Scalable Complex Orders
Project Meeting #5

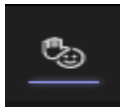
[Corrected post meeting – slides 12 and 18]

4th February 2022

Housekeeping Rules

- ✓ *Keep your video switched off*

- ✓ *Raise the hand if you have a question*



- ✓ *Keep your line muted unless asking a question*

Agenda

Project Management (15 min)

- Project Plan Update
- Reminders

Technical Specification Overview (30 min)

- Overview of Key System Changes due to SCO
- Answer to technical queries raised

Simulation Phase Planning (30 min)

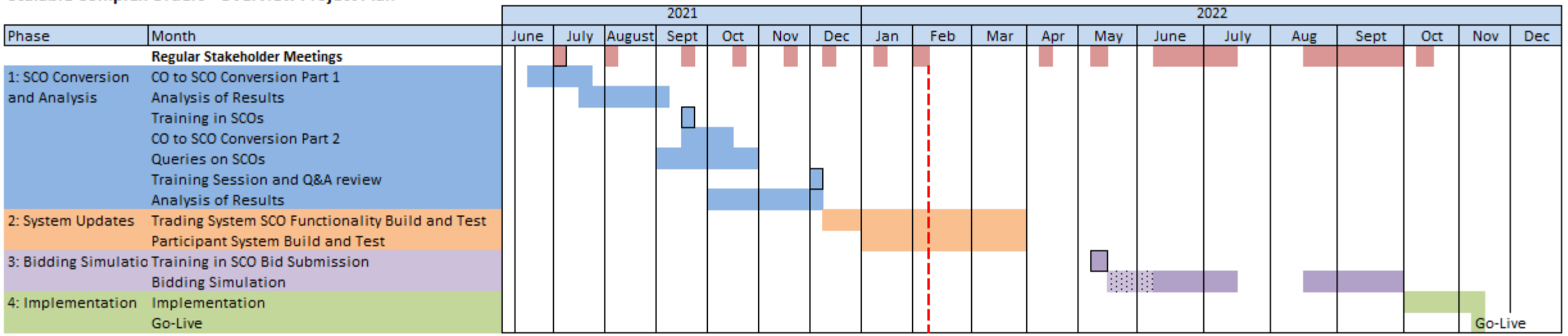
- Overview of proposed approach for the Simulation Phase

Wrap Up

- Next Steps (10 min)
- Q&A (15 min)

Project Plan Review

Scalable Complex Orders - Overview Project Plan



Complete Tasks (since last meeting)	Current Tasks	Future Tasks
Dec-Jan: Submit questions/clarifications on the Technical Specification	Jan-April: Member build of SCO product submission/retrieval	Cont'd: Submit questions/clarifications on the Technical Specification
	Member Meeting #5 (4th Feb)	Member feedback on Simulation Approach (4th March)
	Jan-May: Trading System Build and Test	Testing scheduled in MRC and SEM-GB regions
		Simulation Approach Finalised (8th April)
		Member Meeting #6 (8th April)

Red = Participant actions
Black = Other project activities

Future Meetings

Meeting #6 – 8th April 2022

- Update on project plan
- Confirm simulation approach
- Check point on member readiness

Meeting #7 – 13th May 2022

- Update on project plan
- Simulation Environment Access
- Simulation Detailed Plan
- Training in SCO submissions

Agenda

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Definition - Scalable Complex Order

A scalable complex order is composed by:

1. One **stepwise** linear order per period
   a) Only step wise curves are allowed; no complex order for piecewise curves.
   b) Complex order can only have sell side, i.e. quantities ≤ 0
2. An economic condition defined by one input parameters:
   a) **Fixed Term**

Variable Term is removed (i.e. no longer valid)

Definition - Scalable Complex Order

3. **Scheduled Stop Periods**
4. Load gradients:
    a) **Increase gradient**
    b) **Decrease gradient**
5. **Minimum acceptance volume (MAV)** per period

