

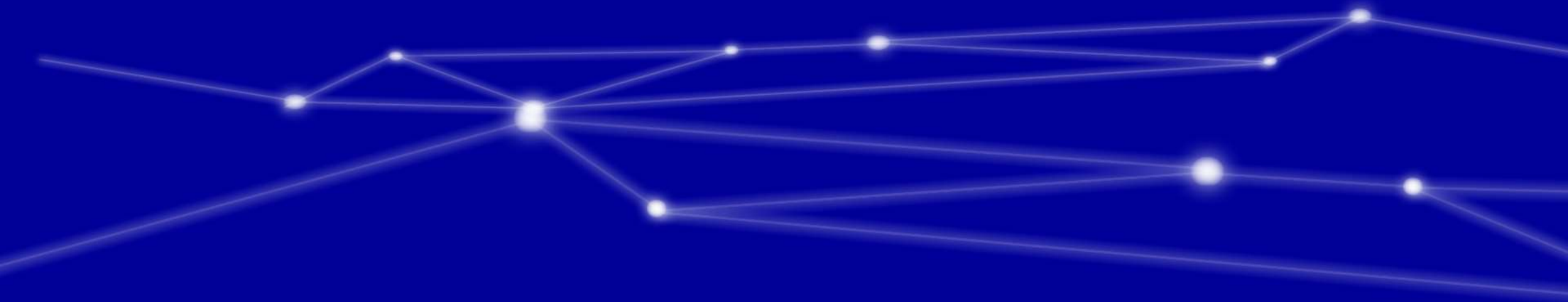
IT Open Day 2022

M7 Auction – An Auction System for Regulated Markets

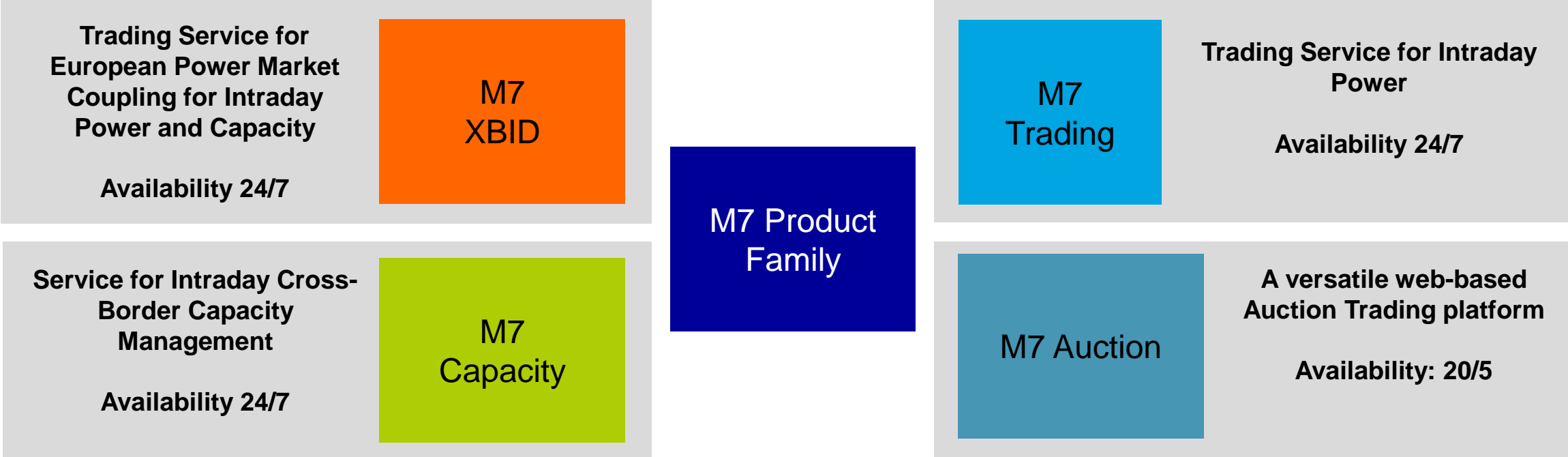
Alexander Wafae



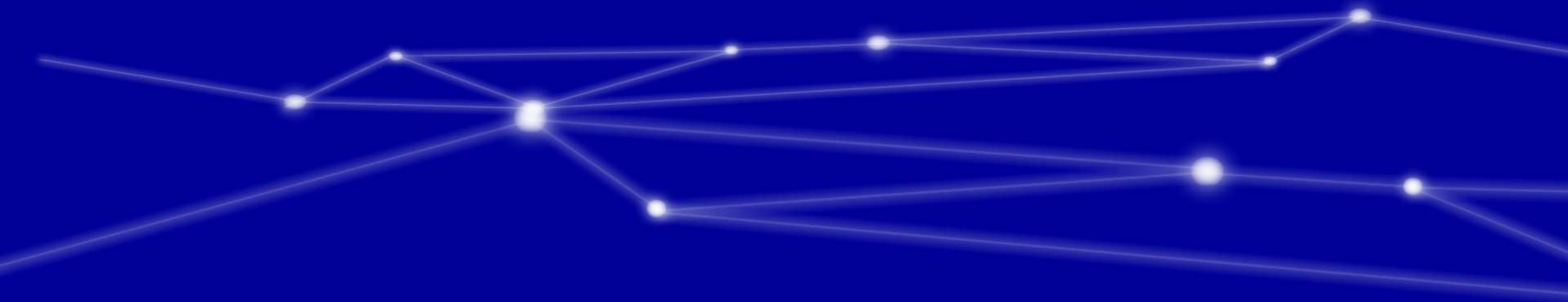
The Energy Section of Deutsche Börse



Energy IT



M7 Auction



What is M7 Auction (M7A)?

- A web-based auction trading system for regulated markets
- Developed and operated by the Energy section of DBAG
- Recently released version 5.1 modernized UI and more flexible product configuration
- Supports the requirements of energy markets but configurable for other securities



Key Features

- Accessible via internet with a standard internet browser
- Provides buy and sell auctions
- Meets requirements of regulated markets in terms of security, reliability and reporting
- Can be accessed via an open API
- Supports simultaneous trading of multiple assets in different time zones
- Provides a wide range of auction features



The GUI

Auctions

+ Create Auction

