

> epexspot

- Market update
- 2. Status of main projects
- 3. New developments and outlook

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Intraday: A unique marketplace with the biggest product range and best performance in Europe

Access to whole european

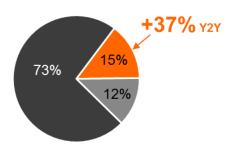
Intraday liquidity

simplified XBID access

90% of all XBID Trades are traded at EPEX

arbitrage opportunities between 60/30/15-min products

German Intraday Volumes per product (Oct. 2018)

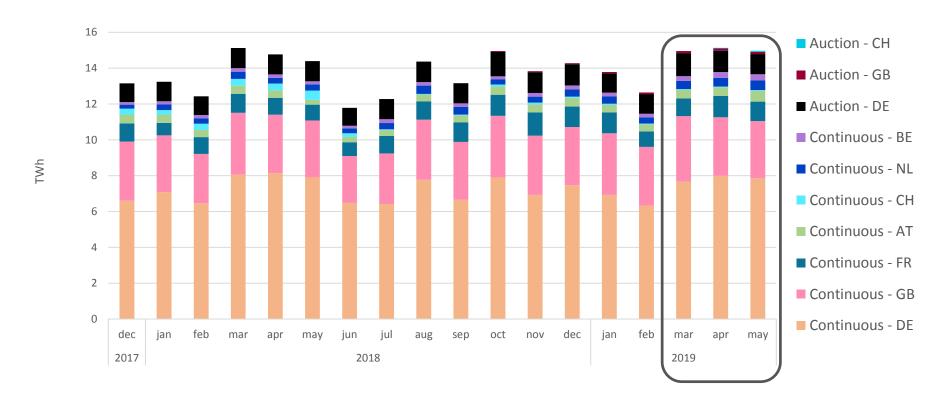


■ 15-min Auction ■ 15-min Continuous ■ 30, 60-min

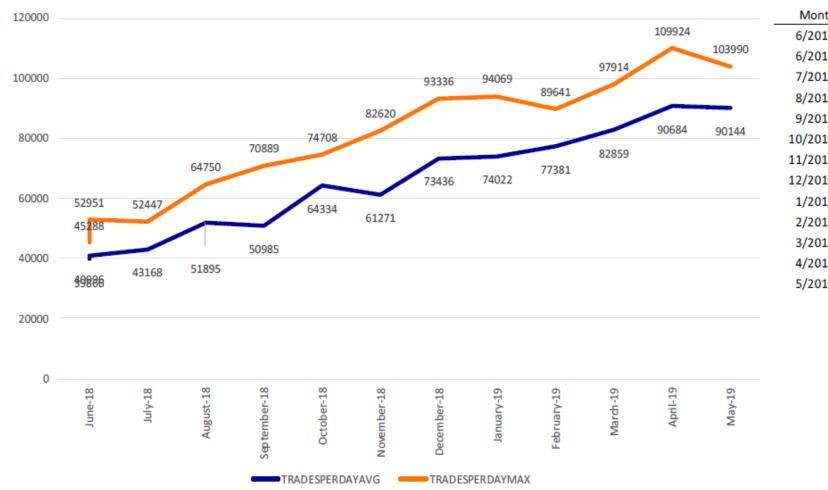


EPEX SPOT Volumes: Intraday Markets

- Intraday volume for last 3 months increases by 0.8 TWh compared to Mar '18 to May '18.
 - Mar '19: Record volume for GB-IDA auctions (114 GWh) and BE continuous (268 GWh)
 - Apr '19: Increase of 0.4 TWh YoY, record volumes for FR, NL and BE continuous markets
 - May '19: Record volumes for AT, NL and BE, overall increase of +0.6 TWh compared to May '18.

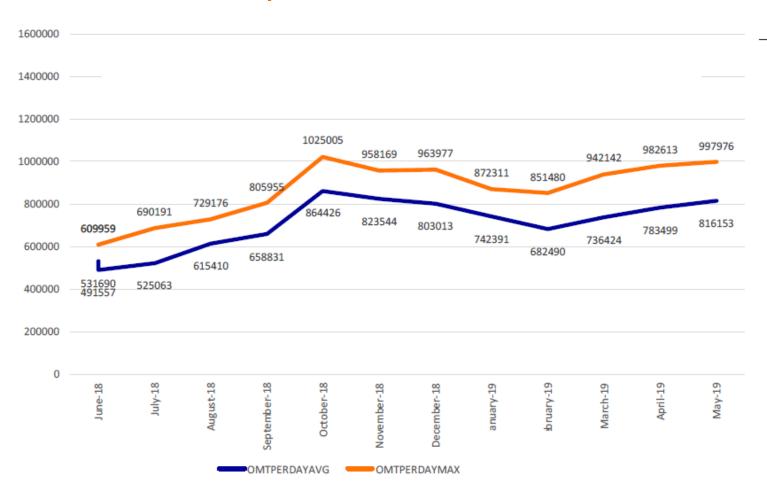


Continuous Intraday: Average and maximum daily trades per month



Month	AVG	MAX
6/2018	39,866	45,288
6/2018	40,996	52,951
7/2018	43,168	52,447
8/2018	51,895	64,750
9/2018	50,985	70,889
10/2018	64,334	74,708
11/2018	61,271	82,620
12/2018	73,436	93,336
1/2019	74,022	94,069
2/2019	77,381	89,641
3/2019	82,859	97,914
4/2019	90,684	109,924
5/2019	90,144	103,990

