

Market Operator User Group

Dublin, 16 January 2020

Agenda

Item	Presenter
Welcome	Anne Fitzgerald
Release Program Update	Mark Needham
Balancing Market Performance Improvements	Rory Cafferky
Market Development Roadmap	Mark Needham
Ex-Ante Markets	Liam McAllister, Michael Atcheson
Ex-Ante Products Update	Michael Atcheson; CRU representative
Repricing Update	Michael Atcheson
Settlements	Sean O'Rourke, John O'Dea
Front Office	Claire Breslin, Sinead Rafferty, Anne Fitzgerald
Q&A	

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I-SEM: Upcoming Release Activity – Rel. E – April 2020

- Release “E” was delivered for testing to SEMO in December. Test commencement was initially **delayed due** to:
 - **Delivery from vendors later** than expected and
 - **Follow ups with vendors** on deployment and release notes.
- Has had a **knock on impact on deployment schedule** and we are working with our vendors to improve delivery methods for future releases.

- **Highlights**

ID	Description
5772/6072	Use of Annual Capacity Exchange Rate in Settlement
Mod_5_19	Amendment to Uninstructed Imbalance Change (CUNIMB) to correct for neg price scenarios
6066/CR118	Not applying a default value of zero in settlement calculations where data is not present

- Release Scope includes four Change Requests and a number of fixes to address defects identified in Production. See [Known Issues Report](#):
- Deployment is **scheduled for April**, subject to successful completion of all testing.
- **Updates on test progress** and release schedule will be communicated **at all future MOUGs**.

I-SEM: Medium – Longer Term Release Activity

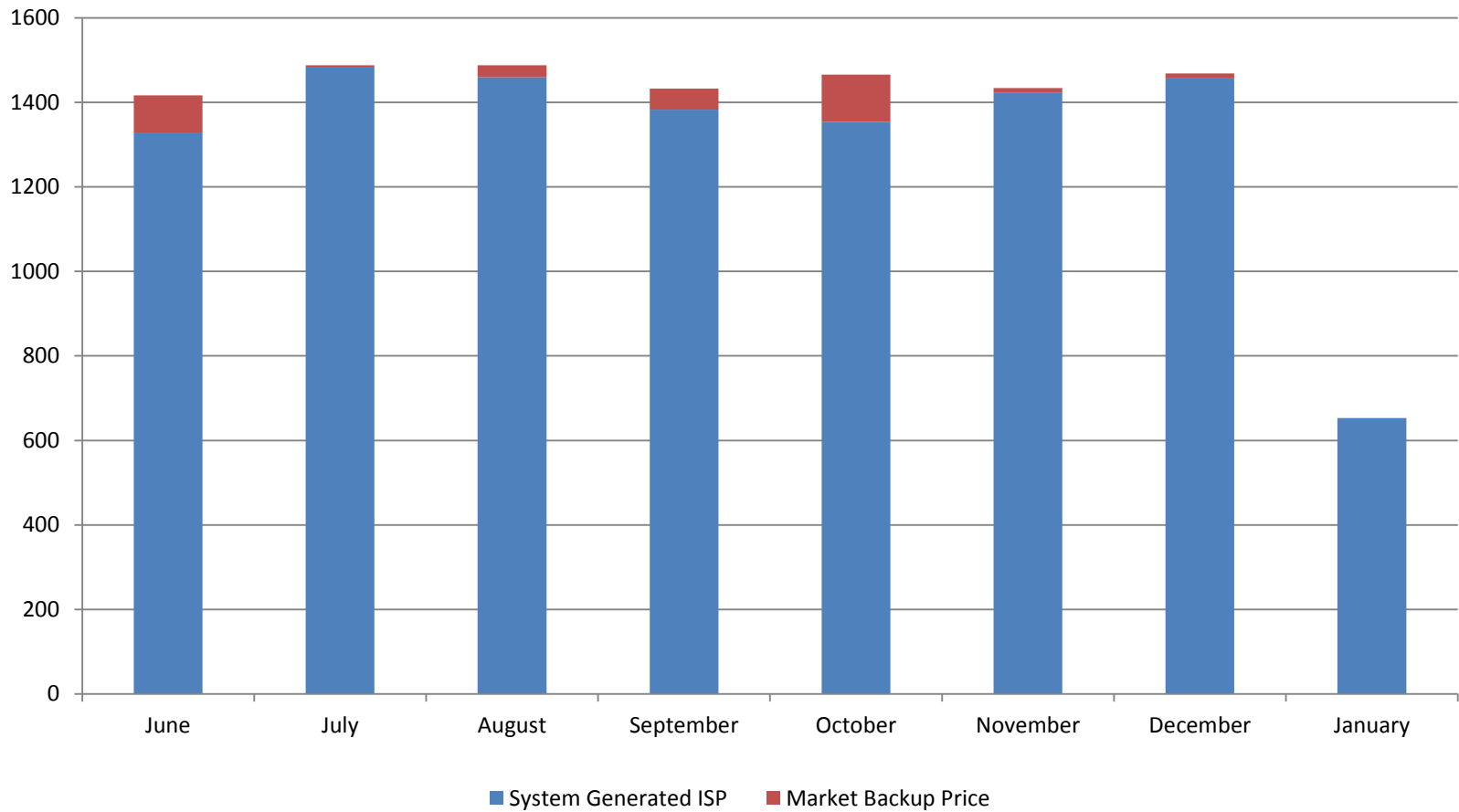
- Release “F” is being initially **scheduled for October 2020**.
 - **Impact Assessments for a number of Change Requests** are being worked on by EirGrid and our vendors.
 - **Scope discussions will conclude in the coming weeks** (in the context of priorities and available vendor capacity).
 - **Release High Level Impact Assessment (“HLIA”)** will be published (per AP11) once scope has been determined.
 - **Future updates** on Rel. F scope and progress will be **communicated at all upcoming MOUGs**.
- Longer term we will propose to adopt a **regular release strategy/schedule**, potentially similar to that operated successfully in the previous SEM.
 - Releases will:
 - be **deployed at regular intervals** each year (e.g. April and October).
 - be **run as individual projects with associated milestones and deliverables**.
 - have a defined vendor capacity allocation.
 - Communications:
 - Updates on release activity to be provided at each **future MOUG**
 - **Release Capacity and control points** (e.g. cut-off dates) will be communicated at each Modifications Committee meeting.
 - We will provide further updates at upcoming MOUGs as this initiative is progressed.

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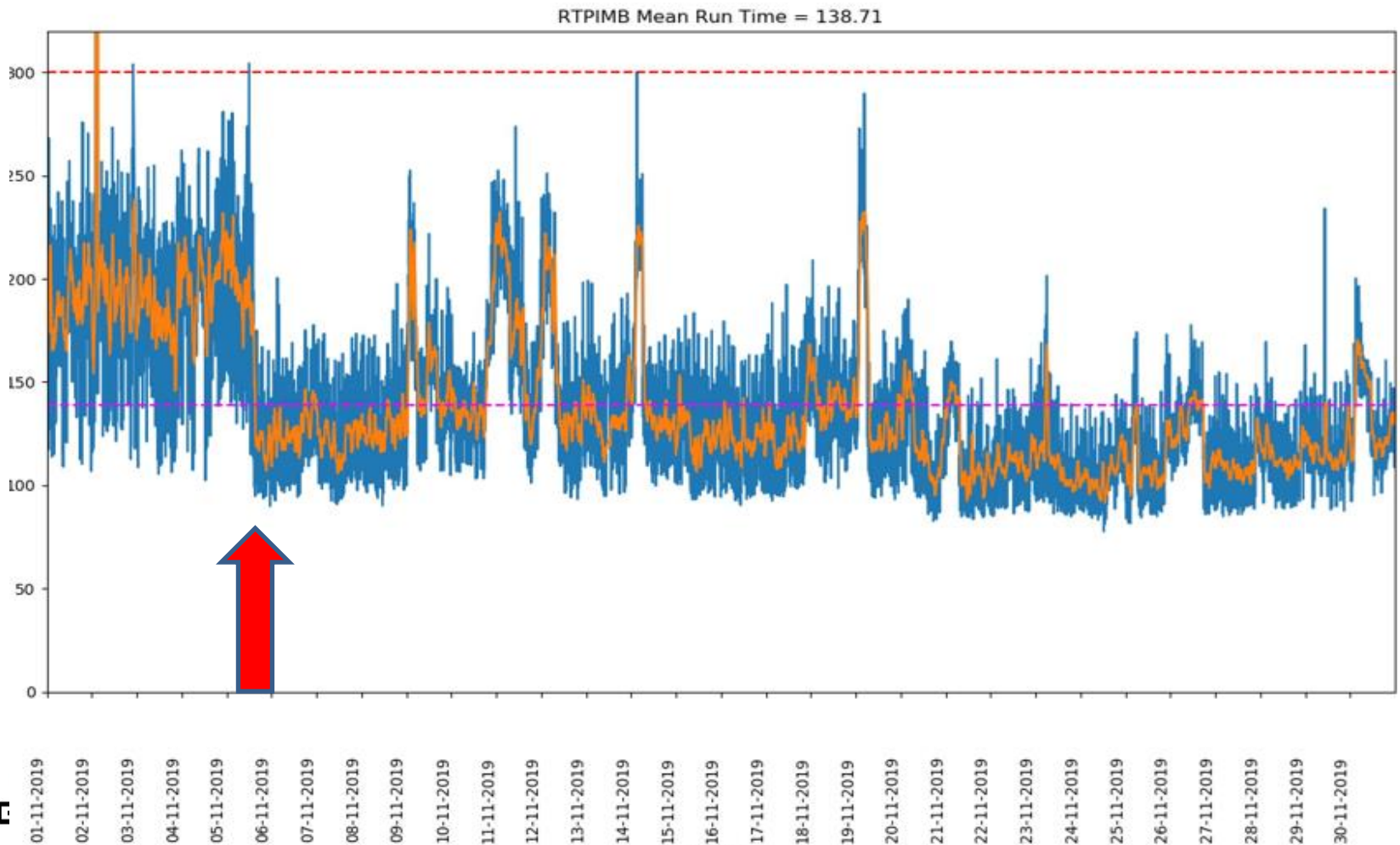
Balancing Market Performance Improvements

