

Market Operator User Group

Dublin, 30 April 2020

Agenda

Item	Presenter
Welcome	Anne Fitzgerald
Release E Update	Mark Needham
Release Program Update	Mark Needham
Ex-Ante Markets	Liam McAllister, Michael Atcheson
Repricing Update	Michael Atcheson
Balancing Market Update	Michael Atcheson
Settlements Update	Sean O'Rourke
Front Office	Claire Breslin, Anne Fitzgerald
System Operations Update	John Ging
Q&A	

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Central Market Systems – Release E – Deployment Update

- Release E to the Central Market Systems was deployed successfully to schedule on April 28th 2020.
- The following table outlines the scope of this release.

Central Market Systems Release E			
#	CR Ref	Mod Ref	Description
1	CR094	N/A	Automatic Export of scheduling outputs following scheduling runs
2	CR076	Mod_05_19	Amendment to Uninstructed Imbalance Charge (CUNIMB) to correct for negative price scenarios
3	CR089	N/A	Use of Annual Capacity Exchange Rate in Settlement
4	CR118	N/A	Inclusion of Zeros in CSB Reports

- In addition this release also addressed sixty nine (69) defects across the Balancing Market and Settlement systems. More detail on the those defects that impact on Market Participants can be found on the latest [Known Issues Report](#).

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Central Market Systems – Release F

- The table below outlines the scope for Release F to the Central Market Systems.
- In addition a number of fixes for the Balancing Market and Settlement systems will also be included in scope.

Central Market System Release F			
#	CR Ref	Mod Ref	Description
1	CR120	Mod_10_19	Exclusion of Dispatchable Priority Dispatch Unit Prices from Pricing
2	CR091	Mod_19_19	Setting System Operator Flags to zero for the purposes of Settlement
3	CR092	Mod_21_19	Application of Loss Factors for Interconnectors in Settlement
4	CR128	Mod_17_19	Mod_17_19 DSU State Aid Compliance Interim Approach

- Our vendors are progressing the detailed design phase for this release. Once complete, we will publish a Release F High Level Impact Assessment (HLIA) outlining any impact on stakeholders from the release scope.
- Release F is expected to be deployed in October 2020 (date TBC), subject to successful completion of all testing.

Modification Proposals under assessment

- The following table outlines the Modification Proposals that are currently with our vendors for Impact Assessment:

Modification Proposals Under Assessment

#	CR Ref	Mod Ref	Description
1	CR-129	Mod_22_19	Correction of QUNDELOTOL calculations to convert TOLUG and TOLOG to MWh
2	CR-102	Mod_03_18	Autoproducer Credit Cover with DSU
3	CR-081	Mod_03_19	Amended Application of the Market Back Up Price if an Imbalance Price fails to Calculate
4	CR-072	Mod_08_19	Clarification to Intraday Quantity and Payment
5	CR-119	Mod_20_19	Changing Day Ahead Difference Quantity to Day Ahead Trade Quantity Within Day Charge Calculation

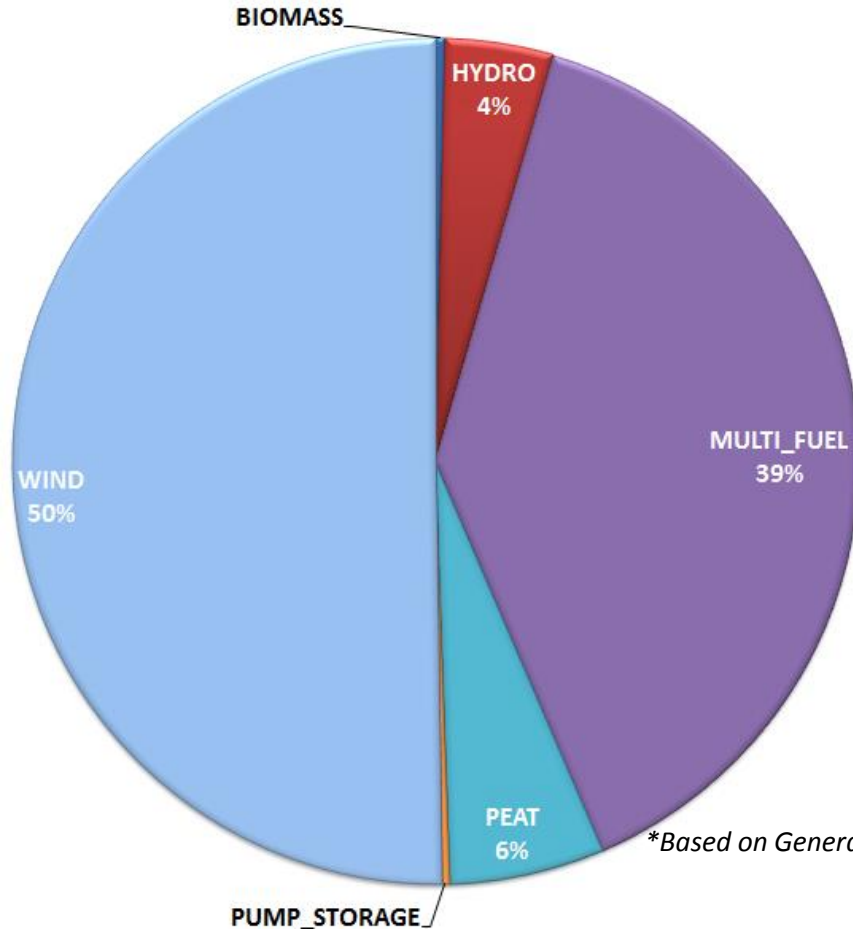
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Ex-Ante Markets

- Volumes and Fuel Mix Feb-Mar 2020

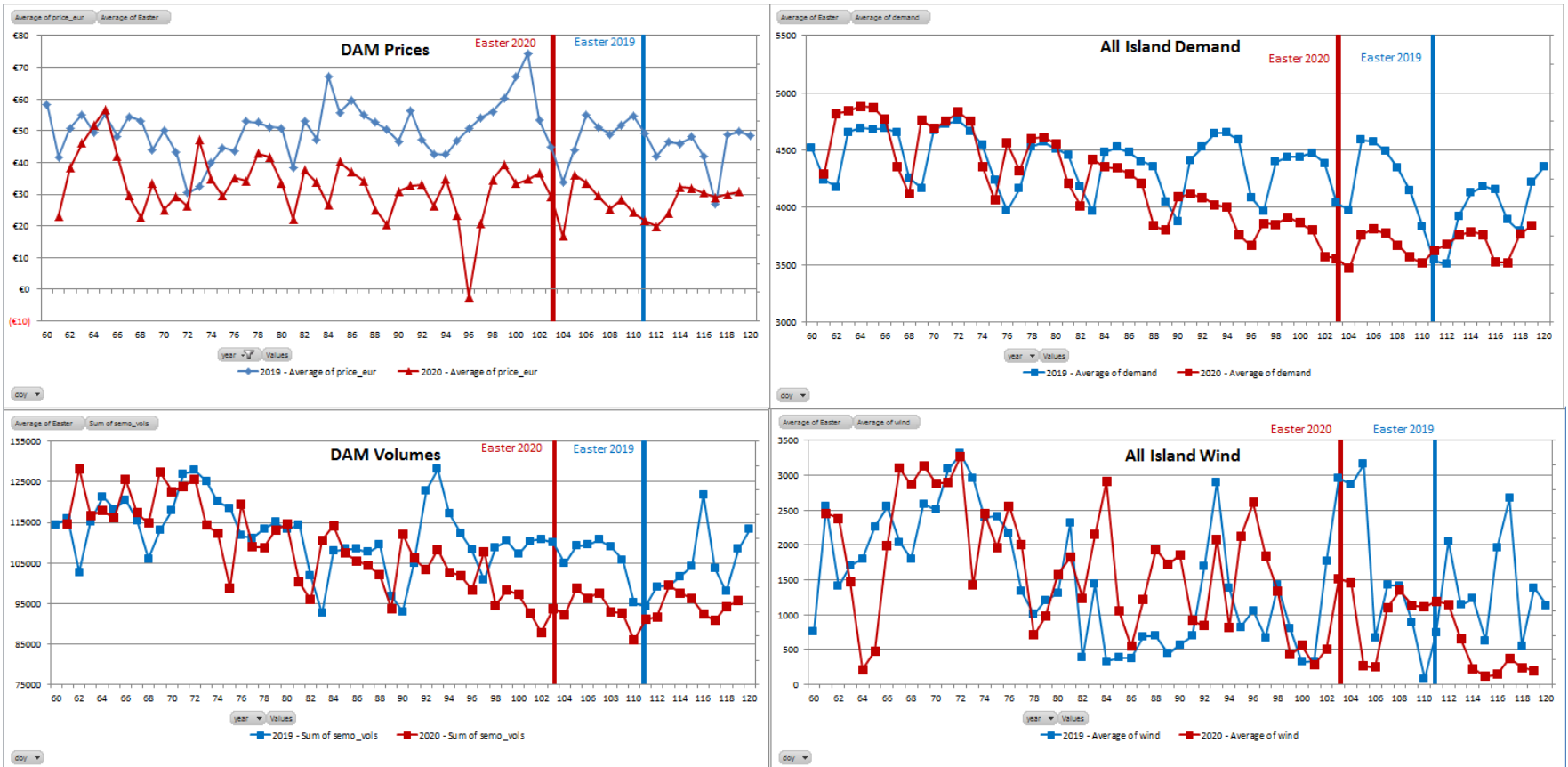
**Using approx. prices and fuel type breakdowns*