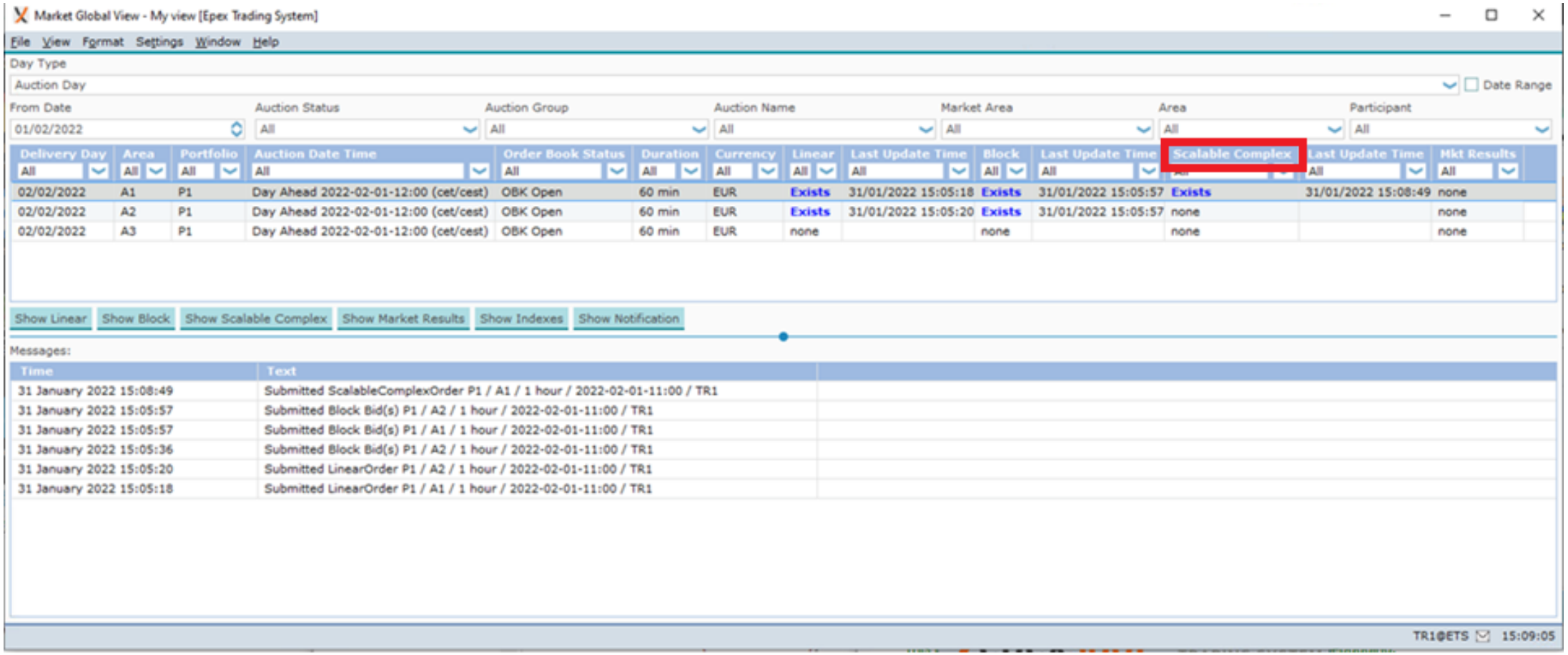
Technical Specification Overview

ETS User Interface Changes

ETS Module/Screen Name	Change Description
Market Global View	• Rename label **"Complex"** as **"Scalable complex"**
Scalable Complex Bid Entry Screen	• Rename the screen name as **"Scalable complex order"** • Remove the field **"variable term"** • Add new field **"MAV"** at the period level
Market Results Screen (Tabs: Complex, Trade)	• Rename label **"Complex"** as **"Scalable complex"**

