



Market Operator Monthly Report

May 2016

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1. Executive Summary

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

154 general queries were received in May 2016. During the same period 158 general queries were resolved.

There were 10 defaults by Participants during May 2016. The largest of these was an Energy Initial invoice for €1,030.85 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		-	1
Market Participants	Pricing & Scheduling	-	-
	Settlement	-	1
	Funds Transfer	10	-
	Credit Risk Management	-	-
SEMO	Pricing & Scheduling	-	2
	Settlement	-	1
	Funds Transfer	-	-
	Credit Risk Management	-	-
	Other	-	-
Total		10	4

Table 1 – Trading and Settlement Code Breaches

Further details of each of the Trading and Settlement code breaches noted above are set out in [Appendix A](#)

Key:

- Major Breach - late publishing of invoices, default notices issued for non-payment or similar.
- Minor Breach - deadlines not met, but no financial implication to Participants. This includes late posting of pricing and settlement runs.

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Joining and Terminating Parties and Units

One party joined the Market in May 2016.

- Flogas Natural Gas Limited

There were no terminating parties in May 2016.

There were five new units effective in the Market in May 2016.

- PT_400030/ GU_400324– Shellybanks PBA
- PT_400030/ GU_400325– Shellybanks PBB
- PT_400090/ DSU_401800 – Activation Energy AE4
- Pt_400091 / SU_400183 – Activation Energy
- PT_500032 / GU_501400 – Seegronan Windfarm

There was one unit which de-registered from the Market in May 2016.

- PT_400030 / GU_400323 – Poolbeg

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

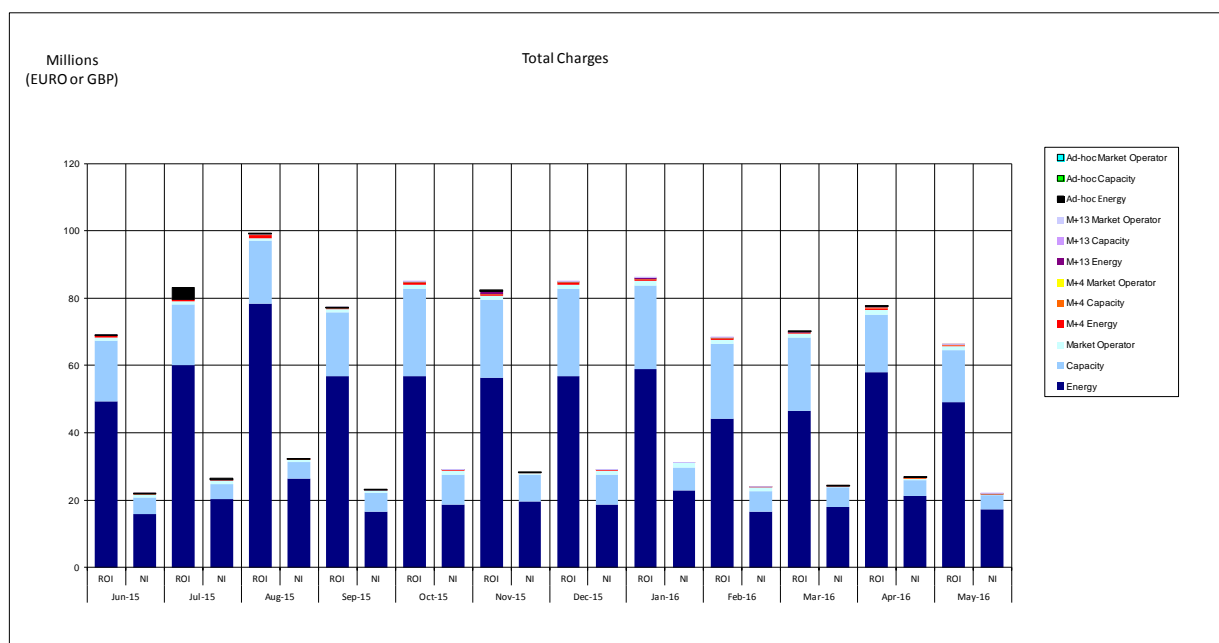


Figure 1 - Total Charges for Each Currency

Market	May 2016	
	ROI	NI
Energy	€49,184,917	£17,362,465
Capacity	€15,501,521	£4,104,501
Market Operator	€1,127,381	£265,764
M+4 Energy	€270,122	£105,262
M+4 Capacity	€95,680	£39,608
M+4 Market Operator	€3,487	£1,262
M+13 Energy	€68,851	£60,591
M+13 Capacity	€18,608	£22,415
M+13 Market Operator	€470	£387
Ad-hoc Energy	€0	£0
Ad-hoc Capacity	€0	£0
Ad-hoc Market Operator	€0	£0
Total	€66,271,038	£21,962,255

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

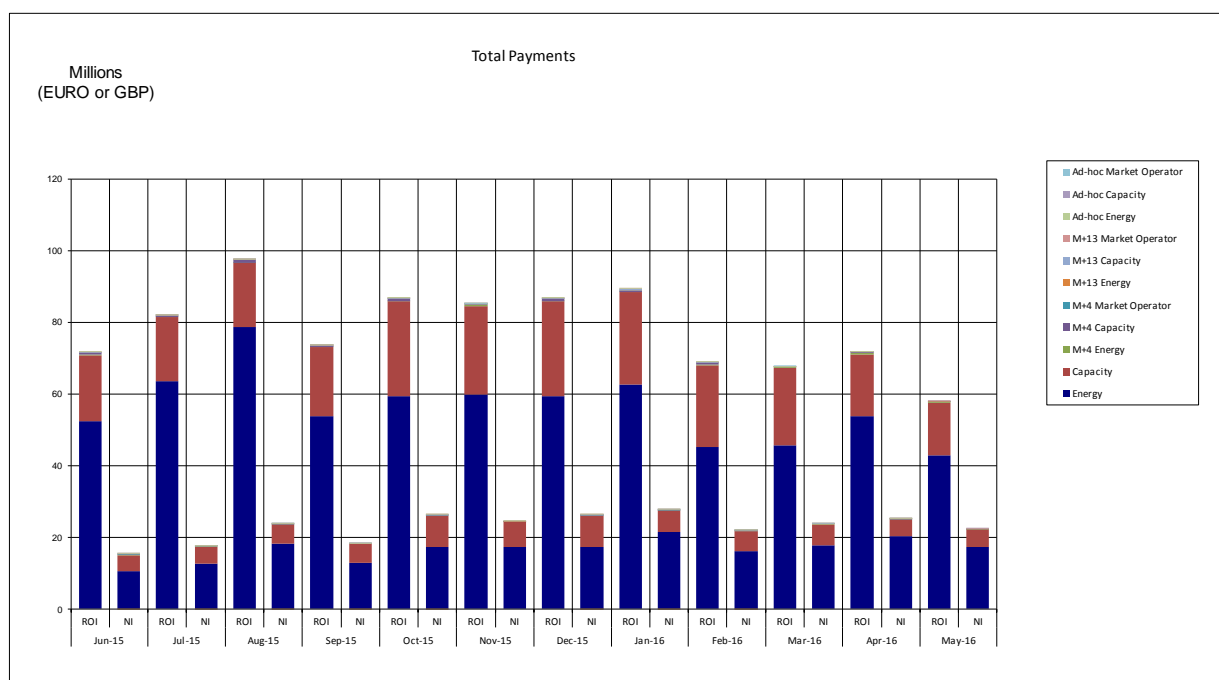


Figure 2 - Total Payments for Each Currency

Market	May 2016	
	ROI	NI
Energy	€42,783,609	£17,390,687
Capacity	€14,666,603	£4,751,740
M+4 Energy	€270,869	£105,177
M+4 Capacity	€95,779	£39,634
M+4 Market Operator	€3,487	£1,262
M+13 Energy	€70,281	£59,561
M+13 Capacity	€18,875	£22,325
M+13 Market Operator	€440	£380
Ad-hoc Energy	€0	£0
Ad-hoc Capacity	€0	£0
Ad-hoc Market Operator	€0	£0
Total	€57,909,943	£22,370,766

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:

May 2016	
Imbalance (Energy Only)	-€3,885,191.42

Table 4 - Balancing Costs for Energy Settlement

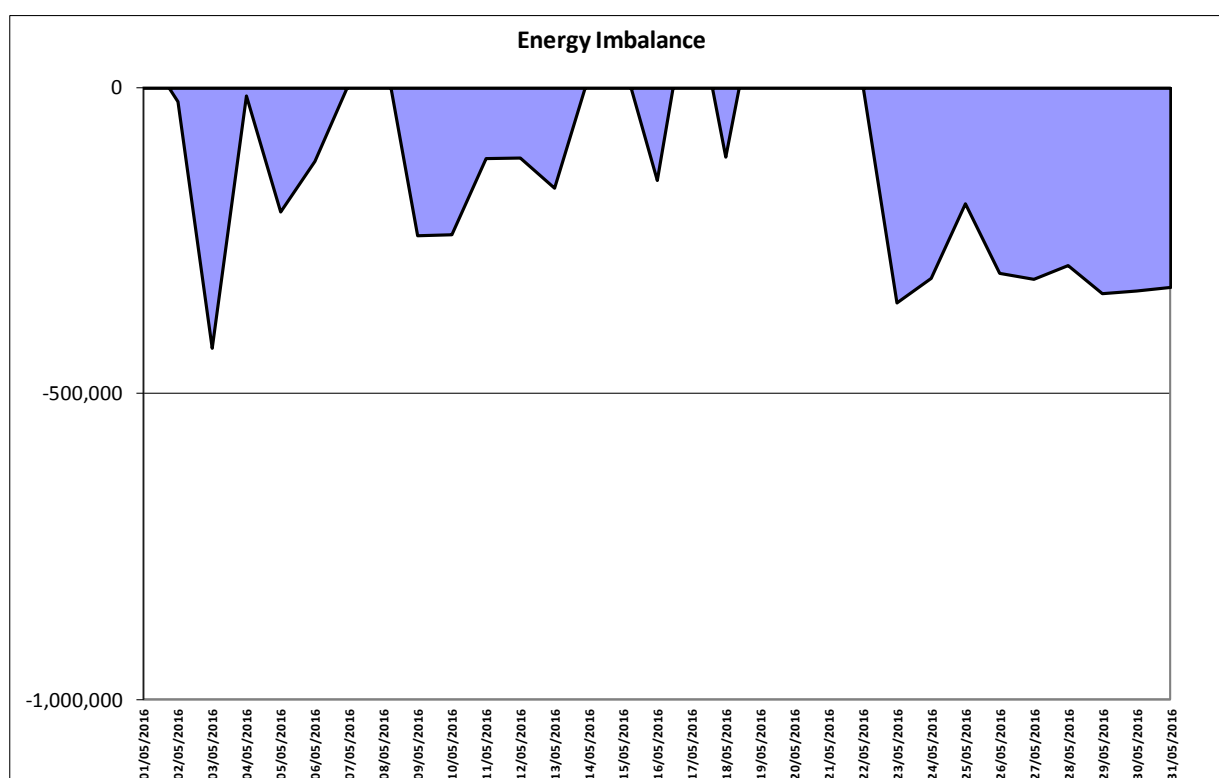


Figure 3 – Energy Imbalances

The full Balancing Cost of the SEM is determined by the summation of the daily payment amounts for Energy Imbalance, Constraint Payments, Uninstructed Imbalance Payments, and Imperfections Charges combined with the weekly Make Whole Payments and Testing Charges.

Historical values for testing charges have been provided in [Appendix E](#) .

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

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In tables 5 and 6 below:

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

Date Of Invoice	Week No	SEM Balancing Costs	VAT Balancing Costs
06/05/2016	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

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:

May 2016	
Capacity Charges	-€34,355,359.8
Capacity Payments	€34,355,126.8
Balancing Costs	-€232.99
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.

Total Currency Costs

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

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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
30/04/2016	06/05/2016	17	-£22,526.16	£940.00	-£21,586.16
07/05/2016	13/05/2016	18	£26,930.73	£-	£26,930.73
14/05/2016	20/05/2016	19	-£42,028.56	-£19,720.00	-£61,748.56
21/05/2016	27/05/2016	20	-£24,580.35	£-	-£24,580.35

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 £26,930.73 and a cost of-£61,748.56. 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
10/06/2016	May 2016	£53,165.46

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
€110,522,398.24	-€2,390,292.81	€1,998,583.83	-€102,093,727.98

Table 9 – Cumulative Imperfections Costs Vs Budget

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

This is demonstrated in the figure below.

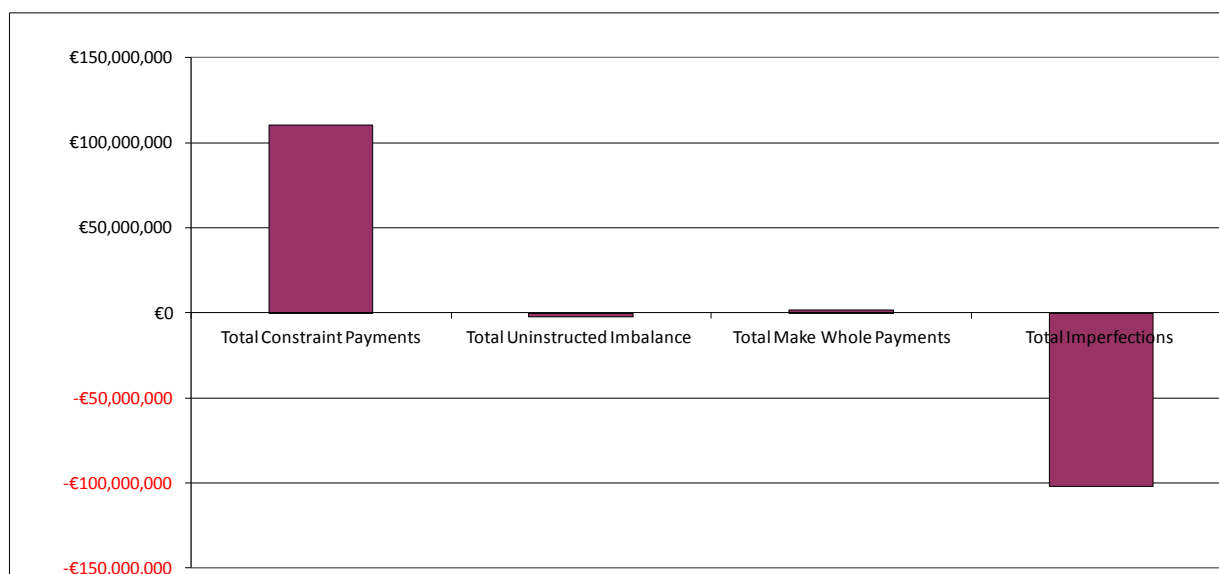


Figure 4 - Cumulative Imperfections Costs Vs Budget

The daily and weekly data that comprised these values is shown in [Appendix E](#).

