

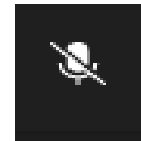
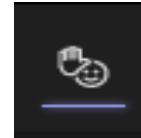
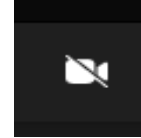
# Market Operator User Group

16<sup>th</sup> May 2024



# Housekeeping Rules

- Please keep your video switched off
- Raise your hand if you have a question
- When asked to unmute your line



*Thank you for your cooperation.*





# Welcome

# Anne Fitzgerald



Agenda Items	Presenters
Welcome	Anne Fitzgerald
Release Program	Mark Hogan
SEMO CapEx	Aidan Kehoe
Ex-Ante Markets	Joaquin Iñiguez de Gante
SEMOpX Trading	Michael Atcheson
Settlements	Seán O'Rourke
System Operations IE & TEG	Robert Koch
Market Interface	Rosaleen Fanning & Anne Fitzgerald





# Release Program

Mark Hogan



# Release Program Update: Releases in next 12 months

- Release M will include changes for Greenlink and is currently in end-to-end test in EirGrid. The deployment date is subject to overall Greenlink deployment requirements.
- Release M.1 will include 3<sup>rd</sup> party software update and CR 317
- Release N will include the first tranche of changes for Schedule and Dispatch (SDP)
  - Final design details are being confirmed with Vendor
  - Dates related to ISEM Technical Specification and other documents will be published June 2024
  - RA approval for mods June 2024
  - Target go live April 2025
- 3<sup>rd</sup> party software to be updated as part of Release N





# Release Program Update

- Extensive market infrastructure refresh project underway
  - Replacing and updating infrastructure supporting ISEM virtual machines
  - Review of Market database architecture to reduce size of individual databases
- Microsoft has committed to supporting Microsoft Edge with IE mode until “at least 2029” ([link](#)) so we continue to recommend that approach until we have implemented native Edge and Chrome compatibility.



# Release M & N Contents

Release	Change Request	Description
M	212	CSB/MI Value Import Screen Change
	301	Issuing audio alarms for any failing MMS applications
	303A	Greenlink: Registration, Market Information and Market Participant Interface changes required for Greenlink
	303B	Greenlink: Market Application changes required for Greenlink
	304	Treatment for Firm Curtailment (Part of SEM 22 009 decision - CEP Article 13.7 )
M.1	317	Enhance DSI capability to use default values for ICRP
	310	3 <sup>rd</sup> party software updates
N	SDP_01	Operation of Non-Priority Dispatch of Renewables
	SDP_02	Energy Storage Power System Integration requirements
	319	3 <sup>rd</sup> party software updates



# SEMO CapEx

## Aidan Kehoe





# Price Control SEMO CapEx Update

SEMO CapEx Spend	2023/24	2023/24	2023/24
	CapEx Allowance (Mar 2024 Monies)	Actual RAB Additions/ Cloud Opex (01 Oct – 31 March)	Assets Under Construction (31 March 24)
<b>Total System Release Capital (€'m)</b>	<b>6.74</b>		<b>1.59</b>
Market System Releases	5.44		1.15
Market System Release Support	1.30		0.44
<b>Total Predictable Business CapEx (€'m)</b>	<b>1.75</b>	<b>0.32</b>	<b>2.07</b>
SEM Infrastructure Refresh	1.44		1.47
SEM Finance System (Cloud)	0.00	0.32	0.00
Automated Test Capability	0.32		0.15
Website Development	0		0.01
Network and Security Infrastructure	0		0.05
ISEM VMWare upgrade	0		0.40
<b>Total Unpredictable CapEx (€'m)</b>	<b>1.73</b>		<b>3.65</b>
Greenlink			0.97
OMW Upgrade			0.09
Enduring Data Hub			0.29
Scheduling and Dispatch			1.84
Archiving			0.30
Other			0.16
<b>Total Unpredictable Cloud Opex</b>		<b>0.04</b>	
<b>Total Capital FY23/24 (YTD) (€'m)</b>	<b>10.22</b>	<b>0.36</b>	<b>7.31</b>

- The figures shown for the Market System Releases and Market Systems Release Support are the release costs for SEMO. The total FY23/24 Assets under construction includes any project that was not complete as at 31<sup>st</sup> March 2024.
- The AUC figures include the TSO element of market releases but that will be charged back to the TSO before the release is added to the SEMO RAB.
- These numbers are provisional and subject to audit
- The following release activity is included in Market System Release Capital and Market System Release Support
  - Release M - Not yet Deployed and is mainly Greenlink related
- **Predictable Capex**
  - SEM Infrastructure Refresh are an ongoing cost with regular refreshes taking place each year
  - SEM Finance System: This project commenced in FY24 and is a cloud opex cost
  - Automated Test Capability: Work started in FY23 and expected to complete in FY24
  - Website development: First tranche of changes in progress
- **Unpredictable Capex**
  - This is made up of a number of projects the largest being Greenlink and Scheduling and Dispatch





# Ex-Ante Markets

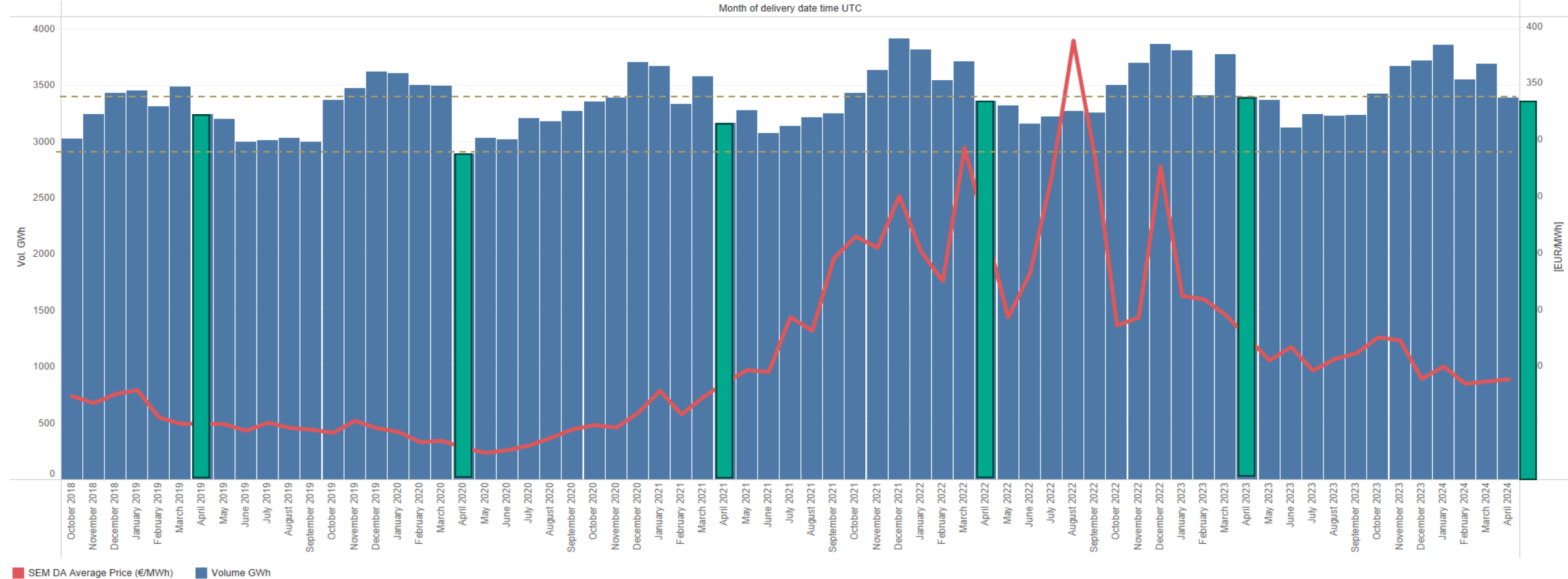
Joaquin Iniguez de Gante



# Ex-Ante Markets

Volume Trade vs Avg Price (DA)