Continuous Intraday: Average and maximum daily order events per month

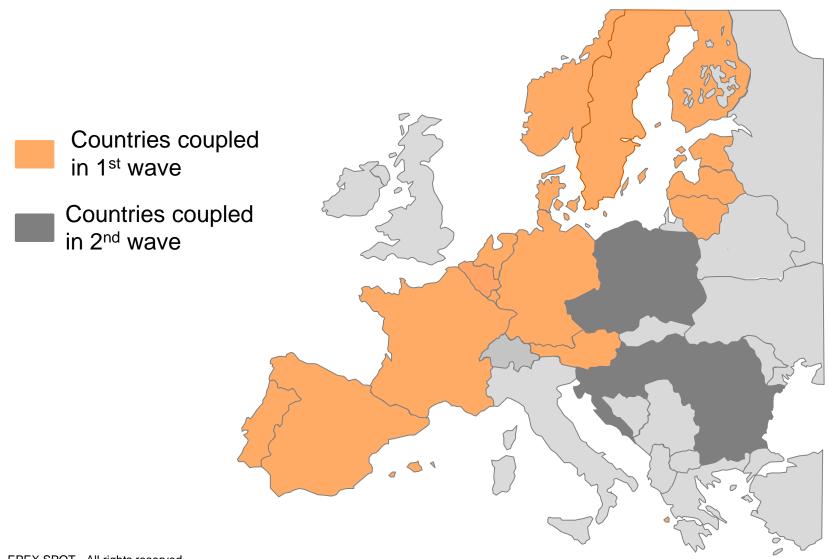


Month	AVG	MAX
6/2018	531,690	609,959
6/2018	491,557	609,959
7/2018	525,063	690,191
8/2018	615,410	729,176
9/2018	658,831	805,955
10/2018	864,426	1,025,005
11/2018	823,544	958,169
12/2018	803,013	963,977
1/2019	742,391	872,311
2/2019	682,490	851,480
3/2019	736,424	942,142
4/2019	783,499	982,613
5/2019	816,153	997,976

April 2019 availability rate: 99,96%

Average Jan-Apr 2019 availability rate: 99,93 %

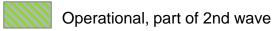
Second XBID wave is planned for Q4 2019



Planned XBID expansion

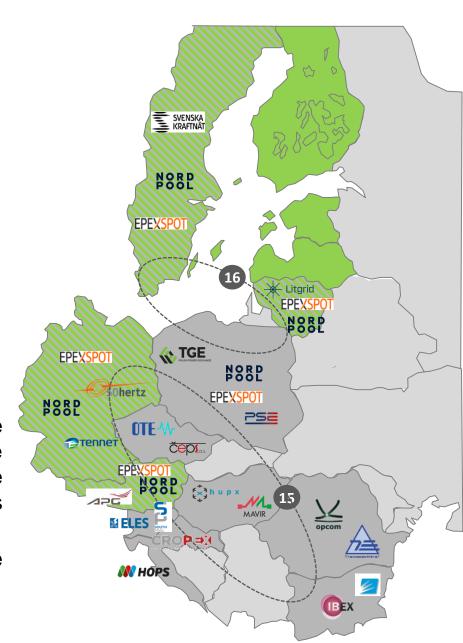
LIP		Participants
15	AT-CZ, AT-SI, AT-HU, BG-RO, CZ-DE, CZ-PL, DE-PL, HR-SI, HR-HU, HU-RO	NEMOs: BSP, Cropex, EPEX, HUPX, IBEX, Nord Pool, OPCOM, OTE TSOs: 50Hertz, APG, CEPS, ELES, ESO, HOPS, MAVIR, PSE, Transelectrica, TTG
16	LT-PL, PL-SE	NEMOs: EPEX, Nord Pool, TGE TSOs: Litgrid, PSE, Svk





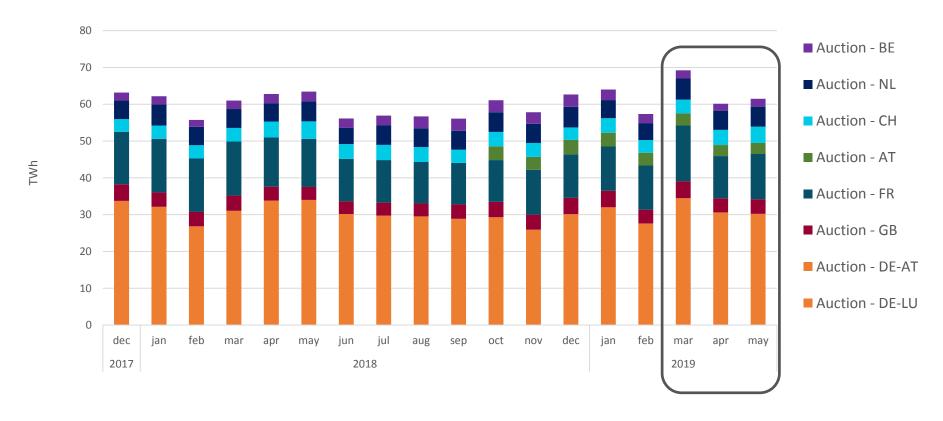


- XBID 2.0 is under development and will be implemented in Q4/2019. Due to the integration of new markets in the Single Integration Coupling a higher liquidity is expected.
- XBID 3.0 is planned in 2020, and will include DC cable transmissionen losses