Financial Changes between Initial Settlement and Subsequent Reruns

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

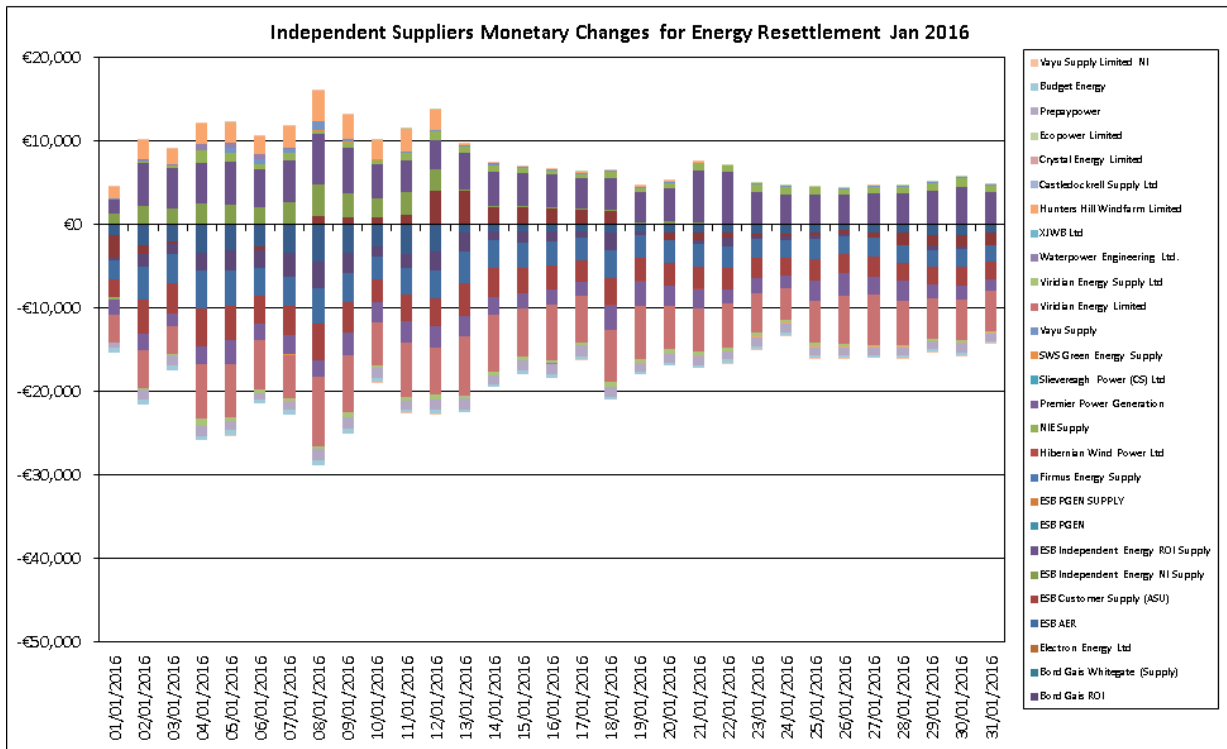


Figure 5 – Independent Suppliers Monetary Changes for Energy Resettlement – Jan 2016

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

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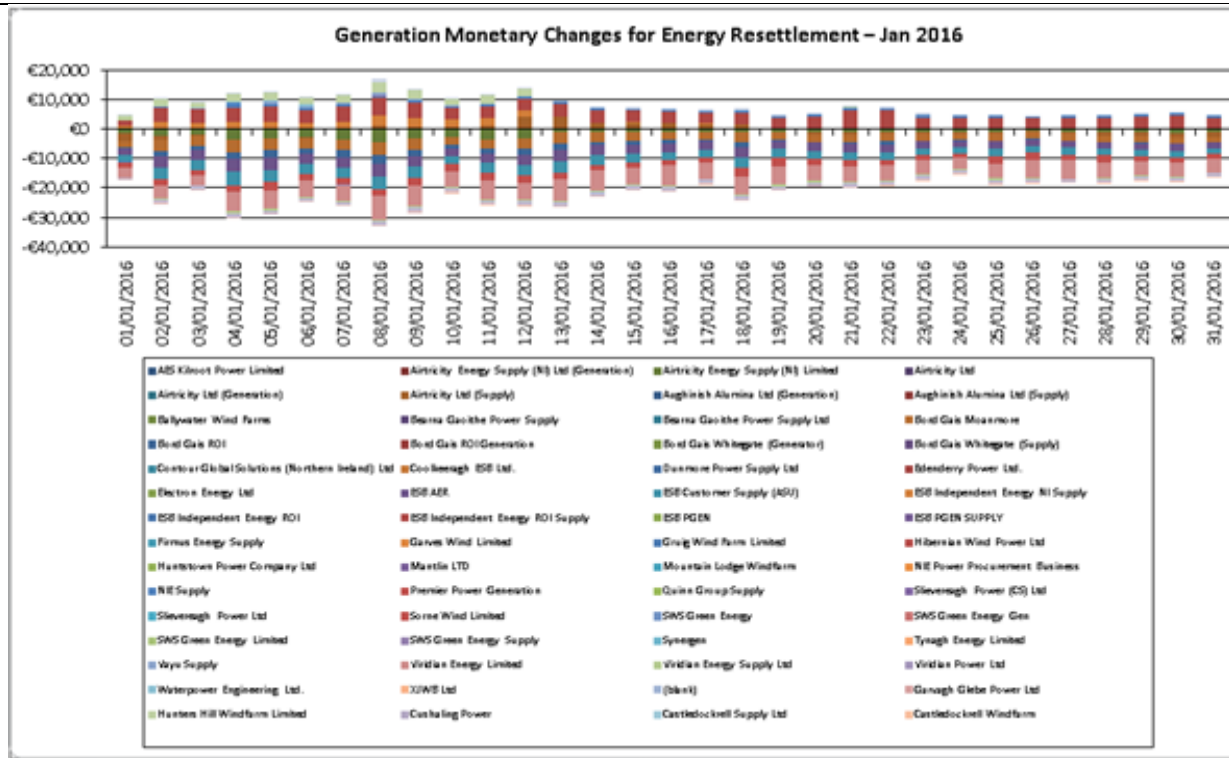


Figure 6 – Generation Monetary Changes for Energy Resettlement – Jan 2016

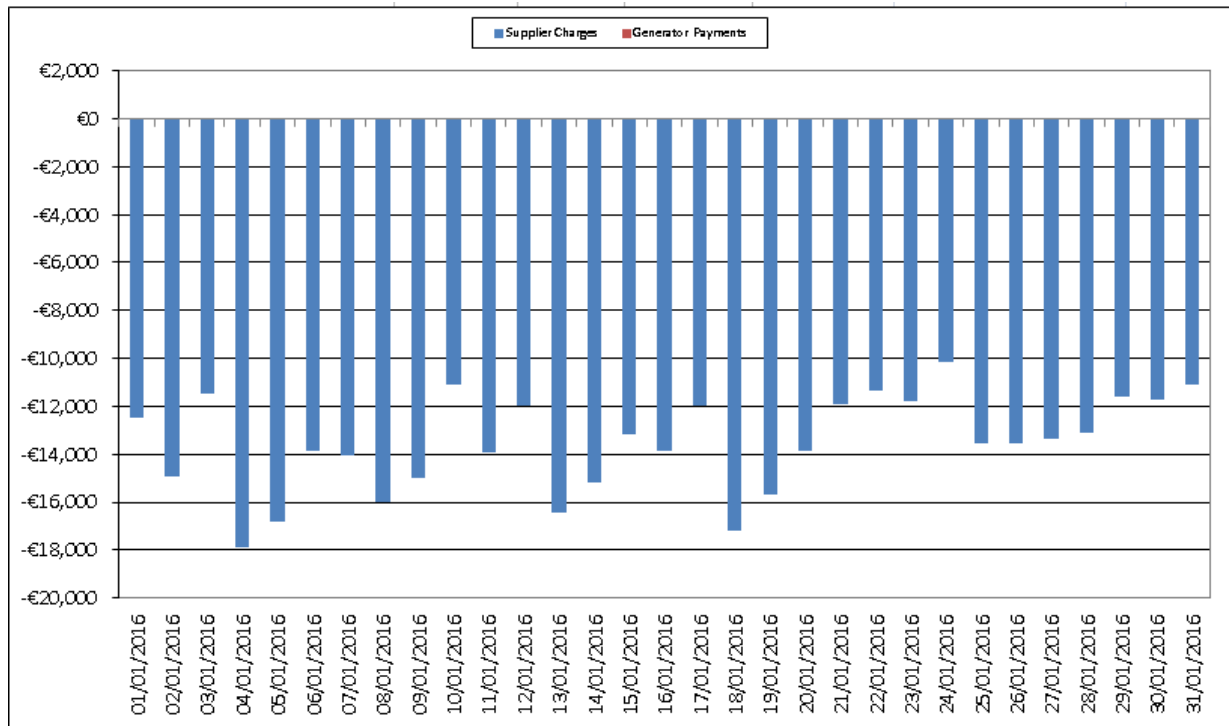


Figure 7 – Total Monetary Changes for Energy Resettlement – Jan 2016

M+13 Resettlement

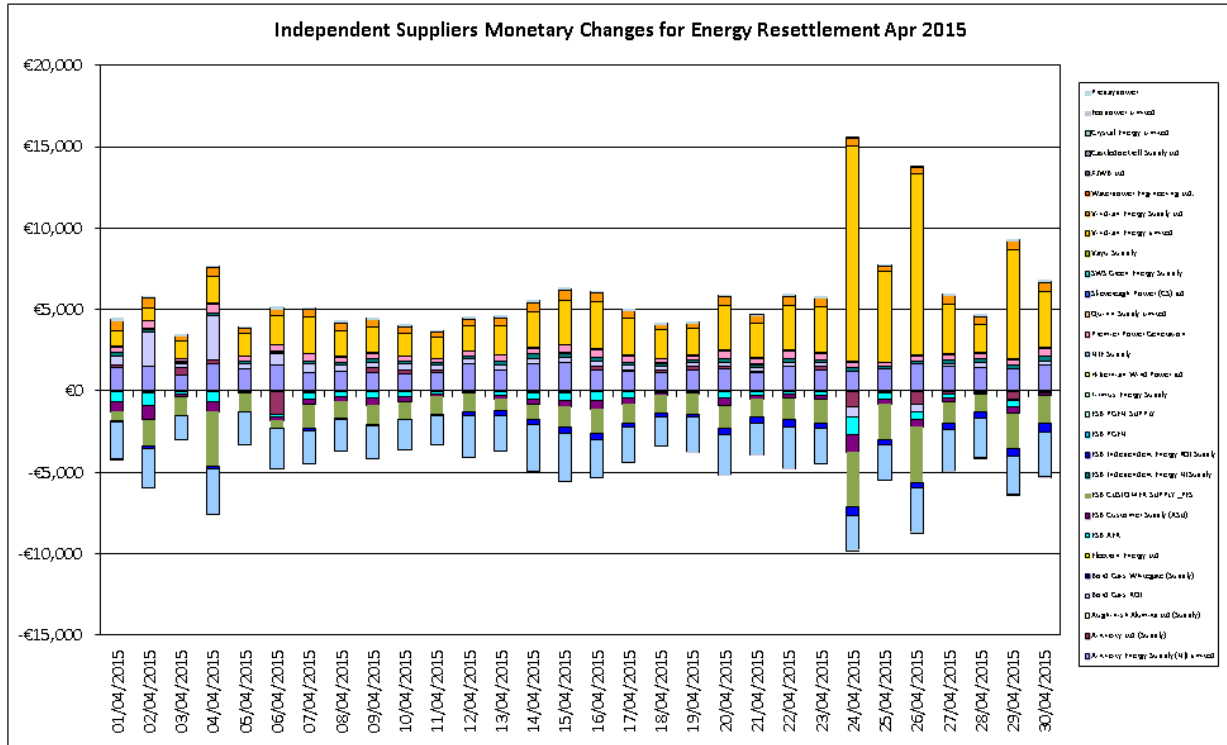


Figure 8 - Independent Suppliers Monetary Changes for Energy Resettlement – Apr 2015