Month of delivery date time UTC

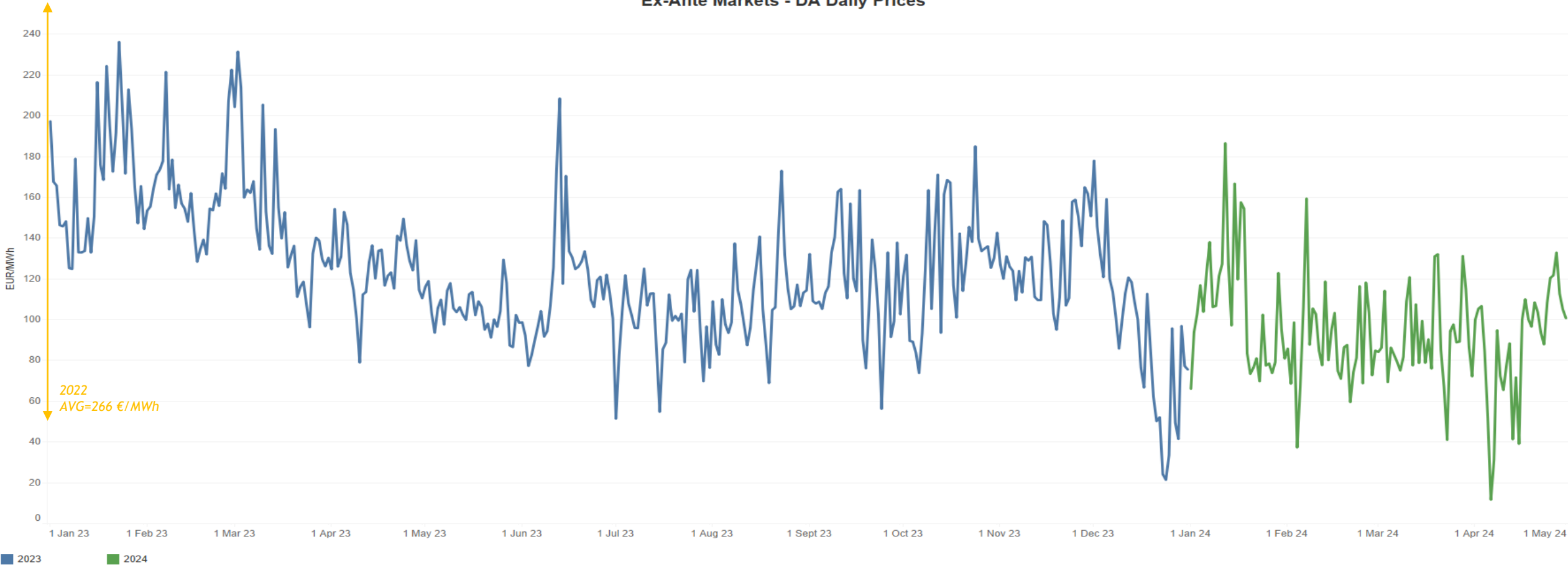


- Volumes in the DAM have remained at levels of past years and following seasonal trends.
- Over the last 3 months, a constant monthly average of 86.56 €/MWh has been observed.



# Ex-Ante Markets

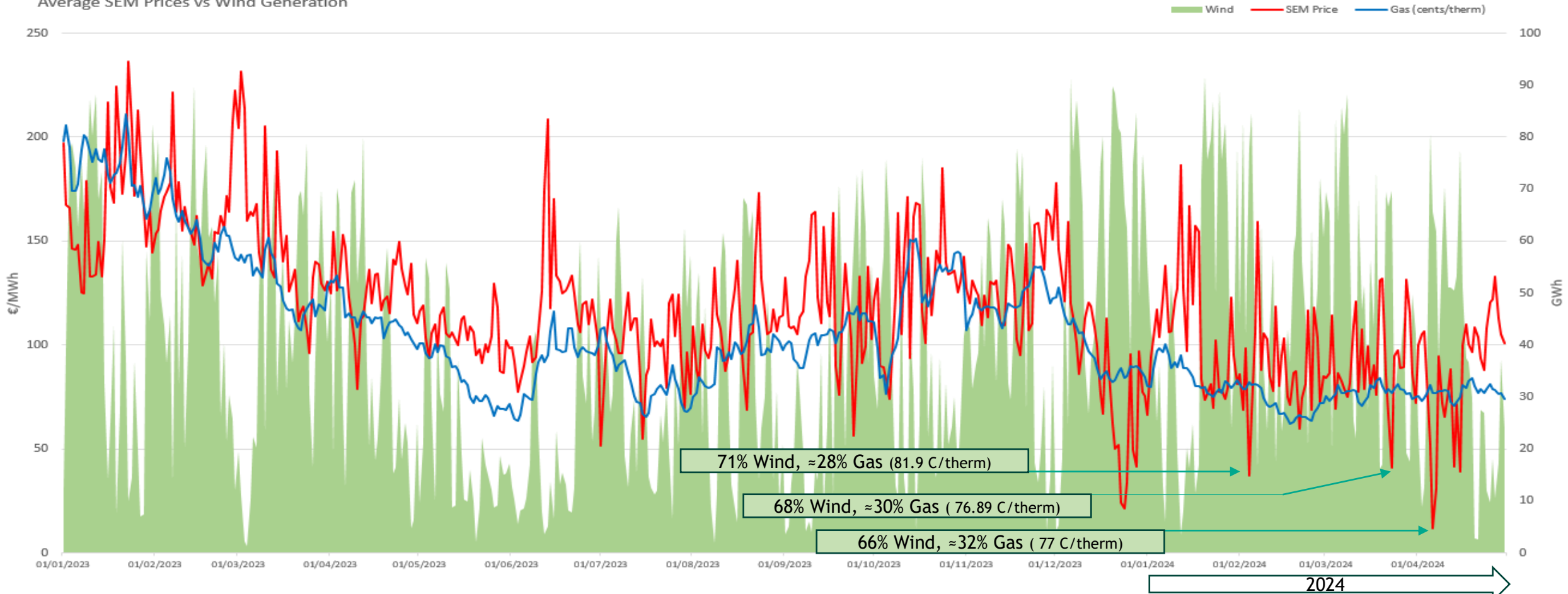
Ex-Ante Markets - DA Daily Prices



- Since 2023, prices in the DAM have decreased their volatility compared to the previous year.
- From the beginning of 2024 to April 2024, an average price of 90.02€/MWh has been registered, being the highest average price of 186.5€/MWh and the lowest of 11.7€/MWh.

