

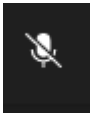
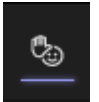
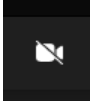
Scalable Complex Orders Project Meeting #1

13th August 2021



Housekeeping Rules

- ✓ *Keep your video switched **off***
- ✓ *Raise the hand if you have a question*
- ✓ *Keep your line muted unless asking a question*



Agenda

Session 1: Project Management (15 mins)

Project Plan Review

Project Initiation Document

Proposed Schedule of Monthly Meetings

Session 2: Conversion 1 Analysis (1hr 30 min)

Overview of Results & Insights (30 min)

Overview of Conversion 1 Methodology (10 min)

Member Insights Sharing (15 min)

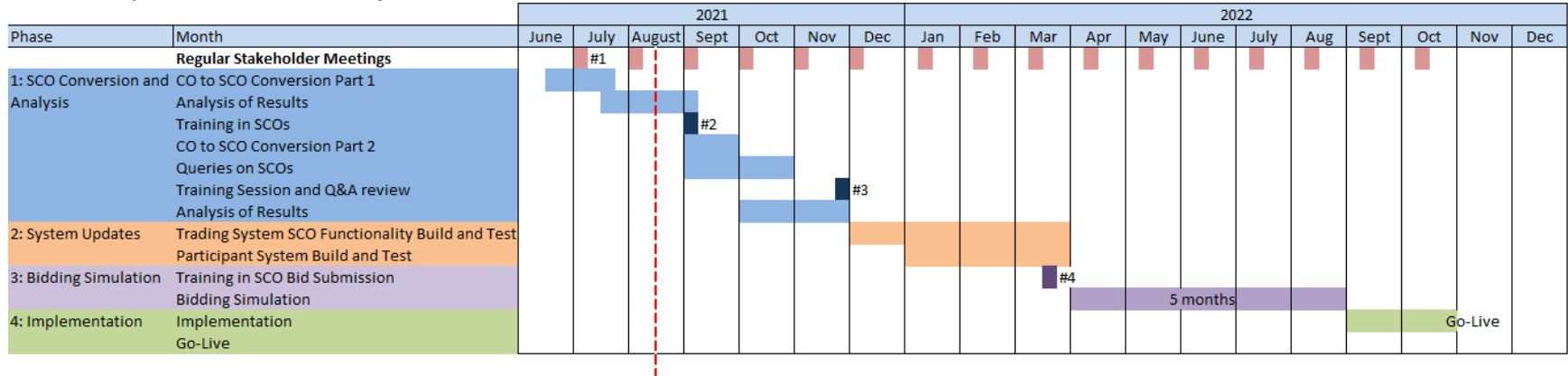
Conversion 2 Inputs (10 min)

Next Steps (5 min)

Q&A (15 min)

Session 1: Project Plan Review

Scalable Complex Orders - Overview Project Plan



Complete Tasks	Current Tasks	Future Tasks
Kick-Off Meeting	Analysis of Conversion 1 Data	Adaptation of Conversion 1 methodology
Project Initiation Document	Support Queries on Analysis & SCO's	Provision of Conversion 2 Data
Provision of Conversion 1 Data	Feedback on Conversion 1 Data	Member Meeting #3 (17/9)
	Initiation of Market System Design	
	Initiation of Algorithm Testing	
	Member Meeting #2 (13/8)	

*red items indicate member involvement requested

Session 1: Project Initiation Document

Project Initiation Document (PID) issued on the 21st July, with feedback requested.

Content includes:

- Background
- Project Goals
- Assumptions
- Project Plan
- Stakeholder Roles and Responsibilities

Please familiarise yourselves with this as it is the basis for the project scope and timelines.

To obtain a copy, or if you have any further feedback on the PID, please contact info@semopx.com

Session 1: Proposed Schedule of Monthly Meetings

Next six Monthly Meetings scheduled as following:

#1 – 13th August 2021 (today's meeting)

#2 – 17th September 2021 (Final conclusion on Conversion 1 Results)

#3 – 15th October 2021 (Conversion 2 Results)

#4 – 19th November 2021 (Final conclusions on Conversion 2 Results)

#5 – 10th December 2021 (focus moves to system implementation)

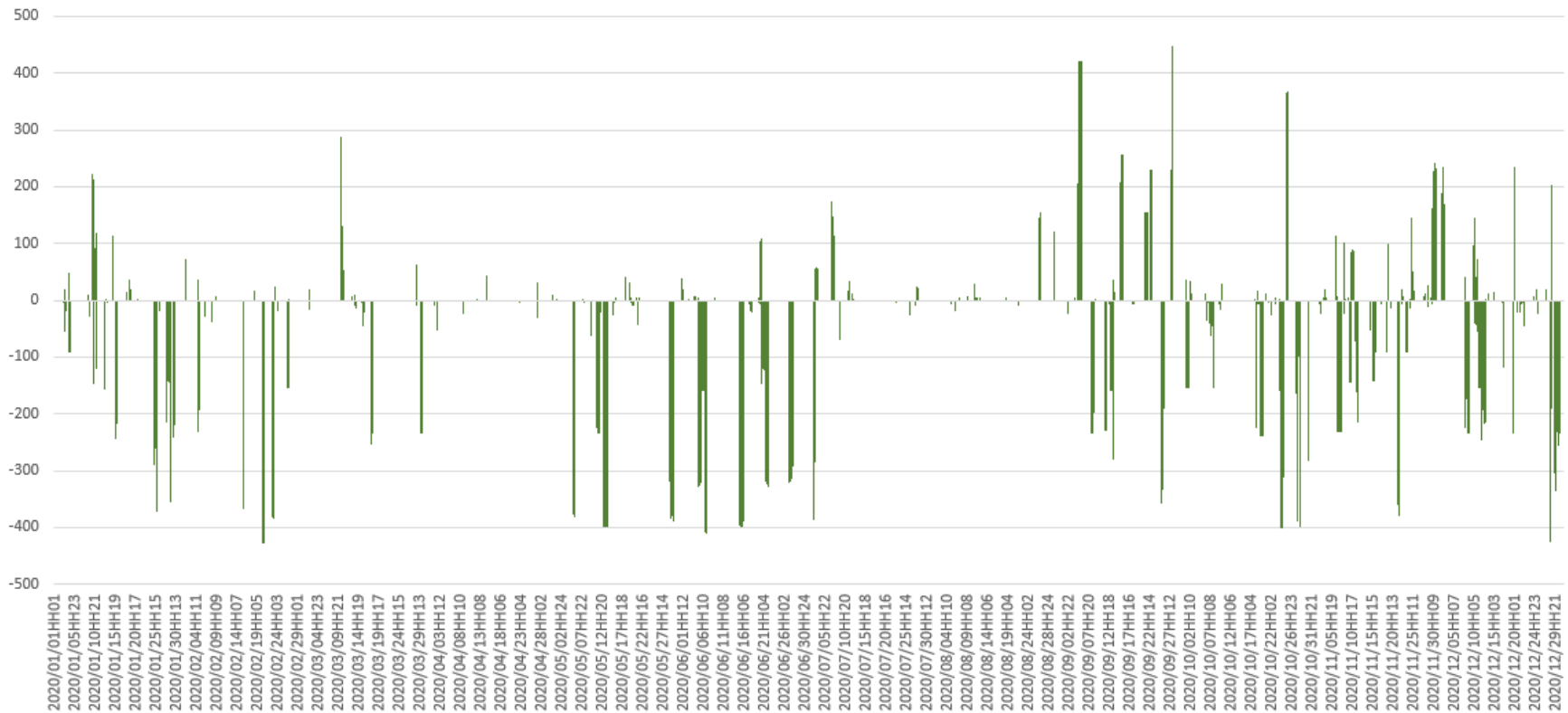
#6 – 14th January 2022

Meeting invites will be issued ahead of these meetings.

Session 2: Overview of Results & Insights

Below graph shows the difference between the sum of the SCO and CO executed volumes for the 2020 conversion.

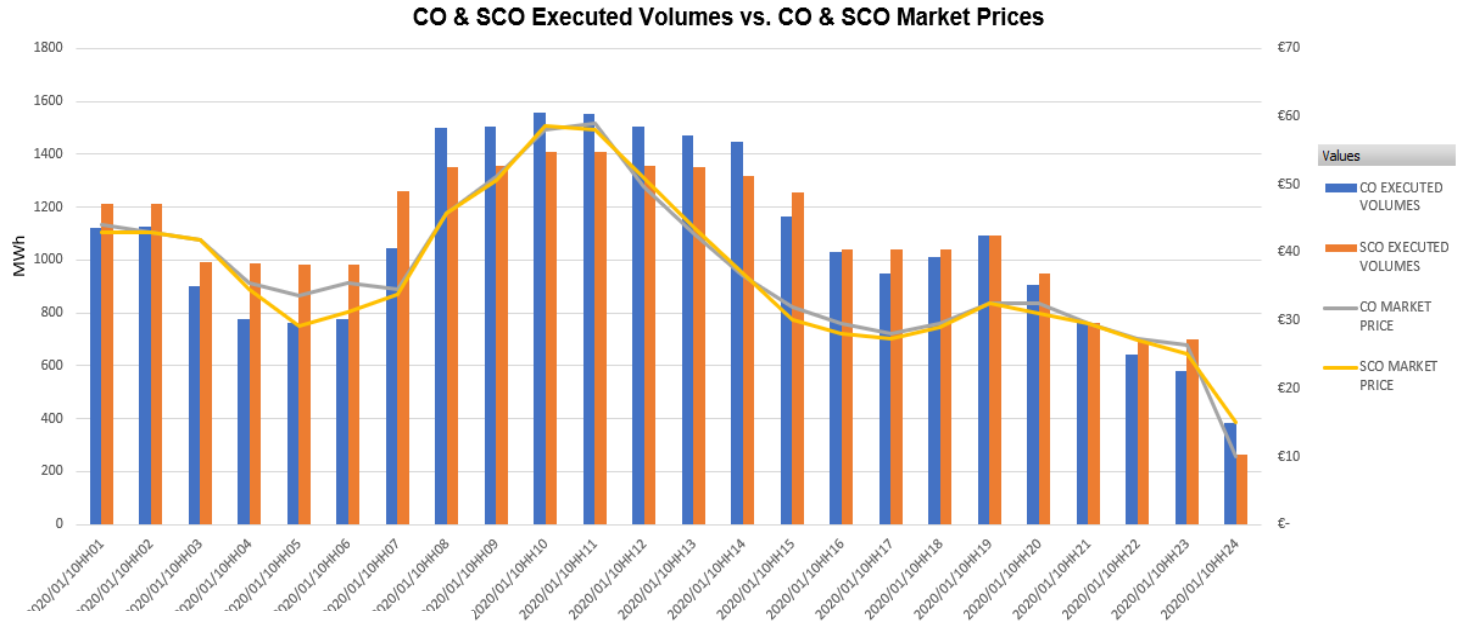
Executed Volume Variances (MWh) - SCO vs. CO



