



Market Operator Monthly Report

April 2016

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1. Executive Summary

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

198 general queries were received in April 2016. During the same period 202 general queries were resolved.

There were 13 defaults by Participants during April 2016. The largest of these was an Capacity Initial invoice for €9,337.23 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 | 13 | - |
| | Credit Risk Management | - | - |
| SEMO | Pricing & Scheduling | - | - |
| | Settlement | - | 1 |
| | Funds Transfer | - | - |
| | Credit Risk Management | - | 1 |
| Other | | - | - |
| Total | | 13 | 2 |

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 April 2016.

- Dublin Waste to Energy Supply Limited

There were no terminating parties in April 2016.

There was one new unit effective in the Market in April 2016.

- PT_400090/ DSU_401850 – Activation Energy Limited
- PT_400091 / SU_400188 – Activation Energy Limited

There were no units which de-registered from the Market in April 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

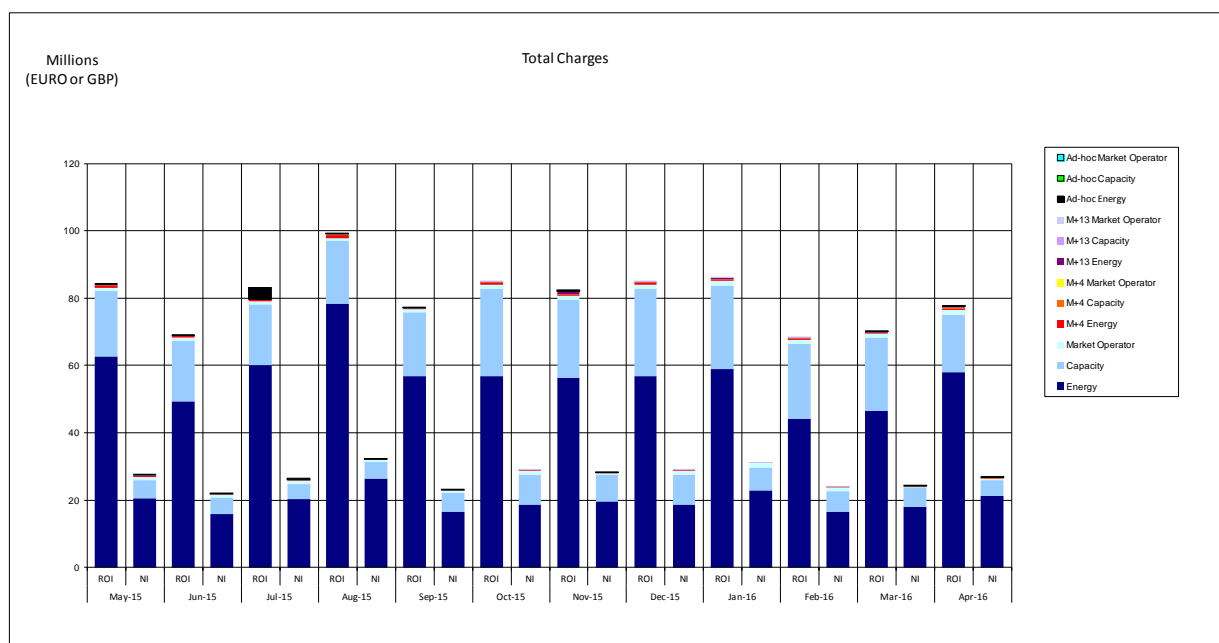


Figure 1 - Total Charges for Each Currency

| Market | April 2016 | |
|------------------------|--------------------|--------------------|
| | ROI | NI |
| Energy | €57,935,825 | £21,414,000 |
| Capacity | €17,094,463 | £4,706,370 |
| Market Operator | €1,471,499 | £356,309 |
| M+4 Energy | €416,562 | £111,802 |
| M+4 Capacity | €228,954 | £87,327 |
| M+4 Market Operator | €5,030 | £1,297 |
| M+13 Energy | €478,630 | £47,648 |
| M+13 Capacity | €28,078 | £20,762 |
| M+13 Market Operator | €476 | £299 |
| Ad-hoc Energy | €105,568 | £20,454 |
| Ad-hoc Capacity | €0 | £0 |
| Ad-hoc Market Operator | €0 | £0 |
| Total | €77,765,086 | £26,766,269 |

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

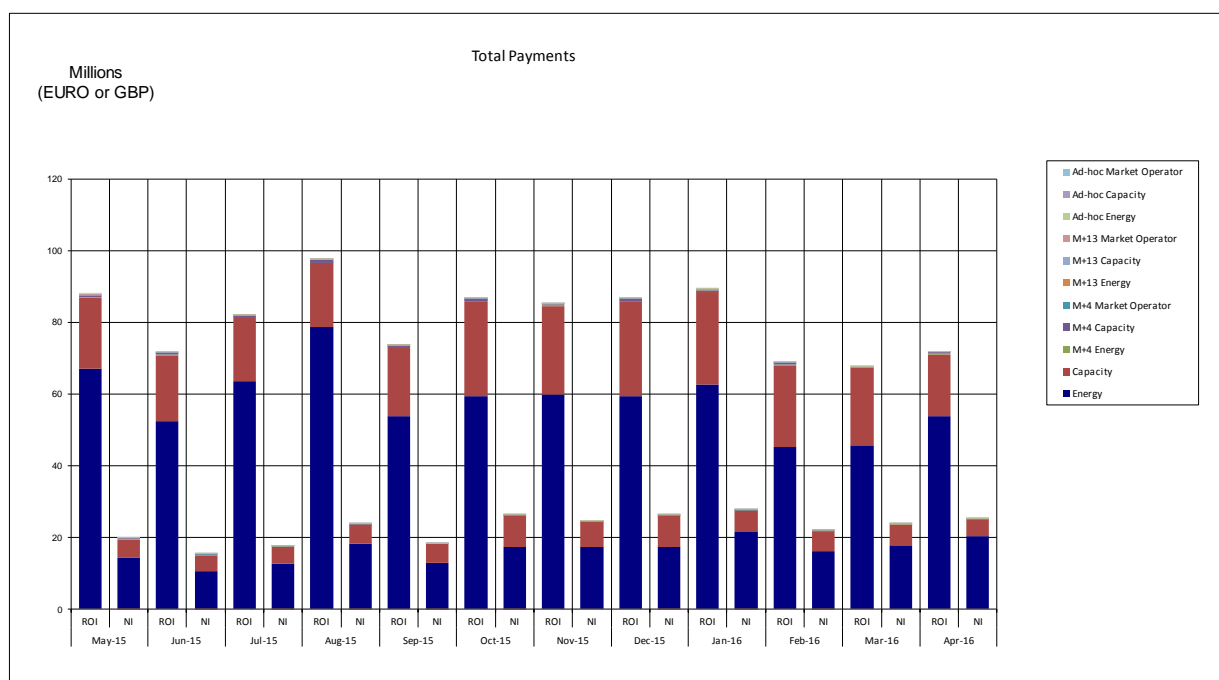


Figure 2 - Total Payments for Each Currency

| Market | April 2016 | |
|------------------------|--------------------|--------------------|
| | ROI | NI |
| Energy | €53,840,170 | £20,282,958 |
| Capacity | €17,104,843 | £4,658,774 |
| M+4 Energy | €415,112 | £111,871 |
| M+4 Capacity | €247,294 | £72,753 |
| M+4 Market Operator | €5,028 | £1,297 |
| M+13 Energy | €81,626 | £52,181 |
| M+13 Capacity | €27,799 | £20,970 |
| M+13 Market Operator | €410 | £284 |
| Ad-hoc Energy | €208,424 | £27,451 |
| Ad-hoc Capacity | €0 | £0 |
| Ad-hoc Market Operator | €0 | £0 |
| Total | €71,930,708 | £25,228,539 |

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:

| April 2016 | |
|-------------------------|----------------|
| Imbalance (Energy Only) | -€1,344,559.11 |

Table 4 - Balancing Costs for Energy Settlement

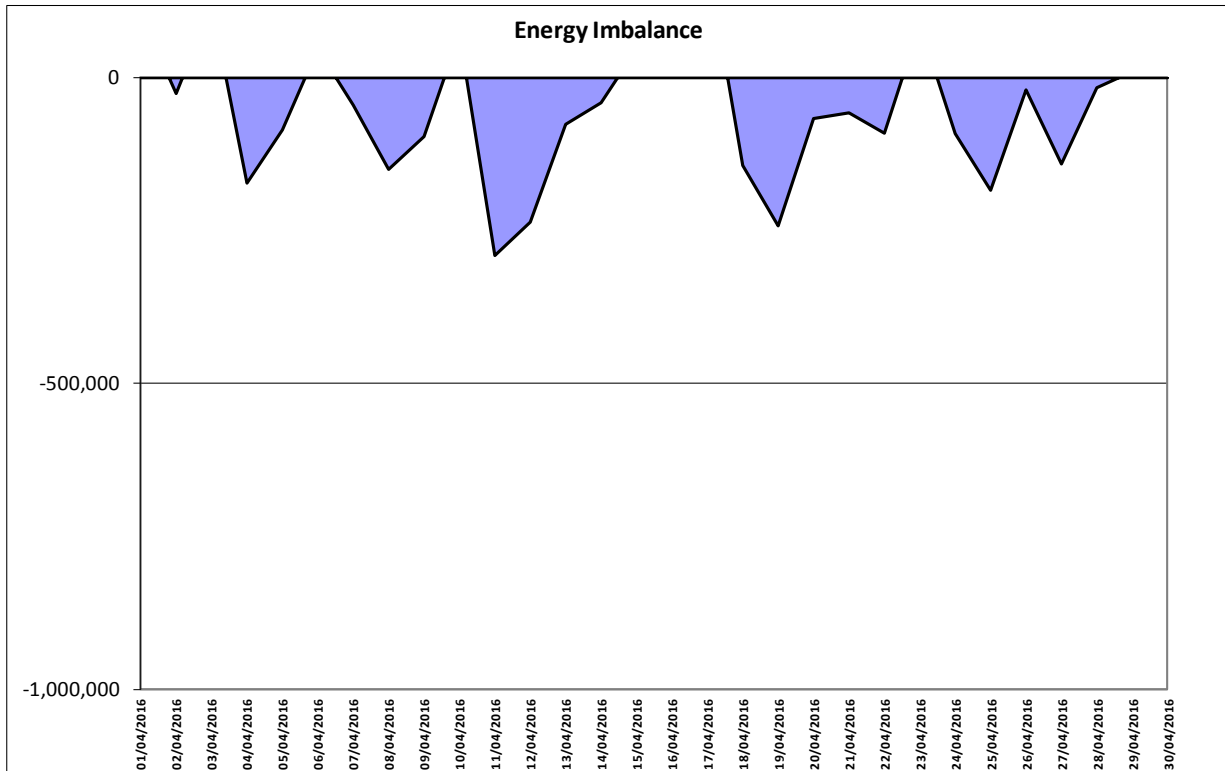


Figure 3 – Energy Imbalances

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 |
|-----------------|---------|---------------------|---------------------|
| 01/04/2016 | 12 | -€35,023.74 | -€0 |
| 08/04/2016 | 13 | -€2353.02 | -€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 |

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:

| April 2016 | |
|-------------------|-----------------|
| Capacity Charges | -€38,038,017.72 |
| Capacity Payments | €38,037,770.84 |
| Balancing Costs | -€246.89 |
| 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 |
|-----------------------------|-----------------|---------|--|--|---------------------|
| 26/03/2016 | 01/04/2016 | 12 | £18,691.63 | £- | £18,691.63 |
| 02/04/2016 | 08/04/2016 | 13 | £68,562.88 | £- | £68,562.88 |
| 09/04/2016 | 15/04/2016 | 14 | £17,198.28 | £- | £17,198.28 |
| 16/04/2016 | 22/04/2016 | 15 | -£19,510.14 | -£8,150.00 | -£27,660.14 |
| 23/04/2016 | 29/04/2016 | 16 | £5,993.23 | £- | £5,993.23 |

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 £68,562.88 and a cost of £27,660.14. 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 |
|-----------------|----------------|--|
| 11/04/2016 | March 2016 | -£43,056.03 |

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 |
|---------------------------|------------------------------|---------------------------|---------------------|
| €102,981,490.01 | -€2,385,451.14 | €1,175,941.83 | -€90,167,205.58 |

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.

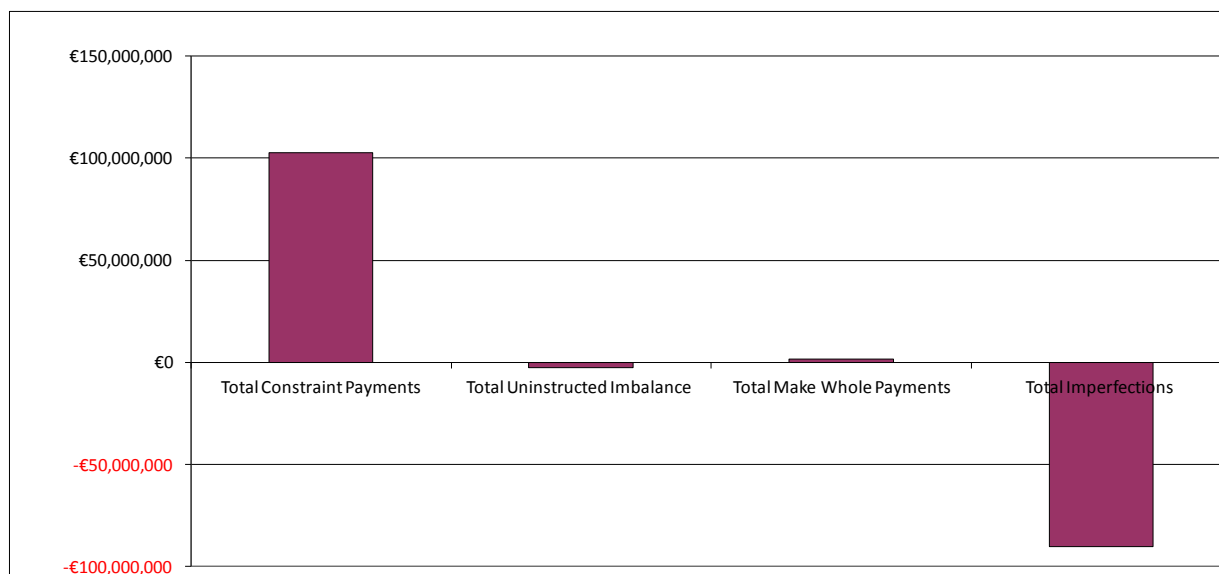


Figure 4 - Cumulative Imperfections Costs Vs Budget

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 December 2015 and M+13 resettlement period of March 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

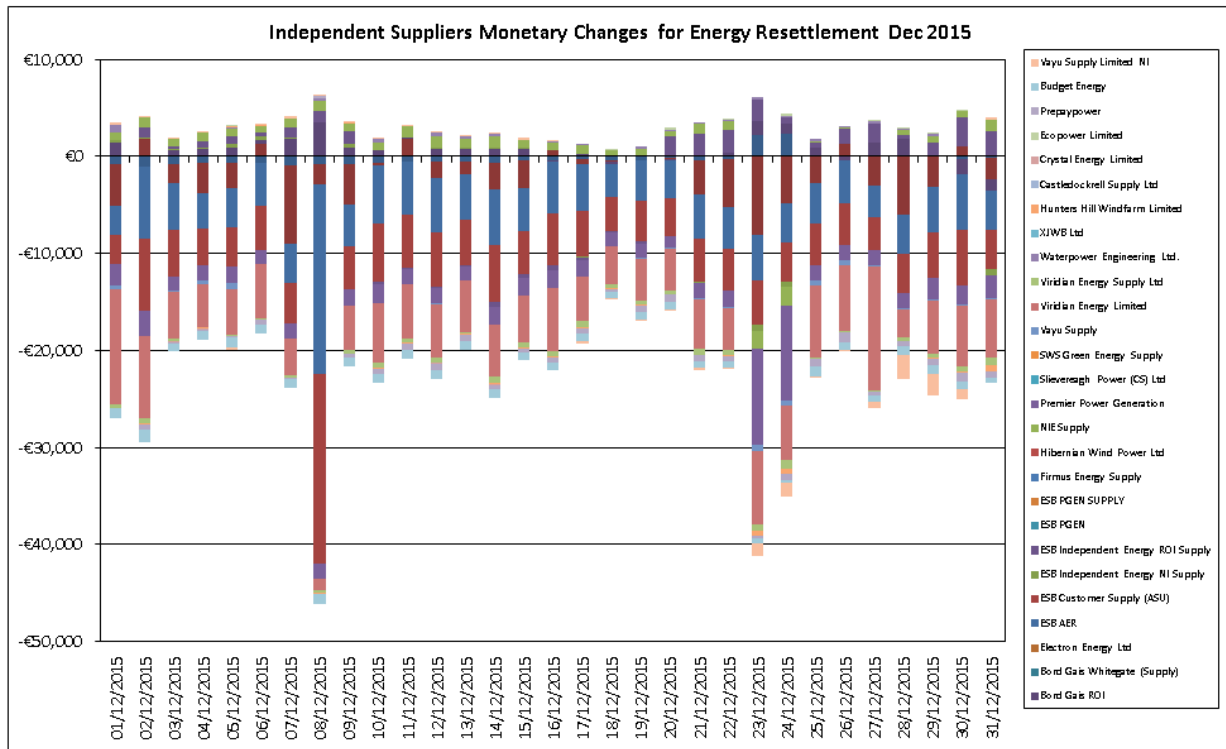


Figure 5 – Independent Suppliers Monetary Changes for Energy Resettlement – Dec 2015