# Ex-Ante Markets

Average SEM Prices vs Wind Generation



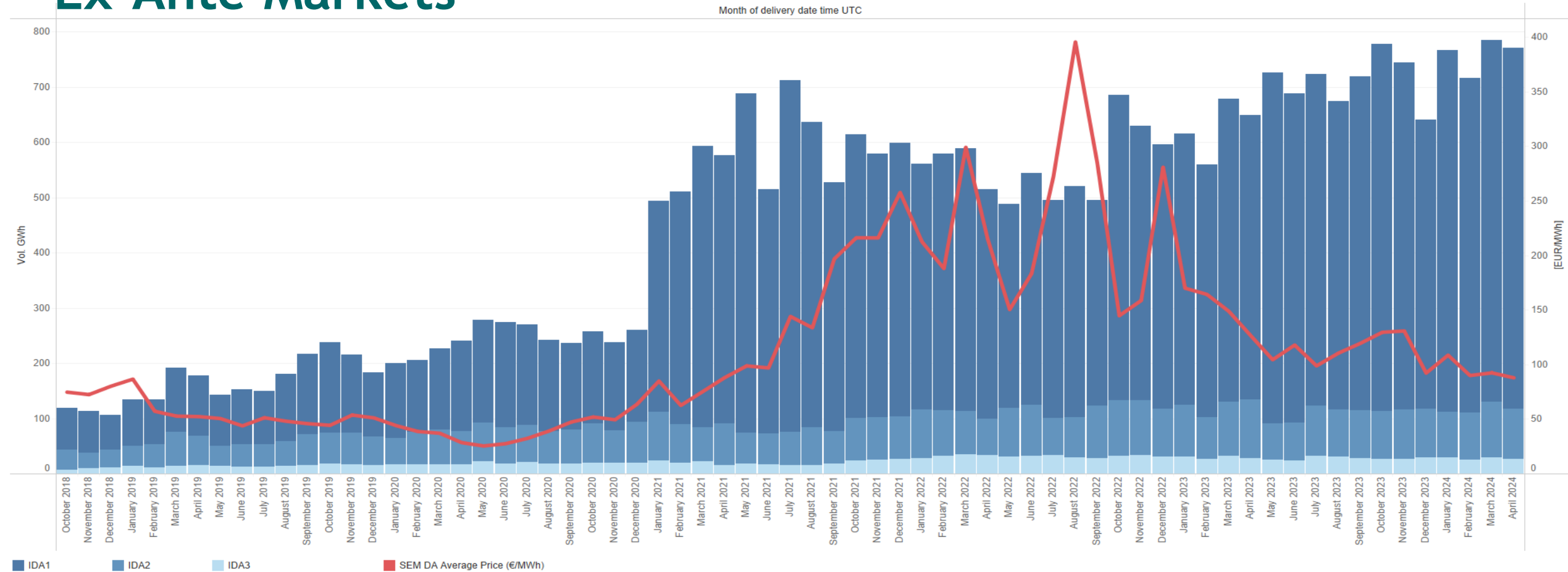
- Gas price seems to maintain a side trend, which may be due to the "good" storage levels in Europe, low demand and good renewable generation.



# Ex-Ante Markets

Volume Trade vs Avg Price (IDA's)

Month of delivery date time UTC



- Traded Volume on IDA1 continue to be influenced by interconnection.
- IDA2 and IDA3 have had a constant behavior where volumes have not changed considerably since the last quarter of 2023.
- There was an increase in IDA1 volumes in the last two months which is related to the 8% increase on imports.



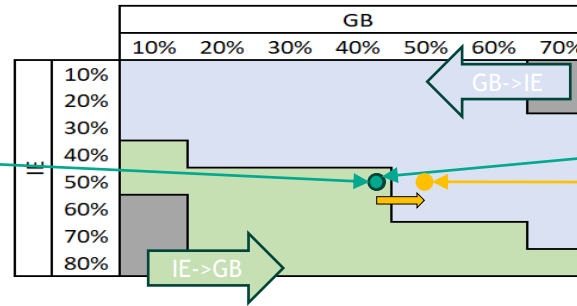
# Ex-Ante Markets

- As the middle of the year approaches, solar availability has increased in Europe. this has led to a drop in energy prices and a trend of imports into the SEM..

**Renewables % (GB, IE) vs Net interconnection flow 2024**

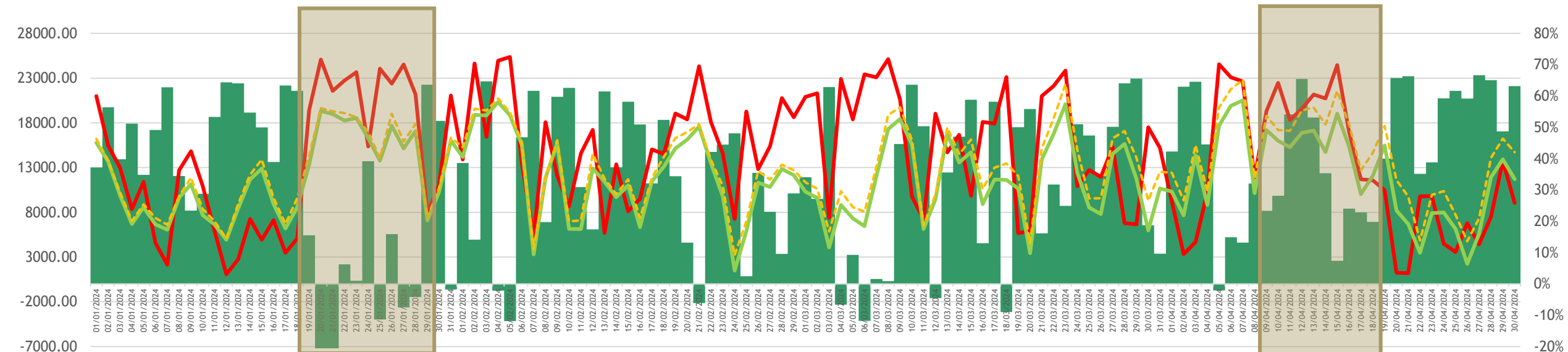
AVG IE DAM: 76.54 €/MWh (IDA1: 78.04 €/MWh)  
 AVG GB DAM: 71.66 €/MWh (IDA1: 71.83 €/MWh)  
 AVG Wind % GB: 46%  
 AVG Wind % IE: 59%

**AVG Solar % GB: 2%**  
 AVG GB inter countries AVG DAM: **64.1 €/MWh**  
 AVG % Imports GB ←Europe: 11%



AVG IE DAM: 79.06 €/MWh (IDA1: 76.54 €/MWh)  
 AVG GB DAM: 49.45 €/MWh (IDA1: 47.26 €/MWh)  
 AVG Wind % GB: 44%  
 AVG Wind % IE: 53%

**AVG Solar % GB: 7%**  
 AVG GB inter countries AVG DAM: **42.9 €/MWh**  
 AVG % Imports GB ←Europe: 12%



■ inter ■ IE wind ■ GB wind - - - GB W+S

# SEMOpX Trading

Michael Atcheson





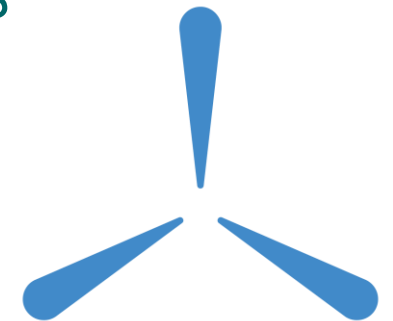
# ETS Releases

Version	Content	Client	Impact	Timeline*
V3.8.1	TBC	ETS Client	TBC	Late Q2 2024



## For Info only on Scalable Complex Orders

- Current State: If SCO parameters (mandatory fields) are filled in with “0”, ETS will accept the order as a Linear Order
- Future State: After new release, ETS will NOT allow an SCO order to be submitted if all the mandatory values filled in with “0”.
- No impact currently within SEMOpx as members are currently using the SCO’s correctly



# ETS Maintenance Windows

Date & Time	Impact	Reason	Communication
28/05/2024	Maintenance	Ad-hoc Maintenance	OMM message (email sent a week in advance and on the same morning)
07/06/2024 (Friday - TBC)	Maintenance	Monthly Maintenance	OMM message (email sent a week in advance and on the same morning)
09/07/2024	Maintenance	Monthly Maintenance	OMM message (email sent a week in advance and on the same morning)
13/08/2024	Maintenance	Monthly Maintenance	OMM message (email sent a week in advance and on the same morning)



\*Regular maintenance: Between 18:40 and 21:15 GMT/IST every 2<sup>nd</sup> Tuesday of the Month.



