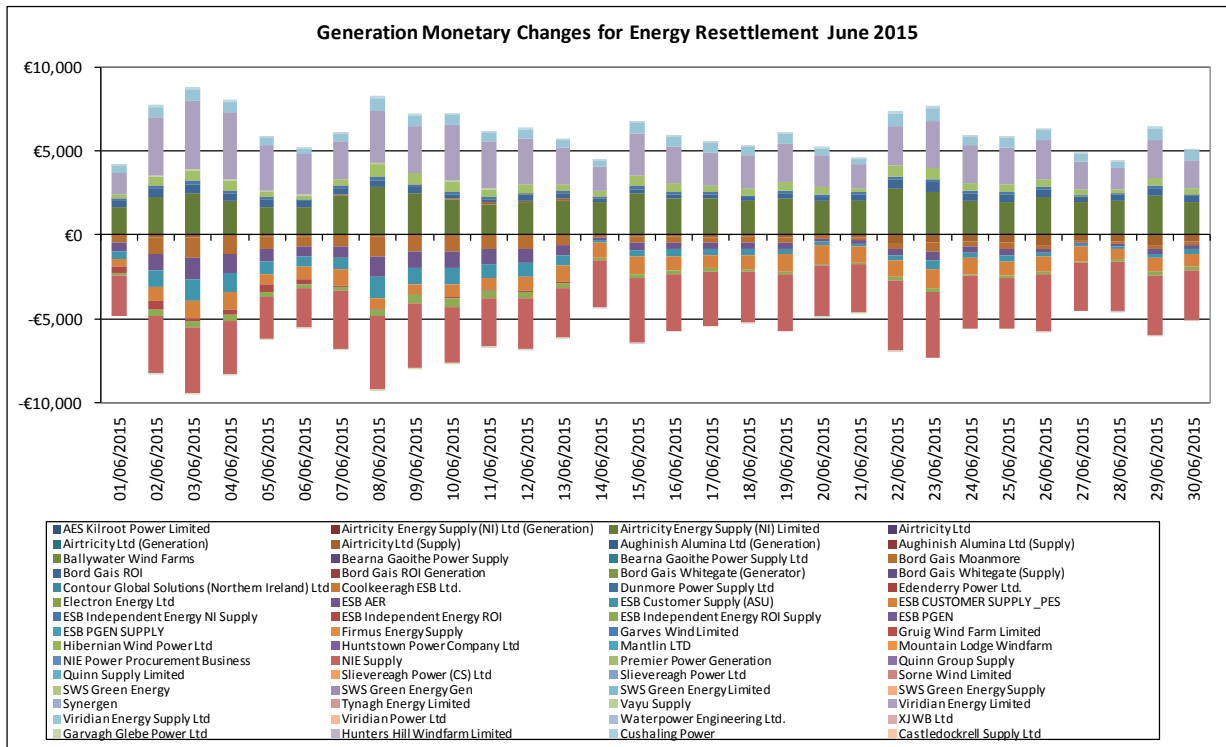


Figure 9 - Generation Monetary Changes for Energy Resettlement – June 2015

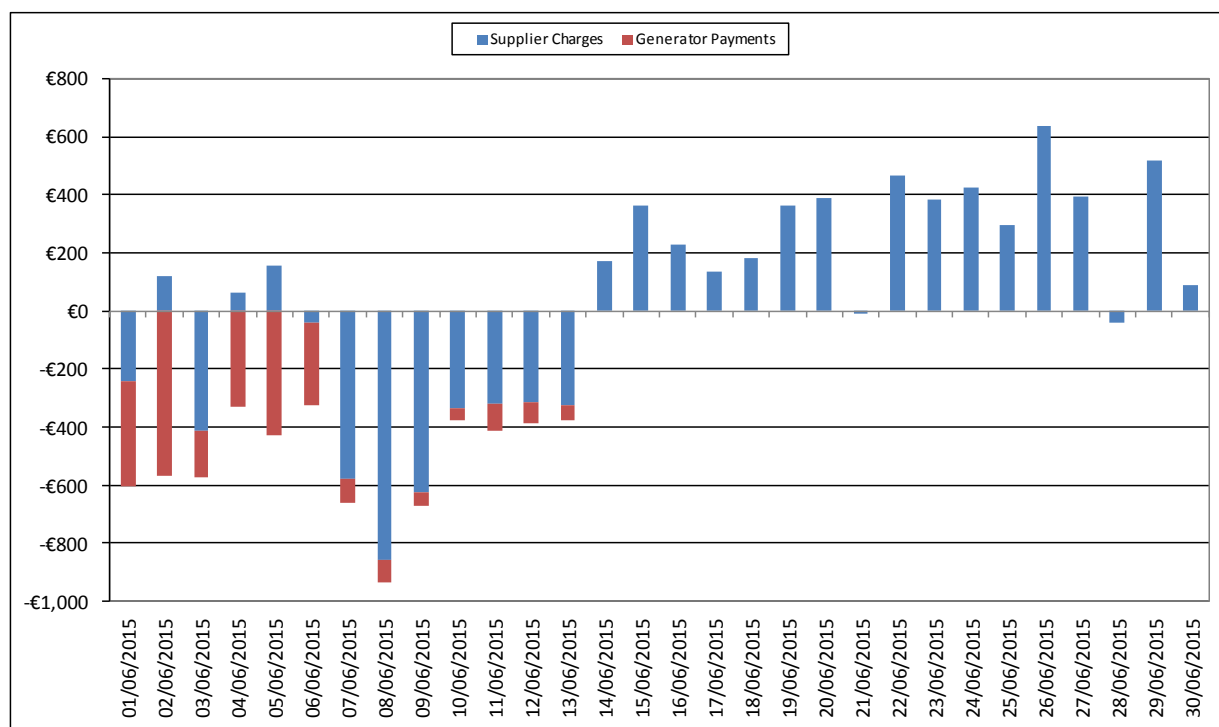


Figure 10 - Total Monetary Changes for Energy Resettlement – June 2015

### 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.



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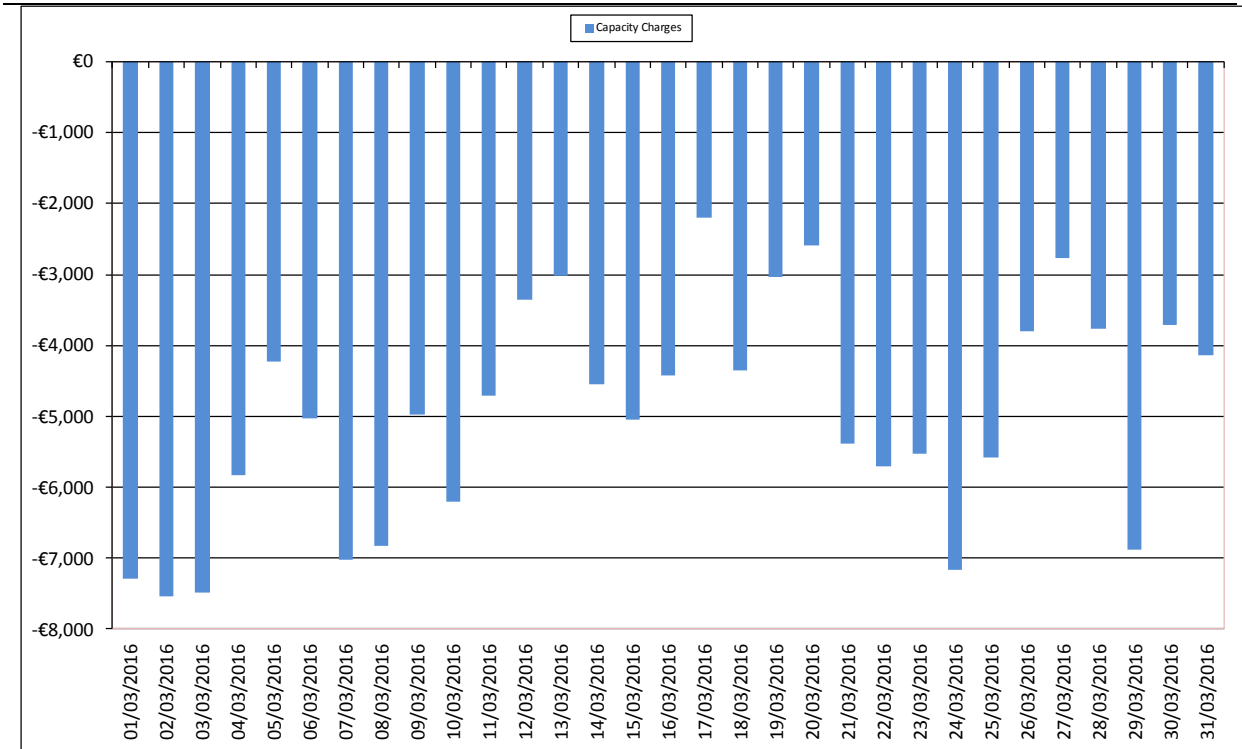


Figure 11 - Independent Suppliers Monetary Changes for Capacity Resettlement – March 2016

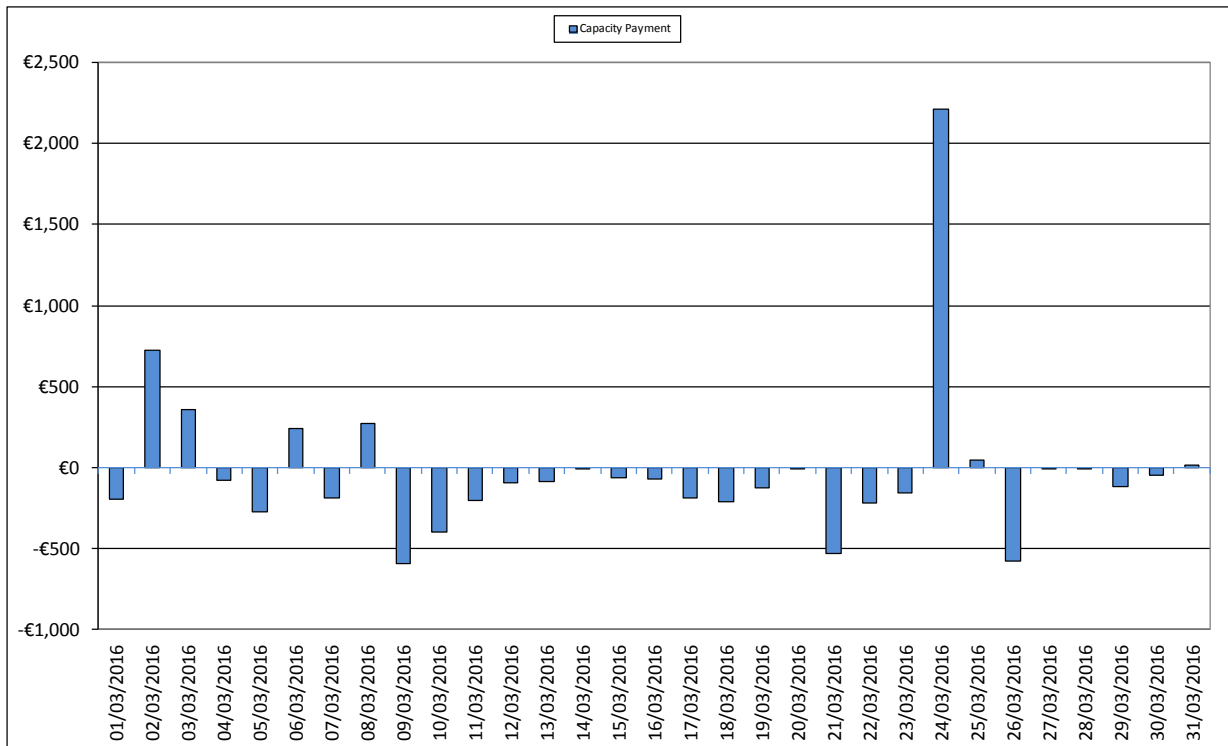
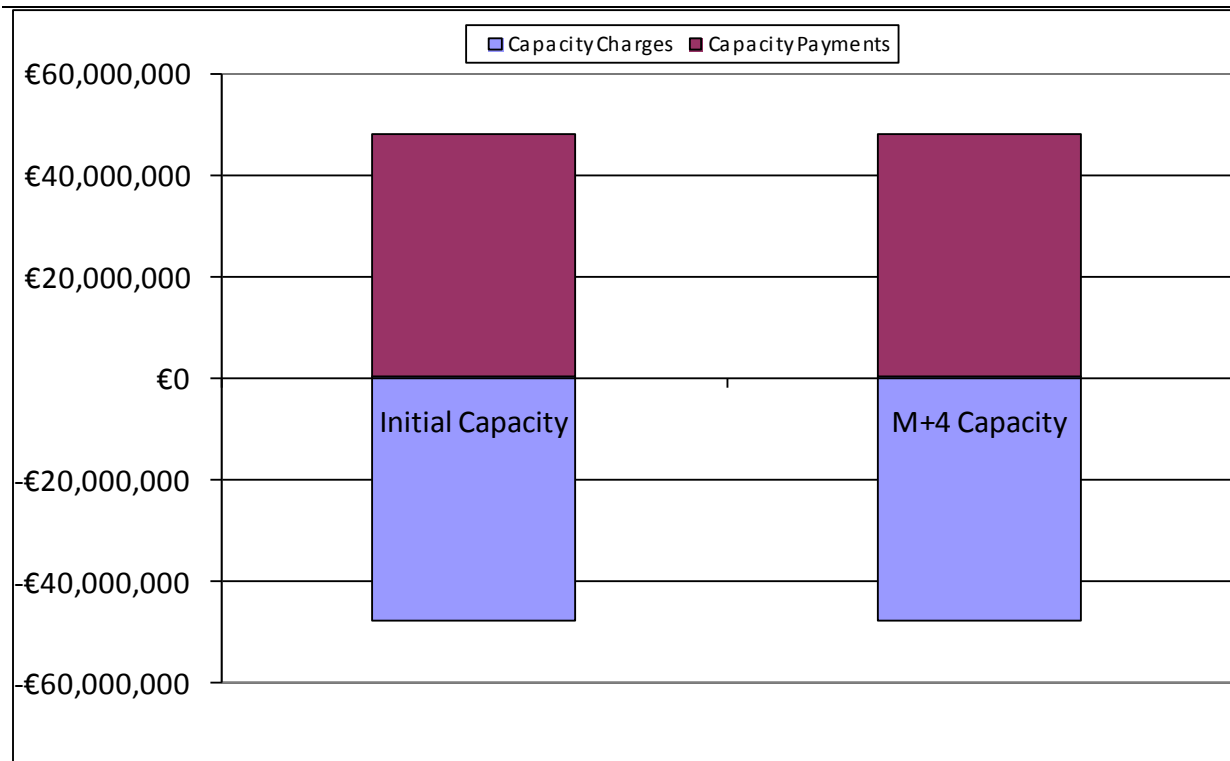