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

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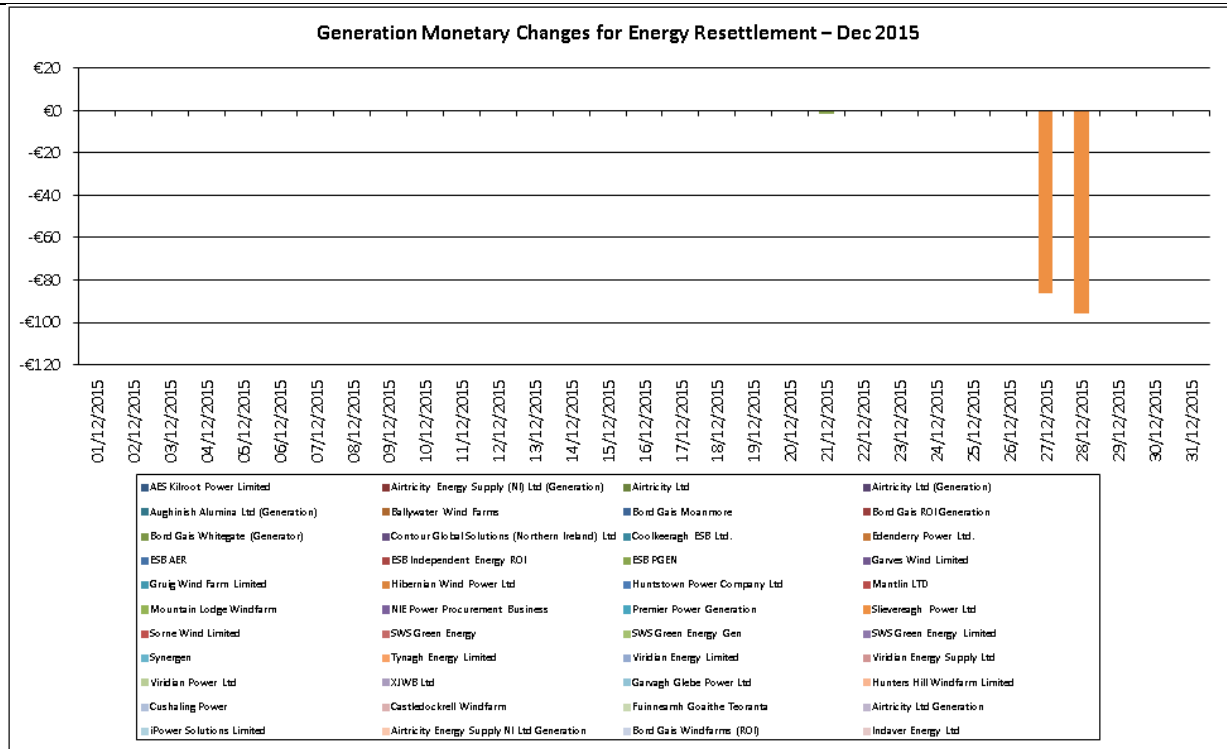


Figure 6 – Generation Monetary Changes for Energy Resettlement – Dec 2015

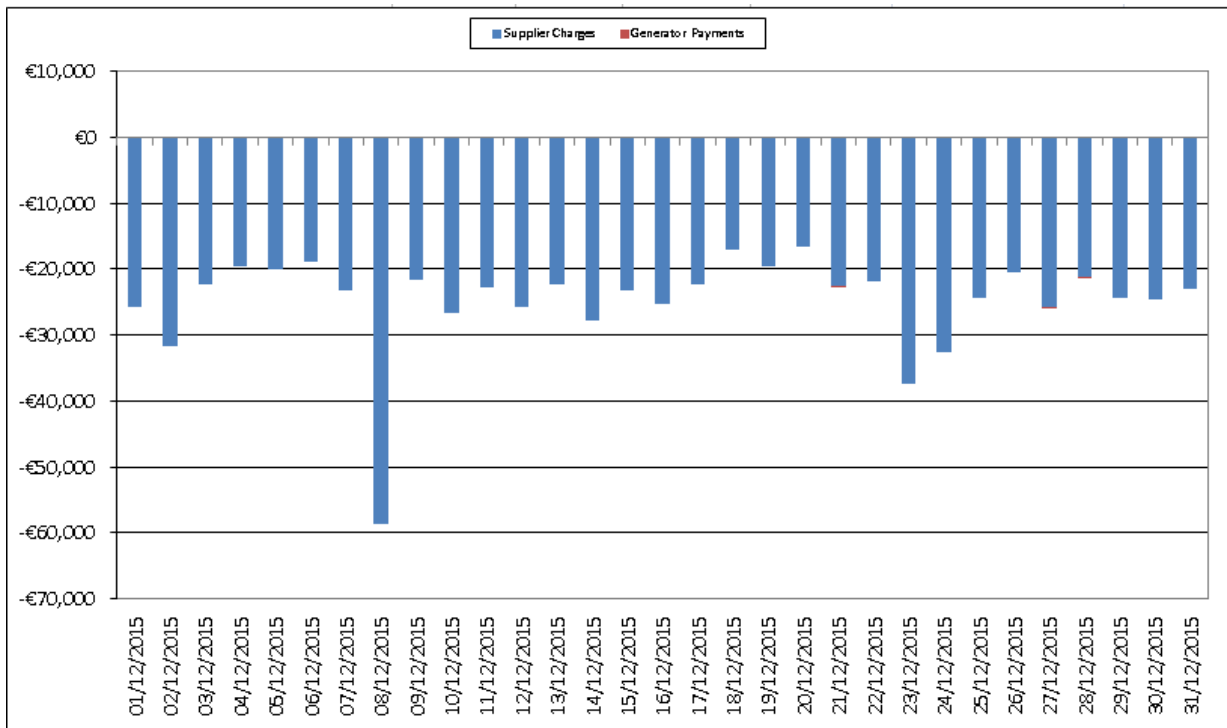


Figure 7 – Total Monetary Changes for Energy Resettlement – Dec 2015

M+13 Resettlement

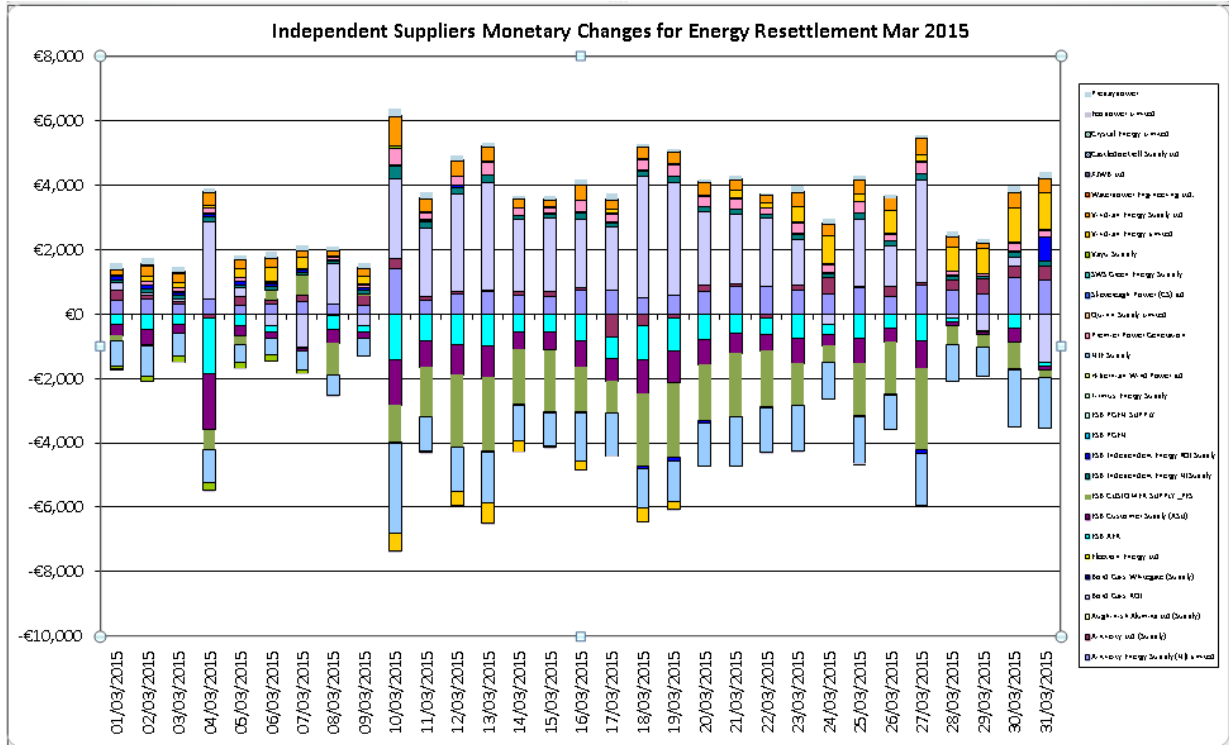


Figure 8 - Independent Suppliers Monetary Changes for Energy Resettlement – Mar 2015

