

Legacy SEM Market Operator Monthly Report

April 2019

Table of Contents

EXECUTIVE SUMMARY	3
MONTHLY STATISTICS	4
TRADING AND SETTLEMENT CODE BREACHES	4
FINANCIAL STATISTICS	5
TOTAL CURRENCY COSTS FINANCIAL CHANGES BETWEEN INITIAL SETTLEMENT AND SUBSEQUENT RERUNS 3.1.1 Energy Market 3.1.2 Capacity Market	7 7
HELPDESK CALL STATISTICS	.12
DISPUTES AND QUERIES	.13
5.1.2 Data Queries 5.1.3 Settlement Queries	
CENTRAL SYSTEMS	.14
6.1 LIST OF SYSTEM ERRORS AND RE-RUNS 6.1.1 Re-Pricing / Resettlement Runs 6.1.2 System Errors	. 14
OCCASIONAL COMPONENTS	.15
7.1 DISASTER RECOVERY/BUSINESS CONTINUITY TESTS 7.2 COMMUNICATIONS OR SYSTEMS FAILURES 7.3 DENIAL OF SERVICE ATTACKS	.15
APPENDIX A: DETAIL OF TRADING AND SETTLEMENT CODE BREACHES	.16
DATA PROVIDER MARKET PARTICIPANT SEMO – SETTLEMENTS SEMO - PRICING AND SCHEDULING SEMO - FUNDS TRANSFER SEMO - CREDIT MANAGEMENT SEMO – OTHER	.16 .16 .16 .16 .16
APPENDIX B: LIST OF QUERIES BY TYPE	.17
APPENDIX C: LIST OF ALL SYSTEM ERRORS AND FAILURES	.18
APPENDIX D: DETAILS OF OPERATIONAL TIMINGS	.19
APPENDIX E: IMPERFECTIONS CHARGE	. 20
APPENDIX F: DEFAULT COMMERCIAL OFFER DATA USED	.21
APPENDIX G: TOTAL CHARGES AND PAYMENTS DATA	. 22
APPENDIX H: FULL BALANCING COSTS	.24
APPENDIX I: MSP ALGORITHMS	. 25

Executive Summary

The Legacy Single Electricity Market was in operation under its previous arrangements from the 1st November 2007 until the 30th September 2018. On 1 October 2018 the Integrated Single Electricity Market (I-SEM) went live and is now the enduring operational electricity market in Ireland and Northern Ireland.

This Single Electricity Market Operator's (SEMO) report covers the month of operation of April 2019 regarding the Legacy Single Electricity Market 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 2019, there was no late Credit Report publication as per the Trading and Settlement Code timelines.

There were 4 defaults by Participants during April 2019. The largest of these was an Energy Week 09 2018 M+13 invoice for €310.27 which was remedied on the same day.

There were no Credit Cover Increase defaults during April 2019 as per the Trading and Settlement code timelines.

56 general queries were received in April 2019. During the same period 53 general queries were resolved.

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

Monthly Statistics

Trading and Settlement Code Breaches

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

Trading and Settlement Code Breaches									
Area Major									
Data Providers		-	-						
Market Participants	Pricing & Scheduling	-	-						
	Settlement	-	-						
	Funds Transfer	4	-						
	Credit Risk Management	-	-						
SEMO	Pricing & Scheduling	-	-						
	Settlement	-	-						
	Funds Transfer	-	-						
	Credit Risk Management	_	_						
	Other	_	_						
Total		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 <u>Appendix A</u>

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.