Technical Specification Overview

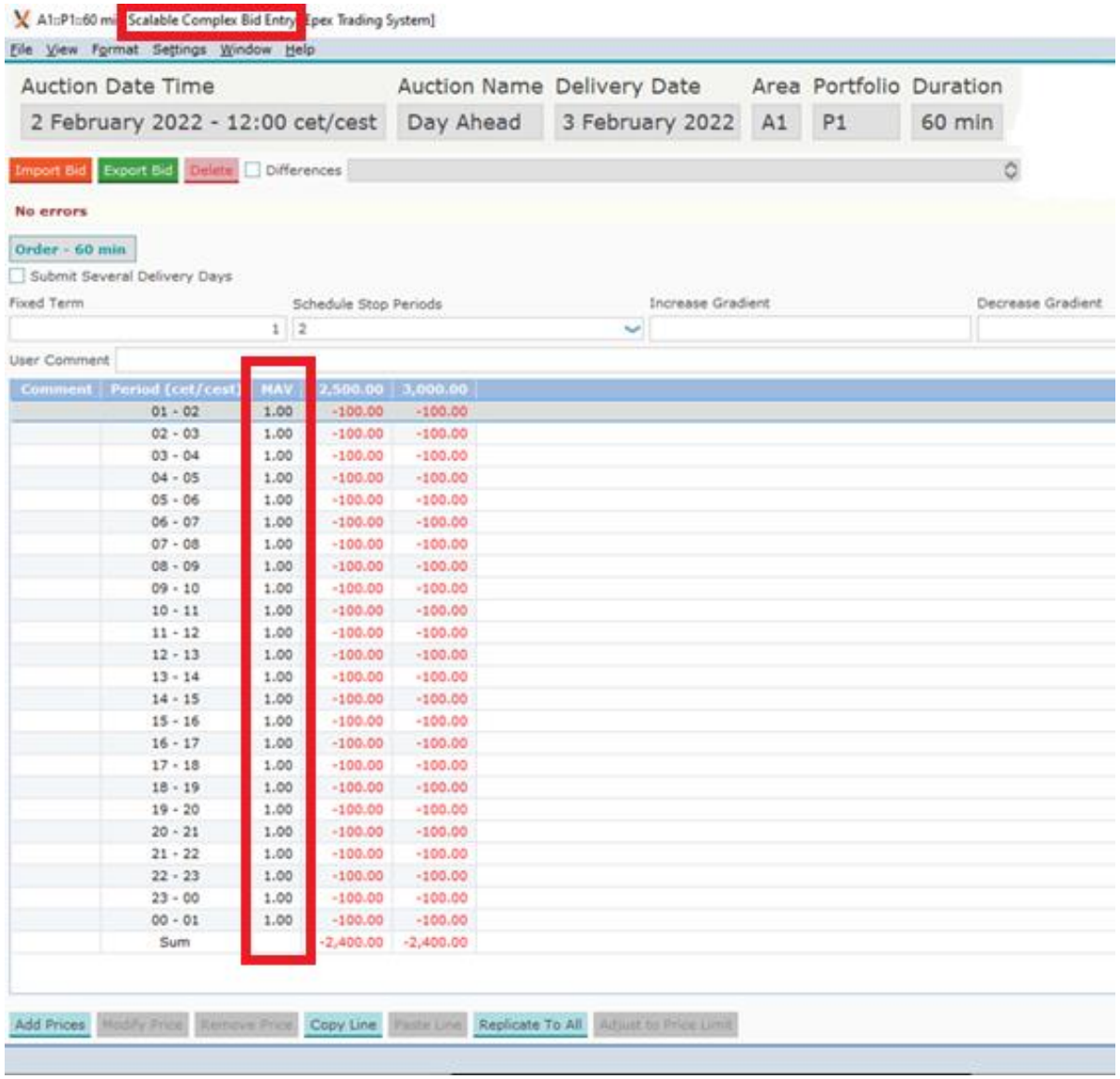
Market Global View



Rename the label **“Complex”** as **“Scalable complex”**

Technical Specification Overview

Scalable Complex Bid Entry



- New field "**MAV**"
- Screen name is "**Scalable Complex Bid Entry**"

Technical Specification Overview

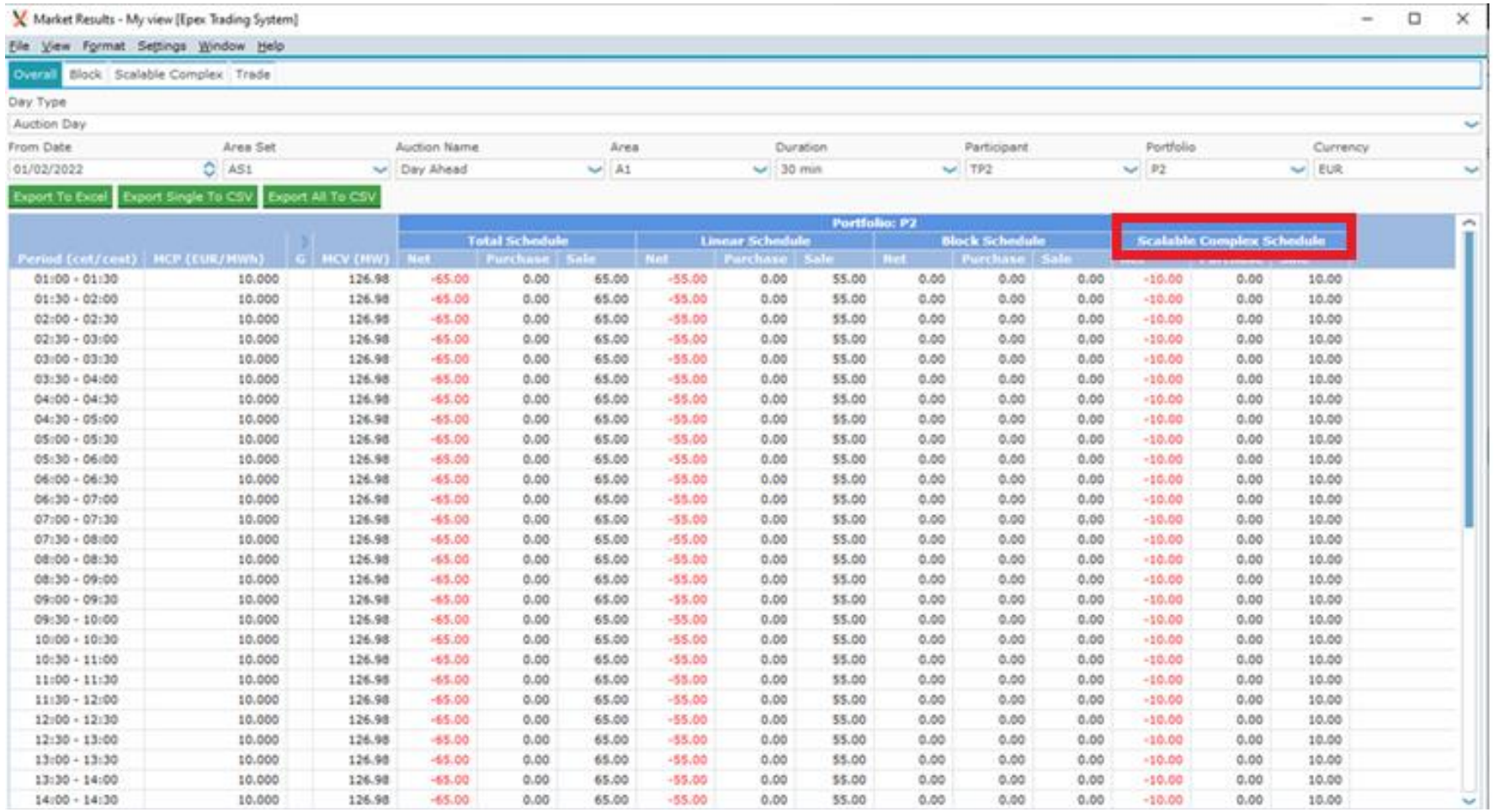
Bid Entry – Excel Import / Export Sample

