

SIDC Single Intraday
Coupling



Single Intraday Coupling (SIDC)

2nd Wave Pre-Launch Event

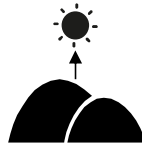
1st October 2019

Carlo IV Hotel; Prague, Czech Republic

9:45-17:00

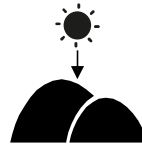


Morning agenda



Registration, Coffee			9:45-10:30	(I:45)
1	Welcome, Introduction	Jean Verselle (SIDC TSOs Steering Committee Chairman, Artelys) Stefano Alaimo (SIDC NEMOs Steering Committee Chairman, GME)	10:30-10:35	(I:5)
2	Key Note Speech	René Neděla (Deputy Minister, Czech Ministry of Industry and Trade)	10:35-10:50	(I:15)
3	Overview from European Commission	Nicolas Kuen (Assistant to Deputy Director General, EC)	10:50-11:00	(I:10)
4	Overview of SIDC – background, history and review of 1st year	Mark Pickles (SIDC TSOs Project Manager, National Grid ESO)	11:00-11:20	(I:20)
5	The SIDC matching solution	Vladimir Satek, SIDC NEMOS' Project Manager, Minsait	11:20-12:00	(I:30; QA:10)
6	Overview of borders, market areas & products	Radek Adamec (ČEPS) Gabriella Juhász (HUPX)	12:00-12:40	(I:30; QA:10)
LUNCH BREAK			12:40-13:40	

Afternoon agenda



LUNCH BREAK

12:40-13:40

7	Relevant information for market parties from Local Implementation Projects (LIPs)	Radek Adamec (ČEPS) Gabriella Juhász (HUPX)	13:40-14:20	(I:30; QA:10)
8	NRA overview	Lajos Valent (ERU & Chair of NEMO Co-ordination Group)	14:20-14:30	(I:10)
9	Member's trial period, go-live plan and next steps for readiness	Ondřej Máca (OTE)	14:30-15:00	(I:20; QA:10)
10	Future plan for SIDC	Mark Pickles (SIDC TSOs Project Manager, National Grid, ESO)	15:00-15:20	(I:15; QA:5)
11	General Q&A + Summary and close	Jean Verseille (SIDC TSOs Steering Committee Chairman, Artelys FRANCE) Stefano Alaimo (SIDC NEMOs Steering Committee Chairman, GME)	15:20-15:45	(I:5; QA:20)
Get together & networking – refreshments will be served			15:45-17:00	

1. Welcome, Introduction

10:30-10:35

Jean Verseille (SIDC TSOs Steering Committee Chairman, Artelys)
Stefano Alaimo (SIDC NEMOs Steering Committee Chairman, GME)

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2. Key Note Speech

10:35-10:50

René Neděla (Deputy Minister, Czech Ministry of Industry and Trade)

1st October 2019

Carlo IV Hotel; Prague, Czech Republic

3. Overview from the European Commission

10:50-11:00

Nicolas Kuen (Assistant to Deputy Director General, EC)

1st October 2019

Carlo IV Hotel; Prague, Czech Republic



SIDC 2nd Wave Go-Live Pre-Launch Event

**30 September 2019
Prague**

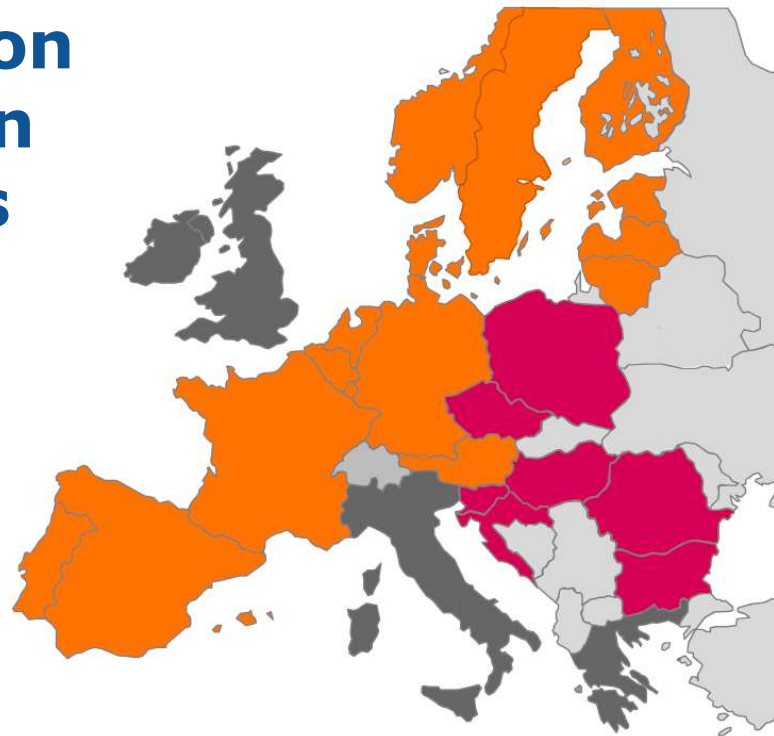
Nicolas Kuen
Assistant to the Deputy Director-General for Energy
European Commission

Energy

Picture 1: Countries coupled by SIDC solution in 1st Wave Go-Live, shown in orange (13th June 2018) and 2nd Wave, shown in purple (planned for Q4 2019)

Welcome extension of SIDC to Eastern European borders

- ✓ Additional liquidity
- ✓ Complement Day-Ahead Market Coupling (DAMC)
- ✓ Integration with Central Dispatch System (CDS)



Please note: Luxembourg is part of the Amprion Delivery Area. Market participants in Luxembourg have access to the SIDC through the Amprion Delivery Area

Challenges and future developments

- Third wave borders
- Full alignment with CACM
 - Intraday flow-based capacity calculation
 - Intraday capacity pricing
- MCO governance, cost recovery and transit shipping
- Number of systems to be integrated, types of products and contracts to be supported



Thank you for your attention!

4. Overview of SIDC – background, history and review of 1st year

11:00-11:20

Mark Pickles (SIDC TSOs Project Manager, National Grid ESO)

1st October 2019

Carlo IV Hotel; Prague, Czech Republic

What is SIDC

SIDC (formerly known as the XBID project) objective:

“Establish a common cross border implicit continuous Intraday trading solution across Europe, where all the cross border capacities are allocated...” *Quote from Request for Offer (RFO) Issued 2012*

“The system will accommodate the continuous matching of bids and orders from market participants in one bidding zone with bids and orders coming from its own bidding zone and from any other bidding zone where cross-zonal capacity is available. “

Shared
Order Book
(SOB)

Capacity
Management
Module
(CMM)

Shipping
Module
(SM)

SIDC System – 3 main modules

The Single Intraday Coupling Mechanism defined in CACM

Benefits delivered by SIDC

- Cross-border trading opportunity 'within day' across Europe on a harmonised platform.
- As the Intraday market develops it will enable increased optimisation of the use of generation - especially variable RES
- Leads to welfare benefits
- Brings the whole European Intraday continuous market together and complements the existing Day Ahead market
- Capable of delivering a wide product range – 15 minutes, 30 minutes, hourly, block products etc.
- Wide range of orders types
 - Iceberg-enabled (they can be made into an iceberg)
 - Link-enabled (they can be linked)
 - Block-order-enabled (they can be combined into user defined blocks)
- Supports a wide range of contract types

SIDC complexity

Competitive Environment

- Multi-NEMOs
- Range of providers of Trading Solutions
- Equal treatment
- MNA and non-MNA areas

Demanding requirements

- 200k-800k orders/day – increasing (+ robotics)
- Calculations/routing/products
- Performance and processing capability

Contractual Challenges

- Supplier/multi-client
- Operational organisation amongst NEMOs and TSOs
- Liabilities
- Transit Shipping

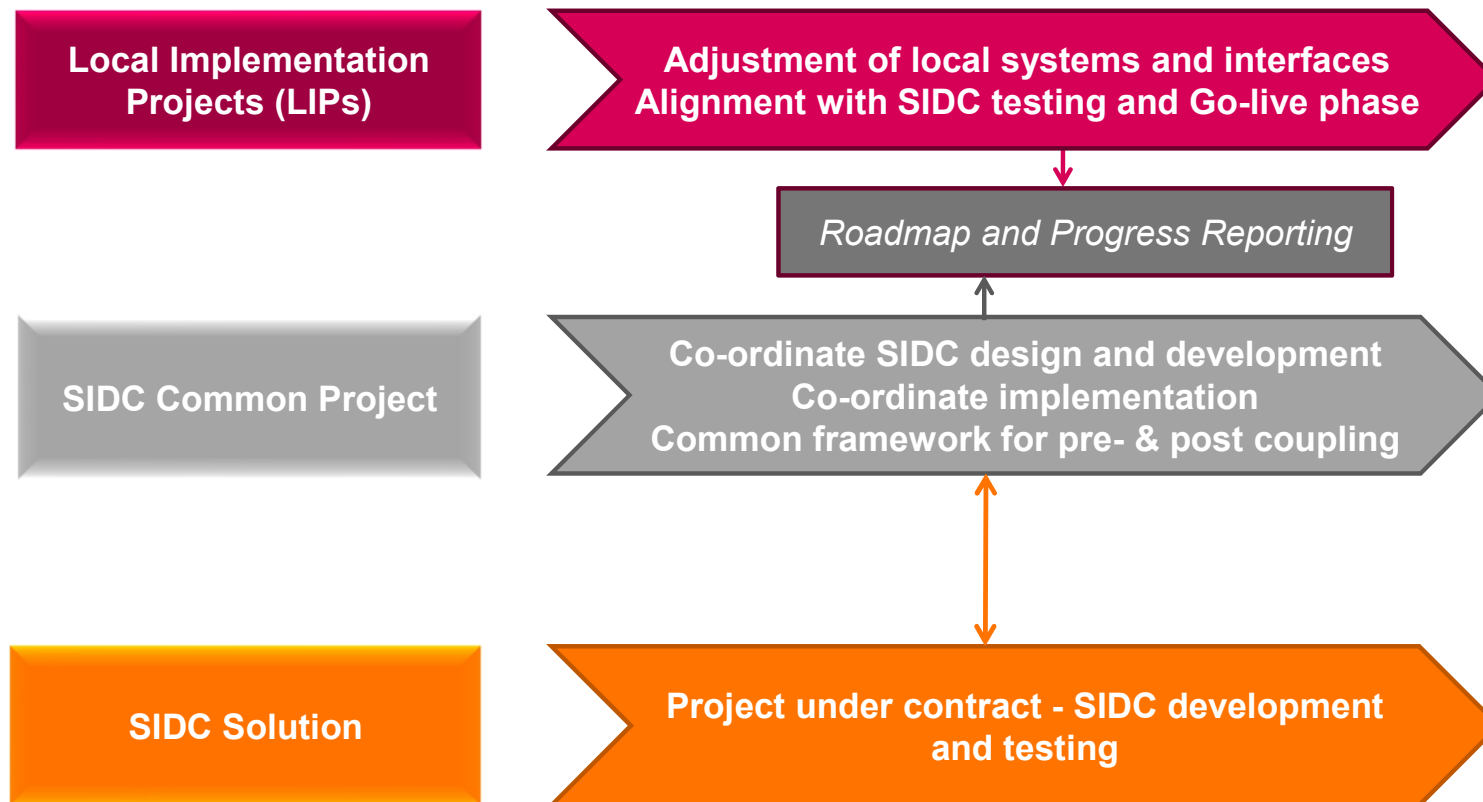
Legislative /Regulatory

- Timescales
- Cost sharing and recovery
- Future strategic roadmap
- Changing environment during project with CACM implementation

**Multi-party (46)
Governance
- consensus**

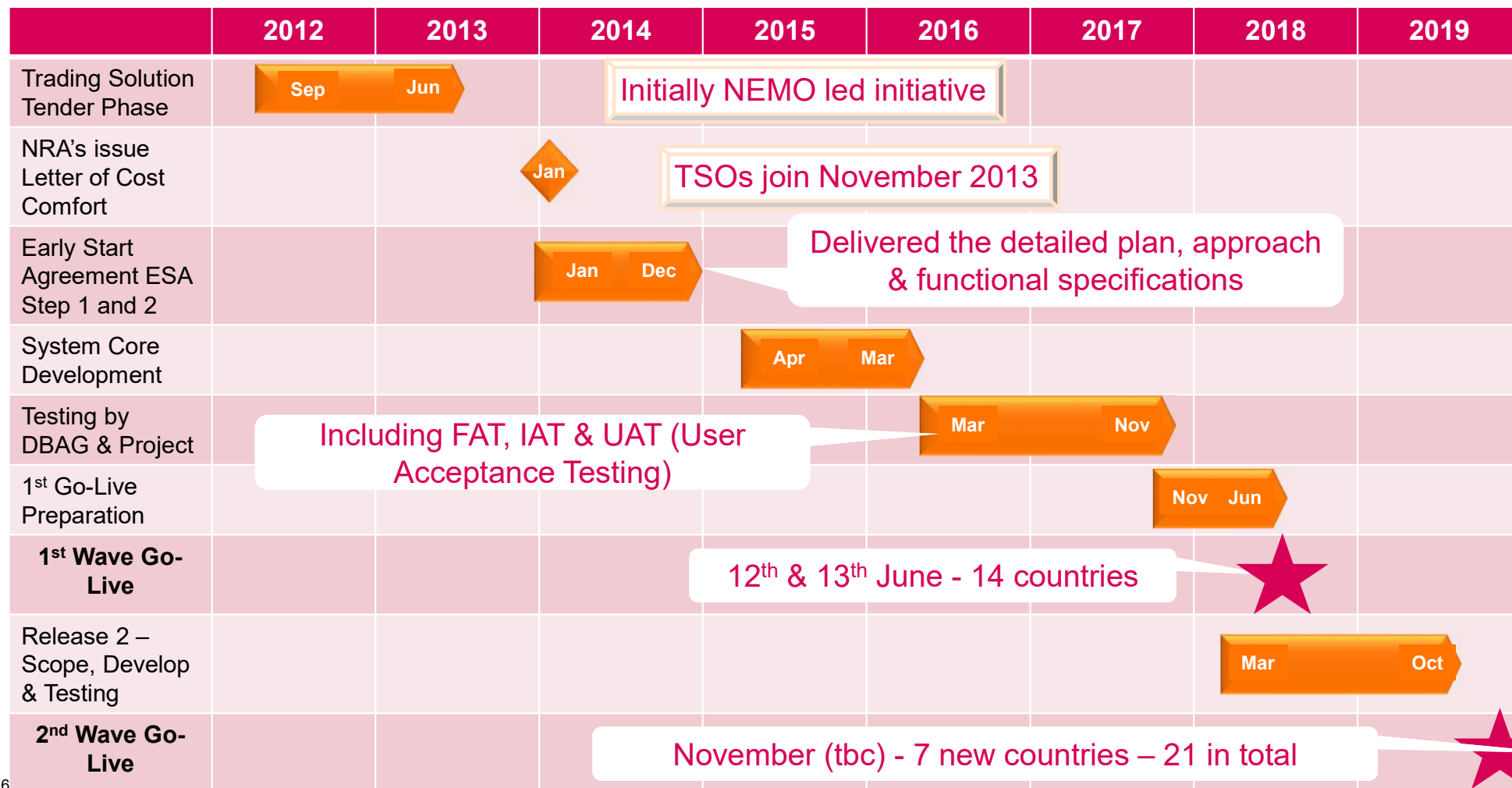
SIDC Approach

Delivery of SIDC has, and still, involves 3 areas of distinct focus:



Key SIDC Historical Milestones

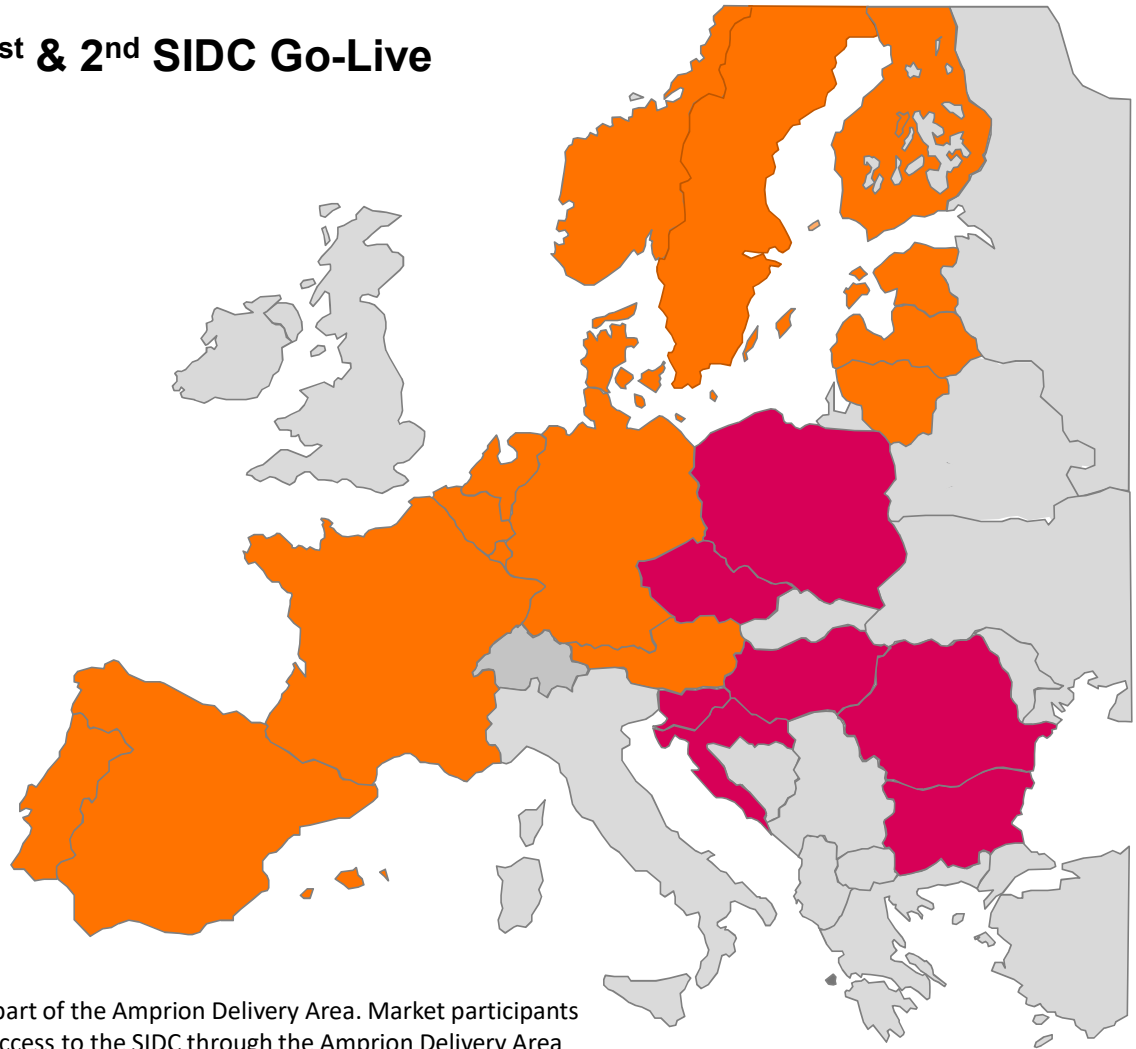
SIDC Single Intraday
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Countries coupled Intraday with 1st & 2nd SIDC Go-Live