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

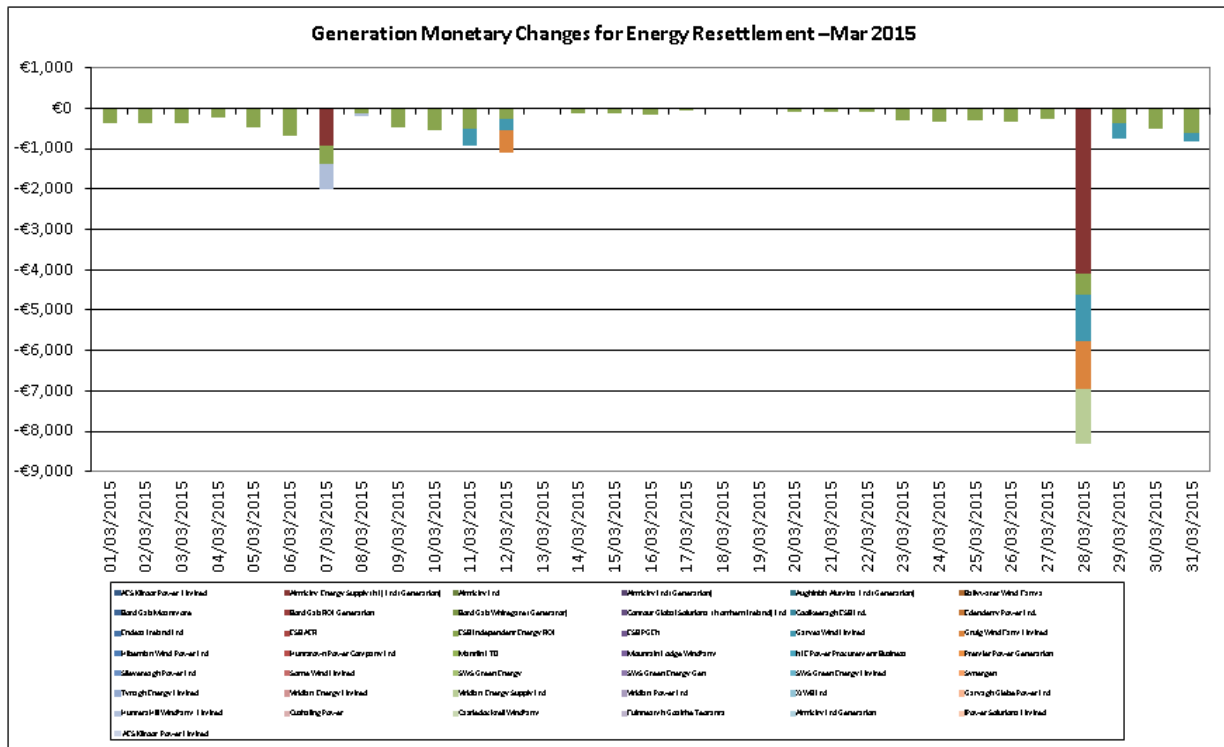


Figure 9 - Generation Monetary Changes for Energy Resettlement – Mar 2015

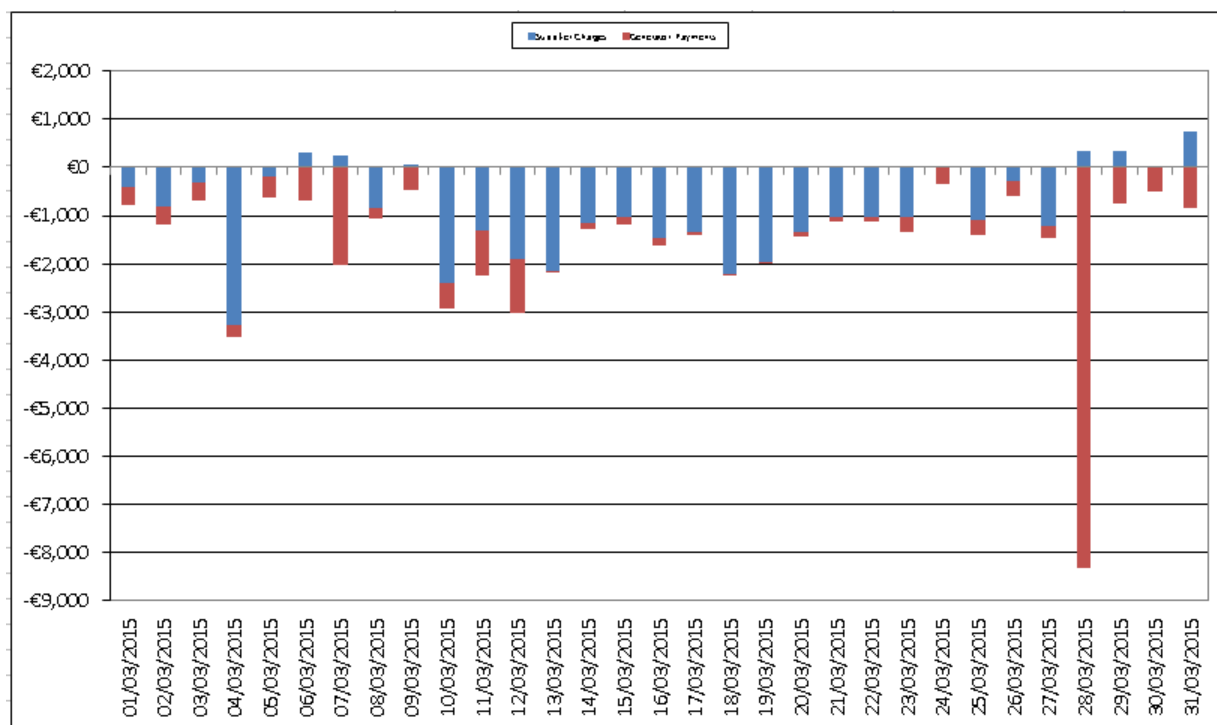


Figure 10 - Total Monetary Changes for Energy Resettlement – Mar 2015

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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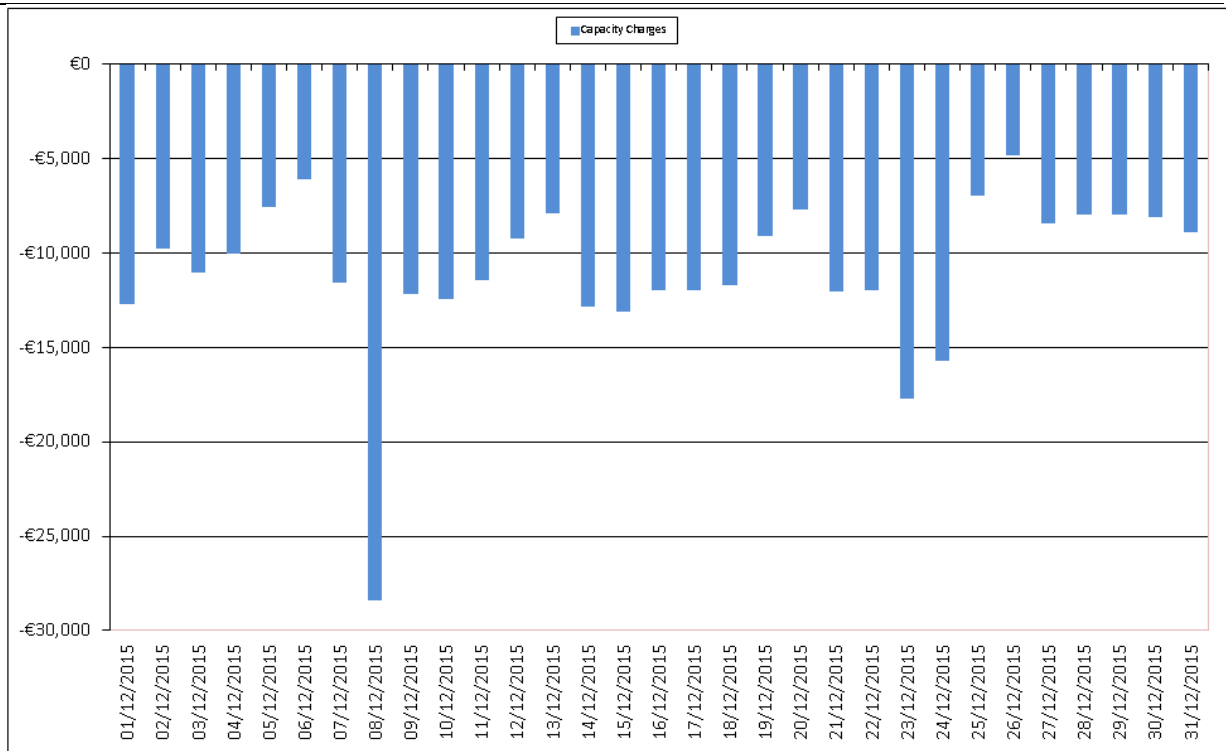


Figure 11 - Independent Suppliers Monetary Changes for Capacity Resettlement – Dec 2015

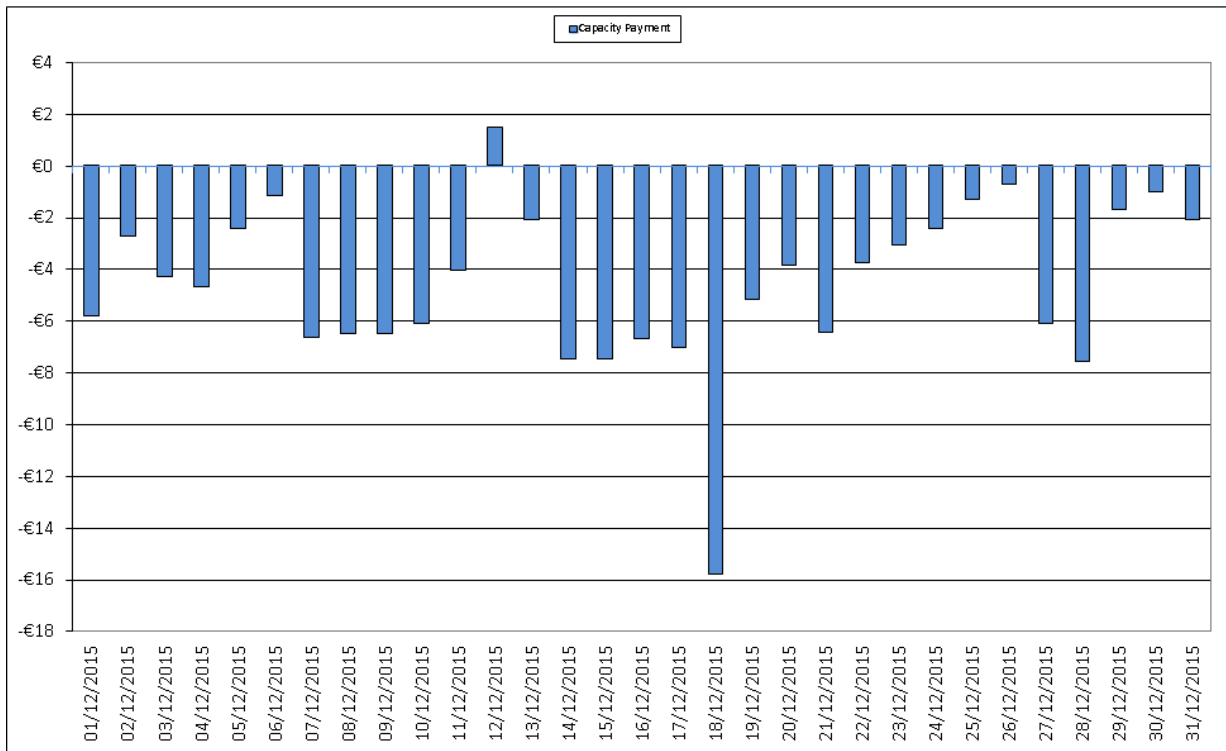


Figure 12 - All Generation Monetary Change for Capacity Resettlement – Dec 2015

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

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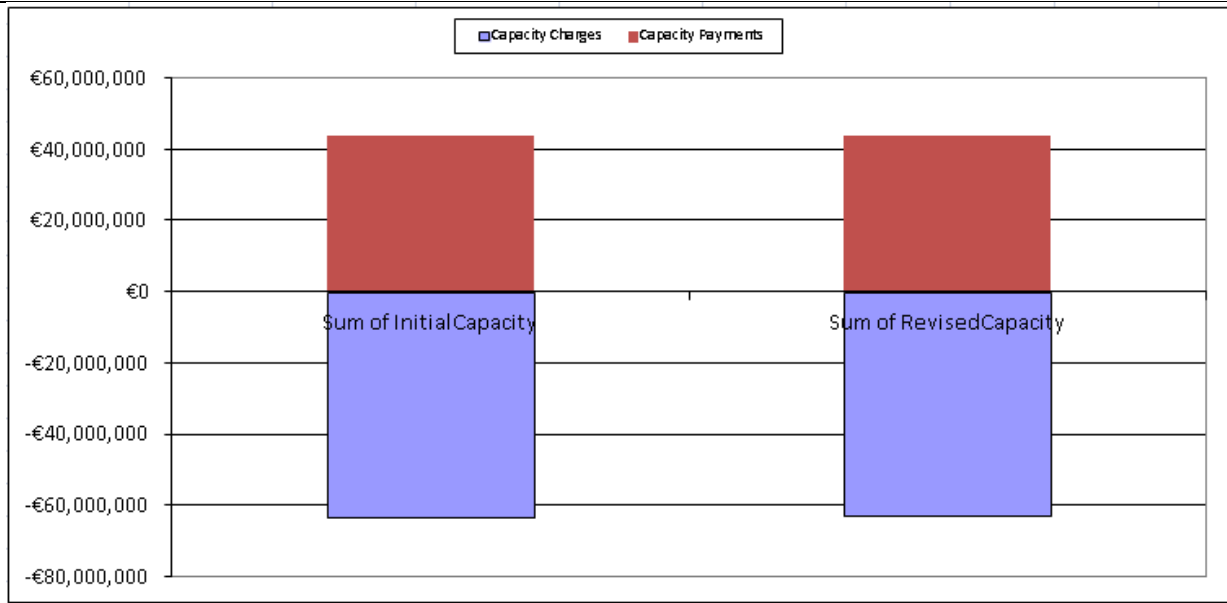


Figure 13 - Comparison of Distribution of Monetary Amounts between Capacity Initial and Resettlement Dec 2015

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

M+13 Resettlement

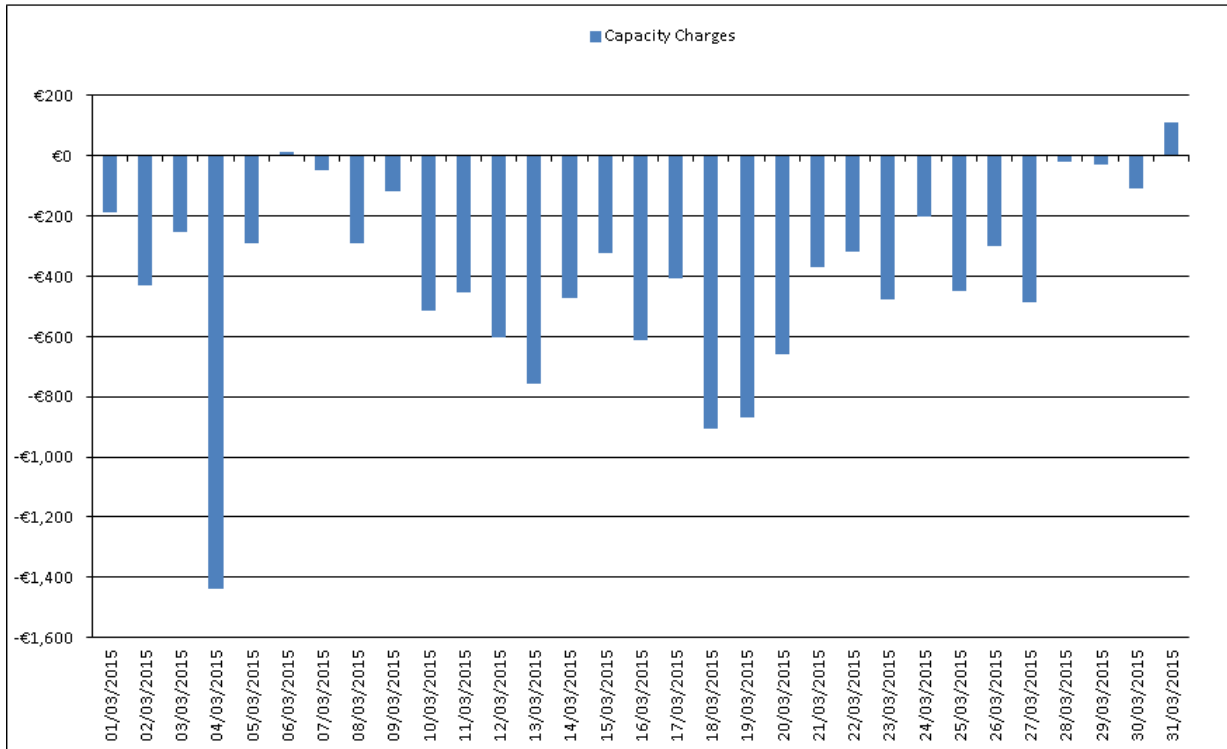


Figure 14 - Independent Suppliers Monetary Changes for Capacity Resettlement – Mar 2015

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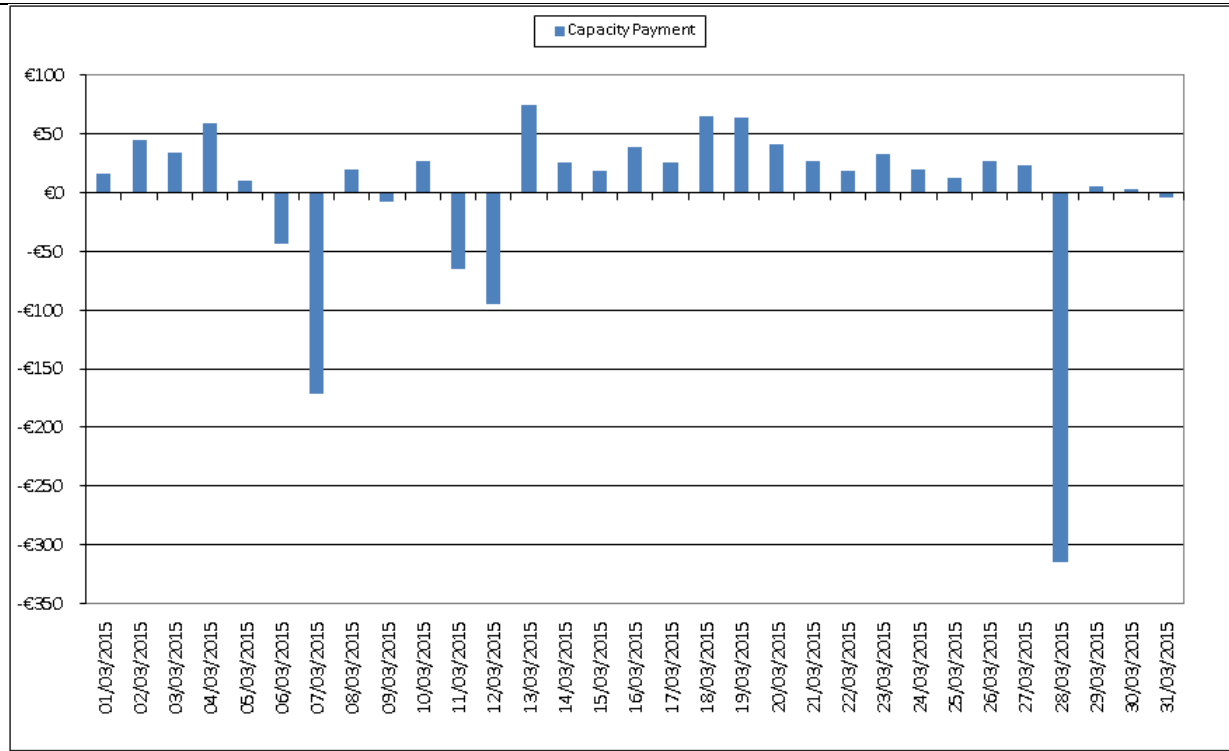


Figure 15 – All Generation Monetary Change for Capacity Resettlement – Mar 2015

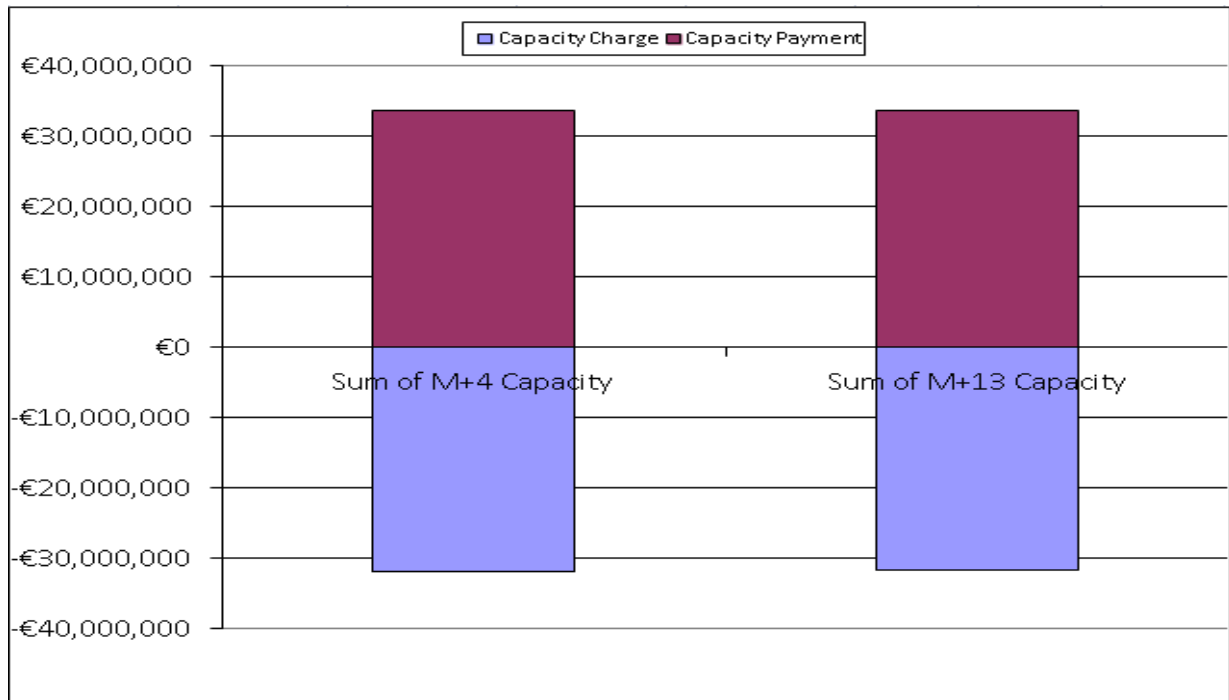


Figure 16 - Comparison of Distribution of Monetary Amounts between M+4 Capacity Resettlement and M+13 Capacity Resettlement – Mar 2015

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 April 2016.