Figure 12 - All Generation Monetary Change for Capacity Resettlement – March 2016

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 March 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

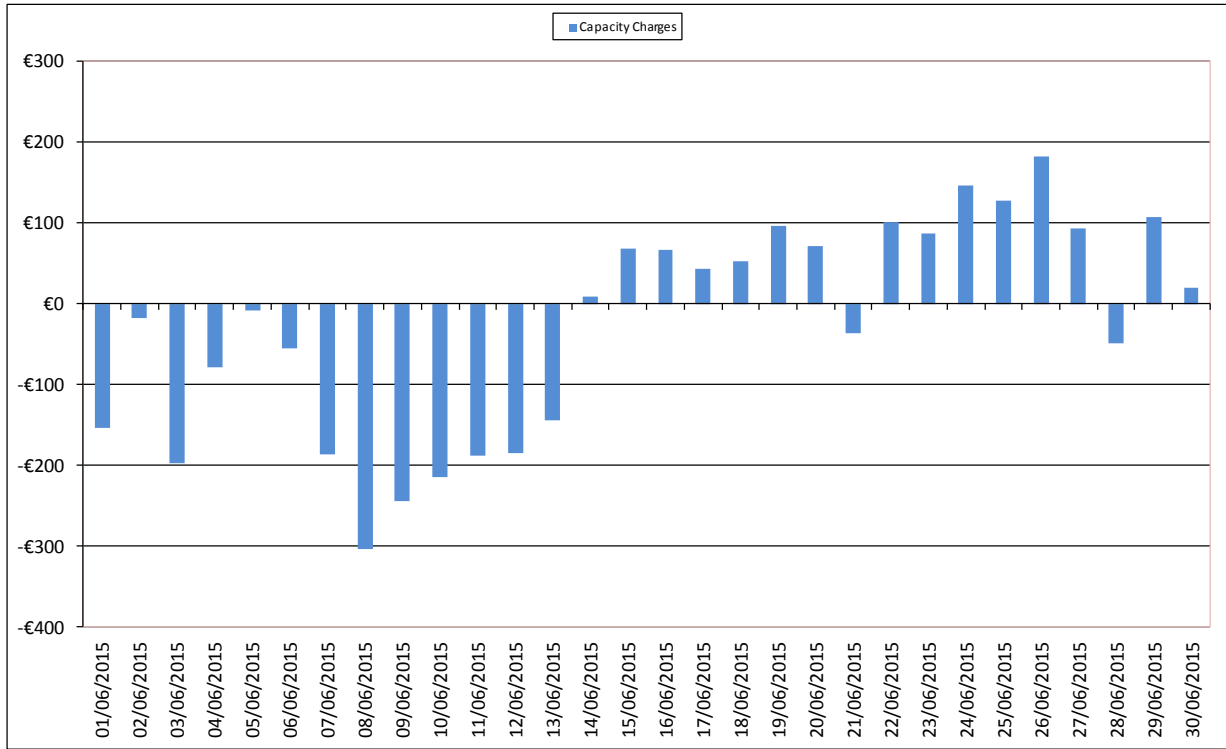


Figure 14 - Independent Suppliers Monetary Changes for Capacity Resettlement – June 2015

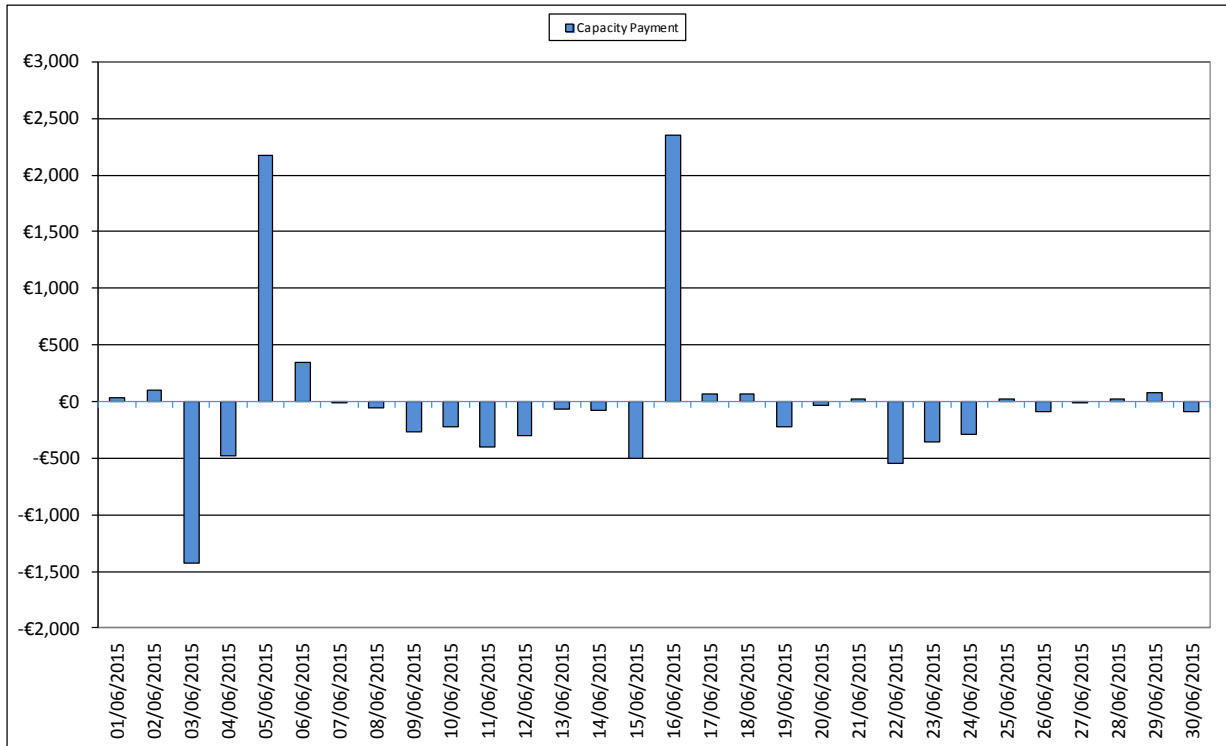
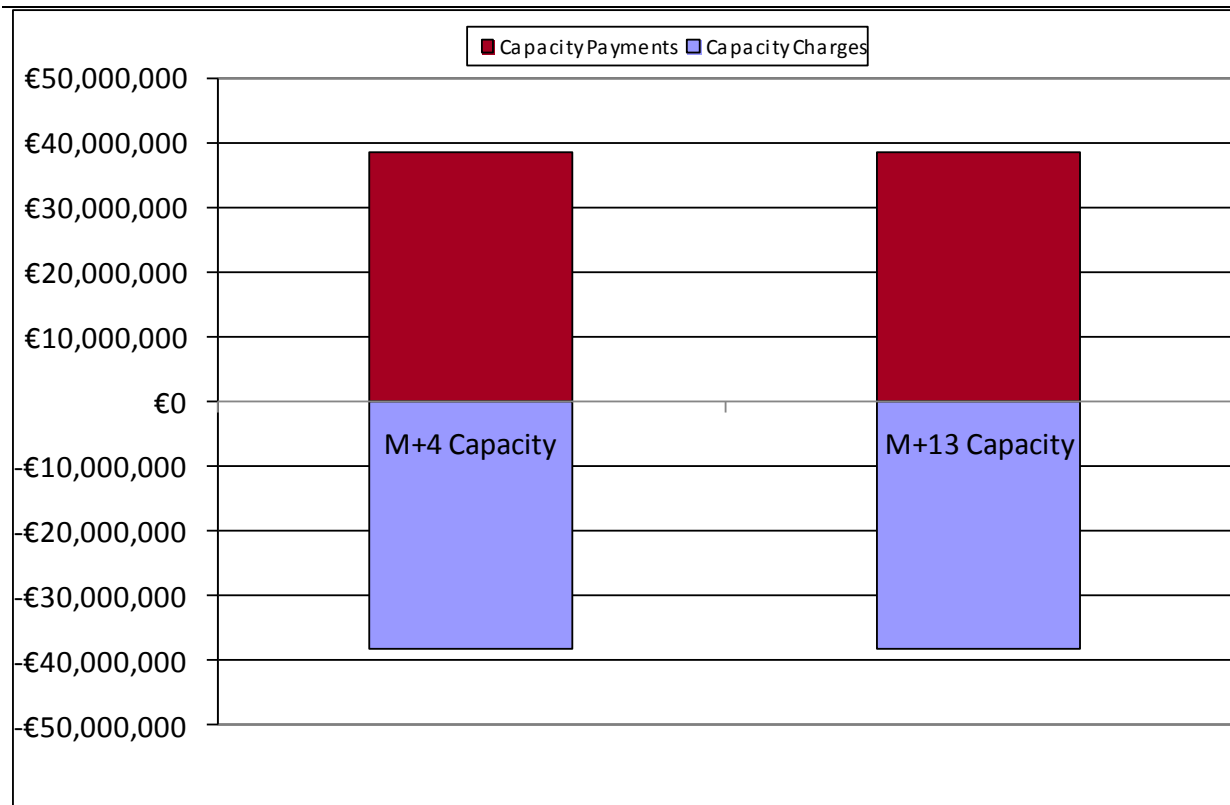


Figure 15 – All Generation Monetary Change for Capacity Resettlement – June 2015

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**Figure 16 - Comparison of Distribution of Monetary Amounts between M+4 Capacity Resettlement and M+13 Capacity Resettlement – June 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.

### 4. Helpdesk Call Statistics

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

#### Market Helpdesk Report: 01/07/16 to 31/07/16

	Received	Resolved within the period	Not Resolved	Resolved in the period	Resolution Time (Working Days)	Resolved On Time
Normal	162	147	15	164	0.89	161
Important	2	2	0	2	0.03	2
Urgent	0	0	0	0	0.00	0
Settlement	3	3	0	3	0.85	3
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>167</b>	<b>152</b>	<b>15</b>	<b>169</b>	<b>0.35</b>	<b>166</b>

**Table 10 – Helpdesk Statistics**

#### Definitions:

- Resolved within the Period refers to queries raised and resolved within the calendar month of July 2016.
- Resolved in the Period refers to queries resolved within July 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 July 2016.
- Not Resolved refers to queries raised but not resolved within July 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 decreased by 0.26 working days from 1.14 in June 2016 to 0.88 working days in July 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 July 2016 with regard to formal Settlement Queries.

### 5. Disputes and Queries

#### 5.1.1 Disputes

No Disputes were raised during the month of July 2016.

#### 5.1.2 Data Queries

There were no formal data queries raised during the month of July 2016.

#### 5.1.3 Settlement Queries

There were three formal Settlement Queries raised in July 2016. All Three queries were upheld and have since been resolved.

Topic	Number Of Queries
Dispatch Instructions	2
Indicative Reporting	1

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

- Two queries relating to incorrect Dispatch Instructions at M+4 settlement were raised. Both of these queries were deemed to be of low materiality and will be corrected as part of an M+13 Resettlement.
- One query relating to Indicative Reporting was raised. There was no financial impact and reports were corrected for Initial settlement.