 =
Countries coupled
in 1st go-live
(June 2018)

 =
Countries to be
coupled in
2nd go-live
(November tbc
2019)



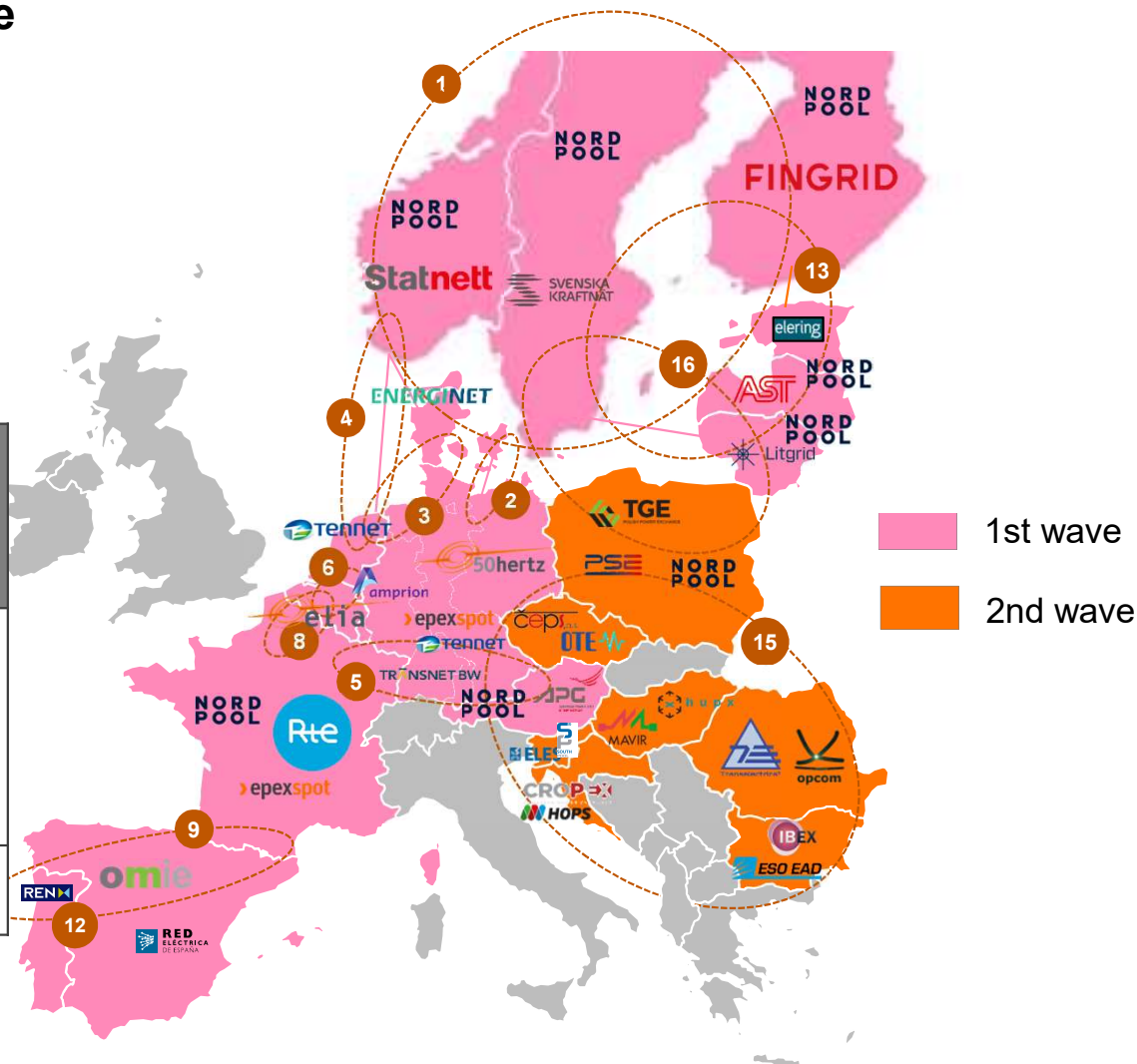
Note: Luxembourg is part of the Amprion Delivery Area. Market participants in Luxembourg have access to the SIDC through the Amprion Delivery Area

Existing solution, Parties and 2nd go-live

- Release 2.0 is due to be deployed at end October 2019
- Delivers Functional improvements including increasing order book depth to 100
- Also delivers more reporting indicators

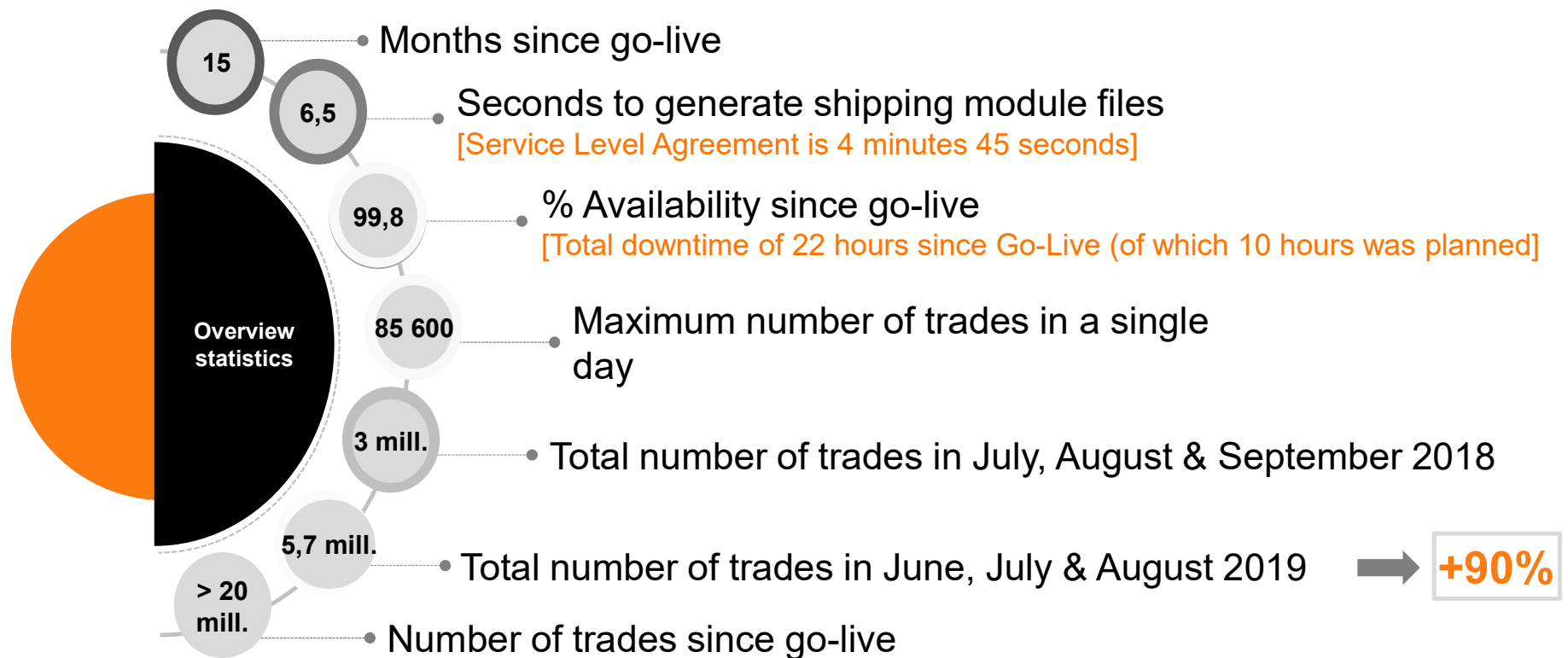
2 nd Go-Live Wave LIPs (Local Implementation Project)		Participants	Foreseen allocation
15	AT-CZ, AT-SI, AT-HU, BG-RO, CZ-DE, CZ-PL, DE-PL, HR-SI, HR-HU, HU-RO	NEMOs: BSP, Cropex, EPEX, HUPX, IBEX, Nord Pool, OPCOM, OTE TSOs: 50Hertz, APG, CEPS, ELES, ESO, HOPS, MAVIR, PSE, Transelectrica, TTG	• Implicit • Implicit & Explicit for HR-SI border
16	LT-PL, PL-SE	NEMOs: Nord Pool, TGE TSOs: Litgrid, PSE, Svk	• Implicit

SIDC Single Intraday Coupling



SIDC Post Go-Live - Key Figures

A very successful start



5. The SIDC matching solution

11:20-12:00

Vladimír Satek, SIDC NEMOs' Project Manager, Minsait

1st October 2019

Carlo IV Hotel; Prague, Czech Republic

1. The SIDC matching solution in the context of SIDC project



Overview of SIDC – background, history and review of 1st year



The SIDC matching solution



Overview of borders, market areas & products



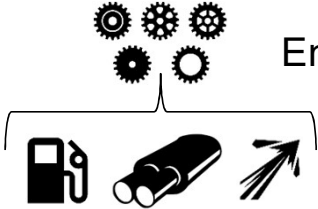
Relevant information for market parties from Local Implementation Projects (LIPs)



Member's trial period, go-live plan and next steps for readiness



2. The SIDC matching solution from MP's view (1/2)

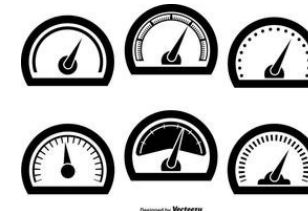
Component	Provided by	Comment
 Cockpit	LTS	Local Trading Solution (LTS) offers ultimate interface to Market Participants, either via pre-built screens or via automated communication which allows MP's development of the „cockpit“. LTS is sole interface to MPs to provide market data (order, trades, status of the market, status of the products, etc.). Each LTS has an individual functionalities and individual look & feel.
 Engine	XBID Solution (SIDC matching solution)	Core of the system ensuring matching of the orders in line with predefined and transparent principles including processing of the trades. It is done via utilization of The trading Module (SOB), The Capacity Management Module (CMM) and The Shipping Module (SM)



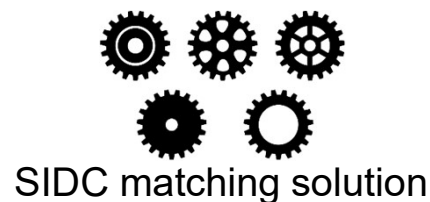
2. The SIDC matching solution from MP's view (2/2)

To get familiar with your LTS you need to contact your respective NEMO(s).

- It is important to note that XBID Solution provides relevant information to LTS **at the same time and in the unique form, which ensures transparency and equal treatment on the SIDC.**
- Content of the information differs based on the market areas reflecting e.g. available capacities.
- It is **responsibility of each NEMO** how the information is presented to the market participants.



Note 1: The XBID Solution provides capacities to all LTSs in the form of Hub-To-Hub matrix (H2H). LTSs process the H2H matrix and provide this information further to Implicit Market Participants. The presentation form of H2H matrix is specific per each LTS.



Note 2: The XBID Solution provides matching services (SOB) to LTSs. **Each NEMO has a right to offer local matching services by LTS' specific functionalities, products and services or by any other means.** This may also relate to the cases in which LTS provides extended trading period outside of the XBID Solution and therefore the approach may differ per NEMO/LTS.



3. The SIDC matching solution – XBID Solution

The XBID Solution is a trading solution designed to enable power exchanges to trade energy contracts seamlessly across different geographies in a transparent and efficient way. It aims at creating an integrated matching platform based on the shared order book concept of trading module (SOB), the Capacity Management Module (CMM) and the Shipping Module (SM). The combined entity allows multiple exchanges in different geographies to trade cross border energy contracts continuously on a 24 by 7 basis on a centralised platform.

The trading Module (SOB) is a commodity trading system catering to the requirements of the energy markets. The trading system is designed to offer trading services to the members continuously. It supports a wide range of energy products and contract types.

The Capacity Management Module (CMM) refers to a capacity allocation module which offers the ability to allocate cross border capacity to users continuously. CMM offers both explicit (standalone capacity requests by user entities) as well as implicit (triggered by trades generated in SOB) allocation.

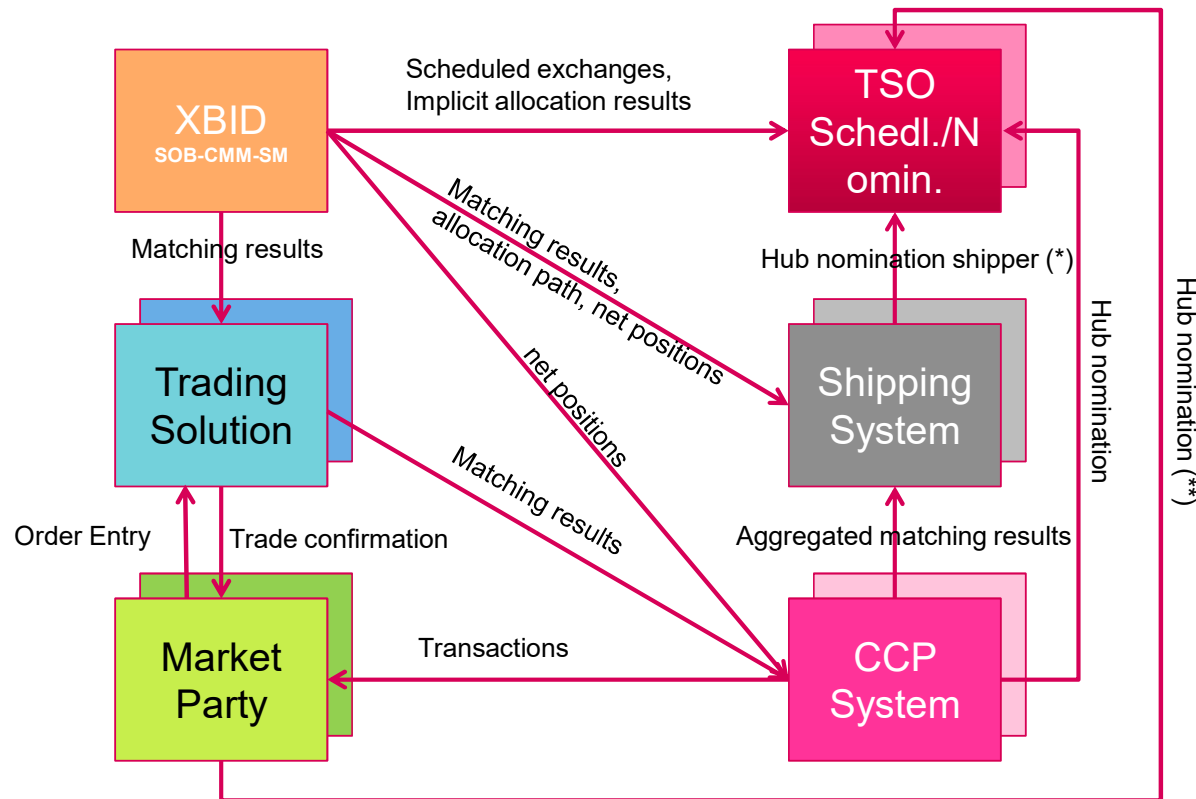
The Shipping Module (SM) of the XBID Solution provides information from trades concluded within XBID to all relevant parties of the post-coupling process. The SM receives data from the SOB about all trades concluded:

1. Between two different Delivery Areas (DA)
2. In the same DA between two different Exchange Members

The data from the SOB and the CMM are enhanced with relevant TSO, CCP and Shipping Agent data from the SM and transferred to the parties at the configured moments.



3. The SIDC matching solution – High Level Architecture

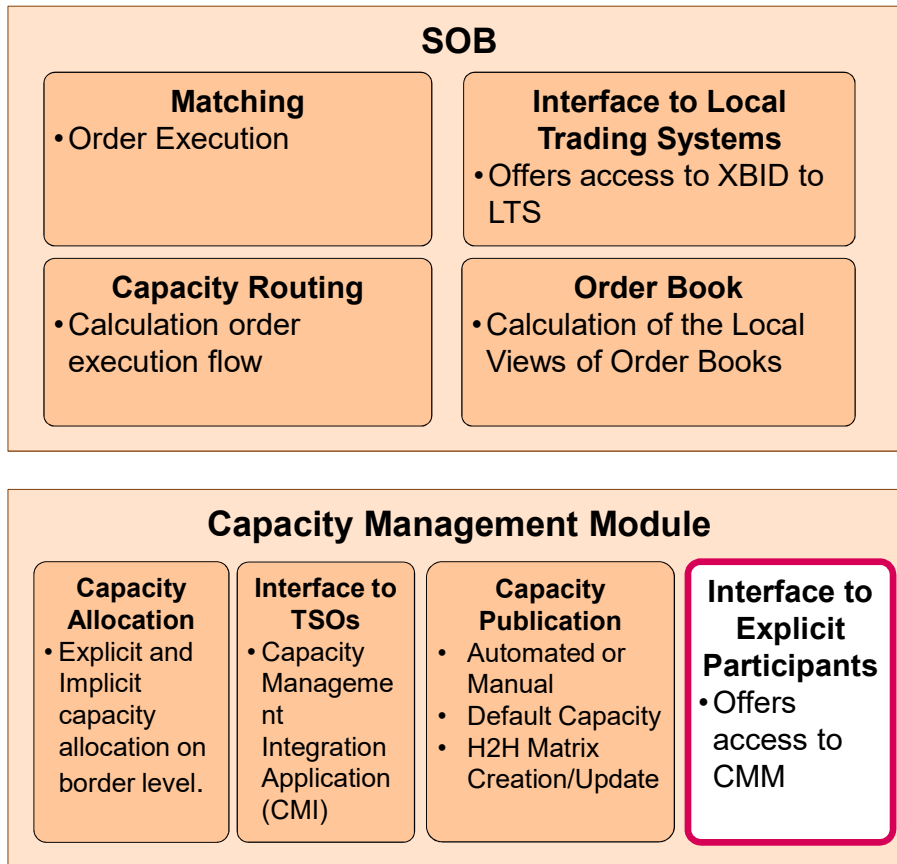


(*) XB nominations could be also needed in areas where nomination behalf is not applicable

(**) According to local procedures (direct or indirect nominations)



3. The SIDC matching solution – Architecture



Common Reference Data Module

- Maintain reference data required for the XBID Solution.
- Central access point for reference data required to operate XBID Solution.