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

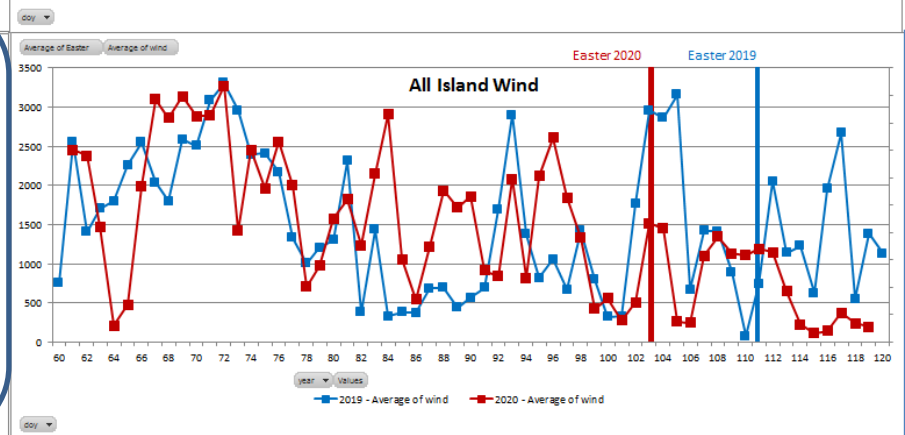
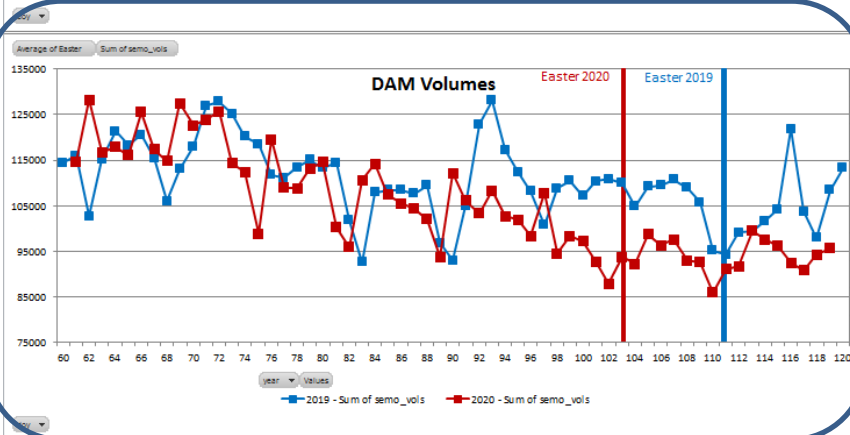
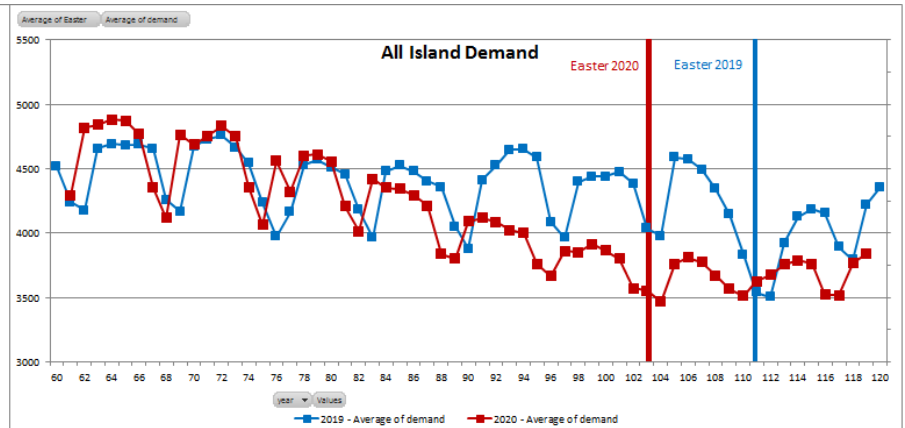
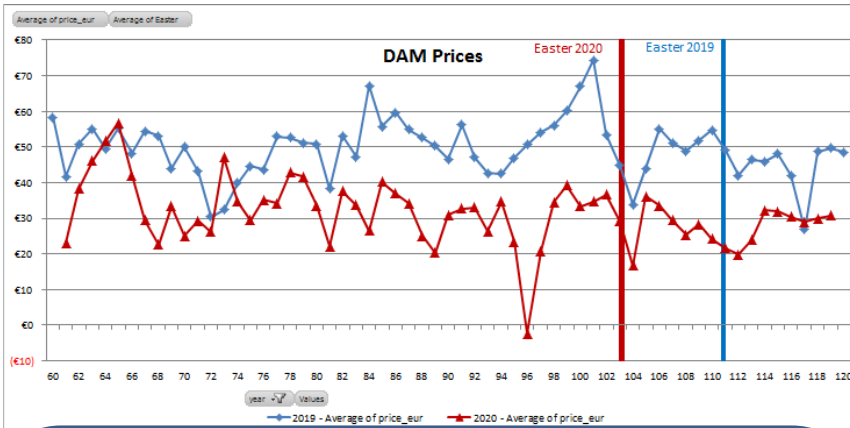
	Value	% of DAM
DAM	€245,593,927	
IDA1	€19,157,554	7.80%
IDA2	€9,988,015	4.07%
IDA3	€3,134,052	1.28%
IDC	€613,964	0.25%

Ex-Ante Markets Reaction to COVID-19



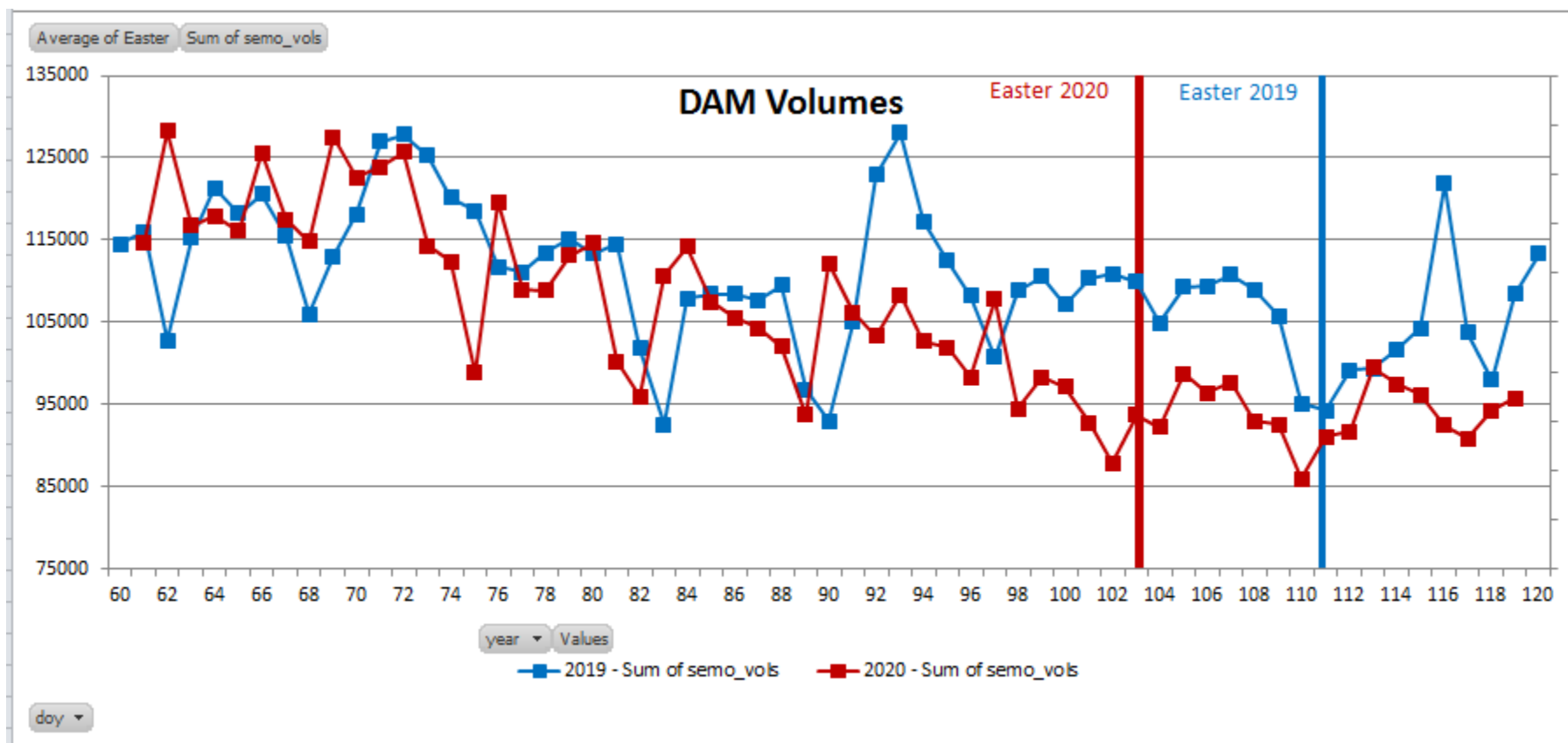
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Easter 2019	21/04/2019	111
Easter 2020	12/04/2020	103