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

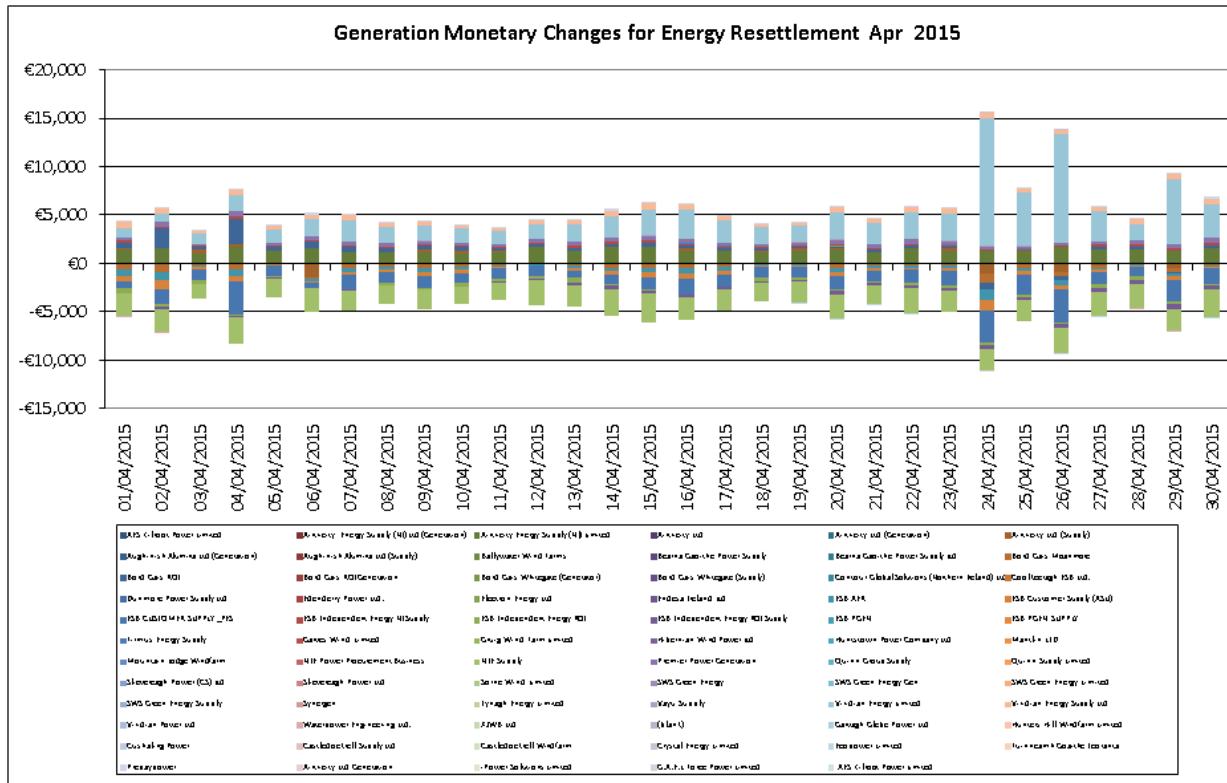


Figure 9 - Generation Monetary Changes for Energy Resettlement – Apr 2015

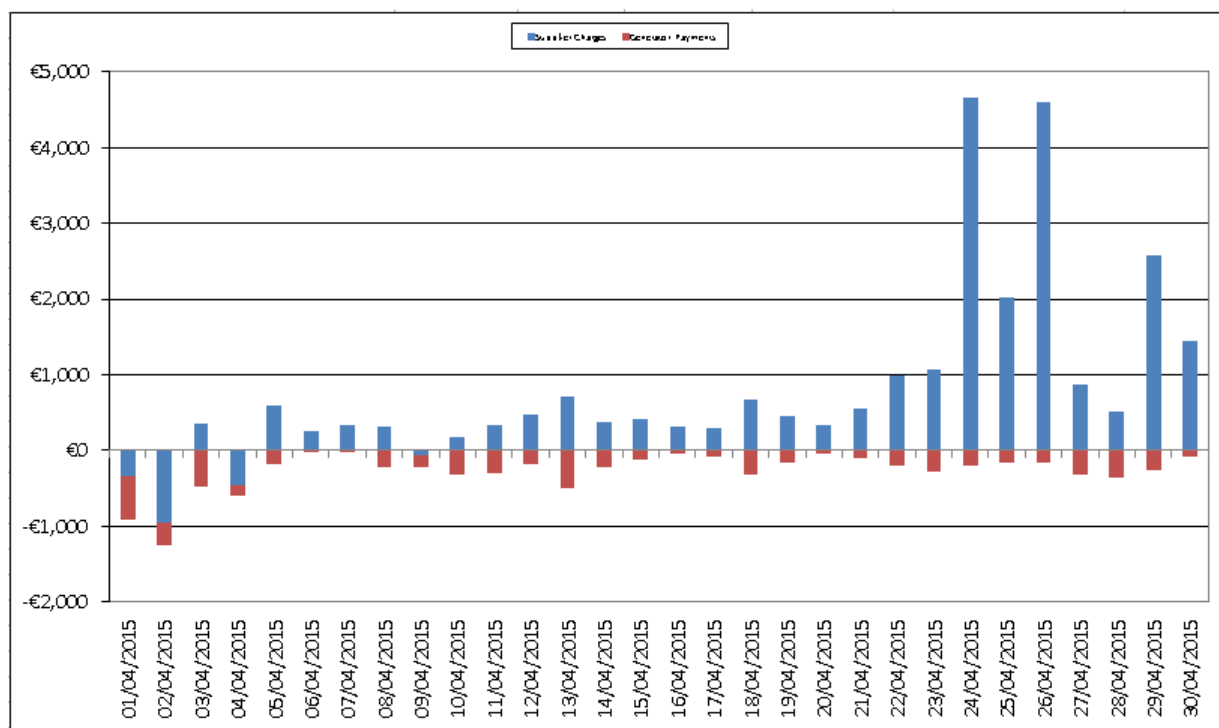


Figure 10 - Total Monetary Changes for Energy Resettlement – Apr 2015

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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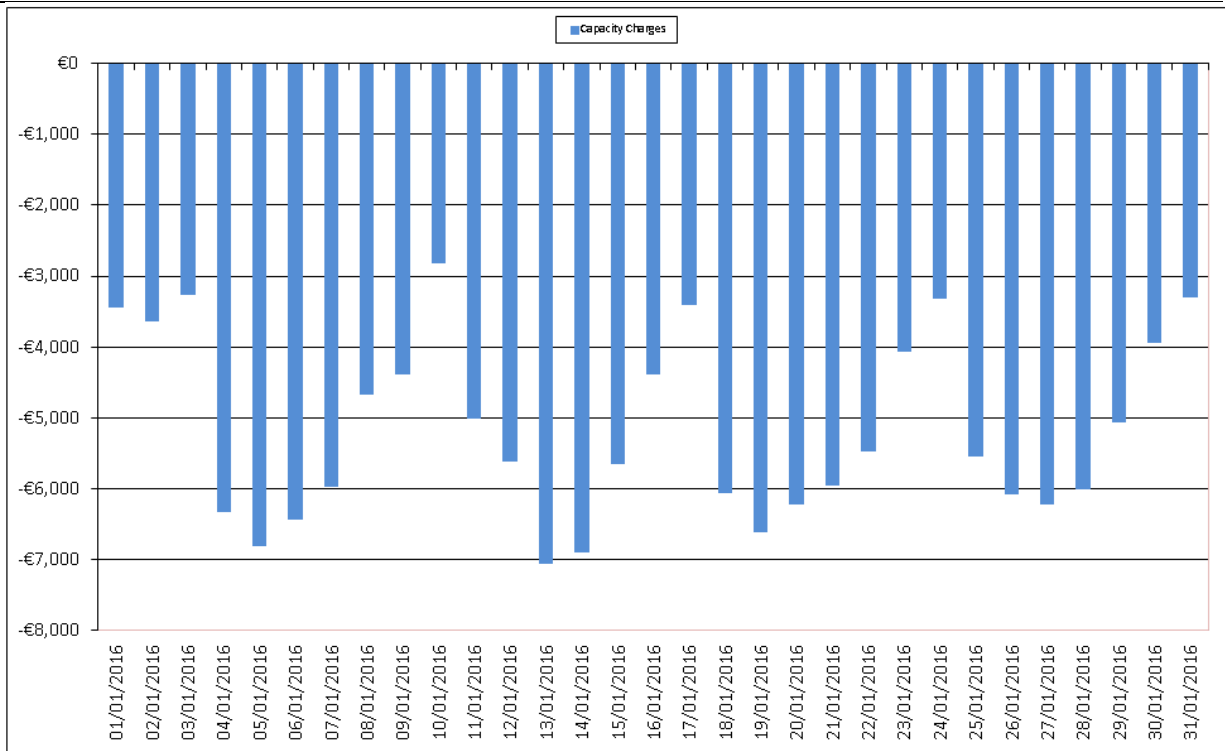


Figure 11 - Independent Suppliers Monetary Changes for Capacity Resettlement – Jan 2016

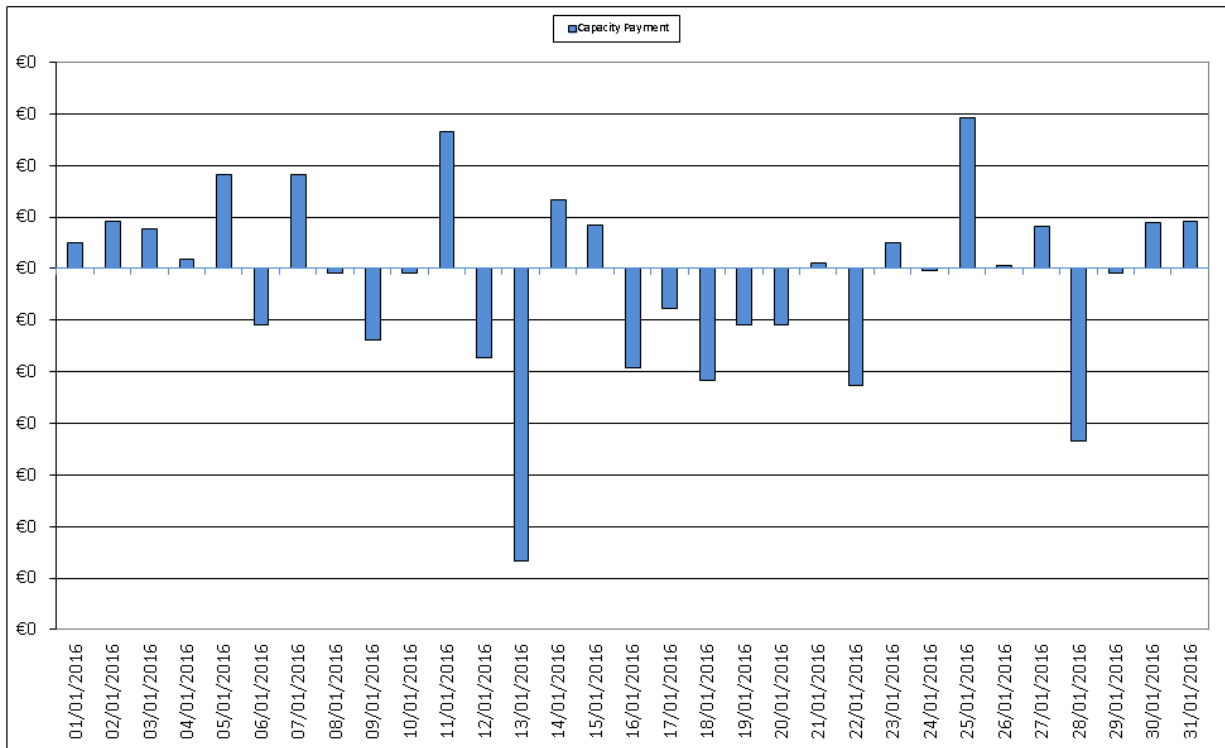


Figure 12 - All Generation Monetary Change for Capacity Resettlement – Jan 2016

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

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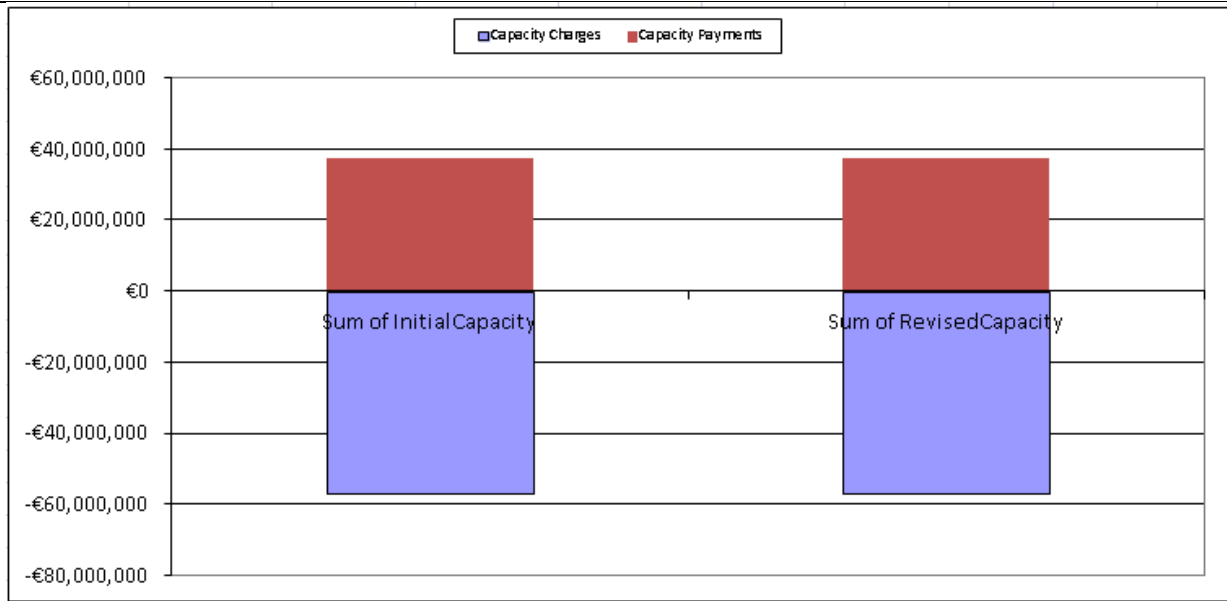


Figure 13 - Comparison of Distribution of Monetary Amounts between Capacity Initial and Resettlement Jan 2016

