

SEMOpX Bidding

Version 2

March 2021



Contents

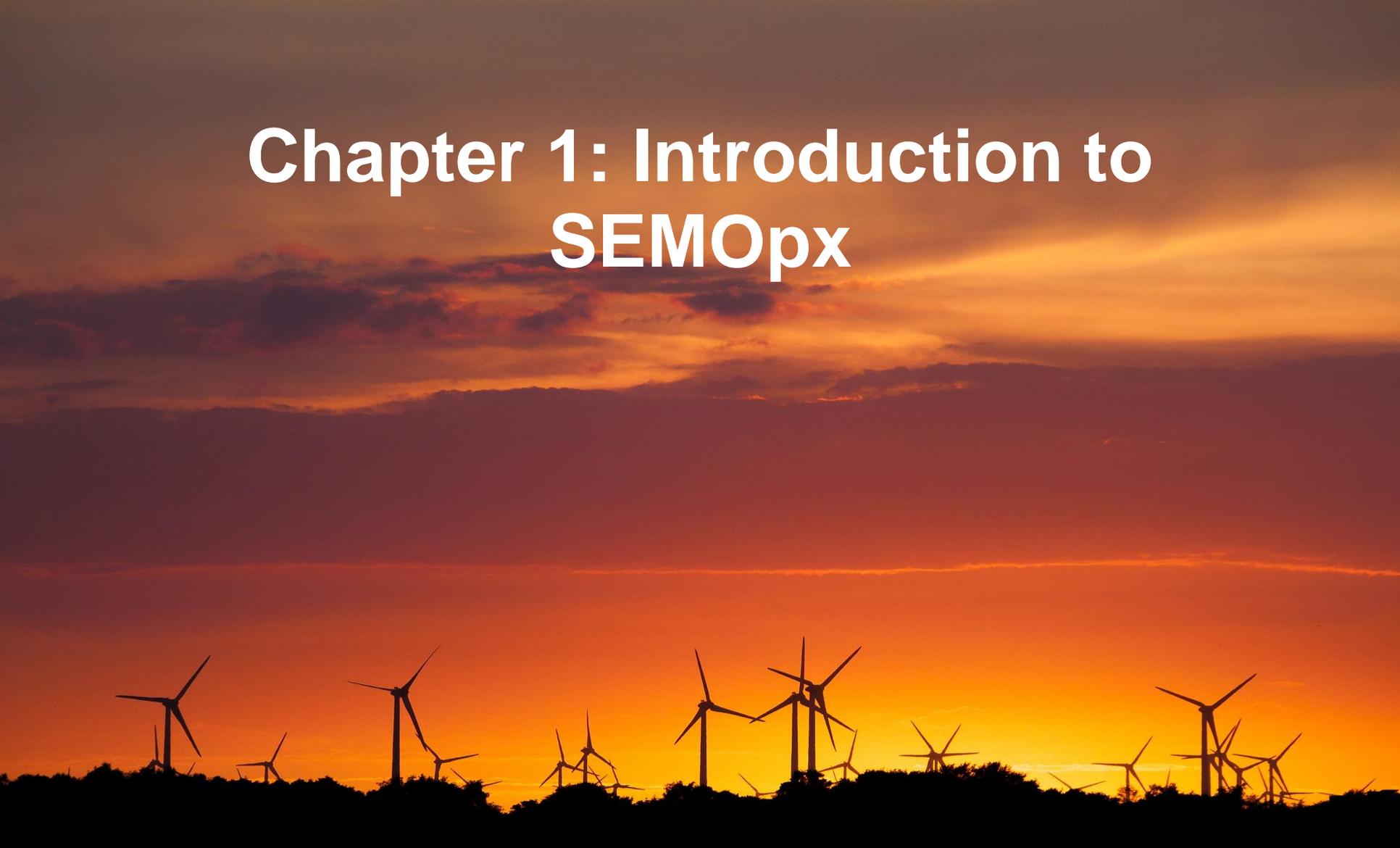
Chapter	Title
Chapter 1	Introduction to SEMOpx
Chapter 2	SEMOpx Day-ahead Market
Chapter 3	SEMOpx Intraday Market
Chapter 4	Key Difference to SEM Ex-Ante Markets
Chapter 5	Summary