#### Unresolved Queries

There are no unresolved data queries or settlement queries as of the 11<sup>th</sup> August 2016.

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, 67.14% of data used was submitted by Participants through the normal Bid-Offer process. 32.86% 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 July 2016.

There were no Re-Settlement runs carried out in July 2016.

##### **6.3.2 System Errors**

There were no Market Application defects found in July 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 July 2016.

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### 6.4.1 MSP Postings July 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 12 - 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 13 - Operational Timings (% on time)



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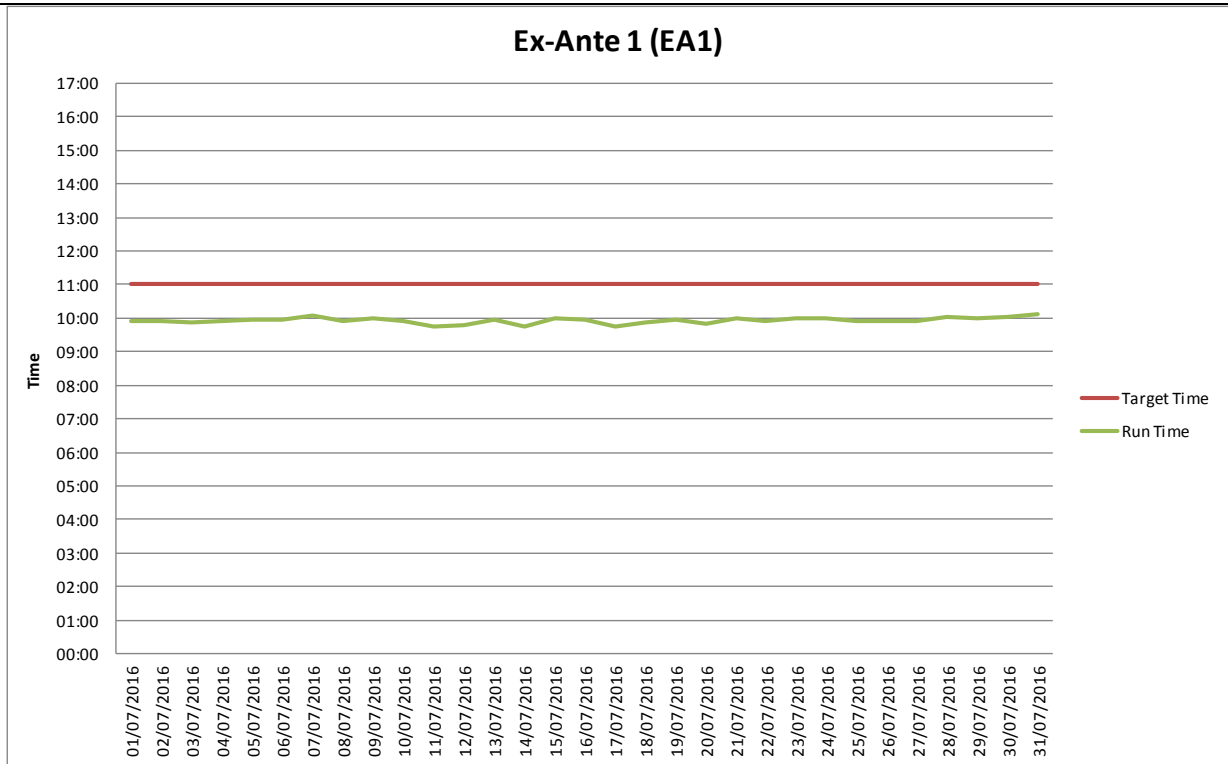


Figure 17 – Ex-Ante 1

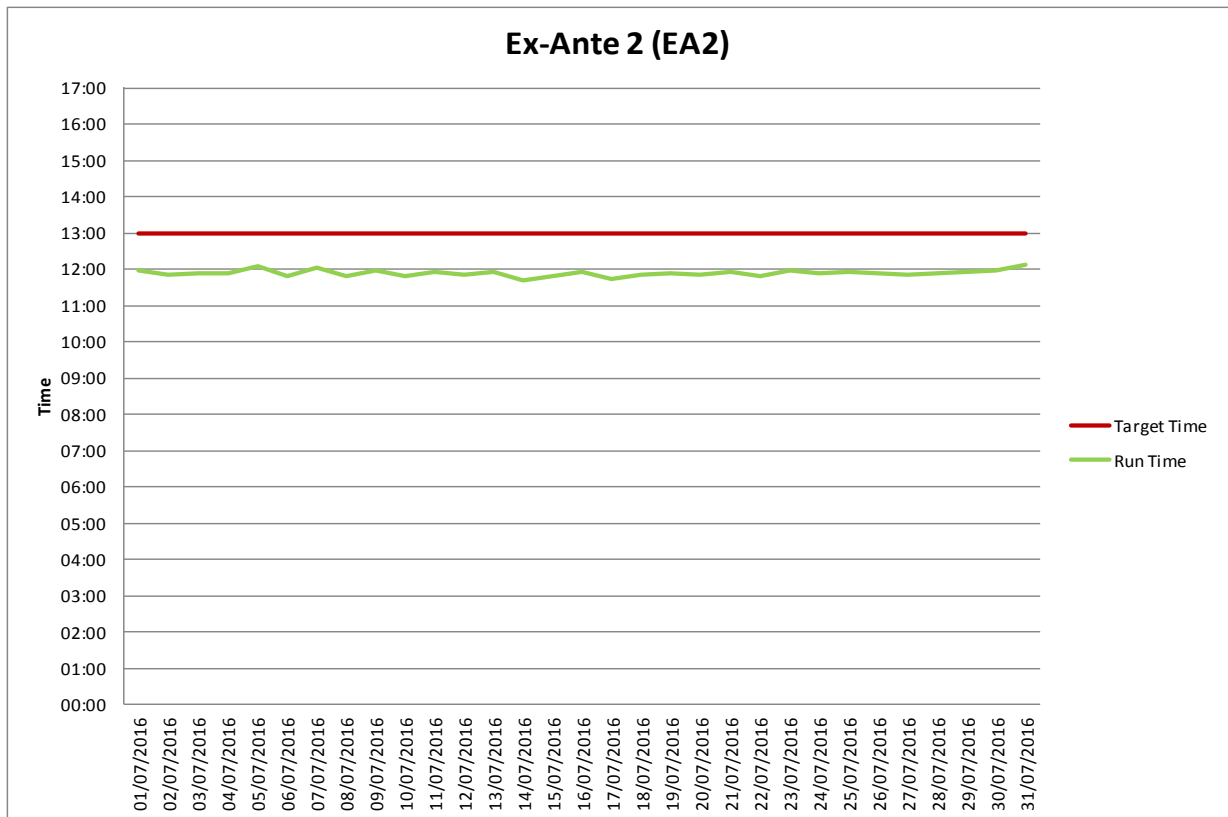


Figure 18 – Ex-Ante 2

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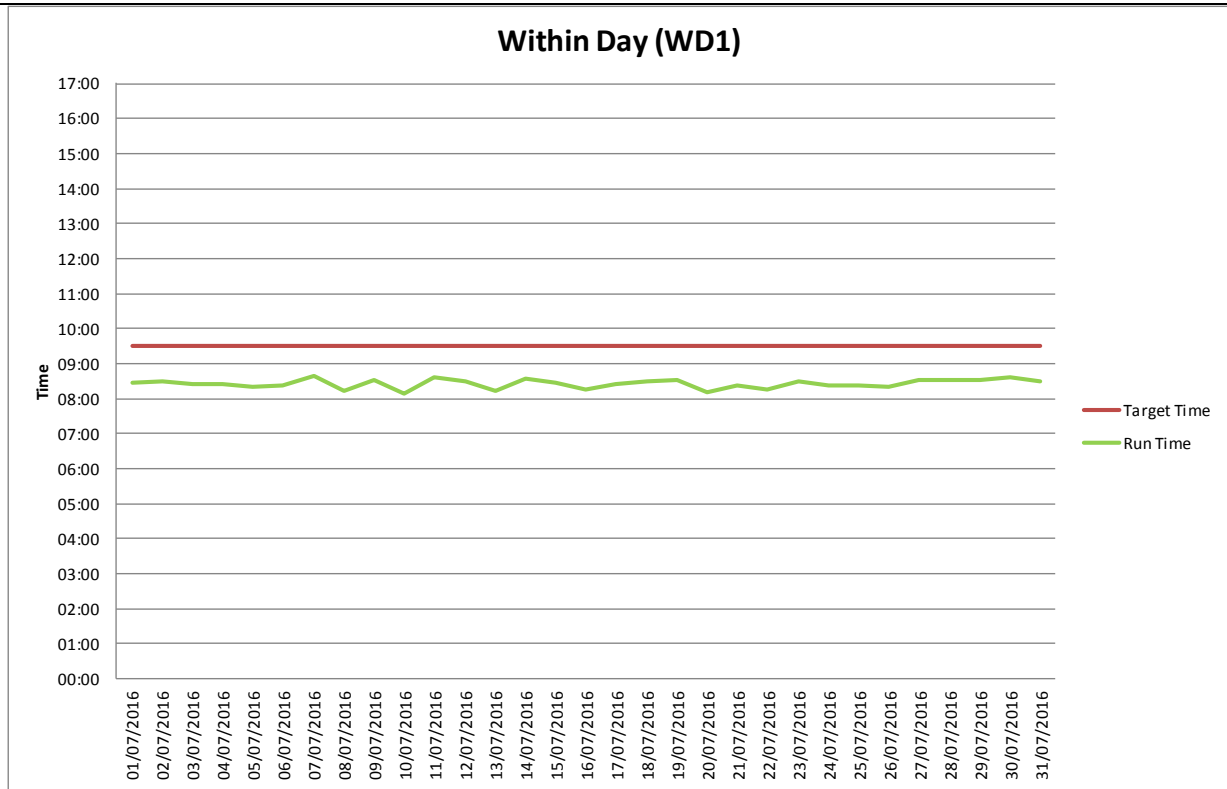