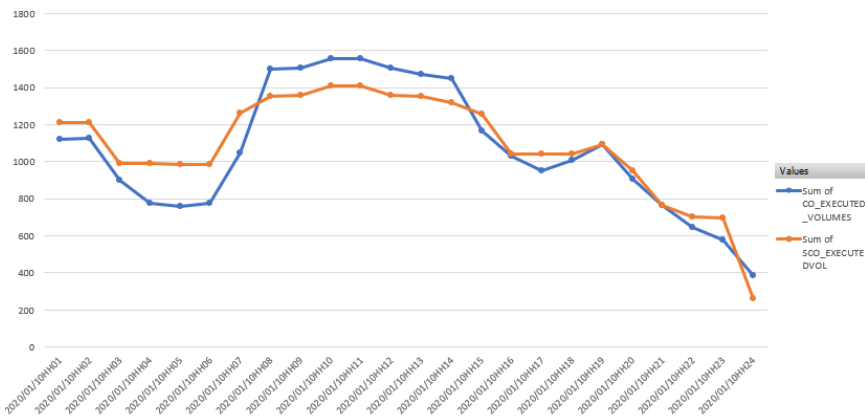
Session 2: Overview of Results & Insights

10th January, 2020 – Sum of all units

- Inverse relationship between the Executed Volumes and Market Price



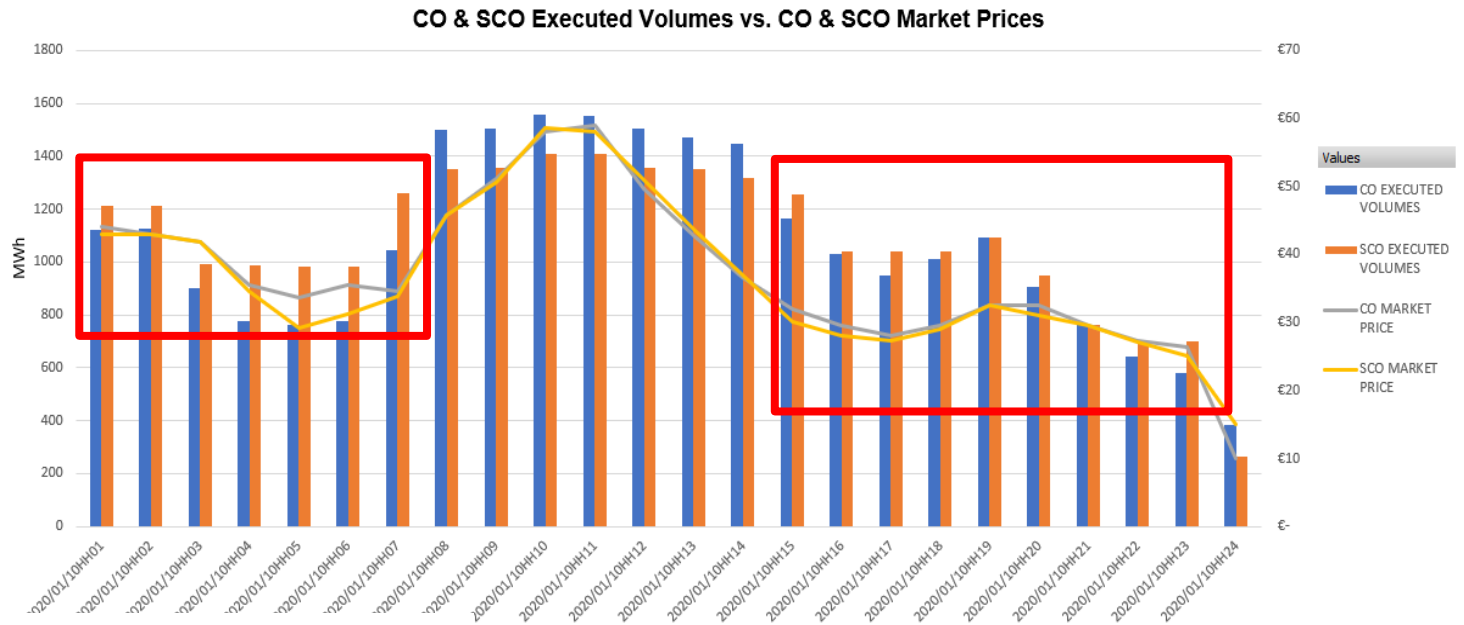
CO Executed Volumes vs. SCO Executed Volumes



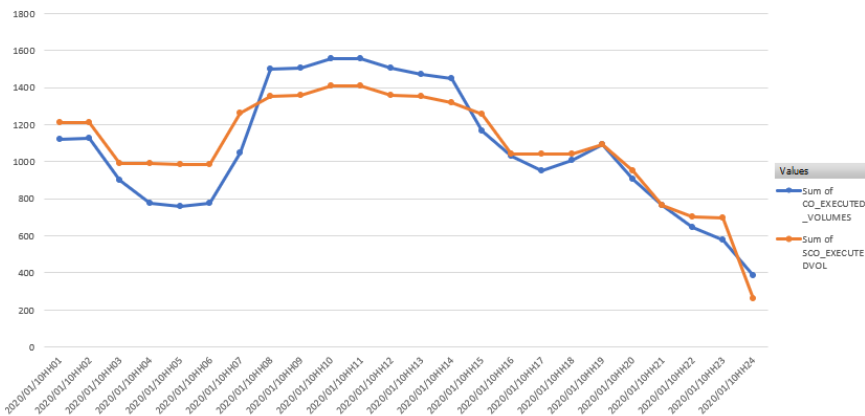
Session 2: Overview of Results & Insights

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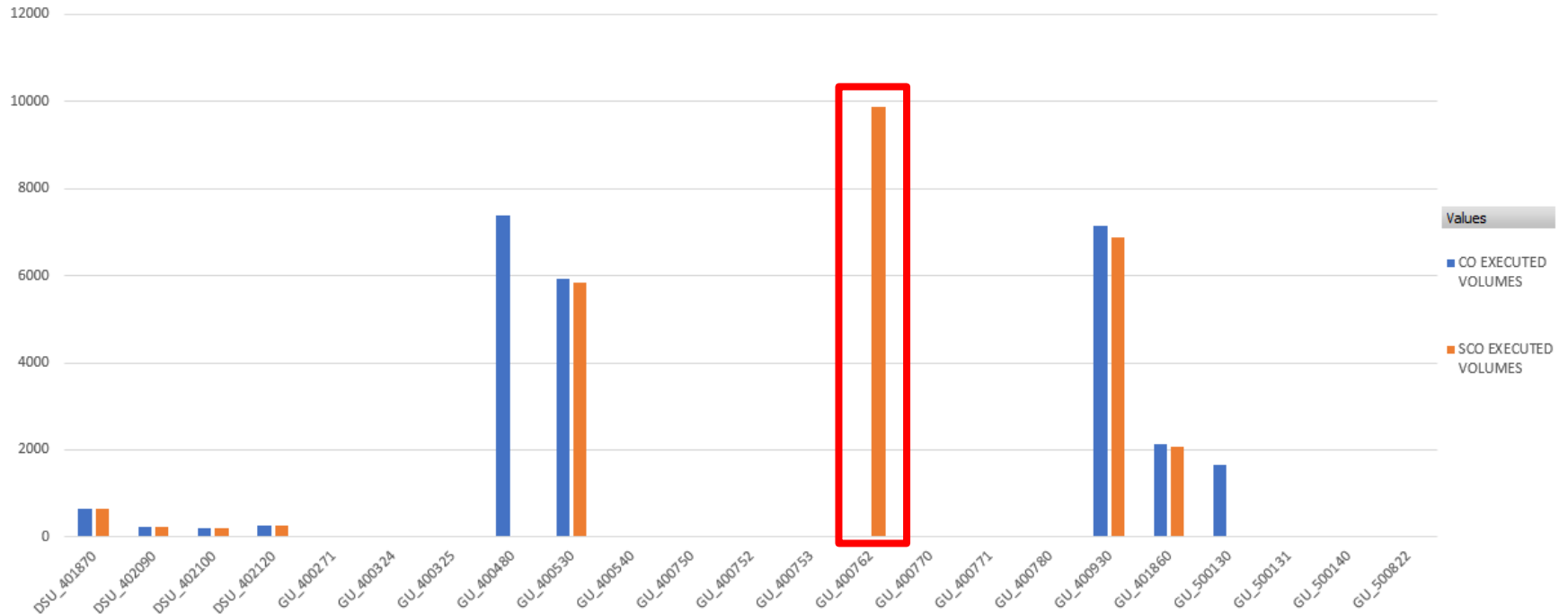


CO Executed Volumes vs. SCO Executed Volumes



Session 2: Overview of Results & Insights

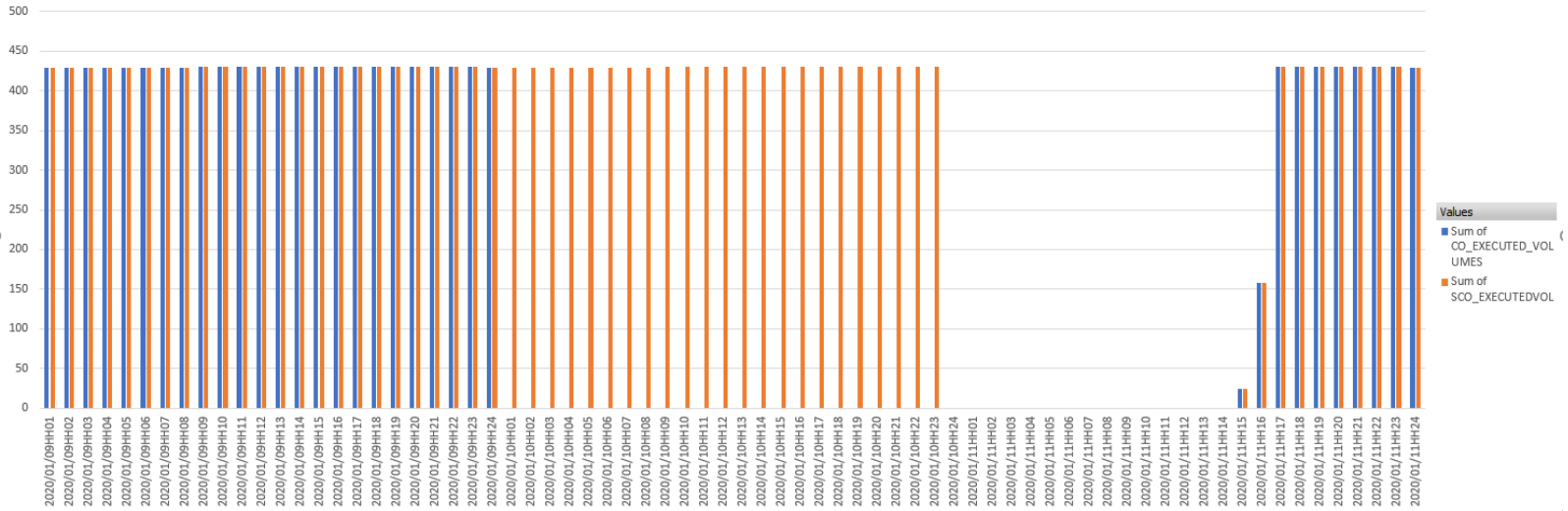
CO Executed Volumes vs. SCO Executed Volumes (MWh) - By Unit