Ex-Ante Volume, Demand, Wind, Prices 2020 versus 2019

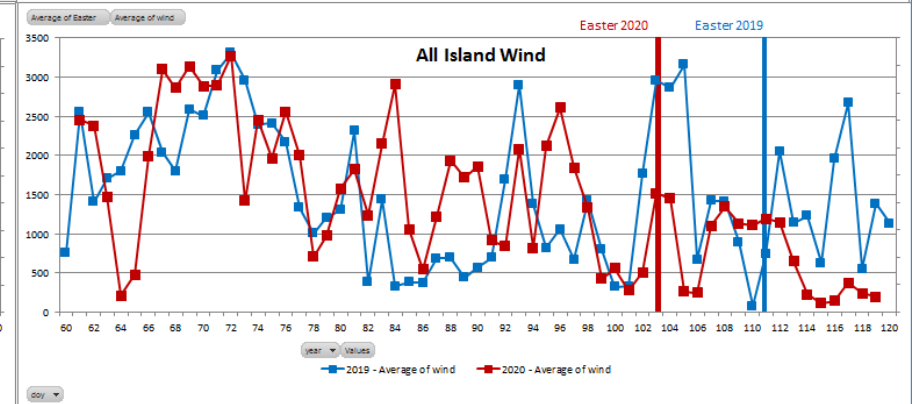
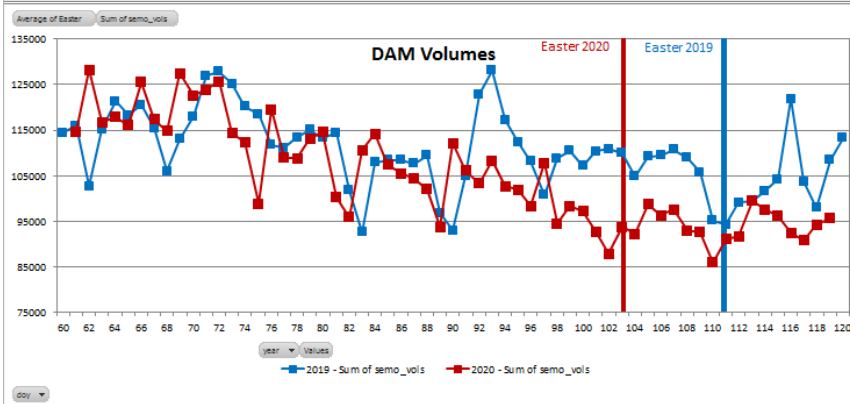
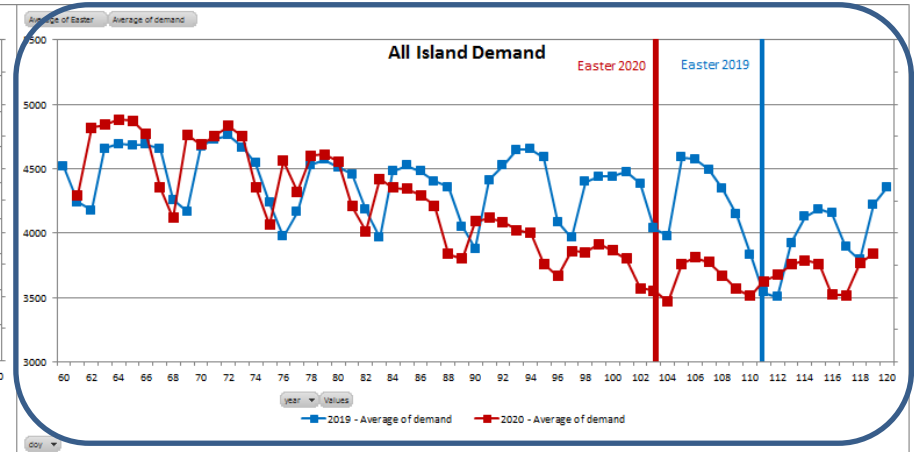
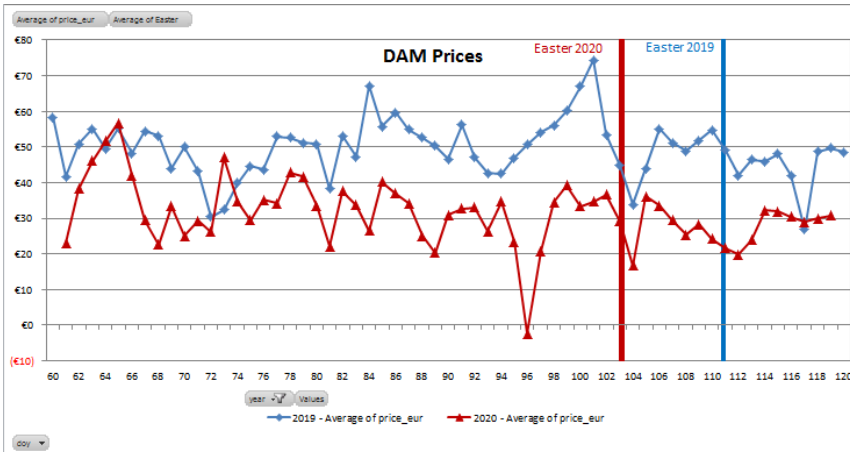


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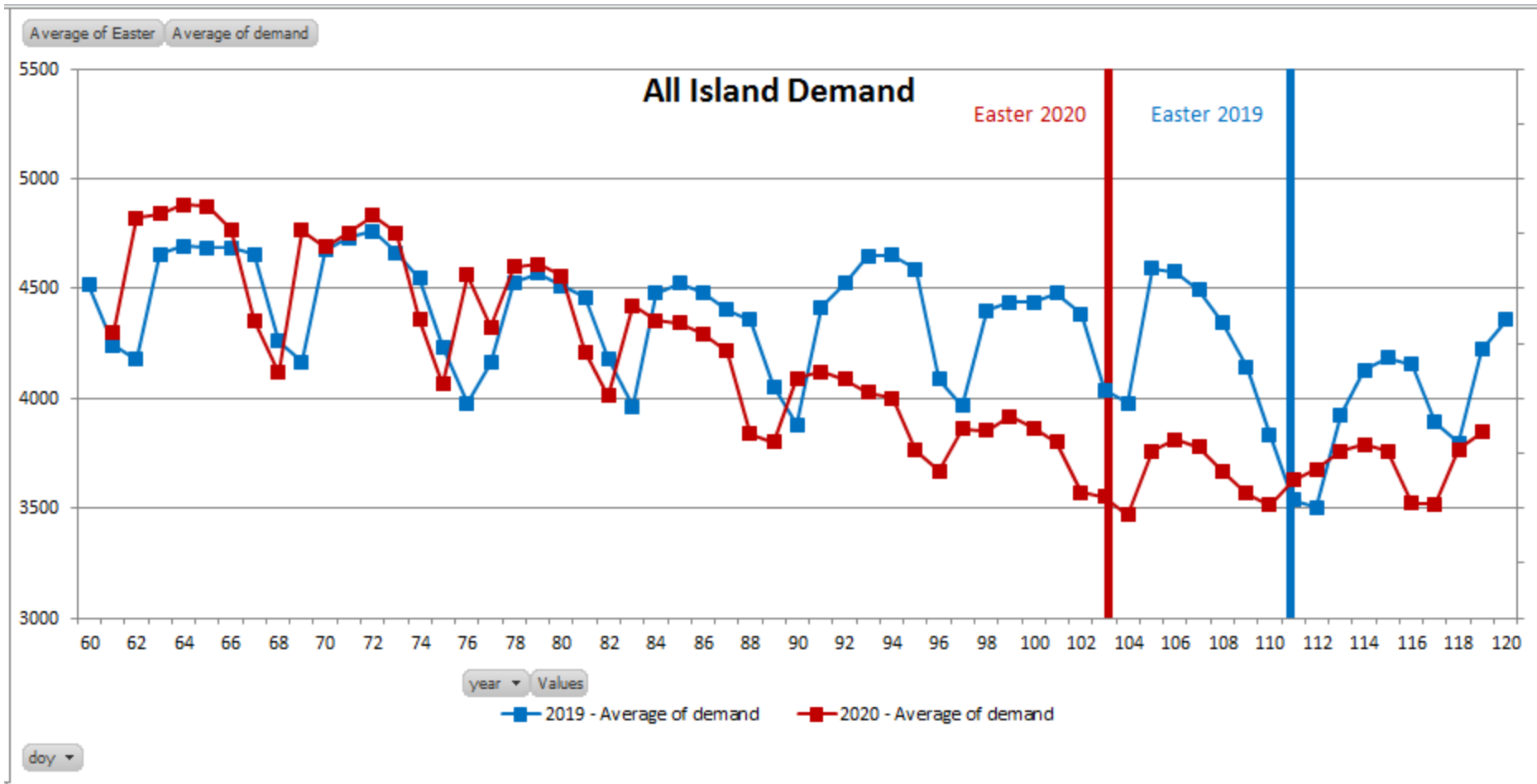


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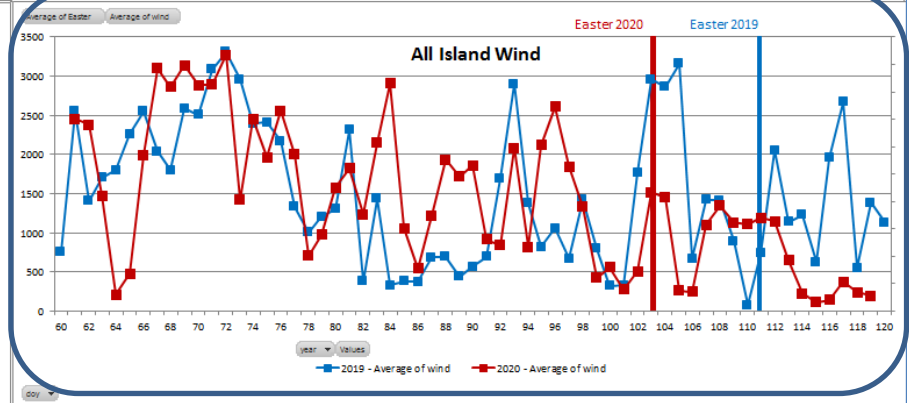
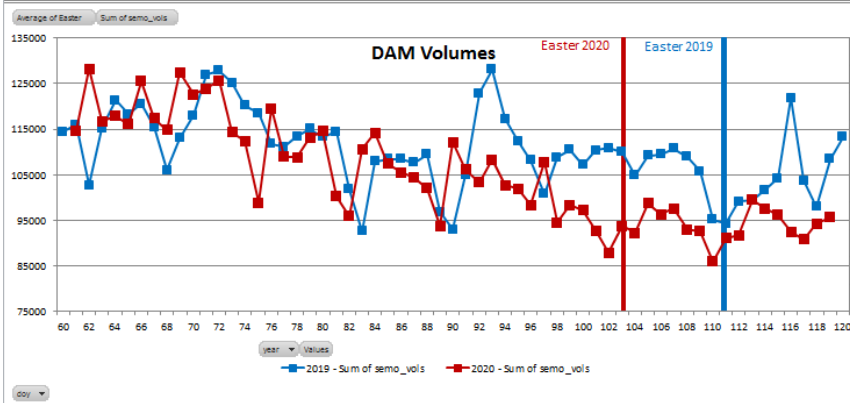
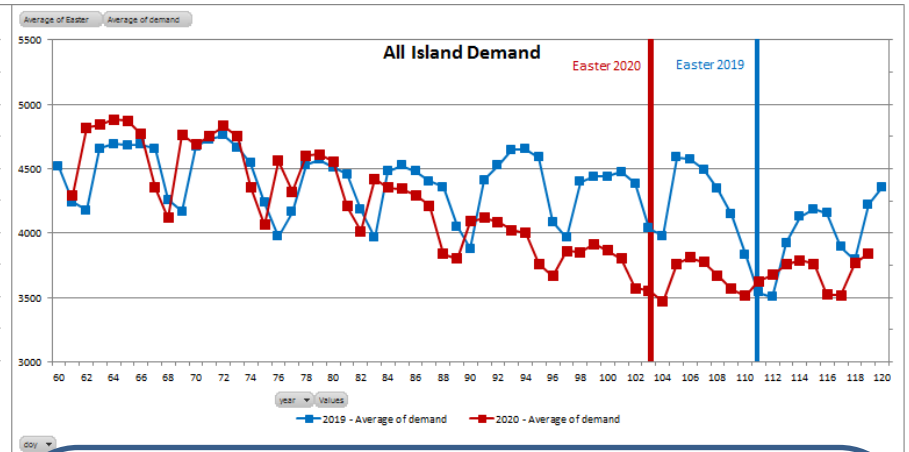
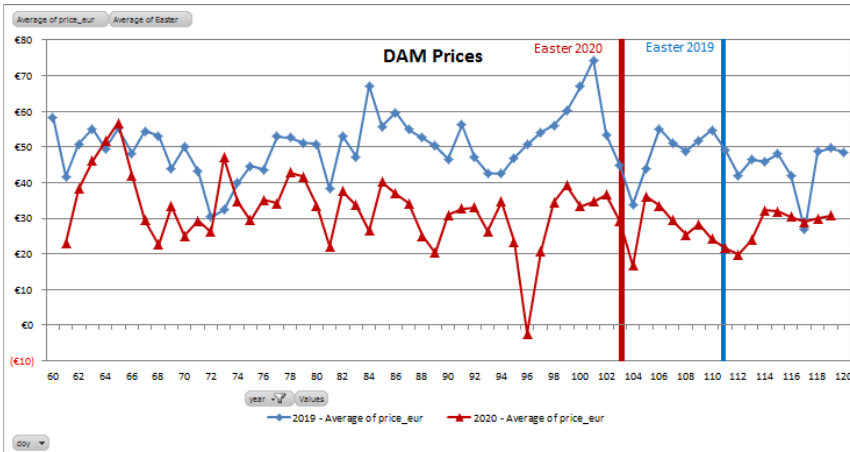