Reporting Engine

- Generate and distribute reports.
- Runs independently from SOB and CMM modules.
- Flexible report generation schedules.

Explicit Market Participants have a direct technical access to the XBID Solution in order to perform explicit allocations on the German-French and Croatian-Slovenian borders.



3. The SIDC matching solution – CMM. Market Area / Delivery Area



Market Area

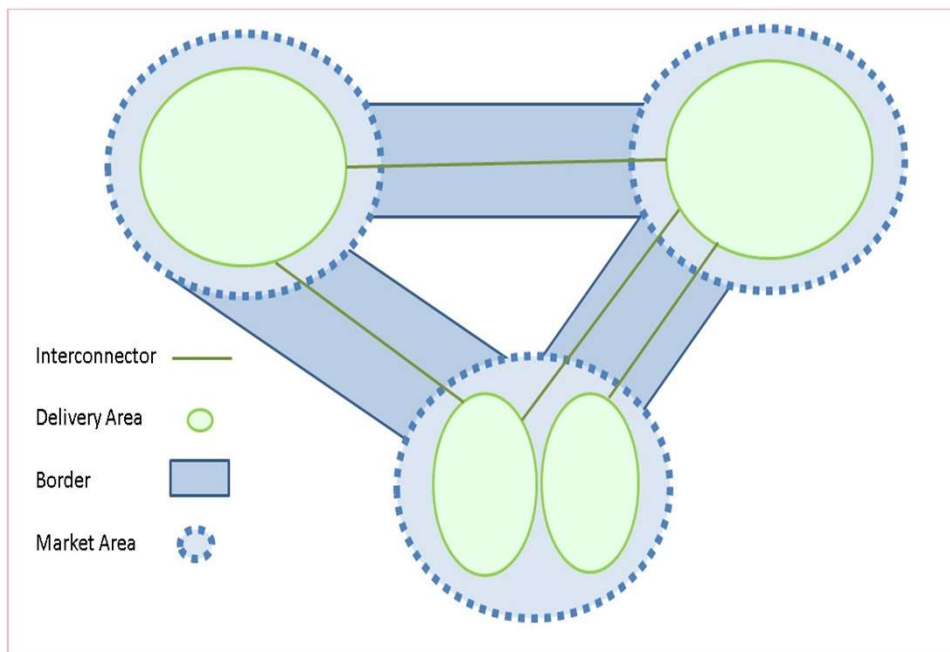
- Represents a **'price area' in the delivery grid**
- Can contain **one or more** Delivery Areas
- Transport capacity between Market Areas is **subject to congestion**

Delivery Area

- Represents an area in the delivery grid which is **managed by one TSO**
- **Order entry is into a Delivery Area** (from which a bought commodity is received, or to which a sold commodity is delivered)



3. The SIDC matching solution – CMM. Interconnectors and borders



Separate Configuration per Interconnector

- Opening and Closing Time,
- Capacity Resolution,
- Default Capacity,
- Ramping,
- Validity, etc

Interconnector
A connection
between two
Delivery Areas.

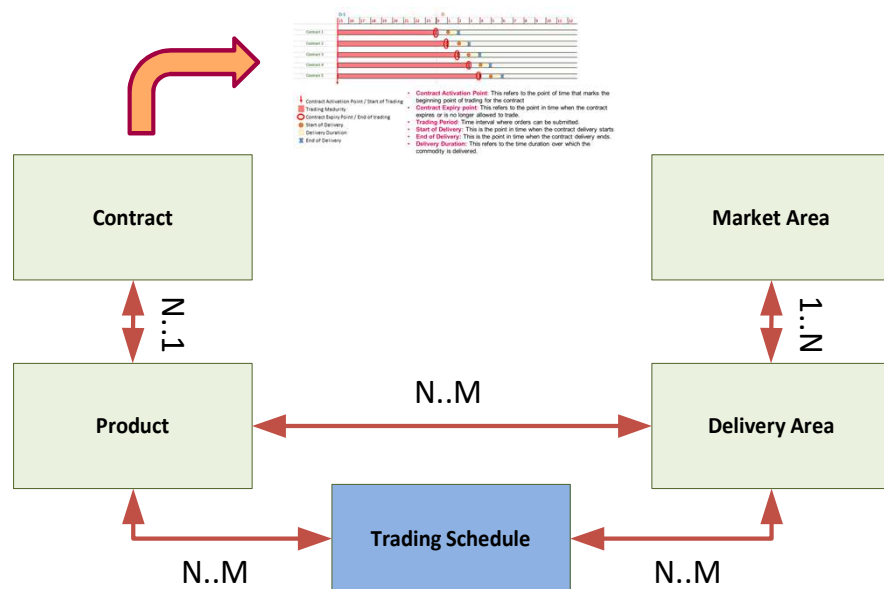
Common Configuration per Border

- Common ATC,
- Leading TSO,
- Validity, etc

Border
A connection
between two
Market Areas.



3. The SIDC matching solution – products, contracts, trading schedule



Product

- Represents one unique set of trading features (e.g. hourly product: a product with an hourly resolution)
- Defines the guidelines for generating the underlying contracts
- Products are made available for trading per delivery area, thus each delivery area can have a separate set of tradable contracts.

Contract

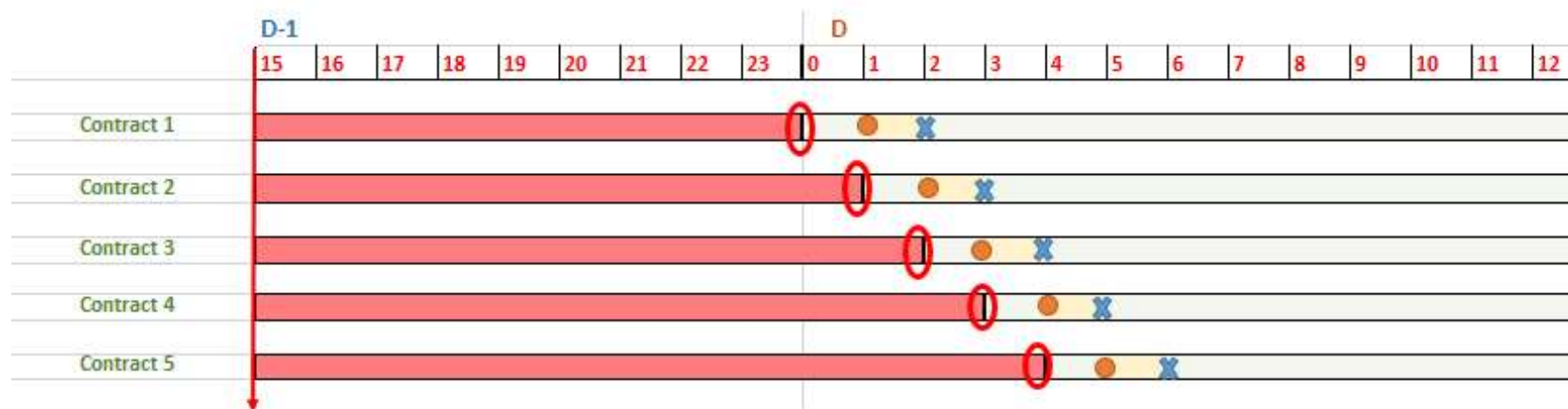
- An instance of a Product in time, an actual tradable instrument (e.g. an hourly product for the hour 11h-12h on 25 November 2017)
- With a predefined time of delivery
- Used by the trading member entities to enter into agreement to sell/buy a certain quantity
- Each product will have multiple contracts and each contract will belong to one and only one product.

Trading Schedule

- Defines when a contract opens and closes for trading
- Each delivery area will be assigned to some specific schedule (pre-defined).



3. The SIDC matching solution – Contract Life Cycle



- ↓ Contract Activation Point / Start of Trading
- Trading Period
- Contract Expiry Point / End of Trading
- Start of Delivery
- Delivery Duration
- ✕ End of Delivery

- **Contract Activation Point:** This refers to the point of time that marks the beginning point of trading for the contract
- **Contract Expiry point:** This refers to the point in time when the contract expires or is no longer allowed to trade.
- **Trading Period:** Time interval where orders can be submitted.
- **Start of Delivery:** This is the point in time when the contract delivery starts
- **End of Delivery:** This is the point in time when the contract delivery ends.
- **Delivery Duration:** This refers to the time duration over which the commodity is delivered.



3. The SIDC matching solution – SOB

SOB

- Enters orders coming from LTS into a **public order book**
- **Matches orders** against the most suitable counter-orders (following price-time-capacity priority criteria)
- Initiates implicit **capacity allocation**

Price-time-capacity priority criteria

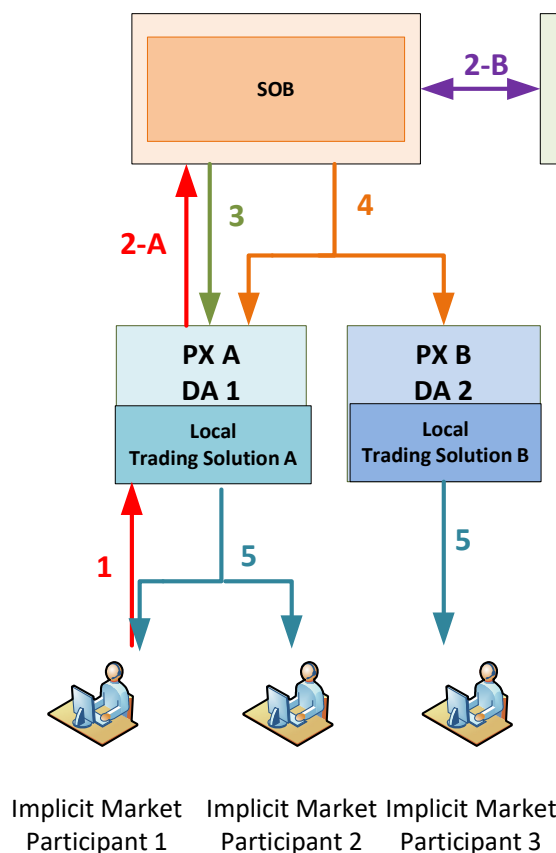
- **Price:** Orders are always executed at the best price
- **Time:** A timestamp (assigned at entry into SOB) is used to prioritize orders with the same price limit (earlier means higher priority)
- **Capacity:** Capacity should be available to make order execution possible

Order Book Views

- The SOB maintains a single **consolidated order book** for all orders that are entered for a contract
- CMM maintains two ATC values, one for each direction in that power could flow. Based on these two values the SOB module can calculate a customised **local view** for each contract and delivery area, which contains all the executable orders for the concerned area.



3. The SIDC matching solution – Order Processing



Calculation of the local view of an order book is based on the following factors:

- The available transmission capacity.
- Orders entered for the contract.

1. New order entered

2-A. Trading Solution anonymized the order and forward to SOB

2-B. Available capacities retrieved from CMM

SOB validates if any orders in the local view of the order book can match and calculate the Local View for each DA

3. SOB send the result of order entry to trading solution

4. Local view of the updated order book is published via the Public Message Interface to the Trading Solution

5. Trading Solution publish new local view

Order Book Calculation

- Local views will be enriched with cross-border orders if sufficient transmission capacity is available
- The same order can be displayed in multiple local views (depending on available transmission capacity)
- Cross-border orders in the local views will be displayed up to the available capacity; hence orders can be shown with partial volume
- An order is removed from all local views after full execution, deactivation or deletion

Rules for Order Book Calculation

- Orders from other markets are selected based on available capacity and price-time-priority
- Iceberg orders are displayed with their visible quantity and not with their total quantity
- AON orders can only be displayed with full quantity



Traders cannot see in which area the orders that they see in their local order book were entered



3. The SIDC matching solution – Local views, Order Book

Principles of local views

- Local views will be **enriched with cross-border orders** if sufficient transmission **capacity** is available
- The same order can be displayed in **multiple local views** (depending on available transmission capacity)
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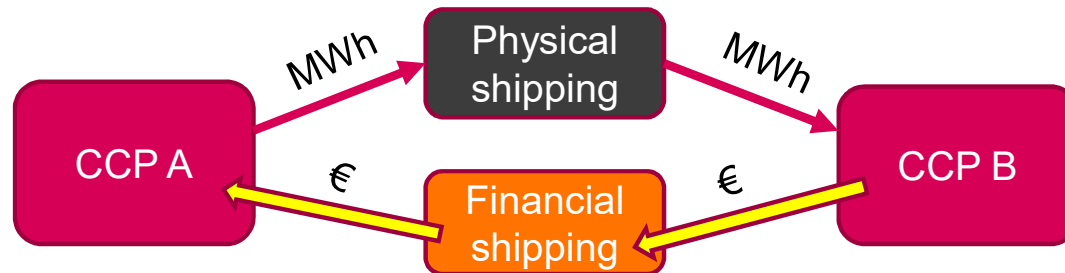


Traders cannot see in which area the orders that they see in their local order book were entered



3. The SIDC matching solution – Shipping Module

- Shipping is the process of **transferring energy between CCPs** within and across the delivery areas including the financial clearing. By definition, shipping does not apply to explicitly allocated capacities
- Physical shipping** is the process to transfer energy between CCPs by way of nomination, without the financial clearing for the change of energy ownership.
- Financial shipping** is the process of financial clearing for the change of ownership of the transferred energy between CCPs.





4. The SIDC matching solution – Performance

Performance development stage	Peak length - as the current production peak length is exceeded in some cases	Peak load - as the current production value is close to or even exceeding defined boundary	Overall load and topology – uplift for 2 nd Wave and to give some headroom	Relaxation of Order Book limit - (increase # of Orders in Local View)
RTS3 Slice A - required capacity of the XBID Solution for 1st Business Go-Live	2 seconds	10% Daily maximum of Order transactions in peak; sustainable load threshold 16,54 order transactions per second	30 Hubs, 50 Interconnectors 800 000 Order transactions per day	31 orders in the Local View update
RTS3 Slice B - required capacity of the XBID Solution for 2nd Business Go-Live	10 seconds	15% Daily maximum of Order transactions in peak; sustainable load threshold 40 order transactions per second	52 Hubs, 82 Interconnectors 1 500 000* Order transactions per day	100 orders in the Local View update

*Additional safeguard related to the order transactions per day:

- 1,5 million (1 500 000) maximum daily number of Order Transactions with daily maximum of 15.00% of Order Transactions in peak
- 1,5 - 2 million (2 000 000) maximum daily number of Order Transactions with daily maximum of 11.25% of Order Transactions in peak (This is linked to KPIs and timing percentiles of 93% respectively 96.50%)

6. Overview of borders, market areas & products

12:00-12:40

Gabriella Juhász (HUPX, Hungarian NEMO)
Radek Adamec (ČEPS, Czech TSO)

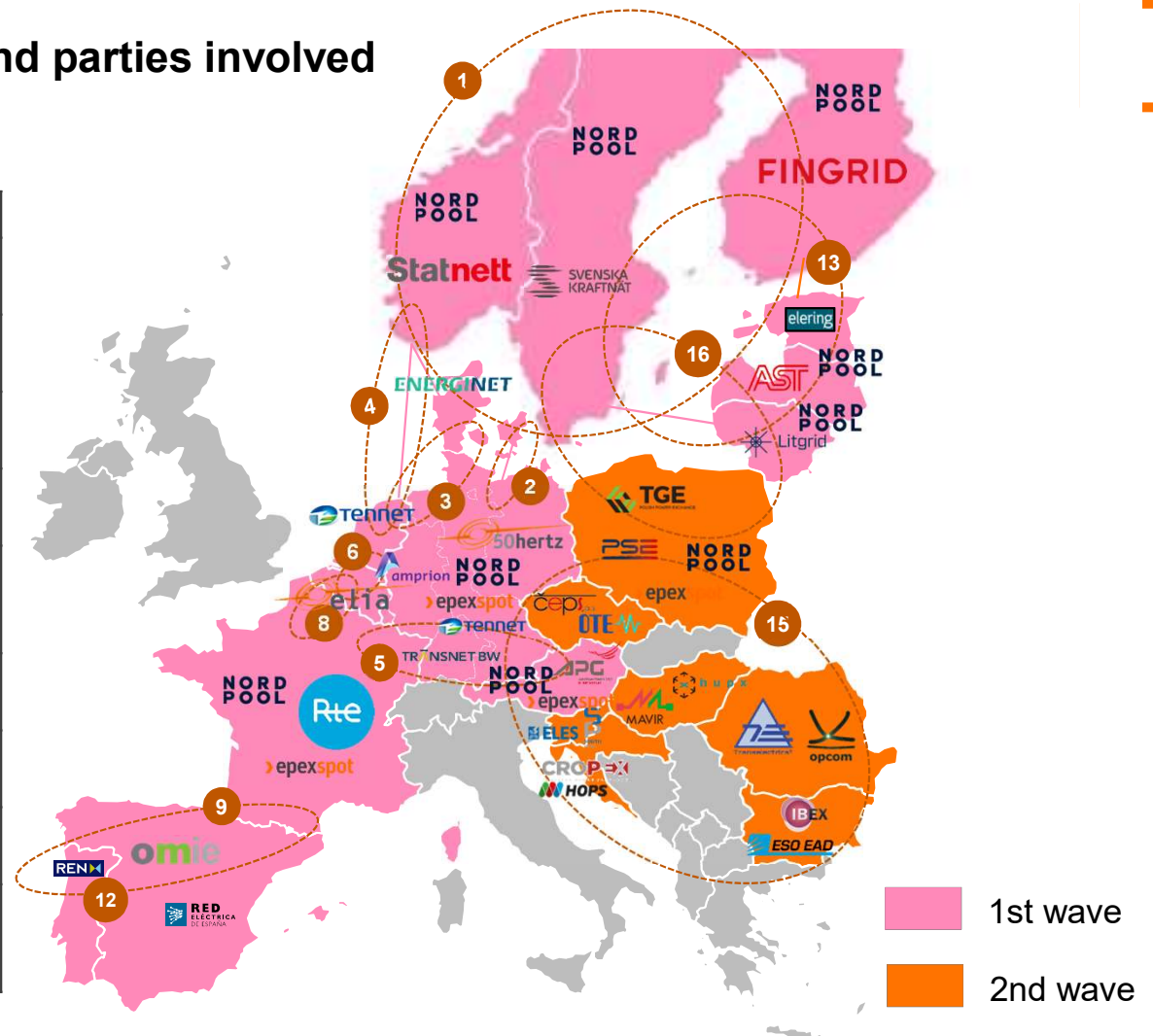
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1. Overview of initial go-live wave and parties involved