Fixed term	Schedule Stop Periods	Increase Gradient	Decrease Gradient	
0	0	3		
Comment	Period	MAV	-500	3000
	1	0	-10	-10
	2	0	-10	-10
	3	0.5	-10	-10
	4	5	-10	-10
	5	5	-10	-10
	6	5	-10	-10
	7	5	-10	-10
	8	5	-10	-10
	9	5	-10	-10
	10	5	-10	-10
	11	5	-10	-10
	12	5	-10	-10
	13	5	-10	-10
	14	5	-10	-10
	15	5	-10	-10
	16	7	-10	-10
	17	7	-10	-10
	18	7	-10	-10
	19	7	-10	-10
	20	7	-10	-10
	21	7	-10	-10
	22	7	-10	-10
	23	7	-10	-10
	24	7	-10	-10

Note: The MAV is in MW ~~MWh~~ [Corrected post meeting]

Technical Specification Overview

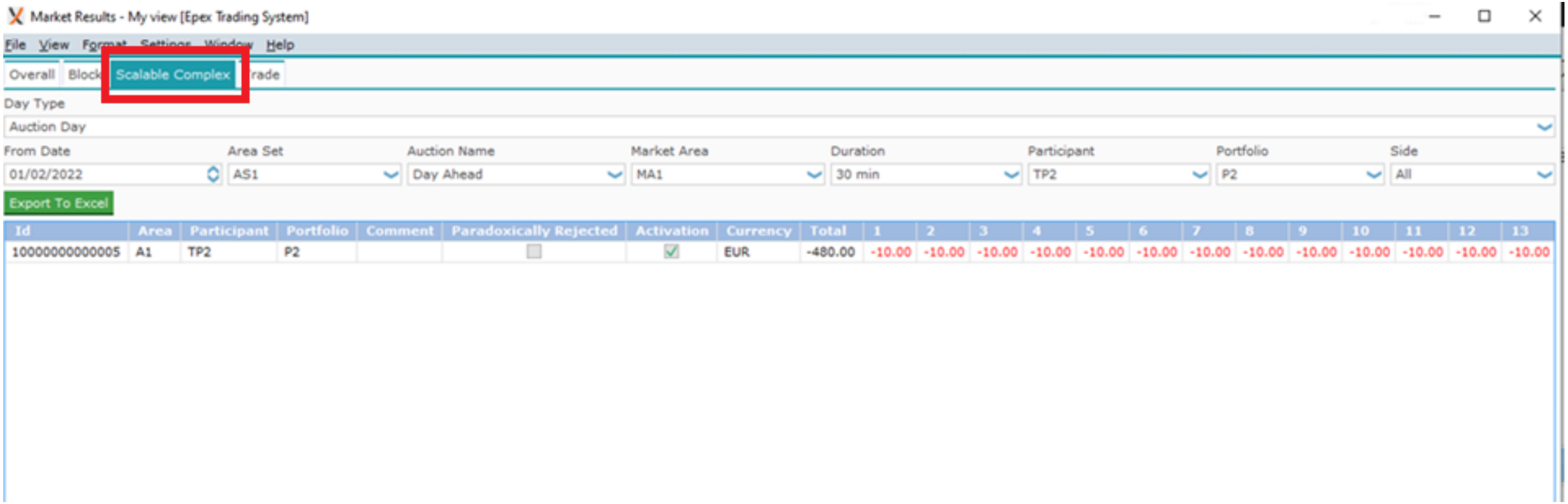
Market Results – Overall Tab



- Rename the label **"Complex Schedule"** as **"Scalable Complex Schedule"**
- **Export of Market Results file** contains the same name change

