

23/04/2018 Budapest - Workshop  
**HUPX MARKETS**  
**IDM and DAM news**

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**IDM NEWS**  
Automated  
trading

**IDM NEWS**  
Lead time

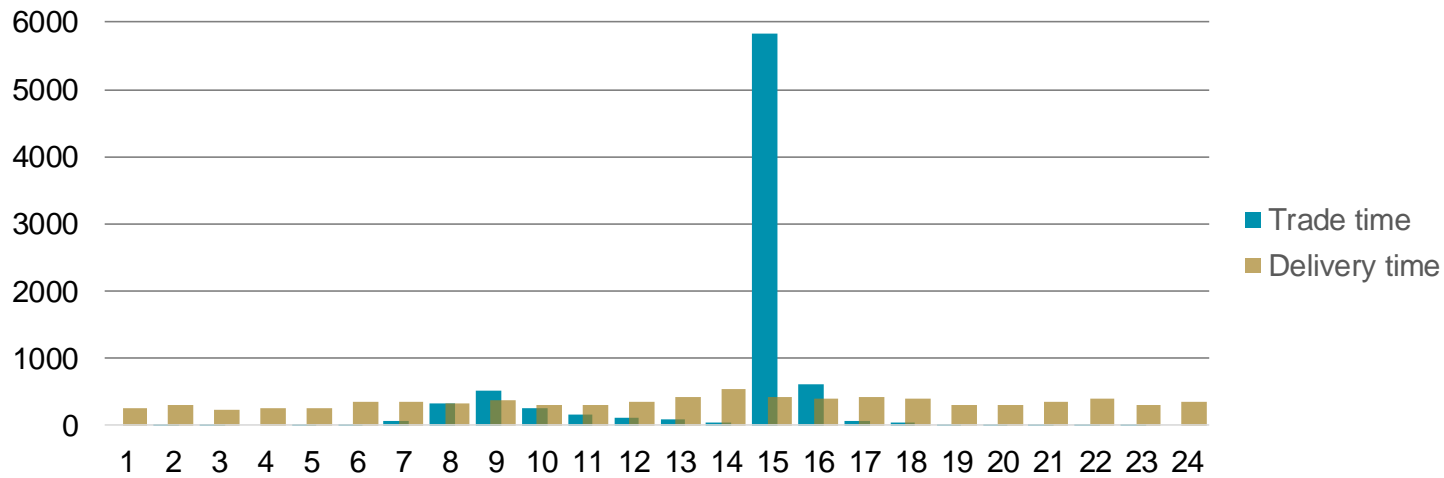
**IDM NEWS**  
XBID updates

**DAM News**  
SDAC

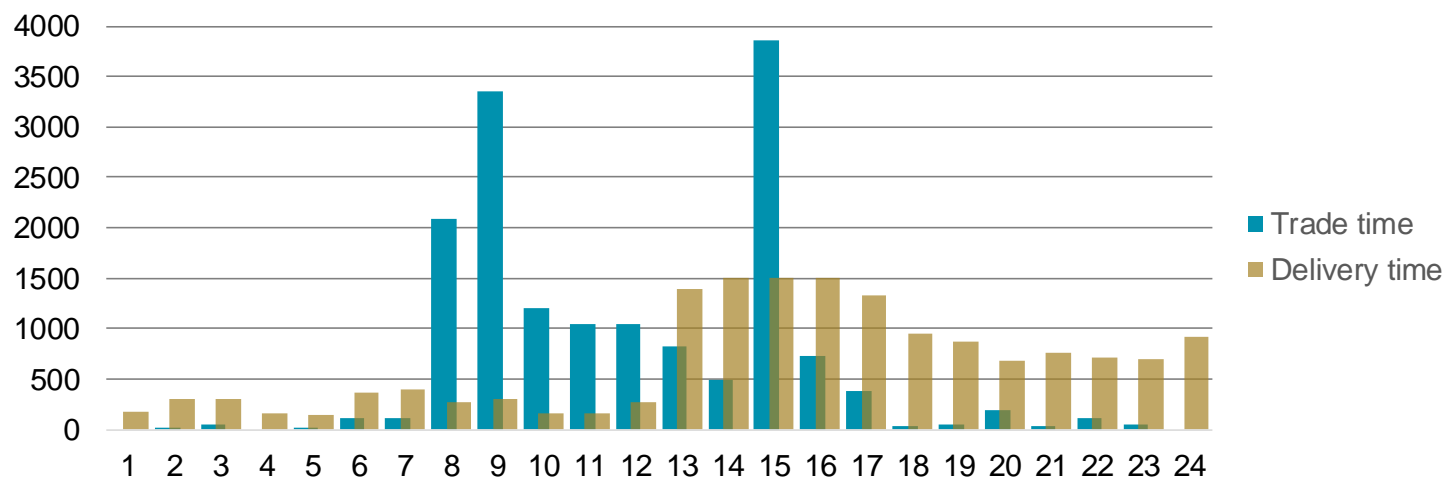
**DAM News**  
Smart Blocks

# HOW DOES **AUTOMATED TRADING** WORK ON IDM?

Number of trades during the day  
01.01.2018 - 15.04.2018



Traded volume during the day (MWh)  
01.01.2018 - 15.04.2018

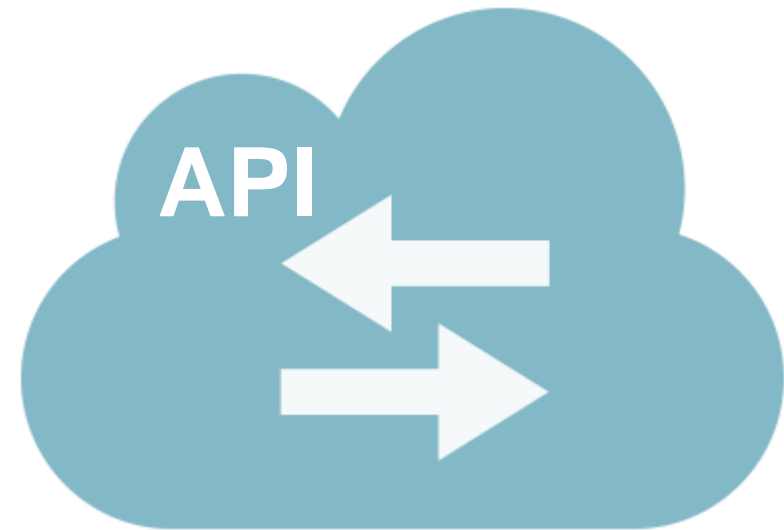


## Trading activity

- ▶ More than 8000 trades in 2018
- ▶ Most of the trades are concluded during working-hours
- ▶ Traders do not seem to be prepared for 24/7 trading
- ▶ Hours in the morning, 15 mins in the afternoon