• LIPs part of initial go-live:

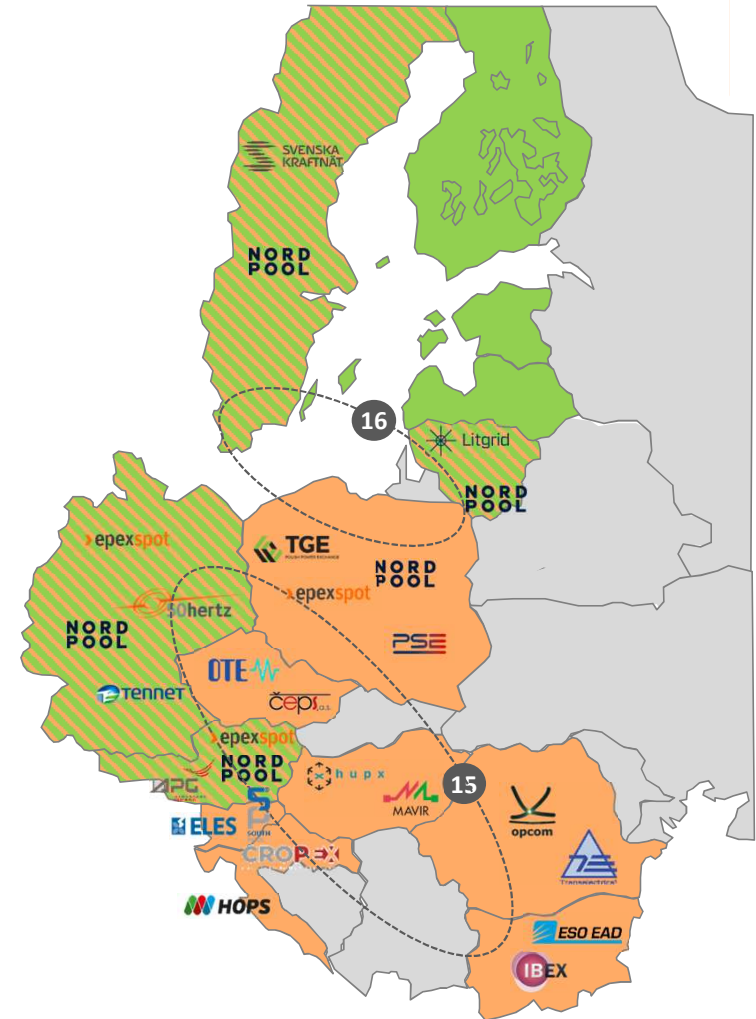
LIP	Participants	Allocation
1	Nordic	Fingrid, Energinet, SvK, Statnett, Nord Pool, EPEX
2	Kontek	Energinet, 50Hz, Nord Pool, EPEX
3	DK1/DE, DE/NL	Energinet, TenneT NL& DE, Amprion, EPEX, Nord Pool
4	NorNed	Statnett, TenneT NL, EPEX, Nord Pool
5	FR/DE, DE/AT	Amprion, TransnetBW, APG, RTE, EPEX, Nord Pool, TenneT DE
6	NL/BE	Elia, TenneT NL, EPEX, Nord Pool
8	FR/BE	RTE, Elia, EPEX, Nord Pool
9 12	FR/ES& ES/PT	RTE, EPEX, OMIE, REE, REN, Nord Pool
13	Baltic	Elering, Litgrid, AST, Fingrid (Estlink), Svenska Kraftnät (NordBalt), Nord Pool



2. Overview of 2nd go-live wave and parties involved

LIP		Participants	Foreseen allocation
15	AT-CZ, AT-SI, AT-HU, BG-RO, CZ-DE, CZ-PL, DE-PL, SI-HR, 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	- Implicit - Implicit & Explicit for SI-HR border
16	LT-PL, PL-SE	NEMOs: Nord Pool, TGE TSOs: Litgrid, PSE, Svk	Implicit

- Operational
- Operational, part of 2nd wave
- 2nd wave





3. Products offered in the XBID solution

A. Overview

- XBID system supports the following products:
 - 15-minutes
 - 30-minutes
 - 60-minutes
 - Hourly User Defined Blocks
- Products are configured to the XBID solution per market area
- For specific product availability in different market areas see next slide

3. Products offered in the XBID solution

B. Details

		1st wave						2nd wave						
		Austria	France	German TSO areas	Iberia	NL & Belgium	Nordics & Baltics	Bulgaria	Croatia	Czech Republic	Hungary	Poland	Romania	Slovenia
Size		Min vol. Increment 0.1 MW												
Price Tick		EUR 0.01 per MWh												
Volume Range		0.1 MW to 999 MW												
Price Range		-9 999 €/MWh to 9 999 €/MWh												
Products	15-min	X		X										X
	30-min		X	X										
	Hourly	X	X	X	X	X	X	X	X	X	X	X	X	X
	User Defined Blocks*	X	X	X		X	X	X	X	X	X	X	X	X
Notes		* Hourly blocks (not 15 or 30 min blocks)												

Please note that locally traded products are not indicated on the slide

3. Products offered in the XBID solution

C. Order types

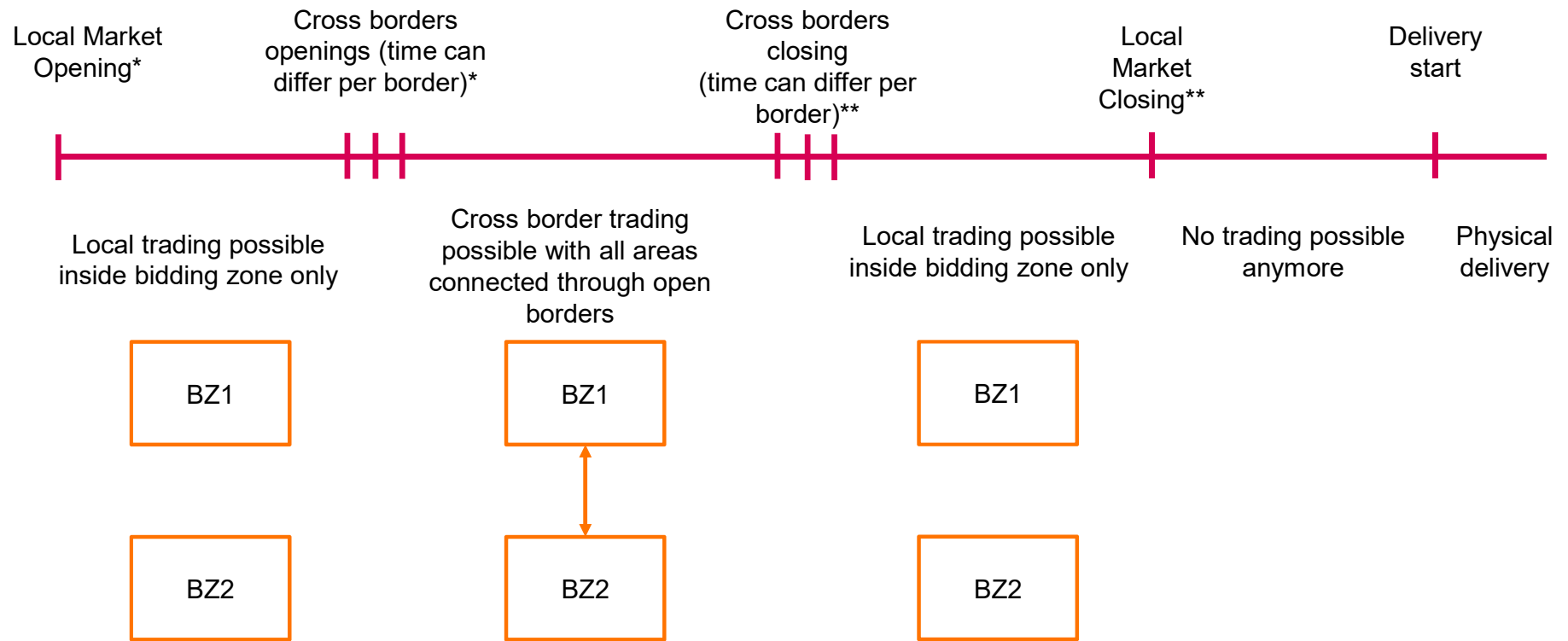
Order type	Execution Restrictions	Validity Restrictions	Predefined	User-Defined
Regular predefined	NON (None) IOC (Immediate-or-Cancel) FOK (Fill-or-Kill)	GTD (Good Till Date) GFS (Good For Session)	Yes	No
Regular user-defined block	AON (All-or-Nothing)	GTD (Good Till Date) GFS (Good For Session)	No	Yes
Iceberg	NON (None)	GTD (Good Till Date) GFS (Good For Session)	Yes	No
Basket Orders	None (1) Valid (2) Linked (3)	--	Yes	No

(1) Orders are processed as if they would have been submitted separately

(2) All orders in the basket are accepted or rejected

(3) All orders in the basket must be executed immediately with their entire quantity, all orders inside basket have the execution restriction "FOK"

4. Contract life cycle for a Bidding Zone (BZ)



* In some cases Local Market Trading opens in the same time as Cross Borders Trading

** In some cases Cross Borders Trading closes in the same time as Local Market Trading

5. Opening and closing times (1/2)

A. For Cross Border Allocation

CC	Bidding Zone border	GOT as of 2nd go-live wave	Cross-border capacities published at GOT	Point in time cross-border capacity is made available after GOT (Effective GOT)	GCT as of 2nd go-live wave
Baltic	EE – FI	15:00 CET D-1	0	As soon as possible after GOT	One hour before delivery of MTU
	LT – LV				
	EE – LV				
	LT – SE4				
	PL –LT				
Core	DE – NL	15:00 CET D-1	0	22:00 CET D-1	
	FR – BE				
	BE – NL				
	DE – FR				
	DE – AT				
	PL – DE				
	PL – CZ				
	CZ – DE				
	CZ – AT				
	AT – HU				
	AT – SI				
	SI – HR				
	HR – HU				
	RO – HU				
Hansa	DE – DK1	15:00 CET D-1	0	18:00 CET D-1	
	DK1 – NL				
	DE – DK2				
	NO2 - NL				
	PL – SE4				
SWE	ES-FR	15:00 CET D-1 (See Note 1 below)	0	22:00 CET D-1	
	PT-ES		0	15:10 CET D-1	
SEE	RO – BG	15:00 CET D-1	0	16:00 CET D-1	

D – Delivery Day

NOTE 1: Iberian GOT is foreseen to be switched to 15:00 CET by Q4 2019 subject to the needed Iberian regulatory changes being ready. (Once this switch is performed the effective GOT for PT-ES border will be 15:10)

5. Opening and closing times (2/2)

A. For Cross Border Allocation

CCR	Bidding Zone border	GOT as of 2nd go-live wave	Cross-border capacities published at GOT	Point in time cross-border capacity is made available after GOT (Effective GOT)	GCT as of 2nd go-live wave
Nordic	DK1-DK2, DK1-NO2, DK1-SE3, DK2-SE4	15:00 CET D-1	Calculated cross-border capacity	N/A	One hour before delivery of MTU
	FI-SE1, FI-SE3, NO1-NO2, NO1-NO3, NO1-NO5, NO1-SE3, NO2-NO5, NO3-NO5, NO3-SE2, NO4-SE1, NO3-SE4, NO4-SE2, SE1-SE2, SE2-SE3, SE3-SE4, NO3-NO4	15:00 CET D-1	Calculated cross-border capacity	N/A	

5. Opening and closing times

B. For SIDC Market Trading (within a Bidding Zone)

		1st wave						2nd wave						
		Austria	France	German TSO areas	Iberia	NL & Belgium	Nordics & Baltics	Bulgaria	Croatia	Czech Republic	Hungary	Poland	Romania	Slovenia
Opening times	All products	15:00	15:00	18:00	15:00**	14:00	14:00	14:00	15:00	15:00	15:00	14:00	15:00	15:00
Closing times	15-min	H-30 min		H-30 min										H-60 min
	30-min		H-30 min	H-30 min										
	Hourly	H-30 min	H-30 min	H-30 min	H-60 min	H-5 min	H-60min*	H-60 min	H-30 min	H-60 min	H-60 min	H-60 min	H-60 min	H-60 min
	User Defined Blocks	H-30 min	H-30 min	H-30 min		H-5 min	H-60min*	H-60 min	H-30 min	H-60 min	H-60 min	H-60 min	H-60 min	H-60 min
Notes	* Finland and Estonia at D-30 min ** The GOT within Iberian market will be 15:00 as of Q4 2019 (pending of regulatory decision) NOTE: The opening and closing times are SIDC/SOB system timings; individual NEMO timings might differ.													

H – Delivery MTU

Please note that locally traded products are not indicated on the slide

LUNCH BREAK

12:40-13:40

1st October 2019

Carlo IV Hotel; Prague, Czech Republic

7. Relevant information for market parties from Local Implementation Projects (LIPs)

13:40-14:20

Gabriella Juhász (HUPX, Hungarian NEMO)
Radek Adamec (ČEPS, Czech TSO)

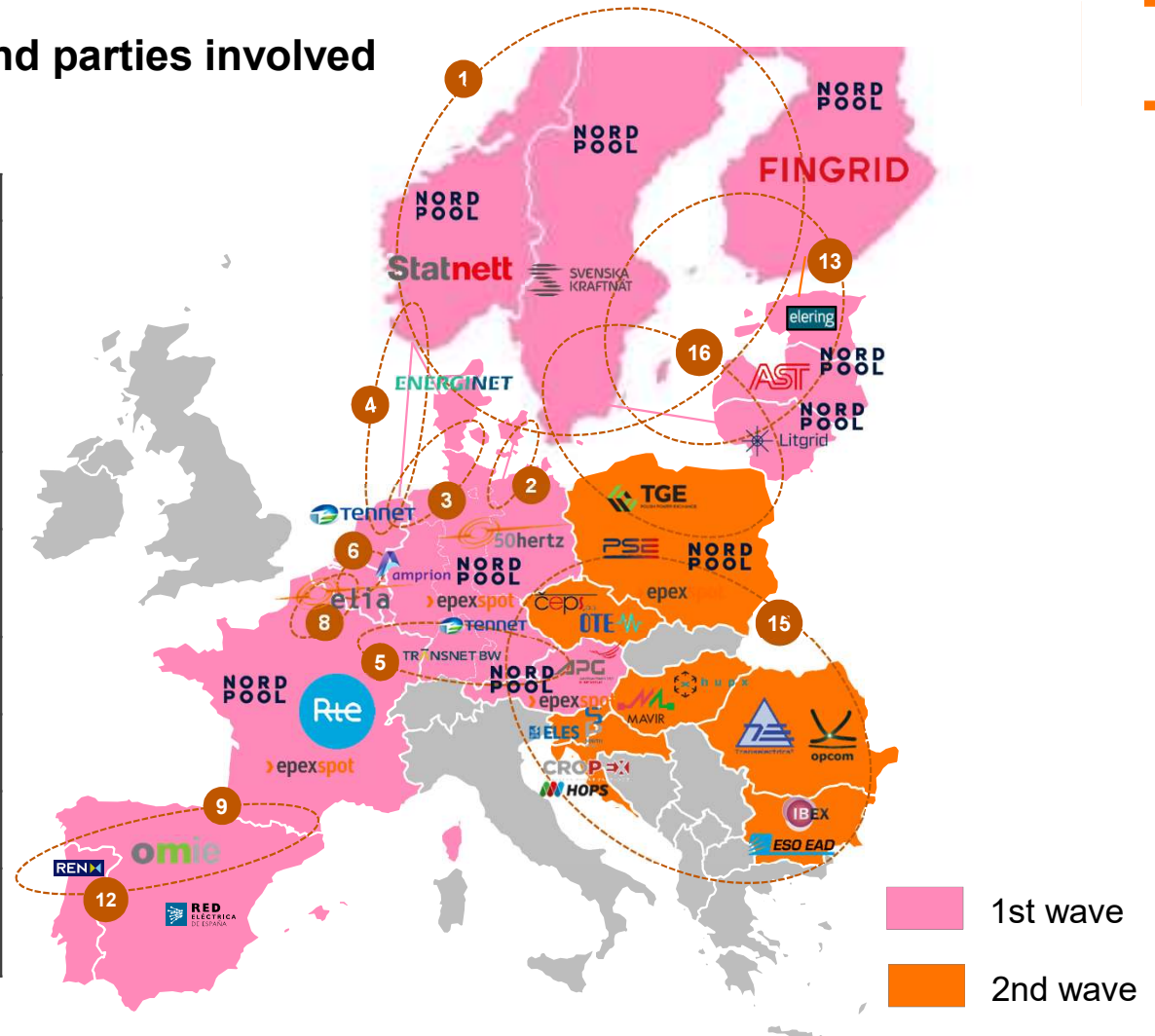
1st October 2019

Carlo IV Hotel; Prague, Czech Republic

1. Overview of initial go-live wave and parties involved

• LIPs part of initial go-live:

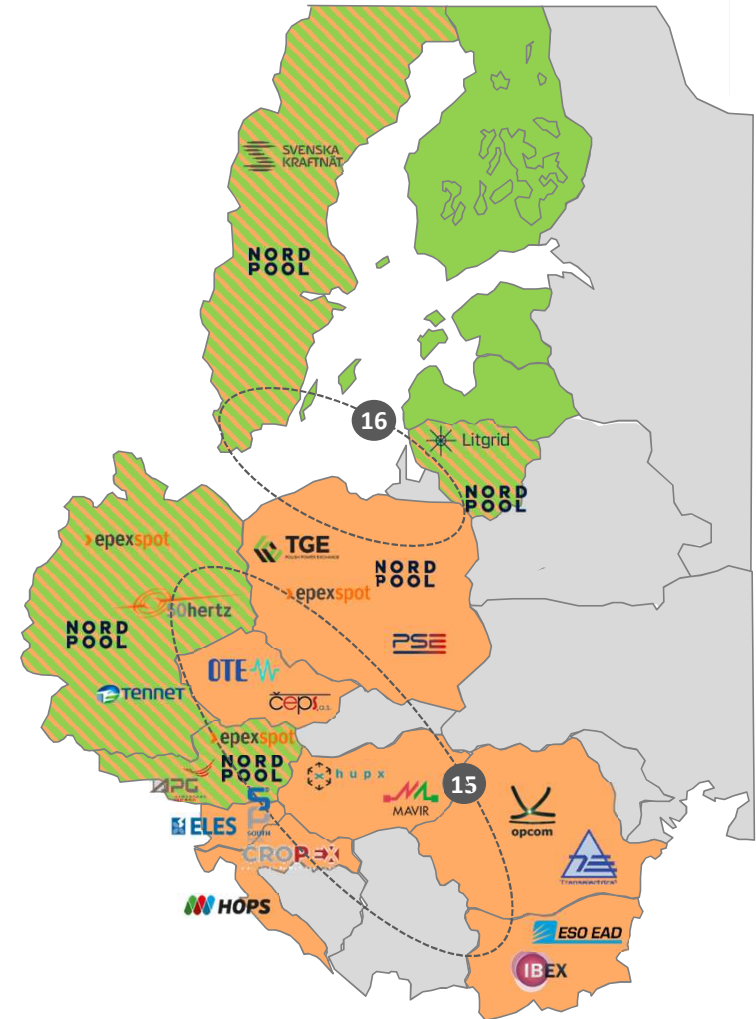
LIP		Participants	Allocation
1	Nordic	Fingrid, Energinet, SvK, Statnett, Nord Pool, EPEX	• Implicit
2	Kontek	Energinet, 50Hz, Nord Pool, EPEX	• Implicit
3	DK1/DE, DE/NL	Energinet, TenneT NL& DE, Amprion, EPEX, Nord Pool	• Implicit
4	NorNed	Statnett, TenneT NL, EPEX, Nord Pool	• Implicit
5	FR/DE, DE/AT	Amprion, TransnetBW, APG, RTE, EPEX, Nord Pool, TenneT DE	• Implicit - all • + Explicit (DE/FR)
6	NL/BE	Elia, TenneT NL, EPEX, Nord Pool	• Implicit
8	FR/BE	RTE, Elia, EPEX, Nord Pool	• Implicit
9 12	FR/ES& ES/PT	RTE, EPEX, OMIE, REE, REN, Nord Pool	• Implicit
13	Baltic	Elering, Litgrid, AST, Fingrid (Estlink), Svenska Kraftnät (NordBalt), Nord Pool	• Implicit



2. Overview of 2nd go-live wave and parties involved

LIP		Participants	Foreseen allocation
15	AT-CZ, AT-SI, AT-HU, BG-RO, CZ-DE, CZ-PL, DE-PL, SI-HR, 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	- Implicit - Implicit & Explicit for SI-HR border
16	LT-PL, PL-SE	NEMOs: Nord Pool, TGE TSOs: Litgrid, PSE, Svk	Implicit

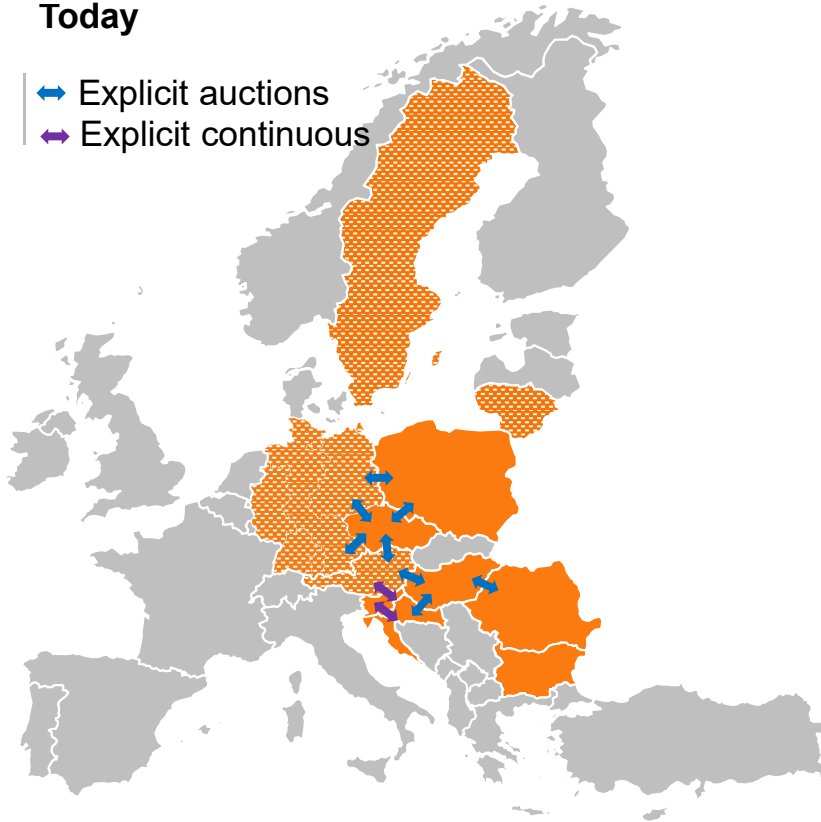
- Operational
- Operational, part of 2nd wave
- 2nd wave



Type of cross-zonal capacity allocation 1/2

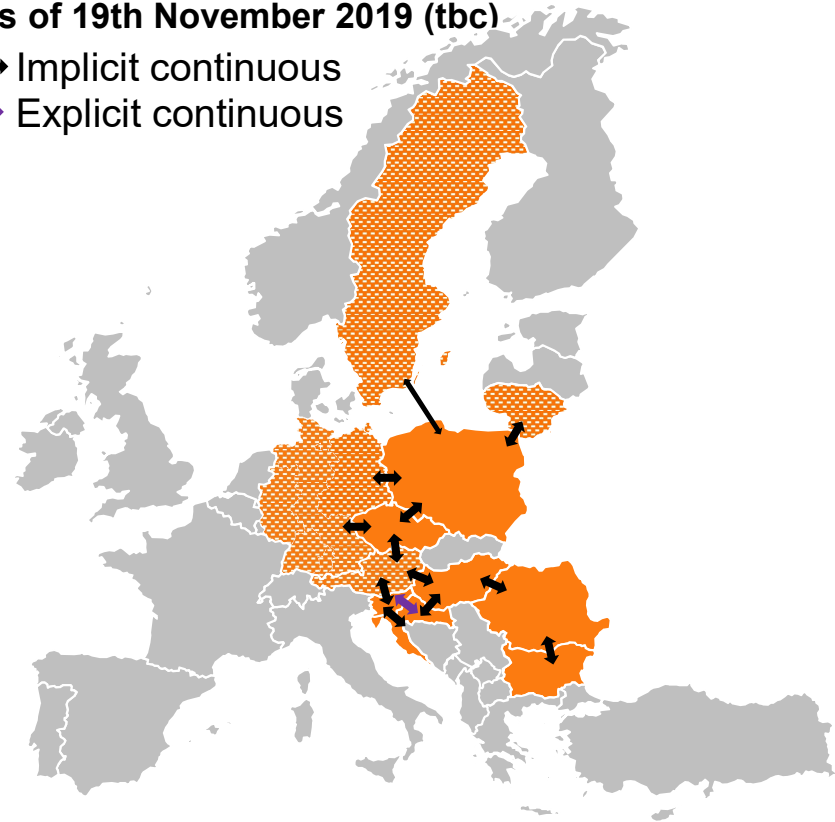
Today

- ↔ Explicit auctions
- ↔ Explicit continuous



As of 19th November 2019 (tbc)

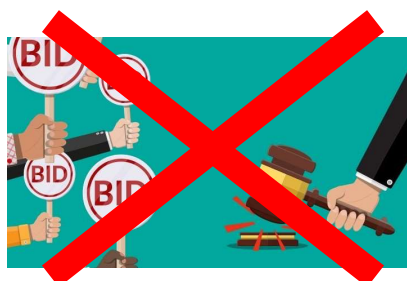
- ↔ Implicit continuous
- ↔ Explicit continuous



Type of cross-zonal capacity allocation 2/2



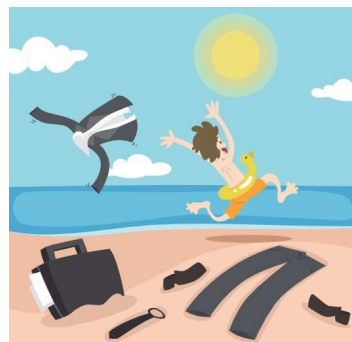
NO need to submit explicit capacity allocation request on XBID borders



NO more explicit capacity allocation on the coupled borders*



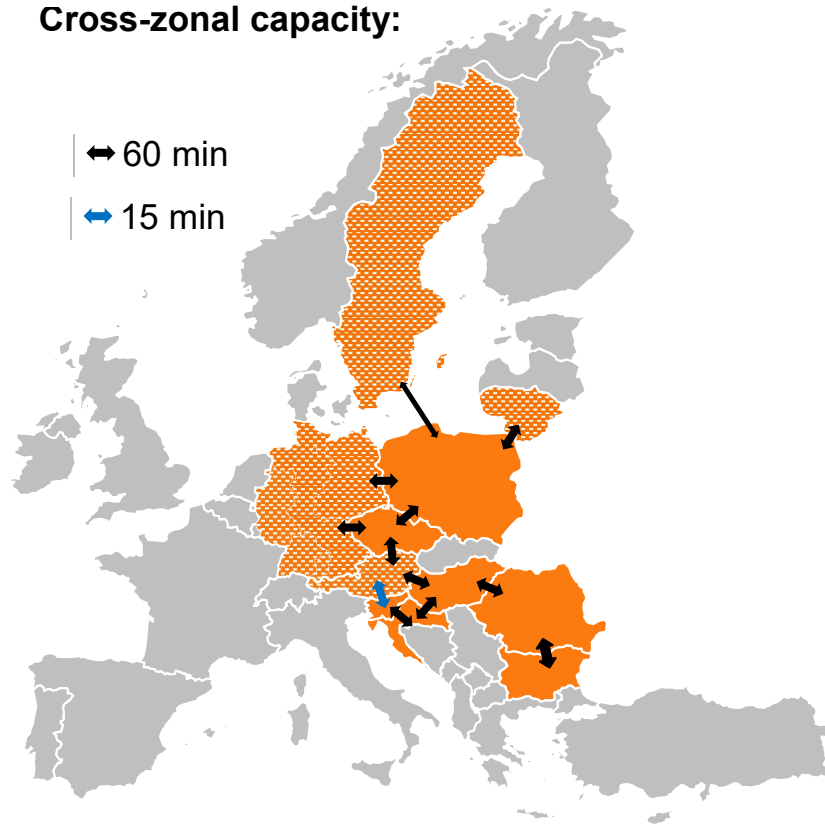
NO need to waste time with submission of cross border nomination on intraday timeframe and cross border settlement



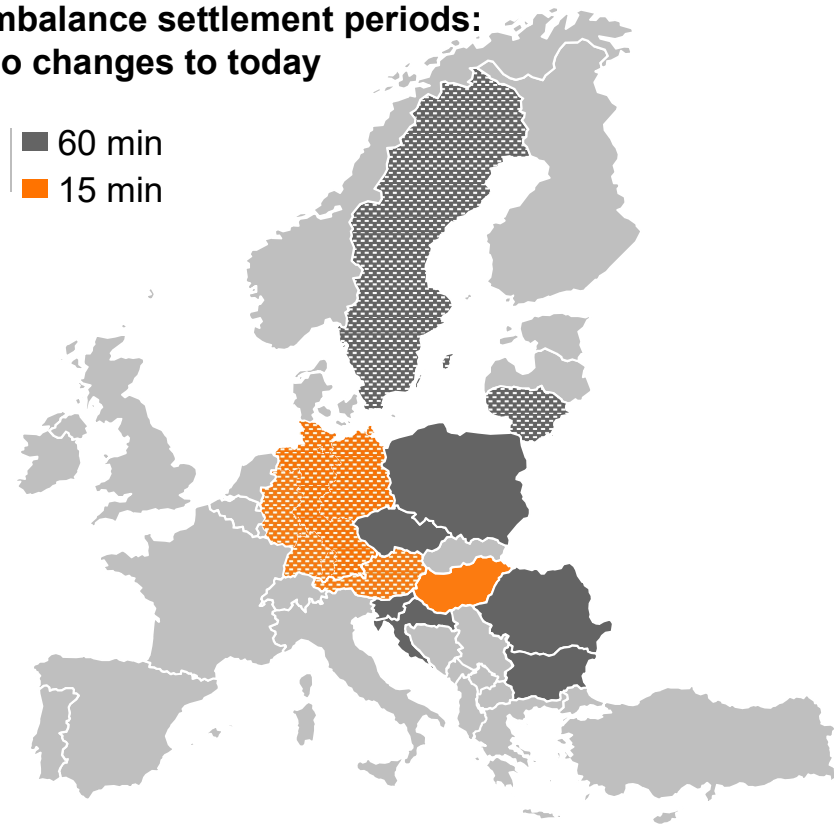
Traders will save time!

Granularity offered cross-zonal capacity and imbalance settlement periods

Cross-zonal capacity:



Imbalance settlement periods:
No changes to today

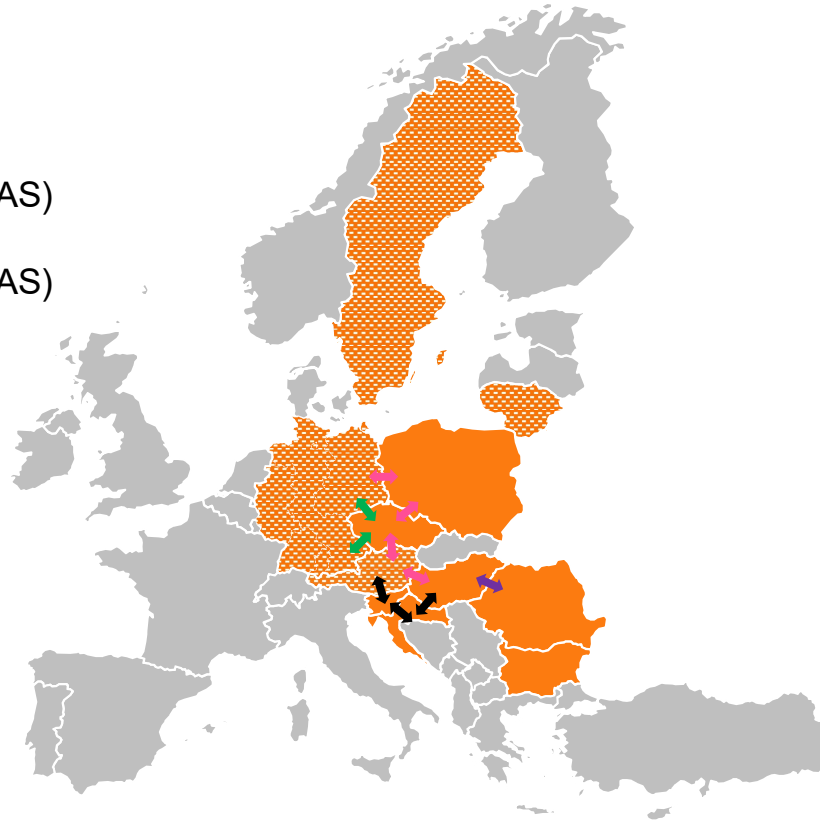


Gate opening (GOT) and gate closure (GCT) times today For Cross Border Allocation

Today

- ↔ GOT 18:00 D-1, GCT H-60min D
- ↗ 6 explicit auctions run by CEPS via MMS (DAMAS)
GOT H*-6:00, GCT H-2:30
- ↖ 6 explicit auctions run by CEPS via MMS (DAMAS)
for ČEPS-50HzT and ČEPS-TenneT separately
GOT H*-6:00, GCT H-2:30
- ↘ 6 Implicit auctions run by TEL
GOT H*-4:00, GCT H-3:00