Technical Specification Overview

Market Results – Scalable Complex tab



Rename the label **“Complex”** as **“Scalable Complex”**

Technical Specification Overview

ETS API Method Impacts

API Method (as of v3.5)	Method Rename (as of v3.6)	XML Tag Changes (as of v3.6)
CancelComplexOrder	CancelScalableComplexOrder	No change
EnterComplexOrder	EnterScalableComplexOrder	• Removed existing *XML tag* ***<variable_Term>*** in the API request • *Added new XML tag* ***<minimum_Acceptance_Volume>*** under the <*Curve*> group in the API request. It is mandatory.
RetrieveComplexOrder	RetrieveScalableComplexOrder	• Removed existing *XML tag* ***<variable_Term>*** in the API request • *Added new XML tag* ***<minimum_Acceptance_Volume>*** under the <*Curve*> group in the API request. It is mandatory.

ETS API Member Impacts

- Impacted API members (i.e. who are active in Complex Order Submission) must upgrade their API apps to use ETS API 3.6 version
- API members who are impacted must use the WSDL version 3.6

Technical Queries

Q1: Request for a clear file example for a Scalable Complex order?

- Section 6.2.3 File overview doesn't explicitly illustrate a Scalable Complex Order, only other Block products that aren't available for I-SEM. Whilst Section 6.2.4.2.4 describes the configuration of Scalable Complex Order, it is always useful to see a visual representation.
- Figure 1 below is how I roughly interpret the Bid File will look, MAV added and Variable Term being removed.

A1: The release implementation is currently being finalized. Sample files will therefore be provided in the upcoming weeks.

Technical Queries

Q2: Can you confirm “MAV” is a MWh value (i.e. not a % of max submitted order volume)?

A2: That is correct, the MAV is in MW ~~MWh~~. [Corrected post meeting]

Q3: Request for sample files and when they will be available to us. We are looking for :

- Sample Submit DAM/IDM Bids and Offers XML file
- Sample Market Results For XML file
- Sample Withdraw DAM/IDM Bids and Offers submit XML file

A3: The release implementation is currently being finalized. Sample files will therefore be provided in the upcoming weeks

Technical Queries

Q4: Request for examples of what the order entry for SCOs would look like. With the hourly MAV being added we think we know what the structure will look like, but the earlier we see an example of what the ETS screen looks like we'll be able to progress work on our systems.

A4: Some examples are provided in slides 10 – 14 of this presentation.

Q5: For Type2 ETS screen and submissions can details on when format/test system will be made available so we can plan early on changes please.

A5: The Simulation Test environment is targeted to open and to be made available to members in Mid-May 2022.

Project Queries

Q6: In terms of the drop location for the Bid Files for participants, will it continue to be on the SEMOpx website at the same time & in the same location? Published once daily per I-SEM auction?

A6: In production, there is no change to the format or publication of the file, however, the file content will change with the change in product. These changes will be reflected and circulated in the updated SEMOpx Data Publication Guide prior to Go-Live. There is no change envisaged to the publication location on the SEMOpx website or frequency of publication.

Q7: Is the first trade date this will impact in Live confirmed? Project Plan is 1st September 2022.

A7: As detailed in section 6.4 in the Project Initiation Document, the implementation phase will run from September – November 2022. The exact Go-Live date hasn't been determined yet but SEMOpx are targeting November 2022.