Imbalance Price Performance



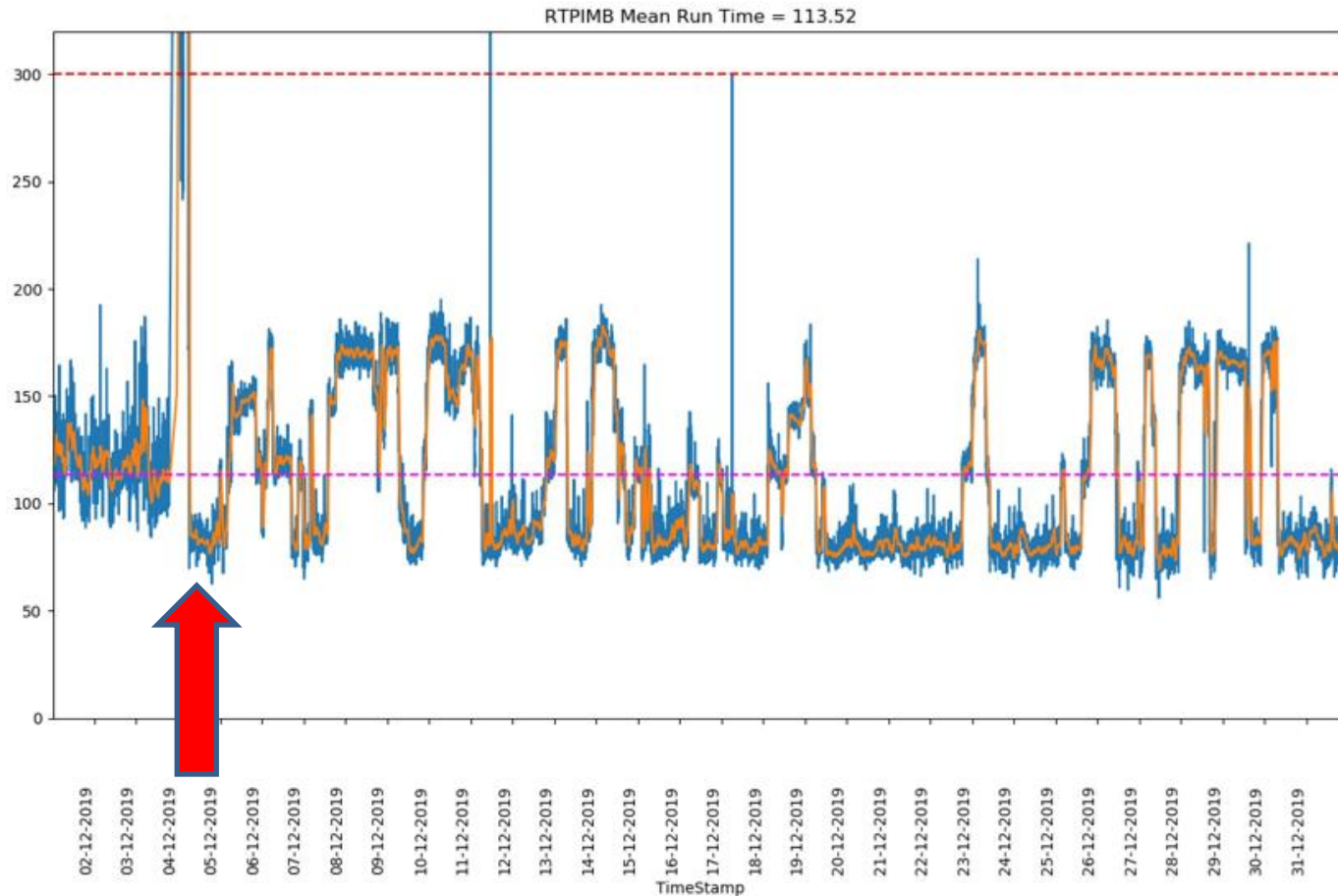
I-SEM Rel. D: Imbalance Pricing Workflow Performance (1 of 2)

- Runtimes below are for November 2019. Fix for MP_Notification applied on November 6th. Impact: Reduced workflow run time by over a minute.



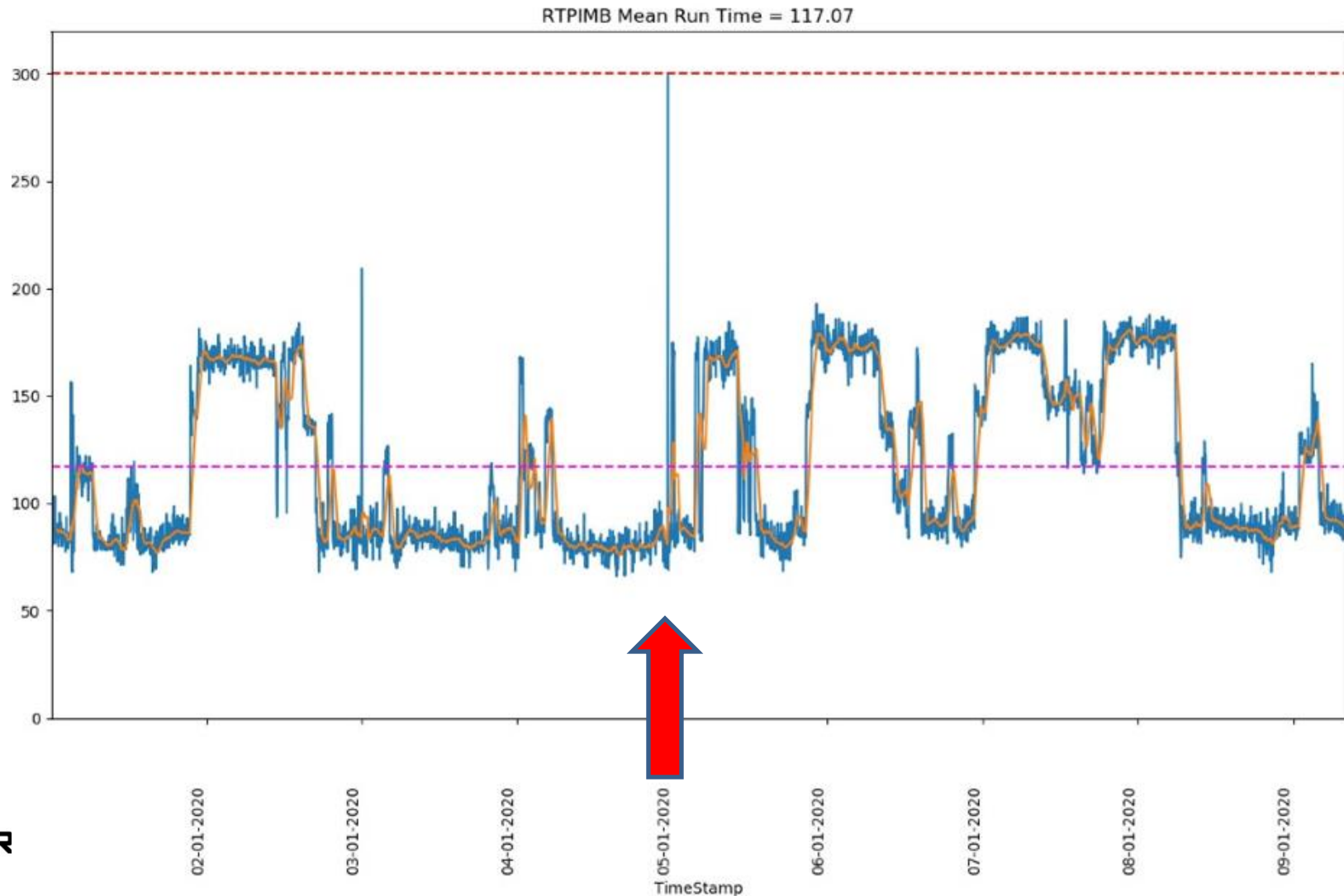
I-SEM Rel. D: Imbalance Pricing Workflow Performance (2 of 2)

- Runtimes below are for December 2019. Improved indexing and updated PIMBCALC applied on December 3rd/4th

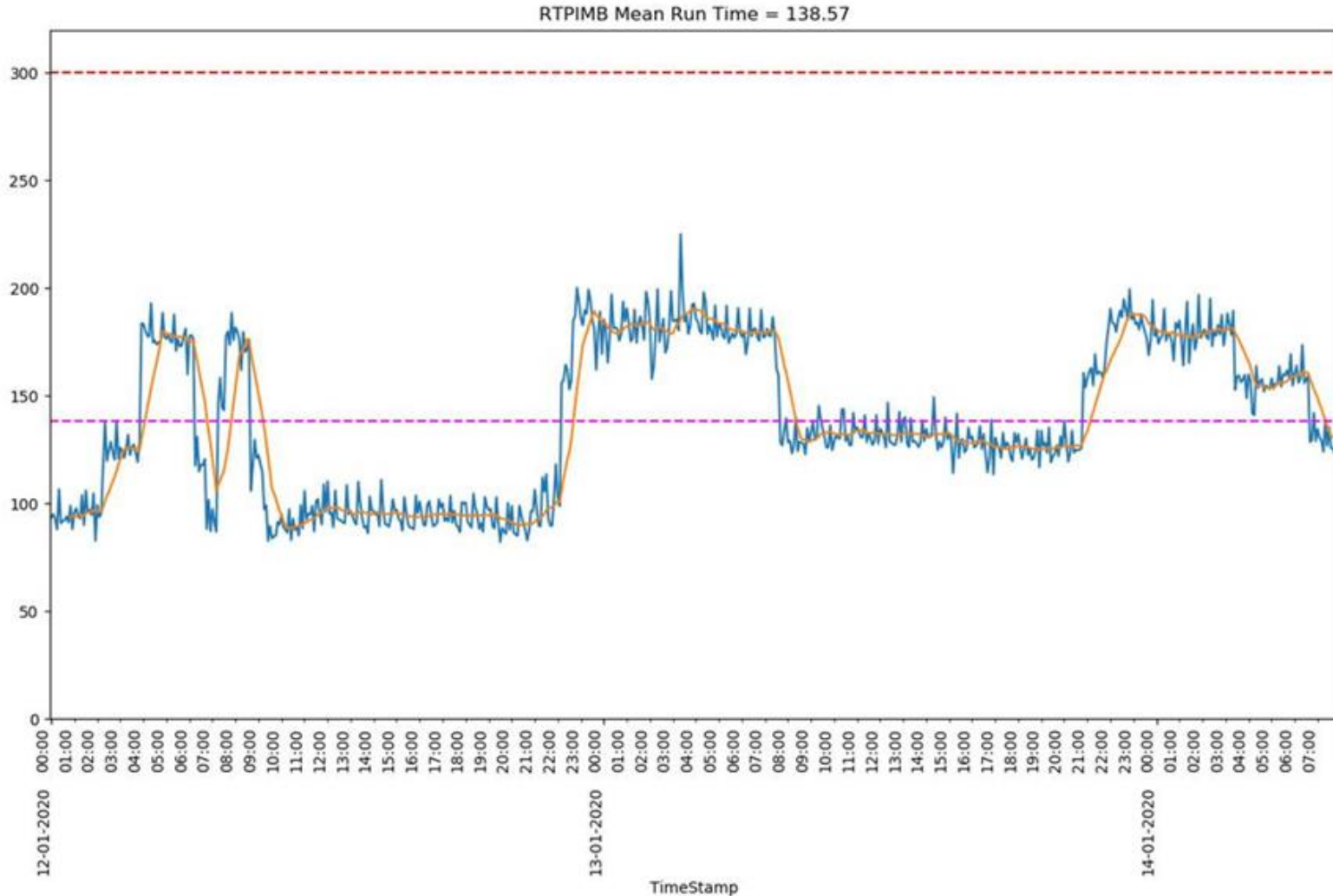


I-SEM Rel. D: Imbalance Pricing Workflow - Resilience

- Runtimes below are for January 2020. The single instance where runtime hit 300 seconds was when QNIV = 0.0 – in this instance the software stopped correctly.