Financial Statistics

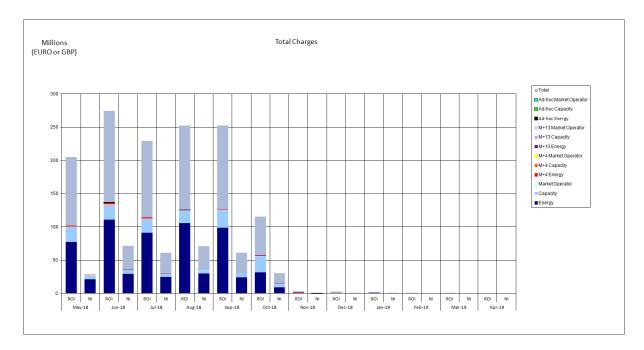


Figure 1 - Total Charges for Each Currency

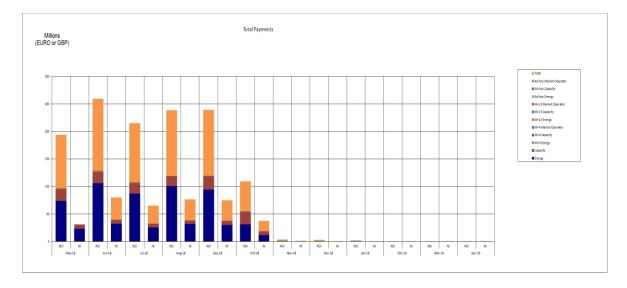
Market	Apr	·-19	
	ROI	NI	
Energy	€0	£0	
Capacity	€0	£0	
Market Operator	€0	£0	
M+4 Energy	€0	£0	
M+4 Capacity	€0	£0	
M+4 Market Operator	€0	£0	
M+13 Energy	€92,317	£138,341	
M+13 Capacity	€18,280	£39,070	
M+13 Market Operator	€469	£693	
Ad-hoc Energy	€0	£0	
Ad-hoc Capacity	€0	£0	
Ad-hoc Market Operator	€0	£0	
Total	€111,066	£178,104	

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 <u>Appendix G</u>.



Market	Арі	·-19	
	ROI	NI	
Energy	€0	£0	
Capacity	€0	£0	
Market Operator	€0	£0	
M+4 Energy	€0	£0	
M+4 Capacity	€0	£0	
M+4 Market Operator	€0	£0	
M+13 Energy	€92,271	£138,318	
M+13 Capacity	€18,188	£38,999	
M+13 Market Operator	€469	£692	
Ad-hoc Energy	€0	£0	
Ad-hoc Capacity	€0	£0	
Ad-hoc Market Operator	€0	£0	
Total	€110,928	£178,008	

Figure 2 - Total Payments for Each Currency

Table 3 - Total Payments for Each Currency

Total Currency Costs

Currency Costs for Initial Invoicing are now longer calculated in the SEM since Week 39 2018.

Financial Changes between Initial Settlement and Subsequent Reruns

The following graphs provide a breakdown of resettlement amounts for the M+13 period of March 2018 for Energy and Capacity.

3.1.1 Energy Market

Note: - For Figure 3, 4, 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 5

M+4 Resettlement

M+13 Resettlement

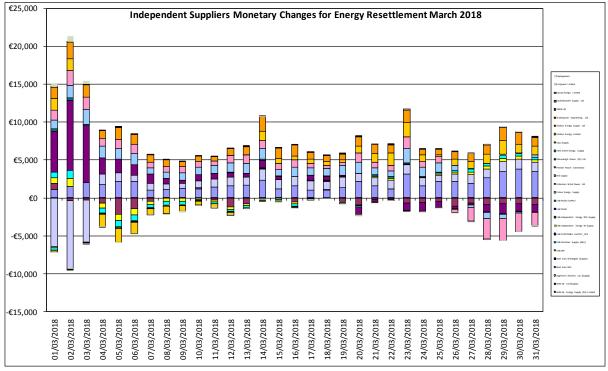


Figure 3 - Independent Suppliers Monetary Changes for Energy Resettlement – March 2018