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

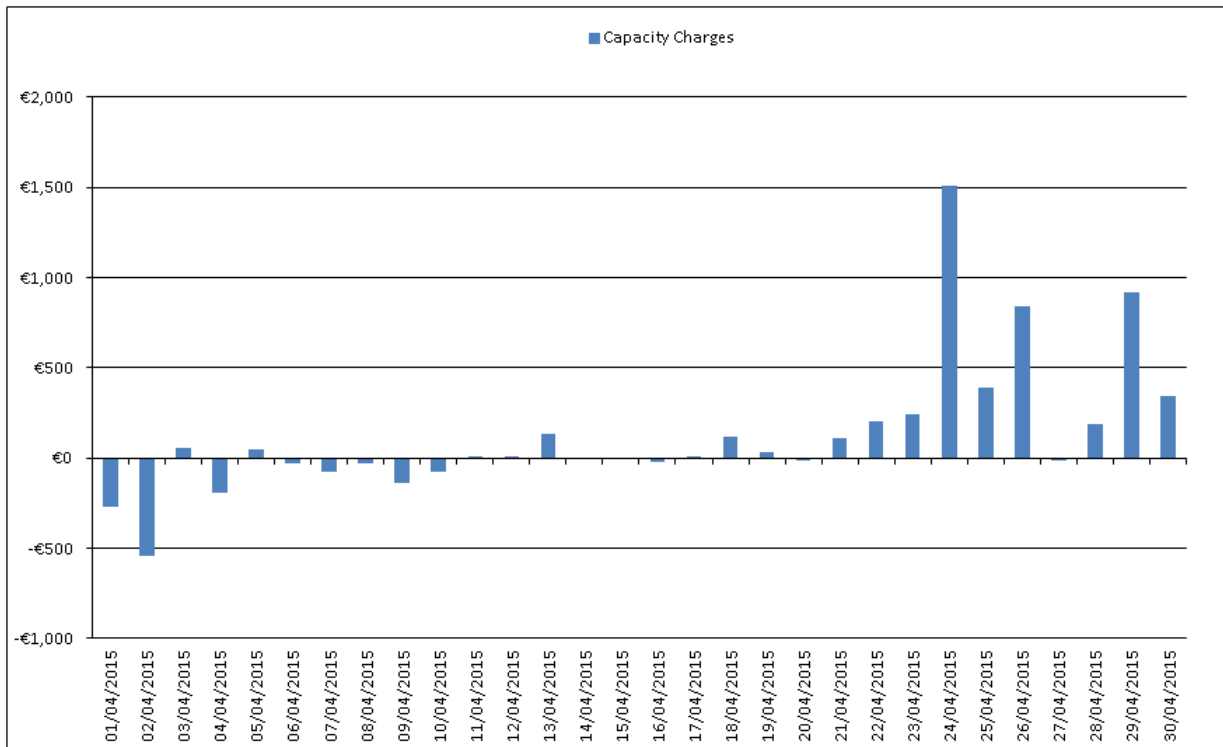


Figure 14 - Independent Suppliers Monetary Changes for Capacity Resettlement – Apr 2015

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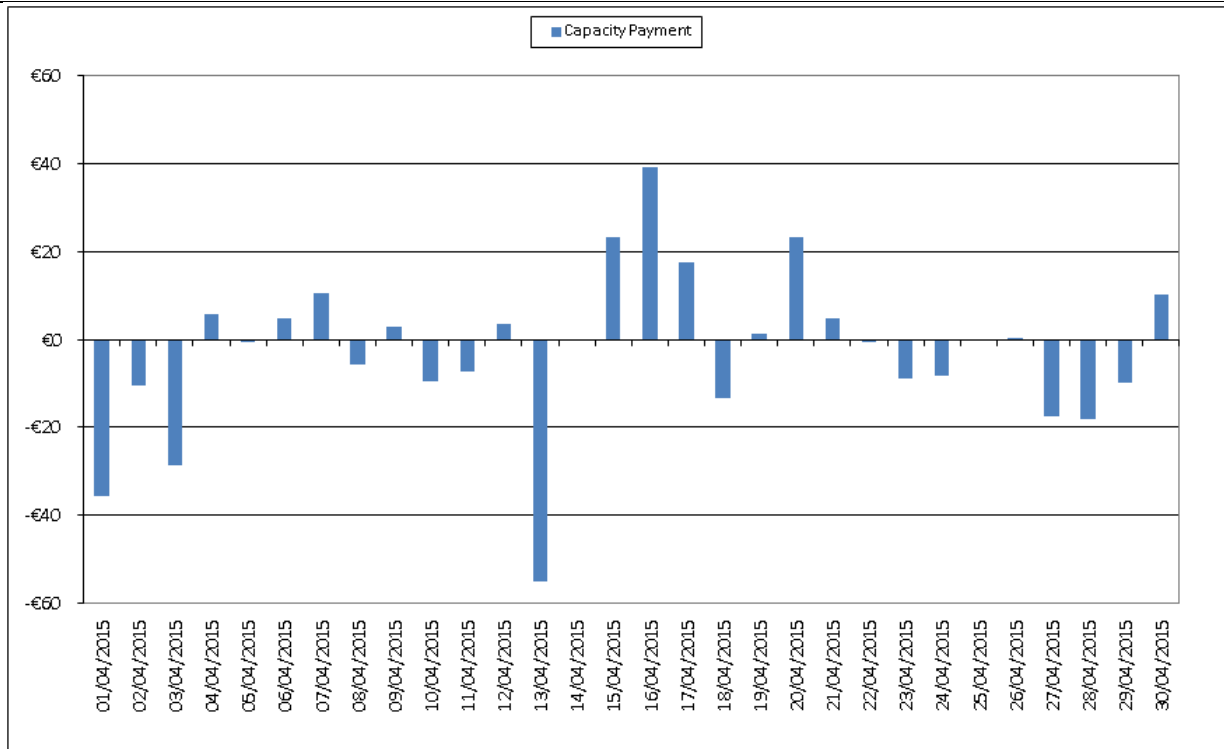


Figure 15 – All Generation Monetary Change for Capacity Resettlement – Apr 2015

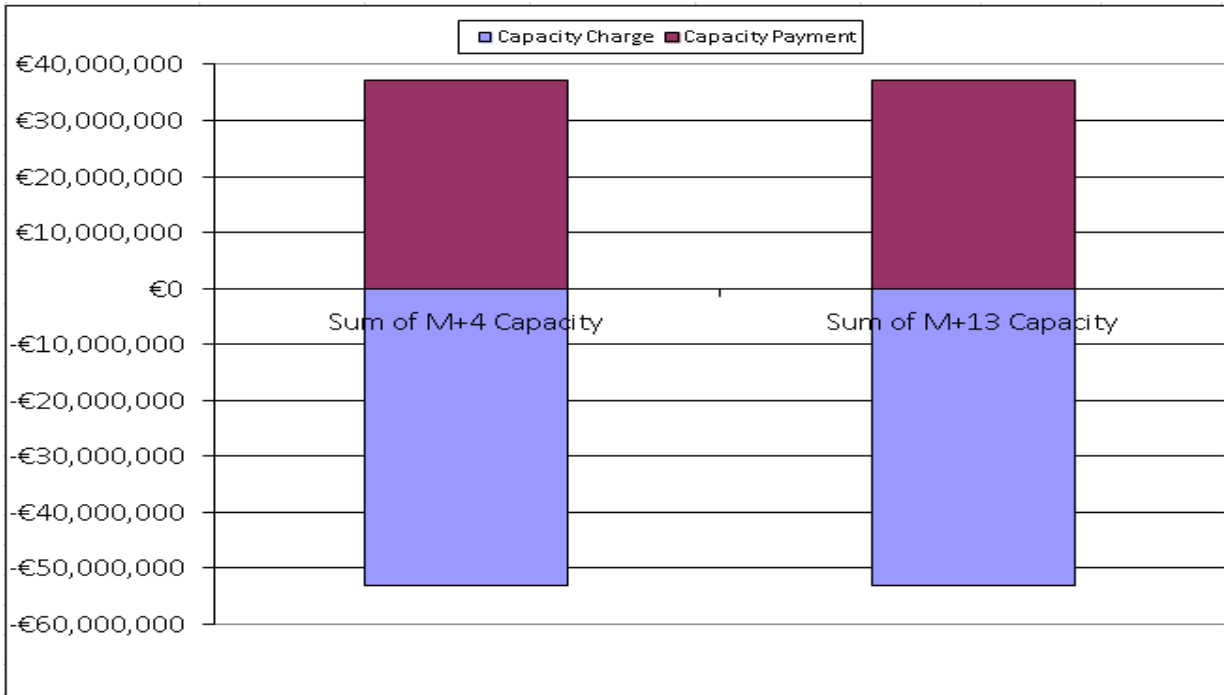


Figure 16 - Comparison of Distribution of Monetary Amounts between M+4 Capacity Resettlement and M+13 Capacity Resettlement – Apr 2015

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 May 2016.

Market Helpdesk Report: 01/05/16 to 31/05/16

	Received	Resolved within the period	Not Resolved	Resolved in the period	Resolution Time (Working Days)	Resolved On Time
Normal	154	134	20	158	0.97	153
Important	0	0	0	0	0.00	0
Urgent	0	0	0	0	0.00	0
Settlement	7	7	0	7	1.13	7
Credit	0	0	0	0	0.00	0
Dispute	0	0	0	0	0.00	0
Data	1	1	0	1	0.66	1
Total/Average	162	142	20	166	0.55	161

Table 10 – Helpdesk Statistics

Definitions:

- Resolved within the Period refers to queries raised and resolved within the calendar month of May 2016.
- Resolved in the Period refers to queries resolved within May 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 May 2016.
- Not Resolved refers to queries raised but not resolved within May 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 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 1.35 working days from 2.32 in April 2016 to 0.97 working days in May 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 May 2016 with regard to formal Settlement Queries.

5. Disputes and Queries

5.1.1 Disputes

No Disputes were raised during the month of May 2016.

5.1.2 Data Queries

There was one formal Data Query raised during the month of May 2016. This data query was not upheld.

5.1.3 Settlement Queries

There were seven formal Settlement Queries raised in May 2016. All of these queries were upheld and have since been resolved.

Topic	Number Of Queries
Dispatch Instructions	1
Testing Tariffs	1
MIUNs	1
SO Trades	4

Table 11 - Upheld Settlement Queries by topic

- One query relating to incorrect Dispatch Instructions at Initial settlement was raised. This query was deemed to be of low materiality and will be corrected as part of an M+4 Resettlement.
- One query relating to incorrect Testing Tariffs at Initial settlement was raised. This query was deemed to be of low materiality and will be corrected as part of an M+4 Resettlement.
- One query relating to incorrect MIUNs at Initial settlement was raised. This query was deemed to be of low materiality and will be corrected as part of an M+4 Resettlement.
- Four queries relating to incorrect SO Trades at Initial settlement were raised. All of these queries were deemed to be of low materiality and will be corrected as part of an M+4 Resettlement.

Unresolved Queries

There are no unresolved data queries or settlement queries as of the 8th June 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, 69.81% of data used was submitted by Participants through the normal Bid-Offer process. 30.19% 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 May 2016.

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

6.3.2 System Errors

There were no Market Application defects found in May 2016.

Table 12 – System Errors

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.

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The following tables and graphs provide details for the postings of the MSP for May 2016.

6.4.1 MSP Postings May 2016

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

Table 13 - Operational Timings

Process	On Time	< 1 hr late	> 1 hr late	Not done
Gate Close	100%	0%	0%	0%
Post EA1	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)

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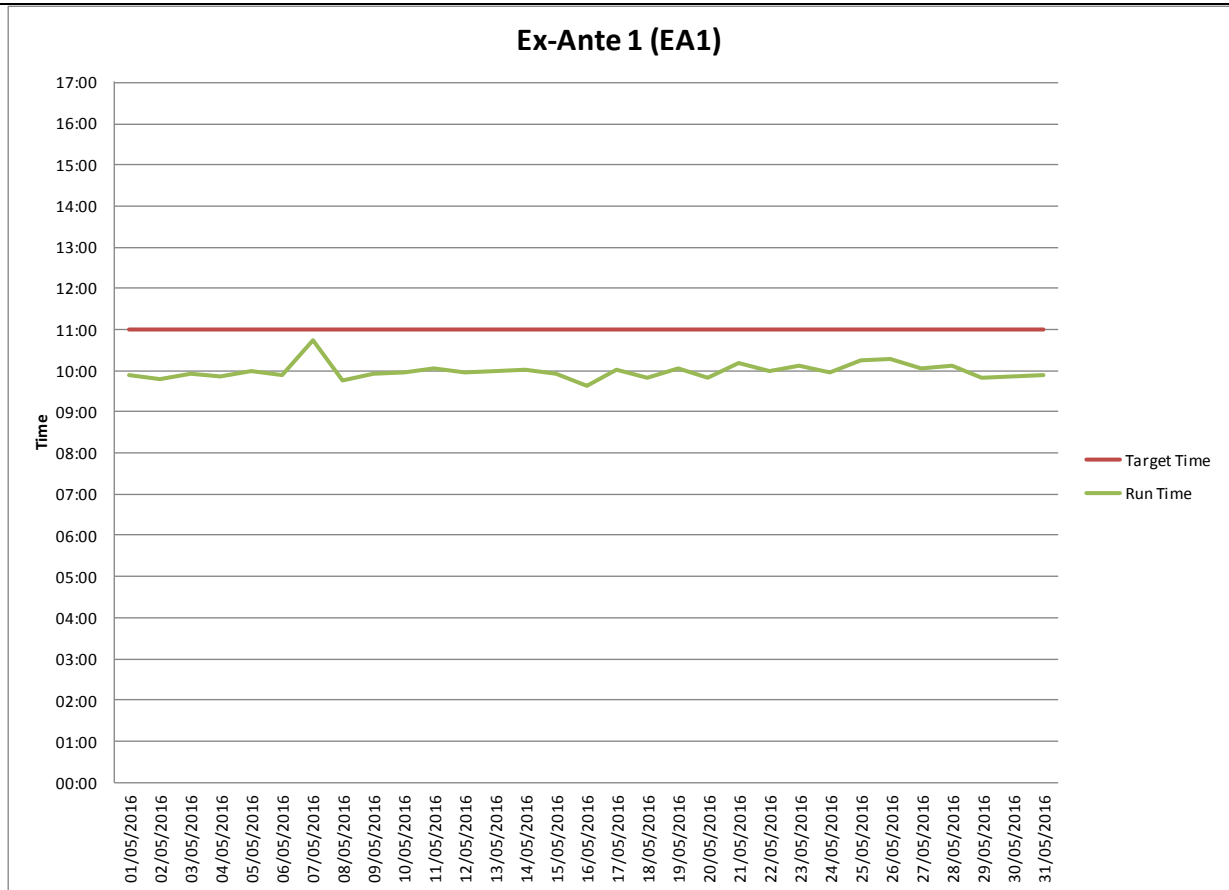