# M7 Releases

Version	Content	Impact	Timeline
TBD	TBD	TBD	TBD

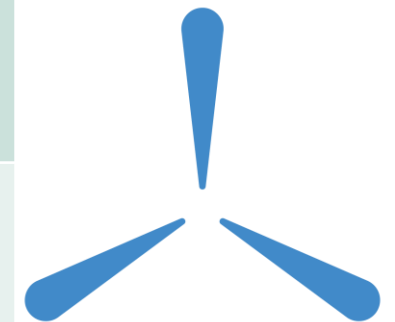


\*TOTP = Time-based Once-Time Password



# M7 Maintenance Windows

Date & time	Impact	Reason	Communication
11/06/2024	Maintenance	ECC	M7 chat message (1 hour before the maintenance) + OMM message (email sent a week in advance and on the same morning)
09/07/2024	Maintenance	TBC	M7 chat message (1 hour before the maintenance) + OMM message (email sent a week in advance and on the same morning)
13/08/2024	Maintenance	TBC	M7 chat message (1 hour before the maintenance) + OMM message (email sent a week in advance and on the same morning)
10/09/2024	Maintenance	TBC	M7 chat message (1 hour before the maintenance) + OMM message (email sent a week in advance and on the same morning)



\*Regular maintenance: Between 18:40 and 21:15 GMT/IST every 2<sup>nd</sup> Tuesday of the Month.



# SEMOpX Useful Resources

- Documentation:

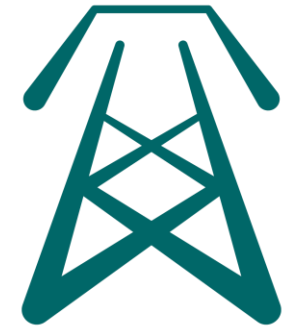
- [SEMOpX Auction Timing and Market Message document](#)
  - Relating to Auction Delays, Postponement of Orderbook Gate Closure, Partial and Full Decoupling, Second Auction, HMMCP increase/decrease
  - Unplanned system outages relating to ETS and M7
- [Trading on Behalf of fallback solution](#)

- Training Sessions:

- Upcoming IDA Member Decoupling Training Session (date TBC)

- Website Materials:

- [ETS Trader Client Guide](#)
- [M7 ComTrader Client User Guide](#)
- [SEMOpX - Training Category Location \(Technical/Training etc\)](#)



# SEMOpX Update

## 30 Minute MTU Project

- [Technical Specification](#) and [Sample Files](#) published on SEMOpX Website
- 2<sup>nd</sup> Member Workshop - TBD





# Settlements

Seán O'Rourke



# Settlement publications & timelines: Mar - May 13<sup>th</sup> 2024



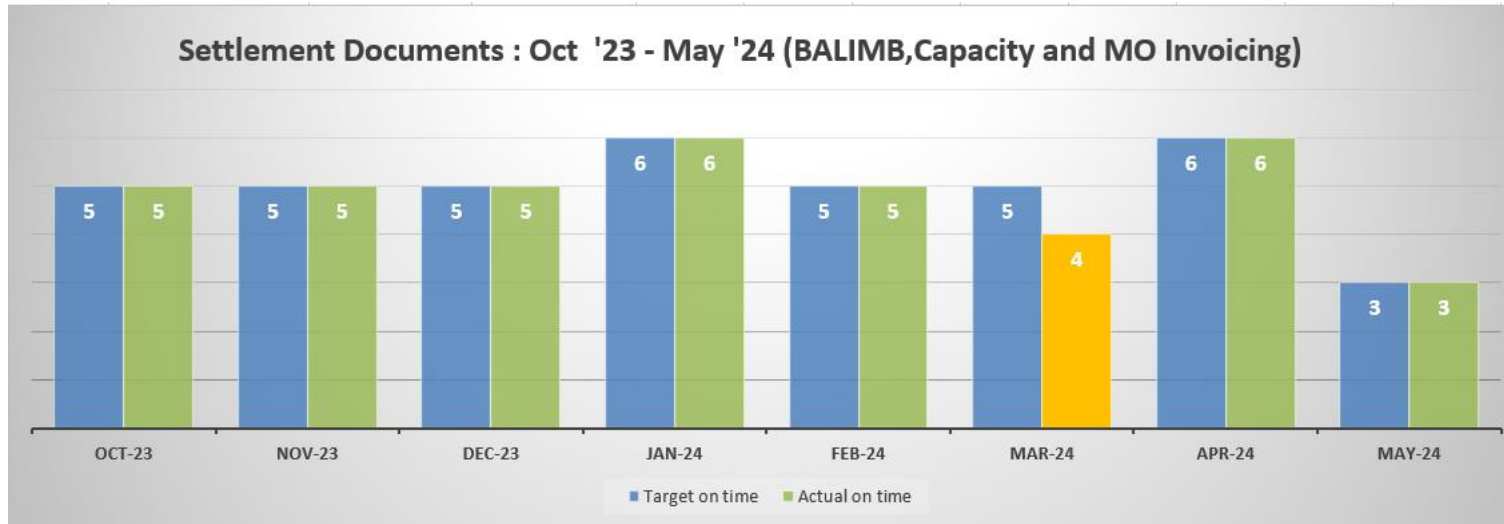
- Mar 2024**
- **122** settlement publications on time
  - 4 delayed indicatives due to Instruction Profiler issues (3) , MDP data delays (1)
  - 1 delayed Initial due to MDP data delay
  - All issues now resolved

- Apr 2024**
- **127** settlement publications on time
  - 1 delayed initial due to longer than expected processing time by Settlement systems
  - All issues now resolved

- May 2024**
- 41 settlement publications on time
  - 3 delayed indicatives due to Instruction profiler issues (2) and MDP data delay (1)
  - All publications on time



# Settlement Documents publications: Oct '23 - May 14<sup>th</sup>



## Settlement Document updates:

- **40** Settlement Documents (SDs) published on time between Oct 2023 and May 14<sup>th</sup> 2024 (includes BALIMB, Capacity and MO Invoices)
- 1 delayed Settlement Document on March 25<sup>th</sup> -

SD Due Date	Issue	SD business days delayed	Additional publication timeline impacts	Issue resolution status
25/03/2024	Settlement Document (SD) creation error caused by vat registration data issue submitted into Settlements systems for one PT, which impacted SD vat values for all PTs.	1 Day	Payments In/Out had to be adjusted by one day out for revised Settlement Document publication date.	Vat type was manually corrected in the systems for the one PT, which allowed the Settlement Documents to be published on the 26/03/2024. Registration "Data script" deployed to resolve the issue.



# Ad hoc resettlement: Status update May 2024

## Ad hoc Iterations 1 & 2 - Completed and yet to process:

Year	2018														2019														2020																																																																				
Week	3	4	4	4	4	4	4	4	4	4	5	5	1	2	3	4	5	6	7	8	9	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	3	3	3	3	3	3	3	3	4	4	4	4	4	4	4	4	4	4	5	5	5	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1	1	2	2	2	2	2	2	3	3	3	3	3	3	3	3	3	3	4	4	4	4	4	4	4
Adhoc1	Green																																																																																																
Adhoc2	Green																																																																																																

- Ad hoc iteration 1 is now fully complete.
- Ad hoc iteration 2 is now fully complete.