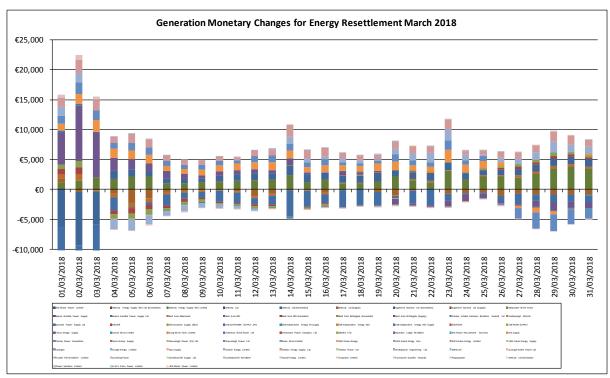


Figure 4 - Generation Monetary Changes for Energy Resettlement – March 2018

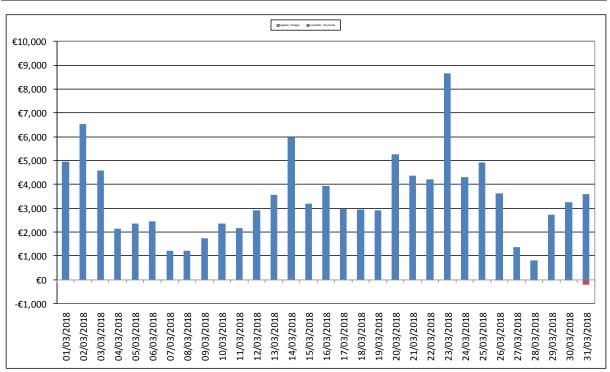


Figure 5 - Total Monetary Changes for Energy Resettlement –March 2018

3.1.2 Capacity Market

Note: - For Figure 8 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 6.

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

No longer required as part of legacy SEM wind down.



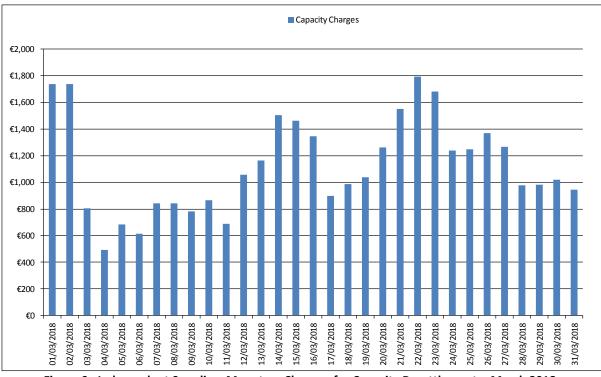


Figure 6 - Independent Suppliers Monetary Changes for Capacity Resettlement – March 2018

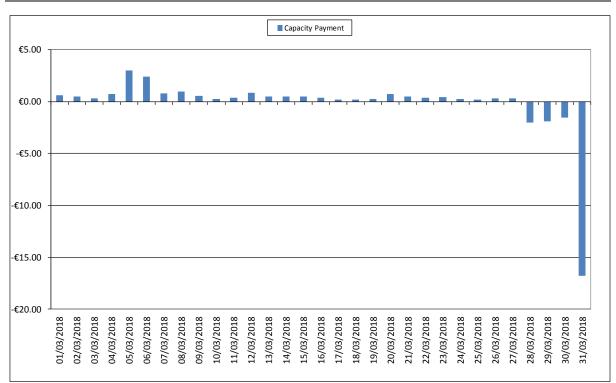


Figure 7 – All Generation Monetary Change for Capacity Resettlement – March 2018

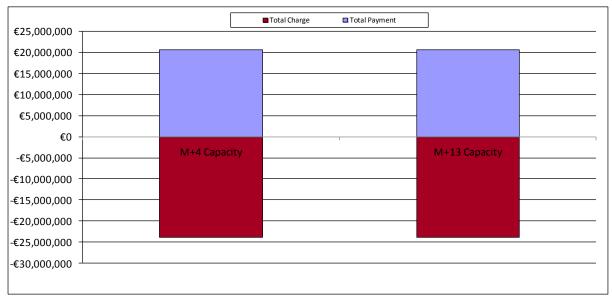


Figure 8 - Comparison of Distribution of Monetary Amounts between M+4 Capacity Resettlement and M+13 Capacity Resettlement –March 2018.

Helpdesk Call Statistics

The statistics presented in Table 4 - Helpdesk Call Statistics covers the month of April 2019

Market Helpdesk Report: 01/04/19 to 30/04/19

	Received	Resolved within the period	Not Resolved	Resolved in the period	Resolution Time (Working Days)	Resolved On Time
Normal	56	47	9	53	1.57	48
Important	0	0	0	0	0.00	0
Urgent	0	0	0	0	0.00	0
Settlement	0	0	0	0	0.00	0
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	56	47	9	53	0.31	48

Table 4 – Helpdesk Statistics

Definitions:

- Resolved within the Period refers to queries raised and resolved within the calendar month of April 2019.
- Resolved in the Period refers to queries resolved within April 2019, 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 2019.
- Not Resolved refers to queries raised but not resolved within April 2019.
- Urgent are general queries which may have an impact on market operations. SEMO has an internal objective to resolve these within 3 working days; however, this is not a mandated service level under the Trading and Settlement Code.
- Disputes are where a dispute has been raised over the outcome of a data or settlement query.