EPEX SPOT Volumes: Day-Ahead Markets

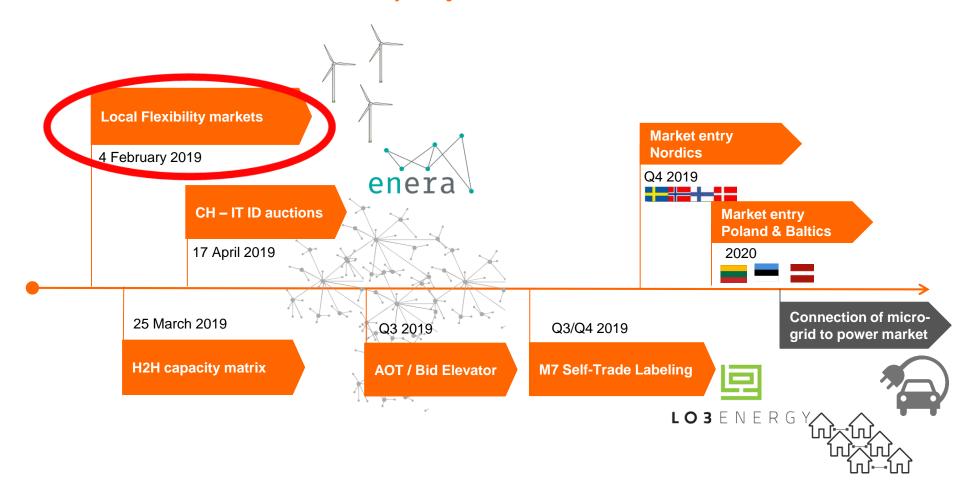
- Day-ahead volume for last 3 months increases by 3.6 TWh compared to Mar '18 to May '18.
 - Mar '19: Growth driven by DE (34.5 TWh, +6.8 TWh) and good month for FR (15.2 TWh, +0.5 TWh)
 - Apr '19: Minor increase YoY for GB auction (3.8 TWh) and NL auction (5.2 TWh)
 - May '19: Stable growth for GB auction (3.9 TWh)



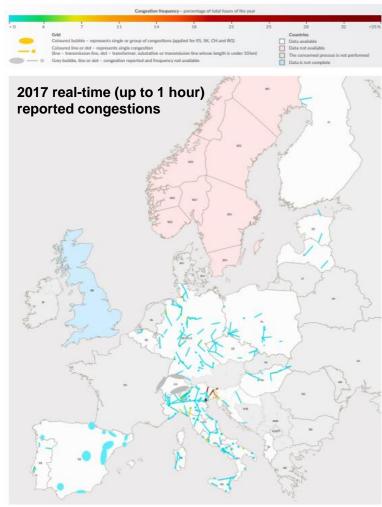
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2019 – Status of main projects

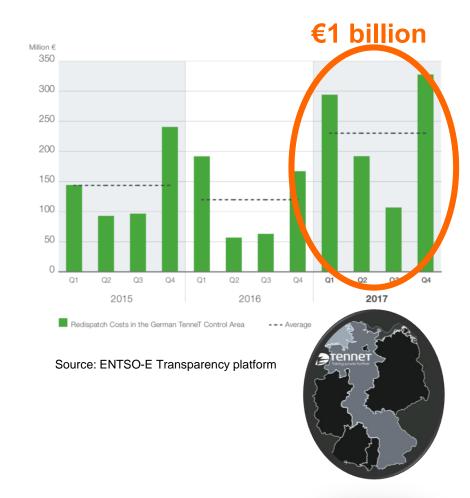


Congestions are slowly appearing in Europe



Source: ENTSO-E Regular Reporting on Bidding Zone Configuration – Technical Report 2018

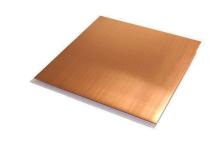
Redispatch costs in the TenneT control area, spreading from the North-West to the South-East of Germany



Local flexibility markets to complement the EU market

wholesale market

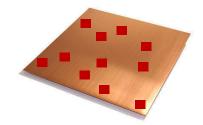
EU XBID EPEX	В	id	Ask		
Product	Qty	Price	Price	Qty	
DE 03:00	10	32	33	25	
DE 03:00	3	31	34	5	
DE 03:00	8	30	35	1	
DE 03:00	7	29	38	4	



... in parallel to...