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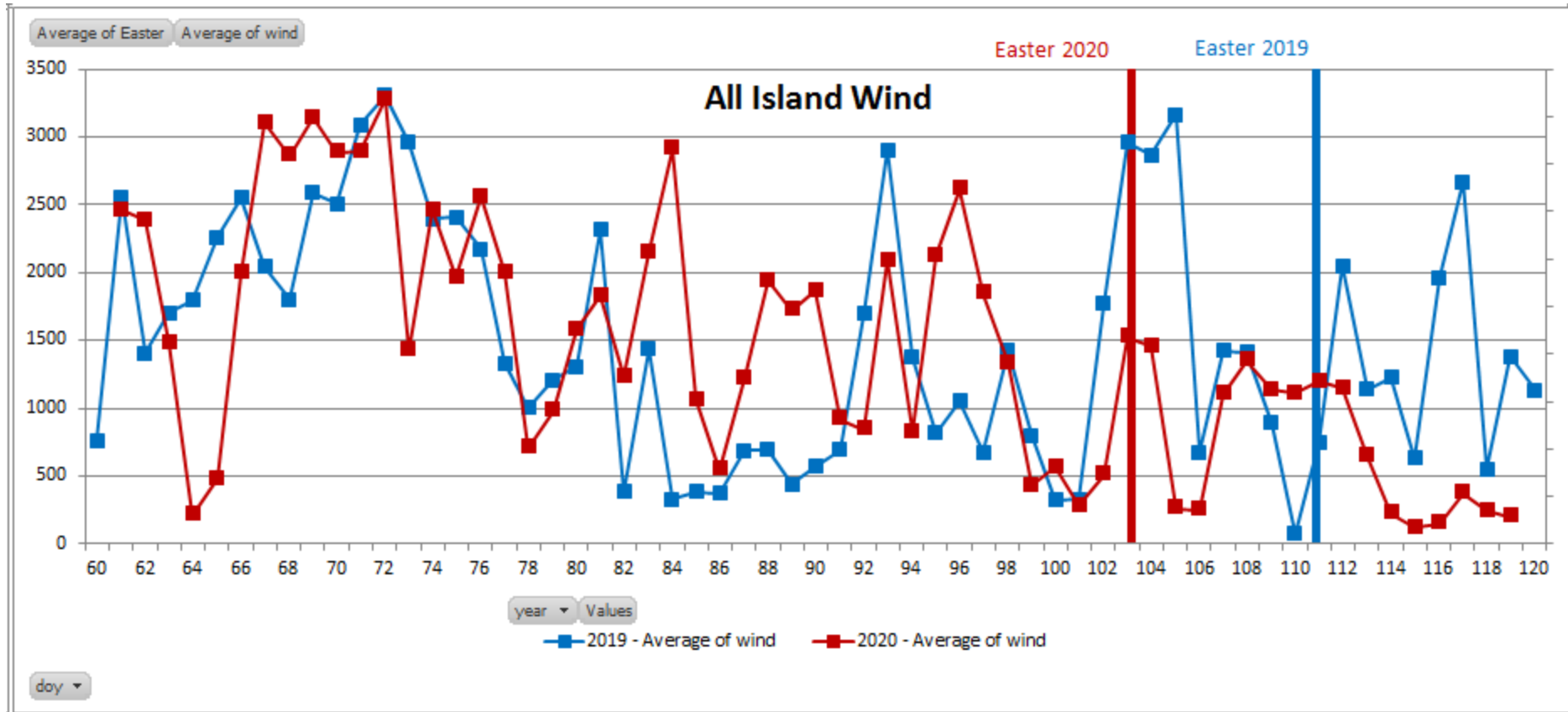


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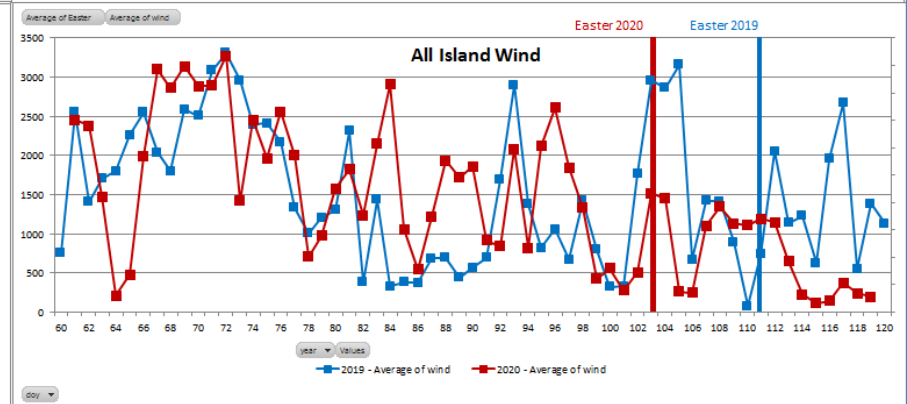
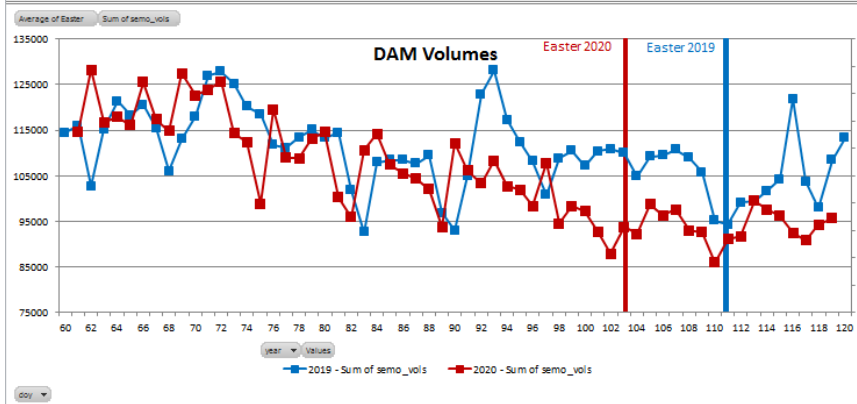
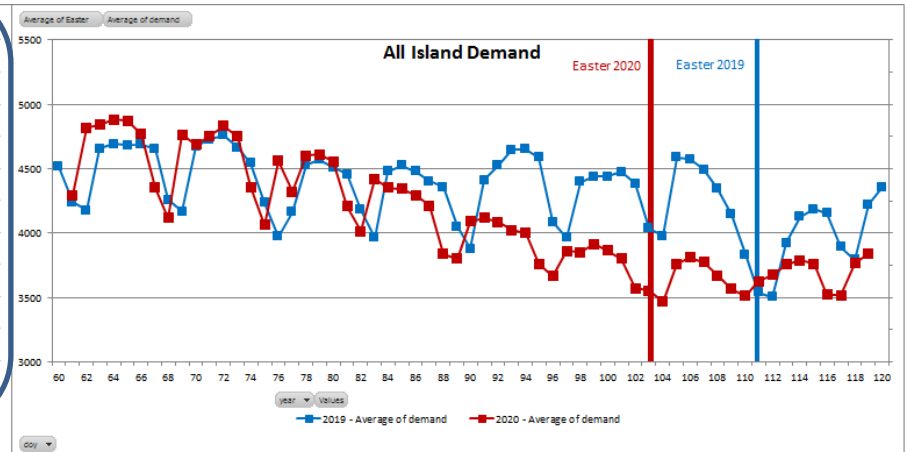
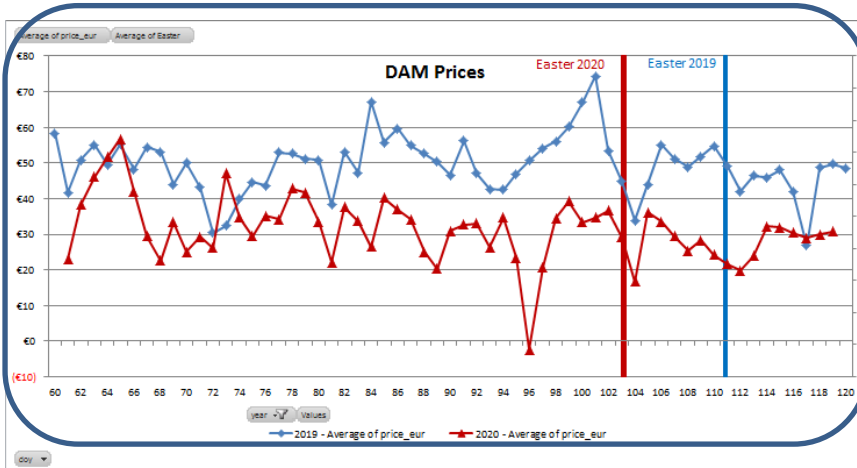