Learning Outcomes

This document will give you an understanding of:

- How to access SEMOpx systems
- The timelines for data submission for Day-Ahead auctions and Intraday auctions
- The process for data submission for Intraday continuous market

Chapter 1: Introduction to SEMOpX



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Introduction

- This document will provide an overview of the following;
 - SEMOpx Day-ahead market
 - SEMOpx Intraday auctions
 - SEMOpx Continuous intraday trading

The I-SEM High Level Design – *ex-ante Trading*

Capacity

Day-ahead

Intraday

Balancing

TSC
Settlement

- All ex-ante trading must be done through a NEMO.
- This involves trading through an exchange and settlement by a central counterparty (clearing house / clearing member / settlement bank).
- NEMOs will be designated by SEM RAs or allowed to offer “passport” services.
- Commercial offers submitted to NEMOs will be anonymised and sent to central EU algorithm where they are cleared.
- Results are provided back to NEMOs and to Participants.
- For generators, cleared positions from ex-ante markets are represented in the balancing market through their Physical Notifications to the TSOs.

SEMOpX

- EirGrid and SONI were designated as NEMOs:
 - EirGrid was designated as a NEMO in Ireland
 - SONI was designated as a NEMO in Northern Ireland
- A single solution was decided upon by EirGrid/SONI:
 - In line with the single market for the SEM
 - With one entity to act jointly as both NEMOs
- SEMOpX will act as a NEMO in Ireland and Northern Ireland:

SEMOpX Introduction

Capacity

Day-ahead

Intraday

Balancing

TSC
Settlement



SEMOpX is the exchange operator for EirGrid and SONI NEMOs.

SEMOpX provides exchange operator services for the day-ahead and intraday market segments.

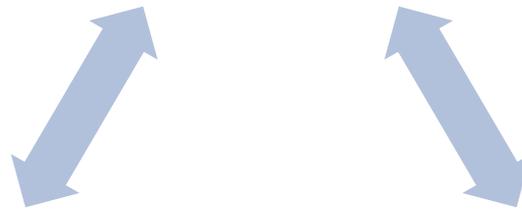
SEMOpX – Service Providers

- SEMOpX have engaged two service providers:
 - EPEX Spot; and
 - ECC
- EPEX Spot support trading services:
 - EPEX Spot provide and support trading systems
 - EPEX Spot perform market coupling services
- ECC act as the central counter party:
 - ECC act as guarantor for all trades on the SEMOpX exchange
 - ECC provide settlement, invoicing and banking services

SEMOpX and Service Providers



Market Operator –
Point of contact for
participants



Trading
services



Settlement &
Banking
services

Chapter 2: SEMOpX Day-ahead Market



The I-SEM High Level Design - Day-ahead Market

Capacity

Day-ahead

Intraday

Balancing

TSC
Settlement

- The Day-ahead market is the “exclusive” route to market, there is no other route to get a physical position at day-ahead.
- This market will use EUPHEMIA to determine the power flows both for interconnectors and for local generators.
- Participation is unit-based, with generation units and suppliers actively trading. This provides transparency for consumers to see where prices are coming from.
- This market allows generators to offer based on availability and suppliers to bid based on forecast offtake.
- There is limited capability in DAM to represent technical capability of generators.
- Effectively, participation in ex-ante markets is as offers to sell and bids to buy by traders.
- Some portfolio participation will be allowed, but only for certain levels of participation, and particularly for wind generators. Aggregators will be allowed to offer commercial facilities to wind generators, in addition to a concept called an “Agent of Last Resort”. For participants who view this market as a significant overhead, they can sign up with the Agent of Last Resort who can manage their trading while the participant will still get paid through the day-ahead market operator.