Figure 17 – Ex-Ante 1

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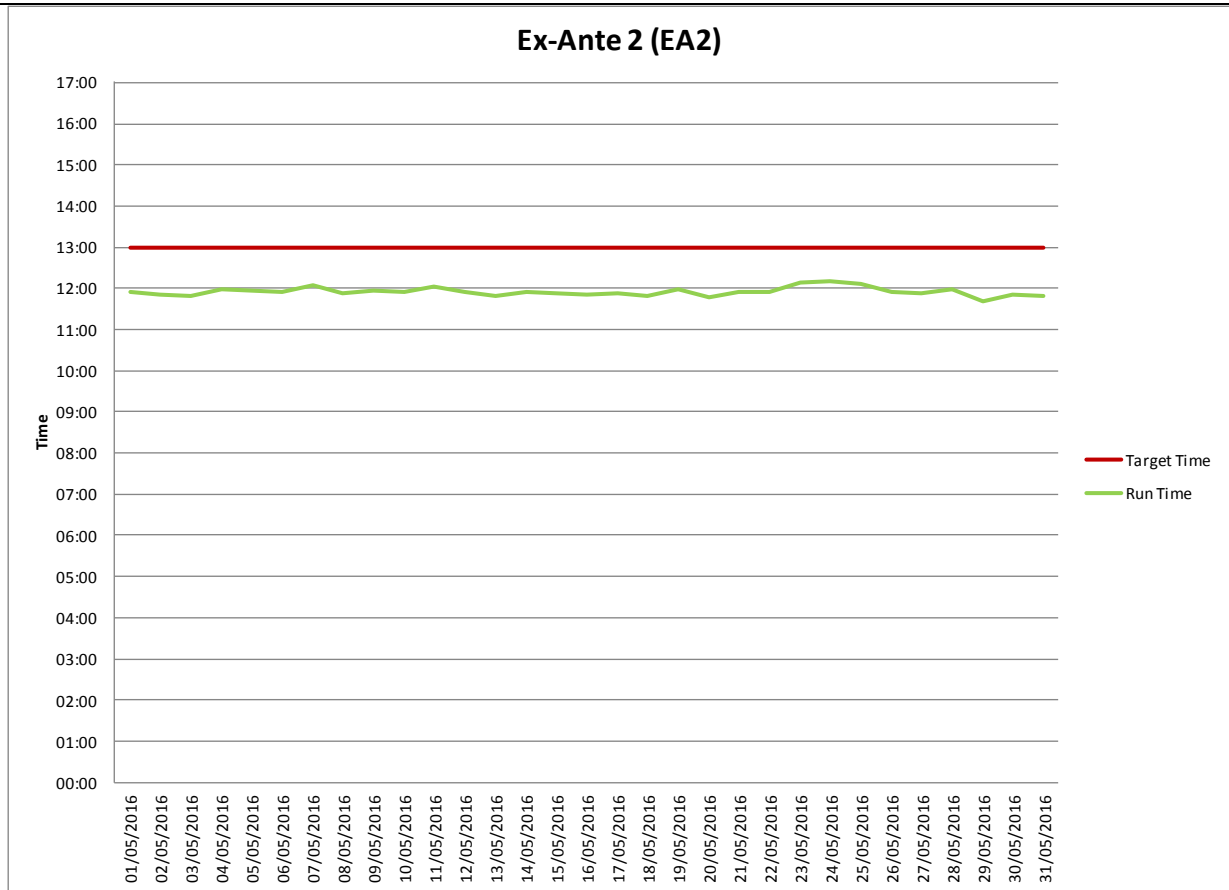


Figure 18 – Ex-Ante 2

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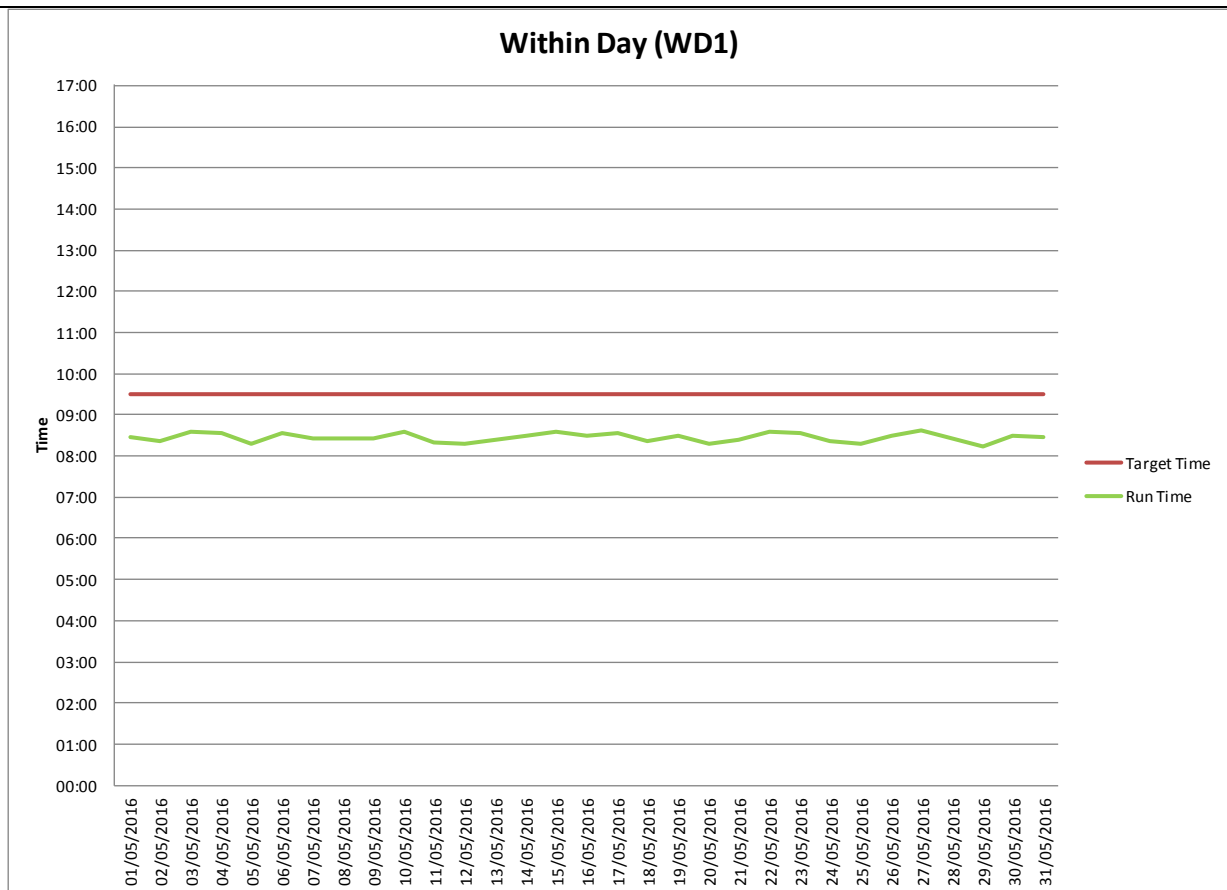


Figure 19 – Within Day 1

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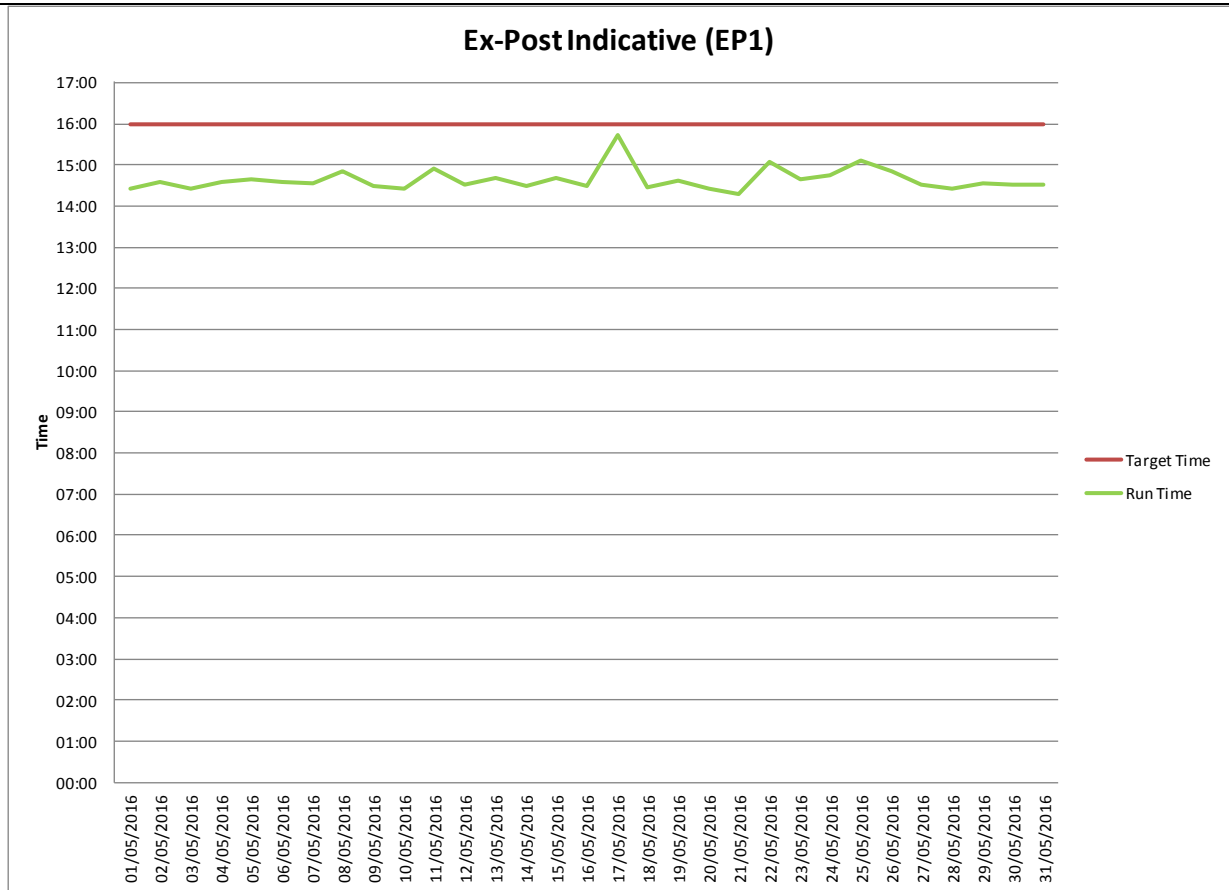


Figure 20 - Ex-Post Indicative

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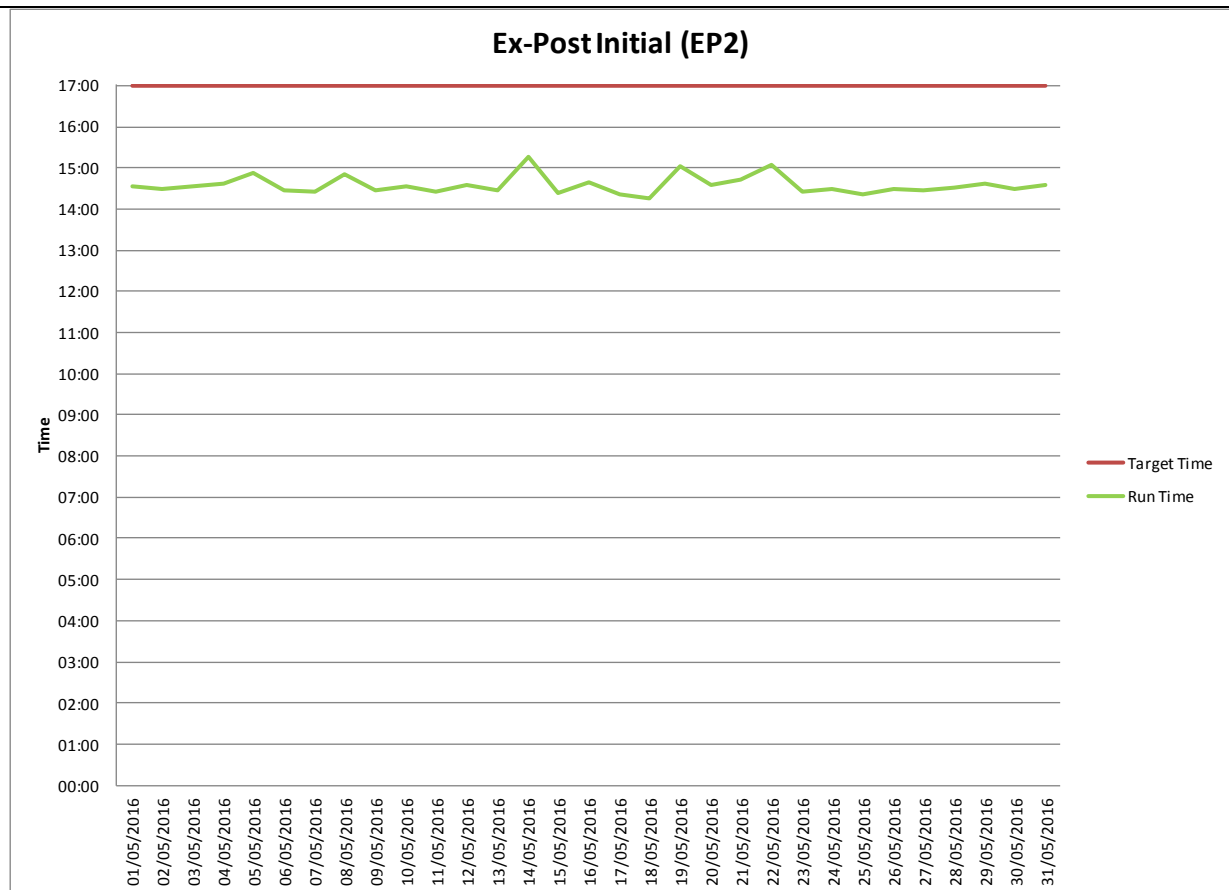


Figure 21 - Ex-Post Initial

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 May 2016, there were zero 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](#).

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6.4.3 Settlement Postings May 2016

The publication timings for Settlement runs are provided below.