Market Helpdesk Report: 01/04/16 to 30/04/16

| | Received | Resolved within the period | Not Resolved | Resolved in the period | Resolution Time (Working Days) | Resolved On Time |
|----------------------|------------|----------------------------|--------------|------------------------|--------------------------------|------------------|
| Normal | 196 | 172 | 24 | 199 | 2.33 | 183 |
| Important | 2 | 2 | 0 | 3 | 1.69 | 1 |
| Urgent | 0 | 0 | 0 | 0 | 0.00 | 0 |
| Settlement | 1 | 1 | 0 | 1 | 0.91 | 1 |
| Credit | 0 | 0 | 0 | 0 | 0.00 | 0 |
| Dispute | 0 | 0 | 0 | 0 | 0.00 | 0 |
| Data | 0 | 0 | 0 | 0 | 0.00 | 0 |
| Total/Average | 199 | 175 | 24 | 203 | 0.99 | 185 |

Table 10 – Helpdesk Statistics

Definitions:

- Resolved within the Period refers to queries raised and resolved within the calendar month of April 2016.
- Resolved in the Period refers to queries resolved within April 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 April 2016.
- Not Resolved refers to queries raised but not resolved within April 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 increased by 1.41 working days from 0.91 in March 2016 to 2.32 working days in April 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 April 2016 with regard to formal Settlement Queries.

5. Disputes and Queries

5.1.1 Disputes

No Disputes were raised during the month of April 2016.

5.1.2 Data Queries

There were no formal Data Queries raised during the month of April 2016.

5.1.3 Settlement Queries

There was one formal Settlement Queries raised in April 2016. This query was upheld and has since been resolved.

| Topic | Number Of Queries |
|-----------------------|-------------------|
| Actual Availabilities | 1 |

Table 11 - Upheld Settlement Queries by topic

- One query relating to incorrect Actual Availabilities 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.

Unresolved Queries

There are no unresolved data queries or settlement queries as of the 9th May 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, 70.63% of data used was submitted by Participants through the normal Bid-Offer process. 29.37% 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 April 2016.

There were one Re-Settlement runs carried out in April 2016.

6.3.2 System Errors

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

6.4.1 MSP Postings April 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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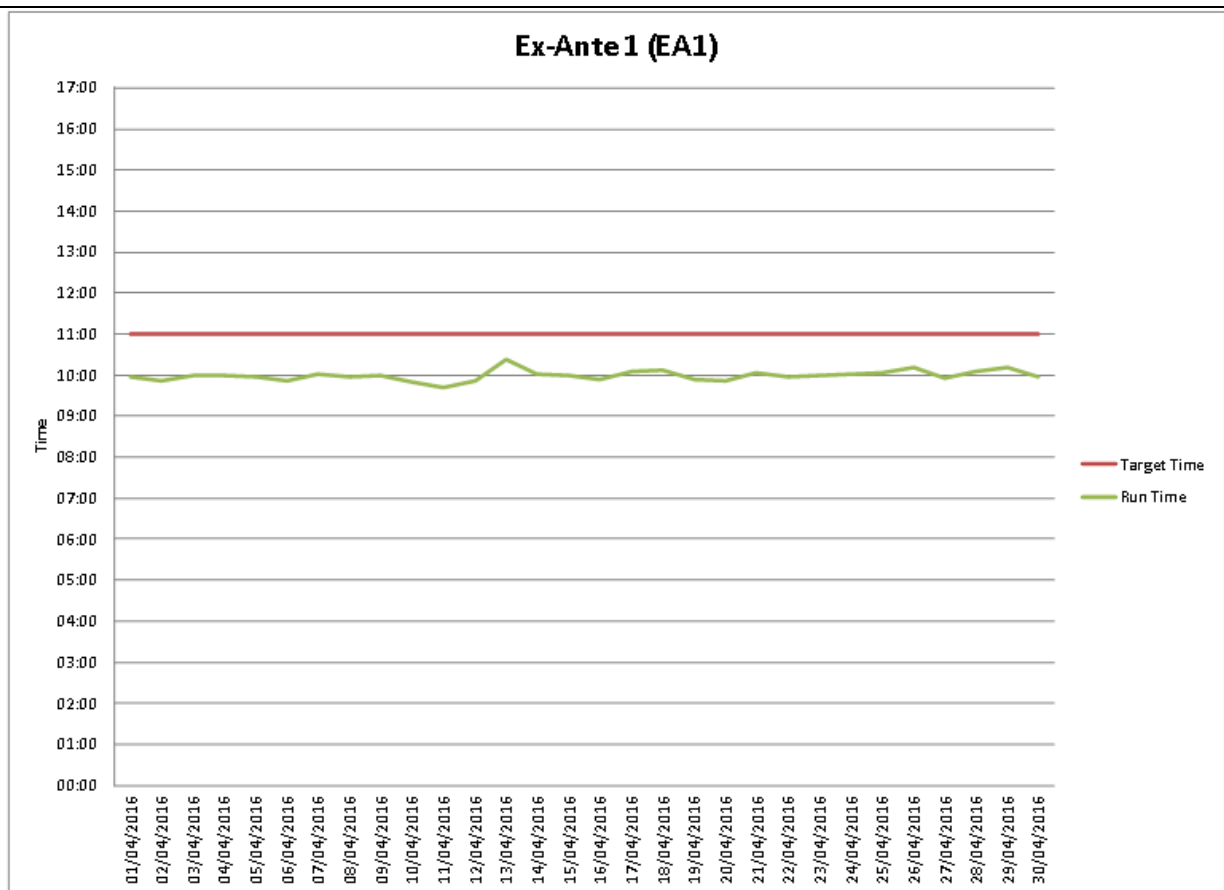


Figure 17 – Ex-Ante 1

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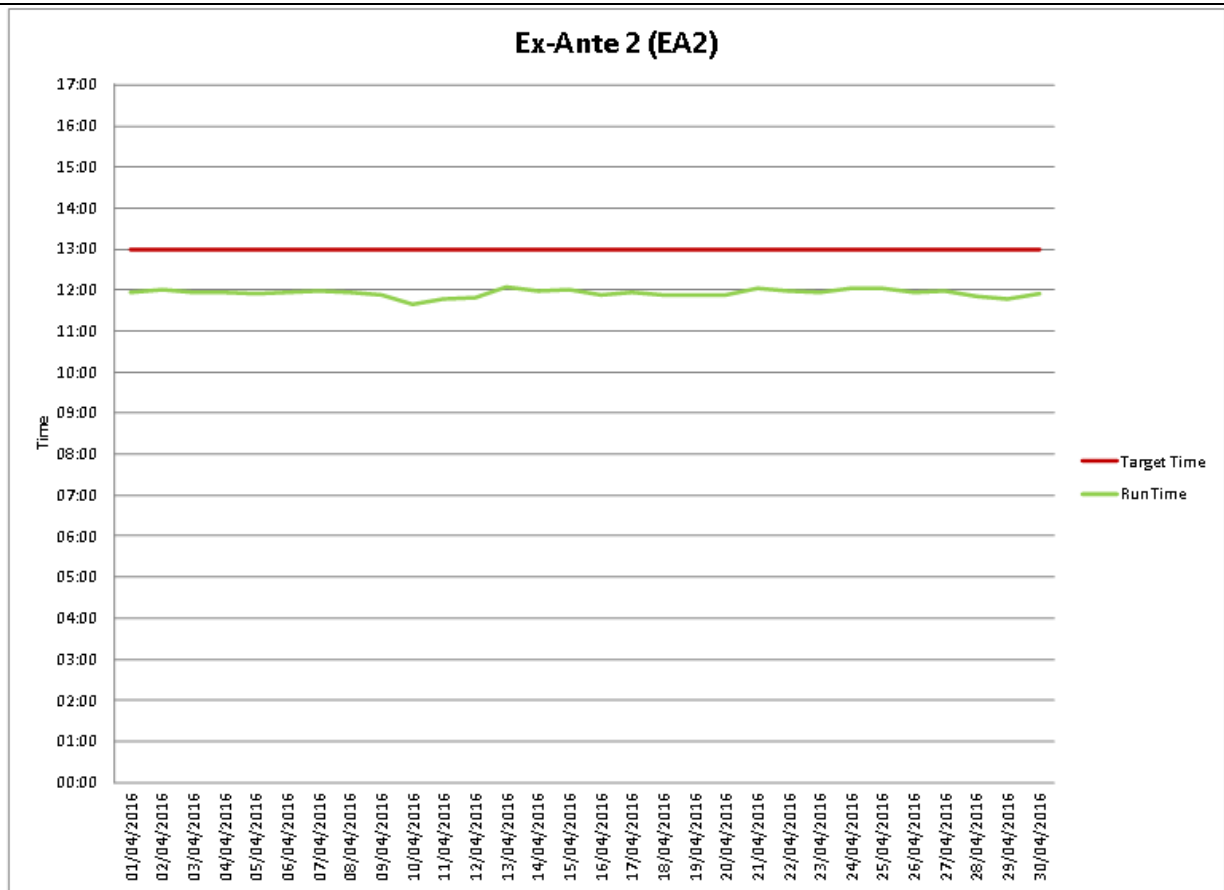


Figure 18 – Ex-Ante 2

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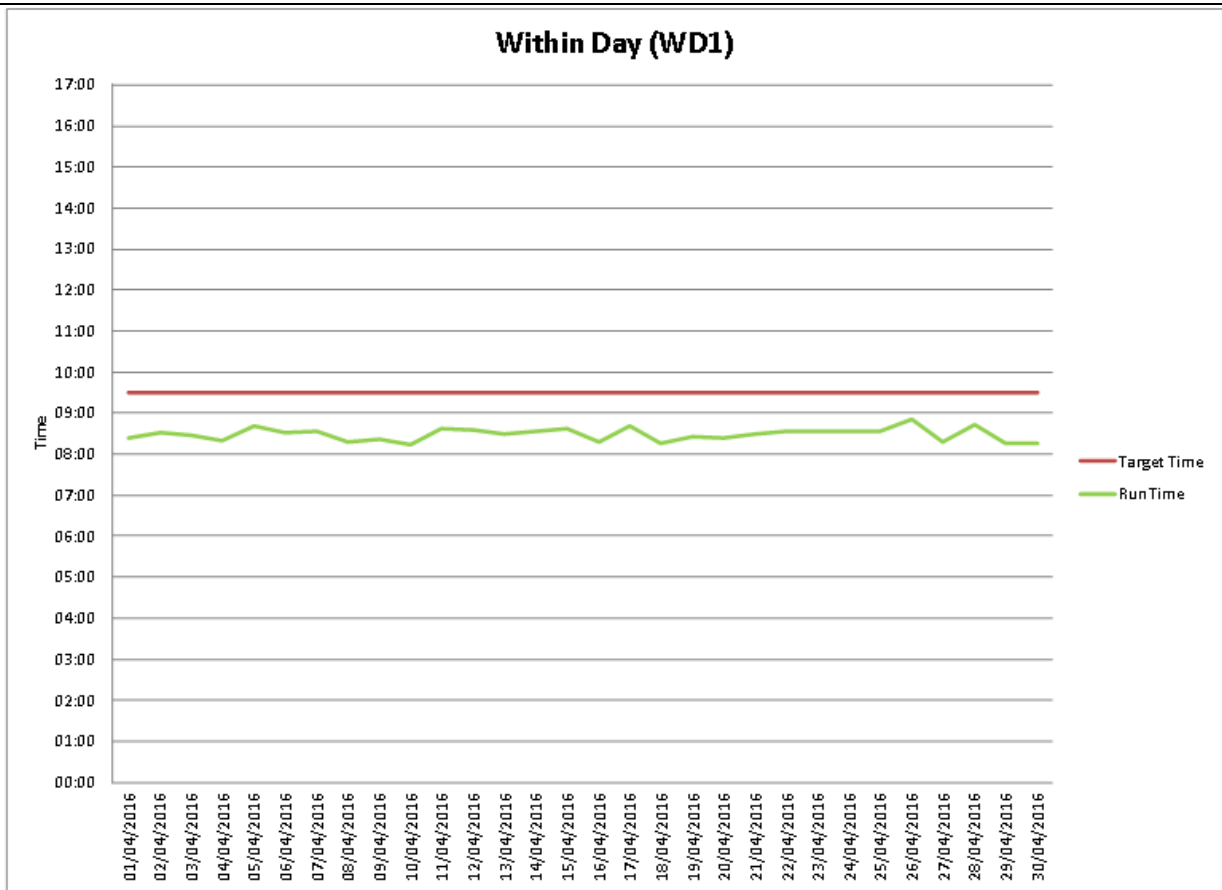


Figure 19 – Within Day 1

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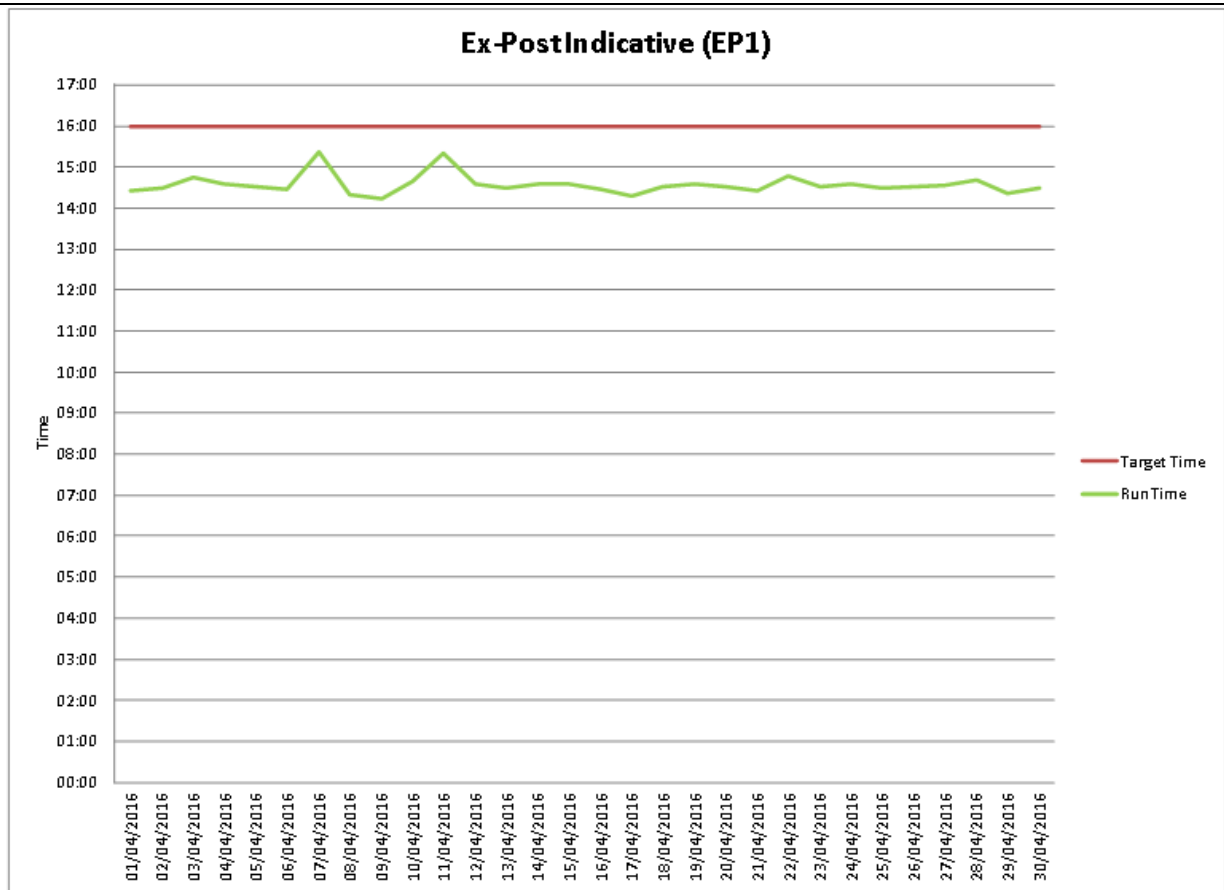