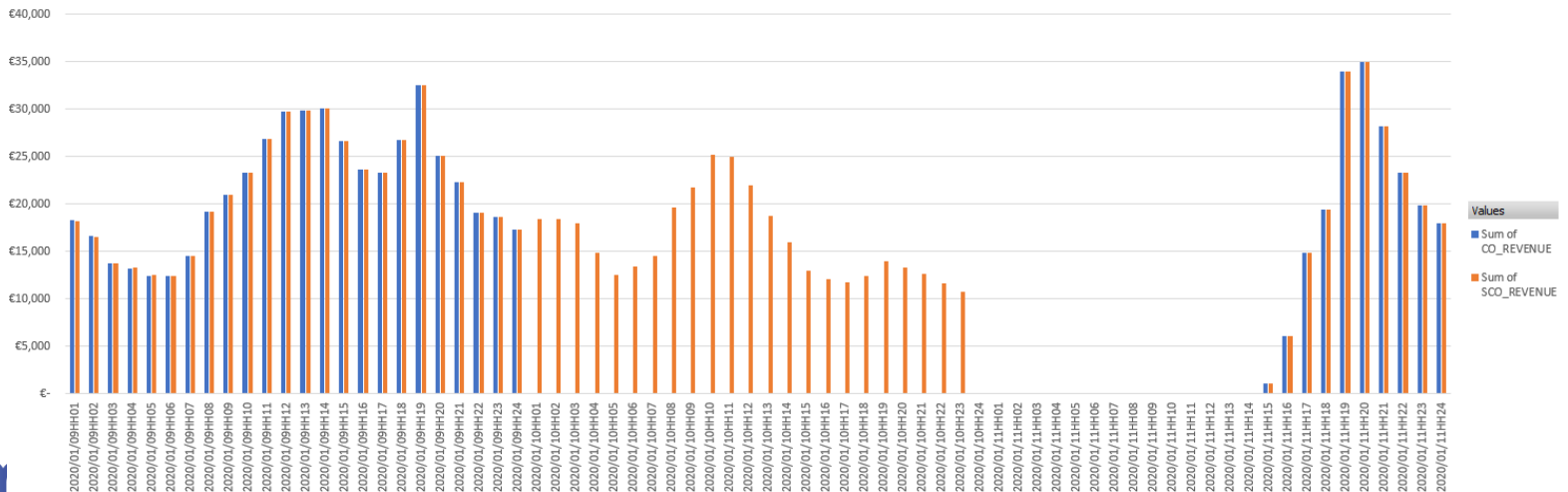
Session 2: Overview of Results & Insights

GU_400762 - Not cleared in CO and cleared for 23 periods in SCO conversion

CO Executed Volumes vs. SCO Executed Volumes (MWh)



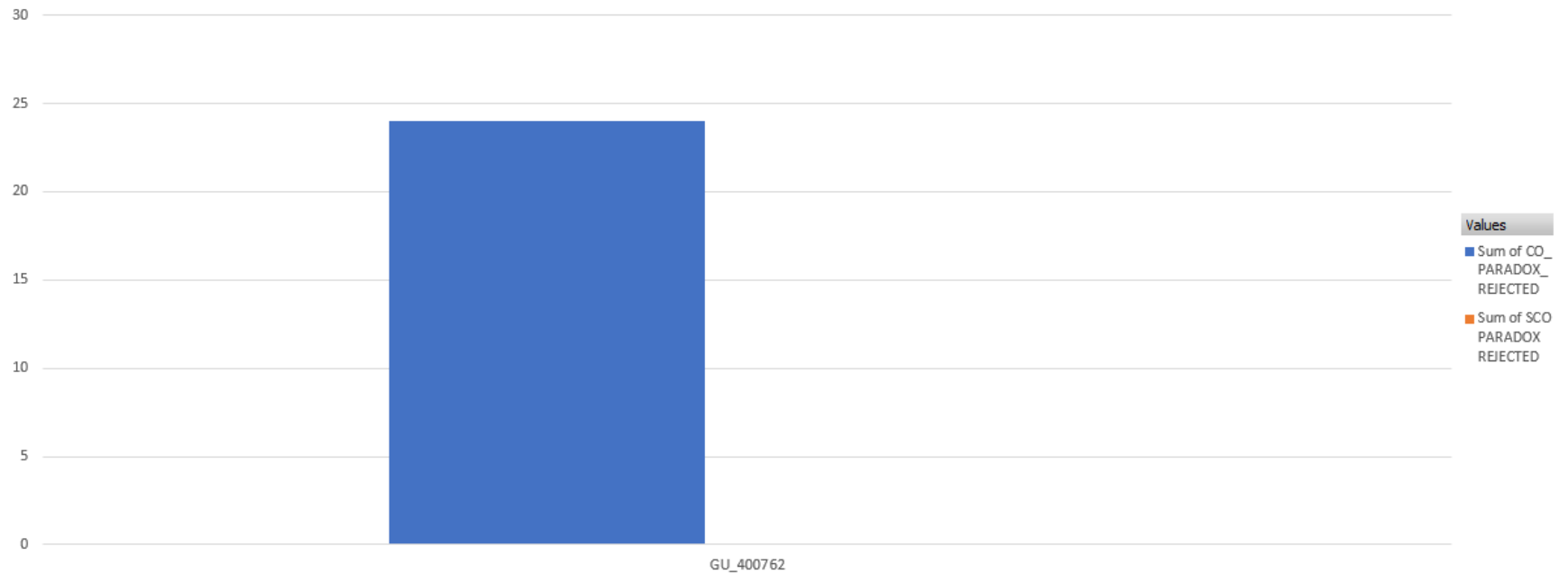
CO Revenues vs. SCO Revenues (EUR)



Session 2: Overview of Results & Insights

GU_400762 – Paradoxically Rejected in CO and not rejected in SCO

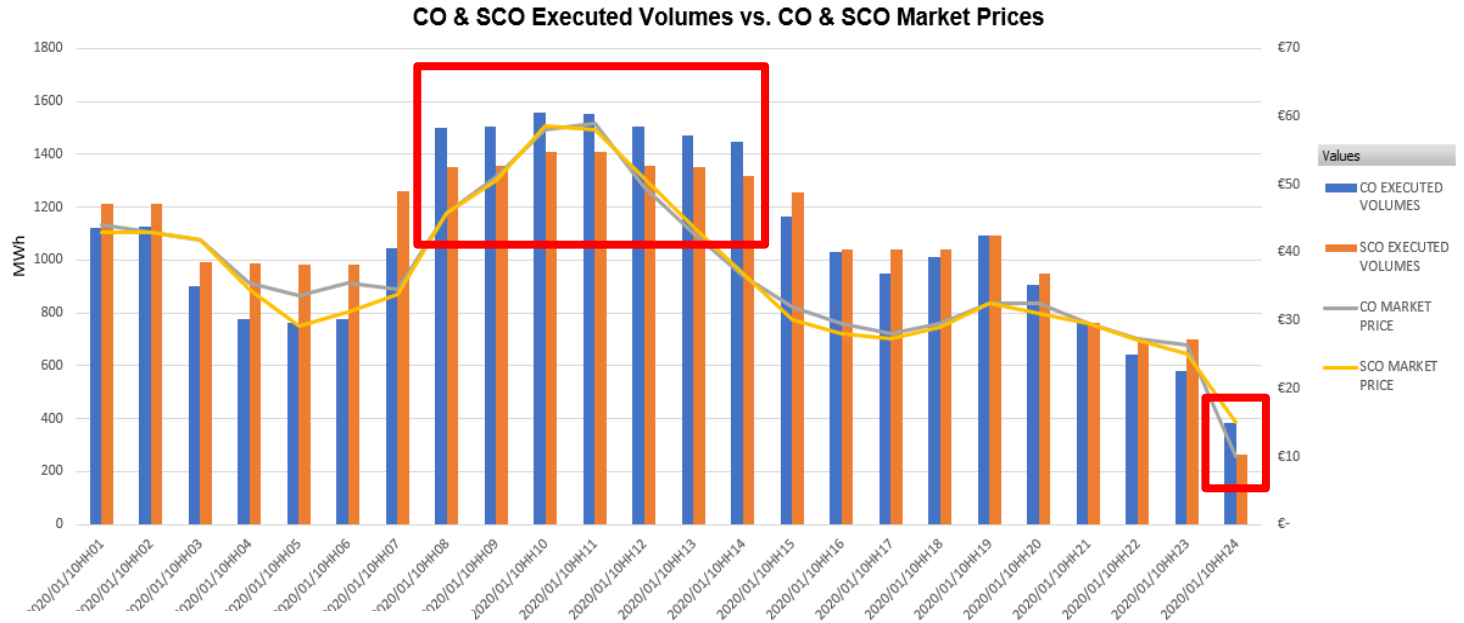
CO Paradoxically Rejected Orders vs. SCO Paradoxically Rejected Orders - By Unit



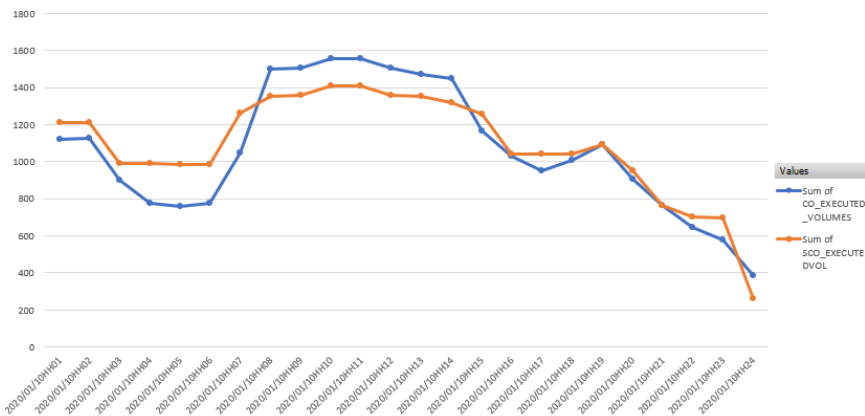
Session 2: Overview of Results & Insights