## DBAG M7 API

- ▶ DBAG M7 solution offers API (Application Programming Interface), and reference client software for developers
- ▶ Options for utilizing API
  - ▶ **Software development** (for automatic trading) based on reference client
  - ▶ **Procure ready-made solutions** from an ISV (Independent Software Vendor)



## ISV solutions can provide

- ▶ Digest data feeds (internal and from IDM)
- ▶ Algo based autonomous trading
- ▶ Standard and customized algorithms
- ▶ Emergency stop
- ▶ Limit management

## What you can save

- ▶ No need for 7/24 trading desk for intraday market
- ▶ Decreased balancing cost

**HUPX is negotiating with multiple possible Vendors to be certified for offering software solution for HUPX IDM market**

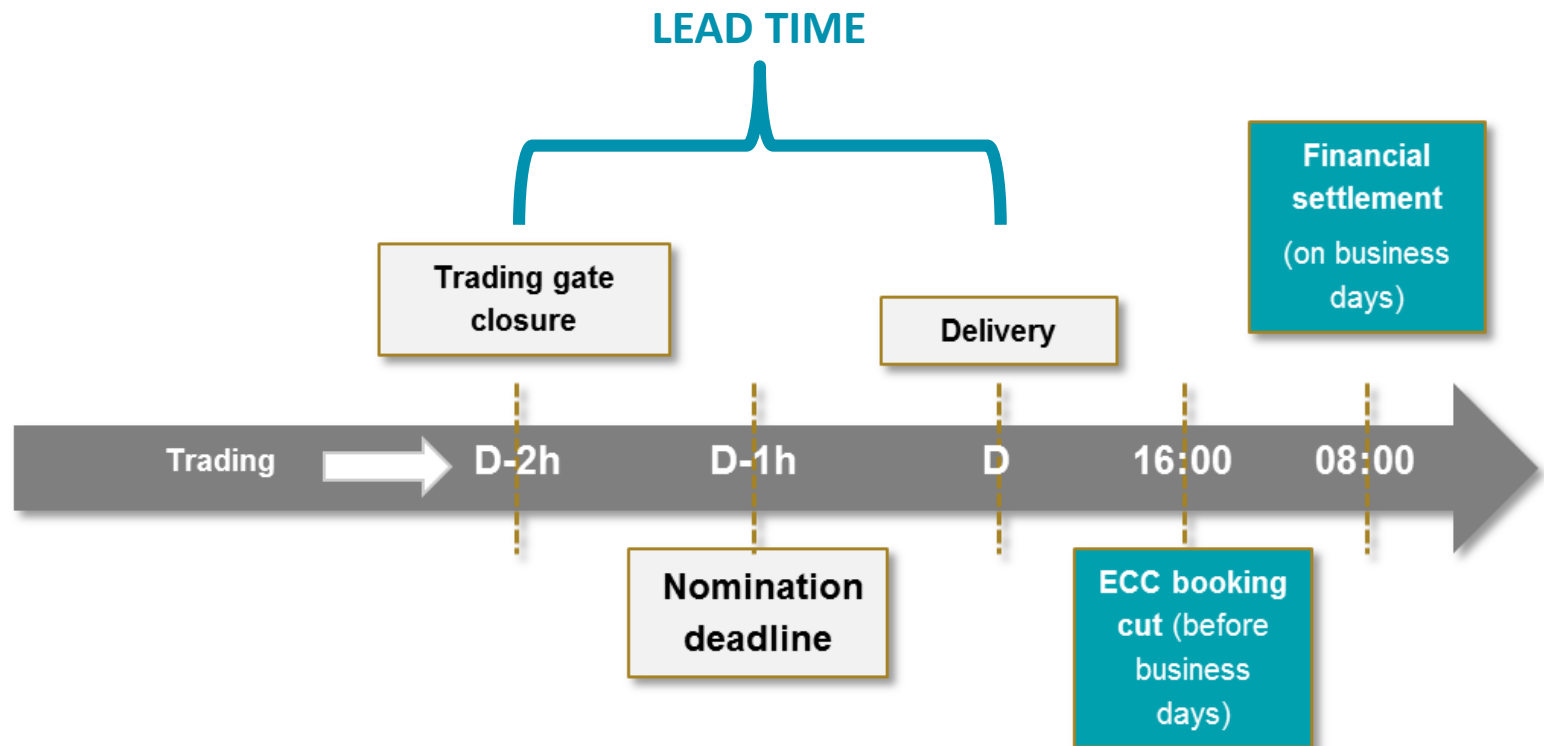
WILL THE **LEAD TIME** BE ANY SHORTER  
ON HUPX IDM?