Figure 20 - Ex-Post Indicative

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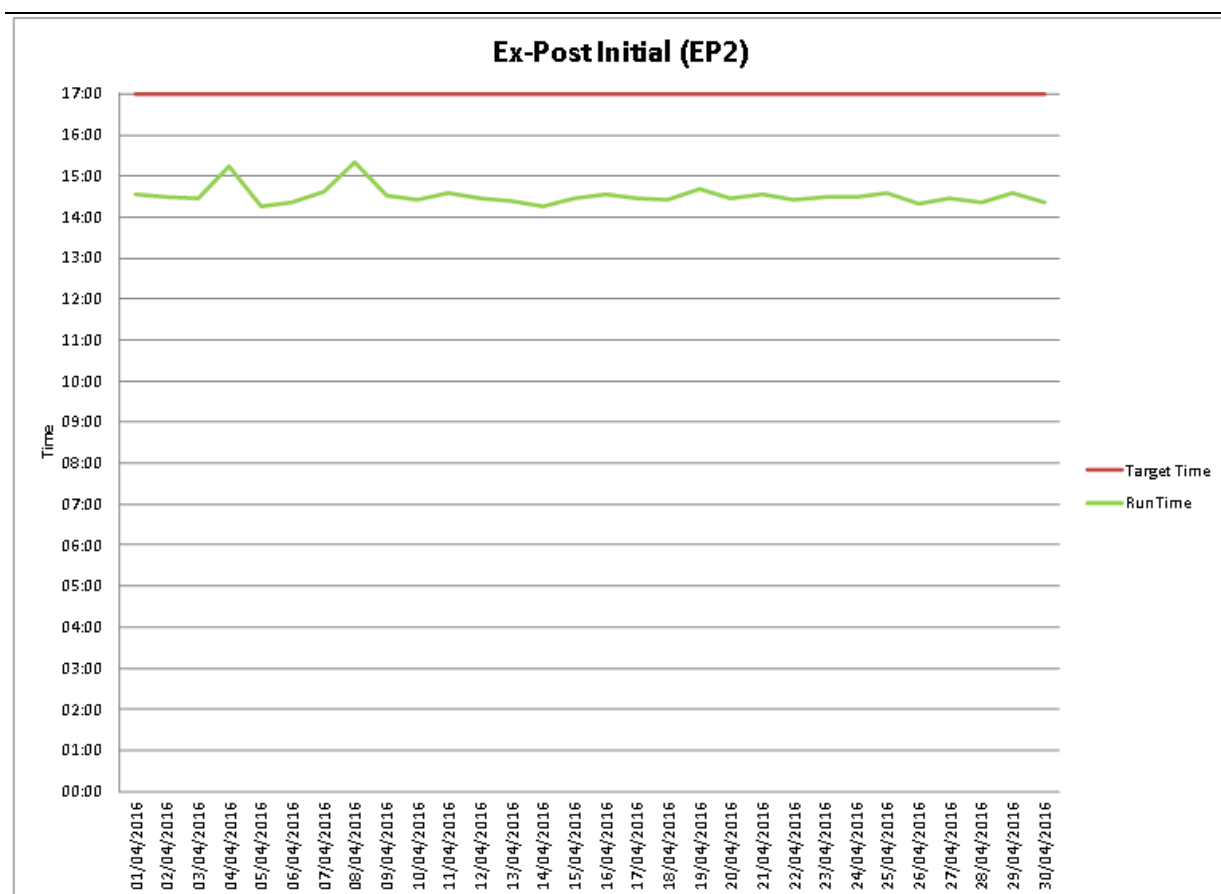


Figure 21 - Ex-Post Initial

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 April 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](#).

6.4.3 Settlement Postings April 2016

The publication timings for Settlement runs are provided below.

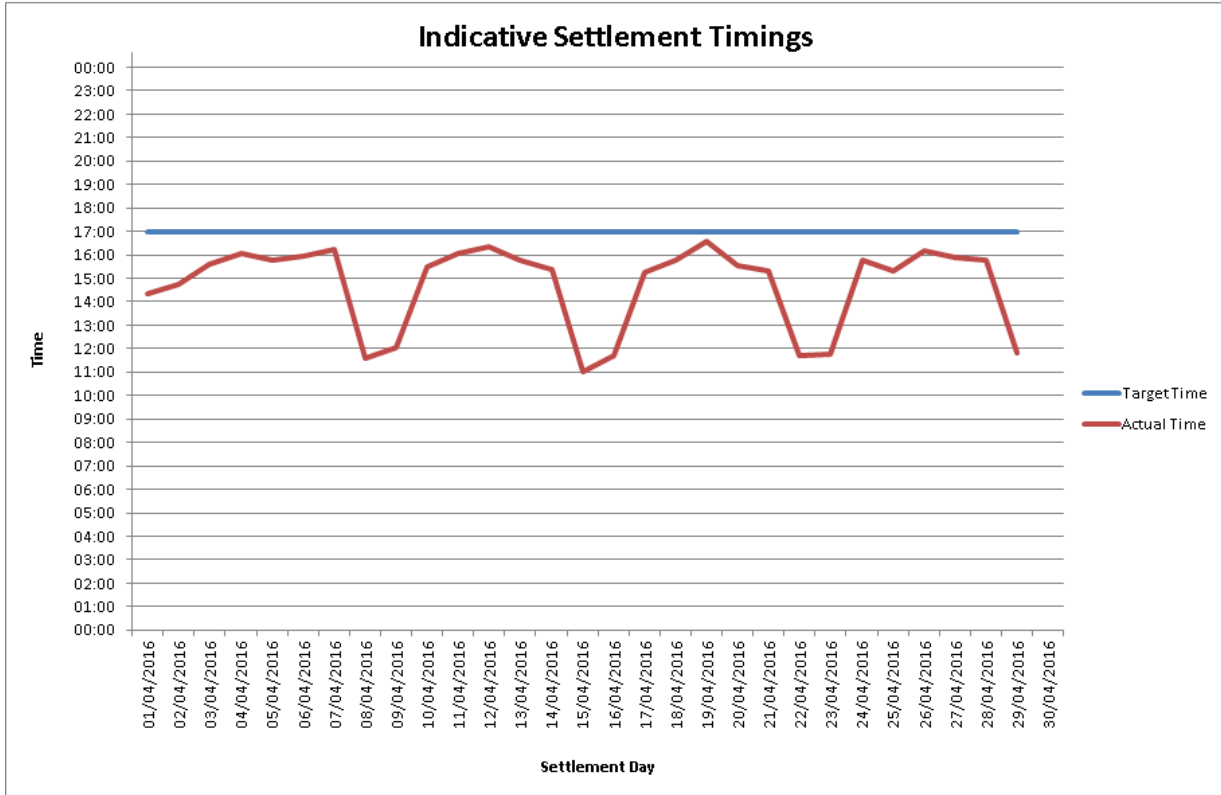


Figure 22 - Indicative Settlement Postings

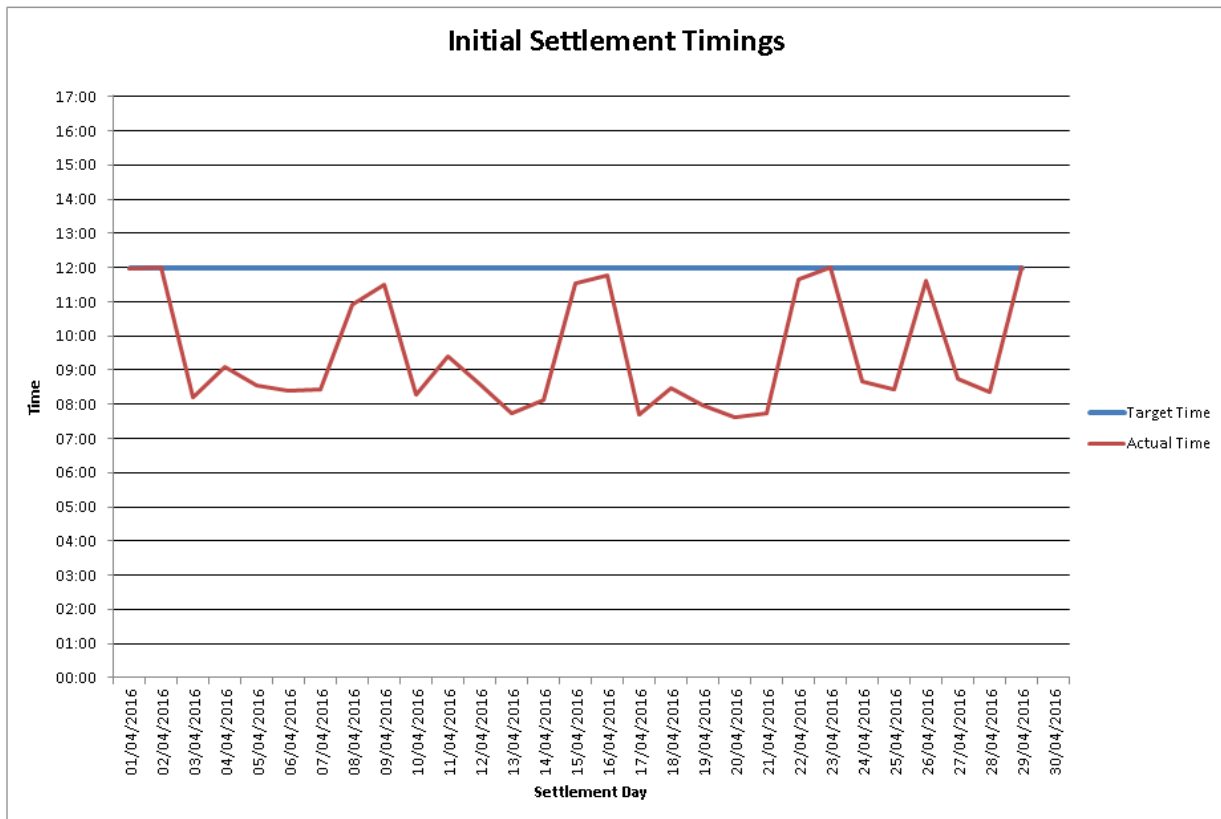


Figure 23 - Initial Settlement Postings

Market Operator Monthly Report

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 April 2016.

7.3 Communications or Systems Failures

There were no Communications or Systems Failures in April 2016

7.4 Denial of Service Attacks

There was no Denial of Service Attacks during April 2016.

7.5 Submission of Parameters to RAs for Approval

There has been no requirement for submission of parameters in the month of April 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 |
|---------------------|----------|-------------------|-------------|-----------------|--|-------------------|---|-----------------|
| 01/04/2016 | Money In | Timing | Participant | Payment Default | Shell Energy Europe Limited (PT_500087) defaulted on a Week 47 2015 M+4 Energy Invoice. | Participant Error | A default letter was issued to the participant. | Major |
| 06/04/2016 | Money In | Timing | Participant | Payment Default | Electricity Exchange Limited (PT_400116) defaulted on a November 2015 M+4 and a February 2015 M+13 Capacity Invoice. | Participant Error | A default letter was issued to the participant. | Major |
| 06/04/2016 | Money In | Timing | Participant | Payment Default | Empower Generation (PT_500073) defaulted on a November 2015 M+4 Capacity Invoice. | Participant Error | A default letter was issued to the participant. | Major |
| 14/04/2016 | Money In | Timing | Participant | Payment Default | Aughrim Power Supply Limited (PT_400119) defaulted on March 2016 Initial Capacity Invoice. | Participant Error | A default letter was issued to the participant. | Major |
| 14/04/2016 | Money In | Timing | Participant | Payment Default | Gaelectric Interconnector Trading ROI Limited (PT_400160) defaulted on a March 2016 Initial Capacity Invoice. | Participant Error | A default letter was issued to the participant. | Major |
| 15/04/2016 | Money In | Timing | Participant | Payment Default | iPower Solutions Limited (PT_500053) defaulted on a March 2016 Initial FMOI Invoice. | Participant Error | A default letter was issued to the participant. | Major |
| 15/04/2016 | Money In | Timing | Participant | Payment Default | Quinn Windfarm Limited (PT_400049) defaulted on a March 2016 Initial FMOI Invoice. | Participant Error | A default letter was issued to the participant. | Major |
| 20/04/2016 | Money In | Timing | Participant | Payment Default | Captured Carbon Limited (PT_400168) defaulted on a Week 14 2016 Initial Energy Invoice. | Participant Error | A default letter was issued to the participant. | Major |
| 20/04/2016 | Money In | Timing | Participant | Payment Default | Electron Energy Limited (PT_400074) defaulted on a Week 14 2016 Initial Energy Invoice | Participant Error | A default letter was issued to the participant. | Major |
| 20/04/2016 | Money In | Timing | Participant | Payment Default | Electron Energy Limited (PT_400074) defaulted on a Week 11 2015 M+13 Energy Invoice. | Participant Error | A default letter was issued to the participant. | Major |
| 27/04/2016 | Money In | Timing | Participant | Payment Default | Open Electric Limited (PT_500082) defaulted on a Week 15 2016 Initial Energy and a Week 51 2015 M+4 Invoice. | Participant Error | A default notice was issued to the participant. | Major |
| 27/04/2016 | Money In | Timing | Participant | Payment Default | Arden Energy (PT_400149) defaulted on a Week 15 2016 Initial and a Week 12 2015 M+13 Energy Invoice | Participant Error | A default notice was issued to the participant. | Major |
| 27/04/2016 | Money In | Timing | Participant | Payment Default | Indaver Energy (PT_400087) defaulted on a Week 51 2015 M+4 Energy Invoice. | Participant Error | A default notice was issued to the participant. | Major |

Table 15 – Trading and Settlement Code Breaches – Market Participants

Data Provider

There were no issues to report in April 2016

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SEMO - Pricing and Scheduling

There were no issues to report in April 2016

SEMO – Settlements

| Ops Date Identified | Run Type | Quality or Timing | Party | Issue Type | Description | Cause | Resolution | T and SC Breach |
|---------------------|---------------------------|-------------------|-------|-------------|---|---------------------------------------|--|-----------------|
| 22/04/2016 | M+13 ENG & VMOC Invoicing | Quality | SEMO | Operational | M+13 Energy Resettlement Statements and PIRs for Week 1, 2015 were published containing inaccurate settlement data. | This was due to an operational error. | Adhoc Resettlement for Week 1, 2015 was scheduled for 28th April, 2016 to correct the error. | Minor |

Table 16 – Trading and Settlement Code Breaches – Settlements

SEMO - Funds Transfer

There were no issues to report in April 2016.