10th January, 2020 – Sum of all units

- Inverse relationship between the Executed Volumes and Market Price

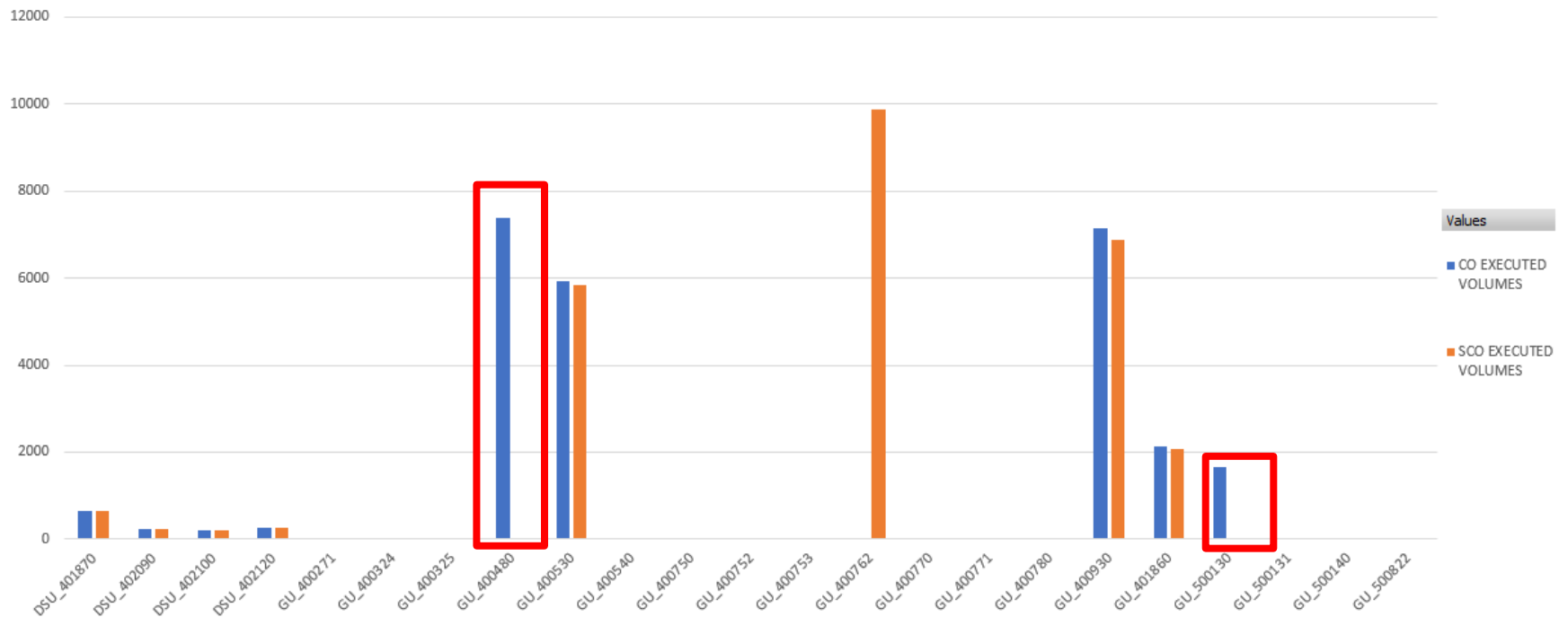


CO Executed Volumes vs. SCO Executed Volumes



Session 2: Overview of Results & Insights

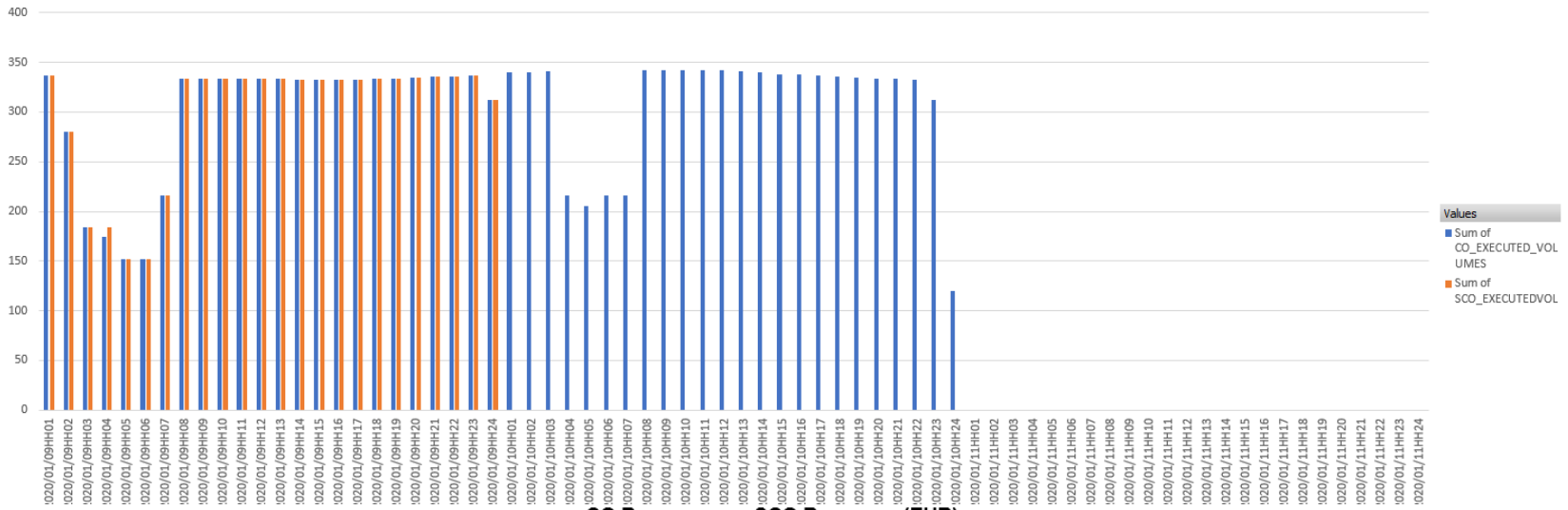
CO Executed Volumes vs. SCO Executed Volumes (MWh) - By Unit



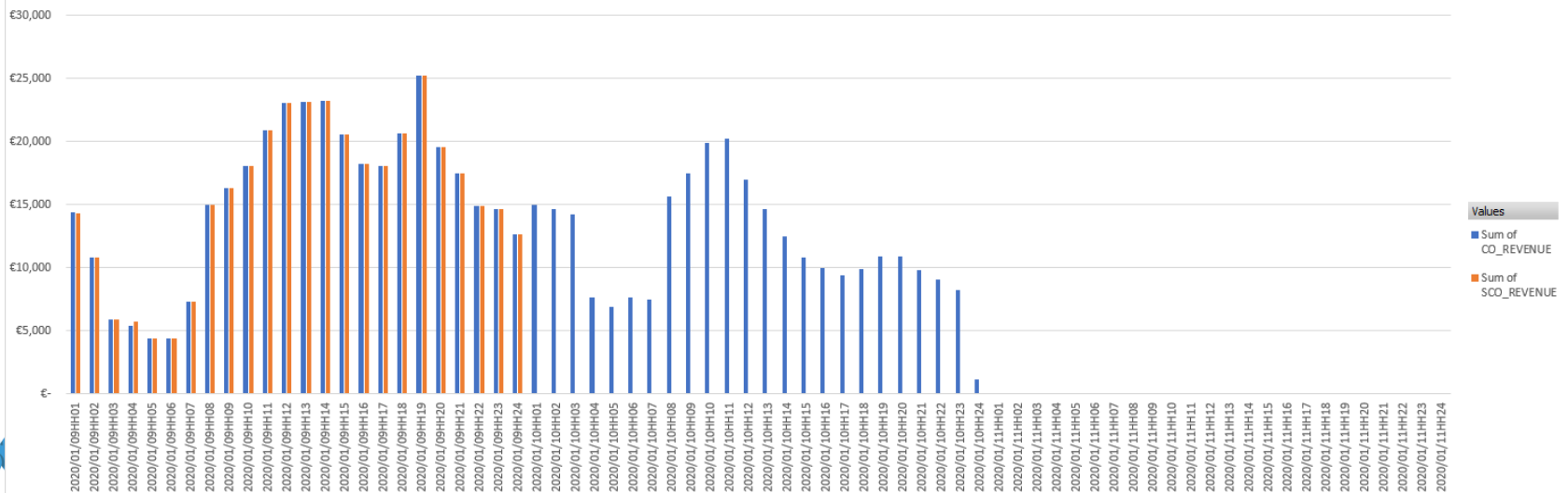
Session 2: Overview of Results & Insights

GU_400480 - Cleared in CO and not cleared in SCO conversion

CO Executed Volumes vs. SCO Executed Volumes (MWh)



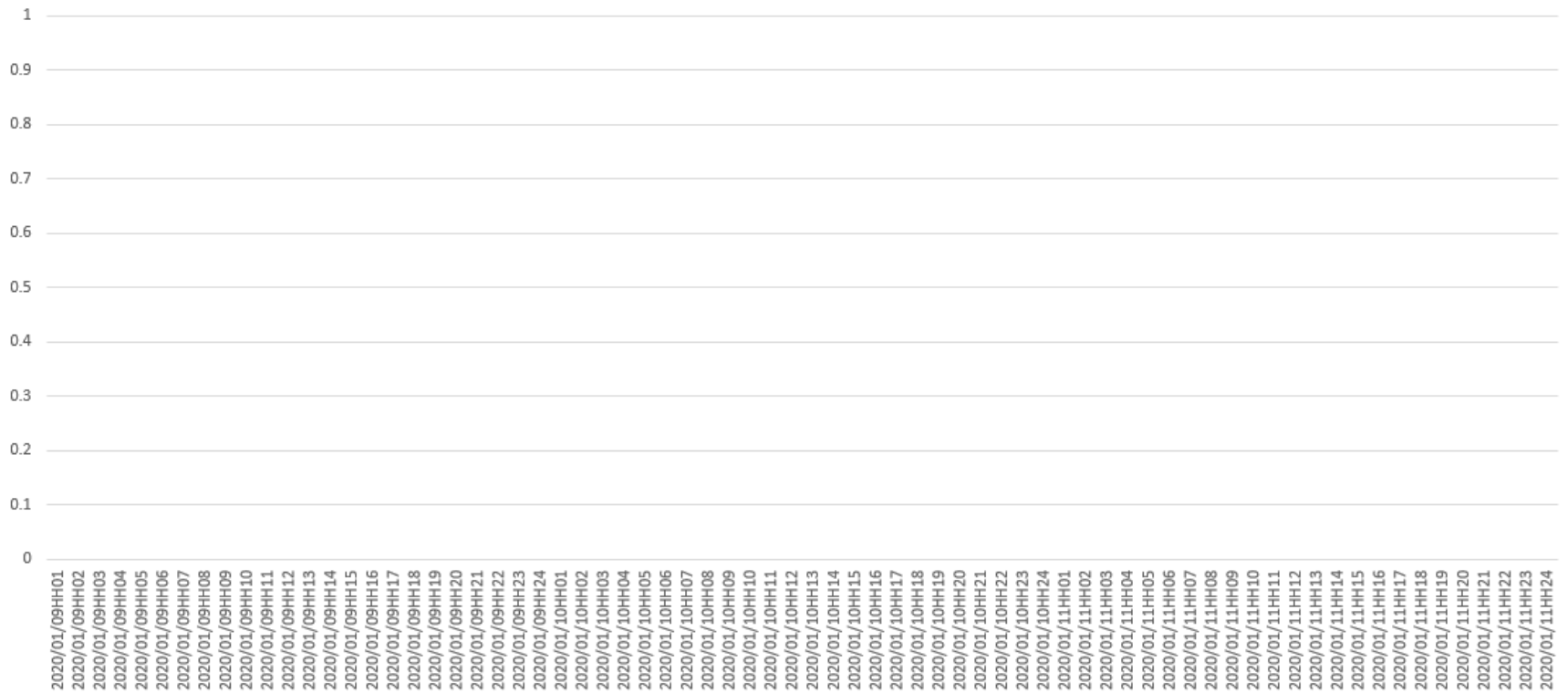
CO Revenues vs. SCO Revenues (EUR)