Cells in Red are adhoc weeks left to process

Cells in Green are settlements runs that have been issued

- There are 26 billing periods between 2020 and 2023 which require a final iteration of ad hoc resettlement. These billing periods are based on outstanding upheld formal queries which were dependent on a system fix to be deployed to fully resettle the impacted billing periods.
- Of the above 26 billing periods, 16 billing periods were published for Ad hoc resettlement over the months of Feb, Mar & Apr ‘24.
  - The remaining 10 billing periods have also been reviewed, see below table for a status update

Year	Ad hoc billing periods - number of weeks which can be scheduled for processing	Specific billing period weeks which can be resettled	Settlement Calendar timeline	Year	Ad hoc billing periods - number of weeks which under review	Specific billing period weeks which are under review	Settlement Calendar timeline
2020	3	1,49 &50	Feb-24	2020	2	10,26	To be scheduled Q3
2021	8	1,8,28,29,31,34,37,42	Mar-24	2021	2	26,33	To be scheduled Q3
2022	5	12,24,26,30,48	Apr-24	2023	1	1	To be scheduled Q3
<b>Total</b>	<b>16</b>	Published		2021	3	34,44,47	tbc - further review required
				2022	2	10,45	tbc - further review required
				<b>Total</b>	<b>10</b>		

# Settlement Documents to issue Friday 17th May 2024

[Settlement Calendar \(sem-o.com\)](http://sem-o.com)

## Settlement Documents Friday 17<sup>th</sup> May

INITIAL BALIMB - (05/05/24-11/05/24) - Week 19 2024

M+4 BALIMB - (14/01/24-20/01/24)- Week 03 2024

M+13 BALIMB - (16/04/23-22/04/23) - Week 16 2023

AH BALIMB - (18/02/2024-24/02/2024) - Week 08 2024





# System Operations IE & TEG

Robert Koch

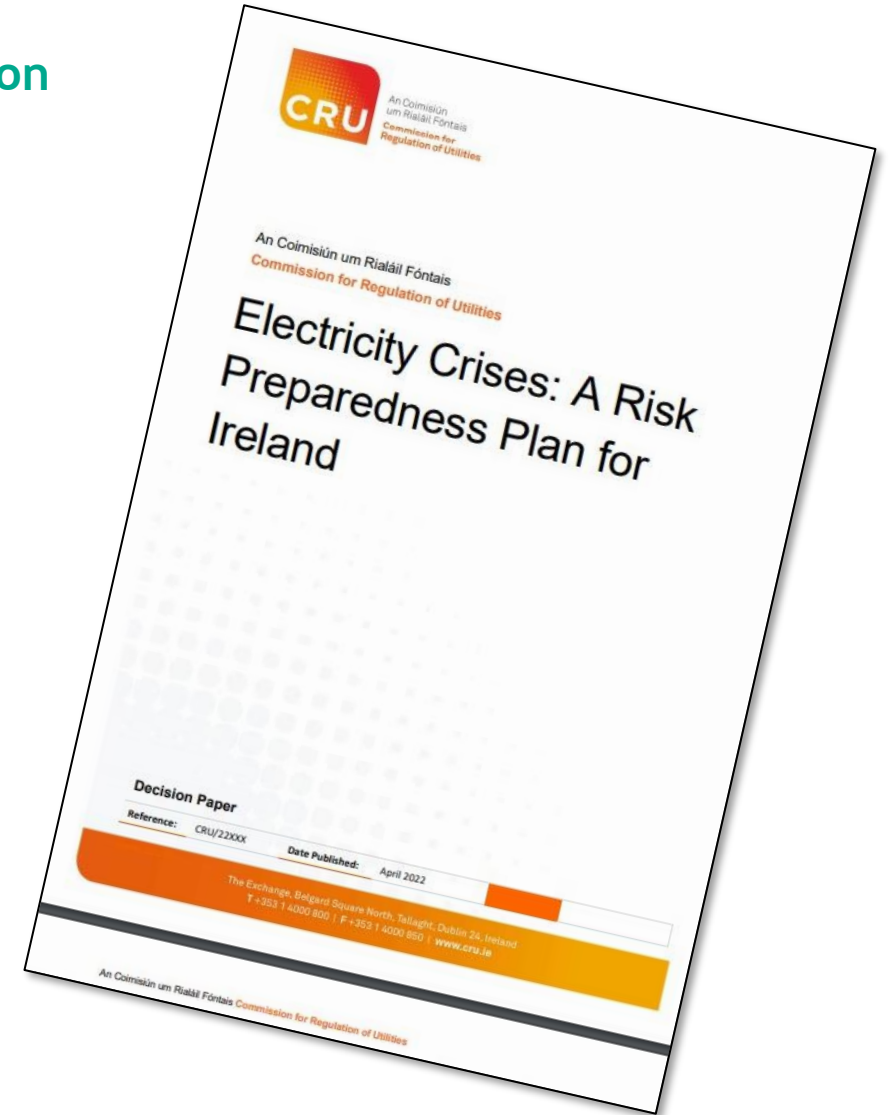




# Risk Preparedness Plan for Ireland

## Article 16(2) of Regulation (EU) 2019/941 - Out-of-Market Generation

- RPP Ver 2 (issued by CRU on 31 May 2023)
- Temporary Emergency Generation:
  - Non-market-based measures shall not unduly distort competition and the effective functioning of the internal electricity market.
  - They shall be necessary, proportionate, non-discriminatory and temporary.
  - The competent authority shall inform relevant stakeholders in its Member State of the application of any non-market-based measures.



# Market Operations

## TEG treatment in the Market

### Capacity Market

TEG units will not participate in auctions

- Will not receive capacity market payments
- Will not hold an RO
- Will not be subject to difference charges

### Ex-ante Market

TEG units not permitted to participate

- No ex-ante market revenue
- Ex-ante process and volumes unaffected
- Ex-ante import/export schedules unaffected

### Ancillary Services

TEG units will not receive revenue

### Balancing Market (BMPS Ver 7)

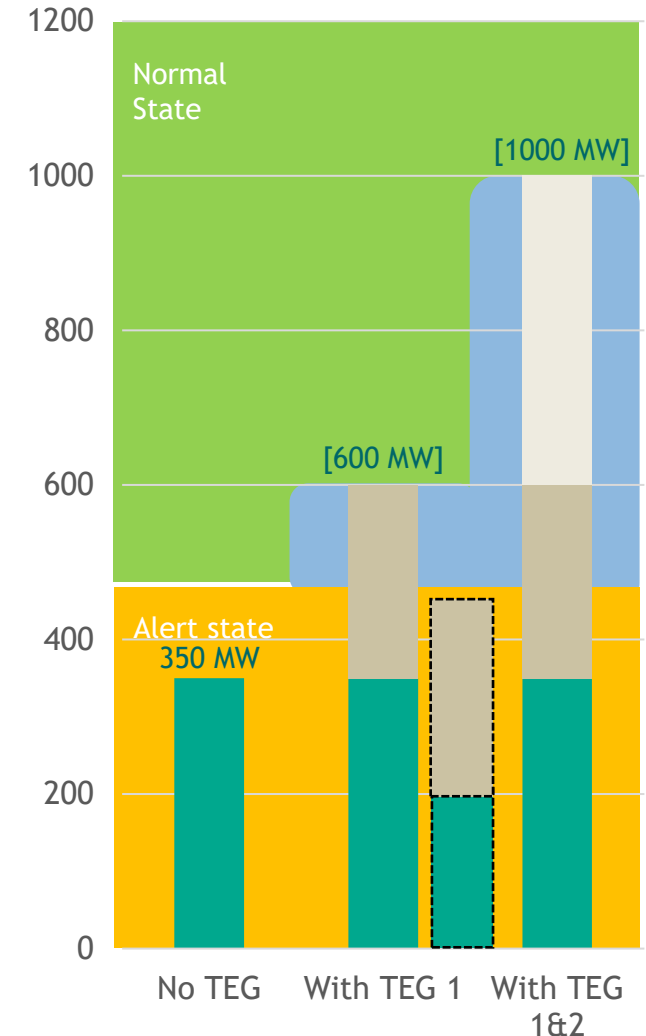
Only available when a (real-time) security of supply risk has been identified; where it is evident that market-based measures alone are not sufficient to prevent a further deterioration of the electricity supply situation.