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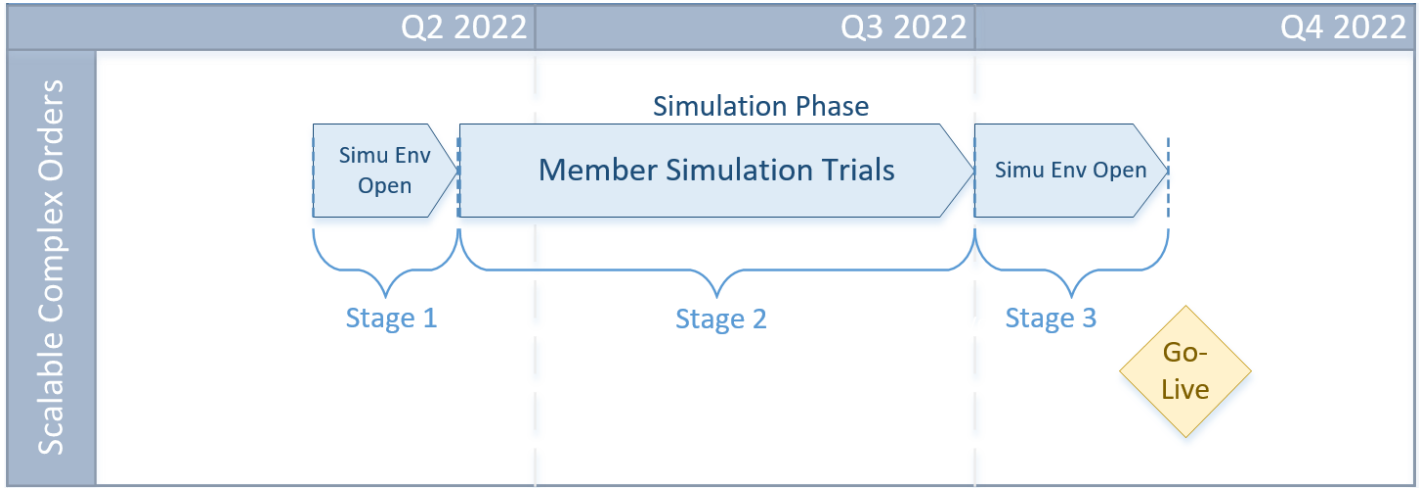
Simulation Purpose and Overall Timeline



Stage 1: Simulation Environment Open

- ✓ Allow members the opportunity to connect to the SIMU environment
- ✓ Test system integration via Type 2 and Type 3 connections in advance of Simulation Trials
- ✓ Adjust system codes as needed during integration testing
- ✓ Familiarise with the new ETS functionality associated with SCOs prior to Simulation Trials
- ✓ In Q4, close off any remaining testing after completion of Simulation Trials

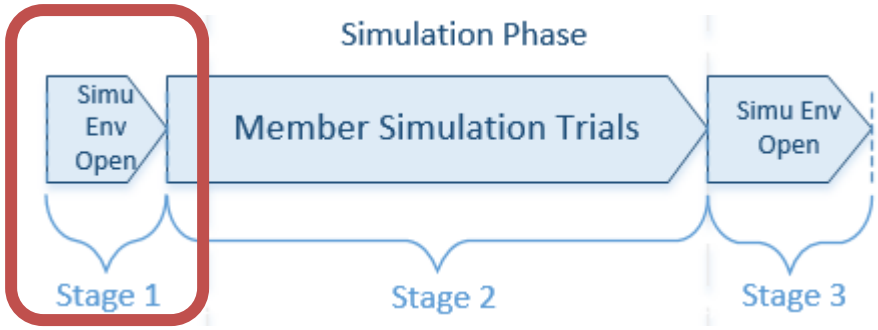
Stage 2: Simulation Trials

- ✓ Ensure that members are familiar with the SCO product, including the different attributes of the product
- ✓ To trial the SCO functionality (including FT and MAV) in ETS to ensure functionality works as it expected
- ✓ Provide sufficient time during the Trialling period to familiarise with the SCO product ensuring a level of comfort in effectively submitting bids and offers
- ✓ To allow members to plan and trial different trading strategies throughout Trial Period based on the simulation outcomes
- ✓ To allow members to trial use of SCO under conditions where different parties may use the SCOs in different ways
- ✓ To ensure participation from all members to obtain realistic market outcomes for comparison purposes

Stage 3: Simulation Environment Remains Open

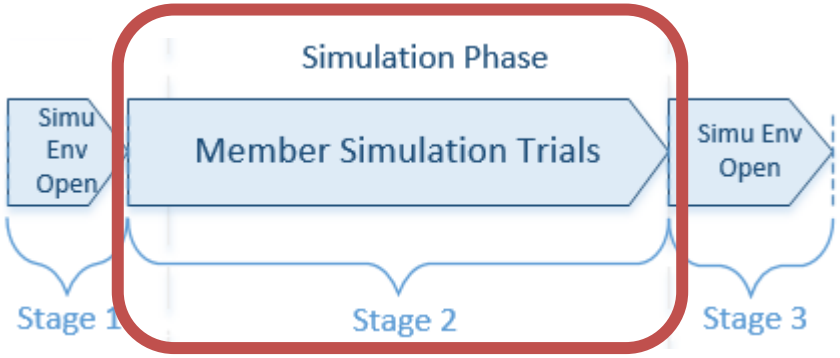
- ✓ Allow members the opportunity to continue connect to access the SIMU environment
- ✓ Potentially run on-demand auctions for final testing