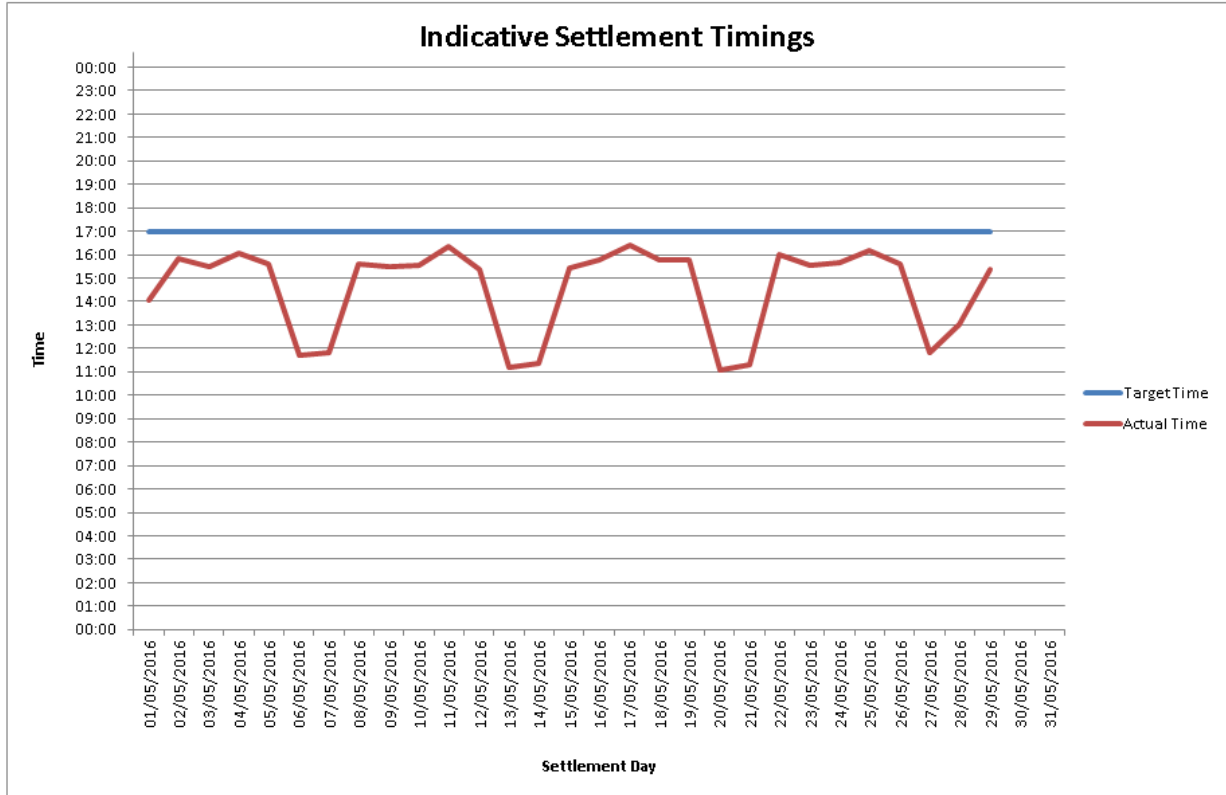


Figure 22 - Indicative Settlement Postings

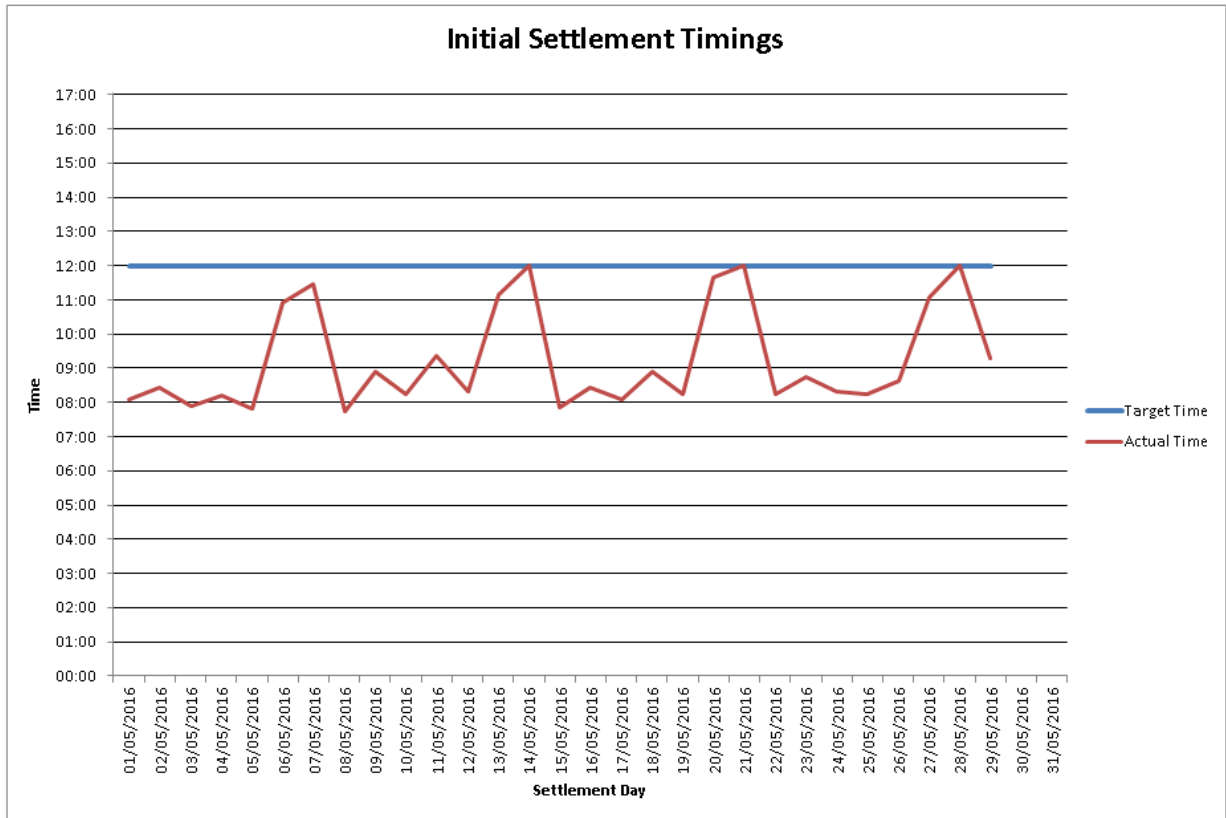


Figure 23 - Initial Settlement Postings

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

6.5.1 Release SEM R2.7.0 (Deployed: November 2nd 2015)

SEM R2.7.0 went live on Friday November 2nd with no issues

UUC 3.7.1 – (Deployed December 15th 2015)

UUC 3.7.1 was deployed on December 15th 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 (June 17th 2016)

SEM 2.8.0 cut-off date for participants was November 6th 2015:

So far one Change Request has been raised internally

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

Release scope was sent to RA and was approved on February 1st 2016.

Deployment date Friday June 17th 2016.

7. Occasional Components

7.1 Disaster Recovery/Business Continuity Tests

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

7.3 Communications or Systems Failures

There were no Communications or Systems Failures in May 2016

7.4 Denial of Service Attacks

There was no Denial of Service Attacks during May 2016.

7.5 Submission of Parameters to RAs for Approval

There has been no requirement for submission of parameters in the month of May 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
05/05/2016	Money In	Timing	Participant	Payment Default	Bearna Gaoithe Power Supply Ltd (PT_400073) defaulted on a Week 01 2015 Ad Hoc Energy Invoice.	Participant Error	A default letter was issued to the participant.	Major
05/05/2016	Money In	Timing	Participant	Payment Default	Electricity Exchange Limited (PT_400116) defaulted on a March 2015 Capacity M+13 Invoice.	Participant Error	A default letter was issued to the participant.	Major
05/05/2016	Money In	Timing	Participant	Payment Default	Mantlin Limited defaulted on a Week 01 2015 Ad Hoc Energy Invoice.	Participant Error	A default letter was issued to the participant.	Major
05/05/2016	Money In	Timing	Participant	Payment Default	Garves Wind Limited (PT_500044) defaulted on a Week 01 2015 Ad Hoc Energy Invoice.	Participant Error	A default letter was issued to the participant.	Major
05/05/2016	Money In	Timing	Participant	Payment Default	NIE Energy (PPB) (PT_500027) defaulted on a Week 01 2016 Ad Hoc Energy Invoice.	Participant Error	A default letter was issued to the participant.	Major
11/05/2016	Money In	Timing	Participant	Payment Default	IA_ROIEWIC defaulted on a Week 17 2016 Initial Energy Invoice.	Participant Error	A default letter was issued to the participant.	Major
11/05/2016	Money In	Timing	Participant	Payment Default	Edenderry Supply Company Limited (PT_400172) defaulted on a Week 01 2016 M+4 Energy Invoice.	Participant Error	A default letter was issued to the participant.	Major
16/05/2016	Money In	Timing	Participant	Payment Default	Mount Lucas Supply (PT_400135) defaulted on an April 2016 Initial VMOC Invoice.	Participant Error	A default letter was issued to the participant.	Major
16/05/2016	Money In	Timing	Participant	Payment Default	Aughrim Power Supply Limited (PT_400119) defaulted on a April 2016 Initial Capacity Invoice.	Participant Error	A default letter was issued to the participant.	Major
25/05/2016	Money In	Timing	Participant	Payment Default	Activation Energy (PT_400090) defaulted on a Week 19 2016 Initial Energy Invoice.	Participant Error	A default letter was issued to the Participant.	Major

Table 15 – Trading and Settlement Code Breaches – Market Participants

Data Provider

Ops Date Identified	Run Type	Quality or Timing	Party	Issue Type	Description	Cause	Resolution	T and SC Breach
18/05/2016	EP1	Timing	EirGrid TSO	File Submission	System Frequency file not received by submission deadline of 14:00.	Eirgrid experienced a system issue which resulted in a delay to the submission of this file.	A Contingency file was received at 15:44 and uploaded to the Market Systems by the Market Operator on behalf of the Eirgrid.	Minor

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SEMO - Pricing and Scheduling

Ops Date Identified	Run Type	Quality or Timing	Party	Issue Type	Description	Cause	Resolution	T and SC Breach
06/05/2016	EA1	Timing	SEMO	System	There was a delay to the publication of the Ex-Ante 1 (EA1) Modified Interconnector Unit Nominations (MIUNs) for Trading Day 07/05/2016.	A revision was required for Within Day (WD1) Modified Interconnector Unit Nominations (MIUNs) for Trading Day 06/05/2016. The publication of these MIUNs was delayed as a result of this revision and this resulted in a delay to the publication of the EA1 MIUNs for Trading Day 07/05/2016.	The EA1 MIUNs were published at 11:34 on 06/05/2016.	Minor
06/05/2016	WD1	Timing	SEMO	System	A revision was required for Within Day (WD1) Moyle Modified Interconnector Unit Nominations (MIUNs) for Trading Day 06/05/2016.	The MIUN calculator produced an error and a revised file was required.	Revised Moyle MIUNs were published at 11:35 on 06/05/2016.	Minor

SEMO – Settlements

Ops Date Identified	Run Type	Quality or Timing	Party	Issue Type	Description	Cause	Resolution	T and SC Breach
11/05/2016	SE1	Timing	SEMO	File Submission	The Indicative meter data resubmission from the MRSO, Meter Data Provider (MDP) was not received by the 14:00 deadline for Settlement Day 10th May 2016.	A newly registered unit was entered in the Market Participant Interface incorrectly which resulted in the meter data submission from the MDP going to error.	The vendor provided a script to correct the error and the meter data was successfully resubmitted at 14:20 on 11th May 2016.	Minor

Table 16 – Trading and Settlement Code Breaches – Settlements

SEMO - Funds Transfer

There were no issues to report in May 2016.

SEMO - Credit Management

There were no issues to report in May 2016.

Table 17 – Trading and Settlement Code Breaches – Credit Management

SEMO – Other

There were no issues to report in May 2016

Appendix B: List of Queries by Type

Summary Title	Description	ID	Logged On	Date sent to MP	Type
Capacity	We believe the CPEX calculation is incorrect for the Indicative Capacity settlement for 25/04/2016 for PT_500034 GU_501350. I have replicated the calculation and am not getting the same answer as in the statements. The	PT_500034	2016-05-06	2016-05-06	Data
Dispatch Instructions	This is a query in relation to a DI curtailment of GU_400620 (Mountain Lodge Windfarm Phase 1) on 24/3/16 that	Eirgrid	2016-05-03	2016-05-04	Settlement
MIUNs	The Preliminary EWIC PIR for Trade Date 19/03/2016 matched the EWIC Error Report. However, the Final EWIC	SONI	2016-05-11	2016-05-12	Settlement
SO-SO Trades	Incorrect price used for National Grid SO Trade settlement. Costs revised after D+3 for three periods on trade	IA_ROIEWIC	2016-05-12	2016-05-12	Settlement
SO-SO Trades	Issue with final D+3 file. Periods effected, 24 1 23:00 - 23:30	SONI	2016-05-13	2016-05-17	Settlement
SO-SO Trades	There has been a cash value change after the D+3 for trade date 24.04.16 on EWIC for period 15,1	SONI	2016-05-13	2016-05-17	Settlement
SO-SO Trades	There has been a cash and volume value change after the D+3 for trade date 09.04.16 on EWIC for periods 24,1	SONI	2016-05-13	2016-05-17	Settlement
Testing Tariffs	Unit GU_400323 (PBC). Testing tariff B should have applied to this unit when testing on 28th April 2016. Market	PT_400030	2016-05-26	2016-05-27	Settlement

Table 18 - 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 defects found in May 2016.