Search for Auctions... [Trading Calendar](#) All Security Energy All Submitted Published Running Finished

ID	Name	Product	Product Type	Progress	Phase
1	AUC31	BASEYEAR	Energy	12:00 (15.03.2022) - 18:00 (15.03.2022)	SUBMITTED
2	AUC32	PEAKDEC	Energy	18:00 (15.03.2022) - 20:00 (15.03.2022)	PUBLISHED

Auction Details

Energy per Lot: 8 760 MWh | Phase: SUBMITTED | Name: AUC31 | Product: Base Year (BASEYEAR)

Zone: | Auctioneer: Auctioneer | Opening: 15.03.2022 12:00

Closing: 15.03.2022 18:00 | Delivery Year: 2022 | Number of Lots: 5 | Power per Lot: 1 MW

Auction Configuration

Auction Type: Sell | Bidding Type: Slotted | Trade Price Calculation Type: Bid Price | Algorithm: Price / Time

Acceptance Type: Auto | Show Last Price: | Show Ranking: | Limit Bid Modification: | Minimum Price: 10.00 EUR

Maximum Price: 30.00 EUR | Reference Price: EUR | Abs. Deviation Limit: EUR

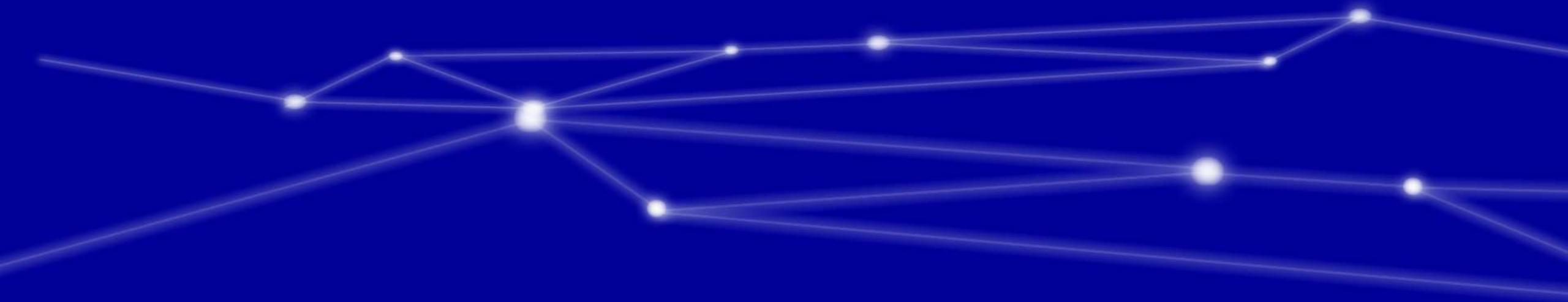
Rel. Deviation Limit: % | Description: Base Year