*H is the first hour of intraday time interval

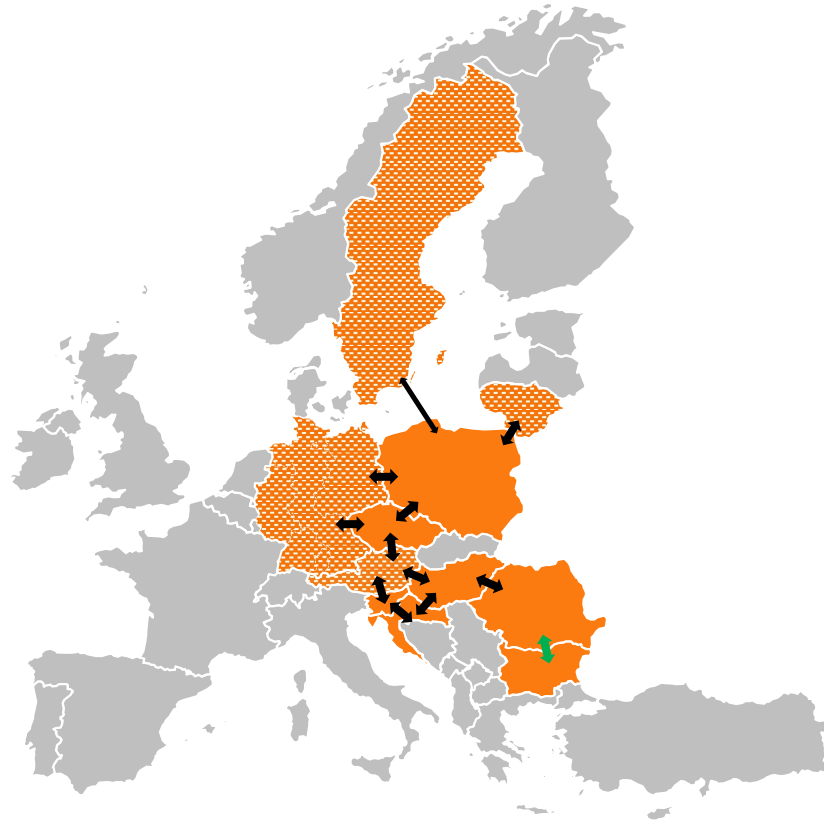


Gate opening (GOT) and gate closure (GCT) times as of 2nd wave go-live For Cross Border Allocation

As of 19.11.2019 tbc (for
delivery on 20.11.2019 tbc)

↔ GOT 15:00 D-1 GCT H-60min D
Effective GOT 22.00

↔ GOT 15:00 D-1 GCT H-60min D
Effective GOT 16:00~16:30

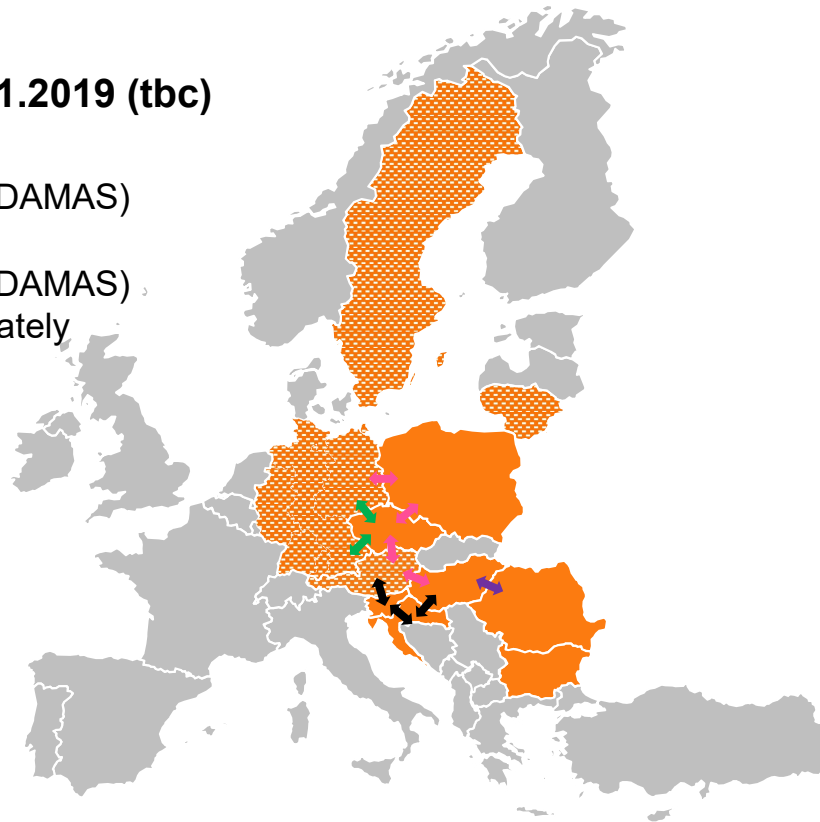


Explicit capacity allocation for day 19.11.2019 (tbc)

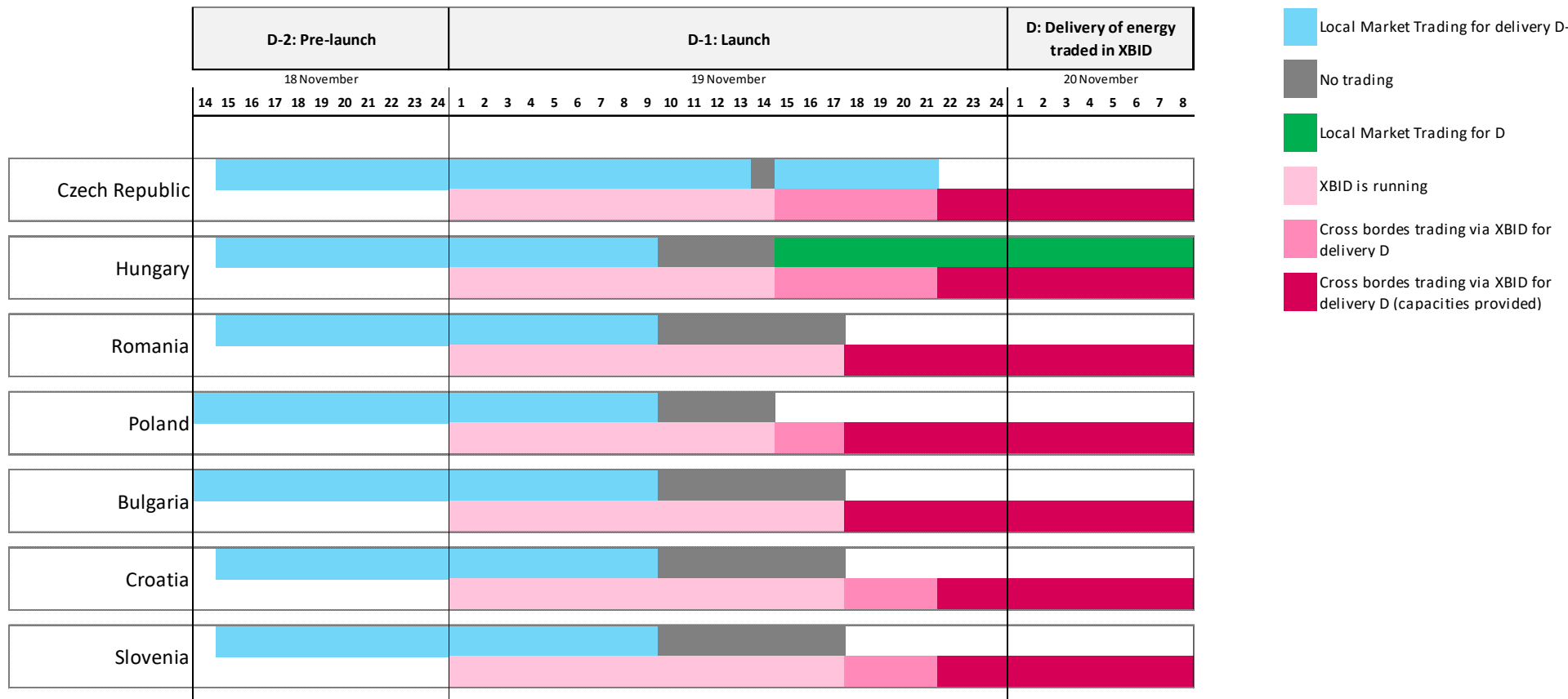
Explicit capacity allocation for day 19.11.2019 (tbc)

- ↔ GOT 18:00 D-1, GCT H-60min D
- ↔ 6 explicit auctions run by CEPS via MMS (DAMAS)
GOT H*-6:00, GCT H-2:30
- ↔ 6 explicit auctions run by CEPS via MMS (DAMAS)
for ČEPS-50HzT and ČEPS-TenneT separately
GOT H*-6:00, GCT H-2:30
- ↔ 6 Implicit auctions run by TEL
GOT H*-4:00, GCT H-3:00

*No changes compared to a regular day as today.



Cross-border trading possibilities for D-1 delivery (tentative)*



*Exact timing/sequence shall be properly confirmed shortly before the go-live through the usual market communication.

Cross-border trading possibilities for D-1 delivery (tentative)

Local markets of 2nd wave parties

Each 2nd wave NEMO will communicate on the potential down times of its local markets.

First tradeable local contracts in local trading systems could be available earlier than the start of cross-border capacities allocation.

Potential impact on 1st wave local market will be communicated locally

2nd wave Cross-border markets

2nd wave aims at connecting to SIDC on the **19th November 2019 (tbc)** and first tradeable cross-border contracts will be for the **20th November 2019 tbc [00:00-01:00]**

The detailed launch plan and checklists are still being worked on, detailed information on the duration of the migration, downtimes of 'old' and 'new' platforms are still being investigated.

Downtimes will be limited as much as possible

Capacities will be published according to the timings defined by the relevant TSOs on a border per border basis.



Fallback

During the 2nd wave go-live if something goes wrong...
...with a local trading system: effected party may be decoupled
...with the XBID central system: all parties may be decoupled
and local intraday market trading can be restored.

In such kind of unexpected market events market participants will be informed without undue delay.

This is only a last resort solution. All parties will make all effort to prevent such an action.



8. NRA overview

14:20-14:30

Lajos Valent (ERU & Chair of NEMO Co-ordination Group)

1st October 2019

Carlo IV Hotel; Prague, Czech Republic

9. Member's trial period, go-live plan and next steps for readiness

14:30-15:00

Ondřej Máca (OTE, Czech NEMO)

1st October 2019

Carlo IV Hotel; Prague, Czech Republic

Agenda

1

Market Trial

2

Go-live sequence

1. Market Trial (1)

What is the Market Trial?

- The Market Trial Period gives the Market Participant the **opportunity to connect via Local Trading Systems (LTS) of the NEMOs to the SIDC system**
- **The Market Trial Period is locally organized by individual NEMOs/TSOs** – NEMOs and TSOs (for Explicit Market Participants) are the main communication interface for both technical and organizational matters – **connectivity details and credentials will be communicated locally**
- Mainly focused on the new Implicit and Explicit Market Participants, but **all** market participants are invited and encouraged to join
- The Market Trial will be conducted in **production-like conditions**, meaning that following items are configured in accordance with the foreseen go-live configuration:
 - product range
 - product naming and product scheduling
 - cross-border capacities publication times,
 - coupling perimeter.

1. Market Trial (2)

- **Goal:** to become familiar:
 - With **SIDC functionalities and process** – applicable for the Market Participants who are not using SIDC services yet
 - With the new features introduced in the 2nd XBID release – applicable for the Market Participants already actively participating in the SIDC (provided that their respective NEMO participates in the Trial Period),
 - **Post-coupling activities like nominations are out of scope** of the Market Trial.
 - Note: The Implicit Market Participants have access to SIDC via the **Local Trading Solution which may differ among NEMOs** as it may also have additional functions supporting individual processes
- **Period of execution:**
 - 1st timeslot: 21/10/2019 - 25/10/2019
 - 2nd timeslot: 28/10/2019 - 02/11/2019
 - Note: **Activation of the timeslot is the full responsibility of the SIDC project.** The goal is to execute all related scenarios within the first timeslot.
- **ALL NEMOs with the exception of EPEX Spot will participate in the Market Trial Period.**

1. Market Trial (3)

- **Operating times:**

- The IT System will be operating on a 24x5 basis during the Trial Period.
- The support services (operational and technical consultation, simulation of the predefined scenarios) will be provided between 9am and 5pm CET by NEMOs for Implicit Market Participants and by TSOs (HOPS, ELES, RTE, Amprion) on the respective borders for Explicit Market Participants.
- All requests for support or consultation outside of the supported times are the responsibility of each of the NEMOs.

- **Technical arrangements:**

- Implicit Market Participants – are fully the responsibility of each NEMO
- Explicit Market Participants – are within the responsibility of the respective TSOs (HOPS, ELES, RTE, Amprion) – connectivity data distribution, connectivity tests, manuals for Explicit MPs, ...

- **Operational Messages:**

- The purpose of the Trial Period is to simulate operation as close as possible to the standard production operation. This implies that the system will generate operational messages. The Market Participants shall be advised to distinguish between messages coming from the Trial Period and those coming from routine operations.

1. Market Trial (4)

Detailed Schedule:

- **Week 43** (21/10/2019 - 25/10/2019)
 - Mo 21.10.2019 Normal operations
 - Tu 22.10.2019 Normal operations + Closing of HU market
 - We 23.10.2019 Normal operations + Trade recall and trade cancellation + Closing of market(s)
 - Th 24.10.2019 Normal operations + Trade recall and trade cancellation + Closing of borders
 - Fr 25.10.2019 No testing planned
- **Week 44** – Reserved for additional Trial Period testing if activated by the SIDC project

Normal operations = testing against production-like products

Trade recall and trade cancellation = For and between the NEMOs offering the service

Closing of market(s)/borders = simulations of situations where specific messages will be communicated, specific local NEMO processes in local trading systems might be proposed

2. Go-live sequence

Release 2.0

- Needed to accomodate the 2nd wave go-live
- Will be implemented in advance on **30th October 2019** on current **SIDC** and will follow established procedures and communication channels

Local markets of 2nd wave parties

- As presented under agenda item 6

2nd wave Cross-border markets

- As presented under agenda item 6

10. Future plan for SIDC

15:00-15:20

Mark Pickles, TSOs SIDC Project Manager, National Grid ESO

1st October 2019

Carlo IV Hotel; Prague, Czech Republic

SIDC – Future Roadmap

- The 1st and 2nd Wave Go-Lives, together with the SIDC development already undertaken provides a solid foundation for the medium and longer term.
 - The growing use of SIDC is enabling delivery of the benefits foreseen
 - But it is only the beginning!
- There is a lot more to be done.....
 - **3rd Wave Go-Live.** The EC has set the expectation that all remaining EU borders will go-live in 2020. This predominantly means Italy, Greece, Slovakia, Ireland and UK (awaiting clarity on Brexit)
 - **Losses on DC Cables.** The Proof of Concept is currently in progress and implementation is in 2020
 - **Intraday Auctions support/involvement (Capacity Pricing).** Initial work is commencing following the ACER decision
 - **Improvements in reporting and usability.** These are being progressed – Release 2.0 (October 2019) and Release 3.0 (2020)
 - **Longer term development** to deliver remaining CACM requirements (e.g. Flow Based) and enduring Shipping solution.
 - Maintaining **performance** is a continuous challenge and may trigger significant developments together with new functionalities (i.e. Losses and 15 min products, cross-product matching...)
- The SIDC parties have developed a roadmap that contains 130 items



Strategic Roadmap – Illustrative “Longer Term” sequence of developments to be prioritized/agreed with stakeholders

November 2019

**SIDC 2nd
Go-live**

**Support Analysis &
Design for Intraday
Auctions (IDAs)**

**Support
IDAs
Development
/Deployment**

**Analysis & Design
of enduring
Shipping Solution**

**Enduring Shipping
Solution implemented**

**Analysis & Design
of Flow Based
Allocation**

**Flow Based
Allocation
Developed/ Prod.
then Parallel Run**

**Design of non-
standard ID
products**

**Implementation
of non-standard
ID products**

Release planning likely to mean no more than 2 releases or 1 major release p.a. due to testing cycles etc.

Impact analysis needs to be done for all elements

Dependency on cost/ budget as to how quickly changes can be implemented

Sequence of all these activities are not agreed – it will be discussed with Steering Committee & external stakeholders such as NRAs

SIDC Governance

- Governance underpins the ability of the SIDC parties to manage and further develop the solution
- The SIDC Intraday Steering Committee (IDSC) comprises all parties who have signed the Operational Agreement and manages:
 - Annual budget and agreed priorities
 - Development and implementation of short, medium and long term strategic roadmap
- Operationally OPSCOM is established to manage and monitor operations. Incident Committees are mobilised as needed
 - OPSCOM reports to IDSC
- Other parts of the SIDC Governance include:
 - Quality Assurance and Release Management
 - Market and System Design
 - Support functions covering Finance, Legal and Communications
- SIDC has commenced initial work with Single Day Ahead Coupling (SDAC) regarding the co-ordination and merging of governance



SIDC Future Plans - Summary

- We have had a successful start
- SIDC is a complex central system that is connected to multiple local systems
- Competition rules need to be constantly considered and this can put constraints on the collaboration at times
- We remain very focused on performance – the system is performing very well and our goal is to maintain this with further geographic extension and functional development
- Testing a new release takes 6 months and this means that there can be no more than one major release p.a.
 - We are piloting an Agile development approach to see if we can develop and deploy new functionality in a less cumbersome and more efficient way
- There remains much to develop – support for Intraday Auctions, Flow Based, enduring Shipping solution etc. and much of this is very complex
- We have a good foundation and this gives us optimism for the future of SIDC



General Q&A + Summary and close

15:20-15:45

1st October 2019

Carlo IV Hotel; Prague, Czech Republic



Thank you for your attention!