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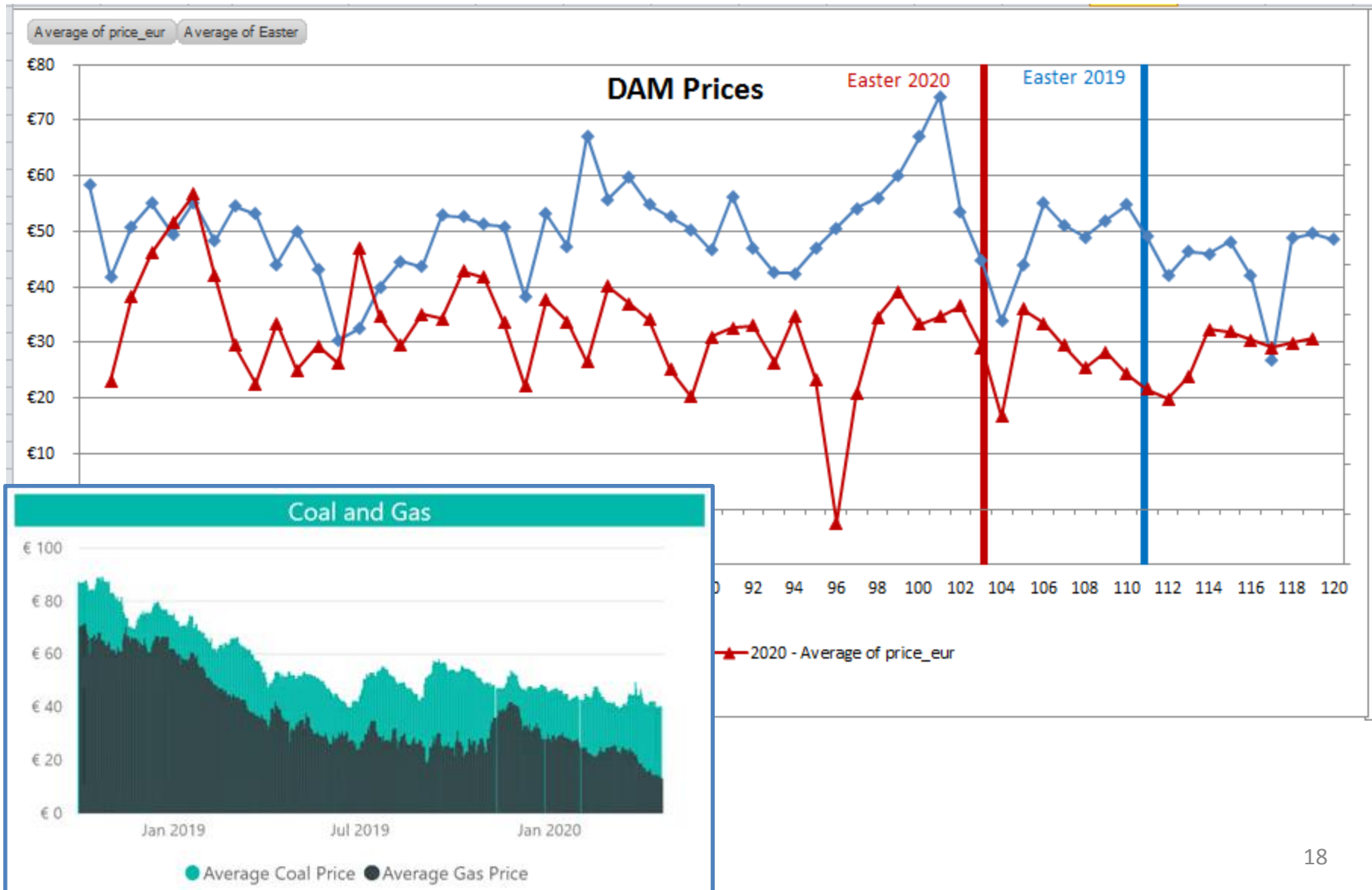


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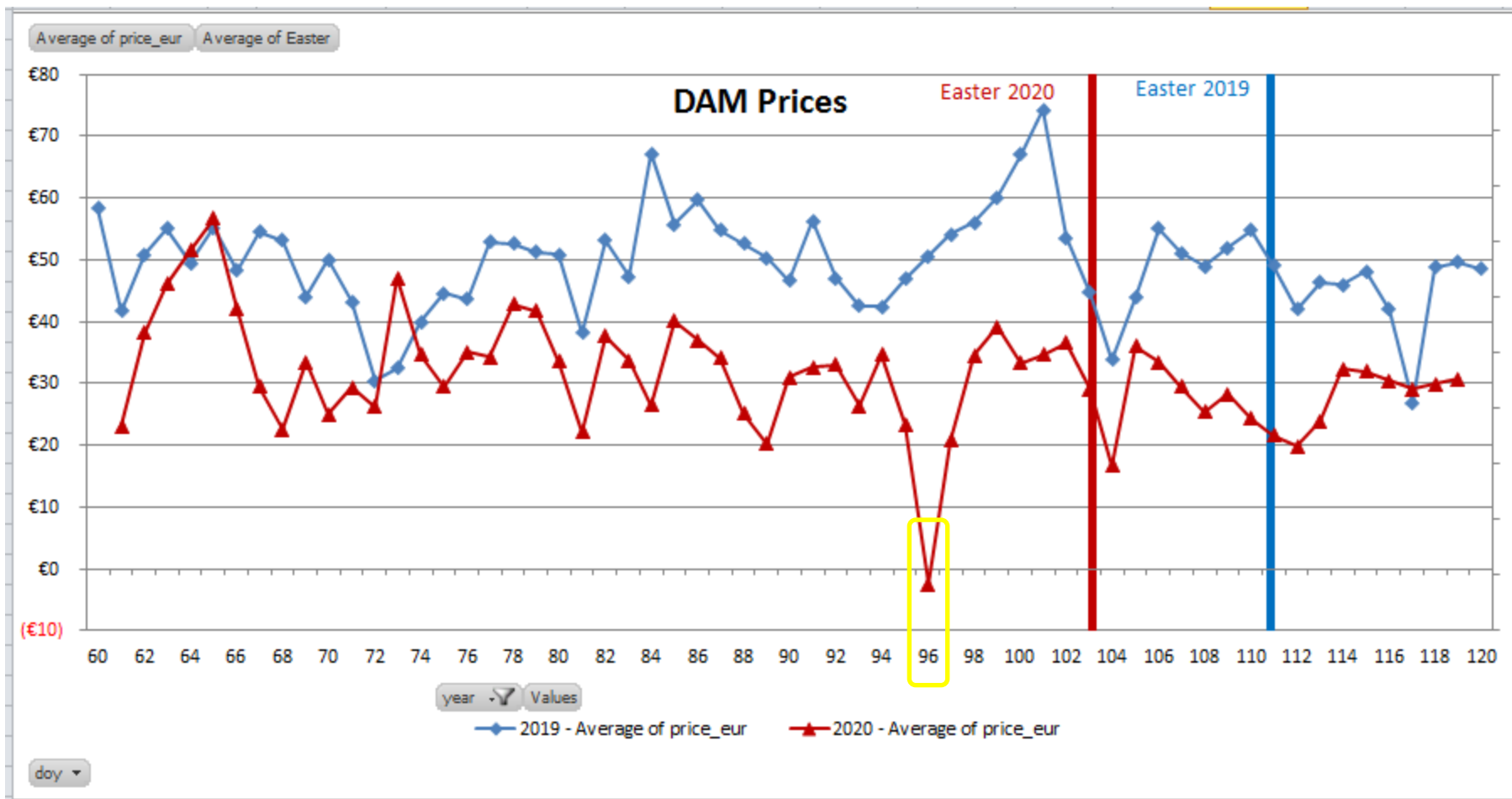


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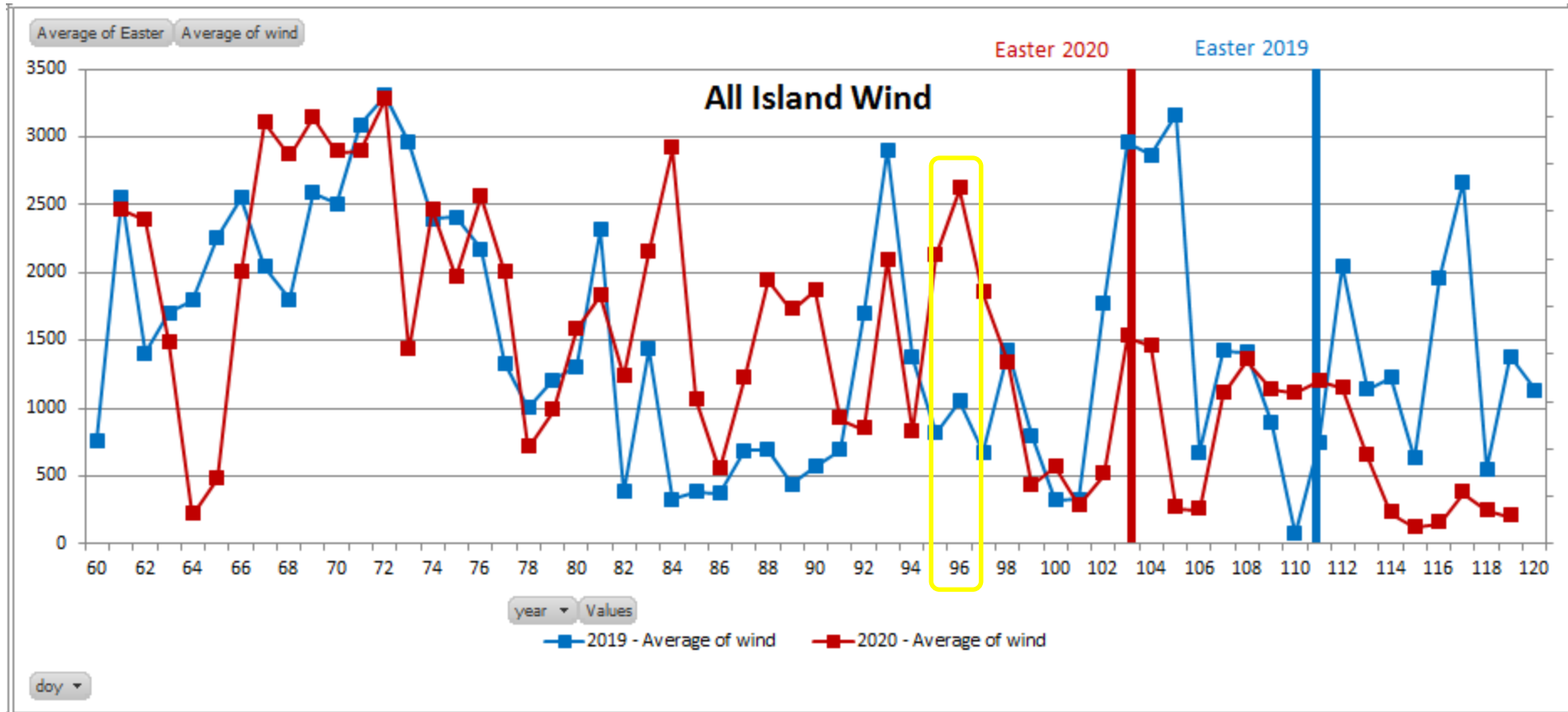
Ex-Ante Volume, Demand, Wind, Prices 2020 versus 2019