Apply Changes | Publish Auction | Delete Auction

© 2017, 2022 M7A; M7 Auction Service v5.1.309-SNAPSHOT | en de

M7AADM13

Key Features



Security

- DBG Information Security Policies and Standards (based on ISO27000s)
- Data protection standards compliant to EU General Data Protection Regulation ("GDPR")
- Full redundancy with automatic instant failover (hosted in different locations)
- Internal and external encryption
- Network segregation of environments
- Regular internal risk assessments
- Regular external penetration tests
- Multitude of security scanning and monitoring tools in place, scanning for:
 - vulnerabilities on server and network
 - source code
 - database monitoring

Auction Type, Bidding Type and Price

Auction Type

M7A supports both **Buy** and **Sell** auctions.

Bidding Type

M7A supports **Open bidding** or **Slotted bidding**.

Open Bidding: Bidders can enter unlimited number of bids.

Slotted Bidding: Bidders can only enter a limited number of bids (slots).

Auction/Bid Price

Bid Price: Each accepted bid is executed at the price entered for that bid.

Auction Price: All bids are executed at the same price.

Price Determination

Price/Time

Bids with the **best** price are executed first. Of multiple bids with the same price, the one with the earliest timestamp is executed first.

Price/Random

Bids with the **best** price are executed first. Bids with the same price are executed in a random order.

Cash Limit and Clearing House support (I)

- Multiple Clearing houses
- Multiple Zones
- Multiple Cash Limits in different currencies
- Cash Limits can be modified manually or by automatic upload via Clearing interface

Cash Limit and Clearing House support (II)

Timezone determines Cash Limit reset

Multiple Zones

Multiple Currencies

Clearing House Detail

Code **EUREX**

Name **EUREX Clearing** Time Zone **Europe/Berlin**

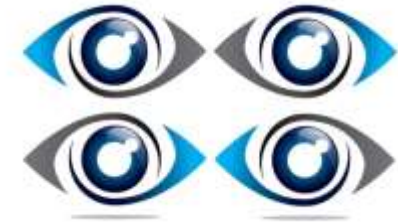
Assigned to Zones

CA (California) **CN (China)**

Default Cash Limits

Currency Name	Currency Code	Default Cash Limit
Chinese Yuan	CNY	[-] 1 000 000 000.00 [+]
Euro	EUR	[-] 1 000 000 000.00 [+]
US dollar	USD	[-] 1 000 000 000.00 [+]

Four Eyes Principle



To avoid human errors Market Operator actions can be configured to require confirmation by a second user.

For example:

- Publishing of auctions
- Suspending a Member or User
- Creating or changing Cash Limit
- Submitting or Modifying Bids on behalf of a Bidder