Session 2: Overview of Conversion 1 Methodology

GU_400480

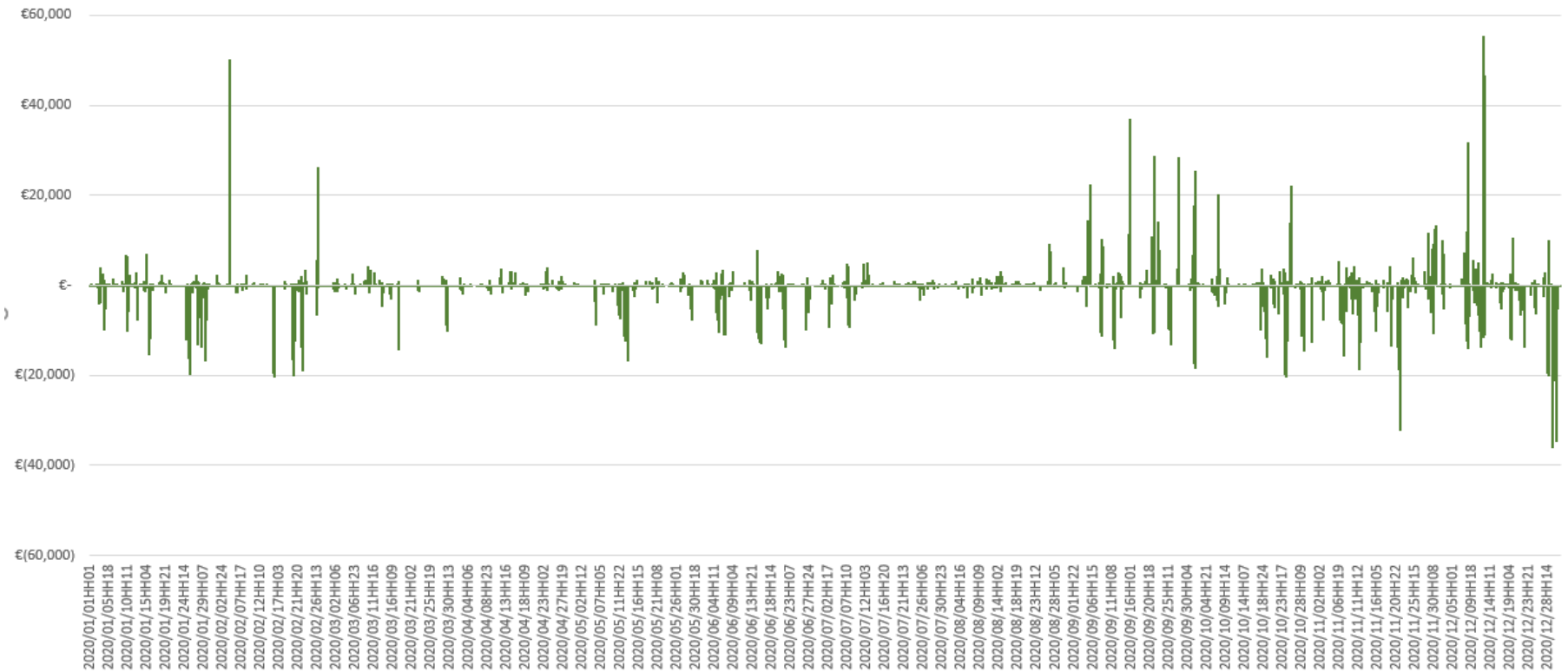
Paradoxically Rejected Order Variances



Session 2: Overview of Results & Insights

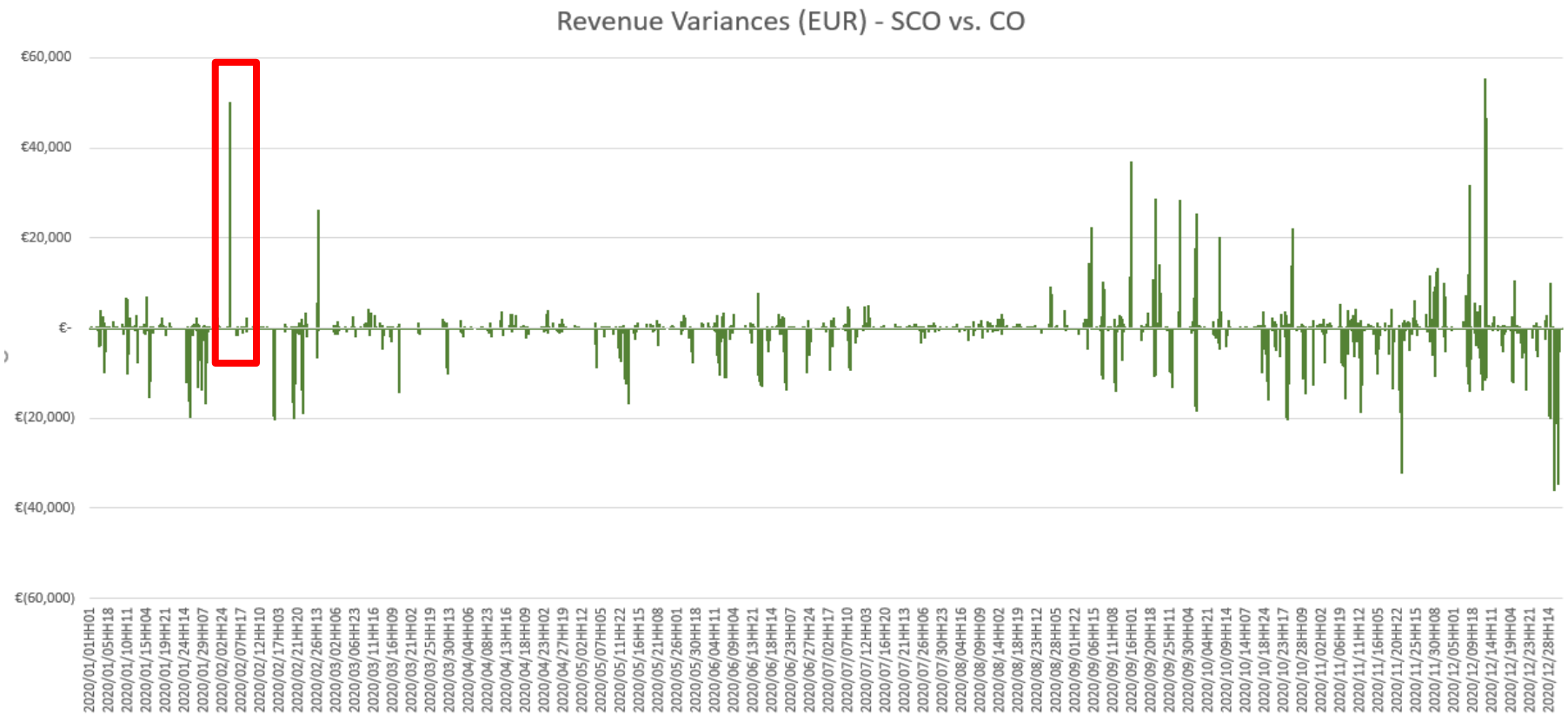
Below graph shows the difference between the sum of the SCO and CO revenues for 2020 conversion.

Revenue Variances (EUR) - SCO vs. CO



Session 2: Overview of Results & Insights

Below graph shows the difference between the sum of the SCO and CO revenues for 2020 conversion.

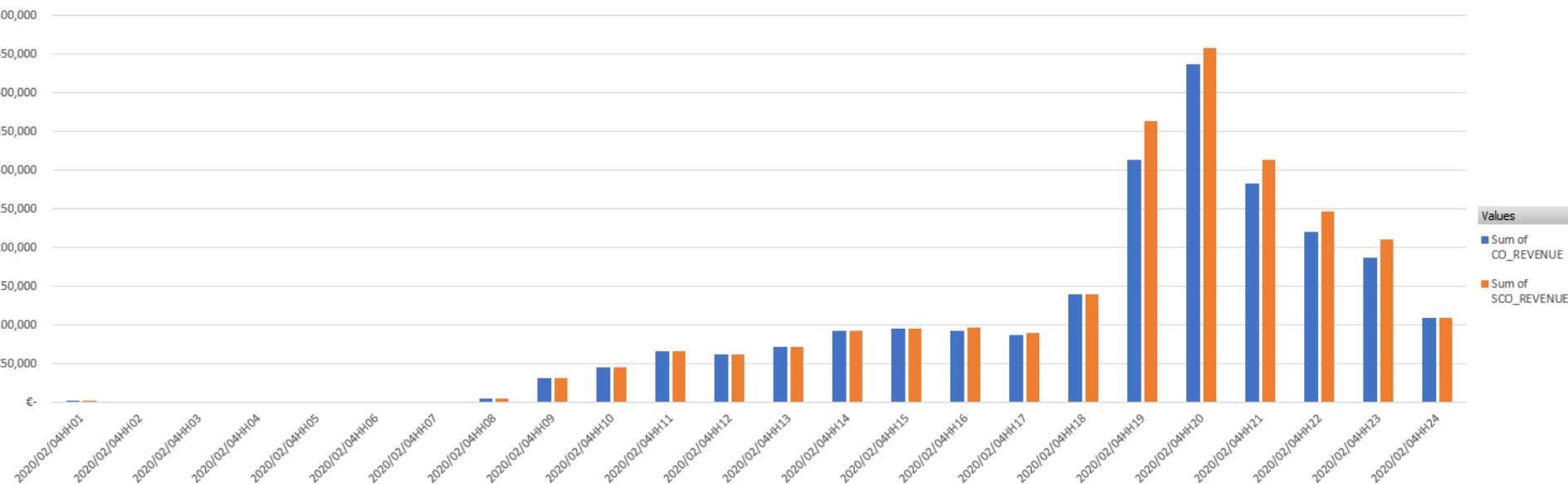


Session 2: Overview of Results & Insights

4th February, 2020

Below graph shows the difference between sum of SCO and CO Revenues (all units) per trading period.