The average resolution time for General Queries has increased by 0.77 working days from 0.80 in March 2019 to 1.57 in April 2019. 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 2019 with regard to formal Settlement Queries.

Disputes and Queries

5.1.1 Disputes

No Settlement Disputes were raised during the month of April 2019.

Торіс	Number Of Queries

Table 5– Upheld Dispute Queries by Topic

5.1.2 Data Queries

There were no formal data queries received during the month of April 2019.

Торіс	Number Of Queries

Table 6– Upheld Data Queries by Topic

5.1.3 Settlement Queries

There were no formal queries received during the month of April 2019.

Торіс	Number Of Queries

Table 7 – Upheld Settlement Queries by Topic

• Unresolved Queries

There are no unresolved SEM Settlement Queries as of the 17th May 2019.

Central Systems

6.1 List of System Errors and Re-runs

Details are provided in <u>Appendix C</u>: List of All Systems Errors and Failures

6.1.1 Re-Pricing / Resettlement Runs

There were no Ad hoc Re-Settlement run carried out in April 2019.

6.1.2 System Errors

There were no Market Application defects found in April 2019.

Details are provided in <u>Appendix C</u>: List of All Systems Errors and Failures

Occasional Components

7.1 Disaster Recovery/Business Continuity Tests

There were no scheduled Business Continuity tests performed during April 2019.

7.2 Communications or Systems Failures

There were on communication failures during April 2019.

7.3 Denial of Service Attacks

There was no Denial of Service Attacks during April 2019.

Appendix A: Detail of Trading and Settlement Code Breaches

Data Provider

There were no breaches to report in April 2019.

Market Participant

Ops Date Identified	Run Type	Quality or Timing	Party	Issue Type	Description	Cause	Resolution	T and SC Breach
17/04/2019	Money In	Timing	Participant	Payment Default	CrighShane Energy Ltd (PT_500062) defaulted on an Energy Week 10 M+13 2018	Participant Error	A default letter was issued to the Participant.	Major
10/04/2019	Money In	Timing	Participant	Payment Default	Just Energy (Ireland) Ltd (PT_400211) defaulted on an Energy Week 09 M+13 2018	Participant Error	A default letter was issued to the Participant.	Major
10/04/2019	Money In	Timing	Participant	Payment Default	Glanaruddery Energy Supply (PT_400203) defaulted on an Energy Week 09 M+13 2018	Participant Error	A default letter was issued to the Participant.	Major
03/04/2019	Money In	Timing	Participant	Payment Default	Activation Energy DSU LTD (PT_500098) defaulted on an Capacity February M+13 2018	Participant Error	A default letter was issued to the Participant.	Major

Table 8 – Trading and Settlement Code Breaches – Market Participants

SEMO – Settlements

There were no breaches to report in April 2019.

SEMO - Pricing and Scheduling

There were no breaches to report in April 2019.

SEMO - Funds Transfer

There were no breaches to report in April 2019.

SEMO - Credit Management

There were no breaches to report in April 2019.

SEMO – Other

There were no breaches to report in April 2019.

Appendix B: List of Queries by Type

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 2019.

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

Table 9 - List of System Errors and Failures

Appendix D: Details of Operational Timings

Appendix E: Imperfections Charge

Appendix F: Default Commercial Offer Data Used

Appendix G: Total Charges and Payments Data

The tables below list historical values for Total Charges and Total Payments in the SEM by month and currency since start of the SEM.

- Month of inclusion based on invoice date.
- Amounts are after application of Settlement Reallocation.