Stage 1 – Simulation Environment Open



- Simulation Environment will open from mid-May 2022
- Allow members to confirm connections and submit orders
- No auctions will be running during this stage
- Support on queries/access issues will be available from Market Operations during this stage
- Simulation environment details will be provided in advance

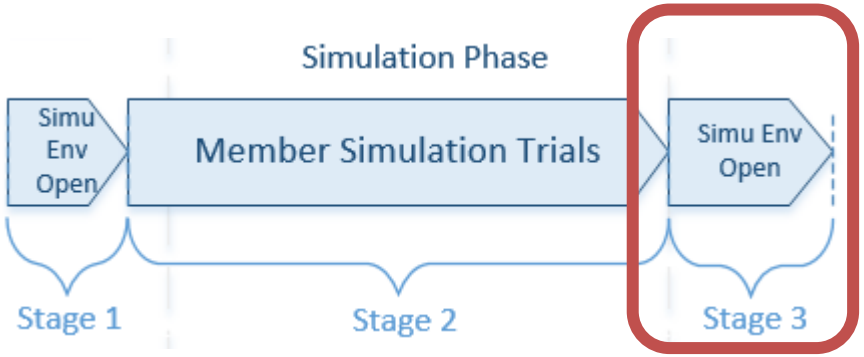
Stage 2 – Simulation Trials



- From June to Sept 2022
- 4 auctions (DAM, IDA1, IDA2 & IDA3) per day, 5 days per week.
- Timing of the simulation auctions will be staggered to avoid conflict with production auction runs
- All auctions will be completed during working hours (9am – 5pm)
- All auctions to be run as local auctions as x-border trades are not available
- Baseline Market Results for local auction Complex Order (CO) order books will be provided prior to simulation for comparison purposes
- 4 trade dates will be selected based on demand and wind forecast scenarios for the simulation period– each trade date being run for 2 weeks at a time during the simulation trials
- Complex Orders will be removed from order books and members will have functionality to submit SCOs
- 2 specific days per week will be targeted for full participation of SCO bidders
  - ✓ e.g. Monday & Wednesday or Tuesday & Thursday
- On the 3 “non-target” days per week the simulation environment will be available to members to test their systems
  - ✓ Auctions will continue to run automatically on these 3 non-target days, however they may not have full SCO bidder participation
- Catch-up Calls proposed:
  - ✓ 2 Short PT calls on the morning after each target day to allow feedback and communications during the simulation
  - ✓ 1 Weekly call on Friday – Analysis and run through of next week’s runbook
- Support on queries / access issues will be available from Market Operations during this stage

Stage 3 - Simulation Environment Remains Open

- Oct to go-live
- ETS Simulation will remain open for members to connect to after the trials
- Auctions may potentially be run on demand



Simulation Scenarios

Simulation Scenarios

- 4 Scenarios proposed:
  1) High Demand and High Wind
  2) High Demand and Low Wind
  3) Low Demand and Low Wind
  4) Low Demand and High Wind

- Methodology used:
  - ✓ Load Forecast Average to determine Highest / Lowest Demand Volumes
  - ✓ Wind Forecast Average to determine Highest / Lowest Wind Volumes
  - ✓ Consider seasonality – Winter, Summer and Autumn
  - ✓ Peak Hours for High Demand and off-peak hours for Low Demand
  - ✓ Number of delivery periods that fall within the scenario (esp. High Demand)

Simulation Scenarios

Simulation Scenarios

- Based on the 4 scenarios in the previous slide, the following Trade Dates are proposed:

Scenario	Trade Date	DAM Cleared Volumes (MWh)	Load Forecast Average (MWh)	Wind Forecast Average (MWh)	Season
High Demand & High Wind	11/02/2021	6797	6573	4728	Winter
High Demand & Low Wind	06/01/2021	6248	6660	283	Winter
Low Demand & Low Wind	18/07/2021	2993	2894	221	Summer
Low Demand & High Wind	30/09/2021	3948	3176	4154	Autumn