SEMO - Credit Management

| Ops Date Identified | Run Type | Quality or Timing | Party | Issue Type | Description | Cause | Resolution | T and SC Breach |
|---------------------|----------|-------------------|-------|------------|--|-----------------|---|-----------------|
| 13/04/2016 | CRM | Timing | SEMO | System | The Daily Credit Report was not published by the 14:30 deadline. | Data Feed Issue | The Daily Credit Report was published at 15:13. | Minor |

Table 17 – Trading and Settlement Code Breaches – Credit Management

SEMO – Other

There were no issues to report in April 2016

Appendix B: List of Queries by Type

| Summary Title | Description | ID | Logged On | Date sent to MP | Type |
|-----------------------|---|---------|------------|-----------------|-------------------|
| Actual Availabilities | Incorrect availabilities were sent to the SEM for GU_400620 Mountain Lodge Windfarm Phase 1 on 24/3/16. Availability profile was not available before submitting on D+3 | EirGrid | 2016-04-27 | 2016-04-28 | 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 April 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

| Trading Day | EA1 Postings | | EA2 Postings | | WD1 Postings | | EP1P Postings | | EP 2 Postings | |
|-------------|--------------|--------|--------------|--------|--------------|--------|---------------|--------|---------------|--------|
| | Target | Actual | Target | Actual | Target | Actual | Target | Actual | Target | Actual |
| 01/04/2016 | 11:00 | 09:58 | 13:00 | 11:56 | 09:30 | 08:24 | 16:00 | 14:25 | 17:00 | 14:33 |
| 02/04/2016 | 11:00 | 09:52 | 13:00 | 12:00 | 09:30 | 08:32 | 16:00 | 14:29 | 17:00 | 14:30 |
| 03/04/2016 | 11:00 | 10:00 | 13:00 | 11:56 | 09:30 | 08:27 | 16:00 | 14:45 | 17:00 | 14:28 |
| 04/04/2016 | 11:00 | 09:59 | 13:00 | 11:56 | 09:30 | 08:20 | 16:00 | 14:35 | 17:00 | 15:15 |
| 05/04/2016 | 11:00 | 09:57 | 13:00 | 11:54 | 09:30 | 08:42 | 16:00 | 14:32 | 17:00 | 14:16 |
| 06/04/2016 | 11:00 | 09:52 | 13:00 | 11:57 | 09:30 | 08:32 | 16:00 | 14:28 | 17:00 | 14:21 |
| 07/04/2016 | 11:00 | 10:02 | 13:00 | 11:59 | 09:30 | 08:34 | 16:00 | 15:21 | 17:00 | 14:37 |
| 08/04/2016 | 11:00 | 09:58 | 13:00 | 11:57 | 09:30 | 08:17 | 16:00 | 14:19 | 17:00 | 15:20 |
| 09/04/2016 | 11:00 | 09:59 | 13:00 | 11:52 | 09:30 | 08:21 | 16:00 | 14:14 | 17:00 | 14:32 |
| 10/04/2016 | 11:00 | 09:49 | 13:00 | 11:40 | 09:30 | 08:13 | 16:00 | 14:38 | 17:00 | 14:26 |
| 11/04/2016 | 11:00 | 09:41 | 13:00 | 11:47 | 09:30 | 08:37 | 16:00 | 15:20 | 17:00 | 14:36 |
| 12/04/2016 | 11:00 | 09:52 | 13:00 | 11:49 | 09:30 | 08:36 | 16:00 | 14:35 | 17:00 | 14:28 |
| 13/04/2016 | 11:00 | 10:22 | 13:00 | 12:05 | 09:30 | 08:29 | 16:00 | 14:30 | 17:00 | 14:24 |
| 14/04/2016 | 11:00 | 10:01 | 13:00 | 11:59 | 09:30 | 08:34 | 16:00 | 14:36 | 17:00 | 14:16 |
| 15/04/2016 | 11:00 | 09:59 | 13:00 | 12:00 | 09:30 | 08:38 | 16:00 | 14:35 | 17:00 | 14:28 |
| 16/04/2016 | 11:00 | 09:53 | 13:00 | 11:53 | 09:30 | 08:18 | 16:00 | 14:28 | 17:00 | 14:33 |
| 17/04/2016 | 11:00 | 10:05 | 13:00 | 11:56 | 09:30 | 08:41 | 16:00 | 14:18 | 17:00 | 14:27 |
| 18/04/2016 | 11:00 | 10:08 | 13:00 | 11:52 | 09:30 | 08:15 | 16:00 | 14:31 | 17:00 | 14:25 |
| 19/04/2016 | 11:00 | 09:54 | 13:00 | 11:52 | 09:30 | 08:26 | 16:00 | 14:35 | 17:00 | 14:40 |
| 20/04/2016 | 11:00 | 09:52 | 13:00 | 11:52 | 09:30 | 08:24 | 16:00 | 14:32 | 17:00 | 14:28 |
| 21/04/2016 | 11:00 | 10:03 | 13:00 | 12:02 | 09:30 | 08:30 | 16:00 | 14:26 | 17:00 | 14:33 |
| 22/04/2016 | 11:00 | 09:58 | 13:00 | 11:59 | 09:30 | 08:34 | 16:00 | 14:47 | 17:00 | 14:26 |
| 23/04/2016 | 11:00 | 10:00 | 13:00 | 11:57 | 09:30 | 08:34 | 16:00 | 14:31 | 17:00 | 14:29 |
| 24/04/2016 | 11:00 | 10:02 | 13:00 | 12:02 | 09:30 | 08:33 | 16:00 | 14:36 | 17:00 | 14:30 |
| 25/04/2016 | 11:00 | 10:03 | 13:00 | 12:03 | 09:30 | 08:33 | 16:00 | 14:29 | 17:00 | 14:36 |
| 26/04/2016 | 11:00 | 10:12 | 13:00 | 11:56 | 09:30 | 08:51 | 16:00 | 14:32 | 17:00 | 14:19 |
| 27/04/2016 | 11:00 | 09:55 | 13:00 | 11:59 | 09:30 | 08:17 | 16:00 | 14:33 | 17:00 | 14:28 |
| 28/04/2016 | 11:00 | 10:06 | 13:00 | 11:50 | 09:30 | 08:44 | 16:00 | 14:40 | 17:00 | 14:21 |
| 29/04/2016 | 11:00 | 10:12 | 13:00 | 11:47 | 09:30 | 08:15 | 16:00 | 14:22 | 17:00 | 14:36 |
| 30/04/2016 | 11:00 | 09:57 | 13:00 | 11:54 | 09:30 | 08:16 | 16:00 | 14:29 | 17:00 | 14:22 |

Table 20 – MSP Runs

Market Operator Monthly Report

Settlement Runs

| Trading Day | Indicative | | | Trading Day | INITIAL | | |
|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| | Actual Date | Target Time | Actual Time | | Actual Date | Target Time | Actual Time |
| 01/04/2016 | 08/04/2016 | 17:00 | 15:52 | 01/04/2016 | 08/04/2016 | 12:00 | 11:59 |
| 02/04/2016 | 08/04/2016 | 17:00 | 15:43 | 02/04/2016 | 08/04/2016 | 12:00 | 12:00 |
| 03/04/2016 | 08/04/2016 | 17:00 | 15:55 | 03/04/2016 | 08/04/2016 | 12:00 | 08:13 |
| 04/04/2016 | 11/04/2016 | 17:00 | 12:07 | 04/04/2016 | 11/04/2016 | 12:00 | 09:06 |
| 05/04/2016 | 12/04/2016 | 17:00 | 13:26 | 05/04/2016 | 12/04/2016 | 12:00 | 08:33 |
| 06/04/2016 | 13/04/2016 | 17:00 | 15:38 | 06/04/2016 | 13/04/2016 | 12:00 | 08:24 |
| 07/04/2016 | 14/04/2016 | 17:00 | 16:09 | 07/04/2016 | 14/04/2016 | 12:00 | 08:27 |
| 08/04/2016 | 15/04/2016 | 17:00 | 15:32 | 08/04/2016 | 15/04/2016 | 12:00 | 10:55 |
| 09/04/2016 | 15/04/2016 | 17:00 | 15:33 | 09/04/2016 | 15/04/2016 | 12:00 | 11:31 |
| 10/04/2016 | 15/04/2016 | 17:00 | 16:10 | 10/04/2016 | 15/04/2016 | 12:00 | 08:16 |
| 11/04/2016 | 18/04/2016 | 17:00 | 11:07 | 11/04/2016 | 18/04/2016 | 12:00 | 09:24 |
| 12/04/2016 | 19/04/2016 | 17:00 | 11:42 | 12/04/2016 | 19/04/2016 | 12:00 | 08:35 |
| 13/04/2016 | 20/04/2016 | 17:00 | 15:35 | 13/04/2016 | 20/04/2016 | 12:00 | 07:45 |
| 14/04/2016 | 21/04/2016 | 17:00 | 15:39 | 14/04/2016 | 21/04/2016 | 12:00 | 08:08 |
| 15/04/2016 | 22/04/2016 | 17:00 | 15:27 | 15/04/2016 | 22/04/2016 | 12:00 | 11:32 |
| 16/04/2016 | 22/04/2016 | 17:00 | 09:03 | 16/04/2016 | 22/04/2016 | 12:00 | 11:47 |
| 17/04/2016 | 22/04/2016 | 17:00 | 15:23 | 17/04/2016 | 22/04/2016 | 12:00 | 07:41 |
| 18/04/2016 | 25/04/2016 | 17:00 | 11:12 | 18/04/2016 | 25/04/2016 | 12:00 | 08:29 |
| 19/04/2016 | 26/04/2016 | 17:00 | 11:57 | 19/04/2016 | 26/04/2016 | 12:00 | 07:57 |
| 20/04/2016 | 27/04/2016 | 17:00 | 16:05 | 20/04/2016 | 27/04/2016 | 12:00 | 07:37 |
| 21/04/2016 | 28/04/2016 | 17:00 | 15:59 | 21/04/2016 | 28/04/2016 | 12:00 | 07:44 |
| 22/04/2016 | 29/04/2016 | 17:00 | 15:54 | 22/04/2016 | 29/04/2016 | 12:00 | 11:40 |
| 23/04/2016 | 29/04/2016 | 17:00 | 15:16 | 23/04/2016 | 29/04/2016 | 12:00 | 12:00 |
| 24/04/2016 | 29/04/2016 | 17:00 | 15:39 | 24/04/2016 | 29/04/2016 | 12:00 | 08:40 |
| 25/04/2016 | 02/05/2016 | 17:00 | 10:14 | 25/04/2016 | 02/05/2016 | 12:00 | 08:25 |
| 26/04/2016 | 03/05/2016 | 17:00 | 11:17 | 26/04/2016 | 03/05/2016 | 12:00 | 11:37 |
| 27/04/2016 | 04/05/2016 | 17:00 | 13:52 | 27/04/2016 | 04/05/2016 | 12:00 | 08:45 |
| 28/04/2016 | 05/05/2016 | 17:00 | 15:42 | 28/04/2016 | 05/05/2016 | 12:00 | 08:22 |
| 29/04/2016 | 06/05/2016 | 17:00 | 15:47 | 29/04/2016 | 06/05/2016 | 12:00 | 12:03 |
| 30/04/2016 | 06/05/2016 | 17:00 | 15:43 | 30/04/2016 | 06/05/2016 | 12:00 | 12:31 |

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 |

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

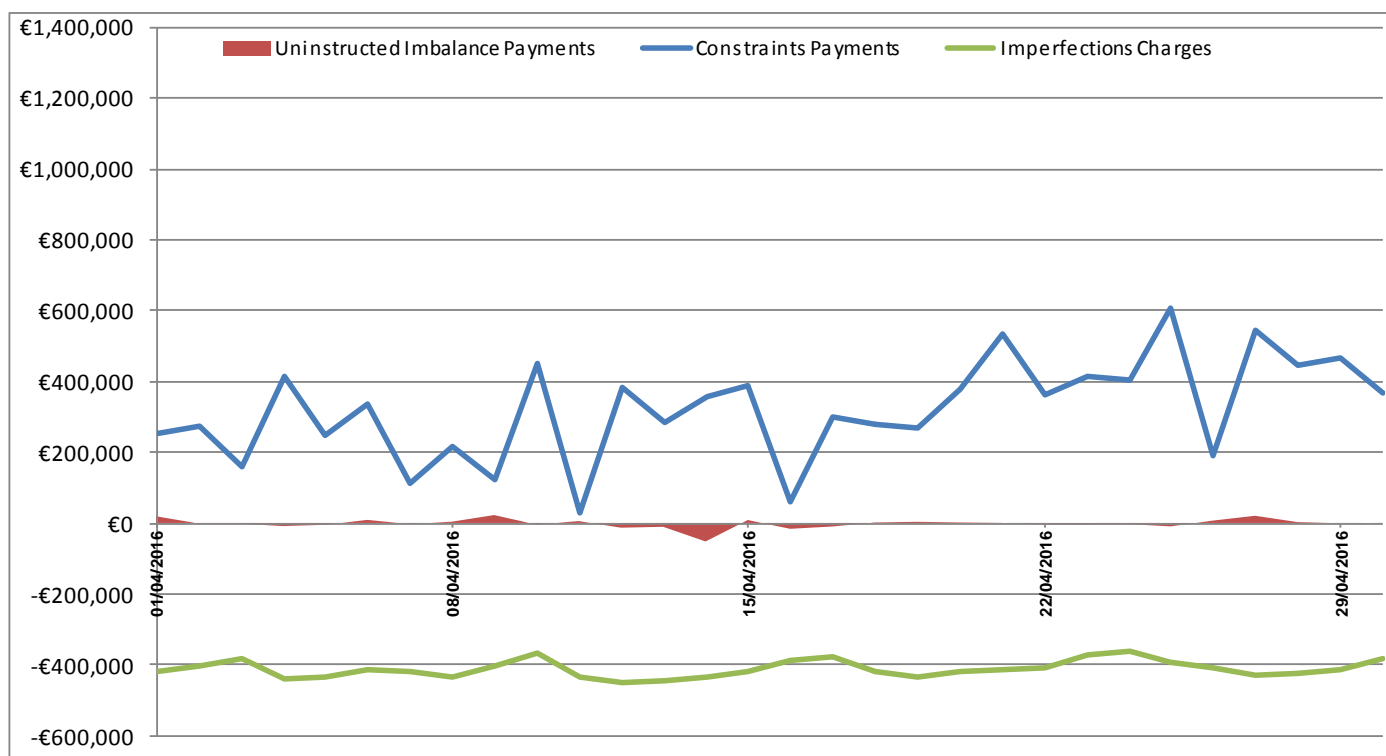


Figure 24 - Constraint Payments, Uninstructed Imbalance Payments, and Imperfections Charges

| Week No | Make Whole Payments |
|---------|---------------------|
| 38 | €156,663.13 |
| 39 | €99,549.05 |
| 40 | €104,371.05 |
| 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 | €44,834.21 |
| 5 | €94,935.70 |
| 6 | €71,991.91 |
| 7 | €89,850.72 |
| 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 |