- Will submit complex offers
- Will receive payments / charges from the balancing market
- Infra-marginal rent is returned to EirGrid (ultimately the IE customer base) when the TEG units are dispatched.

# Margin calculations and system states

- Margin calculations are undertaken separately (with/without) TEG.
- A **System Market Notice (Margin Warning)** will be issued if, in the absence of TEG, the system would otherwise be in an **Alert** or **Emergency** State.
- The system may remain in **Normal** state when TEG is included in margin calculations.
- When an **Alert** or **Emergency** state is issued, this will be after TEG has been included in the margin calculations.
- TEG units will only be dispatched when a **Margin Warning** has been issued, **AND** where it is evident that market-based measures alone are not sufficient to prevent a further deterioration of the electricity supply situation - having considered energy limited resources on the day (e.g. hydro, batteries, DSU's).

Margin Calculation  
(with and without TEG)



■ Market ■ TEG1 250 MW ■ TEG2 400 MW  
 Example shown for 350 MW margin provided by normal market measures



# System Alerts - System Operator actions

Large energy users, businesses, and the public

System State	EirGrid Communication	Actions
Normal	None	Market-based measures to meet demand - including dispatching generators, dispatching demand side units, maximising imports (interconnector trades), and dispatching batteries. Note: considering appropriate dispatch of energy-limited.
<i>Alert (previously) when TEG units not available</i>	Margin Warning issued	(New) Temporary Emergency Generation considered in system margins and dispatched if required.
Alert Loss of single largest infeed would result in an emergency state	Alert State issued	Interconnector - Emergency Assistance requested (GB) Large Energy Users - prepare for possible Mandatory Demand Curtailment ESB Networks - prepares for possible Demand Disconnection
	Public Appeal	Public Appeal issued to reduce demand Voluntary Demand Reduction requested from large energy users and businesses
Emergency Demand reduction required to protect the power system	Emergency state issued	Interconnector - Emergency Instruction (0 MW if exporting) Large Energy Users - Mandatory Demand Curtailment (1 hrs notice) ESB Networks - Emergency Demand Disconnection (15 min notice) ESB Networks - Rota Demand Disconnection (12 hrs notice)



# Actions by the SO as outlined in the RPP (IE) (Note: these are time dependent)

System State	System Operations Action (NCC or other)	Note	Notice	Volumes (approximate)	Day Ahead	Anticipated on the day > 1hr	Rapid < 1hr
	Continuous scheduling & dispatch	Inherently optimise jurisdictional margin (spare in NI)	Continuous		●	●	●
	Trade on EWIC/MOYLE (CPT/CBB)	To avoid: a) Margin Warning, b) running NMG, c) Alert	1-2hrs			●	(●)
	DSU's	Schedule twice on the day if needed	1.5 hrs	180 MW		●	(●)
	Peakers	Dispatch as required (manage annual run hours)	< 15 min			●	●
	Batteries	Manage charging when possible (e.g. mid-day solar)	< 15 min	TBC		●	●
n/a	<b>450</b>	<b>Issue Margin Warning - available Non-Market Generation (NMG) counted in margin in assessing system state for SOGL purposes "[MW]"</b>					
n/a		Trade on EWIC/MOYLE (CPT/CBB) to avoid NMG dispatch	Non-market generation minimised	1 to 2 hrs		●	(●)
>450		Beat the Peak Demand Reduction (if not already)	Issued by ESB Networks (request Director SO)	1 to 4 hrs	TBC	●	
>450	-300 *	Flex Demand (contracted)	Schedule / dispatch to avoid dispatching NMG	< 15 min	1 (up to 14)	●	●
n/a	-200 *	Dispatch Non-Market Generation (TEG)	* If 100 MWh / 400 MW 15 min batteries available	< 15 min	250/650 MW	●	●
n/a		Trade on EWIC/MOYLE (CPT/CBB) to reduce/exit NMG	Limited run-hours (500hrs / HN 1,500 hrs)	1 -2 hrs			(●)
<b>450</b>	<b>[450]</b>	<b>Issue System Alert State (EAS) - loss of largest single infeed after inclusion of non-market generation</b>					
		Emergency Assistance (EA) - request		< 15 min	150 MW (2hrs)		(●)
		NDCC prepares / staffs up for Demand Control					●
		LEUs prepare / staff up for possible MDC					●
		Maximise Jurisdictional Margin (NI)	NI may enter Alert State to avoid Emergency in IE		Tie-line		●
<b>150</b>	<b>[150]</b>	Invoke PSECP process	Decision by Director SO (Day-ahead if Rota shedding)			(●)	●
		Voluntary Demand Reduction (VDR) request issued ***	LEUs and Distribution Customers >= 38 KV	> 1hr	not available	(●)	●
		Public Appeal ***	Issued by EirGrid/ESBN comms (Crisis Comms Plan)	> 1hr	not available	(●)	●
<b>50</b>	<b>[50]</b>	<b>Issue System Emergency State (EAS) - jurisdictional dynamic reserve &lt; 50 MW</b>					
		Emergency Instruction (EI) - issue	Interconnector to 0 MW if exporting.	< 15 min	(export to 500)		(●)
		Mandatory Demand Curtailment (MDC) - instruct	NCC & NDCC: LEUs (50%/75% reduction instructed)	> 1hr	350 MW		●
		EBSN VDR Requested (Customers 38kV and above)	If not already issued	> 1hr	not available		●
		Emergency Demand Disconnection (Rapid) Instruct	NDCC Protocol	<15 min	500 MW		●
		Emergency Demand Disconnection (Slow) Instruct	NDCC Protocol	<30 min	1000 MW		●
		Rota Demand Disconnection (up to 3 x 1000 MW)	Additional 150 MW available rapidly	> 12hrs	1000 MW	●	



NOTE: \* Based on the actual margin / reserve requirement at the time

NOTE: \*\* NTC may be set down day ahead in terms of Article 16(3) of Regulation 2019/941, after consideration of non-market generation

NOTE: \*\*\* Public Appeal and VDR are retained just before a System Emergency - given: (i) reduced public response after multiple calls to reduce, and (ii) run-hour limitations of customers using backup generators (required during a System Emergency State)