on-demand local orderbooks to relieve congestions

Qty cet 1	Bi Prio	Bic Price		Ask Qty	sk ty Qty
Qty cet 1	Bi Prio	Bic Price	e Pri	Qty Ce Qt	ty
10 t 3	Qty 32 Q Q	Bic	e Pri	ce Qt	ty
	Q	lty		Price	Qtv
8	210		35	3 2	
1 7	3 21	10 3	3 42	443	25
1	0	3	30	50	5
1		8	27	55 ⁴	1
1		7	21	58	4
1		7 8 25	7 8 210 30 3 3 29 8	210 342 3 30 3 7 3 30 7 8 20 3	3 30 35 35 37 38 39 37 38 37 38 37 38 38 38 38 38 38 38 38 38 38 38 38 38



Local flexibility markets to complement the EU market

FLEXIBILITY SUPPLY

FLEXIBILITY MARKET PLACE

FLEXIBILITY DEMAND FROM SYSTEM OPERATORS

Flexibility providers:

- Power plants
- Aggregators
- VPPs
- Storage
- Renewables





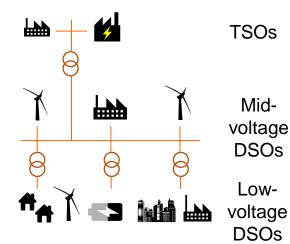




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Market-based congestion management

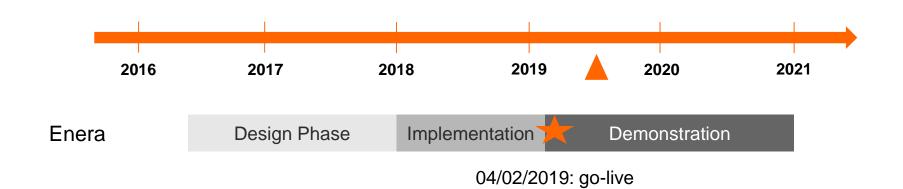
Trading systems
Standards
Transparency
Coordination
Neutrality



5 months with increasing activity



- Smooth start and increasing activity since then
- Two out of the three regional System Operators joined only very recently
- Activity is expected to keep on increasing when they start being more and more active on the market



A growing members' base



Already admitted

System Operators	Certified Flexibility Providers
EWE Netz	VW Kraftwerk GmbH
Avacon	Statkraft Markets
TenneT	Baywa Re
	EWE Trading
	Quadra Energy
	Alpiq SA

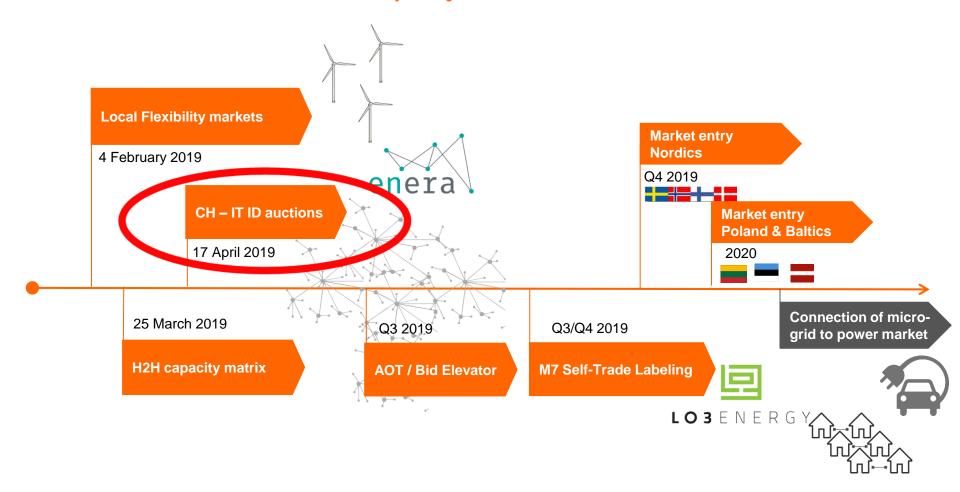
Admission process ongoing

System Operators	Certified Flexibility Providers		
	Flexibility Provider #1		
	Flexibility Provider #2		

- 2 more flexibility providers have approached EPEX membership
- The market is opened to anyone willing to join with assets in the region!

^{*}Joined since go-live

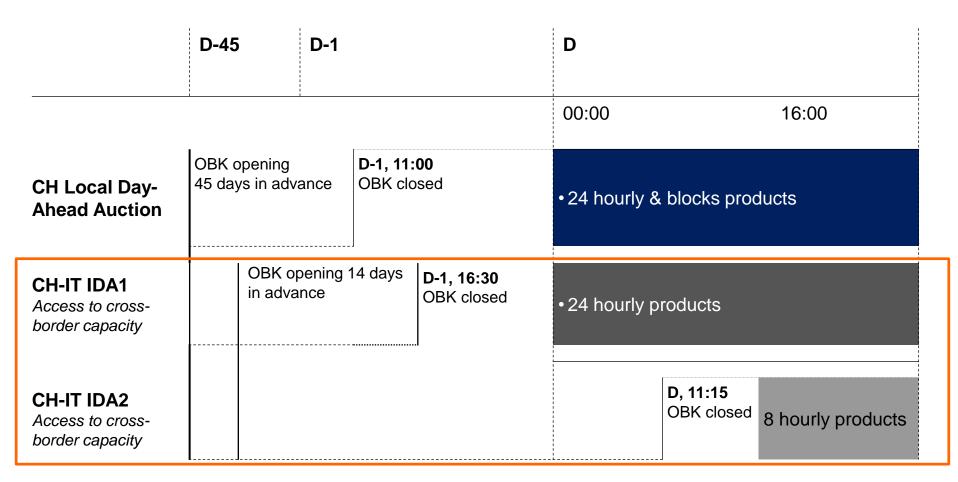
2019 – Status of main projects



New Swiss coupled Intraday auctions – Assessment of first weeks (mid-April / May 2019)