Get together & networking – refreshments served

1st October 2019

Carlo IV Hotel; Prague, Czech Republic

Single Intraday Coupling (XBID) Information Package

First Published February 2018

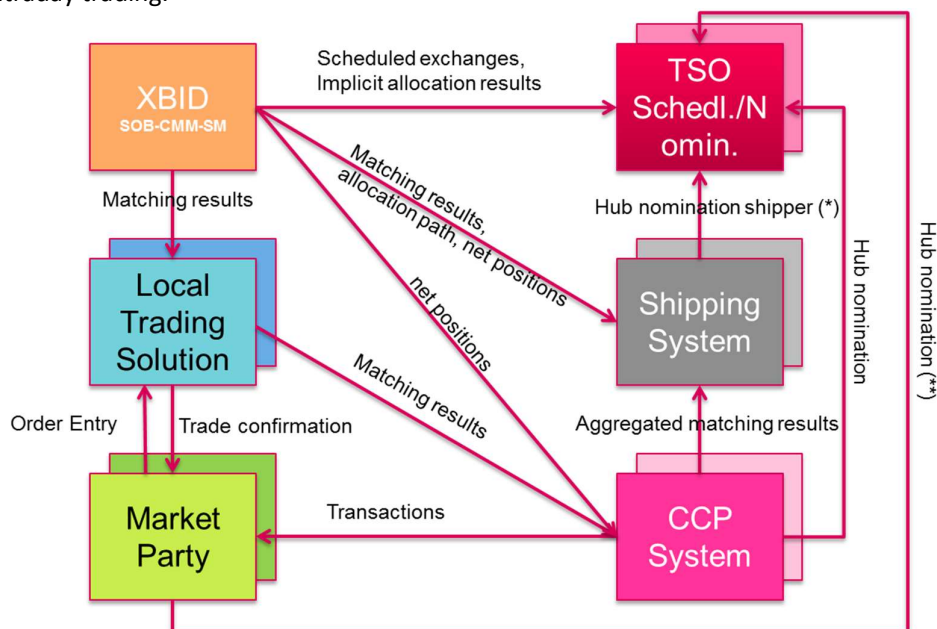
Updated December 2018 & September 2019

1. Purpose of this document

This document centralises, consolidates and comprehensively describes the necessary information which is useful for market players in order to use the Single Intraday Coupling, SIDC (formerly known as XBID) platform.

2. High level description of SIDC Platform

The XBID Programme started as a joint initiative by Power Exchanges and Transmission System Operators (TSOs) from 11 countries, to create a coupled integrated intraday cross-border market. Meanwhile the XBID Platform has been confirmed as the Single Intraday Coupling (SIDC) which shall enable continuous cross-border trading across Europe. SIDC is based on a common IT system with one Shared Order Book (SOB), a Capacity Management Module (CMM) and a Shipping Module (SM). This means that orders entered by market participants for continuous matching in one country can be matched by orders similarly submitted by market participants in any other country within the project's reach as long as transmission capacity is available. The intraday solution supports both explicit (where requested by NRAs) and implicit continuous trading and is in line with the EU Target model for an integrated intraday market. The purpose of the SIDC initiative is to increase the overall efficiency of intraday trading.



(*) XB nominations could be also needed in areas where nomination behavior is not applicable
(**) According to local procedures (direct or indirect nominations)

Picture 1: SIDC high-level architecture

The orders submitted by the market participants of each NEMO via the Local Trading Solution (LTS) of the respective NEMO will be centralised in the SOB. Similarly, all the intraday cross-border capacities are made available by the TSOs in the CMM.

It is important to clearly distinguish between Local Trading Solutions (LTSs) and the SIDC Solution:

- LTSs represent an interface (the only interaction point) between the Implicit Market Participants and Single Intraday Coupling (SIDC) Solution. In other words, the Implicit Market Participant may access the SIDC only via the LTS of a particular NEMO.
- SIDC Solution is a so-called backend process which does not interact with the Implicit Market Participants. SIDC Solution provides, among others, a functionality of the Shared Order Book via interaction with the connected LTSs.

Note: Explicit Market Participants have a direct technical access to the XBID Solution in order to perform explicit allocations on the German-French border, and with the 2nd Wave Go-Live on the Slovenian-Croatian border.

Order books displayed to the market participants via the LTS provided by their NEMO(s) will contain orders coming from other participants of the concerned NEMO and also orders coming from other NEMOs subject to cross-border matching, provided there is enough cross-border capacity available. Among others the NEMOs' trading systems provide the following features:

- It shows to its market participants the local view, i.e. the order book that the market participants can view in each area according to the available capacity on the borders.
- It sends the anonymized orders to the SOB (SIDC solution) received from their market participants. A 'trading solution client' is provided by the NEMOs to their market participants for their activities on the market (submit orders, receive trade information, etc.).
- It receives the required information from the SIDC solution (matching results, local view, etc.).
- It provides the required information to the market participants and to its clearing system.

Orders submitted in different market areas can be matched provided there is enough capacity available. In such a case, order matching will result in an implicit capacity allocation. Concretely, when two orders are being matched the SOB and CMM will be updated immediately. The trading principle remains first-come first-served where the highest buy price and the lowest sell price get served first. The update of SOB will mean that the orders that were matched are removed, and consequently that the available transmission capacity in the CMM will be updated. The number and location of the borders where the capacities are updated will follow the cross-border flows originated by the geographical location of the matched orders.

For borders where NRAs requested for it (the French/German and Slovenian-Croatian borders are the only ones requested), explicit allocation will be made available to Explicit Participants.

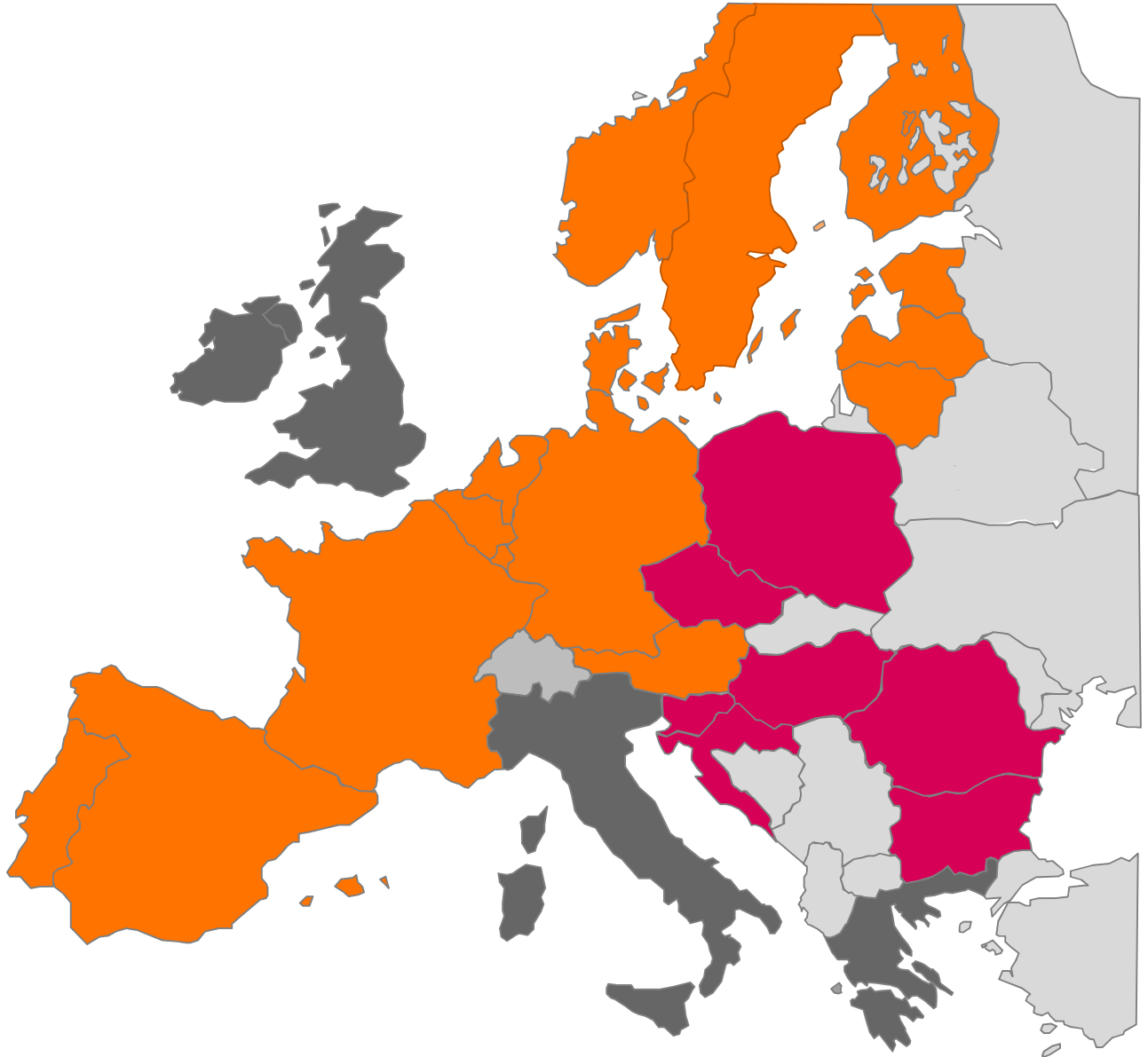
During the trading period, available capacities and order books are simultaneously updated on a continuous basis.

The SM of the SIDC Solution provides information from trades concluded within SIDC to all relevant parties of the post-coupling process. The SM receives data from the SOB about all trades concluded:

- Between two different Delivery Areas
- In the same Delivery Area between two different Exchange Members

3. Bidding zone borders where ID is managed by the SIDC solution

The bidding zone borders of the following countries (marked orange) are managed by the SIDC solution. Those in purple are due to go-live in Quarter 4 2019:



Picture 2: Countries coupled by SIDC solution in 1st Wave Go-Live, shown in orange (13th June 2018) and 2nd Wave, shown in purple (planned for Q4 2019)

Please note: Luxembourg is part of the Amprion Delivery Area. Market participants in Luxembourg have access to the SIDC through the Amprion Delivery Area

List of bidding zone borders:

Bidding zone borders		
BE-NL	EE-LV	NO2-NL
DE-DK1	FI-SE1	NO3-NO4
DE-DK2	FI-SE3	NO3-NO5
DE-NL	FRE-FI	NO3-SE2
FR-BE	LT-SE4	NO4-SE1
DE-FR	LV-LT	NO4-SE2
FR-ES	NO1-NO2	SE1-SE2
DK1-DK2	NO1-NO3	SE2-SE3
DK1-NO2	NO1-NO5	SE3-SE4
DK1-SE3	NO1-SE3	ES-PT
DK2-SE4	NO2-NO5	SI-HR
EE-FI	DE-AT	HR-HU
DK1-NL	CZ-DE	RO-HU
PL-DE	CZ-AT	RO-BG
PL-CZ	AT-HU	
PL-SE4	AT-SI	

4. Products offered at go-live at bidding zone borders

SIDC system supports the following products:

- 15-minutes
- 30-minutes
- 60-minutes
- Hourly User Defined Blocks

Products are configured to the SIDC solution per market area.

Specific product availability in different market areas is detailed in the table below:

		1st wave						2nd wave						
		Austria	France	German TSO areas	Iberia	NL & Belgium	Nordics & Baltics	Bulgaria	Croatia	Czech Republic	Hungary	Poland	Romania	Slovenia
Size		Min vol. Increment 0.1 MW												
Price Tick		EUR 0.01 per MWh												
Volume Range		0.1 MW to 999 MW												
Price Range		-9 999 €/MWh to 9 999 €/MWh												
Products	15-min	X		X										X
	30-min		X	X										
	Hourly	X	X	X	X	X	X	X	X	X	X	X	X	X
	User Defined Blocks*	X	X	X		X	X	X	X	X	X	X	X	X
Notes	* Hourly blocks (not 15 or 30 min blocks)													

Please note that locally traded products are not indicated in this table

Order types:

Order type	Execution Restrictions	Validity Restrictions	Predefined	User-Defined
Regular predefined	NON (None) IOC (Immediate-or-Cancel) FOK (Fill-or-Kill)	GTD (Good Till Date) GFS (Good For Session)	Yes	No
Regular user-defined block	AON (All-or-Nothing)	GTD (Good Till Date) GFS (Good For Session)	No	Yes
Iceberg	NON (None)	GTD (Good Till Date) GFS (Good For Session)	Yes	No
Basket Orders	None (1) Valid (2) Linked (3)	--	Yes	No

(1) Orders are processed as if they would have been submitted separately

(2) All orders in the basket are accepted or rejected

(3) All orders in the basket must be executed immediately with their entire quantity; all orders inside basket have the execution restriction "FOK"

The Project Parties anticipate increasing the range of products on borders. This requires forward planning including changing local systems and consultations. It is not possible to provide the answer at present but information will be provided to NRAs on this in the future.

5. Delivery hours covered by SIDC for each bidding zone border

Delivery hours are 24/7.

6. List of bidding zone borders, where intraday capacity is allocated in another way in parallel (e.g. implicit auctions, explicit allocation);

At the following borders cross-zonal capacity is allocated in another way in parallel to the implicit continuous allocation:

Germany-France (DE-FR)	Explicit continuous
Slovenia-Croatia	Explicit continuous
Spain-Portugal (ES-PT)	Implicit auctions

7. The user manual of the SIDC platform

For implicit continuous intraday trading market participants, will not connect directly to the SIDC platform. Market participants will enter their orders into the Local Trading Solution(s) of the NEMOs which is connected to SIDC.

Only for the explicit access to cross-zonal capacity at the German-French and Slovenian-Croatian borders a connection to SIDC is required.

The respective user manuals for explicit participants are published under the following links:

- http://clients.rte-france.com/lang/an/clients_traders_fournisseurs/services_clients/inter_france_allemaagne.jsp
- <https://www.eles.si/dokumenti>
- <https://www.eles.si/en/documents>

8. Gate opening time (GOT) and gate closure time (GCT)

• A. For Cross Border Allocation

CC	Bidding Zone border	GOT as of 2nd go-live wave	Cross-border capacities published at GOT	Point in time cross-border capacity is made available after GOT (Effective GOT)	GCT as of 2nd go-live wave
Nordic	DK1-DK2, DK1-NO2, DK1-SE3, DK2-SE4	15:00 CET D-1	Calculated cross-border capacity	N/A	One hour before delivery of MTU
	FI-SE1, FI-SE3, NO1-NO2, NO1-NO3, NO1-NO5, NO1-SE3, NO2-NO5, NO3-NO5, NO3-SE2, NO4-SE1, NO3-SE4, NO4-SE2, SE1-SE2, SE2-SE3, SE3-SE4, NO3-NO4	15:00 CET D-1	Calculated cross-border capacity	N/A	
Baltics	LT – LV	15:00 CET D-1	0	As soon as possible after GOT	
	EE – LV				
	LT – SE4				
Core	PL –LT				
	DE – NL	15:00 CET D-1	0	22:00 CET D-1	
	FR – BE				
	BE – NL				
	DE – FR				
	DE – AT				
	PL – DE				
	PL – CZ				
	CZ – DE				
	CZ – AT				
	AT – HU				
	AT – SI				
	SI – HR				
HR – HU					
RO – HU					
Hansa	DE – DK1	15:00 CET D-1	0	18:00 CET D-1	
	DK1 – NL				
	DE – DK2				
	NO2 - NL				
	PL – SE4				
SWE	ES-FR	15:00 CET D-1 (See Note 1 below)	0	22:00 CET D-1	
	PT-ES		0	15:10 CET D-1	
SEE	RO – BG	15:00 CET D-1	0	16:00 CET D-1	

Note 1: Iberian GOT is foreseen to be switched to 15:00 CET by the End of September 2019 subject to the needed Iberian regulatory changes being ready. (Once this switch is performed the effective GOT for PT-ES border will be 15:10)

B. For SIDC Market Trading (within a Bidding Zone)

		1st wave						2nd wave						
		Austria	France	German TSO areas	Iberia	NL & Belgium	Nordics & Baltics	Bulgaria	Croatia	Czech Republic	Hungary	Poland	Romania	Slovenia
Opening times	All products	15:00	15:00	18:00	15:00**	14:00	14:00	14:00	15:00	15:00	15:00	14:00	15:00	15:00
Closing times	15-min	H-30 min		H-30 min										H-60 min
	30-min		H-30 min	H-30 min										
	Hourly	H-30 min	H-30 min	H-30 min	H-60 min	H-5 min	H-60min*	H-60 min	H-30 min	H-60 min	H-60 min	H-60 min	H-60 min	H-60 min
	User Defined Blocks	H-30 min	H-30 min	H-30 min		H-5 min	H-60min*	H-60 min	H-30 min	H-60 min	H-60 min	H-60 min	H-60 min	H-60 min
Notes		* Finland and Estonia at D-30 min ** The GOT within Iberian market will be 15:00 as of Q4 2019 (pending of regulatory decision) NOTE: The opening and closing times are SIDC/SOB system timings; individual NEMO timings might differ.												

Please note that locally traded products are not indicated on the slide

9. Documentation on the functioning of a fall back solution

In case of failure of the SIDC solution the intraday trading still remains possible internally within each bidding zone, provided local trading is offered by the NEMOs.

Measures have been taken to achieve a high SIDC solution availability and this has proved to be the case during the first 14 months of operation.

There will be no fallback option for any of the borders currently operational. The complexity of providing a fall back solution which is compliant with Multi-NEMO Arrangements (MNA) equates to delivering a project of similar cost and complexity as SIDC. Local fallback arrangements which comply with MNA do not exist and the outcome of individual Local Implementation Projects' (LIPs') assessments has therefore been that it is not possible to provide fallback other than local trading.

10. Roll-back solution

Rollback is defined as a situation where the SIDC Steering Committee is forced to decide to stop operations of the SIDC and to return to the situation before Initial Go-Live. The SIDC solution ran with stability since go-live and therefore, at the beginning of September 2018 the Steering Committee decided, in line with the contractual agreement between NEMOs and TSOs, to remove rollback systems. This was communicated at the time in a press release.

11. Algorithm Methodology and ID capacity pricing

The Algorithm Methodology including the requirements for the intraday capacity auctions have been submitted to ACER by the NEMOs on the 31st of July. The final document

- does not present the detailed principles on the governance, the details will be included in the related agreements.
- includes the timeline for the introduction of 15 minutes in the Intraday auctions
- set out the principles of the go-lives windows also suitable for intraday timeframe

ACER has now 6 months to approve the methodology.

Last update: 11/09/2019

Single Intraday Coupling (SIDC): Questions & Answers

1. What is the Single Intraday Coupling (SIDC) initiative?

The aim of SIDC, formerly known as the XBID, Cross Border Intraday project, is to create a single pan European cross zonal intraday electricity market. An integrated intraday market will increase the overall efficiency of intraday trading by promoting effective competition, increasing liquidity and enable a more efficient utilisation of the generation resources across Europe.

With the increasing amount of renewable intermittent production, interest in trading in the intraday markets is increasing as it can become more and more challenging for market participants to be in balance after the closing of the Day-Ahead market. Being balanced on the network closer to delivery time is beneficial for market participants and for the power systems alike by, among others reducing the need of reserves and associated costs. In addition, the intraday market is an essential tool that allows market participants to take unexpected changes in consumption and outages into account.