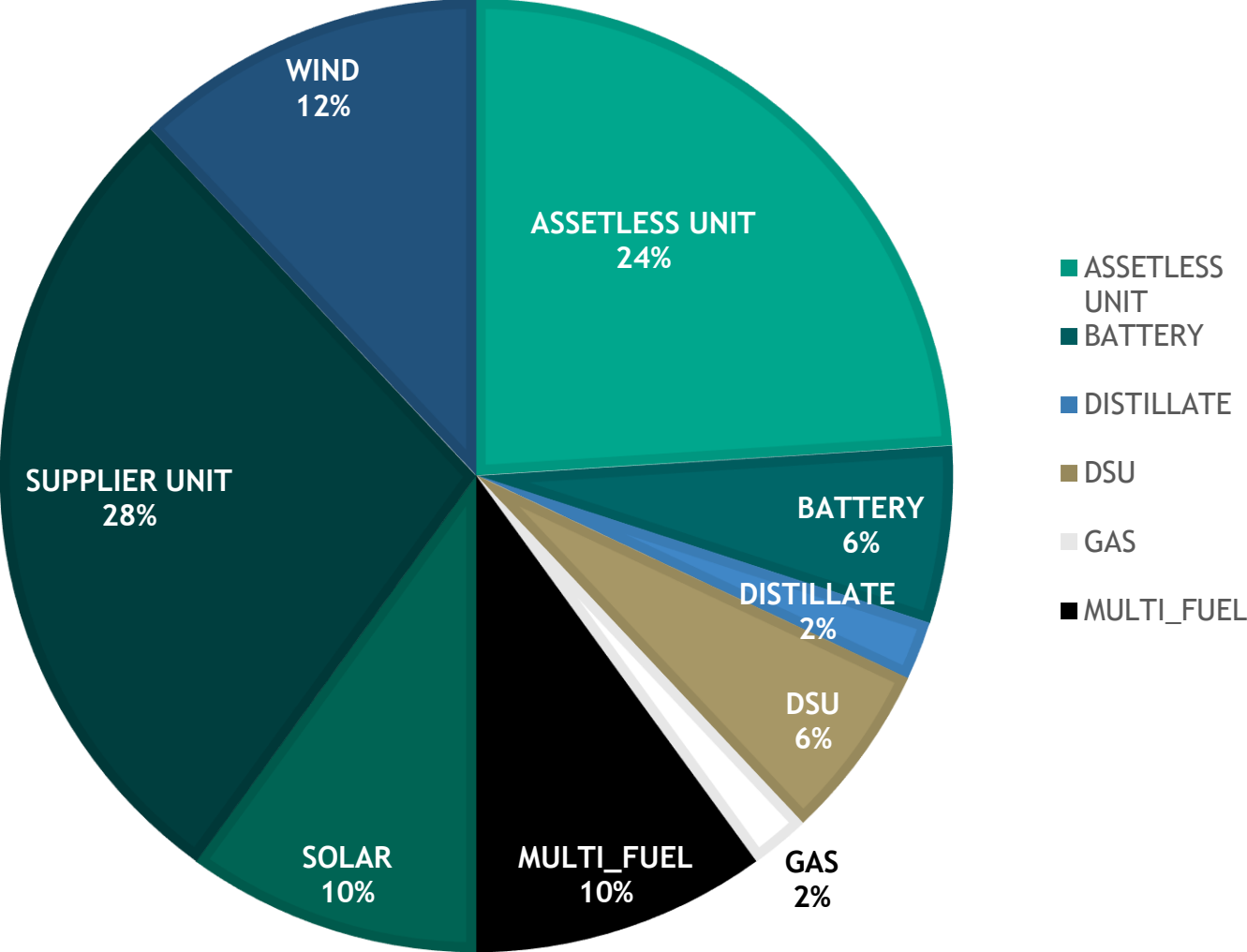
# Market Interface

Rosaleen Fanning & Anne Fitzgerald



# Balancing Market Registration: October 2023 - May 2024

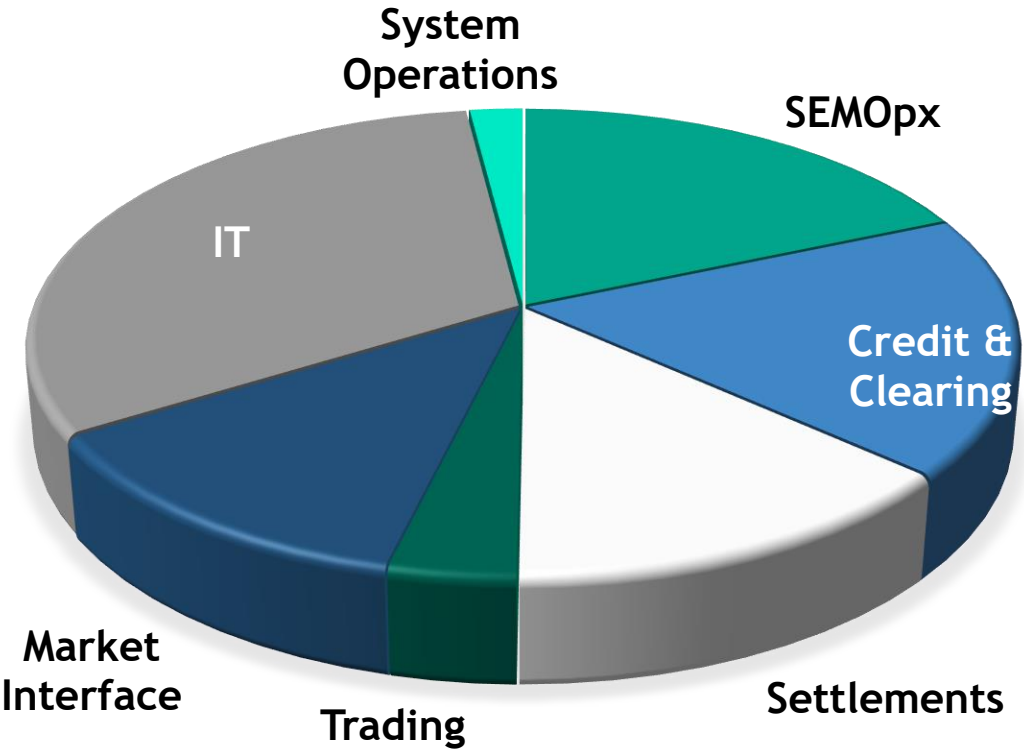
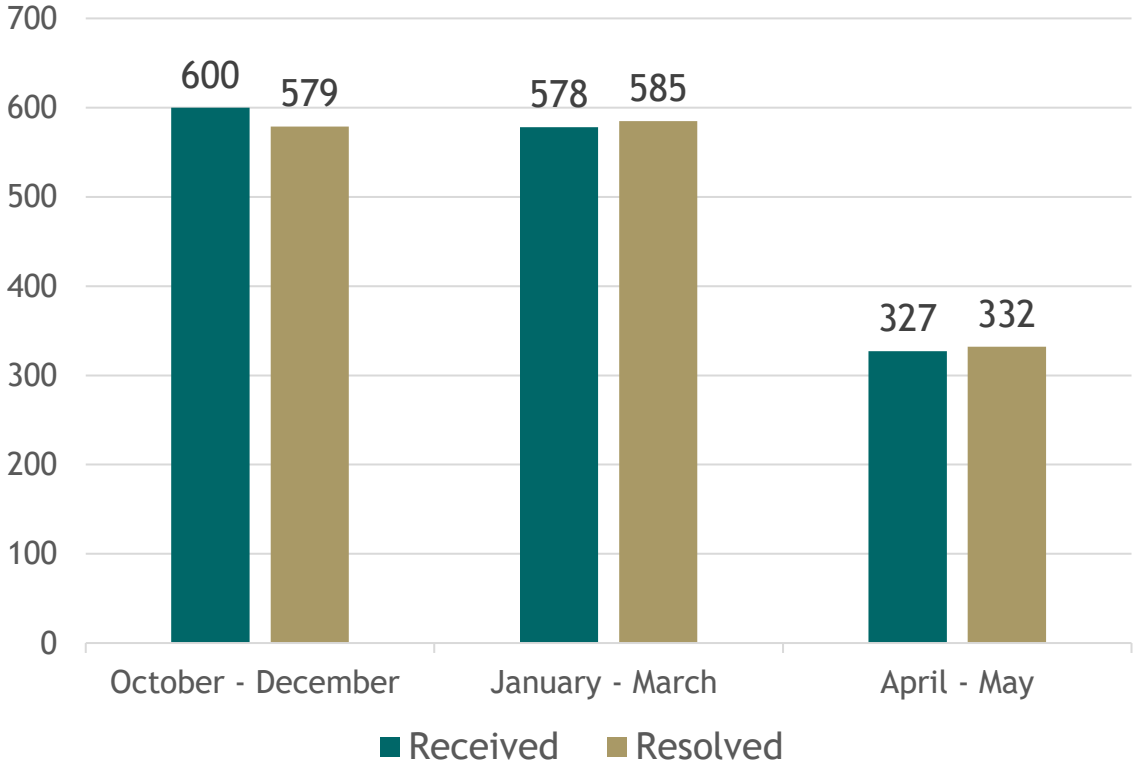
- 8 new Parties joined
- 50 Unit Registrations
- 12 Unit De-registrations