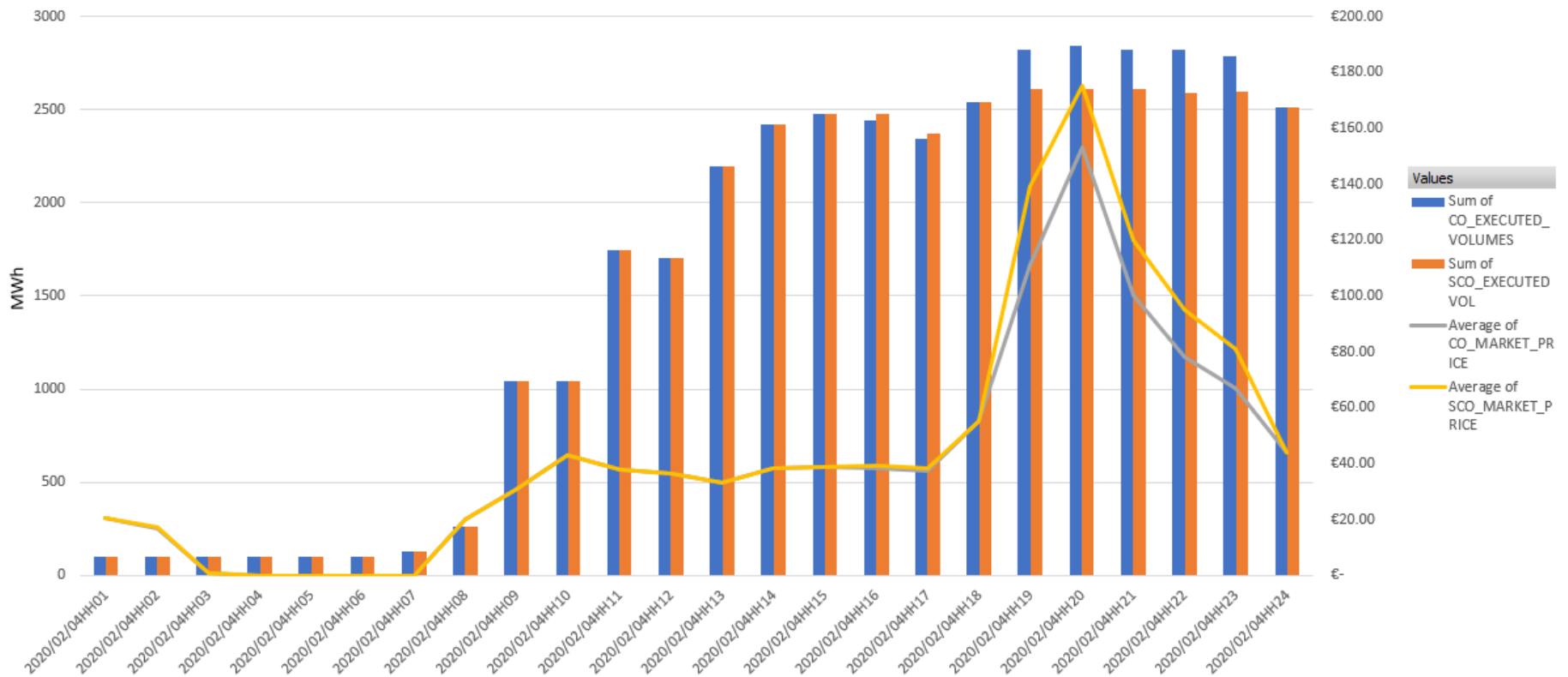
CO Revenues vs. SCO Revenues (EUR)



Session 2: Overview of Results & Insights

4th February, 2020

Below graph shows the difference between sum of SCO and CO Executed Volumes (all units) vs. the SCO and CO Market Prices per trading period.

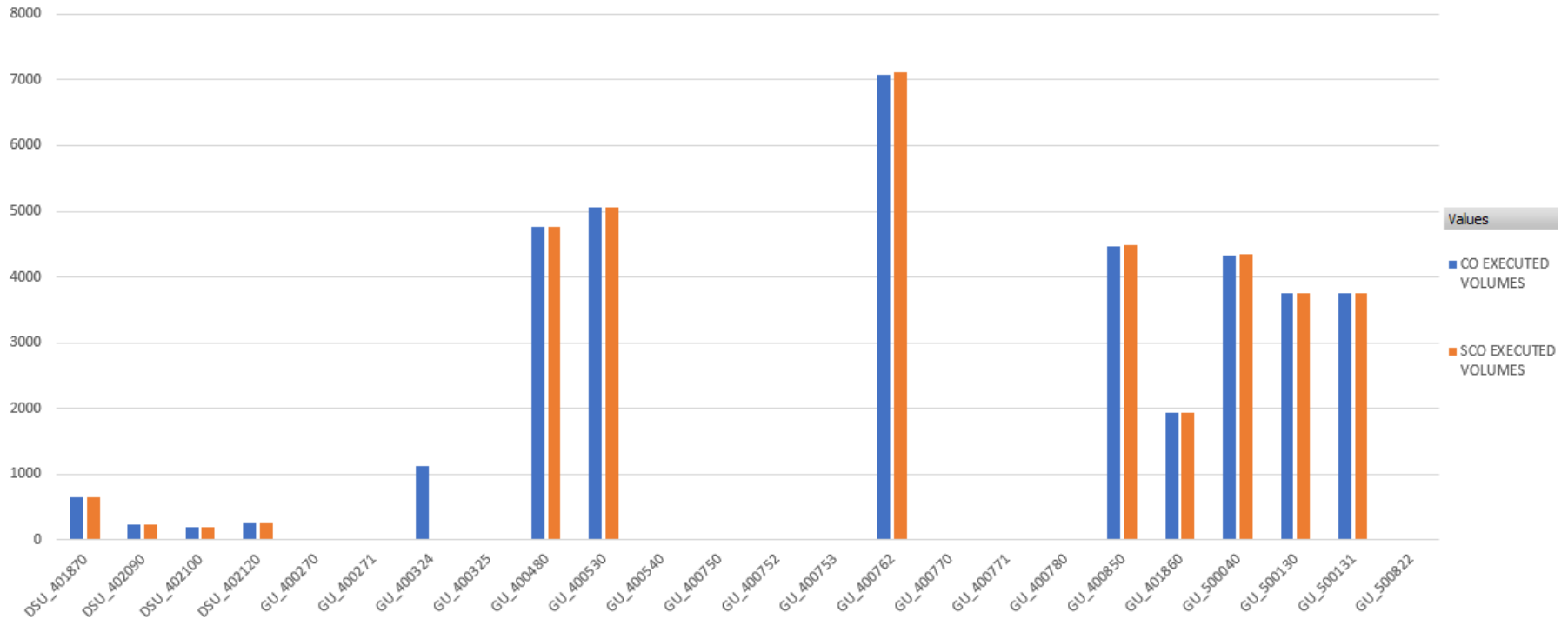


Session 2: Overview of Results & Insights

4th February, 2020

Below graph shows the SCO and CO Executed Volumes by Unit IDs.

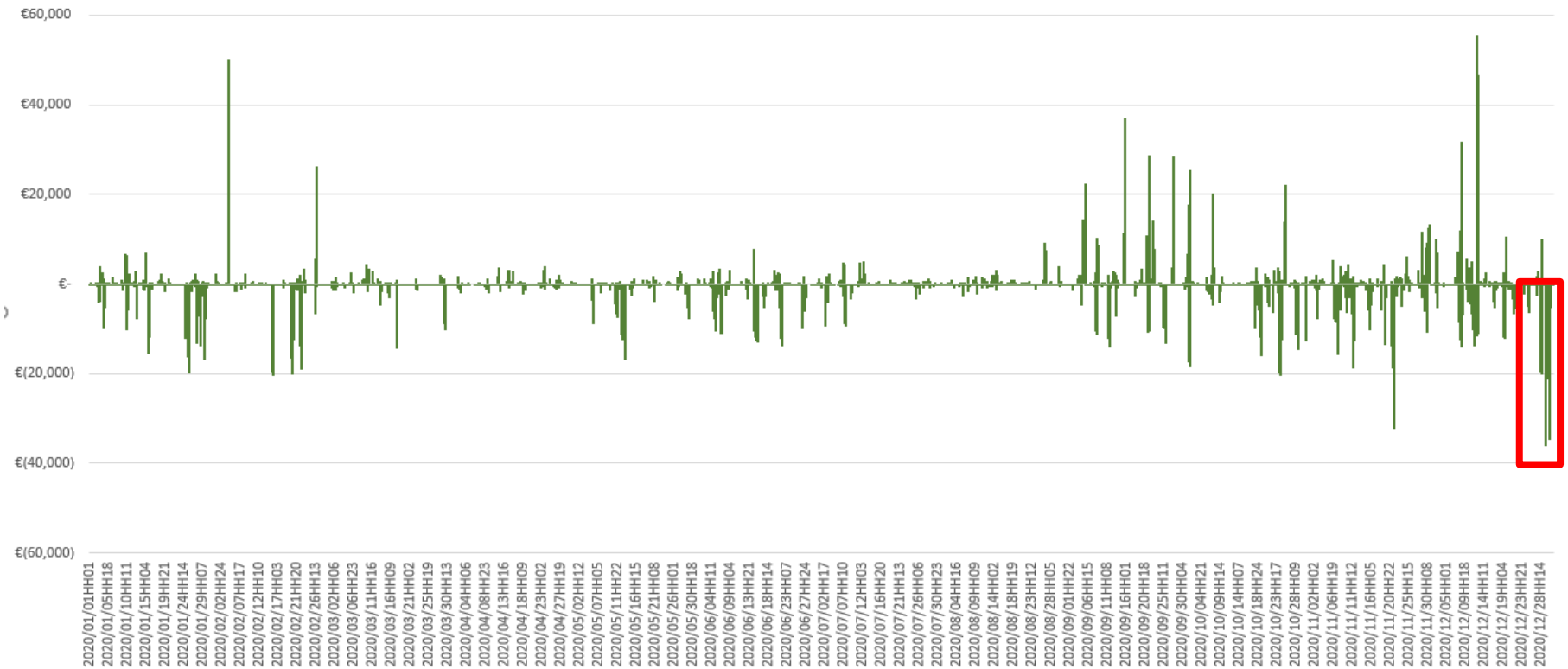
CO Executed Volumes vs. SCO Executed Volumes (MWh) - By Unit



Session 2: Overview of Results & Insights

Below graph shows the difference between the sum of the SCO and CO revenues for 2020 conversion.

Revenue Variances (EUR) - SCO vs. CO

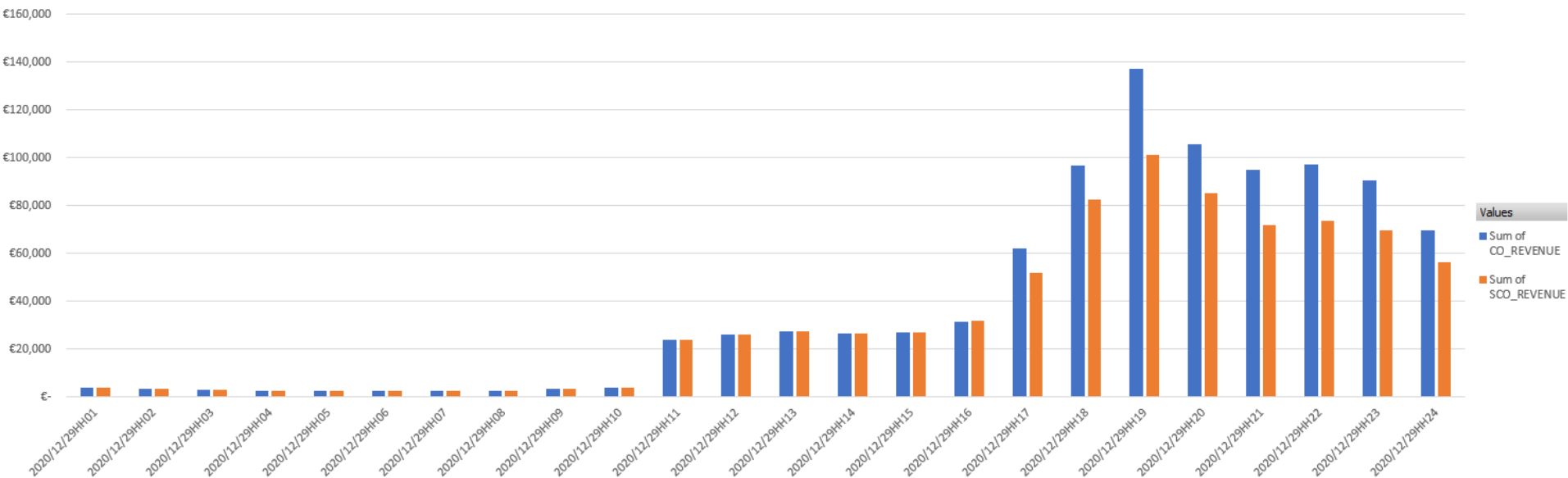


Session 2: Overview of Results & Insights

29th December, 2020

Below graph shows the difference between sum of SCO and CO Revenues (all units) per trading period.