Figure 19 – Within Day 1

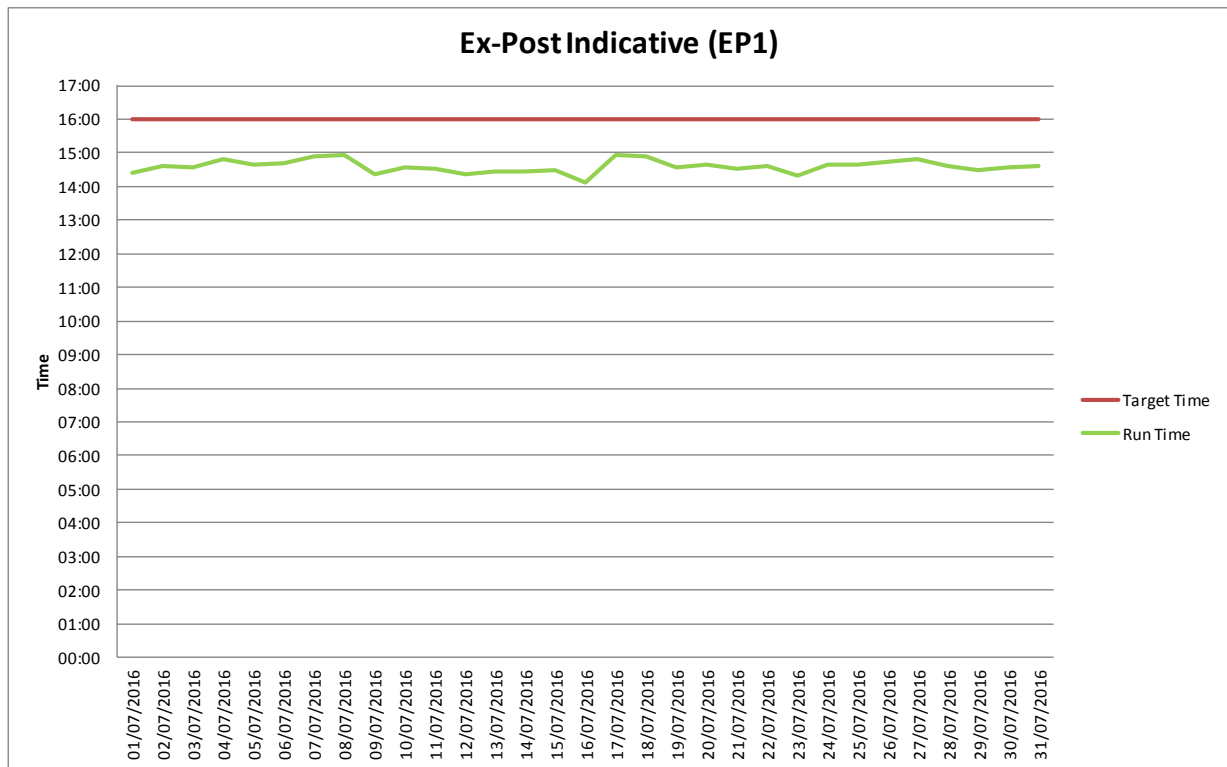


Figure 20 - Ex-Post Indicative

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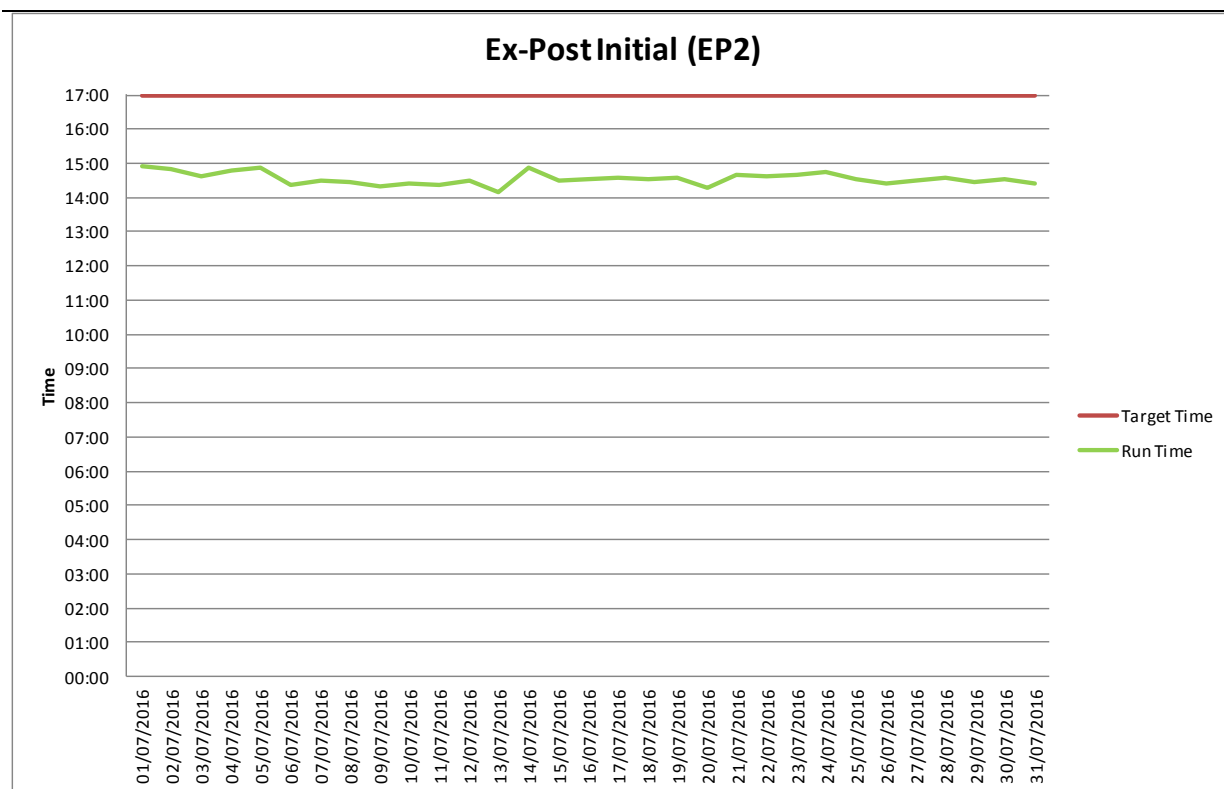


Figure 21 - Ex-Post Initial

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 July 2016, there were no 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](#).

### 6.4.2 Settlement Postings July 2016

# Market Operator Monthly Report

The publication timings for Settlement runs are provided below.

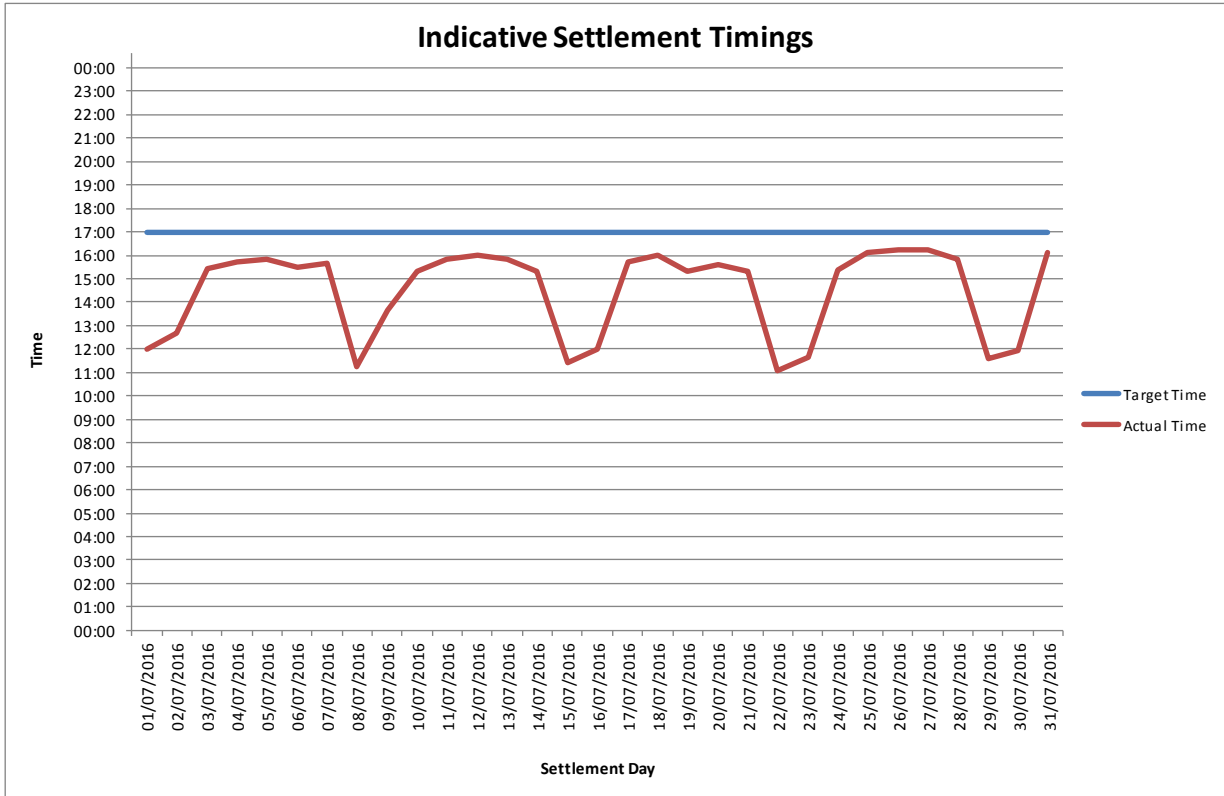


Figure 22 - Indicative Settlement Postings

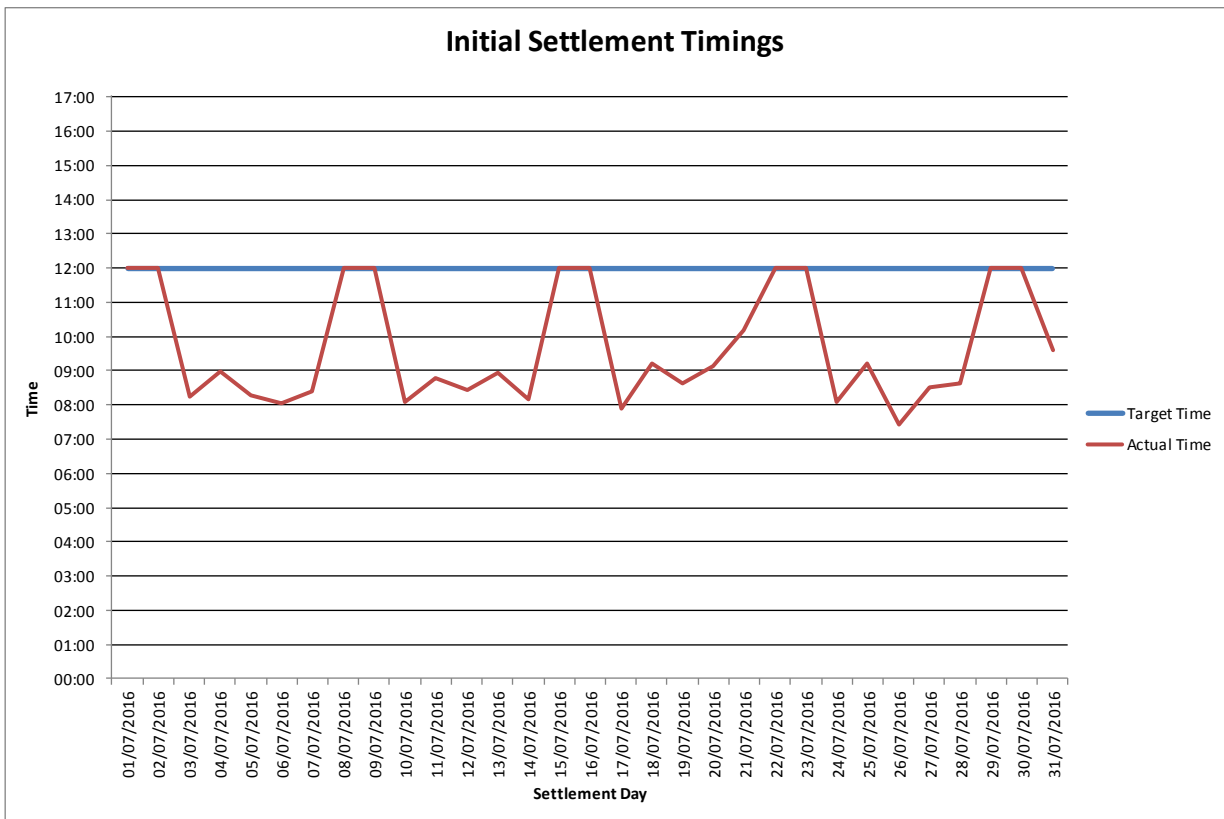


Figure 23 - Initial Settlement Postings

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

### **UUC 3.7.1 – (Deployed December 15<sup>th</sup> 2015)**

UUC 3.7.1 was deployed on December 15<sup>th</sup> and the below defect fixes were applied.

ABB2015142976 – IP – IP heat state – Down Time

ABB2015143445 – DSP – Availability Profile (Dual Energy Unit)

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

SEM R2.8.0 went live on Friday June 17<sup>th</sup> with no issues

**7. Occasional Components**

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

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

***7.3 Communications or Systems Failures***

There were no Communications or Systems Failures in July 2016

***7.4 Denial of Service Attacks***

There was no Denial of Service Attacks during July 2016.

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

There has been no requirement for submission of parameters in the month of July 2016.

## 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
06/07/2016	Money In	Timing	Participant	Payment Default	Erova Energy (PT_400163) defaulted on a Week 25 2016 Initial Energy Invoice.	Participant Error	A default letter was issued to the Participant.	Major
06/07/2016	Money In	Timing	Participant	Payment Default	Indaver Energy (PT_400088) defaulted on a Week 25 2016 Initial Energy Invoice.	Participant Error	A default letter was issued to the Participant.	Major
06/07/2016	Money In	Timing	Participant	Payment Default	Electricity Exchange (PT_400116) defaulted on a February 2016 M+4 and a May 2015 M+13 Capacity Invoice.	Participant Error	A default letter was issued to the Participant.	Major
06/07/2016	Money In	Timing	Participant	Payment Default	G.A.E.I Force Power Limited (PT_400069) defaulted on a February 2016 M+4 and a May 2015 M+13 Capacity Invoice.	Participant Error	A default letter was issued to the Participant.	Major
06/07/2016	Money In	Timing	Participant	Payment Default	Captured Carbon (PT_400174) defaulted on a February 2016 M+4 Capacity Invoice.	Participant Error	A default letter was issued to the Participant.	Major
06/07/2016	Money In	Timing	Participant	Payment Default	Empower Generation (PT_500073) defaulted on a May 2015 M+13 Capacity Invoice.	Participant Error	A default letter was issued to the Participant.	Major
15/07/2016	Money In	Timing	Participant	Payment Default	Captured Carbon Limited (PT_400168) defaulted a June 2016 Initial Capacity Invoice.	Participant Error	A default letter was issued to the Participant.	Major
15/07/2016	Money In	Timing	Participant	Payment Default	Aughrim Power Supply Limited (PT_400119) defaulted on a June 2016 Initial Capacity Invoice.	Participant Error	A default letter was issued to the Participant.	Major
15/07/2016	Money In	Timing	Participant	Payment Default	Open Electric Ireland (PT_500082) defaulted on a June 2016 Initial Capacity Invoice.	Participant Error	A default letter was issued to the Participant.	Major
15/07/2016	Money In	Timing	Participant	Payment Default	Electroroute Energy Trading Limited (PT_500069) defaulted on a June 2016 Initial Capacity Invoice.	Participant Error	A default letter was issued to the Participant.	Major
18/07/2016	Money In	Timing	Participant	Payment Default	Powerhouse Generation Limited (PT_400144 & PT_400145) defaulted on two June 2016 Initial FMOC Invoices.	Participant Error	A default letter was issued to the Participant.	Major
18/07/2016	Money In	Timing	Participant	Payment Default	Powerhouse Generation Limited (PT_500078) defaulted on a June 2016 Initial FMOC Invoice.	Participant Error	A default letter was issued to the Participant.	Major
18/07/2016	Money In	Timing	Participant	Payment Default	Quinn Windfarm Limited (PT_400049) defaulted on a June 2016 Initial FMOC Invoice.	Participant Error	A default letter was issued to the Participant.	Major
18/07/2016	Money In	Timing	Participant	Payment Default	Tynagh Limited (PT_400095) defaulted on a Week 26 2016 Initial VMOC Invoice.	Participant Error	A default letter was issued to the Participant.	Major

Table 14 – Trading and Settlement Code Breaches – Market Participants

### SEMO - Pricing and Scheduling

There were no issues to report in July 2016

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### ***SEMO – Settlements***

There were no issues to report in July 2016

### ***SEMO - Funds Transfer***

There were no issues to report in July 2016.