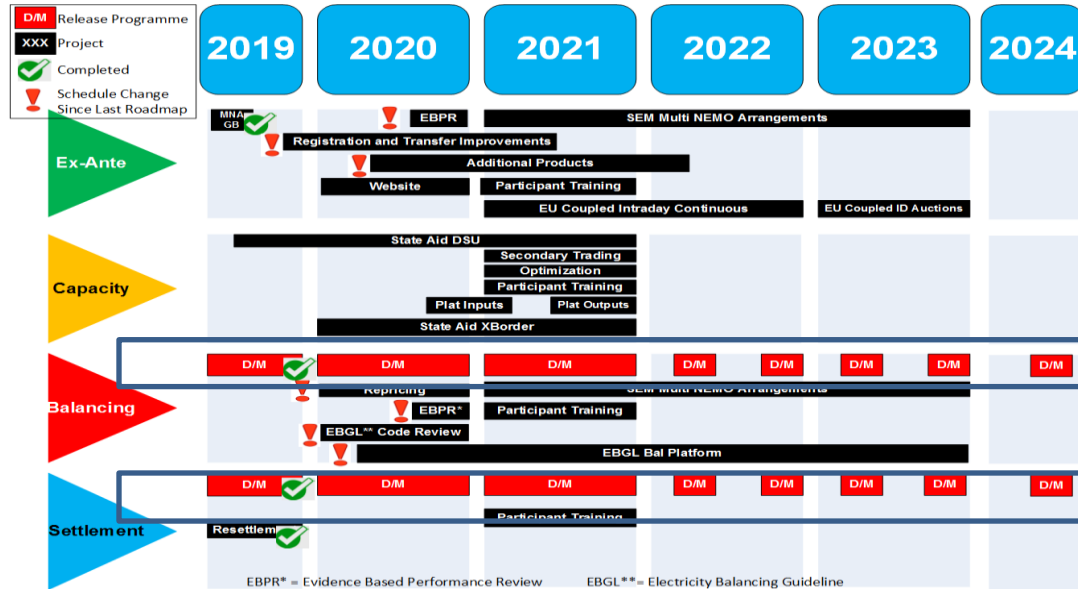
Imbalance Pricing Workflow – Storm Brendan



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Market Development Roadmap



“Stabilize the market systems and to improve the service offering through a small number of discrete projects”

[Roadmap for Market Development Publication](#)



How can you input?

Consultation runs to January 24th

Feedback should be sent via email to info@sem-o.com using the subject “Market Development Roadmap” before **24th of January 2020** for consideration in advance of the next Roadmap which will be published at the end of May 2020



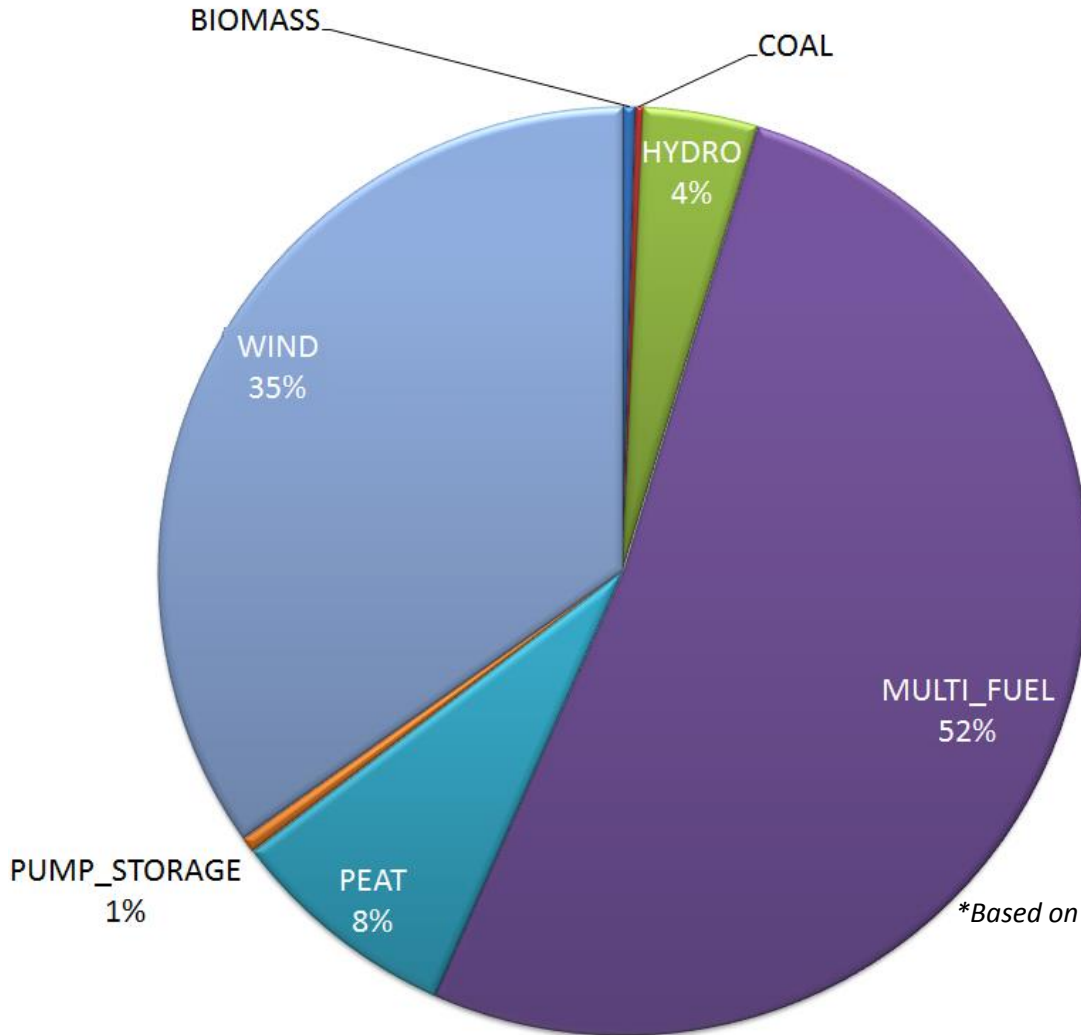
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Ex-Ante Markets

- Volumes and Fuel Mix Nov - Dec

**Using approx. prices and fuel type breakdowns*

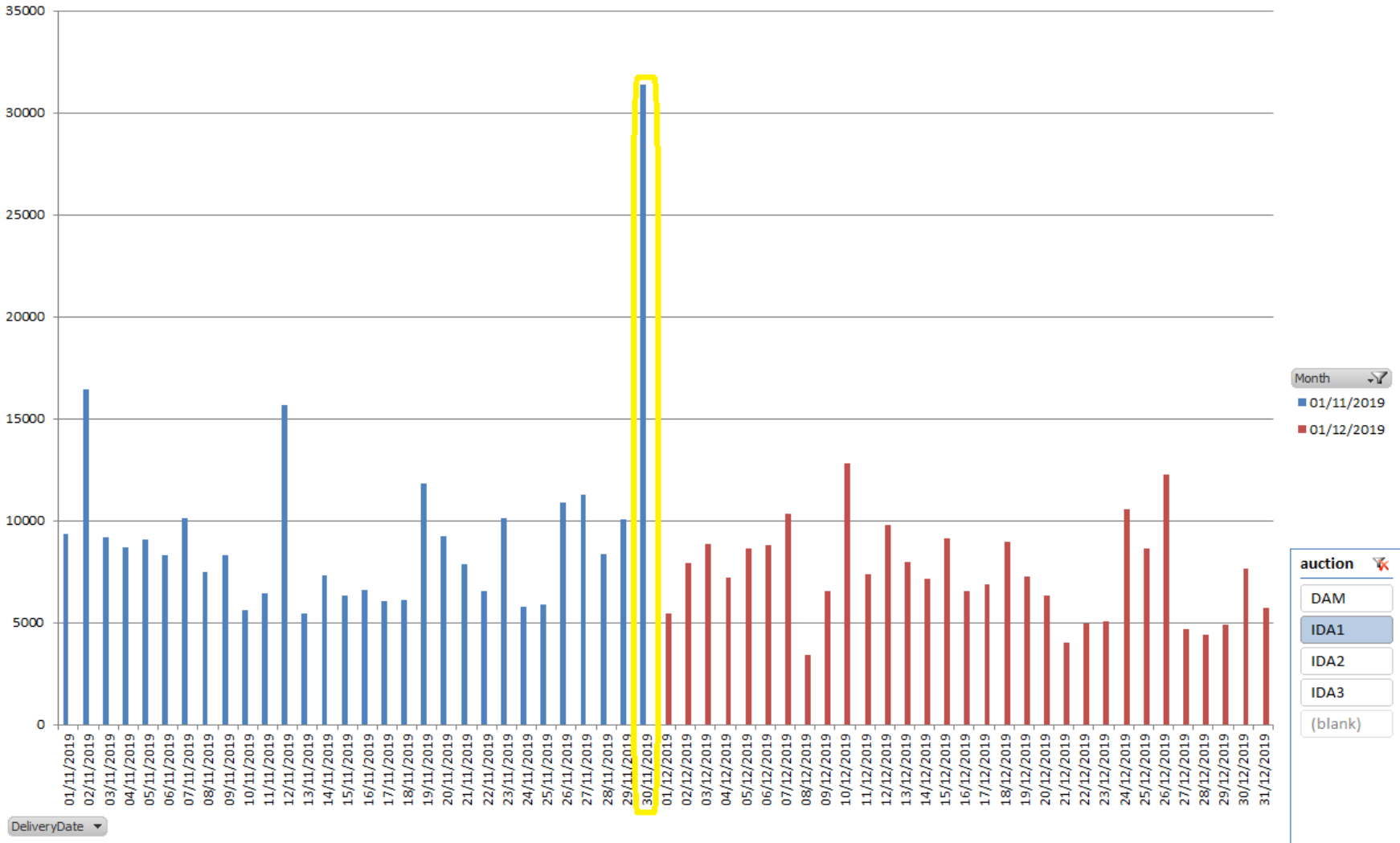


Market	Value	% of DAM
DAM	€359,762,572	
IDA1	€25,009,747	6.95%
IDA2	€12,676,194	3.52%
IDA3	€3,973,589	1.10%
IDC	€2,434,860	0.68%

**Based on Generator DAM sell's by Fuel Type*

Ex-Ante Outliers – *Market High IDA1 Volume

Sum of semo_vols



Ex-Ante Day Ahead & Intra-day Market Analysis

Overview

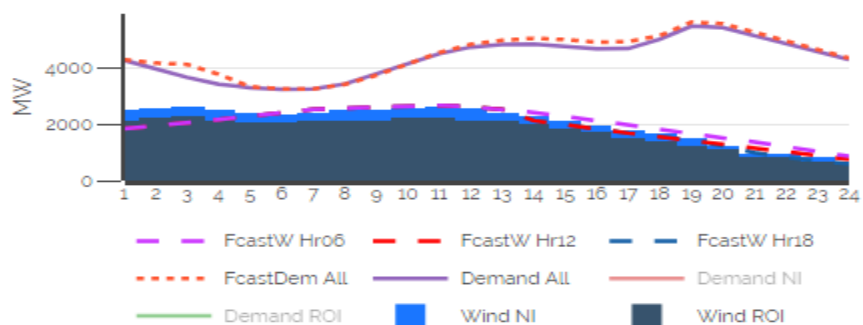
Market Structure

Analysis

Auction Summary

2019-11-30

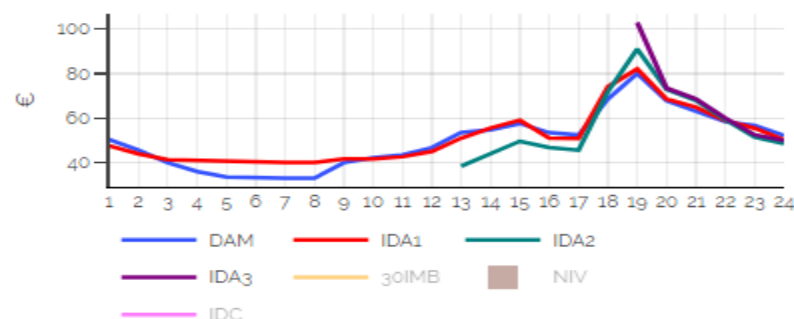
Forecast, Actual Wind v Demand - All Island