Proposed Simulation Schedule

Trial Week	Trial Week Start Dates[#1]	Trade Date for Trial	Scenario	Season
Weeks 1 & 2	7 -17 June	11/02/2021	High Demand & High Wind (DAM, IDA1, IDA2 & IDA3)	Winter
Weeks 3 & 4	20 June -1 July	06/01/2021	High Demand & Low Wind (DAM, IDA1, IDA2 & IDA3)	Winter
Week 5	4 - 8 July	18/07/2021	Low Demand & Low Wind (DAM, IDA1, IDA2 & IDA3)	Summer
Weeks 6 – 9	11 July – 5 Aug	-------	Summer Weeks: No simulation activity[#2]	-------
Weeks 10	8 – 12 Aug	18/07/2021	Low Demand & Low Wind (DAM, IDA1, IDA2 & IDA3)	Summer
Weeks 11 & 12	15 – 26 Aug	30/09/2021	Low Demand & High Wind (DAM, IDA1, IDA2 & IDA3)	Autumn
Week 13	29 Aug – 2 Sept	TBD	Contingency: Scenario re-run based on member feedback	TBD
Week 14	5 – 9 Sept	TBD	Contingency: Scenario re-run based on member feedback	TBD
Week 15	12 – 16 Sept	TBD	Contingency: Scenario re-run based on member feedback	TBD
Week 16	19 – 23 Sept	TBD	Contingency: Scenario re-run based on member feedback	TBD

#1 proposed dates may change due to trading system testing progress and external dependencies.
#2 Taking into consideration summer holiday weeks; No simulation activity from Monday 11th July 2022 to Friday 5th Aug 2022

Daily Auction Schedule

- A Runbook will be published to members the week before each Trial Week, which will include:
  - ✓ Participant call times
  - ✓ Trading Date details
  - ✓ Orderbook open timings for DAM, IDA1, IDA2 and IDA3
  - ✓ Orderbook closure timings for DAM, IDA1, IDA2 and IDA3
  - ✓ Market results publication timings for DAM, IDA1, IDA2 and IDA3
- Proposed Auction Trial Times as follows:
  - ✓ DAM Auction 13:00 – 13:15
  - ✓ IDA1 Auction 14:00 – 14:15
  - ✓ IDA2 Auction 15:00 – 15:15
  - ✓ IDA3 Auction 15:45 – 16:00
  - → Allowing ~45mins between auctions for analysis and preparation for next auction

Time	Production Times	Proposed Auction Trial Times
11:00	DAM Gate Closure	
11:15		
11:30		
11:45		
12:00	DAM Results Publication	
12:15		
12:30		
12:45		
13:00		DAM Gate Closure
13:15		DAM Results Publication
13:30		
13:45		
14:00	IDA3 Gate Closure	IDA1 Gate Closure
14:15	IDA3 Results Publication	IDA1 Results Publication
14:30		
14:45		
15:00		IDA2 Gate Closure
15:15		IDA2 Results Publication
15:30		
15:45		IDA3 Gate Closure
16:00		IDA3 Results Publication
16:15		
16:30		
16:45		
17:00		
17:15		
17:30	IDA1 Gate Closure	

Baseline Market Results

CO Results – Baseline each auction:

- To provide members with a base for comparison for each scenario
  - ✓ Currently published market results (with COs), DAM and IDA3 are local auction results and IDA1 and IDA2 are coupled auction results
  - ✓ In Simulation Trial (with SCO), all 4 auctions will run as Local Auctions

Trade Date	DAM CO Baseline	IDA1 CO Baseline	IDA2 CO Baseline	IDA3 CO Baseline
11/02/2021	Production Results	Re-run Orderbook as Local Auction	Re-run Orderbook as Local Auction	Production Results
06/01/2021	Production Results	Re-run Orderbook as Local Auction	Re-run Orderbook as Local Auction	Production Results
18/07/2021	Production Results	Re-run Orderbook as Local Auction	Re-run Orderbook as Local Auction	Production Results
30/09/2021	Production Results	Re-run Orderbook as Local Auction	Re-run Orderbook as Local Auction	Production Results

- Prior to the start of Simulation Trials, SEMOpx will run the IDA1 and IDA2 orderbooks with Complex Orders in the SIMU environment and will provide members with local auction results for the 4 scenarios
- Provide members with a 'Like-for-like' comparison between the Market Results with Complex Orders vs. Market Results with Scalable Complex Orders.
  - ✓ Do not have orderbooks on the GB side of the auction during Trial
- Publication of all Baseline Results will be in prior to the start of Simulation Trials

Simulation Approach Publication

Simulation Approach

- Feedback from members by **4th March** on the proposed Simulation Approach and Plan
  - ✓ *4 proposed Trade Dates / Scenarios*
  - ✓ *Summer weeks to avoid during Simulation Trials*
  - ✓ *Preference of 2 weekdays for weekly Trial Days*
  - ✓ *Frequency of PT calls per week during Trial Period*

- Finalised Simulation Approach 8th April 2022 for next meeting

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Wrap Up

- Next Steps (10 min)
- Q&A (15 min)

Next Steps

- ❑ Member system build of SCO product functionality by mid-May
- ❑ Any feedback on Simulation Approach to info@semopx.com by **4th March, 2022**
- ❑ Next Meeting **8th April 2022**
  - Update on project plan
  - Confirm simulation approach
  - Check point on member readiness

Q&A

Questions?