### ***SEMO - Credit Management***

Ops Date Identified	Run Type	Quality or Timing	Party	Issue Type	Description	Cause	Resolution	T and SC Breach
08/07/2016	CRM	Timing	SEMO	Credit	The Daily Credit Report was not published by the 14:30 deadline.	Operational Error	The Daily Credit Report was published at 15:20.	Minor

**Table 15 – Credit Management Code Breaches – Market Participants**

### ***SEMO – Other***

There were no issues to report in July 2016



**Appendix B: List of Queries by Type**

Summary Title	Description	ID	Logged On	Date sent to MP	Type
Dispatch Instructions	SDX has a function built in which delays Issue times by 1 minute for dispatch instructions with equal Effective and Issue times. The FAIL+MWOFF combination does not get paired by the SEMO Instruction Profiler if their Effective and Issue time do not match. As a result only the MWOFF is being used and the FAIL is being ignored. As a result some windfarms have had incorrect DQ values and Start Costs calculated	PT_500027	2016-07-06	2016-06-01	Settlement
Dispatch Instructions	SDX has a function built in which delays Issue times by 1 minute for dispatch instructions with equal Effective and Issue times. The FAIL+MWOFF combination does not get paired by the SEMO Instruction Profiler if their Effective and Issue time do not match. As a result only the MWOFF is being used and the FAIL is being ignored. As a result some windfarms have had incorrect DQ values and Start Costs calculated. Below is a list of the units with the times the FAIL DI's were sent. SONI will submit the corrected DI's on request via SDX.	SONI	2016-07-14	2016-06-03	Settlement
Reporting	Can you investigate the Moyle and EWIC error volumes from the 12/07/2016 onwards please.	TSO_SONI	2016-07-20	2016-06-09	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 July 2016.

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

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

## 9. 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
01/07/2016	11:00	09:55	13:00	11:58	09:30	08:28	16:00	14:25	17:00	14:56
02/07/2016	11:00	09:54	13:00	11:51	09:30	08:29	16:00	14:36	17:00	14:50
03/07/2016	11:00	09:53	13:00	11:54	09:30	08:26	16:00	14:34	17:00	14:38
04/07/2016	11:00	09:55	13:00	11:54	09:30	08:25	16:00	14:49	17:00	14:48
05/07/2016	11:00	09:57	13:00	12:04	09:30	08:21	16:00	14:38	17:00	14:52
06/07/2016	11:00	09:58	13:00	11:49	09:30	08:23	16:00	14:41	17:00	14:22
07/07/2016	11:00	10:05	13:00	12:02	09:30	08:38	16:00	14:53	17:00	14:30
08/07/2016	11:00	09:54	13:00	11:49	09:30	08:13	16:00	14:55	17:00	14:28
09/07/2016	11:00	09:59	13:00	11:59	09:30	08:33	16:00	14:23	17:00	14:19
10/07/2016	11:00	09:55	13:00	11:48	09:30	08:08	16:00	14:33	17:00	14:24
11/07/2016	11:00	09:44	13:00	11:55	09:30	08:36	16:00	14:31	17:00	14:23
12/07/2016	11:00	09:48	13:00	11:50	09:30	08:30	16:00	14:22	17:00	14:29
13/07/2016	11:00	09:58	13:00	11:56	09:30	08:13	16:00	14:27	17:00	14:09
14/07/2016	11:00	09:44	13:00	11:41	09:30	08:34	16:00	14:26	17:00	14:53
15/07/2016	11:00	10:00	13:00	11:48	09:30	08:27	16:00	14:30	17:00	14:30
16/07/2016	11:00	09:57	13:00	11:56	09:30	08:16	16:00	14:08	17:00	14:31
17/07/2016	11:00	09:45	13:00	11:44	09:30	08:24	16:00	14:56	17:00	14:35
18/07/2016	11:00	09:52	13:00	11:50	09:30	08:30	16:00	14:54	17:00	14:32
19/07/2016	11:00	09:58	13:00	11:54	09:30	08:31	16:00	14:33	17:00	14:34
20/07/2016	11:00	09:50	13:00	11:50	09:30	08:11	16:00	14:39	17:00	14:17
21/07/2016	11:00	10:00	13:00	11:56	09:30	08:22	16:00	14:32	17:00	14:39
22/07/2016	11:00	09:55	13:00	11:49	09:30	08:15	16:00	14:37	17:00	14:37
23/07/2016	11:00	10:00	13:00	11:58	09:30	08:29	16:00	14:20	17:00	14:41
24/07/2016	11:00	09:59	13:00	11:53	09:30	08:23	16:00	14:38	17:00	14:46
25/07/2016	11:00	09:55	13:00	11:55	09:30	08:23	16:00	14:40	17:00	14:33
26/07/2016	11:00	09:54	13:00	11:54	09:30	08:21	16:00	14:44	17:00	14:25
27/07/2016	11:00	09:55	13:00	11:50	09:30	08:33	16:00	14:50	17:00	14:29
28/07/2016	11:00	10:02	13:00	11:53	09:30	08:32	16:00	14:37	17:00	14:36
29/07/2016	11:00	10:00	13:00	11:56	09:30	08:32	16:00	14:28	17:00	14:27
30/07/2016	11:00	10:02	13:00	11:58	09:30	08:36	16:00	14:33	17:00	14:31
31/07/2016	11:00	10:08	13:00	12:07	09:30	08:29	16:00	14:37	17:00	14:25

Table 18 – MSP Runs

**Settlement Runs**

Trading Day	Indicative			Trading Day	INITIAL		
	Actual Date	Target Time	Actual Time		Actual Date	Target Time	Actual Time
01/07/2016	04/07/2016	17:00	12:01	01/07/2016	08/07/2016	12:00	12:00
02/07/2016	04/07/2016	17:00	12:40	02/07/2016	08/07/2016	12:00	12:00
03/07/2016	04/07/2016	17:00	15:27	03/07/2016	08/07/2016	12:00	08:14
04/07/2016	05/07/2016	17:00	15:44	04/07/2016	11/07/2016	12:00	08:59
05/07/2016	06/07/2016	17:00	15:51	05/07/2016	12/07/2016	12:00	08:17
07/07/2016	07/07/2016	17:00	15:31	07/07/2016	14/07/2016	12:00	08:02
07/07/2016	11/07/2016	17:00	15:38	07/07/2016	14/07/2016	12:00	08:23
08/07/2016	11/07/2016	17:00	11:15	08/07/2016	15/07/2016	12:00	12:00
09/07/2016	11/07/2016	17:00	13:41	09/07/2016	15/07/2016	12:00	12:00
10/07/2016	12/07/2016	17:00	15:19	10/07/2016	15/07/2016	12:00	08:04
11/07/2016	13/07/2016	17:00	15:49	11/07/2016	18/07/2016	12:00	08:46
12/07/2016	14/07/2016	17:00	16:00	12/07/2016	19/07/2016	12:00	08:26
13/07/2016	15/07/2016	17:00	15:50	13/07/2016	20/07/2016	12:00	08:57
14/07/2016	18/07/2016	17:00	15:20	14/07/2016	21/07/2016	12:00	08:10
15/07/2016	18/07/2016	17:00	11:26	15/07/2016	22/07/2016	12:00	12:00
16/07/2016	18/07/2016	17:00	12:00	16/07/2016	22/07/2016	12:00	12:00
17/07/2016	19/07/2016	17:00	15:42	17/07/2016	22/07/2016	12:00	07:53
18/07/2016	20/07/2016	17:00	16:01	18/07/2016	25/07/2016	12:00	09:12
19/07/2016	21/07/2016	17:00	15:20	19/07/2016	26/07/2016	12:00	08:37
20/07/2016	22/07/2016	17:00	15:35	20/07/2016	27/07/2016	12:00	09:09
21/07/2016	25/07/2016	17:00	15:18	21/07/2016	28/07/2016	12:00	10:11
22/07/2016	25/07/2016	17:00	11:06	22/07/2016	29/07/2016	12:00	12:00
23/07/2016	25/07/2016	17:00	11:38	23/07/2016	29/07/2016	12:00	12:00
24/07/2016	26/07/2016	17:00	15:22	24/07/2016	29/07/2016	12:00	08:04
25/07/2016	27/07/2016	17:00	16:07	25/07/2016	01/08/2016	12:00	09:13
26/07/2016	28/07/2016	17:00	16:14	26/07/2016	02/08/2016	12:00	07:25
27/07/2016	29/07/2016	17:00	16:13	27/07/2016	03/08/2016	12:00	08:30
28/07/2016	01/08/2016	17:00	15:51	28/07/2016	04/08/2016	12:00	08:38
29/07/2016	01/07/2016	17:00	11:35	29/07/2016	05/08/2016	12:00	12:00
30/07/2016	01/08/2016	17:00	11:57	30/07/2016	05/08/2016	12:00	12:00
31/07/2016	01/08/2016	17:00	16:06	31/07/2016	05/08/2016	12:00	09:36

**Table 19 – Settlement Runs**

## 10. 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
01/10/2015	€184,048.17	-€2,821.59	-€417,294.17
02/10/2015	€236,003.67	-€8,758.78	-€418,385.31
03/10/2015	€447,568.14	-€8,429.85	-€381,381.79
04/10/2015	€355,210.41	-€24,773.87	-€349,405.45
05/10/2015	€403,998.22	-€16,845.94	-€406,685.67
06/10/2015	€408,090.09	-€11,370.17	-€409,451.55
07/10/2015	€396,852.65	-€1,016.51	-€416,499.23
08/10/2015	€833,027.77	-€21,031.97	-€419,217.67
09/10/2015	€571,135.00	-€23,911.84	-€409,985.99
10/10/2015	€426,624.39	-€275.88	-€376,563.72
11/10/2015	€590,507.33	-€216.51	-€366,642.39
12/10/2015	€615,907.40	-€2,922.19	-€408,081.59
13/10/2015	€488,323.11	-€17,640.65	-€428,288.19
14/10/2015	€323,841.39	-€15,630.17	-€430,023.84
15/10/2015	€570,171.09	-€34,678.33	-€435,691.74
16/10/2015	€504,000.21	€18,400.98	-€429,027.80
17/10/2015	€539,706.96	-€10,829.35	-€390,086.25
18/10/2015	€266,275.31	-€19,394.40	-€378,763.32
19/10/2015	€691,729.65	-€1,637.61	-€431,384.59
20/10/2015	€416,398.00	-€16,742.61	-€431,705.80
21/10/2015	€432,672.89	€2,922.97	-€414,059.84
22/10/2015	€641,039.51	-€16,128.91	-€417,064.06
23/10/2015	€459,729.27	-€2,884.82	-€406,407.83
24/10/2015	€402,573.36	-€210.62	-€371,022.63
25/10/2015	€555,628.53	-€9,138.35	-€360,591.55
26/10/2015	€564,608.59	-€10,138.06	-€363,999.10
27/10/2015	€330,626.10	-€5,378.00	-€424,726.29
28/10/2015	€336,368.51	€2,317.42	-€421,130.98
29/10/2015	€695,460.11	-€15,712.74	-€418,305.21
30/10/2015	€614,928.96	-€7,082.05	-€407,138.37
31/10/2015	€291,199.69	-€8,191.01	-€379,817.58
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