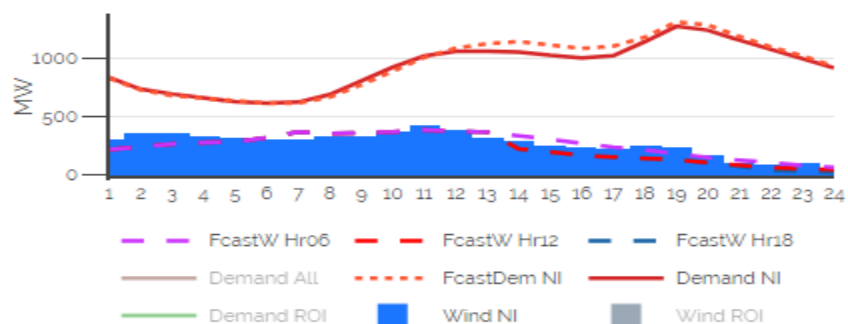
Auction Stats [Hi | Lo | Avg | MWh | €]

2019-11-30	DAM	€80.05	€33.00	€49.82	120,401	€5,998,408
2019-11-30	IDA1	€82.96	€40.00	€51.15	31,389	€1,605,500
2019-11-30	IDA2	€91.16	€37.35	€57.32	4,523	€259,225
2019-11-30	IDA3	€105.03	€48.85	€67.95	772	€52,495

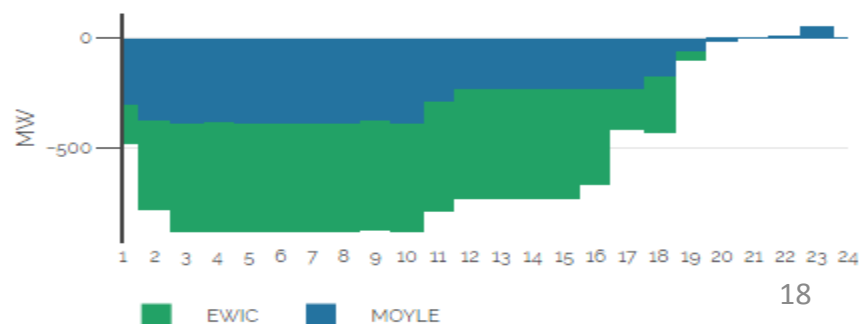
Auction Pricing



Forecast, Actual Wind v Demand - N.I.



Interconnector Flows



Ex-Ante Day Ahead & Intra-day Market Analysis

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Market Structure

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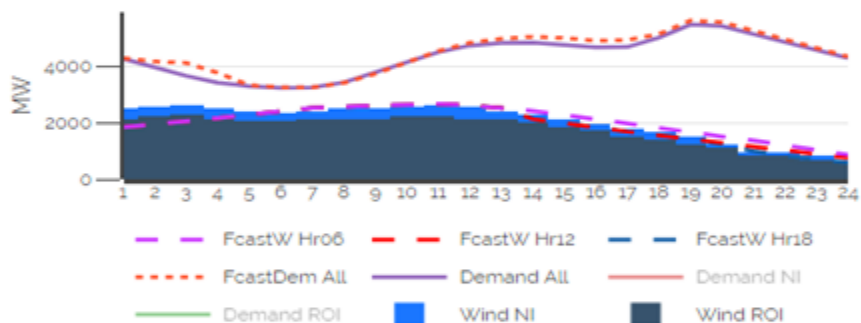
Auction Summary

2019-11-30

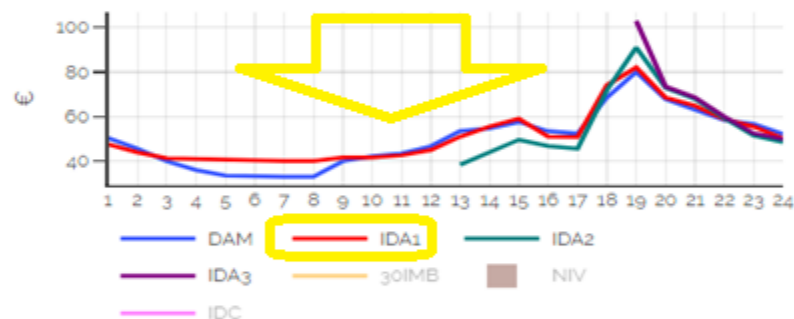
Auction Stats [Hi | Lo | Avg | MWh | €]

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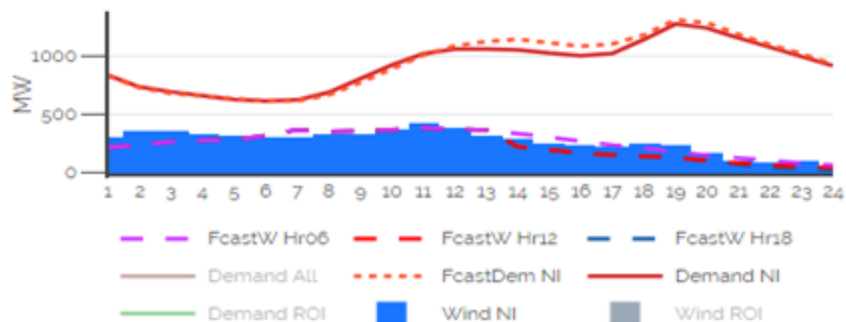
Forecast, Actual Wind v Demand - All Island



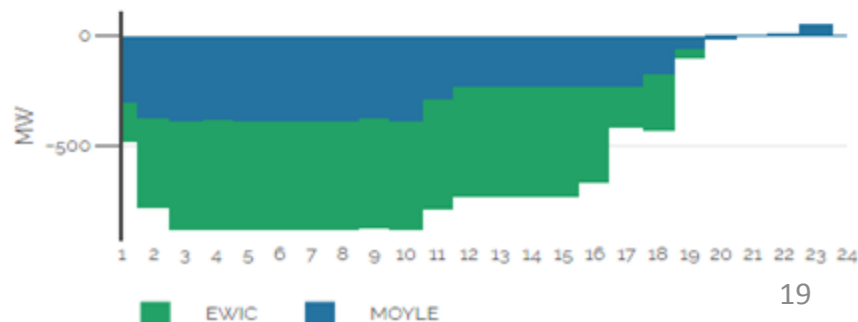
Auction Pricing



Forecast, Actual Wind v Demand - N.I.



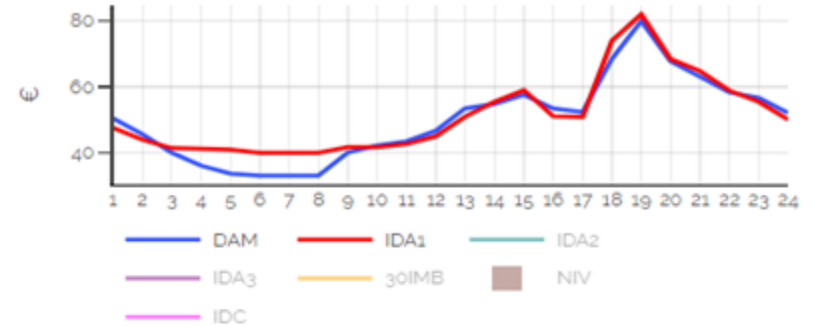
Interconnector Flows



Choose Auction



Historical Prices



Structure



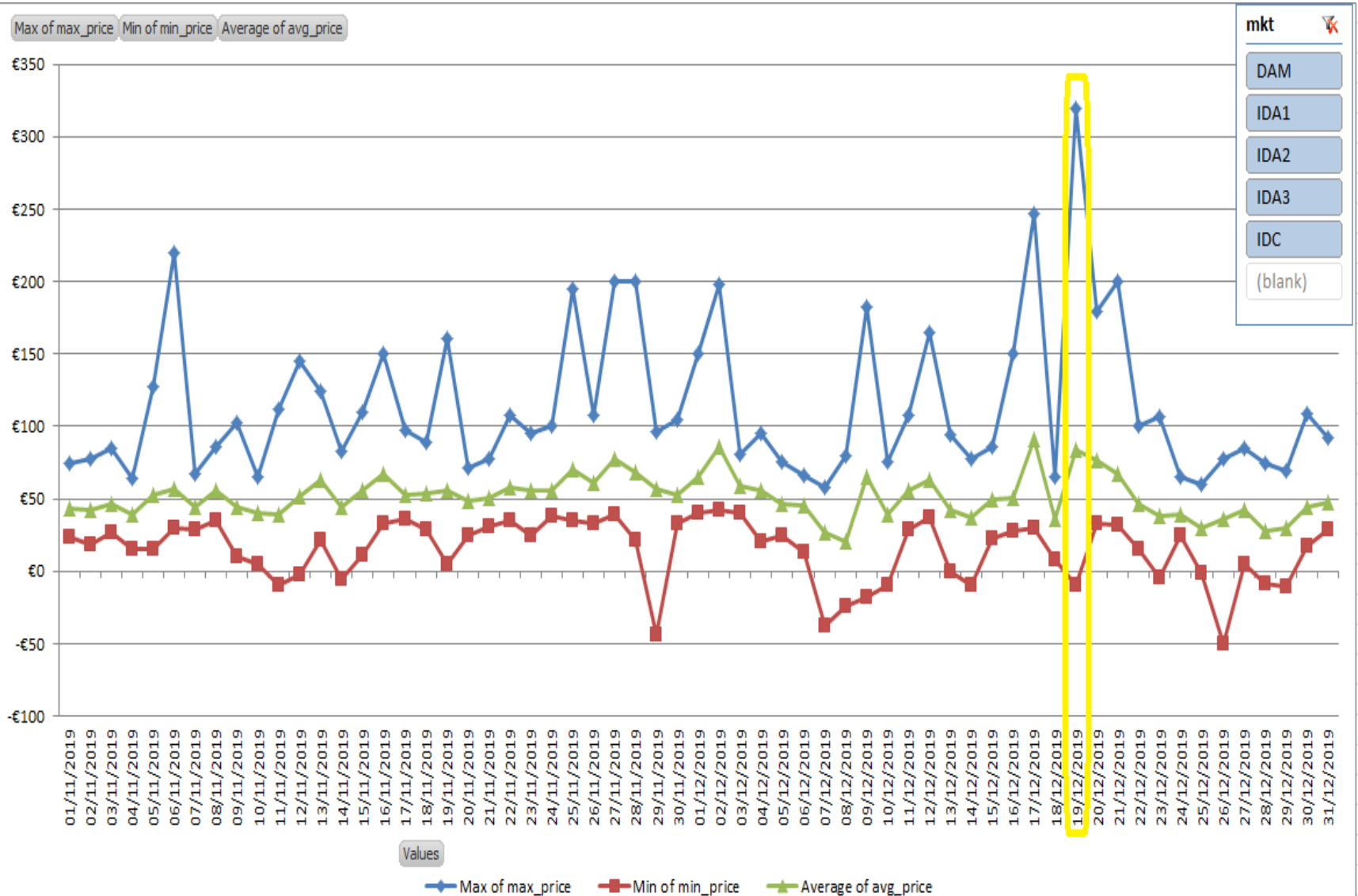
Auction Book

Bids	Price	Offers
	€4,500.00	-11.20
0.80	€1,500.00	-1,779.80
	€1,499.00	-650.00
	€999.00	-550.00
6.20	€500.00	-3.80
	€499.75	-50.00

Auction Participants

DeliveryDat	auktion	Participant	DeliveryHour	DeliveryInterval	unitid	ExecutedVol	fuel type	name	area_desc
2019-11-30	IDA1		13	1		-247.9	MULTI_FUEL		
2019-11-30	IDA1		13	1		-237	MULTI_FUEL		
2019-11-30	IDA1		13	1		260	MULTI_FUEL		
2019-11-30	IDA1		13	1		92.9			
2019-11-30	IDA1		13	1		44.2			