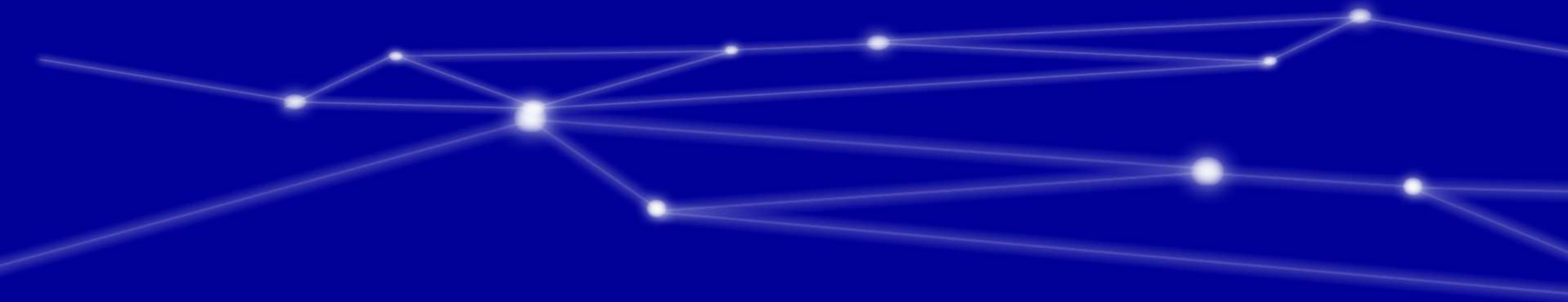
User Roles

- **Market Supervision** – user who controls the whole auction lifecycle
- **Market Surveillance** – user who observes the whole auction lifecycle without the power to step in
- **Admission** – user who controls access rights
- **Bidder**– user who can place places bids
- **Clearing** – user who sets up Cash Limit
- **Clearing/Data Vendor/Trading API User** – user who can access the auction system by API

Other Features

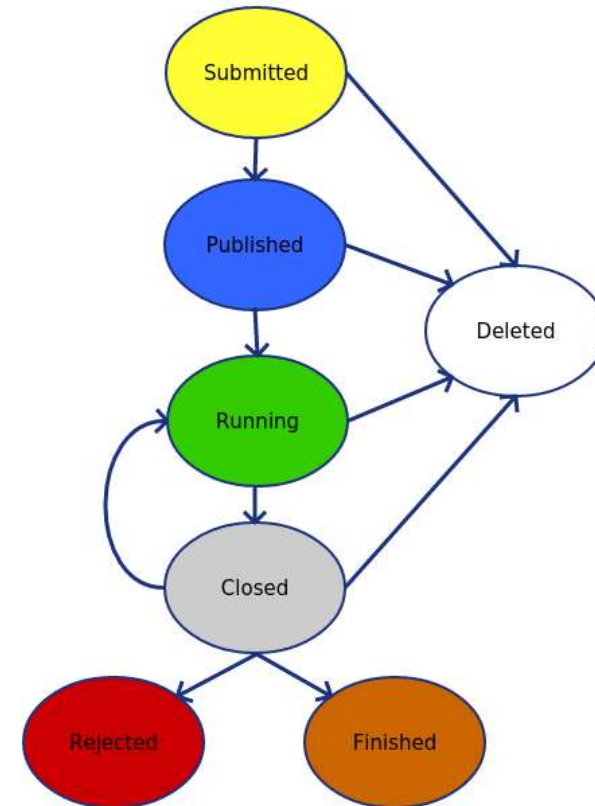
- AMQP Interface for bidders and clearing support
- Automatic or manual acceptance of auction results
- Auction Templates
- EU Auctioneer (distribute volume over several counties)
- Variety of downloadable Auction Reports
- Etc.

Auction Lifecycle

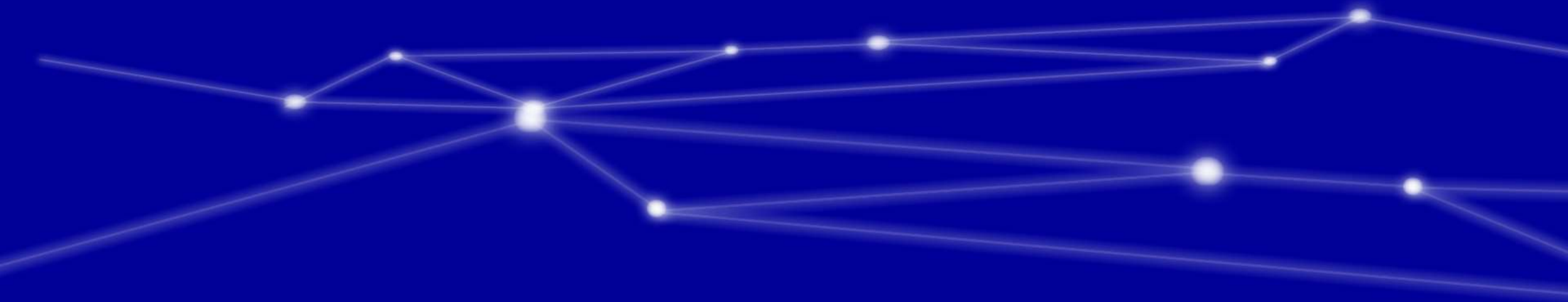


Auction Lifecycle

- **Submitted** – newly created and scheduled auction hidden for the bidders
- **Published** – uncovered auction, visible for the bidders
- **Running (Call)** – the auction phase when the bidders can place their bids
- **Closed** – the phase when auction is evaluated by Market Supervision
- **Finished** – the auction is accepted by Market Supervision
- **Cancelled** – the auction is cancelled by Market Supervision
- **Deleted** – the auction is deleted