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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
01/12/2015	€688,673.73	-€26,887.62	-€438,251.29
02/12/2015	€317,798.49	-€52,895.68	-€456,989.27
03/12/2015	€405,603.50	-€5,897.64	-€476,134.19
04/12/2015	€774,967.27	-€15,545.28	-€438,397.60
05/12/2015	€640,701.45	-€13,804.14	-€404,055.15
06/12/2015	€366,403.91	-€12,707.39	-€396,607.78
07/12/2015	€733,517.52	-€25,280.71	-€433,440.19
08/12/2015	€432,398.54	-€17,081.48	-€445,634.75
09/12/2015	€542,863.04	-€14,765.85	-€444,156.73
10/12/2015	€335,601.49	-€40,789.27	-€457,423.12
11/12/2015	€426,928.12	-€51,155.51	-€457,168.99
12/12/2015	€558,417.52	-€21,084.89	-€437,241.40
13/12/2015	€546,224.69	-€43,154.55	-€414,260.41
14/12/2015	€686,747.66	-€34,497.65	-€460,059.67
15/12/2015	€625,379.03	-€6,605.71	-€453,446.82
16/12/2015	€674,889.78	-€18,367.78	-€449,690.27
17/12/2015	€534,573.55	-€35,533.70	-€433,385.22
18/12/2015	€561,845.35	-€6,582.15	-€425,519.13
19/12/2015	€423,888.14	-€5,214.50	-€388,770.80
20/12/2015	€458,505.06	-€21,975.88	-€375,498.89
21/12/2015	€605,543.76	€16,466.74	-€428,588.77
22/12/2015	€548,907.53	-€12,058.23	-€427,504.11
23/12/2015	€472,007.50	-€19,683.94	-€413,722.07
24/12/2015	€507,025.65	-€5,808.78	-€397,502.21
25/12/2015	€466,531.15	-€19,958.55	-€378,631.22
26/12/2015	€672,569.18	-€36,627.88	-€371,370.00
27/12/2015	€577,471.28	-€14,743.88	-€363,828.00
28/12/2015	€541,909.71	-€15,443.22	-€370,868.50
29/12/2015	€562,888.56	-€24,503.42	-€390,443.22
30/12/2015	€549,349.10	-€30,384.77	-€406,360.94
31/12/2015	€531,182.78	-€18,802.40	-€401,563.71
01/01/2016	€689,760.94	-€850.06	-€365,263.12
02/01/2016	€492,831.57	-€16,808.75	-€390,938.01

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03/01/2016	€669,891.66	-€16,141.80	-€375,443.72
04/01/2016	€573,233.57	-€34,326.56	-€450,226.02
05/01/2016	€435,278.99	-€25,445.82	-€460,068.79
06/01/2016	€585,769.51	-€22,376.47	-€460,608.31
07/01/2016	€564,412.70	-€26,102.04	-€457,172.75
08/01/2016	€641,220.35	-€42,045.33	-€471,327.45
09/01/2016	€465,563.07	-€46,512.09	-€432,525.47
10/01/2016	€374,477.07	-€17,958.10	-€398,740.15
11/01/2016	€730,610.46	-€22,706.28	-€462,407.83
12/01/2016	€893,675.22	-€25,526.60	-€461,905.69
13/01/2016	€609,072.41	-€16,239.00	-€490,044.13
14/01/2016	€614,891.06	-€3,271.45	-€481,120.21
15/01/2016	€806,386.69	-€13,038.69	-€478,851.54
16/01/2016	€589,940.36	-€24,198.25	-€449,493.17
17/01/2016	€656,975.06	-€19,835.70	-€405,187.70
18/01/2016	€591,258.57	-€22,988.96	-€471,911.07
19/01/2016	€587,424.24	-€18,363.37	-€485,999.85
20/01/2016	€1,130,986.02	-€21,465.95	-€462,957.59
21/01/2016	€353,313.73	-€13,537.96	-€450,018.68
22/01/2016	€611,509.08	-€17,971.52	-€426,380.74
23/01/2016	€460,904.51	-€2,280.58	-€398,950.24
24/01/2016	€550,240.84	-€14,040.81	-€368,837.06
25/01/2016	€548,029.04	-€20,439.75	-€421,148.52
26/01/2016	€568,891.68	-€11,807.40	-€438,987.16
27/01/2016	€471,646.80	-€12,605.30	-€447,546.40
28/01/2016	€450,308.88	-€17,111.09	-€442,561.56
29/01/2016	€549,778.85	-€4,890.00	-€428,252.99
30/01/2016	€410,857.34	-€10,070.58	-€406,925.84
31/01/2016	€585,912.71	-€17,459.55	-€386,206.91
01/02/2016	€597,150.16	-€12,412.60	-€426,860.33
02/02/2016	€380,507.04	-€19,759.58	-€446,374.43
03/02/2016	€671,315.54	-€1,166.20	-€456,336.81
04/02/2016	€535,464.92	-€655.11	-€446,131.01
05/02/2016	€532,123.12	-€5,234.49	-€445,145.43
06/02/2016	€611,816.37	€3,469.28	-€397,155.42
07/02/2016	€572,044.92	-€15,082.20	-€383,519.56
08/02/2016	€346,687.44	-€10,745.66	-€444,677.22
09/02/2016	€692,018.61	€8,717.03	-€466,634.24
10/02/2016	€365,519.47	-€19,256.45	-€479,732.00
11/02/2016	€440,884.72	-€14,699.34	-€484,418.79
12/02/2016	€461,892.87	-€7,890.12	-€471,801.73
13/02/2016	€421,162.35	-€1,749.04	-€416,553.79
14/02/2016	€384,321.37	-€10,278.02	-€396,826.45
15/02/2016	€510,101.40	-€19,364.23	-€467,693.28
16/02/2016	€315,785.88	€2,093.47	-€457,602.33
17/02/2016	€626,657.48	-€23,789.13	-€480,813.42
18/02/2016	€560,025.64	-€12,342.48	-€475,118.65
19/02/2016	€504,377.27	-€10,985.27	-€446,158.68
20/02/2016	€554,774.66	-€4,450.23	-€397,610.37
21/02/2016	€633,946.93	-€5,175.90	-€383,845.09
22/02/2016	€241,660.16	-€8,119.39	-€455,503.59
23/02/2016	€448,946.36	-€15,627.46	-€471,687.19
24/02/2016	€555,735.22	-€27,144.18	-€480,968.29
25/02/2016	€314,829.66	-€28,796.52	-€485,404.36

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26/02/2016	€398,677.03	-€17,958.54	-€466,615.98
27/02/2016	€421,234.85	-€4,172.24	-€429,974.96
28/02/2016	€745,089.34	-€19,065.57	-€408,933.48
29/02/2016	€553,599.98	-€16,799.69	-€450,927.54
01/03/2016	€465,209.57	-€12,894.41	-€439,436.86
02/03/2016	€341,005.28	€541.45	-€448,860.52
03/03/2016	€361,296.67	-€15,248.88	-€465,450.15
04/03/2016	€411,689.77	€2,635.53	-€450,744.99
05/03/2016	€504,505.73	€10,268.92	-€411,349.56
06/03/2016	€641,724.36	-€24,579.57	-€412,739.09
07/03/2016	€403,341.26	-€10,007.64	-€461,004.43
08/03/2016	€589,645.13	-€13,978.70	-€465,389.27
09/03/2016	€478,538.59	-€293.85	-€446,891.78
10/03/2016	€388,856.94	-€7,146.47	-€465,087.27
11/03/2016	€363,139.51	-€9,999.06	-€441,184.02
12/03/2016	€287,695.75	-€12,213.87	-€395,809.38
13/03/2016	€466,962.47	€1,463.46	-€384,948.98
14/03/2016	€602,953.47	€8,906.38	-€424,191.54
15/03/2016	€313,185.11	-€6,753.87	-€437,129.27
16/03/2016	€418,796.29	-€4,701.62	-€446,050.65
17/03/2016	€520,302.53	€7,998.09	-€395,444.27
18/03/2016	€488,526.91	-€14,066.07	-€435,207.31
19/03/2016	€651,409.40	€6,794.28	-€406,828.63
20/03/2016	€351,398.79	-€7,362.25	-€386,959.22
21/03/2016	€446,639.37	-€1,914.21	-€453,380.77
22/03/2016	€321,933.32	€931.08	-€461,357.85
23/03/2016	€401,613.29	-€15,495.07	-€447,516.93
24/03/2016	€358,356.98	-€17,265.89	-€432,664.12
25/03/2016	€429,281.20	€17,848.84	-€399,082.47
26/03/2016	€626,651.71	€9,317.35	-€375,996.87
27/03/2016	€422,089.59	€26,639.00	-€337,269.15
28/03/2016	€605,126.59	-€22,540.76	-€367,547.69
29/03/2016	€584,436.80	-€8,770.30	-€415,656.12
30/03/2016	€317,248.55	-€16,355.46	-€434,642.74
31/03/2016	€352,454.55	-€924.03	-€429,872.19
01/04/2016	€254,665.77	€19,410.52	-€418,172.85
02/04/2016	€273,567.32	-€1,407.33	-€404,833.08
03/04/2016	€160,794.82	-€2,047.92	-€385,435.83
04/04/2016	€416,599.77	-€9,183.59	-€439,040.73
05/04/2016	€250,111.93	-€5,506.80	-€433,512.72
06/04/2016	€336,670.55	€8,880.44	-€416,429.62
07/04/2016	€113,656.31	-€3,252.93	-€421,102.48
08/04/2016	€216,288.56	€3,619.93	-€434,709.43
09/04/2016	€120,423.37	€23,055.64	-€406,334.92
10/04/2016	€451,165.73	-€4,904.32	-€365,342.88
11/04/2016	€27,294.04	€5,442.30	-€433,170.38
12/04/2016	€381,420.09	-€13,852.41	-€448,891.24
13/04/2016	€285,398.63	-€11,332.70	-€445,360.38
14/04/2016	€355,975.07	-€54,196.75	-€437,602.19
15/04/2016	€386,518.01	€8,502.73	-€420,352.20
16/04/2016	€61,034.21	-€17,147.75	-€388,830.50
17/04/2016	€302,335.18	-€10,404.64	-€377,211.48
18/04/2016	€280,732.73	€1,419.88	-€421,534.12
19/04/2016	€270,332.02	€3,286.06	-€436,536.55



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20/04/2016	€379,578.06	€1,507.75	-€419,156.47
21/04/2016	€537,074.46	€363.23	-€412,975.33
22/04/2016	€361,054.67	-€4,791.35	-€408,510.66
23/04/2016	€413,344.04	-€5,088.23	-€371,723.42
24/04/2016	€402,453.12	-€3,480.08	-€361,118.12
25/04/2016	€610,006.03	-€10,075.78	-€395,294.97
26/04/2016	€188,667.49	€6,807.41	-€407,028.35
27/04/2016	€543,611.51	€20,939.30	-€427,790.26
28/04/2016	€444,164.57	€2,513.65	-€425,418.50
29/04/2016	€467,497.39	-€643.14	-€415,553.12
30/04/2016	€367,553.26	€345.39	-€382,757.45
01/05/2016	€318,711.36	€46.79	-€348,183.04
02/05/2016	€265,639.36	€2,900.27	-€337,474.54
03/05/2016	€307,546.49	-€1,227.25	-€402,880.19
04/05/2016	€275,948.48	€5,228.96	-€398,811.00
05/05/2016	€224,908.34	€1,823.53	-€409,437.33
06/05/2016	€196,488.60	-€3,953.30	-€405,348.39
07/05/2016	€215,106.42	€13,786.76	-€372,905.56
08/05/2016	€338,654.44	-€5,241.44	-€343,553.41
09/05/2016	€376,377.42	€103.57	-€388,079.13
10/05/2016	€232,089.24	€1,162.31	-€410,277.96
11/05/2016	€94,819.65	-€9,693.39	-€407,183.40
12/05/2016	€207,182.84	-€5,530.62	-€399,631.40
13/05/2016	€268,281.83	€1,281.93	-€397,583.66
14/05/2016	€172,657.73	€2,100.06	-€358,479.25
15/05/2016	€270,385.84	€612.81	-€346,488.38
16/05/2016	€74,167.82	€5,878.68	-€400,481.38
17/05/2016	€206,529.16	€9,917.38	-€403,878.41
18/05/2016	€261,963.29	-€5,773.72	-€402,077.89
19/05/2016	€213,366.04	€6,115.62	-€393,020.28
20/05/2016	€406,247.83	-€5,794.20	-€390,136.77
21/05/2016	€415,353.52	-€1,181.85	-€357,519.37
22/05/2016	€416,802.08	€8,358.08	-€344,927.61
23/05/2016	€184,660.48	-€991.20	-€398,423.86
24/05/2016	€242,141.63	-€6,731.50	-€397,480.27
25/05/2016	€88,752.89	-€2,675.89	-€401,265.47
26/05/2016	€100,636.02	€12,891.89	-€418,400.89
27/05/2016	€296,388.97	-€15,542.96	-€405,625.74
28/05/2016	€173,729.31	€8,352.72	-€365,500.02
29/05/2016	€172,856.92	-€6,512.65	-€343,084.06
30/05/2016	€199,477.51	-€8,374.61	-€386,891.37
31/05/2016	€323,036.70	-€6,178.45	-€391,492.34
01/06/2016	€4,689.24	€21,790.77	-€395,637.98
02/06/2016	€170,104.82	-€5,399.31	-€392,535.51
03/06/2016	€203,007.45	€367.05	-€389,642.80
04/06/2016	€240,011.38	-€17,200.48	-€354,718.32
05/06/2016	€653,304.41	€2,066.37	-€333,219.66
06/06/2016	€425,126.49	€309.62	-€355,867.53
07/06/2016	€238,463.12	-€40,280.37	-€404,272.33
08/06/2016	€185,076.23	-€901.65	-€408,563.94
09/06/2016	€425,615.76	-€13,803.37	-€404,962.01
10/06/2016	€148,642.27	-€4,413.70	-€404,552.11
11/06/2016	€329,156.32	-€7,913.95	-€363,225.22
12/06/2016	€379,065.18	-€14,349.51	-€343,260.70