Table 10 – Total Charges by Month

Market		Energy	Capacity	Market Operator	M+4 Energy	M+4 Capacity	M+4 Market Operator	M+13 Energy	M+13 Capacity	M+13 Market Operator	Ad-hoc Energy	Ad-hoc Capacity	Ad-hoc Market Operator	Total
	ROI	£83,791,449	£24,787,352	£781,890	£413,698	£113,547	£3,295	£122,794	£33,971	£718	£458,369	£6,145	£6,145	£110,519,371
Nov-17	NI	£22,118,497	£6,651,371	£204,783	£141,841	£56,639	£1,085	£61,621	£21,195	£400	£705	£2,550	£2,550	£29,263,237
	ROI	£108,724,596.96	£30,213,314.37	£1,032,089.87	£386,043.20	£61,761.35	£2,747.14	£91,579.26	£20,859.90	£558.92	£354,184.96	£196,828.99	£196,828.99	141,281,393.91
Dec-17	NI	£35,009,530.01	£7,435,318.60	£270,080.16	£180,156.15	£72,189.79	£1,323.93	£45,368.58	£11,660.54	£288.42	£58,353.41	£11,091.72	£11,091.72	43,106,453.03
	ROI	£66,824,387.64	£31,236,649.01	£796,356.35	£272,646.34	£136,640.90	£1,965.48	£56,253.29	£18,996.49	£347.05	£320.44	£2,955.28	£2,955.28	99,350,473.55
Jan-18	NI	£21,801,403.00	£8,153,351.60	£211,139.18	£105,764.72	£76,139.37	£734.71	£22,938.26	£7,983.39	£150.76	£275,137.08	£85,908.52	£85,908.52	30,826,559.11
	ROI	£73,894,145.46	£29,049,213.63	£821,611.24	£239,608.70	£442,118.67	£1,727.82	£34,763.85	£73,083.63	£225.56	£0.00	£0.00	£0.00	104,556,498.56
Feb-18	NI	£23,559,299.88	£8,534,268.31	£214,366.57	£214,152.33	£80,930.26	£1,369.32	£27,935.49	£69,821.89	£160.29	£0.00	£0.00	£0.00	32,702,304.34
	ROI	£83,664,309	£0	£194,992	£674,215	£284,390	£3,439	£95,181	£158,339	£583	£0	£0	£0	£85,075,447
Mar-18	NI	£32,334,060	£0	£50,052	£163,160	£102,559	£899	£50,645	£71,098	£380	£0	£0	£0	£32,772,854
	ROI	£69,317,323	£23,231,814	£783,294	£970,456	£256,503	£5,627	£71,337	£267,758	£516	£0	£0	£0	£94,904,628
Apr-18	NI	£23,659,859	£7,429,700	£190,874	£151,575	£33,802	£816	£72,822	£115,446	£533	£0	£0	£0	£31,655,427
	ROI	£77,304,833	£22,485,464	£739,608	£1,395,991	£384,788	£8,896	£89,490	£221,592	£645	£0	£0	£0	£102,631,308
May-18	NI	£21,411,034	£6,005,961	£181,189	£109,484	£23,056	£674	£114,249	£62,751	£823	£0	£0	£0	£27,909,222