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

Table 19 - List of System Errors and Failures

10. 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
01/05/2016	11:00	09:53	13:00	11:55	09:30	08:28	16:00	14:25	17:00	14:33
02/05/2016	11:00	09:48	13:00	11:50	09:30	08:22	16:00	14:36	17:00	14:30
03/05/2016	11:00	09:55	13:00	11:49	09:30	08:36	16:00	14:26	17:00	14:33
04/05/2016	11:00	09:51	13:00	11:58	09:30	08:33	16:00	14:35	17:00	14:37
05/05/2016	11:00	09:59	13:00	11:56	09:30	08:18	16:00	14:39	17:00	14:52
06/05/2016	11:00	09:53	13:00	11:54	09:30	08:33	16:00	14:35	17:00	14:28
07/05/2016	11:00	10:44	13:00	12:04	09:30	08:25	16:00	14:34	17:00	14:26
08/05/2016	11:00	09:46	13:00	11:52	09:30	08:25	16:00	14:50	17:00	14:51
09/05/2016	11:00	09:56	13:00	11:57	09:30	08:25	16:00	14:29	17:00	14:27
10/05/2016	11:00	09:57	13:00	11:55	09:30	08:36	16:00	14:26	17:00	14:33
11/05/2016	11:00	10:04	13:00	12:02	09:30	08:20	16:00	14:54	17:00	14:26
12/05/2016	11:00	09:58	13:00	11:54	09:30	08:17	16:00	14:31	17:00	14:36
13/05/2016	11:00	09:59	13:00	11:49	09:30	08:23	16:00	14:40	17:00	14:27
14/05/2016	11:00	10:01	13:00	11:55	09:30	08:29	16:00	14:30	17:00	15:16
15/05/2016	11:00	09:55	13:00	11:52	09:30	08:36	16:00	14:40	17:00	14:24
16/05/2016	11:00	09:38	13:00	11:50	09:30	08:29	16:00	14:29	17:00	14:39
17/05/2016	11:00	10:02	13:00	11:52	09:30	08:34	16:00	15:44	17:00	14:21
18/05/2016	11:00	09:50	13:00	11:49	09:30	08:22	16:00	14:28	17:00	14:16
19/05/2016	11:00	10:04	13:00	11:58	09:30	08:30	16:00	14:37	17:00	15:03
20/05/2016	11:00	09:50	13:00	11:46	09:30	08:17	16:00	14:26	17:00	14:35
21/05/2016	11:00	10:12	13:00	11:55	09:30	08:24	16:00	14:18	17:00	14:42
22/05/2016	11:00	09:59	13:00	11:55	09:30	08:35	16:00	15:05	17:00	15:04
23/05/2016	11:00	10:07	13:00	12:09	09:30	08:33	16:00	14:38	17:00	14:25
24/05/2016	11:00	09:57	13:00	12:10	09:30	08:22	16:00	14:44	17:00	14:29
25/05/2016	11:00	10:16	13:00	12:06	09:30	08:18	16:00	15:07	17:00	14:22
26/05/2016	11:00	10:18	13:00	11:54	09:30	08:30	16:00	14:51	17:00	14:29
27/05/2016	11:00	10:04	13:00	11:52	09:30	08:37	16:00	14:31	17:00	14:28
28/05/2016	11:00	10:07	13:00	11:58	09:30	08:25	16:00	14:25	17:00	14:31
29/05/2016	11:00	09:49	13:00	11:42	09:30	08:14	16:00	14:33	17:00	14:37
30/05/2016	11:00	09:51	13:00	11:51	09:30	08:29	16:00	14:32	17:00	14:29
31/05/2016	11:00	09:53	13:00	11:49	09:30	08:28	16:00	14:32	17:00	14:36

Table 20 – MSP Runs

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Settlement Runs

Indicative				INITIAL			
Trading Day	Actual Date	Target Time	Actual Time	Trading Day	Actual Date	Target Time	Actual Time
01/05/2016	02/05/2016	17:00	14:05	01/05/2016	06/05/2016	12:00	08:05
02/05/2016	03/05/2016	17:00	15:49	02/05/2016	09/05/2016	12:00	08:27
03/05/2016	04/05/2016	17:00	15:28	03/05/2016	10/05/2016	12:00	07:54
04/05/2016	05/05/2016	17:00	16:04	04/05/2016	11/05/2016	12:00	08:11
05/05/2016	06/05/2016	17:00	15:36	05/05/2016	12/05/2016	12:00	07:50
06/05/2016	09/05/2016	17:00	11:42	06/05/2016	13/05/2016	12:00	10:54
07/05/2016	09/05/2016	17:00	11:50	07/05/2016	13/05/2016	12:00	11:28
08/05/2016	09/05/2016	17:00	15:35	08/05/2016	13/05/2016	12:00	07:44
09/05/2016	10/05/2016	17:00	15:29	09/05/2016	16/05/2016	12:00	08:53
10/05/2016	11/05/2016	17:00	15:33	10/05/2016	17/05/2016	12:00	08:15
11/05/2016	12/05/2016	17:00	16:22	11/05/2016	18/05/2016	12:00	09:22
12/05/2016	13/05/2016	17:00	15:21	12/05/2016	19/05/2016	12:00	08:20
13/05/2016	16/05/2016	17:00	11:11	13/05/2016	20/05/2016	12:00	11:08
14/05/2016	16/05/2016	17:00	11:23	14/05/2016	20/05/2016	12:00	12:00
15/05/2016	16/05/2016	17:00	15:25	15/05/2016	20/05/2016	12:00	07:52
16/05/2016	17/05/2016	17:00	15:47	16/05/2016	23/05/2016	12:00	08:27
17/05/2016	18/05/2016	17:00	16:24	17/05/2016	24/05/2016	12:00	08:04
18/05/2016	19/05/2016	17:00	15:46	18/05/2016	25/05/2016	12:00	08:55
19/05/2016	20/05/2016	17:00	15:45	19/05/2016	26/05/2016	12:00	08:15
20/05/2016	23/05/2016	17:00	11:05	20/05/2016	27/05/2016	12:00	11:39
21/05/2016	23/05/2016	17:00	11:17	21/05/2016	27/05/2016	12:00	12:00
22/05/2016	23/05/2016	17:00	15:59	22/05/2016	27/05/2016	12:00	08:14
23/05/2016	24/05/2016	17:00	15:33	23/05/2016	30/05/2016	12:00	08:44
24/05/2016	25/05/2016	17:00	15:39	24/05/2016	31/05/2016	12:00	08:20
25/05/2016	26/05/2016	17:00	16:10	25/05/2016	01/06/2016	12:00	08:14
26/05/2016	27/05/2016	17:00	15:35	26/05/2016	02/06/2016	12:00	08:38
27/05/2016	30/05/2016	17:00	11:48	27/05/2016	03/06/2016	12:00	11:04
28/05/2016	30/05/2016	17:00	13:01	28/05/2016	03/06/2016	12:00	12:00
29/05/2016	30/05/2016	17:00	15:23	29/05/2016	03/06/2016	12:00	09:17
30/05/2016	31/05/2016	17:00	15:12	30/05/2016	06/06/2016	12:00	08:06
31/05/2016	01/06/2016	17:00	15:39	31/05/2016	07/06/2016	12:00	08:56

Table 21 – Settlement Runs

11. 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

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

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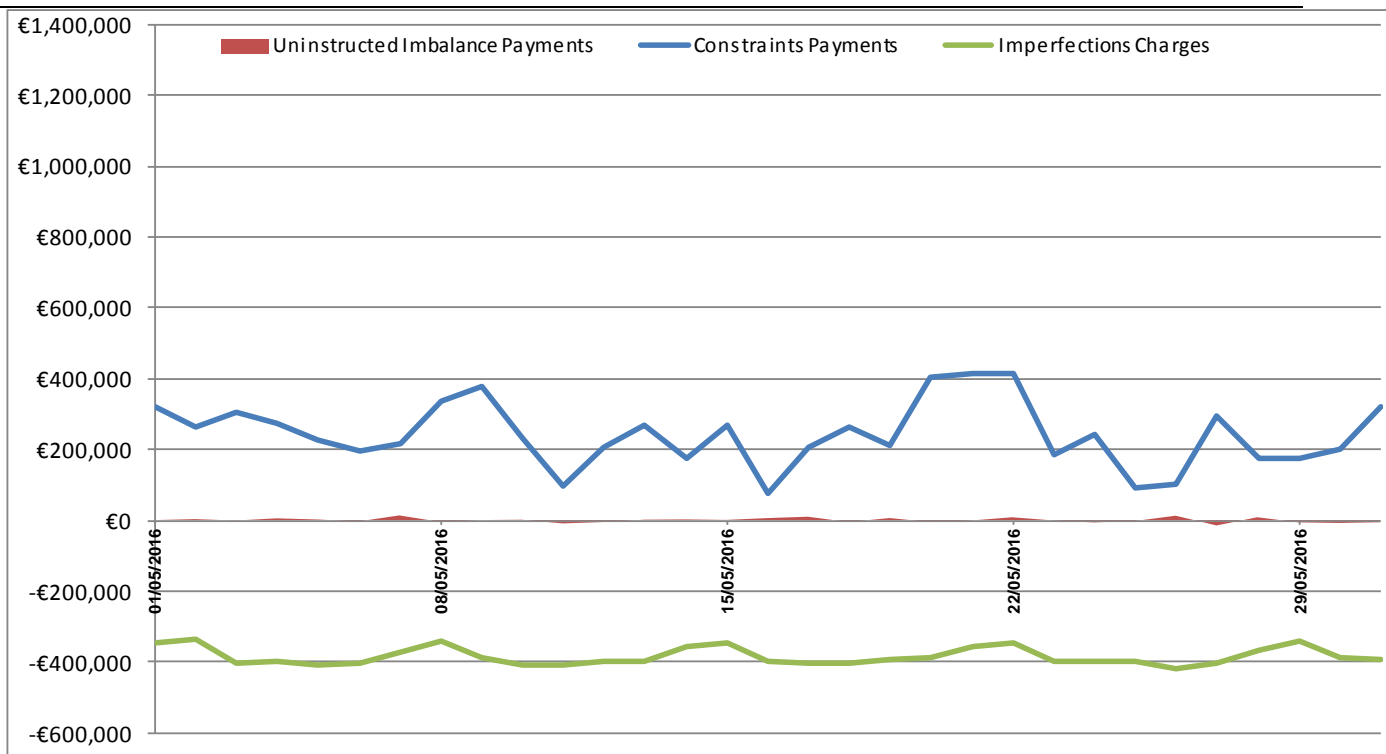


Figure 24 - Constraint Payments, Uninstructed Imbalance Payments, and Imperfections Charges