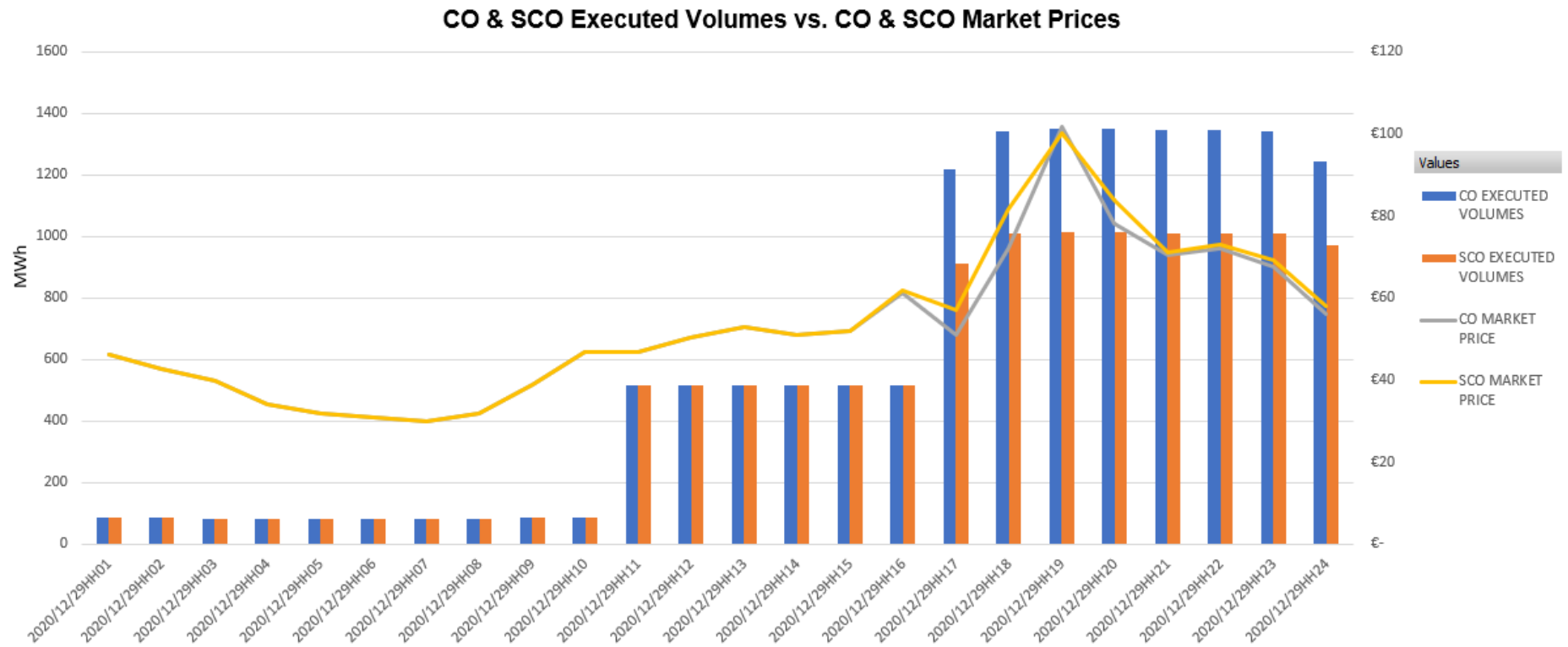
CO Revenues vs. SCO Revenues (EUR)



Session 2: Overview of Results & Insights

29th December, 2020

Below graph shows the difference between sum of SCO and CO Executed Volumes (all units) vs. the SCO and CO Market Prices per trading period.

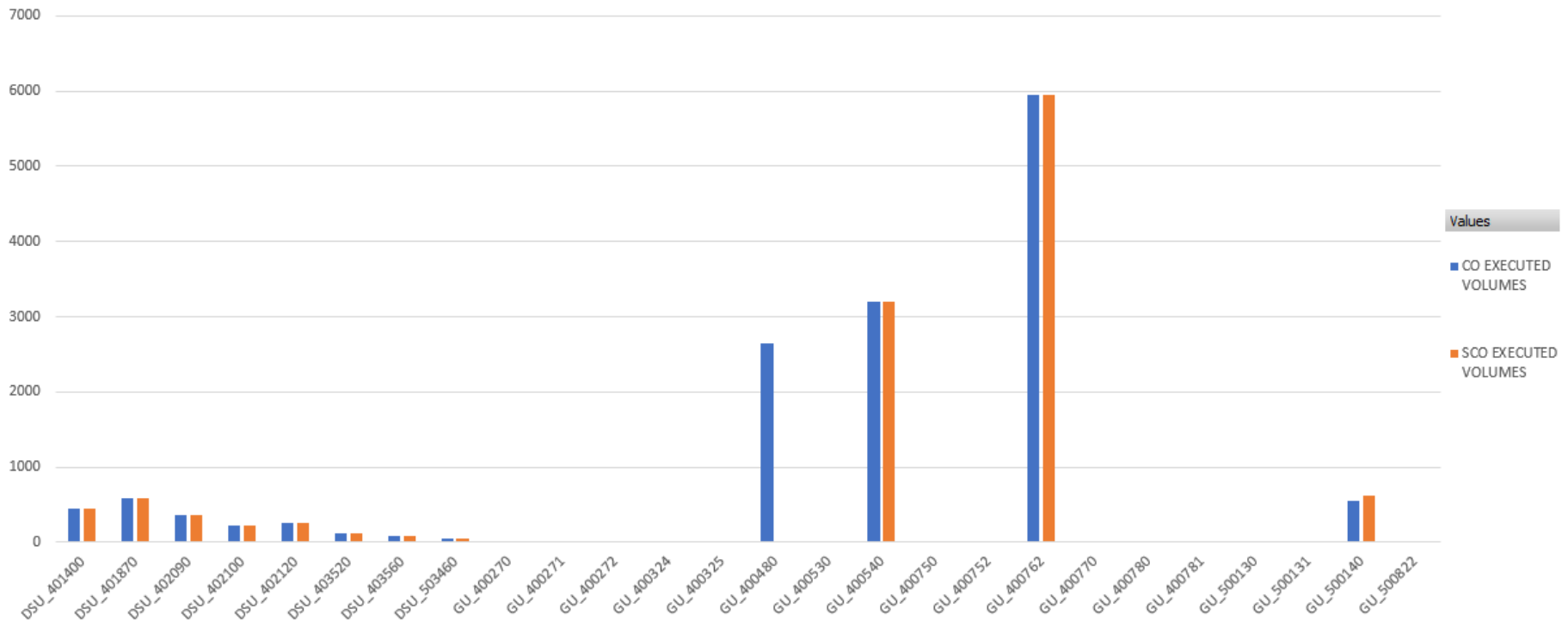


Session 2: Overview of Results & Insights

29th December, 2020

Below graph shows the SCO and CO Executed Volumes by Unit IDs.

CO Executed Volumes vs. SCO Executed Volumes (MWh) - By Unit

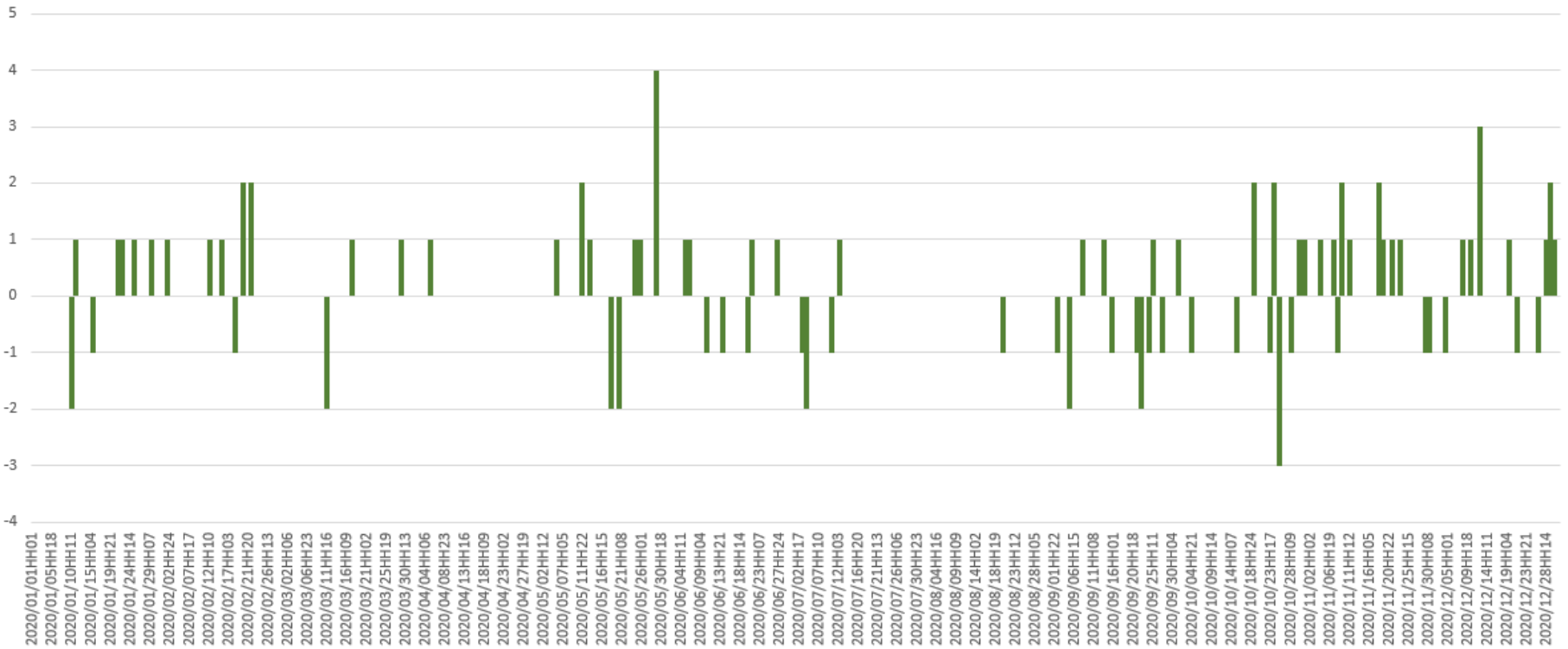


Session 2: Overview of Results & Insights

Paradoxically Rejected Orders (PROs)