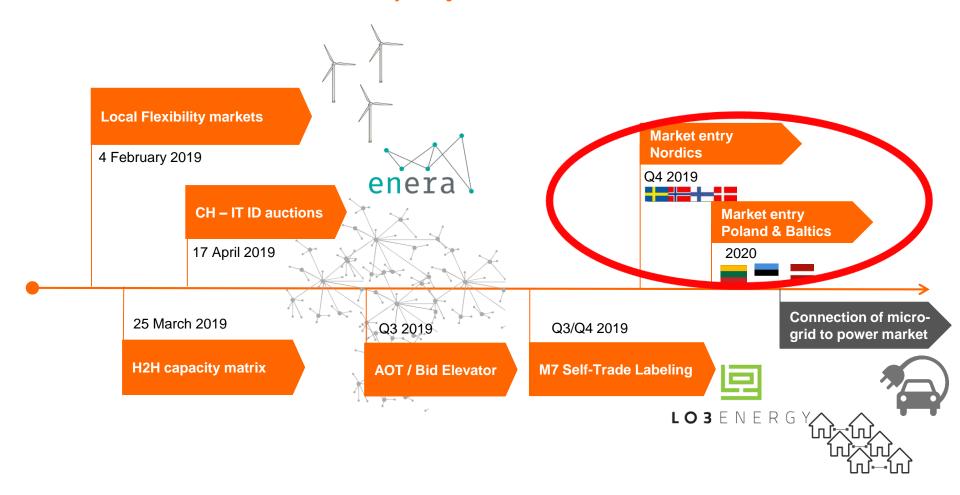
- ✓ 2 new CH-IT Intraday (ID) auctions went live April 17th
- ✓ Volumes are comparable to Intraday continuous volumes
- Optimization of cross-border capacity allocation (when cross-border capacity is available)
- New TSO methodology for Intraday capacity calculation will be implemented in the second half of 2019, leading eventually to more available capacity for the IDA2 auction
- The new Swiss Italian ID auctions do not cannibalize the existing continuous market

Overview of Swiss Intraday Auctions timeline



- > CH-IT IDA1: D-1, 4:30pm; CH-IT IDA2: D, 11:15am
- ➤ Hourly auctions, no blocks
- Coupled to Italy and Slovenia

2019 – Status of main projects



Nordic - Baltic - Polish market expansion



EPEX is a licensed NEMO* in the Nordic, Polish and Baltic regions

*Nominated Electricity Market Operator

What's in it for members?

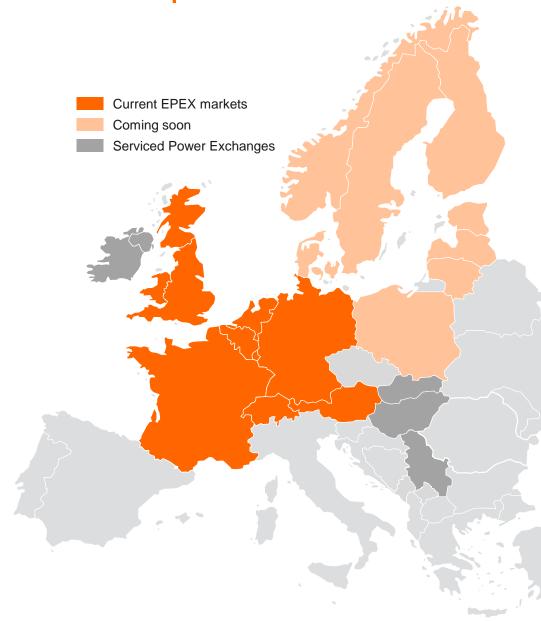
Operational & IT Simplification

Enhanced Trading **Experience**

Financial **Security**

Economies of scale

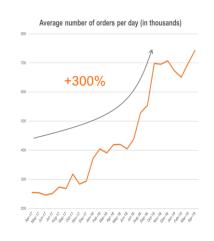
using EPEX SPOT as your European power spot trading gateway



Superior services for the trading community!