	ROI	£110,729,885	£22,412,350	£892,166	£2,294,801	£444,742	£12,880	£101,002	£74,247	£805	£417,974	£0	£0	£137,380,852
Jun-18	NI	£29,772,183	£5,362,582	£213,124	£111,573	£27,385	£607	£183,273	£95,348	£1,350	£16	£0	£0	£35,767,439
	ROI	£91,566,909	£20,553,253	£732,984	£1,335,293	£324,878	£6,367	£47,651	£89,704	£431	£0	£0	£0	£114,657,469
Jul-18	NI	£24,824,845	£5,305,704	£169,676	£164,048	£26,544	£654	£124,634	£100,028	£1,063	£0	£0	£0	£30,717,196
	ROI	£105,558,500	£18,695,229	£882,539	£559,068	£165,878	£3,317	£48,971	£87,850	£370	£206,636	£0	£0	£126,208,357
Aug-18	NI	£29,846,140	£5,022,974	£217,086	£248,040	£37,238	£1,329	£10,253	£31,064	£85	£5,825	£0	£0	£35,420,033
	ROI	£99,146,293	£25,829,272	£731,194	£468,008	£88,260	£2,304	£34,658	£89,979	£269	£0	£0	£0	£126,390,237
Sep-18	NI	£24,452,280	£5,983,336	£181,019	£68,235	£13,992	£365	£6,470	£18,637	£53	£0	£0	£0	£30,724,387
	ROI	£31,530,401	£24,300,026	£595,030	£865,326	£183,408	£4,241	£148,617	£39,733	£1,136	£0	£0	£0	£57,667,916
Oct-18	NI	£9,455,756	£5,693,202	£150,691	£108,258	£35,783	£1,126	£8,612	£2,164	£108	£0	£0	£0	£15,455,699
	ROI	£0	£0	£0	£1,160,011	£185,595	£6,269	£312,981	£78,711	£1,598	£31	£0	£0	£1,745,196
Nov-18	NI	£0	£0	£0	£333,889	£67,914	£1,675	£86,421	£34,554	£589	£82,261	£0	£0	£607,304
	ROI	£0	£0	£0	£806,243	£170,047	£6,269	£312,981	£78,711	£1,598	£0	£0	£0	£1,375,850
Dec-18	NI	£0	£0	£0	£248,530	£72,567	£1,675	£71,305	£21,025	£589	£0	£0	£0	£415,692
	ROI	£0	£0	£0	£500,065	£75,786	£2,328	£400,377	£112,479	£2,266	£0	£0	£0	£1,093,300
Jan-19	NI	£0	£0	£0	£192,903	£39,123	£858	£72,043	£22,307	£395	£0	£0	£0	£327,629
	ROI	£0	£0	£0	£13,836	£0	£69	£289,439	£81,327	£1,783	£0	£0	£0	£386,454
Feb-19	NI	£0	£0	£0	£8,561	£0	£3	£38,672	£15,274	£245	£0	£0	£0	£62,755
	ROI	£0	£0	£0	£0	£0	£0	£296,547	£71,255	£1,635	£0	£0	£0	£369,437
Mar-19	NI	£0	£0	£0	£0	£0	£0	£83,428	£23,689	£465	£0	£0	£0	£107,582
	ROI	£0	£0	£0	£0	£0	£0	£92,317	£18,280	£469	£0	£0	£0	£111,066
Apr-19	NI	£0	£0	£0	£0	£0	£0	£138,341	£39,070	£693	£0	£0	£0	£178,104