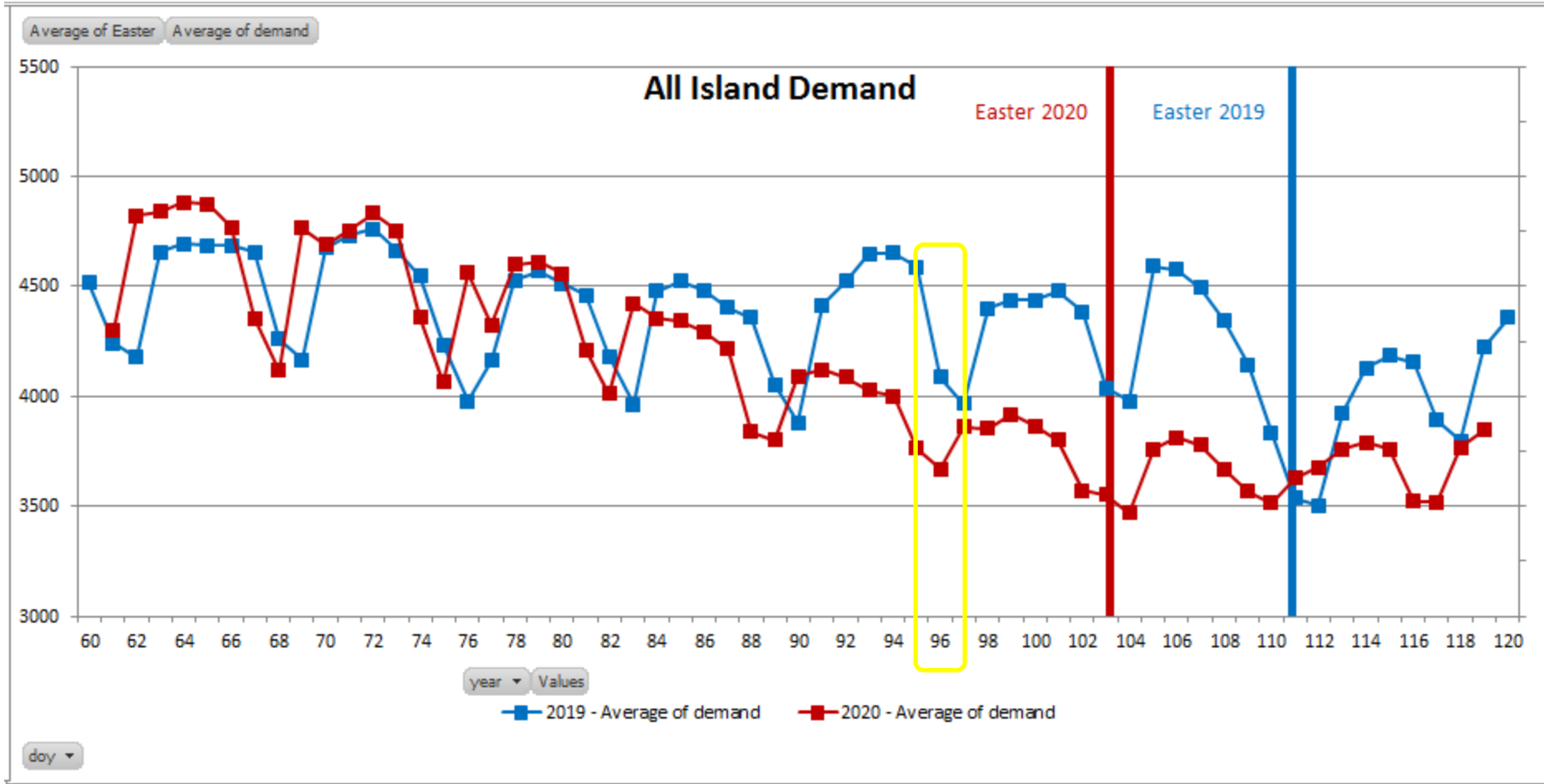
Ex-Ante Volume, Demand, Wind, Prices 2020 versus 2019



Ex-Ante Volume, Demand, Wind, Prices 2020 versus 2019



Ex-Ante Volume, Demand, Wind, Prices 2020 versus 2019



Ex-Ante Market Analysis

- **In Summary**

- ✓ Simple Look Back Analysis located on SEMOpX website here :

- ✓ https://www.semopx.com/documents/general-publications/lookback_mkt.xlsx

ETS Releases

Version	Content	Client	Impact	Timeline
V3.4 is merged in 3.4.1 release	<ul style="list-style-type: none"> Block submission graph (New Feature for Block – SEMOpx currently has no blocks.) Trading session automation (Internal Enhancement) Retrieve trading limits from API (New Request type on API) API - ETS Auction max cancellation time (New Request type on API) Dropdown list displaying only concerned area for which bid has been submitted (MO enhancement, Portfolio for given market, filtering functionality on checking the member for different areas) Changing the certificate handling in ETS (Enhancement on API) Change in the handling of the cypher suite admission (Internal enhancement for API connections TSL) Password reset (Members will be able to password reset themselves) 30' Complex orders → DB changes (SEMOpx Preparation) 30' Complex orders → Functional changes (SEMOpx Preparation) 	New client	All members to download new client	30th June (Subject to Testing and Euphemia Simulations)

- Simulation proposed for end of May
- Go-live dependant on risk of Big Bang approach
- Communication of implementation plan and SIMU in coming weeks

ETS Maintenance Windows

Date & time	Impact	Reason	Communication
12/05/2020	ETS not accessible	Monthly Maintenance	ETS chat message (1 hour before the maintenance) + OMM message (email sent a week in advance and on the same morning)
09/06/2020	ETS not accessible	Monthly Maintenance	ETS chat message (1 hour before the maintenance) + OMM message (email sent a week in advance and on the same morning)
14/07/2020	ETS not accessible	Monthly Maintenance	ETS 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 IST every 2nd Tuesday of the Month.

M7 Releases

Version	Content	Impact	Timeline
V6.9	Release notes / Impact to be sent.	<ul style="list-style-type: none">WebStart Comtrader to be discontinued completely.	Expected mid-July 2020
V6.10	Release notes / Impact to be sent.	<ul style="list-style-type: none">No information yet.	September 2020

M7 Maintenance Windows

Date & time	Impact	Reason	Communication
12/05/2020	M7 not accessible	ECC + EPEX	M7 chat message (1 hour before the maintenance) + OMM message (email sent a week in advance and on the same morning)
09/06/2020	TBC		
14/07/2020	TBC		

*Regular maintenance: Between 18:40 and 21:15 IST every 2nd Tuesday of the Month.

Complex Order vs Scalable Complex Order

Complex orders (COs)	Scalable Complex Order (SCOs)
Different volumes may be accepted at each hour	Different volumes may be accepted at each hour
Load gradients (ramp constraints)	Load gradients (ramp constraints)
Fixed term (FT) in Euros	Fixed term (FT) in welfare objective
Marginal cost curves	Marginal cost curves
Variable cost (VT) in Euros/MWh	Variable cost (VT)
Minimum acceptance volumes per hour (MAV)	Minimum acceptance volumes per hour (MAV)
Can be out-of-the-money for some hours as long as in the money for the whole day (considering VT & FT)	Can be out-of-the-money for some hours as long as in the money for the whole day (considering bid curves & FT)
Demand side version with a Maximum Payment Condition is supported	Demand side version with a Maximum Payment Condition is supported
Scheduled stop condition	Scheduled stop condition

Welfare Contribution CO vs. SCO

Complex orders (COs)

Contribution to welfare is the welfare of each one of the steps of the curves defined for each period.

For supply CO this is modeled as:

$$-ACCEPT_{m,co,h,o} q_{m,co,h,o} p_{m,co,h,o}$$

Acceptance criterion

For supply COs, they are accepted when the earning at each period, defined by the product of matched volume times the market coupling price is equal or greater than the Minimum Income Condition (requested earning), equal to the **Fixed Term plus all matched energy times the Variable Term** :

$$\left(\sum_h \left((MARKETPRICESORDERS_{m,h} - VariableTerm_{co}) \cdot VOL_{H_{m,co,h}} \right) - FixedTerm_{co} \right) \geq 0$$

Scalable Complex Order (SCOs)

Contribution to welfare is the welfare of each one of the steps of the curves defined for each period and the effect of **the Fixed Term if it is activated**.

For supply SCO this is modeled as:

$$\begin{aligned} & -ACCEPT_{m,SCO,h,o} q_{m,SCO,h,o} p_{m,SCO,h,o} \\ & - B_ACCEPT_{SCO} \cdot FixedTerm_{SCO} \end{aligned}$$

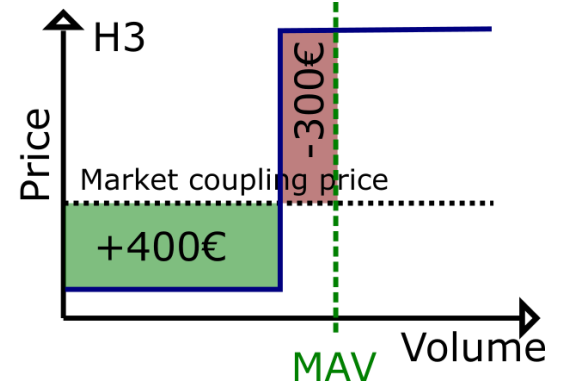
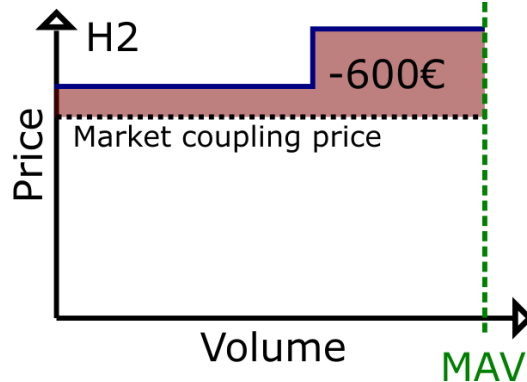
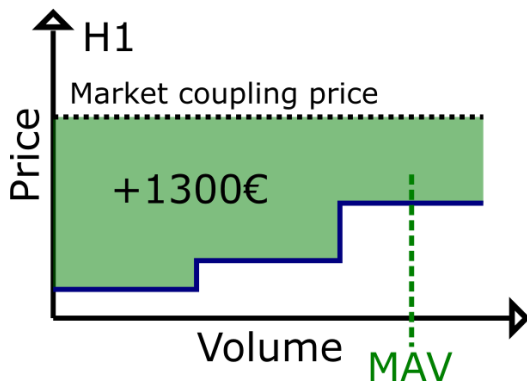
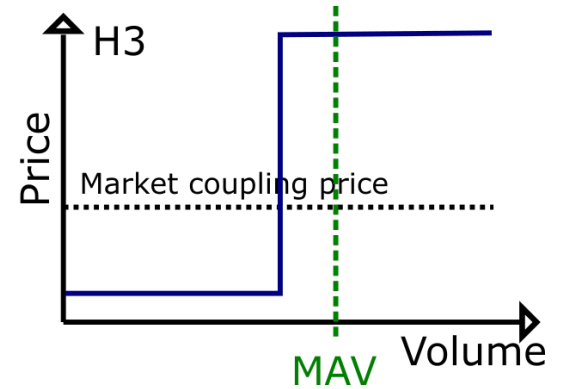
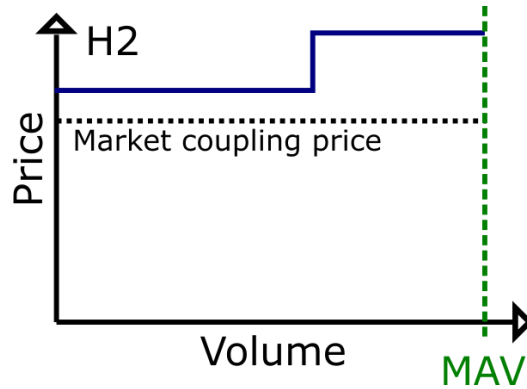
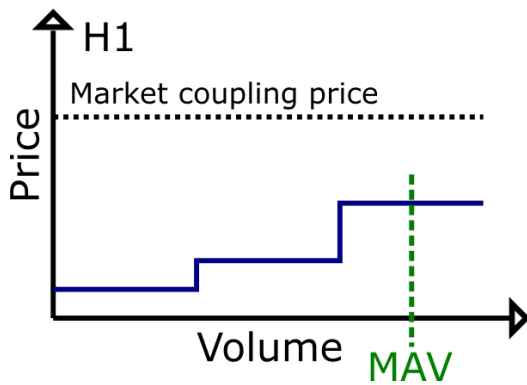
Acceptance criterion