LIQUIDITY FROM DAY 1, 100% SECURED



HIGH PERFORMANCE & DIGITAL EXPERIENCE



SAFER & ECONOMICAL CLEARING



PROVIDING THE LATEST INNOVATIONS

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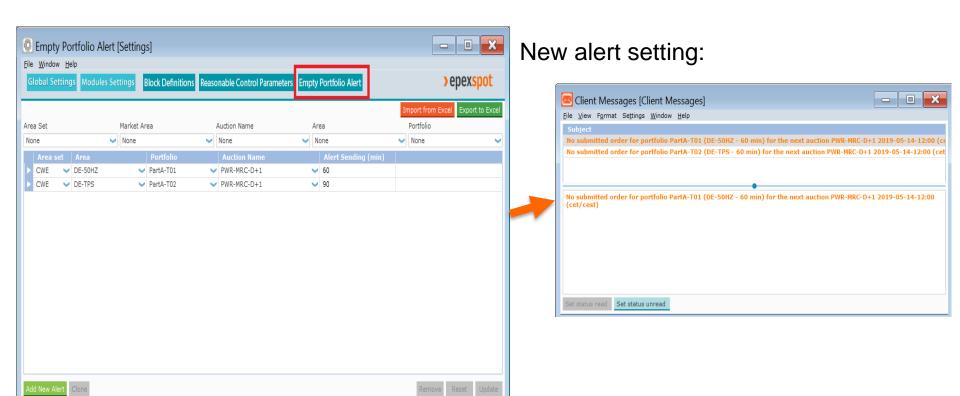
New developments on Auctions

Recent and upcoming developments in ETS							
DE-AT Split	Implementation of the price zone split as per TSO request						
Curtailable and loop blocks	Introduction of curtailable and loop blocks in the Day-Ahead auctions						
CH-IT Intraday auctions	Go-live of intraday auctions in Switzerland coupled with Italy						
ETS 3.3.1 26 June	New ETS version with alert in case of non- submission for next auction						
	API access for non-members						
CWE MNA Target: 2 July	Go-live of coordination between multiple hubs within each market area in Central Western Europe						
	Additional reporting information (trade ID and trader ID)						
ETS 3.3.2	More blocks in ID auctions, bigger blocks in DAM						
ETS 3.3.4 2019 - EPEX SPOT - All rights reserved	Auction process automation						

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New developments on Auctions

New ETS 3.3.1 version went live on 26 June 2019



Continuous Intraday service improvements

Recent and upcoming developments						
Trade Recall automation	✓	Trade recall possibilities are extended (locally a XB*) and automated * when technically poss				
GB market on M7	√	Migration of the transfer of Intraday trading in GB from the Eurolight to the M7 system in Nov. 2018				
Capacity Display	✓	Show available Hub to Hub capacity between XBID markets				
Order transfer	Q3	Automatic order transfer functionality between XBID order book and local order book				
Self-trade flagging	Q3/Q4	Flagging of self-trades (cross-trades) to all market participants				
XBID extension	Q4	Poland, Czech Republic, Hungary, Croatia, Slovenia, Romania, Bulgaria to join XBID				

M7 Roadmap: Planned releases

M7 6.6

GoLive: 25th March 2019

Release goal: Customer satisfaction

· Release content:

Cross Border Capacity Display (ComTrader & API)

M7 6.7

Target GoLive: Q3 2019

Release goal: Customer satisfaction and Operational safety

· Release content:

Automatic Order Transfer – Download Phase

Introduction of "linked" products

M7 6.8

Target GoLive: Q3/Q4 2019

• Release goal: Customer Satisfaction

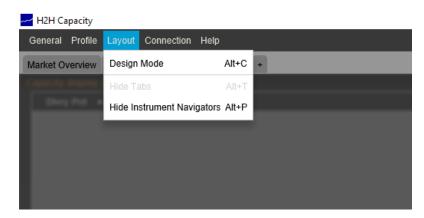
• Project Dependencies: XBID 2.0

Release content*:

XBID related modifications

Label Self Trade

M7 6.6. Cross Border Capacity Display – How to activate?