# SEMO and SEMOpx General Queries: 01<sup>st</sup> of October '23 - 10th of May '24

**SEMO & SEMOpx General Queries**  
**Total Received 1,505 - Resolved 1,496**

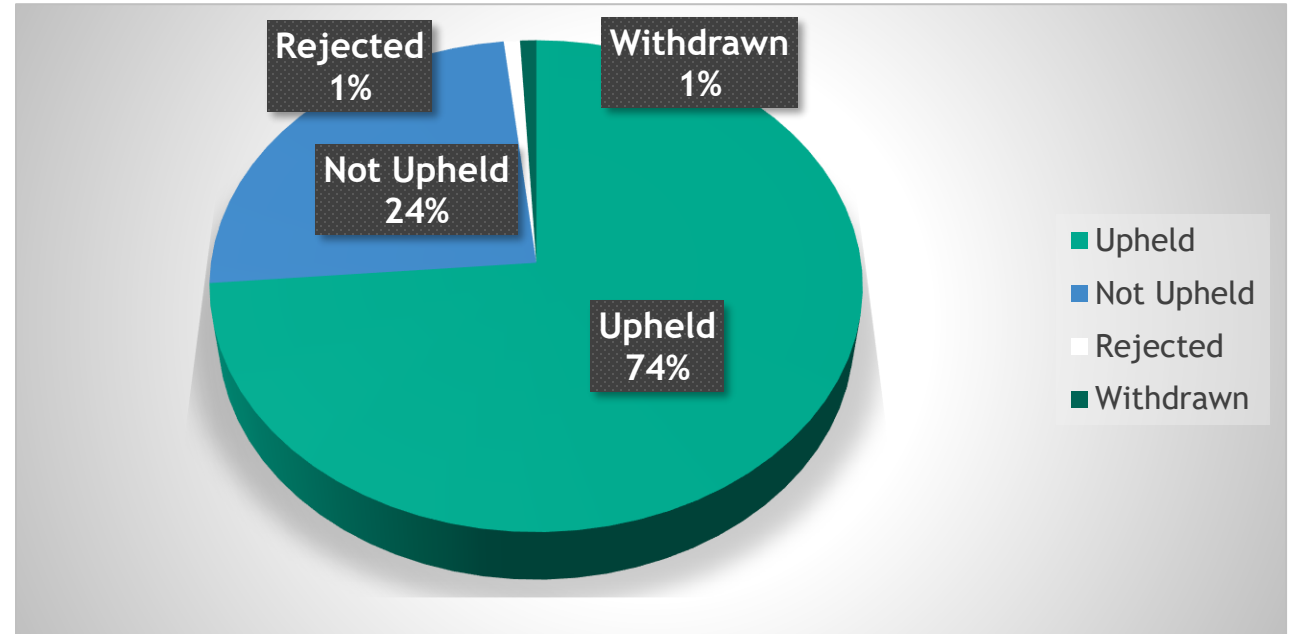
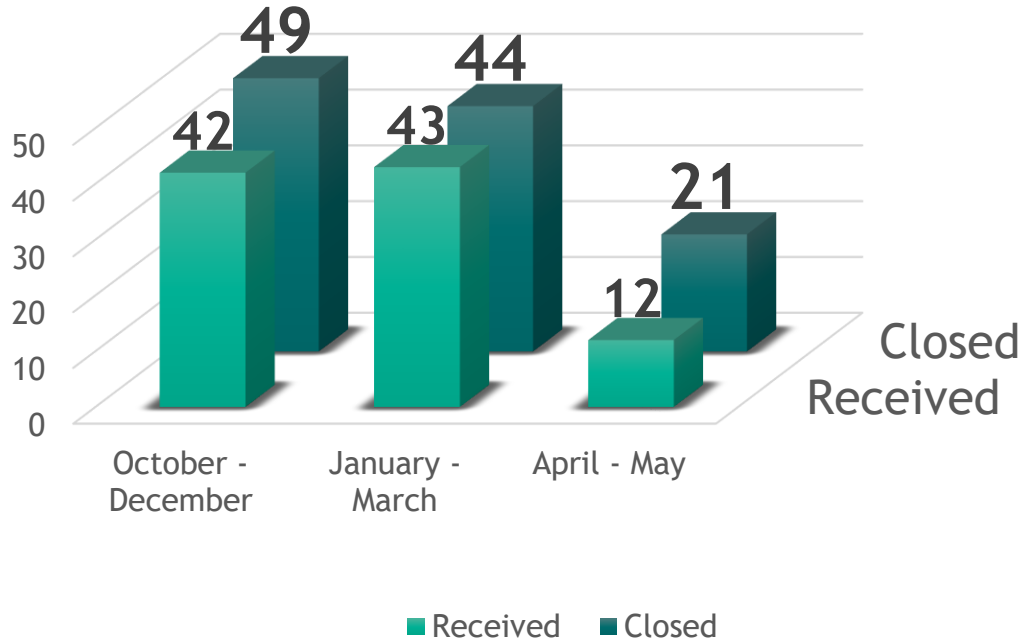




# Disputes: October '23 - May '24 - No Disputes raised

## Formal Settlement Queries: 01<sup>st</sup> of October '23 - 10th of May '24

**Formal Settlement Queries**  
Total Received 97 - Closed 114



High ( $\geq$ €50,000)	23%
Low ( $<$ €50,000)	77%

# Dates for the Diary 2024

- The next Thursday Participant call @09.30am will take place on 23<sup>rd</sup> of May.
- The upcoming Market Operator User Group (MOUG) meetings are scheduled on the following dates:
  - 05th September
  - 07th November
  - 12th December



# Future Power Markets Monthly Workshops

Date	Location	Suggested Location (TBD)
05 June 2024	In person - Dublin & via MS Teams	
03 July 2024	TBD - Dublin, Belfast, Dundalk	Belfast
07 August 2024	TBD - Dublin, Belfast, Dundalk	Dundalk
11 September 2024	TBD - Dublin, Belfast, Dundalk	Dublin
09 October 2024	TBD - Dublin, Belfast, Dundalk	Belfast
06 November 2024	TBD - Dublin, Belfast, Dundalk	Dublin
04 December 2024	TBD - Dublin, Belfast, Dundalk	Belfast



# Capacity Market

- The [CAT2829T-4](#) was published on the 28/03/2024
- The [Initial Auction Information Pack IAIP2829T-4](#) was published on the 02/05/2024
- An Information Session was held on the 15/05/2024 for the 2028/2029 T-4 Auction, slides are available on the SEMO website
- The deadline for Applications for Qualification to be submitted for the 2028/2029 T-4 Auction is by the 4<sup>th</sup> June 2024.



# *Thank you for your attendance*

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