Ex-Ante Outliers – Prices



Ex-Ante Day Ahead & Intra-day Market Analysis

Overview

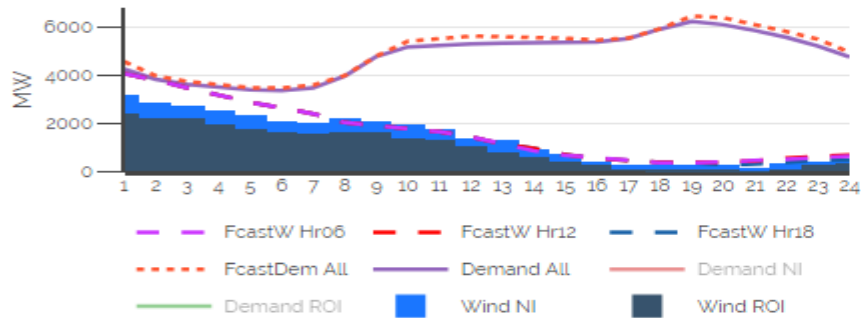
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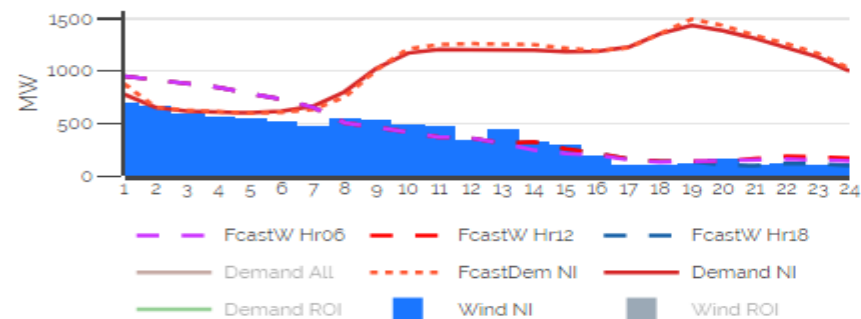
Auction Summary

2019-12-19

Forecast, Actual Wind v Demand - All Island



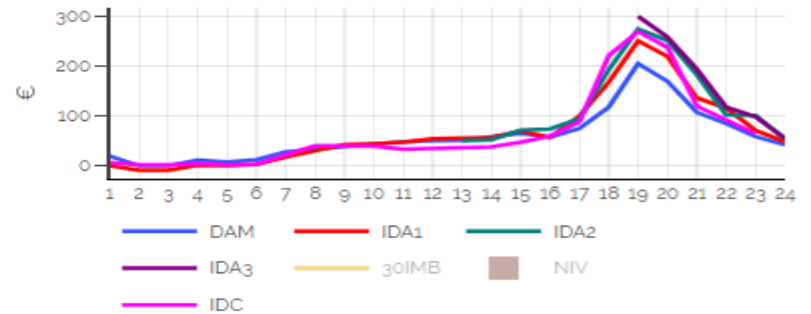
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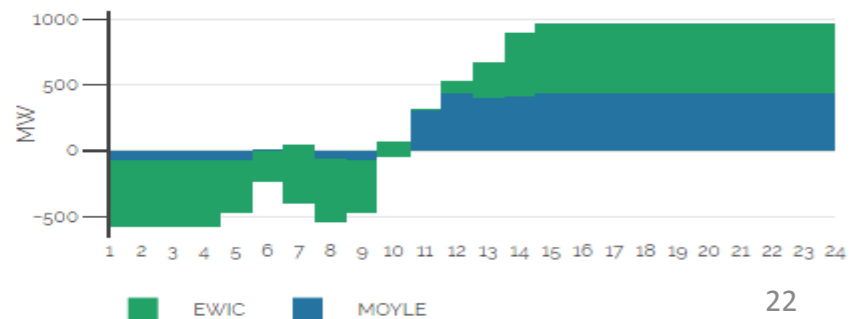
Auction Stats [Hi | Lo | Avg | MWh | €]

2019-12-19	DAM	€205.25	€0.00	€57.83	117,848	€6,815,122
2019-12-19	IDA1	€252.53	€-9.05	€65.47	7,236	€473,762
2019-12-19	IDA2	€285.25	€49.93	€125.24	1,977	€247,567
2019-12-19	IDA3	€301.10	€48.00	€170.83	949	€162,131

Auction Pricing



Interconnector Flows



Ex-Ante Day Ahead & Intra-day Market Analysis

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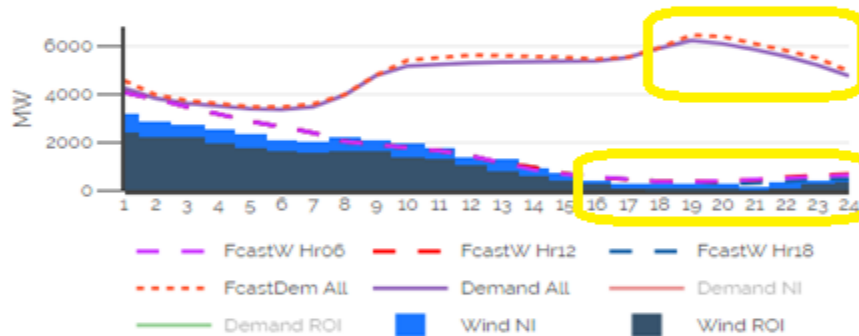
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2019-12-19

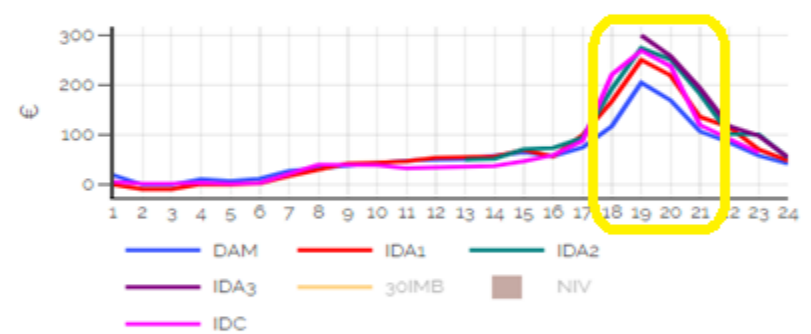
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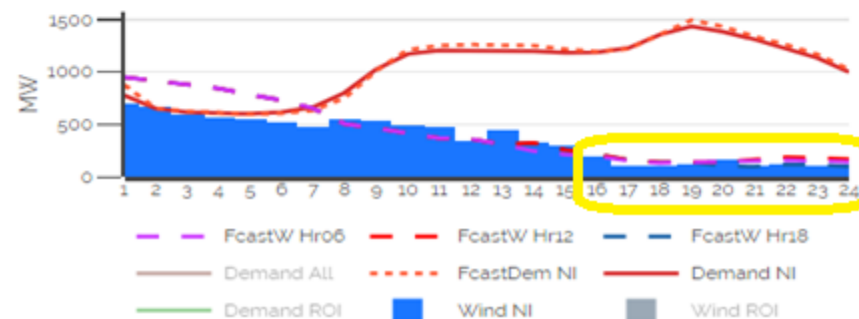
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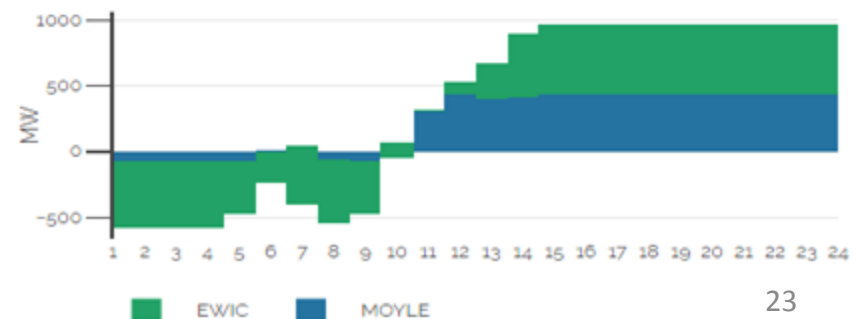
Auction Pricing



Forecast, Actual Wind v Demand - N.I.



Interconnector Flows



Ex-Ante Market Analysis

- **In Summary**

- ✓ SEMOpx markets are maturing
- ✓ Simple Look Back Analysis located on SEMOpx website here :
 - ✓ https://www.semopx.com/documents/general-publications/lookback_mkt.xlsx

Ex-Ante Market Change Control

Change Requests	Status of Delivery
[Auction] Complex orders for 30 min in IDAs	Expected Delivery Q2 2020
[Auction] MRC Block Orders	*On Hold
[Continuous] AON Block for Continuous	*On Hold
[AUCTION/CONT] ACER: Certain EIC-W codes of units to be reported within the transaction data.	Still in assessment after ETS 3.3.2 was delivered in November 2019
[Continuous] RFC from SEMOpX - M7 Transfer of Units	Still in Assessment, options to limit change on member side
[AUCTION/CONT] RFC for setting start and end date of an Unit (per delivery date)	27/11/2019 ETS V3.3.2 M7 still in Assessment
Variable NTC for Auction CZC	Q2 2020

ETS Release Schedule

Version	Content	Impact	Timeline
V3.4	Introduction of block bid submission graph in the trader GUI Trading Session Automation	TBC	End of Q1 2020.
V3.4.1	Complex Orders in ETS for IDAs	TBC	Q2 2020

M7 Release Schedule

Version	Content	Impact	Timeline
V6.8*	<ul style="list-style-type: none"> WebStart Comtrader to be discontinued due to changes in the support of Java TBC Self trade labelling 	SEMOpX Impacts <ul style="list-style-type: none"> Continuous Export file – CSV* Password Policy Change with 90 Days Expiration 	Delayed to 11th February 2020
V6.9		TBC	March 2020
V6.10		TBC	September 2020

M7 6.7 Change to Cross Trade Reporting

- Cross trades still permitted but removed from on screen stats
 - i. As from M7 6.8, ComTrader will display a column “Self” in the Own Trade panel indicating any self-trade,
 - ii. The Continuous export file will contain a field “Self” and a “Yes” for self-trades, see screenshot below
 - iii. In ComTrader’s Market Message panel, any self-trade will be indicated to all members, anonymised,
- This is in addition to the pre-trade pop up to advise when users are potentially cross trading.
- Changes are available in ASIM M7 environment for test and members to make required changes.