Table 23 - Make Whole Payments

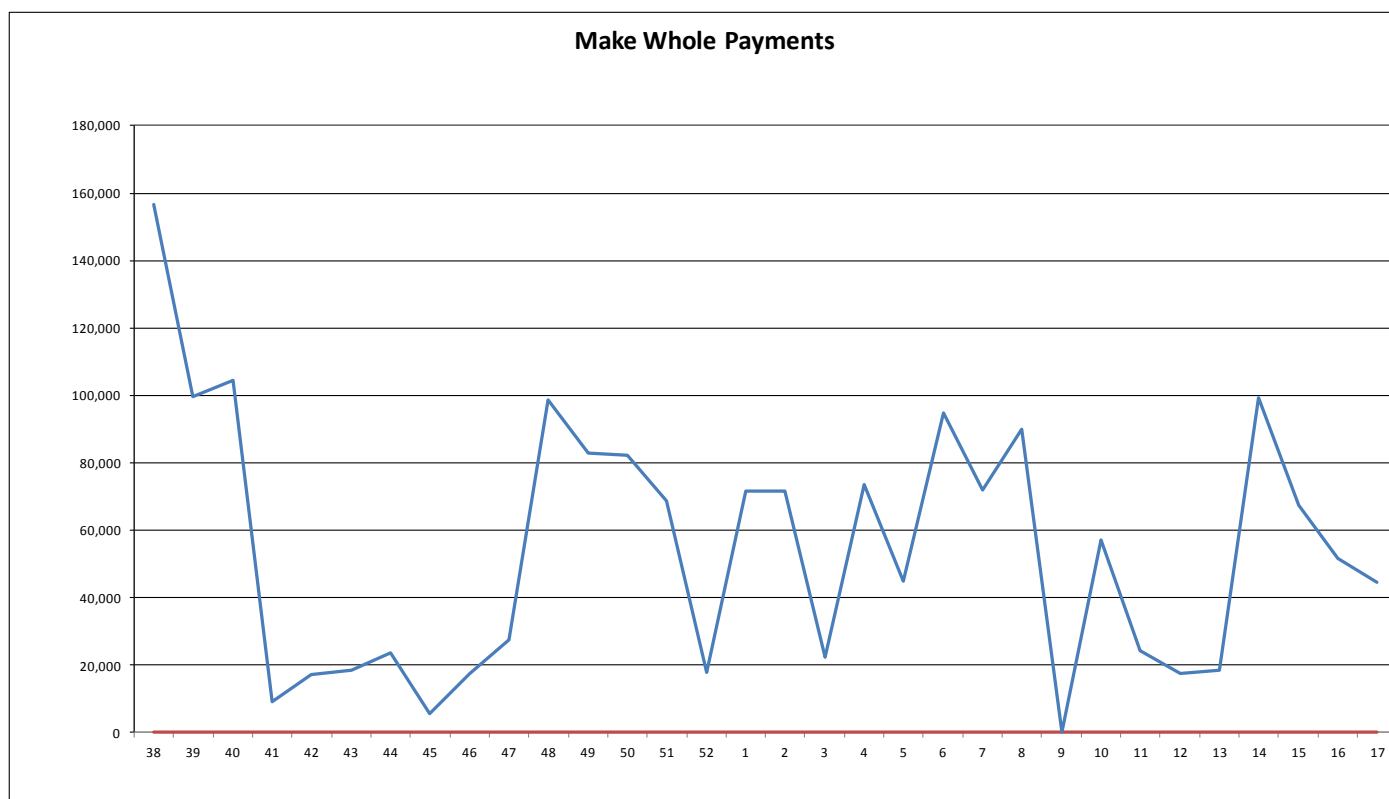


Figure 25 - Make Whole Payments

| 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 |

Table 24 - Testing Charges

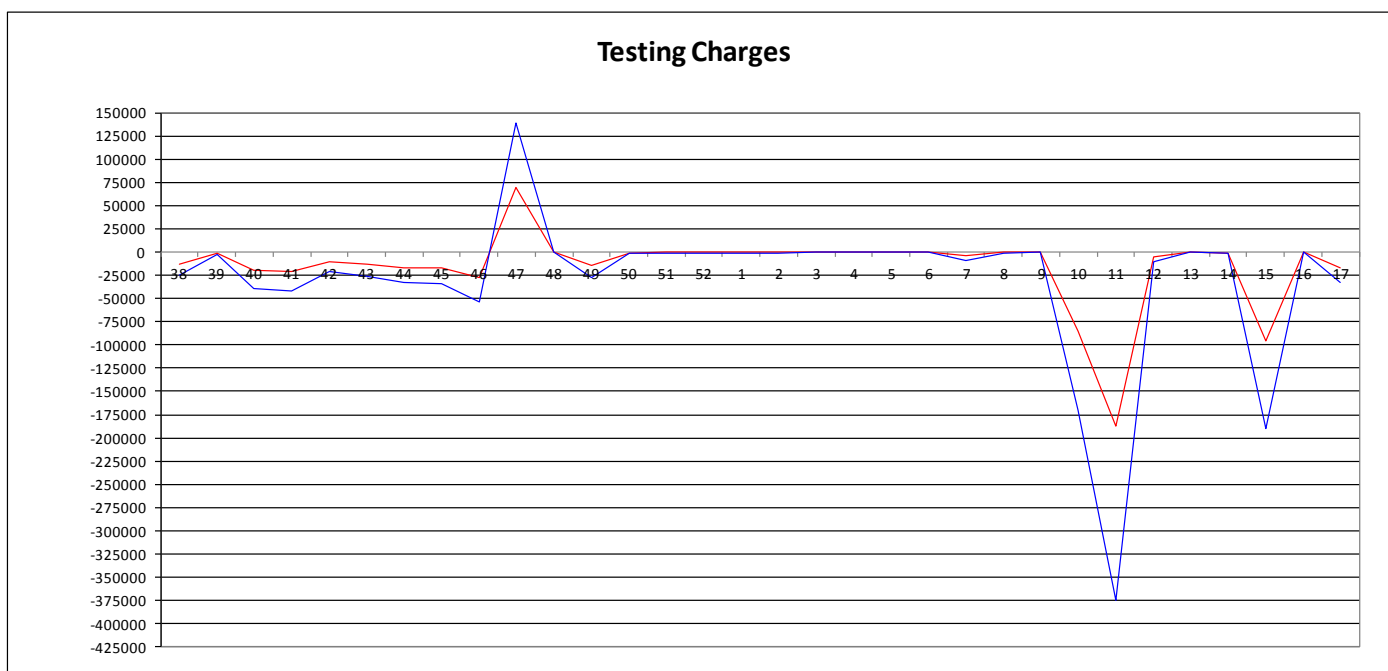


Figure 26 - Testing Charges

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_400024 | GU_400120 | 30 | | | 30 |
| PT_400024 | GU_400121 | 30 | | | 30 |
| PT_400030 | GU_400180 | 41 | | | 41 |
| PT_400030 | GU_400181 | 42 | | | 42 |
| PT_400030 | GU_400182 | 42 | | | 42 |
| PT_400030 | GU_400183 | 40 | | | 40 |
| PT_400030 | GU_400200 | 38 | | | 38 |
| PT_400030 | GU_400201 | 38 | | | 38 |
| PT_400030 | GU_400202 | 36 | | | 36 |
| PT_400030 | GU_400203 | 38 | | | 38 |
| PT_400030 | GU_400210 | 33 | | | 33 |
| PT_400030 | GU_400211 | 35 | | | 35 |
| PT_400030 | GU_400220 | 34 | | | 34 |
| PT_400030 | GU_400221 | 36 | | | 36 |
| PT_400030 | GU_400240 | 36 | | | 36 |
| PT_400030 | GU_400250 | 35 | | | 35 |
| PT_400030 | GU_400251 | 35 | | | 35 |
| PT_400030 | GU_400252 | 36 | | | 36 |
| PT_400030 | GU_400260 | 36 | | | 36 |
| PT_400030 | GU_400270 | 35 | | | 35 |
| PT_400030 | GU_400271 | 41 | | | 41 |
| PT_400030 | GU_400272 | 38 | | | 38 |
| PT_400030 | GU_400280 | 34 | | | 34 |
| PT_400030 | GU_400281 | 34 | | | 34 |
| PT_400030 | GU_400290 | 36 | | | 36 |
| PT_400030 | GU_400300 | 42 | | | 42 |
| PT_400030 | GU_400311 | 42 | | | 42 |
| PT_400030 | GU_400323 | 41 | | | 41 |
| PT_400030 | GU_400360 | 34 | | | 34 |
| PT_400030 | GU_400361 | 34 | | | 34 |
| PT_400030 | GU_400362 | 34 | | | 34 |
| PT_400030 | GU_400363 | 36 | | | 36 |
| PT_400030 | GU_400370 | 36 | | | 36 |
| PT_400030 | GU_400850 | 42 | | | 42 |
| PT_400032 | GU_400430 | 30 | | | 30 |
| PT_400034 | GU_400940 | 30 | | | 30 |
| PT_400034 | GU_401090 | 30 | | | 30 |
| PT_400034 | GU_401440 | 30 | | | 30 |
| PT_400034 | GU_401680 | 30 | | | 30 |
| PT_400035 | GU_400480 | 51 | | | 51 |
| PT_400037 | GU_400500 | 31 | | | 31 |
| PT_400041 | GU_400530 | 53 | | | 53 |
| PT_400044 | GU_400540 | 51 | | | 51 |
| PT_400054 | GU_400620 | 30 | | | 30 |
| PT_400055 | GU_400630 | 30 | | | 30 |
| PT_400064 | GU_400750 | 30 | | | 30 |

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|-----------|-----------|----|--|----|
| PT_400064 | GU_400751 | 30 | | 30 |
| PT_400064 | GU_400752 | 30 | | 30 |
| PT_400064 | GU_400753 | 30 | | 30 |
| PT_400064 | GU_400762 | 30 | | 30 |
| PT_400064 | GU_400770 | 30 | | 30 |
| PT_400064 | GU_400771 | 30 | | 30 |
| PT_400064 | GU_400780 | 30 | | 30 |
| PT_400064 | GU_400781 | 30 | | 30 |
| PT_400075 | GU_400930 | 67 | | 67 |
| PT_400077 | GU_400950 | 30 | | 30 |
| PT_400078 | GU_401010 | 31 | | 31 |
| PT_400078 | GU_401011 | 31 | | 31 |
| PT_400162 | GU_401830 | 26 | | 26 |
| PT_400172 | GU_401860 | 31 | | 31 |
| PT_500024 | GU_500040 | 31 | | 31 |
| PT_500024 | GU_500041 | 30 | | 30 |
| PT_500027 | GU_500130 | 86 | | 86 |
| PT_500027 | GU_500131 | 86 | | 86 |
| PT_500027 | GU_500140 | 86 | | 86 |
| PT_500034 | GU_501350 | 31 | | 31 |
| PT_500040 | GU_500281 | 30 | | 30 |
| PT_500040 | GU_500282 | 30 | | 30 |
| PT_500040 | GU_500283 | 30 | | 30 |
| PT_500040 | GU_500284 | 30 | | 30 |
| PT_500045 | GU_500820 | 30 | | 30 |
| PT_500045 | GU_500821 | 30 | | 30 |
| PT_500045 | GU_500822 | 30 | | 30 |
| PT_500045 | GU_500823 | 30 | | 30 |
| PT_500045 | GU_500824 | 30 | | 30 |
| PT_500045 | GU_500825 | 30 | | 30 |
| PT_500048 | GU_500904 | 52 | | 52 |
| PT_500050 | GU_501040 | 30 | | 30 |
| PT_500050 | GU_501050 | 30 | | 30 |
| PT_500050 | GU_501150 | 30 | | 30 |
| PT_500050 | GU_501190 | 30 | | 30 |
| PT_500053 | GU_501130 | 30 | | 30 |
| PT_500066 | GU_501210 | 30 | | 30 |
| PT_500073 | GU_501230 | 21 | | 21 |
| PT_400021 | I_ROIEWIC | 30 | | 30 |
| PT_500083 | I_NIMOYLE | 55 | | 55 |
| PT_500021 | I_NIMOYLE | 30 | | 30 |
| PT_500024 | I_NIMOYLE | 30 | | 30 |
| PT_500075 | I_NIMOYLE | 50 | | 50 |
| PT_400163 | I_ROIEWIC | 87 | | 87 |
| PT_500031 | I_NIMOYLE | 30 | | 30 |
| PT_500058 | I_NIMOYLE | 26 | | 26 |
| PT_500069 | I_NIMOYLE | 81 | | 81 |
| PT_400157 | I_ROIEWIC | 30 | | 30 |
| PT_400113 | I_ROIEWIC | 27 | | 27 |
| PT_400096 | I_ROIEWIC | 90 | | 90 |
| PT_500037 | I_NIMOYLE | 30 | | 30 |
| PT_400115 | I_ROIEWIC | 30 | | 30 |
| PT_500081 | I_NIMOYLE | 24 | | 24 |
| PT_400037 | I_ROIEWIC | 37 | | 37 |

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|-----------|------------|----|----|----|
| PT_400168 | I_ROIEWIC | 77 | | 77 |
| PT_400136 | I_ROIEWIC | 87 | | 87 |
| PT_400108 | I_ROIEWIC | 65 | | 65 |
| PT_500070 | I_NIMOYLE | 52 | | 52 |
| PT_400170 | I_ROIEWIC | 22 | | 22 |
| PT_400171 | I_ROIEWIC | 24 | | 24 |
| PT_400099 | I_ROIEWIC | 30 | | 30 |
| PT_400030 | I_ROIEWIC | 30 | | 30 |
| PT_500088 | I_NIMOYLE | 31 | | 31 |
| PT_500092 | I_NIMOYLE | 8 | | 8 |
| PT_400090 | DSU_401610 | 30 | | 30 |
| PT_400138 | DSU_401590 | 30 | | 30 |
| PT_400090 | DSU_401620 | 30 | | 30 |
| PT_400116 | DSU_401400 | 30 | | 30 |
| PT_400090 | DSU_401850 | 19 | | 19 |
| PT_500067 | DSU_501380 | 25 | | 25 |
| PT_400090 | DSU_401270 | 30 | | 30 |
| PT_400106 | DSU_401330 | 31 | | 31 |
| PT_400111 | DSU_401390 | 25 | | 25 |
| PT_400133 | DSU_401530 | 7 | | 7 |
| PT_400124 | DSU_401490 | 30 | | 30 |
| PT_400021 | GU_400021 | | 30 | 30 |
| PT_400021 | GU_400050 | | 30 | 30 |
| PT_400021 | GU_400060 | | 30 | 30 |
| PT_400021 | GU_400070 | | 30 | 30 |
| PT_400021 | GU_400080 | | 30 | 30 |
| PT_400021 | GU_400591 | | 30 | 30 |
| PT_400021 | GU_400600 | | 30 | 30 |
| PT_400021 | GU_400910 | | 30 | 30 |
| PT_400021 | GU_400920 | | 30 | 30 |
| PT_400021 | GU_401080 | | 30 | 30 |
| PT_400021 | GU_401380 | | 30 | 30 |
| PT_400021 | GU_401600 | | 30 | 30 |
| PT_400021 | GU_401640 | | 30 | 30 |
| PT_400025 | GU_400130 | | 30 | 30 |
| PT_400030 | GU_400210 | | 1 | 1 |
| PT_400038 | GU_400550 | | 30 | 30 |
| PT_400050 | GU_400650 | | 30 | 30 |
| PT_400050 | GU_400660 | | 30 | 30 |
| PT_400050 | GU_401000 | | 30 | 30 |
| PT_400050 | GU_401060 | | 30 | 30 |
| PT_400050 | GU_401150 | | 30 | 30 |
| PT_400050 | GU_401240 | | 30 | 30 |
| PT_400050 | GU_401250 | | 30 | 30 |
| PT_400050 | GU_401280 | | 30 | 30 |
| PT_400050 | GU_401290 | | 30 | 30 |
| PT_400050 | GU_401360 | | 30 | 30 |
| PT_400050 | GU_401790 | | 30 | 30 |
| PT_400062 | GU_400730 | | 30 | 30 |
| PT_400062 | GU_400731 | | 30 | 30 |
| PT_400062 | GU_400840 | | 30 | 30 |
| PT_400066 | GU_401540 | | 30 | 30 |
| PT_400066 | GU_401820 | | 30 | 30 |
| PT_400082 | GU_401100 | | 30 | 30 |

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| | | | | | |
|-----------|-------------------|---------------|--------------|---------------|----------------|
| PT_400087 | GU_401230 | | | 30 | 30 |
| PT_400148 | GU_401690 | | | 30 | 30 |
| PT_400150 | GU_401700 | | | 30 | 30 |
| PT_400151 | GU_401770 | | | 30 | 30 |
| PT_400151 | GU_401780 | | | 30 | 30 |
| PT_400152 | GU_401710 | | | 30 | 30 |
| PT_400152 | GU_401720 | | | 30 | 30 |
| PT_400152 | GU_401730 | | | 30 | 30 |
| PT_400152 | GU_401740 | | | 30 | 30 |
| PT_400152 | GU_401750 | | | 30 | 30 |
| PT_400152 | GU_401760 | | | 30 | 30 |
| PT_500021 | GU_500010 | | | 30 | 30 |
| PT_500021 | GU_500740 | | | 30 | 30 |
| PT_500021 | GU_501160 | | | 30 | 30 |
| PT_500032 | GU_500211 | | | 30 | 30 |
| PT_500032 | GU_501120 | | | 30 | 30 |
| PT_500032 | GU_501280 | | | 30 | 30 |
| PT_500032 | GU_501290 | | | 30 | 30 |
| PT_500032 | GU_501300 | | | 30 | 30 |
| PT_500039 | GU_500270 | | | 30 | 30 |
| PT_500044 | GU_500720 | | | 30 | 30 |
| PT_500047 | GU_500790 | | | 30 | 30 |
| PT_500061 | GU_501170 | | | 30 | 30 |
| PT_500062 | GU_501180 | | | 30 | 30 |
| PT_500073 | GU_501230 | | | 9 | 9 |
| PT_500074 | GU_501250 | | | 30 | 30 |
| PT_500089 | GU_501360 | | | 30 | 30 |
| PT_400144 | DSU_401660 | | | 30 | 30 |
| PT_500078 | DSU_501330 | | | 30 | 30 |
| PT_500067 | DSU_501380 | | | 5 | 5 |
| PT_400111 | DSU_401390 | | | 5 | 5 |
| PT_400133 | DSU_401530 | | | 24 | 24 |
| | Total | 4435 | 0 | 1844 | 6279 |
| | Percentage | 70.63% | 0.00% | 29.37% | 100.00% |