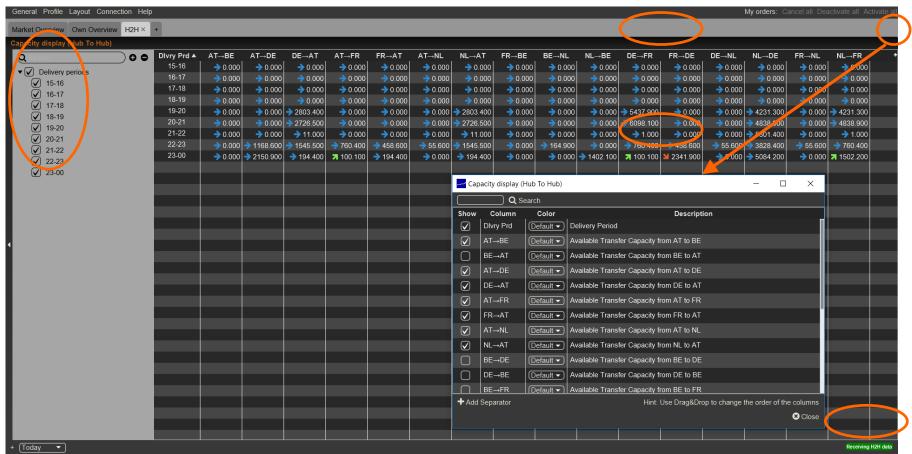






Panel List	- □ X
Panel	Description
Basket	The Basket panel enables the entry of several orders at once into the system.
Block Order Entry Horizontal	The Block Order Entry Horizontal panel is used to enter or modify block orders. Horizontal arrangement of the fields.
Block Order Entry Vertical	The Block Order Entry Vertical panel is used to enter or modify block orders. Vertical arrangement of the fields.
Capacity display (Hub To Hub)	The Capacity display panel displays a matrix with the available capacity between market areas.
Chart	The Chart panel is used to graphically display trading activity ranging from the last hour to the last 24 hours.
Instruments	The standalone Instrument panel provides an overview of all products and contracts tradable by the logged in user.
Market Details	The Market Details panel provides a non aggregated overview of the order book of one or more contracts.
Market Overview (Predefined products)	The Market Overview (Predefined products) panel provides an overview of currently active orders entered for predefined contracts.

M7 6.6. Cross Border Capacity Display – How to activate?



Note1: Function initially activated by Market Operations per User

Note2: Both direction seperately per border

Focus on M7 6.7 Release

- M7 6.7 to go live in Q3
- Released in Advanced Simulation Environment
- Market Trial phase of three weeks: 24 June 15 July (week 26-28)
 - Scripts to create more order/trade activity
 - XBID disconnection / reconnection to simulate the switch of the local contracts (two times per day -> approx. 10am / 3pm for 30mn)
- New ComTrader 6.7.90 will be mandatory

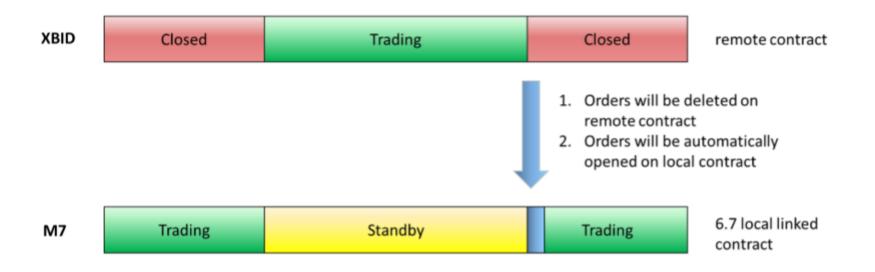
M7 6.7 - New product names

Overview

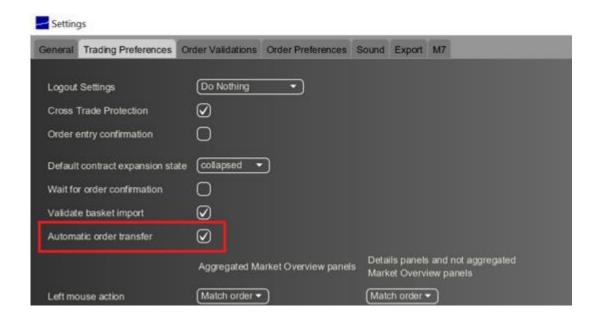
Current Product Name	New Product Name	Contract Name	Concerned Markets		
Intraday_Power	Intraday_Hour_Power	i.e. 14-15	CH, FR, DE, AU, BE, NL		
Half_Hour_Power	Intraday_Half_Hour_Power	i.e. 14H1	CH, FR, DE		
Quarterly_Hour_Power	Intraday_Quarter_Hour_Power	i.e. 14Q1	CH, DE, AU, BE, NL		
Hourly_Blocks	Intraday_Hour_Power	i.e. 14-16	CH, FR, DE, AU, BE, NL		

Continuous export

Trader Id	TSO	EIC	B/S	Product	Contract	Qty	Prc	Curr	Act	Te
TRD021	AMP	10YDE-RWENETI	В	Intraday_Quarter_Hour_Power	20190623 13:15-20190623 13:30	7.0	50.00	EUR	P	
TRD021	AMP	10YDE-RWENETI	S	Intraday_Quarter_Hour_Power	20190623 13:15-20190623 13:30	7.0	50.00	EUR	Р	



AOT applies AOT	AOT does not apply	
At usual remote contract expiration	Any planned XBID maintenance	
	Any unplanned XBID maintenance	
	From local products to remote products	