M7 6.7 Change to Cross Trade Reporting

ComTraders Own Trade – new column

UsrCode	UsrName	Area	B/S	Ctrct	TmZ	Qty	Prc	State	A	P/O	Phase	TradeID	OrdriD	Exe Time	Text	StmntState	StmntInfo	Self
TRD054	Test User	NI	S	SEMOpX_23-03	Euro	1.0	224.90	ACTI	P	0	CONT	1040659548	10231899624	30.09.2019 14:32:12		INIT		Yes
TRD054	Test User	NI	B	SEMOpX_23-03	Euro	1.0	224.90	ACTI	P	0	CONT	1040659548	10231899623	30.09.2019 14:32:12		INIT		Yes
TRD054	Test User	NI	S	T02H1	Euro	23.0	349.80	ACTI	P	0	CONT	1040659547	10231899619	30.09.2019 14:32:11		INIT		Yes
TRD054	Test User	NI	B	T02H1	Euro	23.0	349.80	ACTI	P	0	CONT	1040659547	10231899618	30.09.2019 14:32:11		INIT		Yes
TRD054	Test User	NGET	S	2H191001-1B	Euro	32.0	247.80	ACTI	P	0	CONT	1040659546	10231899617	30.09.2019 14:32:11		INIT		Yes

Continuous export file – new field

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	
1	OT 2019-11-19																			
2																				
3	Trader Id;"TSO";"EIC";"B/S";"Product";"Contract";"Qty";"Prc";"Curr";"Act";"Text";"State";"Order No";"Trade No";"P/O";"Date/Time";"BG";"AggrIn";"Self"																			
4	TRD001;"TEST1";"10YGB-----A";"B";"GB_Baseload";"20191112 23:00-20191113 23:00";"4.0;389.50";"GBP";"P";"";"ACTIVE";"3541;3242";"O";"12.11.2019 08:16:17";"MEM-TEST-----1";"Yes"																			
5	TRD001;"TEST1";"10YGB-----A";"S";"GB_Baseload";"20191112 23:00-20191113 23:00";"4.0;389.50";"GBP";"P";"";"ACTIVE";"3542;3242";"O";"12.11.2019 08:16:17";"MEM-TEST-----1";"Yes"																			

Public Market message – showing a self trade

Market	Time	Priority	Type	Text
EPEX	19.08.2019 14:55:34	LOW	PUB	Trade DE/DE: 18-19 - 1 MW for 1.00 EUR (self-trade)
EPEX	19.08.2019 14:55:34	LOW	PRV	Order executed completely: Sell 18-19 - 1 MW for 1.00

ETS Maintenance Windows

Date & time	Impact	Reason	Communication
14/01/2020	ETS not accessible	Monthly Maintenance + Additional Patch for Memory upgrade.	ETS chat message (1 hour before the maintainance) + OMM message (email sent a week in advance and on the same morning)
11/02/2020	ETS not accessible	Monthly Maintenance	ETS chat message (1 hour before the maintainance) + OMM message (email sent a week in advance and on the same morning)

M7 Maintenance Window

Date & time	Impact	Reason	Communication
14/01/2020	M7 not accessible	ECC + EPEX outages	M7 chat message (1 hour before the maintenance) + OMM message (email sent a week in advance and on the same morning)
11/02/2020	M7 not accessible	ECC + EPEX outages	M7 chat message (1 hour before the maintenance) + OMM message (email sent a week in advance and on the same morning)

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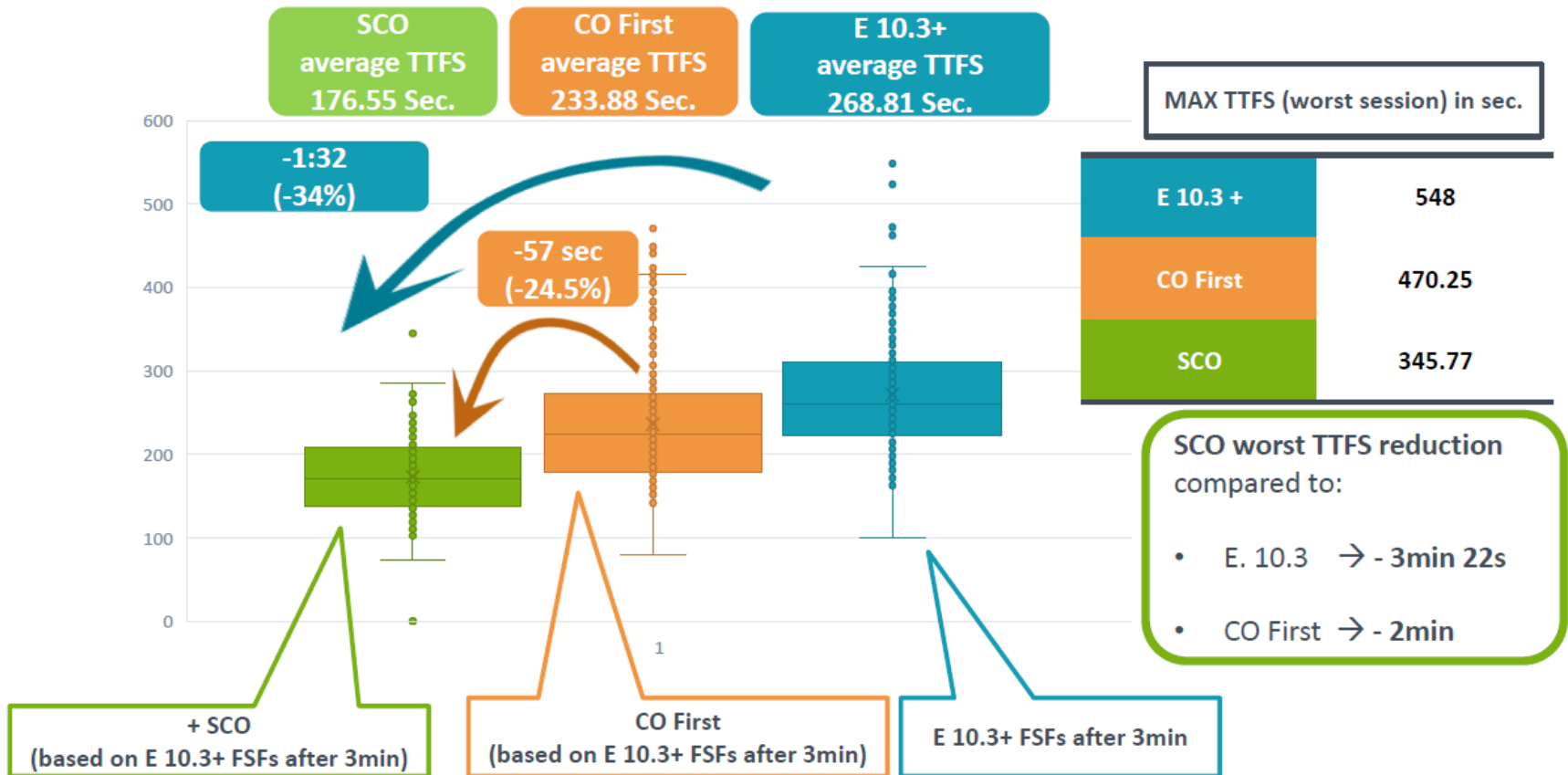
Scalable Complex Orders (SCO)

- NEMOs together with TSOs started the R&D on SDAC beginning 2019
- The first of the more disruptive changes is the introduction of the scalable complex order:
 - Like the classical complex orders, the scalable complex order allows hourly sub-orders to be provided, allows load gradients to be defined;
 - Unlike the classical complex orders that can impose a minimum income condition expressed using a fixed cost + a variable cost, the scalable complex orders drops the variable cost, and instead uses the prices of the hourly sub-orders as variable cost on top of a fixed cost.
 - The theoretical merit of the scalable complex orders over classical ones, is to improve Euphemia performance;
 - This merit can only materialize if the scalable complex orders will eventually replace (not complement) the classical complex orders;

Scalable Complex Orders (SCO)

- Part of EUPHEMIA R&D work to optimise the algorithm performance and reduce constraints
- SCO prototype developed with the aim of removing the issues we saw in our EUPHEMIA trial where Complex Orders and Block orders reduce algorithm performance
- SCO vs Classical Complex Order testing 1st iteration provides positive but not acceptable results for SEMOpx
- SEMOpx are fully engaged and working to enhance the product with our stakeholders
- Change will be incremented, inclusive and collaborative at TSO and NEMO committee level

Drivers for Change

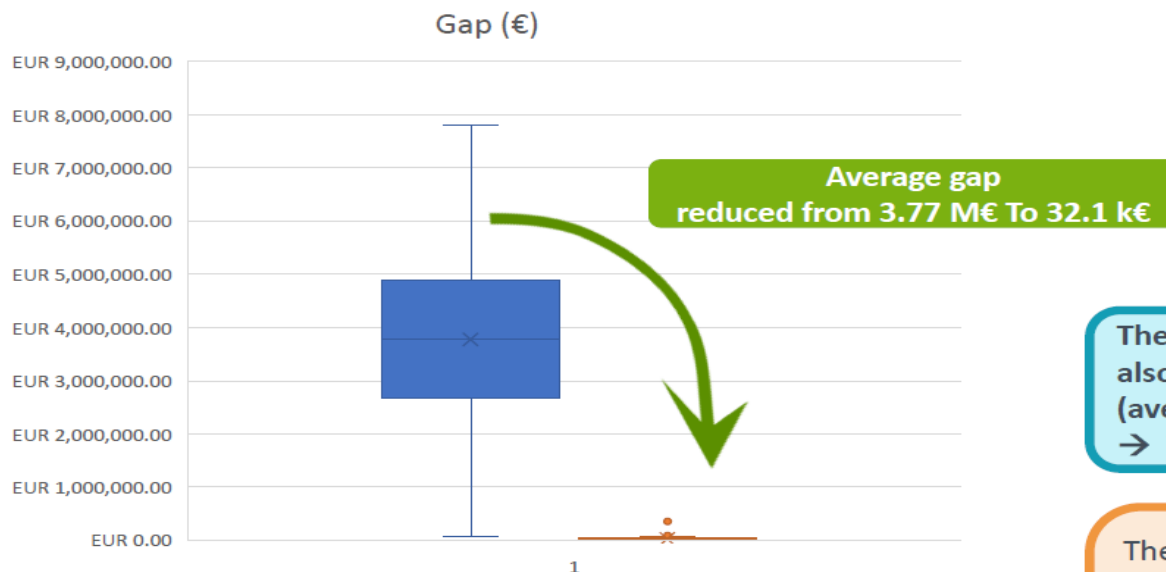


Production data from October 2018 to July 2019
in all the tests, "other FSFs" start after 3min

Drivers for Change

SCO reduces the average optimality gap by 99.6%

Average gap is reduced from 3.77 M€ to 32.1 k€ !



The average number of PRBs is also decreased by 35% !
(average decreased \approx 7 PRBS)
→ increased market satisfaction

The average number of "PRSCOs" very marginally increased compared to PRMICs:
2.89 compared to 1.636

(depends on the conversion rule)

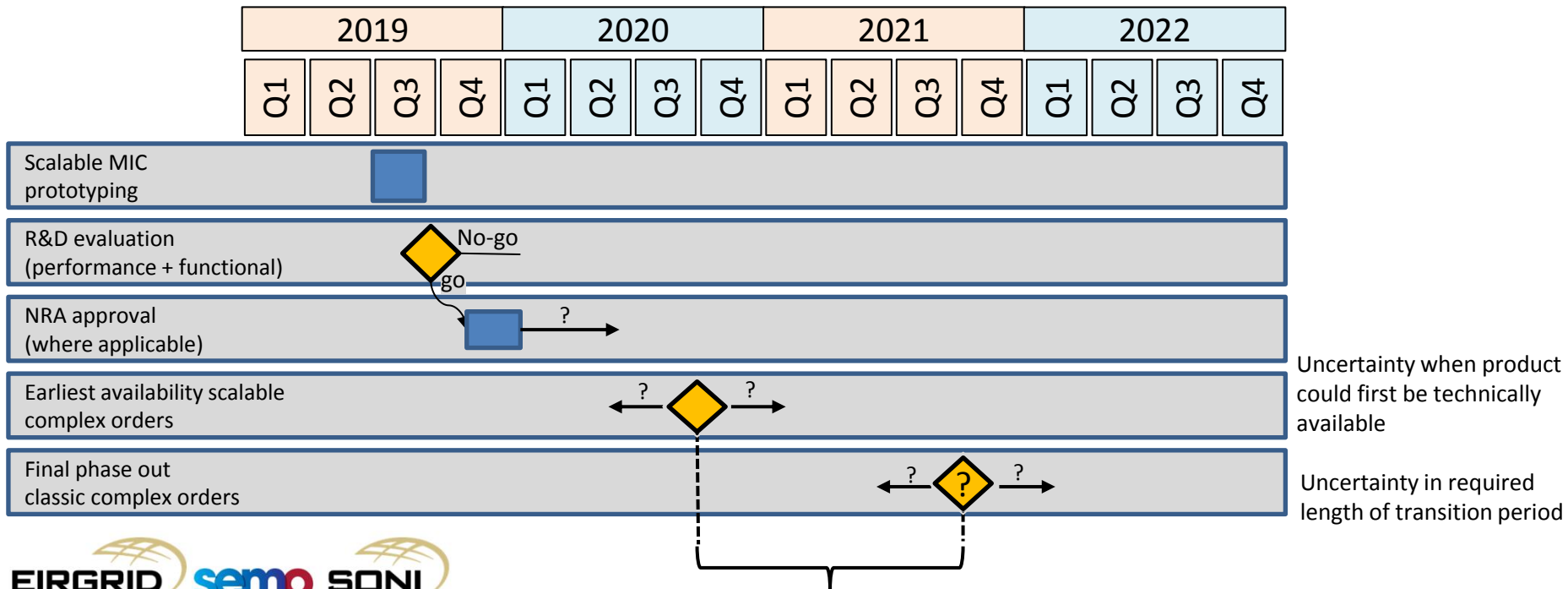
Production data from October 2018 to July 2019
in all the tests, "other FSFs" start after 3min