For supply SCOs, they are accepted when the earning at each period, defined by the product of matched volume times the market coupling price is equal or greater than the Minimum Income Condition (requested earning), equal to the **Fixed Term plus price of each step times the volume matched of each step**:

$$\left(\sum_h \left(MARKETPRICESORDERS_{m,h} \cdot VOL_{H_{m,SCO,h}} - \sum_o (q_{m,SCO,h,o} \cdot p_{m,SCO,h,o}) \right) - FixedTerm_{SCO} \right) \geq 0$$

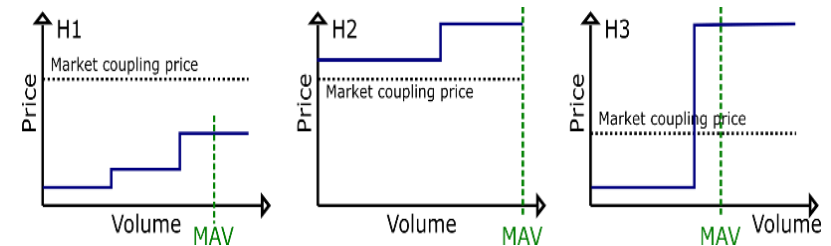
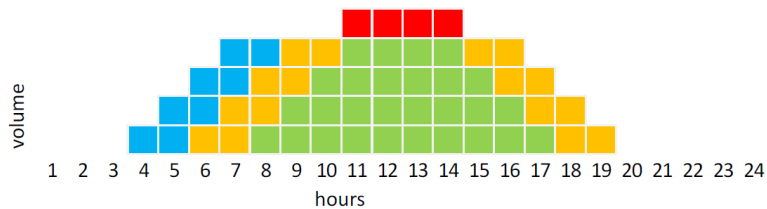
Minimum Acceptance Volume Effect on MIC

MAV effect on SCO acceptance



Fixed Term of > EUR 800 not cleared

Linked Block and SCO Comparison



- **Linked blocks** allow to take into account financial and technical constraints of power plants (start-up costs in the first block and then higher costs such as fuel costs in the other linked block) but this should be done:
 - By linking different blocks
 - Costs should be expressed in the price of the block order
 - One single minimum acceptance ratio (MAR) applies to all the volume offered at each hour.
- Linked blocks allow to design complex structures (several “generations” and/or “large families”).
- **Scalable complex orders** allow to express in one order most of the technical constraints for blocks
 - Fixed Term (FT) applies to the whole order
 - Minimum acceptance volumes (MAV) are defined for each hour.
 - No linking is needed as the SCOs define marginal cost curves per hour
 - SCOs allows to define load gradients in order to limit the volume matched between two consecutive hours.
- Note that acceptance criterion is different than for linked block orders.

Implementation Details

- EUPHEMIA 10.5 will be the first price coupling algorithm capable of supporting Scalable Complex Order (SCOs)
- All the other requirements regarding order types previously supported are maintained.

This will allow to perform, using the same version of the algorithm, more in detail studies that will allow us to compare the Scalable Complex Order (SCOs) with other types of orders: Complex Orders (COs) and blocks.

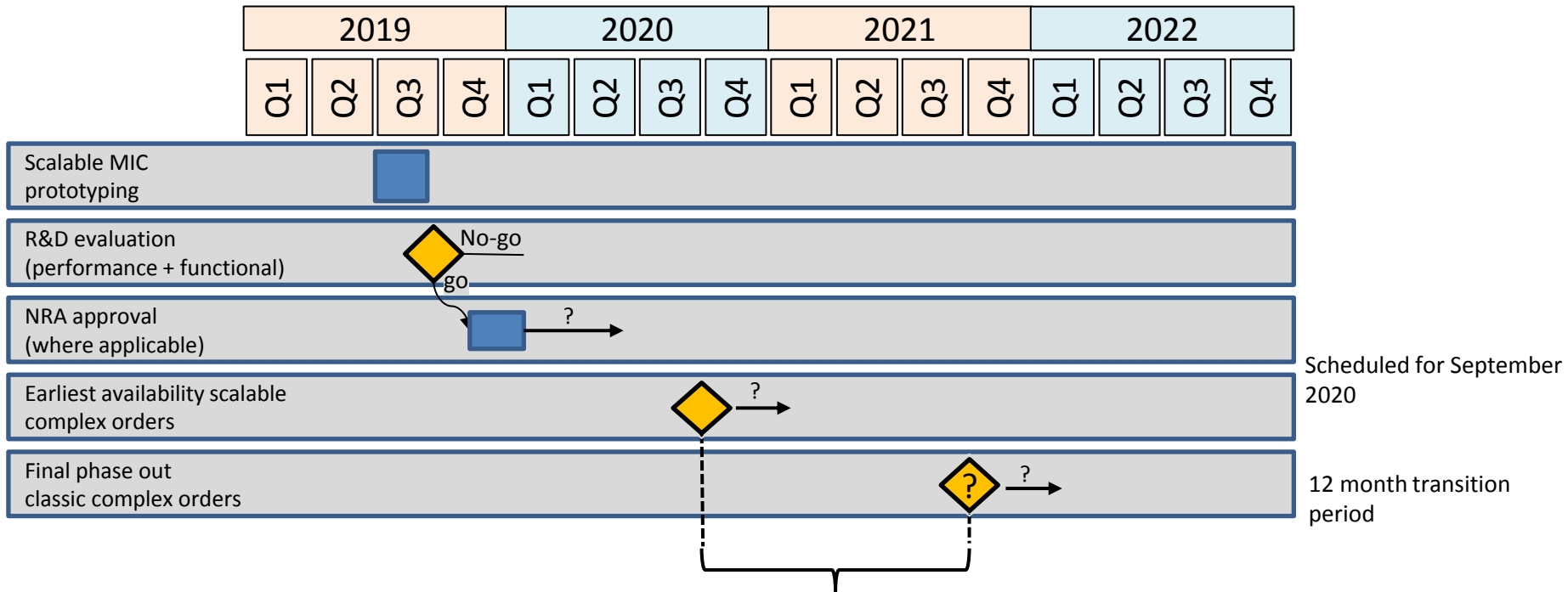
Once the E10.5 is available, NEMOs shall progress in the following topics:

- Assuring reliability of this new type of order: functional tests, behavioral tests.
- Analyze the impact on the markets: impact on prices, performance improvement.

EUPHEMIA 10.5 is expected to be available in September 2020. This is the first release capable of using Scalable Complex Orders.

- Only when this product is positively tested (in term of functionality and performance), then NEMOs may request to start using it.

Reminder of Timeframes



Transition period where Euphemia would support both classic and scalable complex orders

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Repricing Update

Previously reported on Repricing issue with the logic around SO Flags and NIV Tags and onward transmission to the Settlements system.

Enduring Solution (CR-158)

- Closely engaged with vendors on **Enduring** Solution comprising automated end-to-end process for all re-pricing / re-settlement functionality, efficient means of updated data capture, re-pricing, automated transfer to Settlements and efficient monitoring and verification of changes to pricing and settlement outcomes.
- Based on detailed impact assessment from our vendors this can be delivered to test later in the year with a likely production deployment early 2021 (subject to testing).

Interim Solution

- However we are exploring an **Interim Solution** as follows:
 - “Partially” automated process
 - Leverages existing functionality however will have some manual elements, for example:
 - initial checks on updated input data
 - manual verification of re-pricing outcome and transfer to Settlements
 - manual verification of Re-Settlement outcome
- We are currently working through a verification of the Interim solution with our vendors before progressing it further and implementing it operationally (for Jul ‘19 to Sep ‘19). Further details will be communicated at the June MOUG and through the Thursday PT calls.

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Imbalance Settlement Price – 23/04/2020

- Incorrect Imbalance Settlement Price calculated for 09:00 to 09:30 on 23/04/2020;
- The IPP 09:10 to 09:15 had two values calculated in the Imbalance Pricing Report;
 - Imbalance Price = €16.37
 - Administered Scarcity Price (ASP) = €2,785.50
 - Under normal conditions ASP = Pfloor = €-1000

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- ISP was calculated as €495.59; instead of €34.07 as it used the Administered Scarcity Price (ASP) value for the period 09:10 to 09:15.

Imbalance Settlement Price – 23/04/2020

- The ASP calculation is set out in Section E.4 of the TSC;
- Incorrect **Short Term Reserve Quantity** and **Operating Reserve Requirement** values fed into the Imbalance Pricing calculation from the RTD Schedule;
- A Reserve Scarcity Price is calculated if the:
 - **Short Term Reserve Quantity (143 MW)** is less than
 - **Operating Reserve Requirement (382.197 MW)** and;
 - also less than or equal to a value on the **Reserve Scarcity Curve**.