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

Table 23 - Make Whole Payments

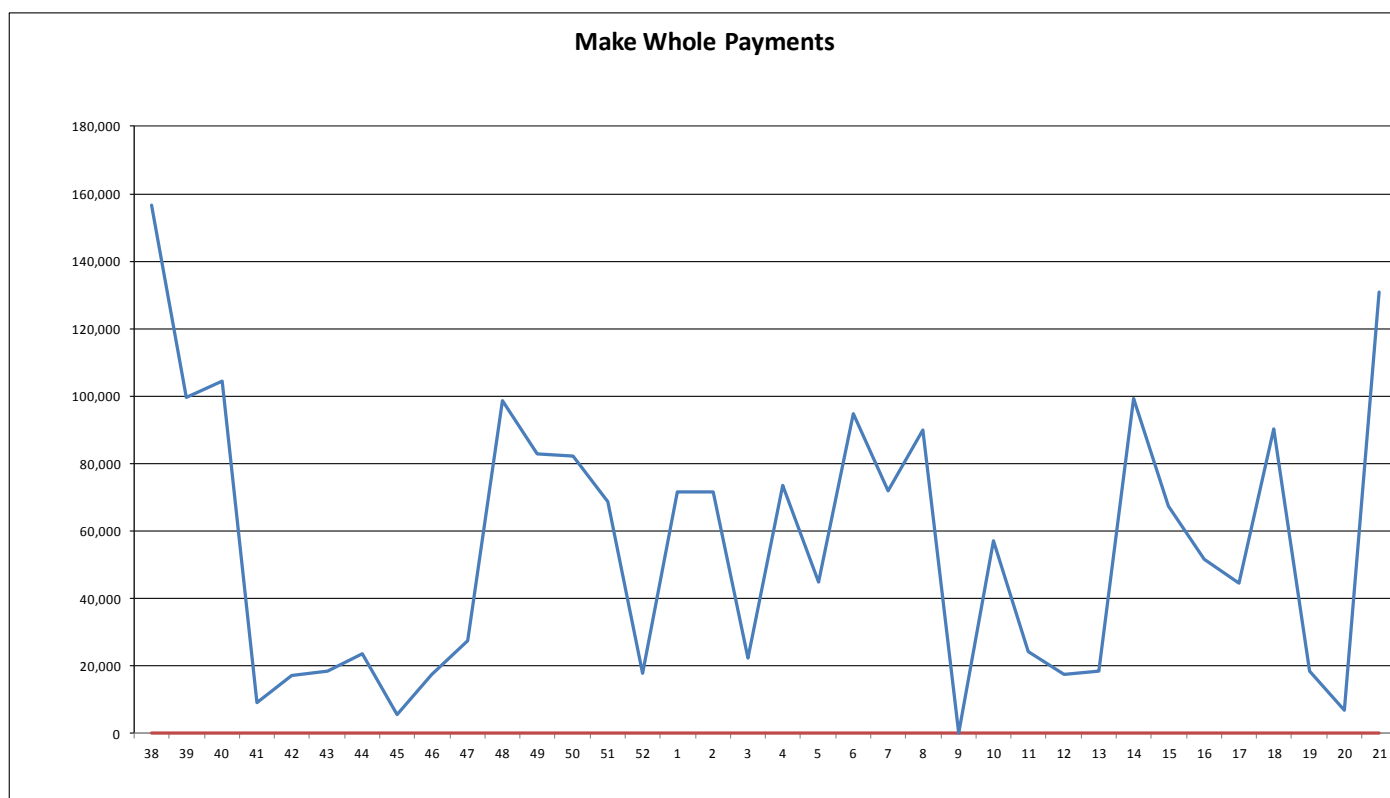


Figure 25 - Make Whole Payments

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

Table 24 - Testing Charges

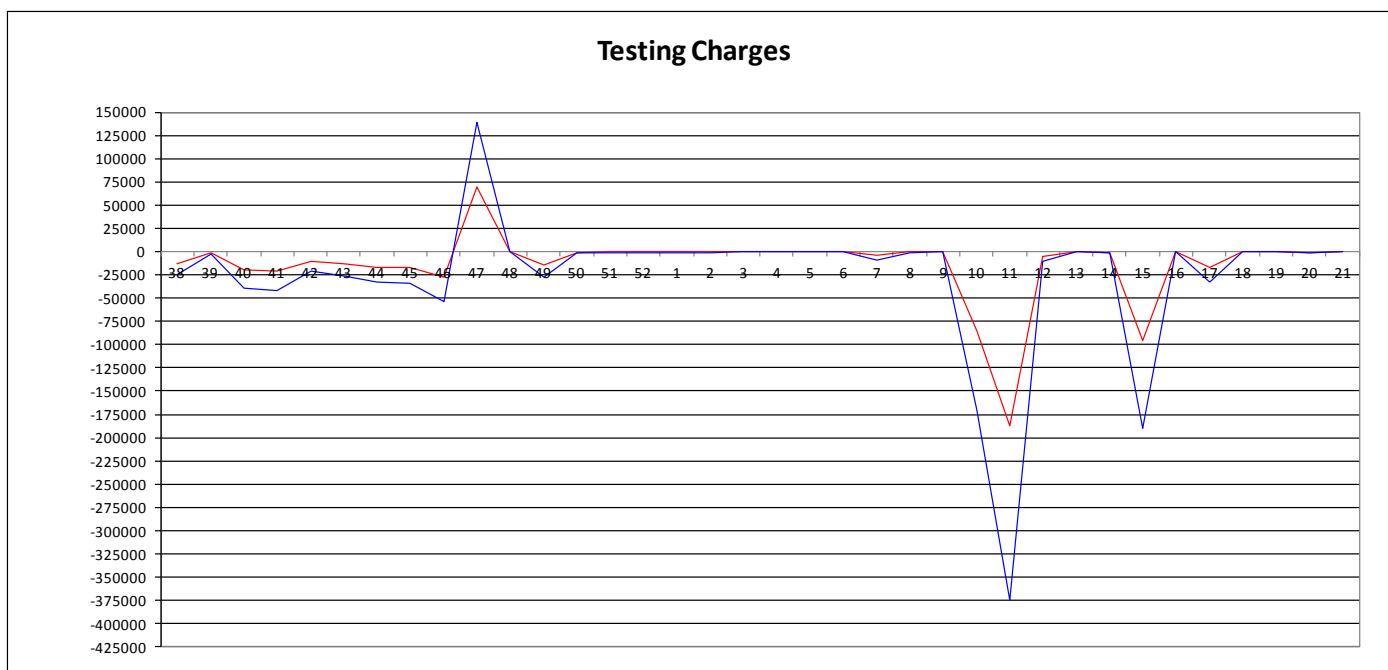


Figure 26 - Testing Charges

12. Appendix F: Default Commercial Offer Data Used

The table below lists for each unit the number of times in operations during April 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_400021	I_ROIEWIC	31			31
PT_400024	GU_400120	31			31
PT_400024	GU_400121	31			31
PT_400030	GU_400180	44			44
PT_400030	GU_400181	45			45
PT_400030	GU_400182	45			45
PT_400030	GU_400183	45			45
PT_400030	GU_400200	43			43
PT_400030	GU_400201	42			42
PT_400030	GU_400202	43			43
PT_400030	GU_400203	44			44
PT_400030	GU_400210	42			42
PT_400030	GU_400211	42			42
PT_400030	GU_400220	42			42
PT_400030	GU_400221	42			42
PT_400030	GU_400240	42			42
PT_400030	GU_400250	42			42
PT_400030	GU_400251	42			42
PT_400030	GU_400252	42			42
PT_400030	GU_400260	42			42
PT_400030	GU_400270	42			42
PT_400030	GU_400271	42			42
PT_400030	GU_400272	43			43
PT_400030	GU_400280	42			42
PT_400030	GU_400281	42			42
PT_400030	GU_400290	42			42
PT_400030	GU_400300	44			44
PT_400030	GU_400311	44			44
PT_400030	GU_400323	31			31
PT_400030	GU_400324	13			13
PT_400030	GU_400325	13			13
PT_400030	GU_400360	42			42
PT_400030	GU_400361	42			42
PT_400030	GU_400362	42			42
PT_400030	GU_400363	42			42
PT_400030	GU_400370	42			42
PT_400030	GU_400850	44			44
PT_400030	I_ROIEWIC	31			31
PT_400032	GU_400430	28			28
PT_400034	GU_400940	28			28
PT_400034	GU_401090	28			28
PT_400034	GU_401440	28			28
PT_400034	GU_401680	28			28
PT_400035	GU_400480	49			49
PT_400037	GU_400500	32			32
PT_400037	I_ROIEWIC	47			47

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PT_400041	GU_400530	53		53
PT_400044	GU_400540	49		49
PT_400054	GU_400620	28		28
PT_400055	GU_400630	28		28
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	60		60
PT_400077	GU_400950	28		28
PT_400078	GU_401010	31		31
PT_400078	GU_401011	31		31
PT_400087	GU_401230	20		20
PT_400090	DSU_401610	31		31
PT_400090	DSU_401620	31		31
PT_400090	DSU_401850	13		13
PT_400090	DSU_401270	31		31
PT_400090	DSU_401800	22		22
PT_400096	I_ROIEWIC	93		93
PT_400099	I_ROIEWIC	31		31
PT_400106	DSU_401330	32		32
PT_400108	I_ROIEWIC	71		71
PT_400111	DSU_401390	4		4
PT_400113	I_ROIEWIC	26		26
PT_400115	I_ROIEWIC	31		31
PT_400116	DSU_401400	30		30
PT_400124	DSU_401490	31		31
PT_400136	I_ROIEWIC	77		77
PT_400138	DSU_401590	31		31
PT_400157	I_ROIEWIC	31		31
PT_400162	GU_401830	3		3
PT_400163	I_ROIEWIC	93		93
PT_400168	I_ROIEWIC	80		80
PT_400170	I_ROIEWIC	29		29
PT_400171	I_ROIEWIC	39		39
PT_400172	GU_401860	31		31
PT_500021	I_NIMOYLE	31		31
PT_500024	GU_500040	32		32
PT_500024	GU_500041	31		31
PT_500024	I_NIMOYLE	31		31
PT_500027	GU_500130	85		85
PT_500027	GU_500131	85		85
PT_500027	GU_500140	85		85
PT_500031	I_NIMOYLE	31		31
PT_500034	GU_501350	31		31
PT_500037	I_NIMOYLE	31		31
PT_500040	GU_500281	31		31
PT_500040	GU_500282	31		31
PT_500040	GU_500283	31		31

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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	45		45
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	31		31
PT_500058	I_NIMOYLE	25		25
PT_500066	GU_501210	28		28
PT_500067	DSU_501380	5		5
PT_500069	I_NIMOYLE	93		93
PT_500070	I_NIMOYLE	65		65
PT_500073	GU_501230	27		27
PT_500075	I_NIMOYLE	60		60
PT_500081	I_NIMOYLE	31		31
PT_500083	I_NIMOYLE	67		67
PT_500088	I_NIMOYLE	24		24
PT_500092	I_NIMOYLE	21		21
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_400030	GU_400323		8	8
PT_400032	GU_400430		3	3
PT_400034	GU_400940		3	3
PT_400034	GU_401090		3	3
PT_400034	GU_401440		3	3
PT_400034	GU_401680		3	3
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

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PT_400050	GU_401360			31	31
PT_400050	GU_401790			31	31
PT_400054	GU_400620			3	3
PT_400055	GU_400630			3	3
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_400077	GU_400950			3	3
PT_400082	GU_401100			31	31
PT_400087	GU_401230			13	13
PT_400090	DSU_401850			18	18
PT_400111	DSU_401390			28	28
PT_400116	DSU_401400			1	1
PT_400133	DSU_401530			31	31
PT_400144	DSU_401660			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
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			29	29
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_500050	GU_501040			3	3
PT_500050	GU_501050			3	3
PT_500050	GU_501150			3	3
PT_500050	GU_501190			3	3
PT_500061	GU_501170			31	31
PT_500062	GU_501180			31	31
PT_500066	GU_501210			3	3
PT_500067	DSU_501380			27	27
PT_500073	GU_501230			4	4
PT_500074	GU_501250			31	31
PT_500078	DSU_501330			31	31
PT_500089	GU_501360			31	31
	Total	4688	0	2027	6715
	Percentage	69.81%	0.00%	30.19%	100.00%

Table 25 – Commercial Offer Data Used

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Jul-14	ROI	€50,929,138.15	€21,772,067.06	€326,631.36	€82,858.43	€2,938.18	€123,130.56	€17,118.42	€1,016.51	€0.00	€0.00	€0.00	€73,254,898.67
	NI	€12,936,147.70	€6,035,816.09	€91,479.13	€29,875.87	€813.16	€67,310.27	€7,807.37	€427.29	€0.00	€0.00	€0.00	€19,169,676.88
Aug-14	ROI	€76,295,371.52	€16,503,906.00	€283,973.76	€42,797.07	€2,738.01	€125,676.42	€0.00	€1,327.83	€29.36	€0.00	€0.00	€93,255,819.97
	NI	€17,954,420.41	€5,911,052.65	€74,371.07	€15,553.63	€863.74	€54,424.97	€0.00	€488.54	€7.43	€0.00	€0.00	€24,011,182.44
Sep-14	ROI	€73,630,247.02	€17,405,067.16	€261,367.00	€62,924.88	€3,377.33	€73,033.72	€11,845.94	€728.13	€0.00	€0.00	€0.00	€91,448,591.18
	NI	€22,272,153.08	€5,742,482.51	€49,069.86	€14,962.35	€717.66	€41,404.59	€13,672.05	€509.28	€0.00	€0.00	€0.00	€28,134,971.38
Oct-14	ROI	€82,250,495.91	€18,220,219.93	€584,729.92	€104,687.01	€6,507.05	€125,335.38	€9,519.24	€1,313.25	€0.00	€0.00	€0.00	€101,302,807.69
	NI	€18,391,944.98	€5,868,972.09	€82,257.95	€15,709.16	€1,031.70	€42,677.16	€6,422.11	€498.29	€0.00	€0.00	€0.00	€24,409,513.44
Nov-14	ROI	€64,818,088.97	€20,480,936.98	€530,386.99	€157,754.12	€6,116.91	€78,674.36	€23,606.67	€1,289.81	€0.00	€0.00	€0.00	€86,096,854.81
	NI	€14,616,605.70	€7,312,194.38	€50,960.79	€18,897.71	€653.20	€37,498.77	€6,592.72	€254.29	€0.00	€0.00	€0.00	€22,043,657.56
Dec-14	ROI	€79,262,340.64	€30,252,803.13	€636,211.01	€143,171.30	€7,087.15	€116,495.94	€25,330.11	€995.97	€0.00	€0.00	€0.00	€110,444,435.25
	NI	€17,625,339.05	€7,511,303.13	€58,743.90	€14,475.87	€679.17	€34,724.44	€7,982.34	€296.61	€0.00	€0.00	€0.00	€25,253,544.51
Jan-15	ROI	€77,706,417.44	€34,394,754.66	€438,764.21	€107,475.98	€4,105.28	€98,914.59	€27,079.30	€830.89	€14,240.78	€3,537.75	€0.00	€112,796,120.88
	NI	€21,735,748.95	€7,476,289.80	€38,275.71	€8,505.48	€324.11	€25,331.16	€7,456.18	€248.46	€0.00	€691.42	€0.00	€29,292,871.27
Feb-15	ROI	€73,470,092.53	€55,924,536.86	€296,450.78	€68,641.91	€1,587.00	€108,844.27	€30,840.66	€843.06	€0.00	€0.00	€0.00	€129,901,837.07
	NI	€19,828,437.97	€15,954,828.70	€108,022.71	€28,545.69	€367.07	€16,957.65	€4,432.19	€141.23	€0.00	€0.00	€0.00	€35,941,733.21
Mar-15	ROI	€62,833,350.60	€23,162,278.12	€454,954.34	€115,622.74	€2,409.00	€95,140.99	€35,705.38	€876.34	€33.87	€0.00	€0.00	€86,700,371.38
	NI	€18,497,389.79	€7,572,263.19	€147,525.82	€46,556.55	€825.97	€19,215.14	€8,635.89	€182.86	€726.16	€0.00	€0.00	€26,293,321.37
Apr-15	ROI	€55,596,682.04	€19,228,984.53	€447,913.03	€132,018.11	€2,588.47	€93,342.92	€23,125.23	€794.27	€27,655.34	€0.00	€0.00	€75,553,103.94
	NI	€14,229,748.35	€5,312,669.68	€178,040.01	€60,667.89	€1,059.24	€28,971.47	€8,624.89	€241.56	€20,785.23	€0.00	€0.00	€19,840,808.32
May-15	ROI	€67,111,651.41	€19,797,771.76	€51,325.57	€496,344.48	€113,479.16	€2,634.87	€257,691.56	€32,517.87	€947.37	€0.00	€0.00	€87,864,364.05
	NI	€14,205,268.80	€5,300,854.82	€14,374.56	€284,573.32	€81,498.12	€-1,531.15	€28,297.30	€9,511.56	€255.00	€0.00	€0.00	€19,923,102.33
Jun-15	ROI	€52,399,988.22	€18,449,916.98	€50,329.66	€524,214.44	€125,353.28	€2,989.03	€83,564.13	€15,091.05	€633.94	€0.00	€0.00	€71,652,080.73
	NI	€10,536,540.86	€4,561,917.57	€13,069.46	€190,224.00	€56,986.34	€-1,109.52	€14,086.52	€3,197.29	€136.59	€0.00	€0.00	€15,375,049.11
Jul-15	ROI	€63,619,222.88	€17,795,388.83	€50,900.02	€368,804.77	€98,198.30	€2,207.87	€70,409.41	€14,587.16	€801.29	€0.00	€0.00	€82,020,520.53
	NI	€12,711,689.30	€4,703,936.76	€13,498.87	€121,756.24	€35,884.73	€-799.78	€13,983.16	€3,045.41	€170.96	€0.00	€0.00	€17,603,165.65
Aug-15	ROI	€78,593,341.57	€17,976,726.62	€1,941.74	€806,815.82	€62,841.79	€1,062.49	€78,106.89	€15,446.53	€704.90	€0.00	€0.00	€97,536,988.35
	NI	€18,174,076.35	€5,392,403.96	€13,263.37	€191,650.14	€15,985.64	€-294.74	€11,711.41	€2,643.17	€109.50	€0.00	€0.00	€23,801,548.80
Sep-15	ROI	€53,901,821.24	€19,234,943.47	€48,776.08	€306,959.54	€78,980.31	€1,722.88	€36,597.16	€9,593.94	€440.27	€0.00	€0.00	€73,619,834.89
	NI	€12,814,817.71	€5,453,049.86	€13,099.19	€28,119.15	€30,434.20	€195.13	€6,674.12	€1,961.83	€89.22	€0.00	€0.00	€18,348,050.15
Oct-15	ROI	€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
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	€21,729,626.52	€256,964.95	€0.00	€2,213.11	€34,217.09	€0.00	€140.55	€104,929.14	€0.00	€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	€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

Table 27 - Total Payments by Month

14. 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

Table 28 – Full Balancing Costs for Trading Charges and Payments

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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

Table 29 - Balancing Costs for Capacity Settlement

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

15. 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>	-	-	-	-	-

Table 30 - MIP Algorithms

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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

Table 31 - MIP Vs LR Peak Price Comparison