- Variances for the full year broken out by trading periods
- Largest difference between SCO PROs and CO PROs on 29th May, 2020

Paradoxically Rejected Order Variances

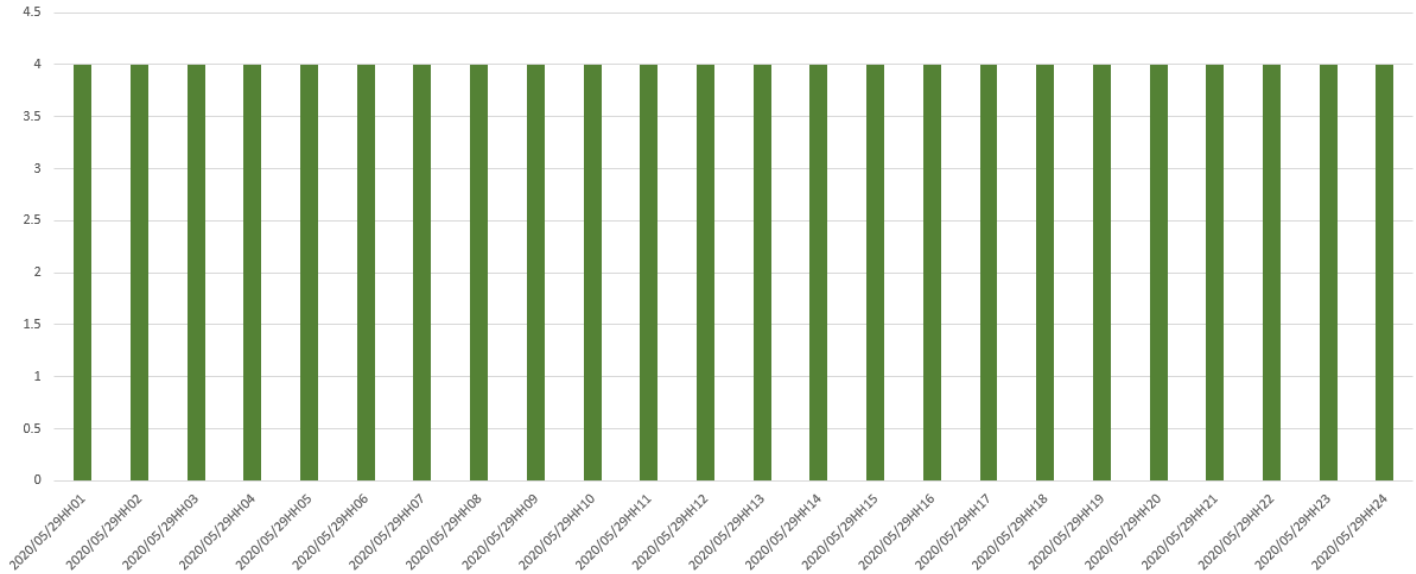


Session 2: Overview of Results & Insights

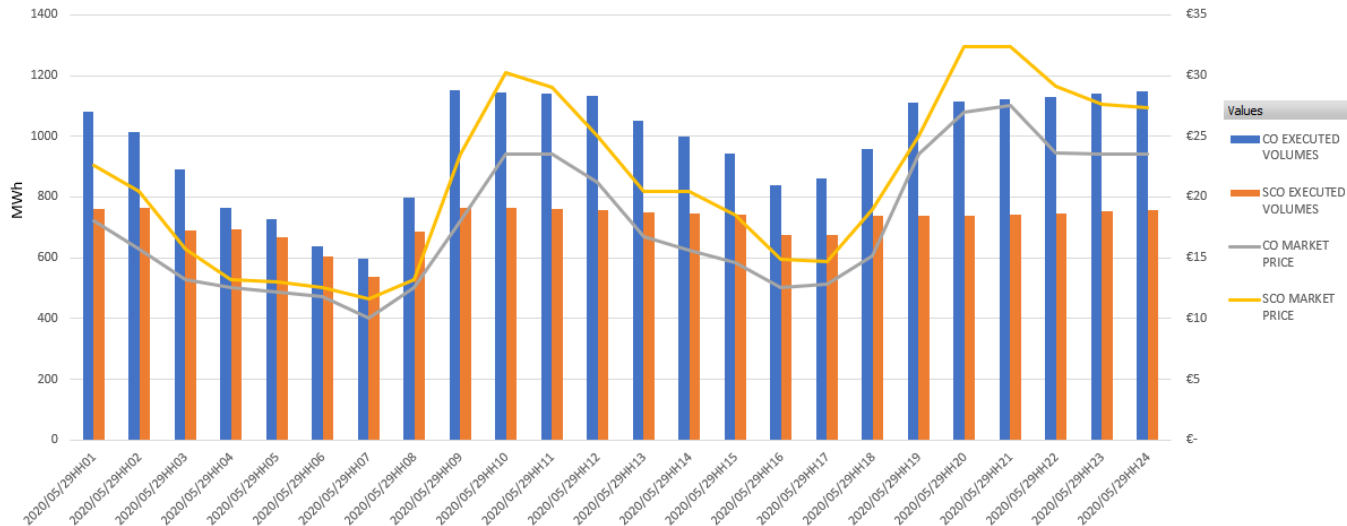
TD 29th May, 2020
- Sum of all Units

Increase in PROs,
Decrease in SCO
executed volumes

Paradoxically Rejected Order Variances



CO & SCO Executed Volumes vs. CO & SCO Market Prices



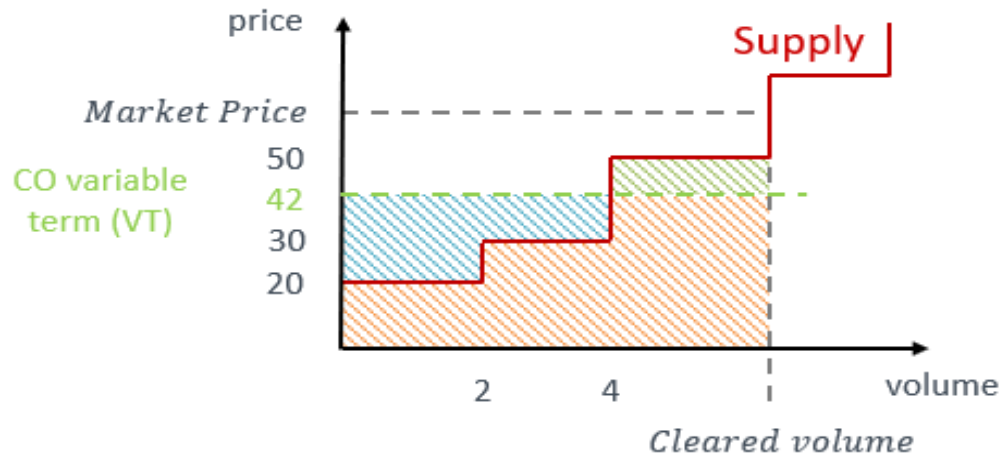
Session 2: Overview of Results & Insights

Overview of Results:

- Inverse correlation between the Executed Volumes and Market Price
- Changes from the CO to SCO conversion can be attributed to:
 - Complex Orders – difficult to obtain maximisation of welfare
 - Scalable Complex Orders – the algorithm will find a better solution and may remove the orders a bit earlier in the solution resulting in the decrease in volumes
 - The conversion rule
 - ✓ Algorithm accepts or rejects the orders at the break even point (revenue generated = cost)
 - ✓ Orders at the threshold will be affected
 - This is not a “one-to-one” match
- Not currently showing Simple Orders in analysis

Session 2: Overview of Conversion 1 Methodology

Below insight shown on the cost of a CO and its SCO equivalent.

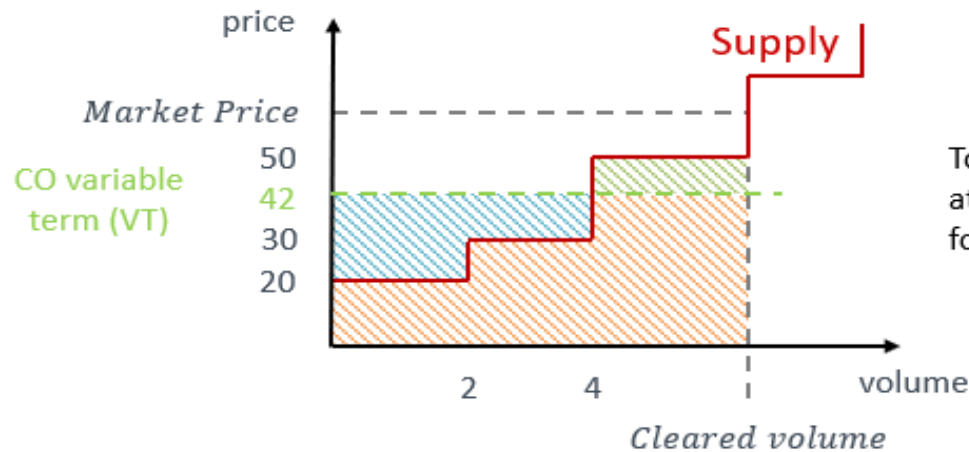


$$\text{CO cost} = \text{CO fixed term} + \text{Area} + \text{Area}$$

$$\text{SCO cost} = \text{SCO fixed Term} + \underbrace{\text{Area} + \text{Area}}_{\text{Variable cost}}$$

Session 2: Overview of Conversion 1 Methodology

The conversion rule attempt to equal the cost of the CO and SCO when the order is at the money.



To define the cost of the CO and SCO at the money, we consider a single price for the all periods

$$\text{CO fixed term} + \text{Area} + \text{Area} = \text{SCO fixed Term} + \text{Area} + \text{Area}$$

$$\underbrace{\hspace{15em}}_{\text{CO cost}} \qquad \underbrace{\hspace{15em}}_{\text{SCO cost}}$$

$$\text{SCO fixed Term} = \text{CO fixed term} + \text{Area} - \text{Area}$$

Session 2: Member Insights Sharing

Open floor discussion on Conversion 1 results and any insights members might have from their own analysis.

Session 2: Conversion 2 Inputs

Potential input changes for next batch;

1. Use of the MAV condition
2. Increase/decrease PQ pairs
3. Diverging from like for like costs of the orders

Any suggestions from the group?

We would like you input by the end of August in order to have time to rerun the conversion.

Next Steps for Members

- Provide any further feedback on the PID
- Add future meetings to your diaries (invites to follow)
- Continue review of Conversion 1 data
- Provide feedback/queries on Conversion 1 data (by end 31st Aug)
- Provide feedback on potential Conversion 2 methodology (before meeting on 17th Sept)
 - *All correspondence through info@semopx.com please*
- Next Meeting (#2) – 17th Sept 2021

Questions?