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13/06/2016	€357,133.86	-€8,460.70	-€390,988.55
14/06/2016	€309,349.55	€2,481.91	-€396,200.68
15/06/2016	€214,221.50	-€7,224.12	-€390,391.93
16/06/2016	€295,339.25	-€871.57	-€384,521.87
17/06/2016	€241,160.11	-€1,546.15	-€373,856.93
18/06/2016	€117,814.56	€14,733.17	-€355,069.54
19/06/2016	€313,865.27	€2,866.81	-€331,565.47
20/06/2016	€291,348.26	€17,197.78	-€382,656.28
21/06/2016	€169,732.87	-€10,338.96	-€384,559.73
22/06/2016	€307,400.61	-€1,798.92	-€391,664.95
23/06/2016	€337,079.60	-€16,077.12	-€393,012.28
24/06/2016	€207,996.90	-€5,839.77	-€387,550.79
25/06/2016	€135,149.18	-€2,997.88	-€350,475.20
26/06/2016	€176,935.50	-€14,385.45	-€336,272.59
27/06/2016	€185,811.69	-€4,131.91	-€375,028.62
28/06/2016	€279,569.02	-€20,336.99	-€392,693.12
29/06/2016	€244,715.70	-€8,202.56	-€391,472.97
30/06/2016	€236,573.72	€707.67	-€390,718.11
01/07/2016	€263,258.14	-€5,365.54	-€373,468.31
02/07/2016	€340,595.24	€8,692.11	-€335,966.68
03/07/2016	€167,228.70	-€7,783.05	-€334,171.13
04/07/2016	€375,130.93	€11,589.89	-€385,944.30
05/07/2016	€92,747.57	€1,163.57	-€395,620.05
06/07/2016	€147,984.21	-€7,034.34	-€393,269.82
07/07/2016	€208,150.96	-€9,043.00	-€393,924.73
08/07/2016	€182,031.00	€13,276.10	-€379,568.72
09/07/2016	€379,953.41	€6,389.29	-€338,738.21
10/07/2016	€267,955.27	€227.24	-€322,179.36
11/07/2016	€141,886.59	€9,321.03	-€367,480.28
12/07/2016	€175,437.17	-€4,765.49	-€374,422.76
13/07/2016	€202,877.29	-€2,241.22	-€372,836.44
14/07/2016	€264,274.44	-€31,708.60	-€387,219.85
15/07/2016	€307,503.36	-€4,836.76	-€377,360.15
16/07/2016	€364,565.90	-€4,161.24	-€344,322.05
17/07/2016	€368,399.47	€5,116.09	-€330,568.36
18/07/2016	€355,505.26	-€7,068.38	-€395,231.09
19/07/2016	€411,112.41	-€5,131.01	-€402,752.76
20/07/2016	€300,071.19	-€2,619.84	-€400,350.02
21/07/2016	€257,030.71	-€9,300.19	-€393,946.54
22/07/2016	€254,718.41	-€9,619.42	-€392,681.20
23/07/2016	€357,003.52	-€12,401.34	-€355,221.88
24/07/2016	€338,443.20	-€10,498.34	-€333,466.63
25/07/2016	€385,234.24	€31,122.75	-€378,988.53
26/07/2016	€359,576.47	-€38,951.01	-€396,460.31
27/07/2016	€294,689.50	-€7,006.67	-€391,034.59
28/07/2016	€465,150.53	€1,066.59	-€393,061.01
29/07/2016	€328,667.28	-€7,586.59	-€382,316.19
30/07/2016	€301,028.00	-€2,388.87	-€349,806.58
31/07/2016	€331,573.26	€1,303.61	-€332,304.13

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

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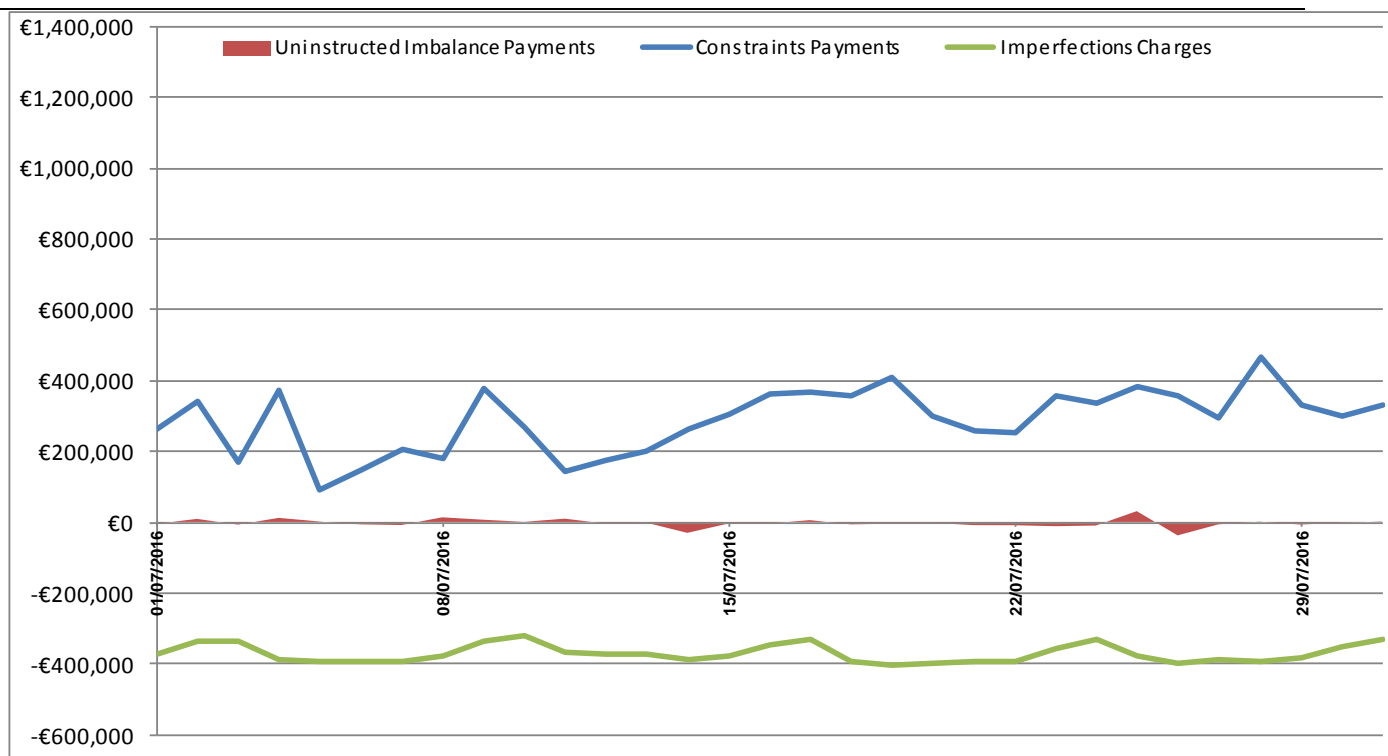


Figure 24 - Constraint Payments, Uninstructed Imbalance Payments, and Imperfections Charges