Table 25 – Commercial Offer Data Used

13. 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

| | | | | | | | | | | | | | | |
|--------|-----|----------------|----------------|---------------|-------------|-------------|------------|-------------|------------|-----------|---------------|-----------|----------------|----------------|
| 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 | 73,064,976.28 | |
| | NI | £16,832,807.07 | £5,122,118.14 | £325,108.62 | £91,338.63 | £25,719.39 | £870.76 | £34,166.04 | £7,520.83 | £436.14 | £0.00 | £0.00 | 22,440,085.62 | |
| Aug-14 | ROI | £75,858,678.54 | £17,424,467.63 | £1,576,396.05 | £255,748.90 | £41,217.98 | £1,835.23 | £112,980.92 | £0.00 | £1,327.55 | £123,147.19 | £0.00 | £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 | 93,053,099.01 | |
| | NI | £24,828,028.32 | £5,414,449.74 | £421,681.34 | £62,719.19 | £15,276.27 | £566.66 | £41,391.12 | £13,194.54 | £660.78 | £0.00 | £0.00 | 30,797,967.96 | |
| Oct-14 | ROI | £24,219,443.57 | £5,293,829.01 | £290,759.61 | £125,095.27 | £15,188.14 | £796.75 | £32,076.91 | £6,465.54 | £355.27 | £0.00 | £0.00 | 29,984,010.07 | |
| | NI | £73,931,567.89 | £18,999,271.36 | £1,111,306.76 | £521,095.61 | £105,483.15 | £5,765.50 | £89,815.40 | £802.55 | £9,518.03 | £0.00 | £0.00 | 94,774,626.25 | |
| Nov-14 | ROI | £57,386,075.03 | £21,066,561.05 | £829,482.91 | £519,431.32 | £147,151.65 | £6,123.28 | £79,434.93 | £23,622.83 | £721.00 | £0.00 | £0.00 | 80,058,604.00 | |
| | NI | £21,159,632.98 | £6,853,966.46 | £220,983.06 | £50,691.24 | £27,250.12 | £653.21 | £26,795.35 | £6,589.23 | £253.47 | £0.00 | £0.00 | 28,346,815.12 | |
| Dec-14 | ROI | £70,930,088.87 | £29,867,271.70 | £888,221.25 | £635,976.36 | £143,088.63 | £7,086.94 | £116,364.21 | £26,279.71 | £995.87 | £0.00 | £0.00 | 102,615,373.54 | |
| | NI | £24,123,259.48 | £7,725,422.06 | £238,369.94 | £58,794.95 | £14,543.55 | £696.33 | £34,690.50 | £7,234.36 | £296.35 | £0.00 | £0.00 | 32,203,307.52 | |
| Jan-15 | ROI | £66,217,285.22 | £32,948,586.09 | £1,048,029.61 | £438,657.65 | £106,047.92 | £3,853.63 | £150,902.14 | £27,588.16 | £819.15 | £0.00 | £2,703.81 | 100,944,473.38 | |
| | NI | £27,989,159.87 | £8,572,662.67 | £280,425.53 | £42,989.83 | £9,581.57 | £365.00 | £37,526.70 | £7,104.61 | £229.56 | £0.00 | £1,338.36 | 36,941,383.70 | |
| Feb-15 | ROI | £65,650,453.03 | £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 | 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 | £1,530.01 | £28,297.30 | £5,740.95 | £255.12 | £458.23 | £0.00 | £0.00 | 27,472,953.75 | |
| Jun-15 | ROI | £49,441,454.53 | £18,011,748.07 | £768,412.90 | £525,988.89 | £125,343.18 | £3,068.91 | £83,564.13 | £14,743.93 | £639.06 | £24,047.90 | £0.00 | £0.00 | 68,999,011.50 |
| | NI | £16,086,817.66 | £4,881,262.27 | £731,152.70 | £190,327.69 | £56,176.06 | £1,108.32 | £14,086.52 | £3,263.83 | £136.37 | £4.82 | £0.00 | £0.00 | 21,964,336.24 |
| Jul-15 | ROI | £60,081,065.67 | £18,106,345.49 | £938,580.42 | £392,863.94 | £100,250.95 | £2,281.34 | £70,409.41 | £14,571.40 | £801.22 | £3,383,812.96 | £0.00 | £0.00 | 83,090,982.80 |
| | NI | £20,399,899.80 | £4,559,620.30 | £901,179.27 | £122,425.31 | £34,196.36 | £798.99 | £13,983.16 | £3,041.83 | £170.87 | £560,424.72 | £0.00 | £0.00 | 26,595,740.61 |
| Aug-15 | ROI | £78,361,586.44 | £18,780,406.68 | £706,070.38 | £980,269.55 | £57,624.58 | £1,113.70 | £78,106.89 | £15,466.63 | £704.85 | £100,608.41 | £0.00 | £0.00 | 99,081,958.11 |
| | NI | £26,593,706.25 | £4,803,877.25 | £717,392.01 | £96,278.24 | £20,145.75 | £293.79 | £11,711.41 | £2,659.00 | £109.44 | £1,579.59 | £0.00 | £0.00 | 32,247,752.73 |
| Sep-15 | ROI | £56,880,935.07 | £19,007,006.26 | £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 | 68,320,576.27 | |
| | NI | £16,675,395.96 | £6,086,547.11 | £1,187,219.91 | £53,340.80 | £16,688.72 | £277.65 | £11,014.82 | £3,948.74 | £76.07 | £0.00 | £0.00 | 24,034,509.78 | |
| Nov-15 | ROI | £56,463,736.52 | £23,128,442.30 | £1,100,826.75 | £429,995.20 | £99,296.34 | £2,542.49 | £702,840.25 | £20,038.40 | £309.43 | £293,116.81 | £0.00 | £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 | 85,043,502.08 | |
| | NI | £18,807,275.81 | £8,947,272.84 | £1,177,606.04 | £132,697.73 | £37,389.03 | £908.11 | £23,859.97 | £15,486.06 | £141.18 | £0.00 | £0.00 | 29,142,636.77 | |
| Jan-16 | ROI | £58,962,181.52 | £24,712,649.02 | £1,489,145.25 | £360,735.59 | £112,295.73 | £2,766.96 | £446,172.64 | £37,483.70 | £461.80 | £0.00 | £0.00 | 86,123,892.21 | |
| | NI | £22,884,292.07 | £6,792,946.67 | £1,439,182.95 | £61,720.87 | £33,725.86 | £439.13 | £13,953.72 | £11,288.27 | £91.07 | £0.00 | £0.00 | 31,237,640.61 | |
| Feb-16 | ROI | £44,227,777.74 | £22,236,309.33 | £1,235,987.38 | £320,699.87 | £111,578.50 | £2,310.47 | £168,670.97 | £16,768.91 | £473.10 | £0.00 | £0.00 | 68,320,576.27 | |
| | NI | £16,675,395.96 | £6,086,547.11 | £1,187,219.91 | £53,340.80 | £16,688.72 | £277.65 | £11,014.82 | £3,948.74 | £76.07 | £0.00 | £0.00 | 24,034,509.78 | |
| Mar-16 | ROI | £46,479,736.23 | £21,810,284.94 | £1,247,077.11 | £218,253.91 | £0.00 | £2,241.73 | £325,512.38 | £0.00 | £184.01 | £10,658.28 | £0.00 | £0.00 | 70,093,948.59 |
| | NI | £18,169,780.86 | £5,723,642.36 | £307,019.09 | £92,518.83 | £0.00 | £1,042.35 | £18,464.14 | £0.00 | £90.30 | £35.07 | £0.00 | £0.00 | 24,312,593.00 |
| Apr-16 | ROI | £57,935,825.17 | £17,094,463.29 | £1,471,499.46 | £416,561.74 | £228,953.88 | £5,030.22 | £478,630.27 | £28,077.61 | £475.98 | £105,568.09 | £0.00 | £0.00 | 77,765,085.71 |
| | NI | £21,413,999.73 | £4,706,369.93 | £356,309.07 | £111,802.15 | £87,327.04 | £1,297.05 | £47,648.29 | £20,761.72 | £299.44 | £20,454.46 | £0.00 | £0.00 | 26,766,268.88 |

Table 26 - Total Charges by Month

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| | | | | | | | | | | | | | |
|--------|-----|----------------|----------------|-------------|-------------|-------------|-------------|-------------|------------|-------------|-----------|---------|-----------------|
| Jun-14 | ROI | €53,863,542.49 | €16,268,861.66 | €424,333.36 | €121,415.36 | €4,245.54 | €106,227.35 | €17,318.53 | €1,014.63 | €10,805.33 | €0.00 | €0.00 | €70,817,764.25 |
| | NI | €18,301,490.12 | €7,464,864.99 | €121,134.45 | €40,186.30 | €1,005.32 | €50,770.87 | €10,564.39 | €415.66 | €29.76 | €0.00 | €0.00 | €25,990,461.86 |
| Jul-14 | ROI | €50,929,138.15 | €21,772,067.06 | €326,631.36 | €82,858.43 | €2,938.18 | €123,130.56 | €17,118.42 | €1,016.51 | €0.00 | €0.00 | €0.00 | €73,254,898.67 |
| | NI | €12,936,147.70 | €6,035,816.09 | €91,479.13 | €29,875.87 | €813.16 | €67,310.27 | €7,807.37 | €427.29 | €0.00 | €0.00 | €0.00 | €19,169,676.88 |
| Aug-14 | ROI | €76,295,371.52 | €16,503,906.00 | €283,973.76 | €42,797.07 | €2,738.01 | €125,676.42 | €0.00 | €1,327.83 | €29.36 | €0.00 | €0.00 | €93,255,819.97 |
| | NI | €17,954,420.41 | €5,911,052.65 | €74,371.07 | €15,553.63 | €863.74 | €54,424.97 | €0.00 | €488.54 | €7.43 | €0.00 | €0.00 | €24,011,182.44 |
| Sep-14 | ROI | €73,630,247.02 | €17,405,067.16 | €261,367.00 | €62,924.88 | €3,377.33 | €73,033.72 | €11,845.94 | €728.13 | €0.00 | €0.00 | €0.00 | €91,448,591.18 |
| | NI | €22,272,153.08 | €5,742,482.51 | €49,069.86 | €14,962.35 | €717.66 | €41,404.59 | €13,672.05 | €509.28 | €0.00 | €0.00 | €0.00 | €28,134,971.38 |
| Oct-14 | ROI | €82,250,495.91 | €18,220,219.93 | €584,729.92 | €104,687.01 | €6,507.05 | €125,335.38 | €9,519.24 | €1,313.25 | €0.00 | €0.00 | €0.00 | €101,302,807.69 |
| | NI | €18,391,944.98 | €5,868,972.09 | €82,257.95 | €15,709.16 | €1,031.70 | €42,677.16 | €6,422.11 | €498.29 | €0.00 | €0.00 | €0.00 | €24,409,513.44 |
| Nov-14 | ROI | €64,818,088.97 | €20,480,936.98 | €530,386.99 | €157,754.12 | €6,116.91 | €78,674.36 | €23,606.67 | €1,289.81 | €0.00 | €0.00 | €0.00 | €86,096,854.81 |
| | NI | €14,616,605.70 | €7,312,194.38 | €50,960.79 | €18,897.71 | €653.20 | €37,498.77 | €6,592.72 | €254.29 | €0.00 | €0.00 | €0.00 | €22,043,657.56 |
| Dec-14 | ROI | €79,262,340.64 | €30,252,803.13 | €636,211.01 | €143,171.30 | €7,087.15 | €116,495.94 | €25,330.11 | €995.97 | €0.00 | €0.00 | €0.00 | €110,444,435.25 |
| | NI | €17,625,339.05 | €7,511,303.13 | €58,743.90 | €14,475.87 | €679.17 | €34,724.44 | €7,982.34 | €296.61 | €0.00 | €0.00 | €0.00 | €25,253,544.51 |
| Jan-15 | ROI | €77,706,417.44 | €34,394,754.66 | €438,764.21 | €107,475.98 | €4,105.28 | €98,914.59 | €27,079.30 | €830.89 | €14,240.78 | €3,537.75 | €0.00 | €112,796,120.88 |
| | NI | €21,735,748.95 | €7,476,289.80 | €38,275.71 | €8,505.48 | €324.11 | €25,331.16 | €7,456.18 | €248.46 | €0.00 | €691.42 | €0.00 | €29,292,871.27 |
| Feb-15 | ROI | €73,470,092.53 | €55,924,536.86 | €296,450.78 | €68,641.91 | €1,587.00 | €108,844.27 | €30,840.66 | €843.06 | €0.00 | €0.00 | €0.00 | €129,901,837.07 |
| | NI | €19,828,437.97 | €15,954,828.70 | €108,022.71 | €28,545.69 | €367.07 | €16,957.65 | €4,432.19 | €141.23 | €0.00 | €0.00 | €0.00 | €35,941,733.21 |
| Mar-15 | ROI | €62,833,350.60 | €23,162,278.12 | €454,954.34 | €115,622.74 | €2,409.00 | €95,140.99 | €35,705.38 | €876.34 | €33.87 | €0.00 | €0.00 | €86,700,371.38 |
| | NI | €18,497,389.79 | €7,572,263.19 | €147,525.82 | €46,556.55 | €825.97 | €19,215.14 | €8,635.89 | €182.86 | €726.16 | €0.00 | €0.00 | €26,293,321.37 |
| Apr-15 | ROI | €55,596,682.04 | €19,228,984.53 | €447,913.03 | €132,018.11 | €2,588.47 | €93,342.92 | €23,125.23 | €794.27 | €27,655.34 | €0.00 | €0.00 | €75,553,103.94 |
| | NI | €14,229,748.35 | €5,312,669.68 | €178,040.01 | €60,667.89 | €1,059.24 | €28,971.47 | €8,624.89 | €241.56 | €20,785.23 | €0.00 | €0.00 | €19,840,808.32 |
| May-15 | ROI | €67,111,651.41 | €19,797,771.76 | €51,325.57 | €496,344.48 | €113,479.16 | €2,634.87 | €257,691.56 | €32,517.87 | €947.37 | €0.00 | €0.00 | €87,864,364.05 |
| | NI | €14,205,268.80 | €5,300,854.82 | €14,374.56 | €284,573.32 | €81,498.12 | -€1,531.15 | €28,297.30 | €9,511.56 | €255.00 | €0.00 | €0.00 | €19,923,102.33 |
| Jun-15 | ROI | €52,399,988.22 | €18,449,916.98 | €50,329.66 | €524,214.44 | €125,353.28 | €2,989.03 | €83,564.13 | €15,091.05 | €633.94 | €0.00 | €0.00 | €71,652,080.73 |
| | NI | €10,536,540.86 | €4,561,917.57 | €13,069.46 | €190,224.00 | €56,986.34 | -€1,109.52 | €14,086.52 | €3,197.29 | €136.59 | €0.00 | €0.00 | €15,375,049.11 |
| Jul-15 | ROI | €63,619,222.88 | €17,795,388.83 | €50,900.02 | €368,804.77 | €98,198.30 | €2,207.87 | €70,409.41 | €14,587.16 | €801.29 | €0.00 | €0.00 | €82,020,520.53 |
| | NI | €12,711,689.30 | €4,703,936.76 | €13,498.87 | €121,756.24 | €35,884.73 | -799.78 | €13,983.16 | €3,045.41 | €170.96 | €0.00 | €0.00 | €17,603,165.65 |
| Aug-15 | ROI | €78,593,341.57 | €17,976,726.62 | €1,941.74 | €806,815.82 | €62,841.79 | €1,062.49 | €78,106.89 | €15,446.53 | €704.90 | €0.00 | €0.00 | €97,536,988.35 |
| | NI | €18,174,076.35 | €5,392,403.96 | €13,263.37 | €191,650.14 | €15,985.64 | -€294.74 | €11,711.41 | €2,643.17 | €109.50 | €0.00 | €0.00 | €23,801,548.80 |
| Sep-15 | ROI | €53,901,821.24 | €19,234,943.47 | €48,776.08 | €306,959.54 | €78,980.31 | €1,722.88 | €36,597.16 | €9,593.94 | €440.27 | €0.00 | €0.00 | €73,619,834.89 |
| | NI | €12,814,817.71 | €5,453,049.86 | €13,099.19 | €28,119.15 | €30,434.20 | €195.13 | €6,674.12 | €1,961.83 | €89.22 | €0.00 | €0.00 | €18,348,050.15 |
| Oct-15 | ROI | €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 | €53,840,170.28 | €17,104,842.75 | €415,112.37 | €247,294.27 | €5,027.94 | €81,626.06 | €27,799.39 | €410.18 | €208,424.28 | €0.00 | €0.00 | €71,930,707.52 |
| | NI | €20,282,958.20 | €4,658,773.71 | €111,871.11 | €72,753.11 | €1,297.25 | €52,180.96 | €20,969.56 | €283.82 | €27,450.94 | €0.00 | €0.00 | €25,228,538.66 |

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 | -€2,352.02 | -€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 |

Table 28 – Full Balancing Costs for Trading Charges and Payments

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

Capacity Market

| Invoice Month | SEM Balancing Costs | VAT Balancing Costs |
|---------------|---------------------|---------------------|
| 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 |

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> | = | = | = | = | = |

Table 30 - MIP Algorithms

Market Operator Monthly Report

| 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> | = | = | = | = | = |

Table 31 - MIP Vs LR Peak Price Comparison