Example: Emission Trading in M7-Auction

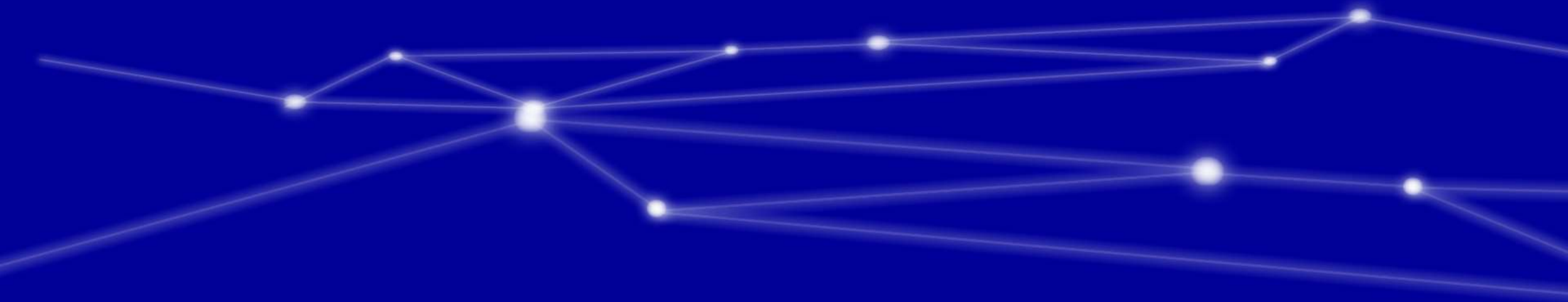


EUA Primary Auction Service by EEX

- Auction platform for the European Emission Trading System (ETS) operated by **EEX**
- Common platform to auction allowances on behalf of 25 EU Member States
- **EUA** (European Union Allowance) certificates (Co2 Emission allowances)
- **EUA** certificates (Aviation allowances)



In a nutshell



M7 Auction – In a nutshell

- Secure and versatile Auction Trading platform (currently used for trading of Emission Certificates and Power)
- Accessible via browser or XML based Public API
- Simultaneous trading of multiple assets in different time zones
- Full clearing support and risk management (cash limits in multiple currencies or auction limits)
- Different auction algorithms (Price-Random or Price-Time, Buy or Sell auctions)
- Meets requirements of regulated markets in terms of performance, security, reliability and reporting.
- Other features like Auction Templates, EU Auctioneer etc.



Thank you!

Alexander Wafae

Product Owner M7 Auction

Deutsche Börse AG
Mergenthalerallee 61
65760 Eschborn

+49-(0) 69 211 12093

alexander.wafae@deutsche-boerse.com

Energy Client Relations

energy-cr@deutsche-boerse.com



Deutsche Börse AG opens up international capital markets for its customers. Its product and service portfolio covers the entire process chain – from pre-IPO services and the admission of securities, through securities and derivatives trading through the settlement of transactions and the provision of market information to the development and operation of electronic trading, clearing and settlement systems. With its process-oriented business model, Deutsche Börse increases the efficiency of capital markets. Committed employees are the key factor for innovation and further growth: without them, Deutsche Börse Group would not have developed into one of the most modern exchange organisations in the world. More than 5,000 employees work for the Group – a dynamic, motivated and international team.

© Deutsche Börse Group 2022

This publication is for informational purposes only. None of the information in this publication constitutes investment advice and does not constitute an offer to sell or a solicitation of an offer to purchase any contract, share or other financial instrument. This publication is not intended for solicitation purposes but only for use as general information. All descriptions, examples and calculations contained in this publication are for illustrative purposes only.

Deutsche Börse AG, Frankfurter Wertpapierbörse (FWB®, the Frankfurt Stock Exchange), Eurex Frankfurt AG, Eurex Deutschland and Eurex Clearing AG do not represent that the information in this publication is comprehensive, complete or accurate and exclude liability for any consequence resulting from acting upon the contents of this or another webpublication, in so far as no wilful violation of obligations took place or, as the case may be, no injury to life, health or body arises or claims resulting from the Product Liability Act are affected.