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

Table 21 - Make Whole Payments

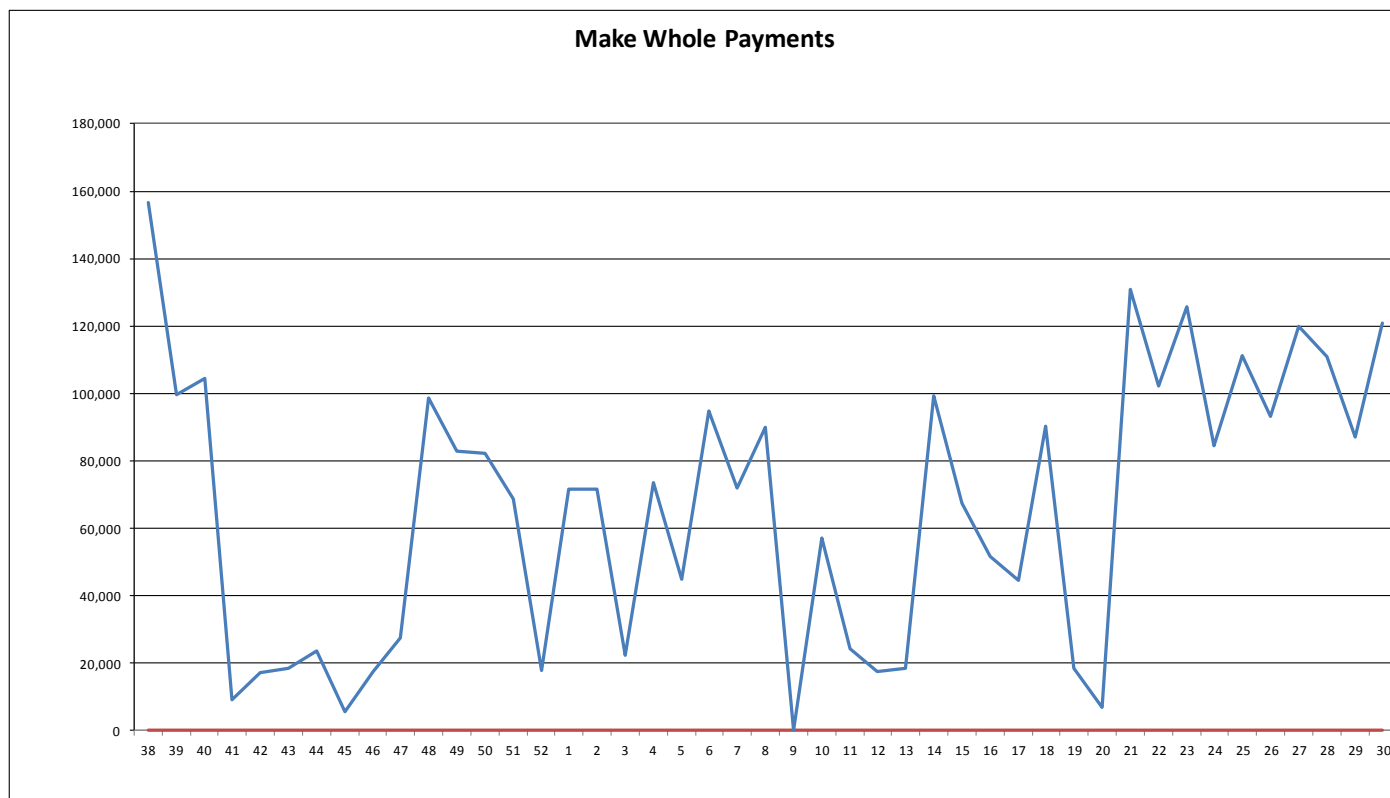


Figure 25 - Make Whole Payments

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

Table 22 - Testing Charges

### Testing Charges

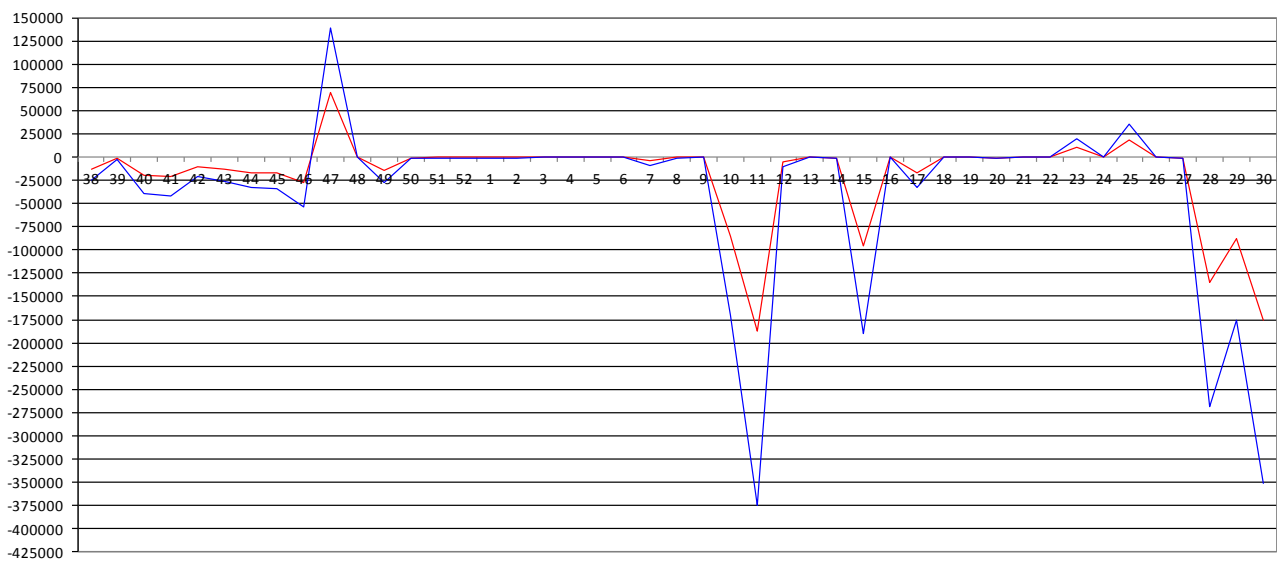


Figure 26 - Testing Charges

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

The table below lists for each unit the number of times in operations during July 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_400144	DSU_401660			31	31
PT_400090	DSU_401850			31	31
PT_500078	DSU_501330			31	31
PT_400090	DSU_401800			9	9
PT_400111	DSU_401390			31	31
PT_500067	DSU_501380			31	31
PT_400133	DSU_401530			31	31
PT_400021	GU_400021			31	31
PT_400021	GU_400050			31	31
PT_400021	GU_400060			31	31
PT_400021	GU_400070			31	31
PT_400021	GU_400080			31	31
PT_400021	GU_400591			31	31
PT_400021	GU_400600			31	31
PT_400021	GU_400910			31	31
PT_400021	GU_400920			31	31
PT_400021	GU_401080			31	31
PT_400021	GU_401380			31	31
PT_400021	GU_401600			31	31
PT_400021	GU_401640			31	31
PT_400025	GU_400130			31	31
PT_400038	GU_400550			31	31
PT_400050	GU_400650			31	31
PT_400050	GU_400660			31	31
PT_400050	GU_401000			31	31
PT_400050	GU_401060			31	31
PT_400050	GU_401150			31	31
PT_400050	GU_401240			31	31
PT_400050	GU_401250			31	31
PT_400050	GU_401280			31	31
PT_400050	GU_401290			31	31
PT_400050	GU_401360			31	31
PT_400050	GU_401790			31	31
PT_400062	GU_400730			31	31
PT_400062	GU_400731			31	31
PT_400062	GU_400840			31	31
PT_400066	GU_401540			31	31
PT_400066	GU_401820			31	31
PT_400082	GU_401100			31	31
PT_400087	GU_401230			31	31
PT_400148	GU_401690			31	31
PT_400150	GU_401700			31	31
PT_400151	GU_401770			31	31
PT_400151	GU_401780			31	31
PT_400152	GU_401710			31	31

## Market Operator Monthly Report

PT_400152	GU_401720			31	31
PT_400152	GU_401730			31	31
PT_400152	GU_401740			31	31
PT_400152	GU_401750			31	31
PT_400152	GU_401760			31	31
PT_400162	GU_401830			31	31
PT_500021	GU_500010			31	31
PT_500021	GU_500740			31	31
PT_500021	GU_501160			31	31
PT_500032	GU_500211			31	31
PT_500032	GU_501120			31	31
PT_500032	GU_501280			31	31
PT_500032	GU_501290			31	31
PT_500032	GU_501300			31	31
PT_500039	GU_500270			31	31
PT_500044	GU_500720			31	31
PT_500047	GU_500790			31	31
PT_500061	GU_501170			31	31
PT_500062	GU_501180			31	31
PT_500073	GU_501230			6	6
PT_500074	GU_501250			31	31
PT_500089	GU_501360			31	31
PT_400090	DSU_401610	32			32
PT_400138	DSU_401590	31			31
PT_400090	DSU_401620	31			31
PT_400116	DSU_401400	31			31
PT_400090	DSU_401850	1			1
PT_400090	DSU_401270	31			31
PT_400106	DSU_401330	31			31
PT_400090	DSU_401800	23			23
PT_400124	DSU_401490	31			31
PT_400024	GU_400120	31			31
PT_400024	GU_400121	31			31
PT_400030	GU_400180	40			40
PT_400030	GU_400181	41			41
PT_400030	GU_400182	41			41
PT_400030	GU_400183	40			40
PT_400030	GU_400200	41			41
PT_400030	GU_400201	42			42
PT_400030	GU_400202	41			41
PT_400030	GU_400203	43			43
PT_400030	GU_400210	40			40
PT_400030	GU_400211	40			40
PT_400030	GU_400220	40			40
PT_400030	GU_400221	40			40
PT_400030	GU_400240	40			40
PT_400030	GU_400250	40			40
PT_400030	GU_400251	40			40
PT_400030	GU_400252	41			41
PT_400030	GU_400260	40			40
PT_400030	GU_400270	43			43
PT_400030	GU_400271	40			40
PT_400030	GU_400272	41			41
PT_400030	GU_400280	40			40



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PT_400030	GU_400281	40		40
PT_400030	GU_400290	41		41
PT_400030	GU_400300	41		41
PT_400030	GU_400311	41		41
PT_400030	GU_400324	42		42
PT_400030	GU_400325	42		42
PT_400030	GU_400360	40		40
PT_400030	GU_400361	40		40
PT_400030	GU_400362	40		40
PT_400030	GU_400363	41		41
PT_400030	GU_400370	41		41
PT_400030	GU_400850	41		41
PT_400032	GU_400430	31		31
PT_400034	GU_400940	31		31
PT_400034	GU_401090	31		31
PT_400034	GU_401440	31		31
PT_400034	GU_401680	31		31
PT_400035	GU_400480	51		51
PT_400037	GU_400500	31		31
PT_400041	GU_400530	54		54
PT_400044	GU_400540	51		51
PT_400054	GU_400620	31		31
PT_400055	GU_400630	31		31
PT_400064	GU_400750	31		31
PT_400064	GU_400751	31		31
PT_400064	GU_400752	31		31
PT_400064	GU_400753	31		31
PT_400064	GU_400762	31		31
PT_400064	GU_400770	31		31
PT_400064	GU_400771	31		31
PT_400064	GU_400780	31		31
PT_400064	GU_400781	31		31
PT_400075	GU_400930	62		62
PT_400077	GU_400950	31		31
PT_400078	GU_401010	31		31
PT_400078	GU_401011	31		31
PT_400172	GU_401860	31		31
PT_500024	GU_500040	37		37
PT_500024	GU_500041	31		31
PT_500027	GU_500130	84		84
PT_500027	GU_500131	84		84
PT_500027	GU_500140	84		84
PT_500034	GU_501350	31		31
PT_500040	GU_500281	31		31
PT_500040	GU_500282	31		31
PT_500040	GU_500283	31		31
PT_500040	GU_500284	31		31
PT_500045	GU_500820	31		31
PT_500045	GU_500821	31		31
PT_500045	GU_500822	31		31
PT_500045	GU_500823	31		31
PT_500045	GU_500824	31		31
PT_500045	GU_500825	31		31
PT_500048	GU_500904	48		48

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PT_500050	GU_501040	31			31
PT_500050	GU_501050	31			31
PT_500050	GU_501150	31			31
PT_500050	GU_501190	31			31
PT_500053	GU_501130	31			31
PT_500066	GU_501210	31			31
PT_500073	GU_501230	25			25
PT_400021	I_ROIEWIC	29			29
PT_500021	I_NIMOYLE	25			25
PT_400163	I_ROIEWIC	93			93
PT_400157	I_ROIEWIC	31			31
PT_500031	I_NIMOYLE	31			31
PT_400096	I_ROIEWIC	93			93
PT_400113	I_ROIEWIC	31			31
PT_400168	I_ROIEWIC	63			63
PT_400115	I_ROIEWIC	31			31
PT_400037	I_ROIEWIC	43			43
PT_400170	I_ROIEWIC	54			54
PT_400108	I_ROIEWIC	64			64
PT_400171	I_ROIEWIC	39			39
PT_400164	I_ROIEWIC	7			7
PT_400030	I_ROIEWIC	31			31
PT_400099	I_ROIEWIC	46			46
	<b>Total</b>	<b>4148</b>	<b>0</b>	<b>2030</b>	<b>6178</b>
	<b>Percentage</b>	<b>67.14%</b>	<b>0.00%</b>	<b>32.86%</b>	<b>100.00%</b>

Table 23 – Commercial Offer Data Used

## **12. 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
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	£66,945,192.38	£22,029,381.87	£1,615,436.17	£629,905.18	£213,410.99	£7,659.07	£192,421.65	£21,030.53	£1,110.05	£429,407.30	£0.00	£0.00	94,084,955.19
	NI	£28,649,957.73	£7,313,397.03	£439,831.96	£149,812.37	£34,908.87	£997.82	£58,386.93	£9,959.93	£468.77	£0.03	£0.00	£0.00	36,657,721.44
Jun-14	ROI	£52,841,750.77	£17,596,854.80	£1,312,068.35	£423,771.26	£115,750.72	£4,162.65	£89,169.46	£18,685.28	£1,014.73	£28,526.30	£0.00	£0.00	72,431,754.32
	NI	£21,944,762.06	£6,361,219.34	£345,120.63	£120,971.43	£44,784.33	£1,003.03	£41,125.48	£9,461.42	£415.67	£2,532.18	£0.00	£0.00	28,871,395.57
Jul-14	ROI	£48,255,770.91	£22,988,780.17	£1,292,701.68	£332,606.61	£88,357.34	£2,943.28	£85,242.72	£17,526.18	£1,047.39	£0.00	£0.00	£0.00	73,064,976.28
	NI	£16,832,807.07	£5,122,118.14	£325,108.62	£91,938.63	£25,719.39	£87.70	£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	£1,638,145.68	£285,506.09	£62,431.70	£3,367.28	£92,320.83	£30,020.38	£728.19	£0.00	£0.00	£0.00	93,053,099.01
	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	£27,988.16	£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	£14,749.93	£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	£190,927.69	£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	£120,250.95	£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	£19,007,006.26	£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	£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	£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	£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	£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	£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
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	£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	£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	£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	£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	£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	£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	£0.00	70,093,948.59
	NI	£18,169,780.86	£5,723,642.36	£907,019.09	£92,518.83	£0.00	£1,042.35	£18,464.14	£0.00	£90.30	£35.07	£0.00	£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	£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	£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	£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	£0.00	21,962,254.98
Jun-16	ROI	£66,415,234.86	£17,448,090.41	£1,349,181.84	£0.00	£0.00	£0.00	£0.00	£0.00	£0.00	£0.00	£0.00	£0.00	85,212,507.11
	NI	£18,485,341.62	£3,944,264.18	£322,969.67	£0.00	£0.00	£0.00	£0.00	£0.00	£0.00	£0.00	£0.00	£0.00	22,752,575.47
Jul-16	ROI	£66,819,094.97	£17,673,967.19	£1,354,173.03	£328,923.62	£191,079.13	£4,446.9							

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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
Apr-14	ROI	€65,482,679.64	€21,981,963.17	€549,302.08	€147,627.43	€4,399.40	€259,726.57	€38,566.49	€1,783.33	€0.00	€0.00	€0.00	€88,466,048.11
	NI	€25,517,456.45	€8,979,409.88	€303,950.50	€73,719.22	€2,138.60	€56,294.66	€9,188.57	€381.08	€0.00	€0.00	€0.00	€34,942,538.96
May-14	ROI	€68,502,489.99	€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	€20,674.36	€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	€679.15	€34,724.44	€9,982.34	€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	€257,691.56	€32,517.87	€947.37	€0.00	€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	€125,953.28	€2,989.03	€83,564.13	€15,091.05	€693.94	€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	€9,593.16	€9,593.16	€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	€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	€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	€3,591.14	€3,591.14	€59.13	€0.00	€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	€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
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	€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	€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	€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	€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	€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	€0.00	€21,880,952.14
Mar-16	ROI	€45,576,733.11	€21,723,626.52	€256,964.95	€0.00	€2,213.11	€34,217.09	€0.00	€140.55	€104,929.14	€69.37	€0.00	€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	€20.36	€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	€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	€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	€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	€0.00	€22,370,765.79
Jun-16	ROI	€58,681,958.43	€17,461,175.53	€0.00	€0.00	€0.00	€0.00	€0.00	€0.00	€0.00	€0.00	€0.00	€76,143,133.96
	NI	€18,006,196.11	€3,966,742.06	€0.00	€0.00	€0.00	€0.00	€0.00	€0.00	€0.00	€0.00	€0.00	€21,972,938.17
Jul-16	ROI	€59,086,838.03	€17,690,586.94	€329,429.25	€192,735.63	€4,365.20	€75,450.35	€36,675.78	€526.71	€0.00	€0.00	€0.00	€77,416,607.89
	NI	€18,161,542.15	€4,072,634.08	€58,786.78	€44,758.20	€793.17	€96,559.26	€61,133.82	€636.37	€0.00	€0.00	€0.00	€22,496,843.83

Table 24 - Total Payments by Month

### 13. 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

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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

**Table 25– 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

**Table 26 - 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.

## 14. 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>	-	-	-	-	-



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Month	Ex-Ante	Ex-Ante 2	Ex-Post Indicative	Ex-Post Initial	Within Day
<u>June</u>	-	-	-	<u>15/06/2016</u>	-
<u>July</u>	-	-	-	-	-

Table 27 - 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
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

Table 28 - MIP Vs LR Peak Price Comparison