SEMOpX Day-ahead Market

- The Day-ahead market auction is held daily at 11:00 on D-1.
- The auction is a local auction:
 - SEMOpX order book is sent to central body with other order books
 - Single set of results for all markets across Europe
 - Results calculated for units.
 - The auction is part of European Market Coupling, however, with no interconnection to Europe, SEMOpX will be treated as a local auction.
- SEMOpX is the point of contact for participants:
 - Participants submit orders and receive results through SEMOpX

Chapter 3: SEMOpX Intraday Market



The I-SEM High Level Design – Intraday Auction Market

Capacity

Day-ahead

Intraday

Balancing

TSC
Settlement

- The intraday auction market is intended as the adjustment market. If trades in the day-ahead market do not match up with physical delivery or consumption, the intraday market is where participants can go to buy or sell additional power. The intraday market allows participants to balance themselves, before the balancing market steps in.
- This solution is a central platform that ensures SEMOpx is coupled with GB, with interconnector capacity volumes available during the IDA1 and IDA2 auctions, allowing for the trade of energy to flow between the two regions.
- The granularity of participation is the same in the intraday market as the day-ahead. In other words it is unit based participation. This market too allows for some level of aggregation.

Intraday Markets

- Comprised of two market segments:
 - Three intraday auctions
 - Continuous intraday trading
- Intraday auctions allow:
 - Cross border trading with GB, in IDA 1 and IDA 2
 - Ease of access for smaller participants
 - Pooling of liquidity at distinct times
- Intraday continuous trading allows:
 - Ease of transition to the enduring arrangements
 - Ability to secure trades in between auction closures

Intraday Auction Markets

- Two intraday auctions are regionally coupled:
 - IDA1 and IDA2 are coupled
 - IDA3 will be local only
 - Allow trading between SEM and GB market
- Regional coupling functionally the same as European coupling:
 - Same function as in DAM but with SEM and GB only
 - Single set of results for SEM and GB markets in coupled auctions
 - SEMOpx still point of contact for participants
- Intraday auctions cover different time periods:
 - IDA1 24 hours; IDA2 12 hours and IDA3 6 hours

Auction Timings and Trading Periods

The table below summarises the SEMOpx auctions:

Market Name	Gate Window Closure	Delivery Periods	Market Coupling
DAM	11:00 (D-1)	23:00 – 23:00 (24 * 1 hour)	Local trading only
IDA – 1	17:30 (D-1)	23:00 – 23:00 (48 * ½ hour)	Coupled with GB
IDA – 2	08:00 (D)	11:00 – 23:00 (24 * ½ hour)	Coupled with GB
IDA – 3	14:00 (D)	17:00 – 23:00 (12 * ½ hour)	Local trading only

Intraday Continuous Trading

- Allows for trading continuously:
 - Participants enter orders to buy or sell energy
 - SEMOpx displays the order book of active orders anonymously
 - Participants can match their order with ones they see in the order book on a continuous basis
 - Once an order is matched to another, a trade is created
- Trading is open up to one hour ahead:
 - Trading can take place at any time up to the close of trading
 - Trading available overnight
- Runs in parallel to the auctions:
 - Continuous trading is not suspended when auctions are occurring