Mark	(et	Energy	Capacity	M+4 Energy	M+4 Capacity	M+4 Market Operator	M+13 Energy	M+13 Capacity	M+13 Market Operator	Ad-hoc Energy	Ad-hoc Capacity	Ad-hoc Market Operator	Total
	ROI	£83,230,541	£23,930,421	£473,719	£114,595	£3,363	£122,843	£33,951	£718	£645,100	£4,985	£800	£108,561,035
Nov-17	NI	£25,746,600	£7,365,655	£145,319	£55,530	£1,080	£61,622	£21,196	£399	£274	£3,545	£0	£33,401,221
	ROI	£106,835,064.33	£27,957,453.42	£397,100.73	£98,040.58	£2,984.78	£91,151.49	£20,818.71	£556.31	£336,745.88	£173,793.95	£644.35	€135,914,354.53
Dec-17	NI	£37,790,994.99	£9,466,911.04	£181,354.27	£40,293.46	£1,305.84	£45,734.51	£11,769.44	£290.16	£57,624.89	£31,404.66	£288.16	€47,627,971.42
	ROI	£66,556,846.79	£30,184,516.90	£264,692.47	£140,421.82	£600.74	£56,245.08	£18,749.58	£346.74	£37.23	£16,333.45	£0.00	€97,238,790.80
Jan-18	NI	£24,598,645.75	£9,075,819.96	£105,487.86	£72,782.55	£685.44	£22,940.69	£8,209.56	£150.74	£270,100.11	£74,414.80	£1,311.93	€34,230,549.39
	ROI	£73,649,373.32	£28,234,770.33	£241,672.56	£232,622.38	£1,496.49	£33,903.63	£90,769.95	£220.04	£0.00	£0.00	£0.00	€102,484,828.70
Feb-18	NI	£26,522,258.99	£9,276,145.07	£211,340.35	£267,052.17	£1,368.55	£28,772.37	£54,122.68	£164.70	£0.00	£0.00	£0.00	€36,361,224.88
	ROI	£85,513,434	£0	£691,820	£303,976	£3,238	£94,253	£188,330	£578	£0	£0	£0	£86,795,628
Mar-18	NI	£37,437,280	£0	£170,090	£85,702	£898	£51,265	£45,028	£384	£0	£0	£0	£37,790,647
	ROI	£69,267,924	£20,860,692	£945,469	£237,063	£3,887	£193,101	£310,897	£516	£0	£0	£0	£91,819,549
Apr-18	NI	£32,845,010	£9,450,019	£150,560	£50,635	£818	£72,832	£77,370	£533	£0	£0	£0	£42,64 7,777
	ROI	£73,986,199	£21,003,133	£1,333,265	£344,914	£4,639	£89,323	£138,550	£645	£0	£0	£0	£96,900,668
May-18	NI	£23,049,174	£7,260,826	£111,164	£58,347	£686	£114,206	£136,262	£823	£0	£0	£0	£30,731,488
	ROI	£106,186,794	£20,271,690	£2,266,420	£404,741	£6,062	£101,282	£80,377	£791	£394,961	£0	£884	£129,714,001
Jun-18	NI	£32,258,574	£7,261,868	£115,238	£62,628	£627	£183,374	£89,625	£1,350	£852	£0	£2	£39,974,138
	ROI	£86,768,139	£19,045,125	£1,383,691	£307,142	£4,724	£47,761	£123,685	£431	£0	£0	£0	£107,680,698
Jul-18	NI	£25,508,813	£6,579,825	£161,500	£42,347	£738	£124,667	£69,402	£1,063	£0	£0	£0	£32,488,356
	ROI	£101,015,744	£17,337,990	£549,108	£161,828	£2,583	£49,204	£91,882	£311	£145,525	£0	£0	£119,354,176
Aug-18	NI	£31,815,843	£6,244,149	£243,991	£41,050	£1,252	£10,283	£27,631	£85	£7,589	£0	£0	£38,391,874
	ROI	£94,348,675	£24,483,726	£469,838	£87,398	£2,373	£34,655	£85,446	£269	£0	£0	£0	£119,512,381
Sep-18	NI	£30,233,883	£7,164,947	£67,373	£14,752	£295	£6,469	£22,731	£53	£0	£0	£0	£37,510,502
	ROI	£30,964,136	£22,562,931	£878,875	£189,837	£5,160	£148,618	£39,721	£1,133	£0	£0	£0	£54,790,411
Oct-18	NI	£11,418,621	£7,231,162	£107,709	£30,084	£1,123	£8,612	£2,161	£110	£0	£0	£0	£18,799,581
	ROI	£0	£0	£1,157,683	£185,071	£6,166	£320,379	£79,187	£2,118	£2,649	£0	£8	£1,753,261
Nov-18	NI	£0	£0	£333,518	£67,787	£1,659	£86,279	£34,163	£589	£38,925	£0	£155	£563,074
	ROI	£0	£0	£806,949	£170,134	£6,166	£328,215	£88,275	£1,873	£0	£0	£0	£1,401,613
Dec-18	NI	£0	£0	£248,726	£67,787	£1,659	£71,328	£21,036	£407	£0	£0	£0	£410,943
	ROI	£0	£0	£496,510	£73,932	£2,088	£400,379	£112,477	£2,266	£0	£0	£0	£1,087,652
Jan-19	NI	£0	£0	£192,014	£40,658	£870	£72,043	£22,306	£395	£0	£0	£0	£328,286
	ROI	£0	£0	£13,361	£0	£69	£289,397	£81,399	£1,783	£0	£0	£0	£386,010
Feb-19	NI	£0	£0	£6,884	£0	£27	£38,659	£15,295	£245	£0	£0	£0	£61,110
	ROI	£0	£0	£0	£0	£0	£296,600	£71,163	£1,635	£0	£0	£0	£369,398
Mar-19	NI	£0	£0	£0	£0	£0	£83,443	£23,663	£465	£0	£0	£0	£107,570
	ROI	£0	£0	£0	£0	£0	£92,271	£18,188	£469	£0	£0	£0	£110,928
Apr-19	NI	£0	£0	£0	£0	£0	£138,318	£38,999	£692	£0	£0	£0	£178,008

Table 11 - Total Payments by Month

Appendix H: Full Balancing Costs

Appendix I: MSP Algorithms