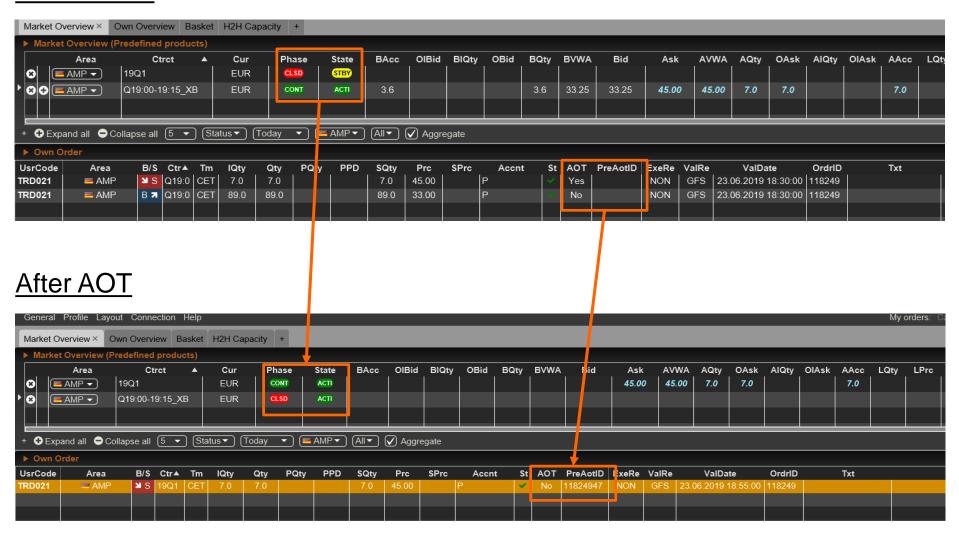


individual per order





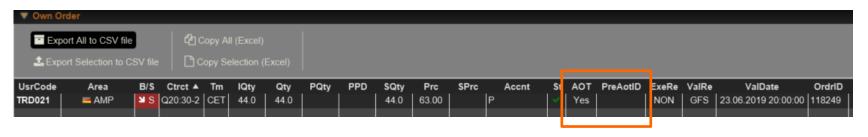
Before AOT



Basket

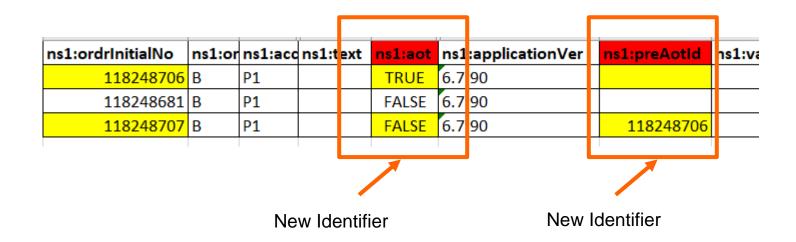


Order Export

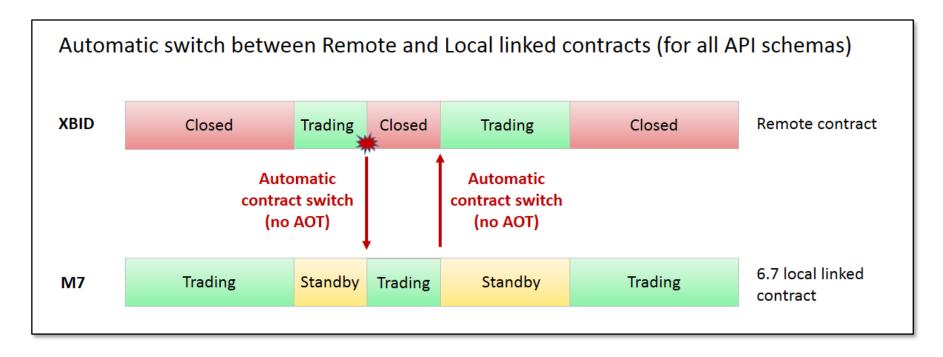


M7 6.7 - Changes in TC540

	ns1:curr	ns1:product	ns1:ordrNo	ns1:remoteOrdrNo
45	EUR	XBID_Quarter_Hour_Power	118248706	3273756
:30	EUR _	intraday_Quarter_Hour_Power	118248681	
45	EUR	Intraday_Quarter_Hour_Power	1 18248707	
lew l	ocal Nar	mes		I



M7 6.7 - Automatic switch of local contracts

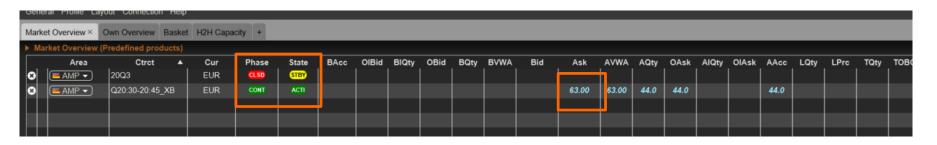


At each contract switch:

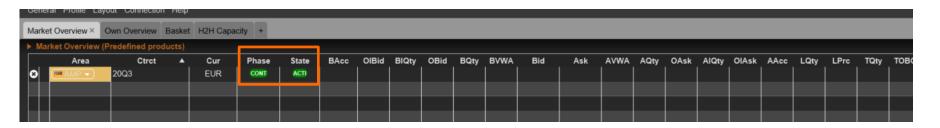
- Remote and local contacts change of phase and state (Contract Info Reports)
- Orders of the closing contract are deactivated (Order Execution Reports)
- Existing deactivated orders are not reactivated automatically

M7 6.7 - Automatic switch of local contracts

Before XBID disconnection



After XBID disconnection



Note1: AOT does not apply, order dissappears from order book and own order panel

Note2: Order is shown as deactivated in own order panel after reconnection to XBID

M7 6.7 Password Policy change

- With M7 6.7 each user password needs to be changed every 90 days, no matter if the user is active or not.
- The user will be informed twice about the upcoming password expiration via e-mail (10 days before expiration / at the expiration day).
- The password cannot be the same as the previous one.
- The password validity will start after the first login.

Thank you for your attention!

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