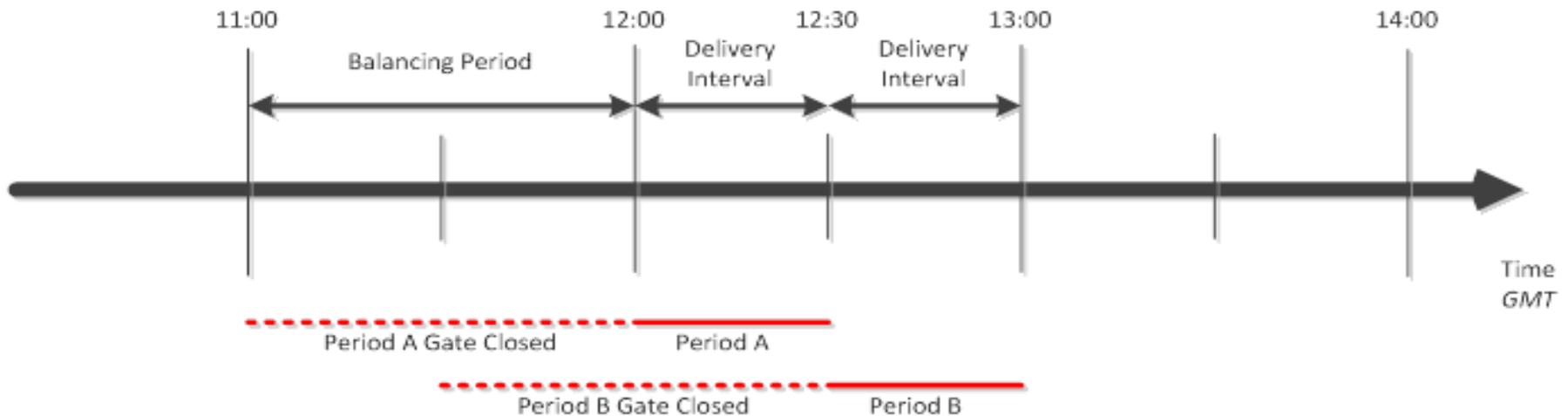
SEMOpX Intraday Continuous Trading

- The SEMOpX Intraday Continuous Market trading day is divided into 48 (30 minute) trading periods, compared with 1-hour periods in the Day Ahead Market. D-1 and D are the day D and the day before D. Both days start at 23:00. The market opens after the Day Ahead Auction Closure, D-1, runs continuously and closes 60 minutes ahead of every 30 minute trading period. The trading day starts at 23:00 D-1 and lasts until 23:00 D.
- The SEMOpX Intraday Continuous Market allows market Participants to adjust their physical positions closer to real time. The need to do so can arise for a number of reasons, including orders failing to clear in the Day Ahead Market, new information becoming available (for example plant failures and forecast changes), and congestion on interconnectors driving price differentials between zones, and assetless traders wishing to exit their positions. This market offers a huge amount of flexibility as Participants can trade themselves out of their contracted positions 24/7.
- The trading in the SEMOpX continuous market is local only (i.e. trades in the SEM only with no cross border trades).

Intraday Continuous Market - Diagram

- SEMOpx Intraday Continuous:
 - Ability to adjust positions for forecast updates and scheduling outcomes from DAM/IDA
 - 30 minute trading period granularity
 - Trading until 1 hour ahead of delivery (rolling half hour gate closure)

Example: At 11:00 1 hour gate closes for 12:00 to 12:30
At 11:30 1 hour gate closes for 12:30 to 13:00



Chapter 4: Key Differences to SEM Ex-Ante Markets



SEMOpX Markets – Key differences to SEM

- All units are treated equally in SEMOpX:
 - No distinction between generators, suppliers etc.
 - Any unit can either buy or sell energy in any trading period
 - Any unit may be a price taker or price maker
 - Units must submit bids/offers to get a market position
- All ex-ante trades are firm once accepted:
 - Price is firm and will not change due to further auctions etc.
 - Volumes are firm commitments to generate/consume
- Units are balance responsible for cleared trades:
 - Will pay at imbalance price for any unfulfilled trades
- The following diagrams summarise some key differences between the SEM and I-SEM ex-ante markets.

Differences between the SEM and I-SEM – Ex-ante Design

SEM

Single ex-post price for settlement

Mandatory

Auctions only

Market positions updated by later auctions

I-SEM

Range of prices for settlement

Non-mandatory (exclusive)

Auction and continuous

Firm positions for each trade and balance responsibility

Differences between the SEM and I-SEM – Generators

SEM

Sell energy only

Market position updated by later runs

Schedule optimised by the market solver algorithm

Wide range of TOD and COD

I-SEM

Buy or sell energy

Market position from DAM is firm

Trade to reflect preferred scheduling

Limited number of set products

Differences between the SEM and I-SEM – Suppliers

SEM

Price taking

No bids

Settled based on ex-post
consumption

Pay at a single price ex-post

I-SEM

Can be price making

Bids as required

Balance responsibility for ex-
ante trades

Can secure prices and volumes
ex-ante

Chapter 5: Course Summary



Review of Learning Outcomes

The timelines for data submission for day-ahead auctions, intraday auctions



The process for data submission for intraday continuous market



Should you have any questions please contact info@semopx.com