Potential Advantages/Challenges of SCO

Advantages	Challenges
<p>SCOs behave more like blocks and therefore potentially removes the constraints where SEMOpX members are limited to Complex and Simple Orders only</p>	<p>Conversion Rules for COD not obtaining close enough results currently</p> <p>More options to refine in further tests to be developed</p>
<p>Increased Social Welfare of the solutions found</p>	<p>Reducing the impact with the removal of the Minimum Income Condition (MIC) on scheduling outcomes</p>
<p>Scalability of the product</p>	<p>Understanding the benefits of this type of product and how best to modify commercial offer data to achieve these benefits</p>

Potential Timeframes

- Depending on the outcome of the R&D, a decision can be made to progress the implementation of the scalable complex orders, in which case:
 - A precise definition of the product needs to be agreed, communicated, and possibly consulted
 - A detailed implementation plan will need to be developed and communicated



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SEM Committee Repricing Decision

- SEM Committee Decision published on 22nd November 2019 was to give effect to Option 3; through the implementation of an Urgent Modification to the TSC ([Decision Paper - SEM-19-068](#)).

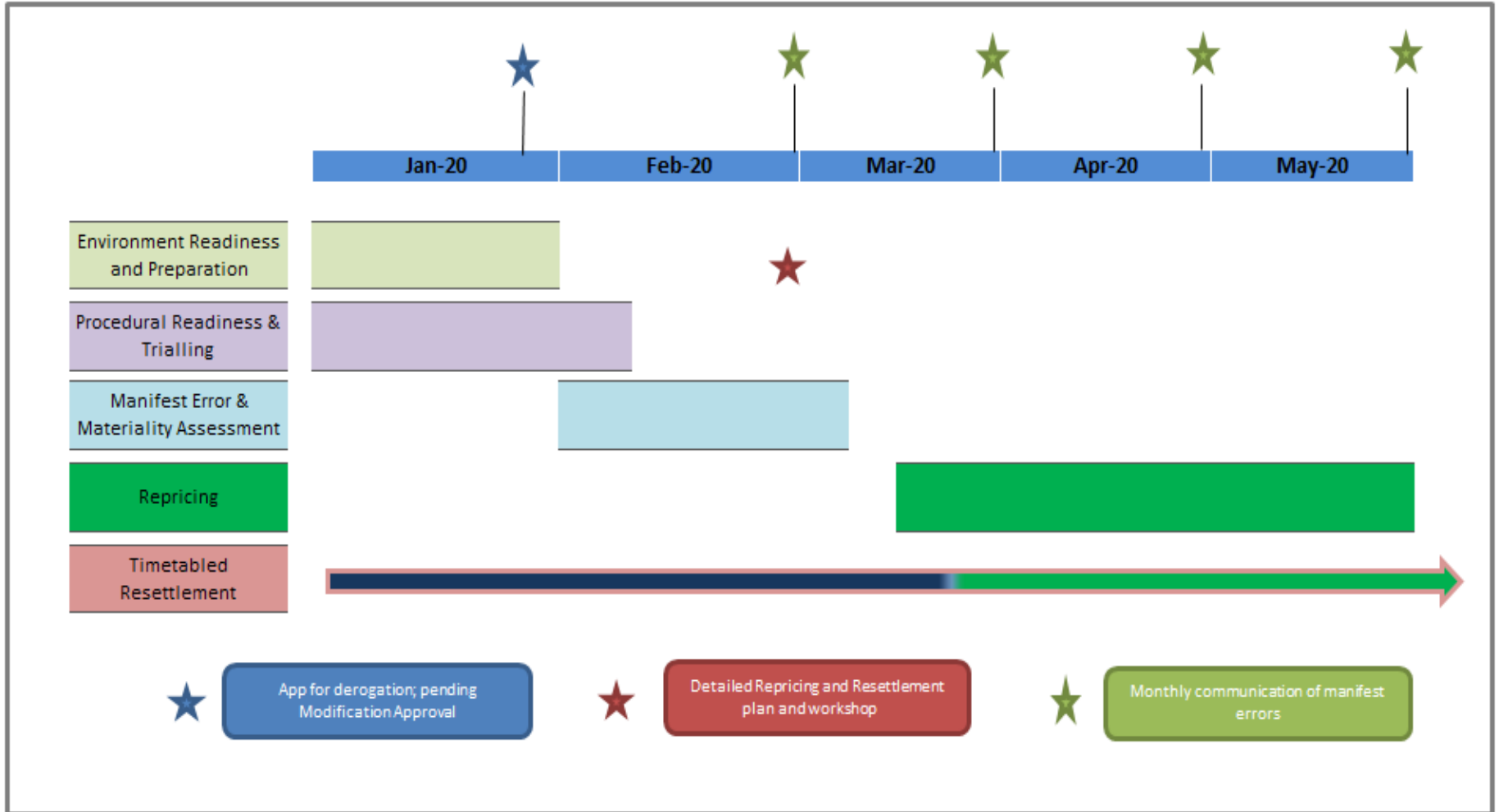
Option 3, through an Urgent Modification removes the requirement for the Market Operator to publish corrected Imbalance Settlement Prices for the period between 1st October 2018 to 11th June 2019.

- Subject to the approval of the Modification to the Trading and Settlement Code; and in line with the intent of this decision; SEMO would apply for a derogation to not recalculate Imbalance Settlement Prices between the period 1st October 2018 and 11th June 2019.

Repricing Next Steps

1. Finalise testing and trialling of repricing procedures;
2. SEMO to confirm that approach for materiality assessment is viable;
3. SEMO to continue to progress '*integrated enduring repricing solution*';
4. Urgent Modification to be tabled; and application submitted by SEMO for derogation;
5. Put forward a proposed timetable for repricing; in consideration of:
 1. M+4 & M+13 Resettlement Timelines;
 2. Manifest errors that can be currently recalculated.
6. We will engage further with market participants early in the new year.

Repricing Update



Re-Pricing & Resettlement Workshop

- Detailed participant plan on approach to repricing;
- External Participant Guide to be published and workshop to be convened (Target February MOUG). This will address:
 - Initial provisional* timeline of Repricing;
 - Timeline of associated Resettlement;
 - Detailed overview of the process:
 1. Communications and engagement
 2. Materiality Assessments
 3. Publication and Reporting (MPI, website and historical datasets)
- SEMO will be using February 2020 to validate processes, tools and environments.

Agenda

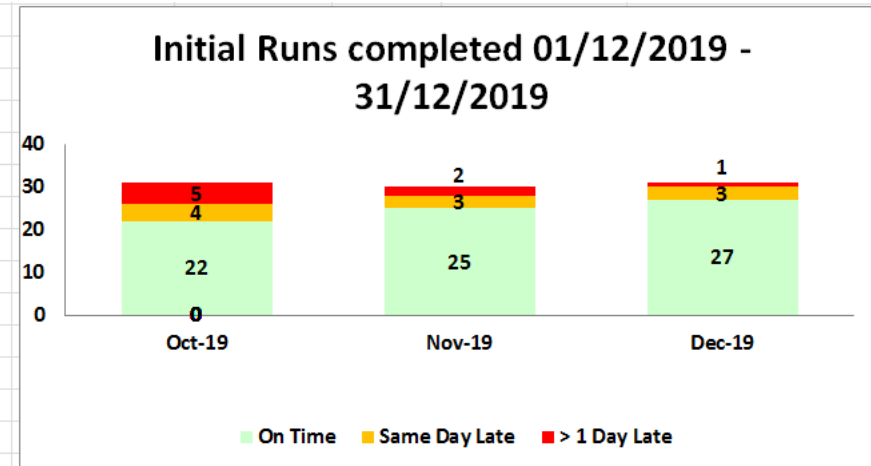
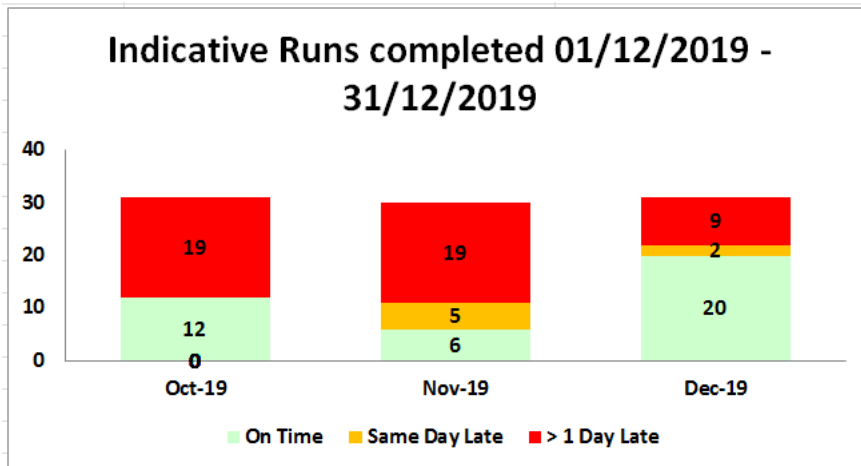
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Settlements : Dec 2019 data process updates

Settlement Dates	Run Category	Run Type	Runs to complete	On Time	Delayed – Same Day publication	Delayed > 1 Day
1 st – 31 st	Settlements	Indicative	31	20	2	9
1 st – 31 st	Settlements	Initial	31	27	3	1
10 th Mar – 30 th Mar	M+4 Resettlement	Weekly	21	21	-	-
21 st Oct 2018 – 11 th Nov 2018	M+13 Resettlement	Weekly	21	14	-	1
1 st – 31 st	Credit Reports	Daily	46	45	-	1
1 st – 31 st	Payments In	Weekly	4	4	-	-
1 st – 31 st	Payments Out	Weekly	4	4	-	-
Nov 24 th – Dec 14 th	Settlement Documents	Weekly	3	3	-	-

Settlements : December 2019 updates

- Indicative / Initial publication delays in December mainly due to MDP file delays and data processing issues (DA/IDT file imports).
- Publications on schedule Monday Dec 30th after Christmas period 24th – 29th Dec.