Price (€/MWh)	Short Term Reserve Quantity (MW)
€3,000	0
€500	500

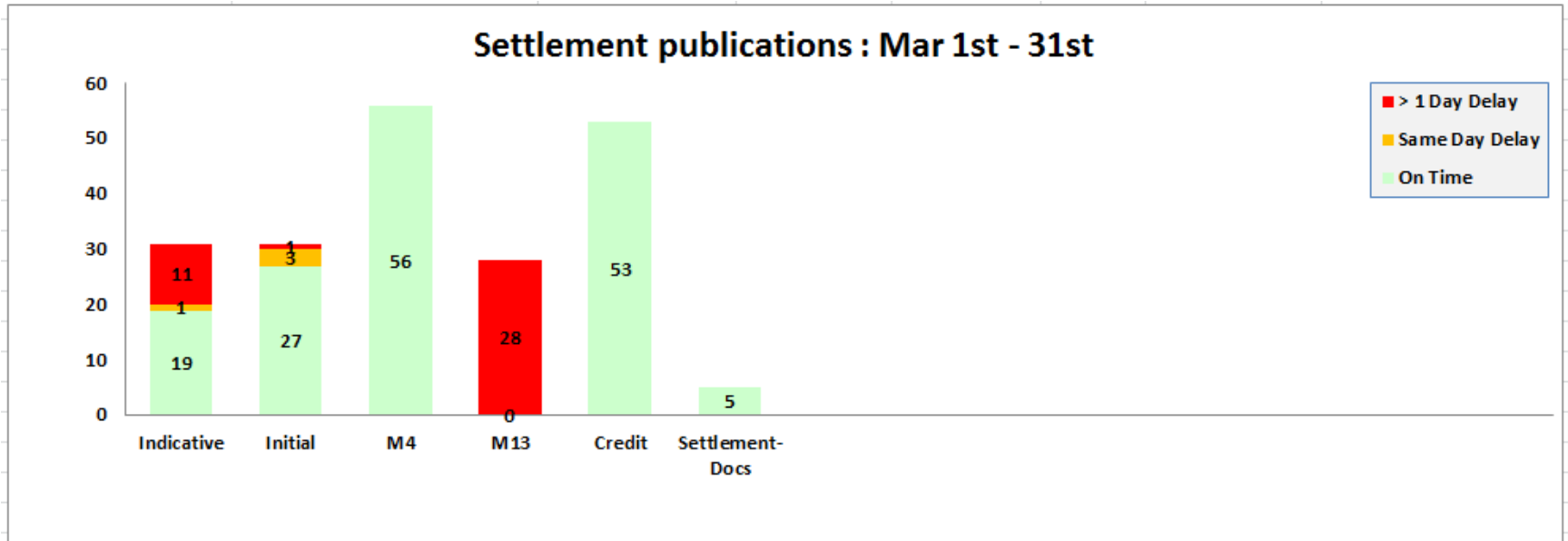
Imbalance Settlement Price – 23/04/2020

- Engagement with the TSO found that the reserve values were incorrectly applied in RTD due to a system defect.
- There were no reserve issues experienced in reality; which is the intended driver for the use of the Administered Scarcity Price in the Balancing Market.
- The correct Imbalance Price (€16.37) for the period 09:10 to 09:15 had been calculated and published in the **PUB_5MinImbalPrc** Report; and should have been used in the calculation of the Imbalance Settlement Price.
- On this basis a manifest error was declared; and the correct Imbalance Settlement Price (€34.07) was used in Indicative Settlement.

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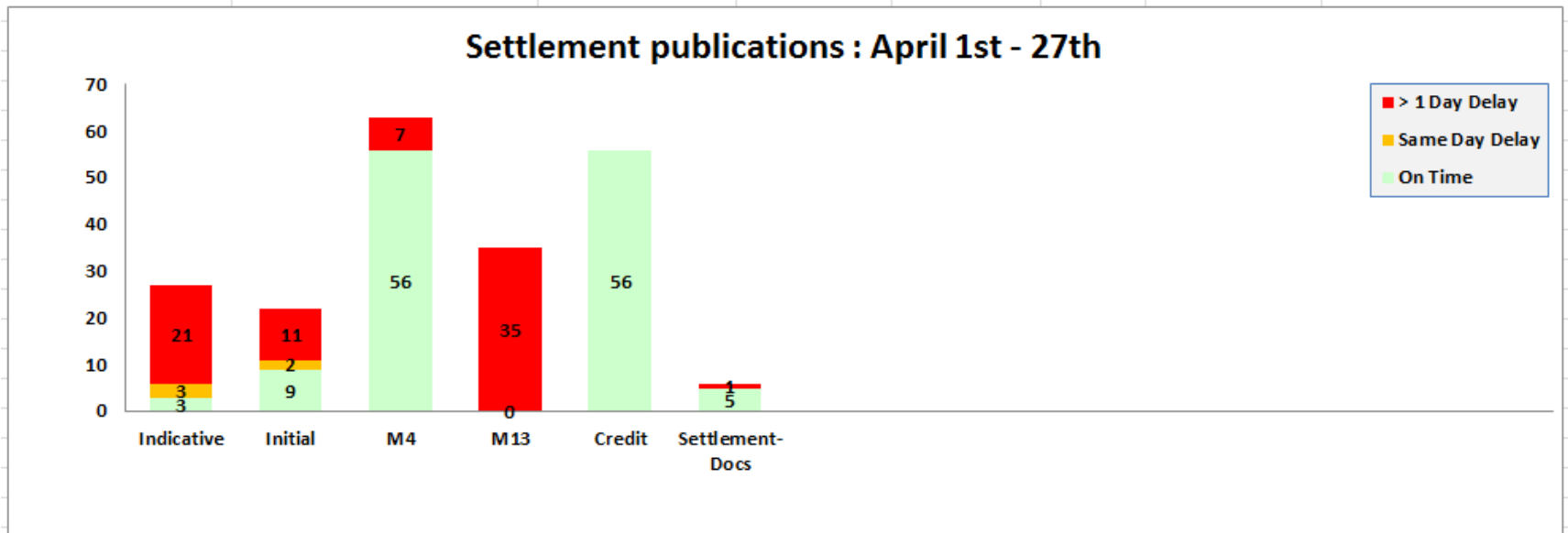
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Settlement publications & timelines : March 2020



- **M13 resettlement** : No M13 published in March 2020 due to **KIR ID 163430** “M13 ACTA data (Actual availability data)”. Issue resolved for SONI MDP on April 15th after software fix applied.
- **Indicative delays** due to a mixture of MDP metered data delays & ACTA data delays, Day ahead market (DAM) trade load issues, MMS (Market Management Systems) application issue for settlements data to timelines (**KIR ID 162950**). All issues now resolved.

Settlement publications & timelines : April 2020 to date



- **M13 resettlement** : No M13 published in March 2020 due to **KIR ID 163430** “M13 ACTA data (Actual availability data)”. Issue resolved for SONI MDP on April 15th after software fix applied.
- **M+4 resettlement** : Single week published April 20th , to prioritise Initial backlog for SDs due.
- **Indicative & Initial publication delays** : Publication delays mainly due to (**KIR ID 162950** “MMS (Market Management Systems) application issues” for settlements data to timelines. All issues now resolved.
- **Settlement Documents**: Publication delay on April 14th due to (**KIR ID 162950** “MMS (Market Management Systems) application issues” for settlements data to timelines. Published April 17th .

Settlements & Credit Processing : Other updates

Known Issues Report 20200410;

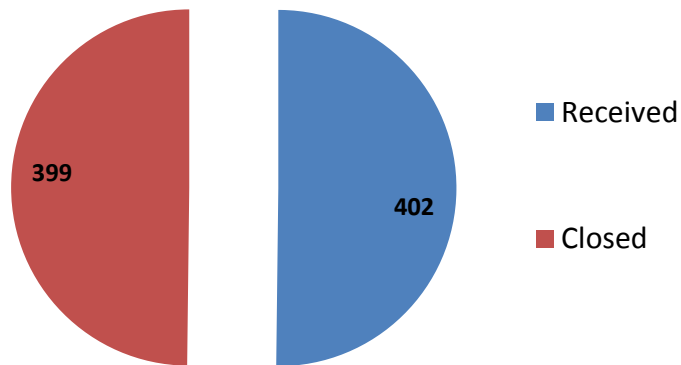
ID	Name	Description	Impact to Market Participants	Status	Resolution Date
<u>163430</u>	M13 ACTA data (Actual availability data)	IT are experiencing a technical issue with extracting M13 ACTA data (data time-out issue), and will need the issue resolved before the M13 data will be available again. This is being actively worked on by the IT Team, with a software fix being worked on at the moment.	This issue is causing a delay to SONI MDP providing required data to SEMO Settlements, which is impacting M13 timelines.	Closed	Wednesday 15 th April
<u>162950</u>	MMS (Market Management Systems) application issue for settlements data	Settlement system not importing a full set of data from MMS for Indicative and Initial for certain dates, the issue is affecting one import only.	Causing delays to indicative and initial settlements publications. These delays subsequently cause delays to Settlement Documents.	Closed	Wednesday 15 th April Resolution: Hotfix from vendor

- **Euro Payment Day & May Bank 2020 holidays:** May 1st , May 4th (ROI) and May 8th (NI). May 1st is a working day, but a non-payment processing day. Settlement Documents and payments in/out dates adjusted.
- <https://www.sem-o.com/market-data/settlement-calendar/>

Agenda

Item	Presenter
Welcome	Anne Fitzgerald
Release E Update	Mark Needham
Release Program Update	Mark Needham
Ex-Ante Markets	Liam McAllister, Michael Atcheson
Repricing Update	Michael Atcheson
Balancing Market Update	Michael Atcheson
Settlements Update	Sean O'Rourke
Front Office	Claire Breslin, Anne Fitzgerald
System Operations Update	John Ging
Q&A	

General Queries Overview 27th Feb – 28th April 2020



- 402 queries received
- 399 queries closed
- Queries closed within an average of 7 working days

Formal Queries and Disputes-27th Feb – 29th Apr

Formal Settlement Queries:

Completed: 27

In progress: 17

Rejected: 0

Total: 44

Disputes:

Completed: 0

In progress: 1

Rejected: 0

Total: 1

Legacy SEM Decommissioning

This process is due to commence over the next months:

- Please refer to the Q&A document [here](#)
- Legacy SEM Data will remain available for a period
- The team will be in touch in relation to Collateral Refunds

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System Operations Update

- Demand reduced across the island
 - Implications for forecasting
- Overnight valley loads causing security of supply concerns
 - Trading with Great Britain
 - NTC reduction was required temporarily on Moyle
 - Voltage stability when coincident with low wind
- Delays to Transmission and Generator maintenance outages
- **More regular updates to TCGs required to manage the above**

Agenda

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Q&A	

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.