SIDC is an initiative between the Nominated Electricity Market Operators (NEMOs) and Transmission System Operators (TSOs) which enables continuous cross-border trading across Europe.

The SIDC Solution was first launched on 12th/13th June 2018 across 14 countries. In the first 14 months of operation over 20 million trades have been completed.

It is based on a common IT system with one Shared Order Book (SOB), a Capacity Management Module (CMM) and a Shipping Module (SM). This means that orders entered by market participants for continuous matching in one country can be matched by orders similarly submitted by market participants in any other country within the project's reach if transmission capacity is available.

The intraday solution supports both explicit (where requested by NRAs) and implicit continuous trading and is in line with the EU Target model for an integrated intraday market.

2. Why is the intraday market so important to integrate European markets?

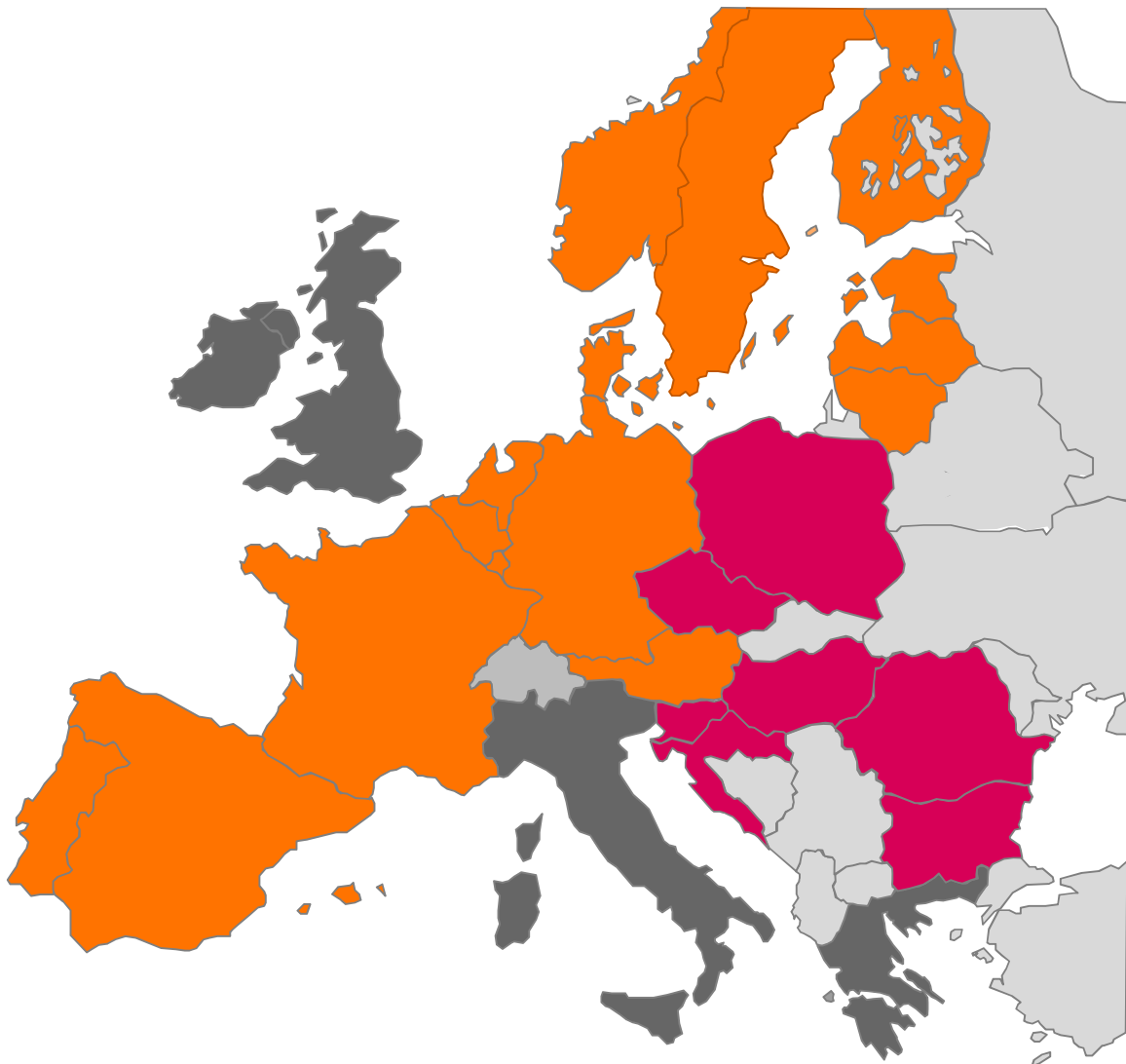
There are three different physical markets for trading electricity; Forward Market, Day- Ahead Market and Intraday market before delivery hour.

An integrated intraday market will promote effective competition and pricing, increase liquidity and enable a more efficient utilisation of the generation resources across Europe. With the increasing amount of intermittent production, it becomes more and more challenging for market participants to be in balance after the closing of the Day-Ahead market. Therefore, interest in trading in the intraday markets is increasing. Being balanced on the network closer from delivery time is beneficial for market participants and for the power systems alike by, among others reducing the need of reserves and associated costs.

3. What is the geographical scope of the initiative?

The first go-live in June 2018 included 14 countries: Austria, Belgium, Denmark, Estonia, Finland, France, Germany, Latvia, Lithuania, Norway, The Netherlands, Portugal, Spain and Sweden. A second go-live with further countries – Bulgaria, Croatia, Czech Republic, Hungary, Poland, Romania and Slovenia - is foreseen in Quarter 4 2019. A third go-live is also foreseen but a date for this is not confirmed at present.

Picture 1: Countries coupled by SIDC solution in 1st Wave Go-Live, shown in orange (13th June 2018) and 2nd Wave, shown in purple (planned for Q4 2019)



Please note: Luxembourg is part of the Amprion Delivery Area. Market participants in Luxembourg have access to the SIDC through the Amprion Delivery Area

4. Who are the partners involved?

The parties involved are:

Transmission System Operators (TSOs):

50HERTZ, ADMIE, AMPRION, APG, AST, BritNed, ČEPS, CREOS, EirGrid, ELERING, ELES, ELIA, ELSO, ESO, FINGRID, HOPS, Litgrid, MAVIR, NGIC, PSE, REE, REN, RTE, SONI, STATNETT, SVENSKA KRAFTNÄT, TenneT DE, TenneT NL, TERNA, TRANSELECTRICA and TransnetBW.

Nominated Electricity Market Operators (NEMOs):

BSP, CROPEX, EirGrid, EPEX, EXAA, GME, HEnEx, HUPX, IBEX, Nord Pool EMCO, OMIE, OPCOM, OTE, SONI and TGE.

Please note integration of Swiss borders is not going to be possible due to the intergovernmental agreement on electricity cooperation not having been reached by end of 2016 [CACM Article 1 (4) & (5)]. In consequence, Swissgrid left the project in January 2017.

5. What is the relation between the SIDC project and the network codes/guidelines?

The SIDC initiative is a multiparty project working on the implementation of the SIDC Model being a continuous intraday market, based on a single capacity management module and a shared order book within a one-to-one relationship. The Guideline on Capacity Allocation and Congestion Management (CACM GL) endorses this SIDC Model. The CACM GL sets out, amongst others, the methods for allocating capacity in intraday timescales, rules for operating intraday markets and the basis for the implementation of a single electricity market across Europe.

SIDC is in line with the provisions of the CACM GL and the parties in the project fulfil the future requirements of CACM through their involvement.

6. Who is the system provider of the SIDC Solution?

The system provider is Deutsche Börse AG (DBAG).

7. What does this system do?

The orders submitted by the market participants of each NEMO are centralised in one shared order book (SOB). Similarly, all the intraday cross-border capacities are made available by the TSOs in the Capacity Management Module (CMM).

Order books displayed to the market participants via the usual NEMOs' trading systems contain orders coming from other participants of the concerned NEMO and also orders coming from other NEMOs for cross-border matching, provided there is enough capacity available.

Orders submitted for different market areas can be matched provided there is enough capacity available. In such a case, the order matching is associated with implicit capacity allocation. Concretely, when two orders are being matched the SOB and CMM is updated immediately. Trade is done on a first-come first-served principle where the highest buy price and the lowest sell price get served first. The update of SOB means that the orders that were matched are removed, and consequently that the available transmission

capacity in the CMM is updated. For how many borders the capacities are updated depends on where the matched orders were located geographically.

For borders where NRAs requested for it, explicit allocation is made available to Explicit Participants (currently at the FR-DE border and planned for the SL-HR in the 2nd wave go-live).

During the trading period, available capacities and order books are simultaneously updated on a continuous basis.

The Shipping Module (SM) of the SIDC Solution provides information from trades concluded within SIDC to all relevant parties of the post-coupling process. The SM receives data from the SOB about all trades concluded:

- Between two different Delivery Areas
- In the same Delivery Area between two different Exchanges

The data from the SOB and the CMM are enhanced with relevant TSO, Central Counter Party (CCP) and Shipping Agent data from the SM and transferred to the parties at the configured moments.

8. How is the 24/7 availability of the system guaranteed?

Both CMM and SOB have a primary and a back-up system that are separated physically to guarantee highest availability of the system. Trading at local intraday platforms and the explicit access to the CMM is not affected by a down-time of the SOB.

9. How does the SIDC project communicate with stakeholders?

User Group meetings have been held approximately every 5-6 months, particularly prior to the 1st Go-Live. Attendees were a representative group of market participants. The purpose of the User Group has been to facilitate the interaction between the SIDC project and market participants with the aim of explaining the status of the SIDC project and building knowledge/confidence in the proposed solution. It has also provided stakeholders with the opportunity to provide feedback on key aspects of the project.

The User Group meeting slides and minutes have been published at a dedicated SIDC (or XBID) project section on the web pages of the involved NEMOs.

Regular SIDC project updates are also provided to:

- Regulators (NRAs) through the Implementation Group (IG) meetings
- Market European Stakeholder Committee (MESC) at each scheduled meeting
- The European Commission (EC)/ACER/ CACM WS

A larger scale SIDC (XBID) launch event to which over 150 stakeholders were invited was held on 31st January 2018 at Brussels. The meeting slides were published at a dedicated SIDC (XBID) project section on the web pages of the involved NEMOs. A further launch event for the 2nd Wave Go-Live has been scheduled for 1st October 2019 in Prague.

Going forward, the Market European Stakeholder Committee (MESC) will serve as the primary interface between SIDC and the market parties.

10. What is the gain for market participants?

The solution is expected to increase the liquidity of the newly coupled intraday continuous markets, since orders submitted for the purpose will be potentially matched with orders submitted in any other participating country. In other words, orders that could not be matched in local markets increase their probability of being matched in the larger integrated market. In addition, the solution facilitates the operational tasks of intraday cross-border scheduling, since the capacity allocation and energy matching processes is done simultaneously. As a consequence, market efficiency is also expected to increase, to the benefit of the market participant.

11. How will this impact/how does this benefit the end consumers?

The direct benefit for the end consumer is expected to be positive, and the end consumers will benefit from this initiative increasing the overall wholesale market efficiency and facilitate the integration of the RES in the market. More concretely market participants having larger possibilities to be balanced before the hour of delivery will contribute to reduce the costs of reserves.

12. How does the SIDC project interlink with the PCR Day-Ahead project?

There is no direct interlink between these two projects other than the participating TSOs and NEMOs are mostly the same. However, both projects share the same purpose of implementing the European target models for electricity. Co-ordination is taking place between the senior leaders and project management teams of the two projects. In the future, in line with CACM requirements, it is expected that the governance for the ID and DA projects will progressively merge.

13. What are the Local Implementation Projects (LIPs)?

To implement the SIDC solution Local Implementation Projects (LIPs) were set up. Over 15 LIPs have been established so far. A LIP consists of one or more borders, one or more TSOs and one or more NEMOs. The LIPs main tasks are adaptation of local arrangements (i.e. procedures, shipping, contracts), IT system adjustments, secure equal treatment between NEMOs and implicit/explicit access and ensuring readiness for the participation in the SIDC LIP testing.

The LIPs are monitored via the SIDC Steering Committee where individual LIP's progress is reported. Further each LIP has set up a formal governance structure within the LIP (i.e. project manager, Steering Committee, etc.).

14. The SIDC project informed Market Parties about the specific product availability in different market areas. How and when will the range of products at all the borders be increased, i.e. by when will NEMOs introduce sub-hourly products at all other borders?

The Project Parties anticipate increasing the range of products on borders. This requires forward planning including changing local systems and consultations. It is not possible to provide the answer at present but information will be provided on this in the future.

15. The order book depth is 31 orders. By when do NEMOs plan to implement greater depth?

The initial implementation followed these principles: The order book depth (OBD) is either 31 orders or 600 MWs (limited by max of 50 orders), whichever one comes last.

Following analysis and additional investment the order book depth is due to be increased to 100 before the 2nd Wave Go-Live (Quarter 4, 2019).

During the User Group meeting in November 2018 the market parties confirmed that the proposed OBD relaxation meets their expectations.

For the behaviour of the order book depth applicable for block orders see the next question.

16. How is the order book depth restriction calculated for user defined blocks and Basket Orders?

a) Order book depth basket orders

Basket orders are not a type of order that results in a specific local view for basket orders. It can be best seen as a convenient way to enter multiple regular orders in a single action. When entering a basket order, the basket is given an additional basket execution condition. Three basket execution conditions exist: "None", "Valid" and "Linked"

A basket with basket execution condition "None" or "Valid" falls apart into its contained orders when it is accepted by the SIDC system. Each order in the basket enters the local view of its own contract.

A basket with basket execution condition "Linked" is either fully executed, or not at all at entry (the orders in a linked basket must have execution condition FOK). This means that orders in a linked basket never enter any local view.

b) Order book depth user defined blocks

The number of orders displayed in the local view is limited by four parameters:

- Maximal number of orders (max order book depth)
- Minimum volume
- Minimum volume for blocks (yes/no)
- Effective maximum number of orders

Calculation of the maximal order book depth (with the original depth of 31):

Maximal order book depth is defined by following algorithm

- For Products with a Delivery period of 60 min or shorter the maximal number of orders equals MaxObkDepth.
- For User Defined Block Orders as well as for orders for predefined contracts longer than 60 min following algorithm is used:
 - $\text{MaxObkDepth} / \text{user defined period between dlvrStart and dlvrEnd in hours rounded down}$. Maximum equals MaxObkDepth.

Example:

Assumption: MaxObkDepth = 31

- For 15hours user defined block order = 2
- For 18hours user defined block order = 1
- For 20hours user defined block order = 1
- For 7hours user defined block order = 4
- For 30min (2*15min contracts) user defined block order = 31

This maximal order book depth is then used in conjunction with the minimum volume to determine how many orders will effectively be displayed.

If the total number of orders in the CBK is lower or equal as the fixed Maximum number of orders, all orders are sent regardless of their volume.

If the total number of orders in the CBK is higher than the fixed Maximum number of orders, either:

- the number of orders in the Public Order Books Delta Report Message is limited by Max OrderBook Depth when the total quantity exceeds the Minimum Volume or
- the number of orders in the Public Order Books Delta Report Message exceeds the fixed maximum number of orders by as many orders as are needed for the total volume in the Public Order Books Delta Report to reach at least the Minimum Volume.

With the minimum volume for blocks parameter set to “yes” this minimum volume also applies to block orders, meaning the system will ensure the minimum volume will also be displayed for user defined blocks, even for long user defined blocks, where the maximal order book depth is reduced to 1. If the minimum volume for blocks parameter is set to “no” then the minimum volume mechanism is not applied to user defined blocks, meaning the number of visible user defined blocks for every user defined contract is restricted by the maximal order book depth calculated as described above (meaning down to 1 for long user defined blocks).

The effective maximum number of orders parameter puts an upper limit to the number of orders. This means that the system will never exceed this number of orders, even if the minimum volume is not yet reached. E.g. if this parameter is set to 50, the system will at most display 50 orders per contract per side.

17. What is the scope and purpose of the LTS compared to the SIDC solution?

It is important to clearly distinguish between Local Trading Solutions (LTSs) and SIDC Solution.

LTSs represent an interface (the only interaction point) between the Implicit Market Participants and the Single Intraday Coupling (SIDC) Solution. In other words, the Implicit Market Participant may access the SIDC only via the LTS of a particular NEMO.

The SIDC Solution is a so called backend system which does not interact with the Implicit Market Participants directly. The SIDC Solution provides, amongst others, a functionality of the Shared Order Book via interaction with the connected LTSs.

Note: Explicit Market Participants have a direct technical access to the SIDC Solution in order to perform explicit allocations on the German-French border (and from the 2nd Wave Go-Live on the Slovenian-Croatian border).

18. As announced by the NEMOs, the bids and offers introduced on the LTS will not automatically be transferred to the SIDC platform when continuous cross-border intraday trading opens, and unmatched orders on SIDC will not be automatically transferred back to the relevant LTS when SIDC closes. Could NEMOs inform by when they the automatic transfer to/from SIDC will be implemented?

The SIDC Solution provides matching services (SOB) to LTSs. Each NEMO has a right to offer local matching services by LTS' specific functionalities and services or by any other means. This may also relate to the cases in which LTS provides extended trading period outside of the SIDC Solution and therefore the approach may differ per NEMO/LTS.

19. Where will be capacities published and can you see in the LTS the available capacity and where?

The SIDC Solution provides capacities to all LTSs in the form of Hub-To-Hub matrix (H2H). LTSs process the H2H matrix and provide this information further to Implicit Market Participants. The presentation form of H2H matrix is specific per each LTS.

20. The tick size on SIDC has been set at the value of EUR 0.01/MWh. When can a larger tick size be implemented?

The outcome of an analysis performed by NEMOs based on the first months of operation shows that the majority of the monitored parameters are within the agreed system boundaries and the analysis did not indicate an immediate need for proposing to change the tick size.

21. Why does cross-border trading for central Europe start at 22:00 only?

Calculation of the available cross-zonal capacity (between Germany and neighbouring central Europe countries) requires an extensive alignment and calculation process with various parties involved. As the process within one market area is less complex, the inner German continuous intraday trading can start earlier than the cross-zonal continuous intraday trading.