- Release D systems performance improvements for December 2019...
 - Bill case performance
 - Instruction Profiler performance

Settlements : Jan 2020 data process updates to date

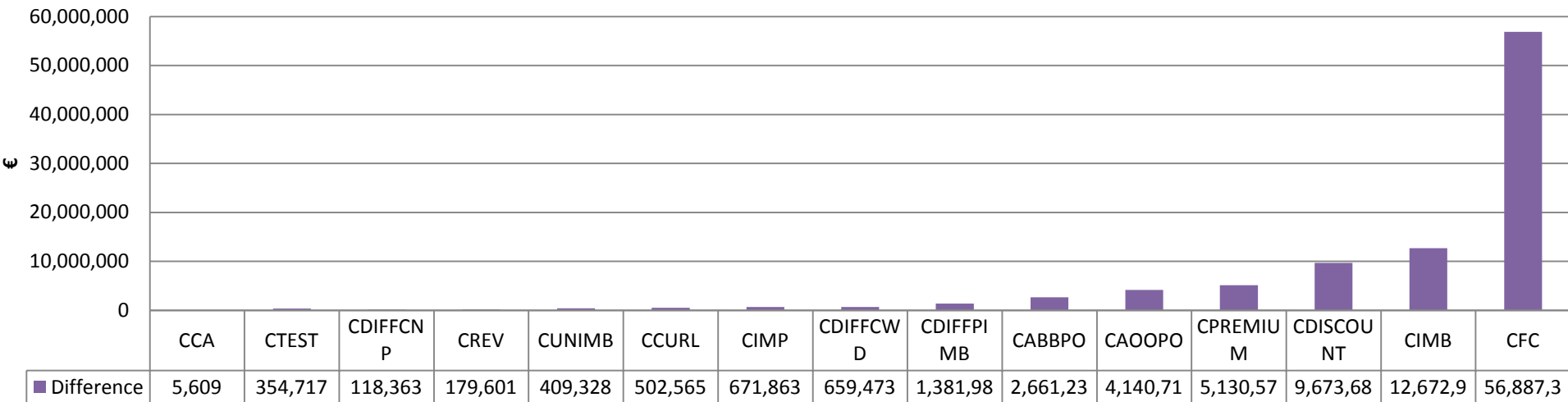
Settlement Dates	Run Category	Run Type	Runs to complete	On Time	Delayed – Same Day publication	Delayed > 1 Day
1 st – 15 th	Settlements	Indicative	15	12	1	2
1 st – 8 th	Settlements	Initial	8	8	-	-
31 st Mar – 27 th Apr	M+4 Resettlement	Weekly	28	28	-	-
4 th Nov 2018 – 24 th Nov 2018	M+13 Resettlement	Weekly	21	21	-	-
1 st – 15 th	Credit Reports	Daily	27	27	-	-
1 st – 31 st	Payments In	Weekly	2	2	-	-
1 st – 31 st	Payments Out	Weekly	2	2	-	-
Dec 15 th – Jan 4 th	Settlement Documents	Weekly	3	3	-	-

Settlements & Credit Processing : Other updates

- **Credit Modification in place from Monday Mon 9th Dec, one credit report to issue after weekends and bank holidays**
- **M+4 resettlement – double up of M+4 started on Jan 10th 2020**
- **KIR ID 6148 - Settlement Document Creation is limited to four Billing Periods (impact to Jan 10th Settlement Documents and future SDs)**
- **Ad-hoc resettlement planned for June 2020 timelines – more details to be provided at special topic session in Feb 2020**
- **Weekly M+4 Forecast information – the weekly provision of forecast data is due to complete at the end of January 2020.**

Balancing Resettlement Cashflow

Adjusted Amount by Component

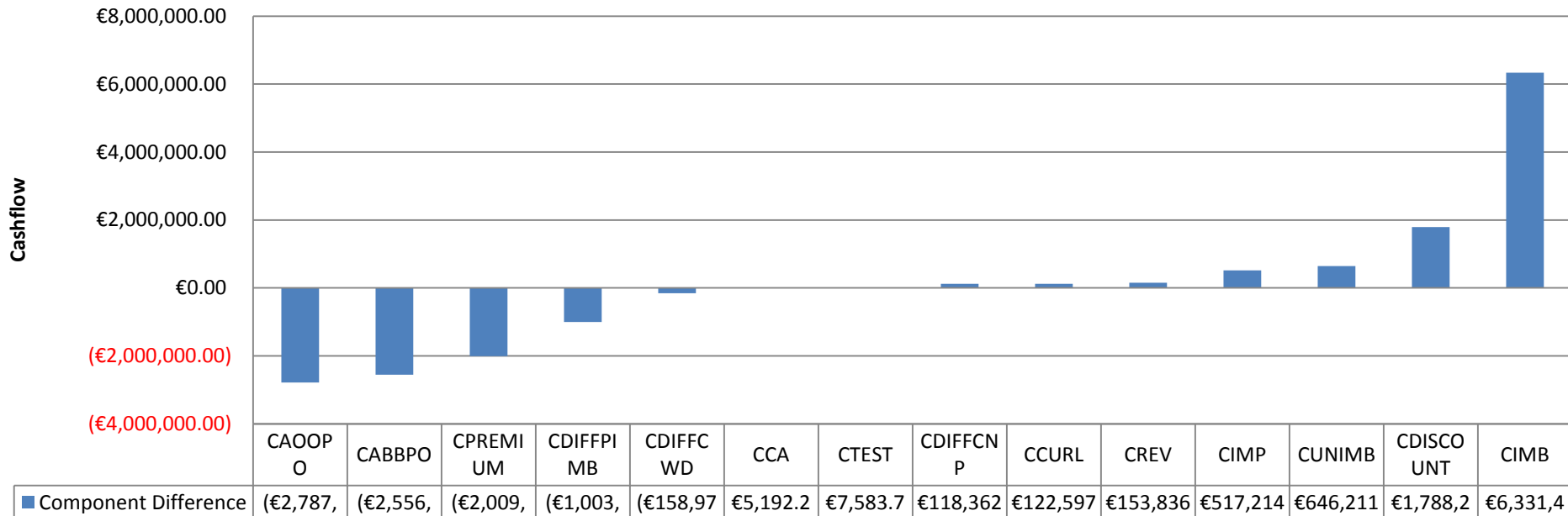


€95 Million is the absolute **M4 Cashflow** up to Week 16 (2019) for BALIMB.
 ~12% of Initial Settlement Amount (**€773M Initial Settlement**)

Total SEM Payment Amount	€50,168,536
BALIMB Payments IN	€22,662,436
BALIMB Payments OUT	€72,830,973

Balancing Resettlement (Excluding CFC)

BALIMB DIFFERENCE (Exclude CFC)



Charge Component	Initial	M4	Diff
CCC	-27,239,067.98	-27,153,582.59	85,485.39
CCP	27,773,315.64	27,782,027.72	8,712.08
CSOCDIFFP	-626,498.69	-624,532.41	1,966.28
Grand Total	-92,251.03	3,912.72	96,163.75

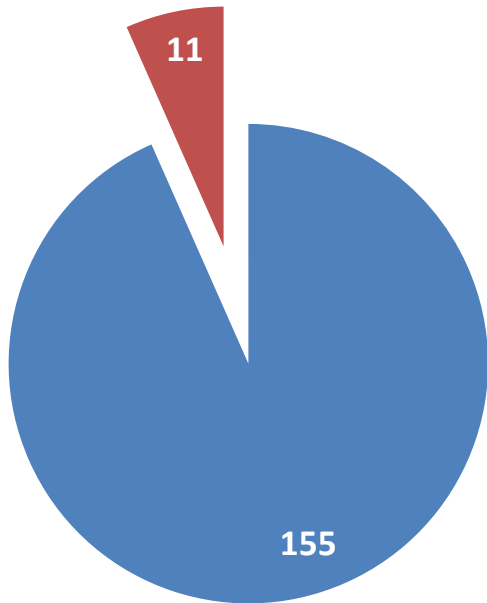
Charge Component	Initial	M4	Diff
CMOAU	-73,568.38	-73,523.15	45.23
CMOAV	-1,989.19	-1,988.72	0.47
CVMO	-1,383,420.48	-1,374,715.85	8,704.63
Grand Total	-1,458,978.05	-1,450,227.72	8,750.34

€105K is the Total M4 Cashflow up to Week 16 (2019) for CRM & MO.

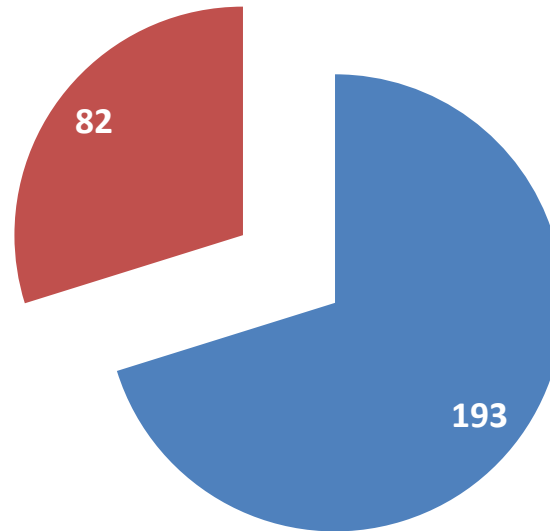
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Query Management - General Queries



Dec 2019 92% of queries received and answered within the month



Dec 2018 73% of queries received and answered within the month

Formal Queries and Disputes

Formal Settlement Queries:

Completed: 359

In progress: 20

Rejected: 1

Total: 380

Disputes: Completed: 98

In progress: 3 (one with the DRB and 2 ongoing)

Rejected: 2

Total: 103

Upcoming MOUG Dates

2020

- 27th February – Belfast*
(SEMOpX User Group 13:00 – 15:00)
- 30th April – Dublin
- 11th June – Dublin

*Special session focusing on Re-Pricing and Re-Settlement

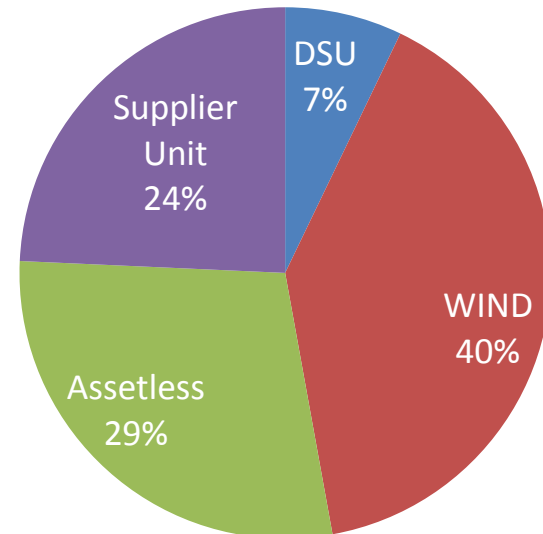
Proposal to reduce bi-weekly participant calls to weekly

Balancing Market Registration

Go Live 01/10/2018 – 31/12/2019

- 17 new Parties
- 70 unit registrations
 - *19 de-registrations / re-registrations*
 - *51 new unit registrations*
- 7 unit de-registrations

Total Units registered since Go Live



Registration 2020

- Approximately 30 unit registrations currently ongoing.
- Can be a 60 working day process with various stakeholders involved.
- Get in contact by email or phone as early as possible to discuss any upcoming registrations.
- Balancing Market registration process is captured in [T&SC Section B. 7](#) and [Agreed Procedure 01](#) “Registration” available on the SEMO website under “Rules & Modifications”.

Contact Us

Email

- Balancing Market: BalancingMarketRegistration@sem-o.com
- Capacity Market: CapacityMarketRegistration@sem-o.com
- SEMOpx: Registration@semopx.com

Phone

- Call the SEMO Helpdesk and ask for the Registration team

SEMO Helpdesk

Republic of Ireland:	1800 726 772
Northern Ireland:	0800 072 6772
International:	+353 1 237 0584

SEMOpx Helpdesk

Ireland:	1800 283 010
Northern Ireland:	0800 008 3010
International:	+353 1 668 8183

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Close

- SEMO Website: <http://www.sem-o.com/>
- Semopx Website: <http://www.semopx.com/>
- Queries: Info@sem-o.com; Info@semopx.com
- Capacity Market: CapacityMarket@sem-o.com

Thank you for your attendance.