Securities traded on the Frankfurt Stock Exchange and Eurex derivatives (other than EURO STOXX 50® Index Futures contracts, EURO STOXX® Select Dividend 30 Index Futures contracts, STOXX® Europe 50 Index Futures contracts, STOXX® Europe 600 Index Futures contracts, STOXX® Europe Large/Mid/Small 200 Index Futures contracts, EURO STOXX® Banks Sector Futures contracts, STOXX® Europe 600 Banks/Industrial Goods & Services/Insurance/Media/Personal & Household Goods/Travel & Leisure/Utilities Futures contracts, Dow Jones Global Titans 50 IndexSM Futures contracts, DAX® Futures contracts, MDAX® Futures contracts, TecDAX® Futures contracts, SMIM® Futures contracts, SLI Swiss Leader Index® Futures contracts, RDXxt® USD - RDX Extended Index Futures contracts, Eurex inflation/commodity/weather/property and interest rate derivatives) are currently not available for offer, sale or trading in the United States nor may they be offered, sold or traded

by persons to whom US tax laws apply.

The fund shares listed in XTF Exchange Traded Funds® are admitted for trading on the Frankfurt Stock Exchange. Users of this information service who legally reside outside Germany are herewith advised that sale of the fund shares listed in XTF Exchange Traded Funds may not be permitted in their country of residence. The user makes use of the information at their own risk.

Legal validity of this disclaimer

In the event that individual parts of or formulations contained in this text are not, or are no longer, legally valid (either in whole or in part), the content and validity of the remaining parts of the document are not affected.

Trademarks

The following names and designations are registered trademarks of Deutsche Börse AG or an affiliate of Deutsche Börse Group:

1585®; A7®; Buxl®; C7®; CDAX®; CEF®; CEF alpha®; CEF ultra®; CFF®; Classic All Share®; Clearstream®; CX®; D7®; DAX®; DAXglobal®; DAXplus®; DB1 Ventures®; DBIX Deutsche Börse India Index®, Deutsche Börse®; Deutsche Börse Capital Markets Partner®; Deutsche Börse Commodities®; Deutsche Börse Venture Network®; Deutsches Eigenkapitalforum®; DivDAX®; eb.rexx®; eb.rexX Jumbo Pfandbriefe®; ERS®; eTriParty®; Eurex®; Eurex Bonds®; Eurex Clearing Prisma®; Eurex Improve®; Eurex Repo®; Euro GC®; ExServes®; EXTf®; F7®; FDAX®; FWB®; GC Pooling®; GCPI®; GEX®; Global Emission Markets Access – GEMA®; HDAX®; iNAV®; L-DAX®; L-MDAX®; L-SDAX®; L-TecDAX®; M7®; MDAX®; N7®; ODAX®;

ÖkoDAX®;PROPRIS®; REX®; RX REIT Index®; Scale®; SCHATZ-FUTURE®; SDAX®; ShortDAX®; StatistiX®; T7®; TecDAX®; Technology All Share®; TRICE®; USD GC Pooling®; VDAX®; VDAX-NEW®; Vestima®; Xscreen®, Xemac®, Xentric®, Xetra®; Xetra-Gold®; Xpect®; Xpider®; XTF®; XTF Exchange Traded Funds®; We make markets work®

The names and trademarks listed above do not represent a complete list and, as well as all other trademarks and protected rights mentioned in this publication, are subject unreservedly to the applicable trademark law in each case and are not permitted to be used without the express permission of the registered owner. The simple fact that this publication mentions them does not imply that trademarks are not protected by the rights of third parties.

The STOXX® indices, the data included therein and the trademarks used in the index names are the intellectual property of STOXX Ltd., Zug, Switzerland and/or its licensors. Eurex' derivatives based on the STOXX indices are in no way sponsored, endorsed, sold or promoted by STOXX and its licensors and neither STOXX nor its licensors shall have any liability with respect thereto.

STOXX iSTUDIO® is a registered trademark of STOXX Ltd., Zug, Switzerland.

TRADEGATE® is a registered trademark of Tradegate AG Wertpapierhandelsbank.

EEX® is a registered trademark of European Energy Exchange AG. Flexible is better.® is a registered trademark of Axioma, Inc.