## Current gate closure time

- ▶ 120 minutes before physical delivery
  1. ECC trade processing and nomination 60 min
  2. TSO procedures 60 min
- ▶ Every 15 minutes a product expires

## Very soon

- ▶ **90 minutes**, and later
- ▶ **60 or 75 minutes** before physical delivery
  1. ECC trade processing and nomination 30 min
  2. TSO procedures 45 or 30 min

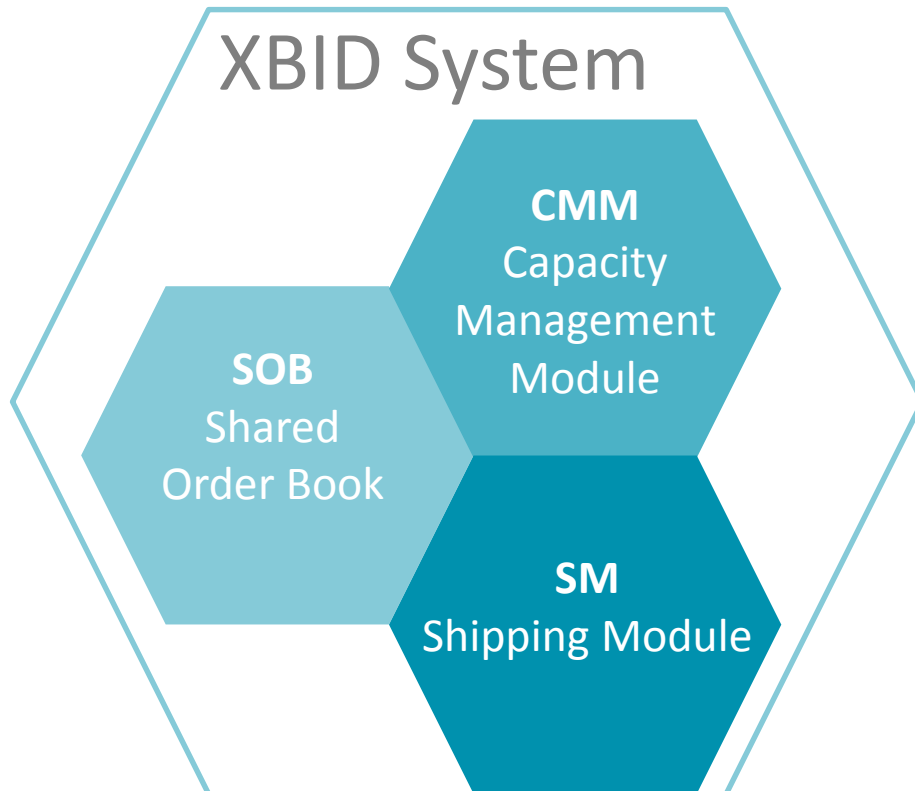




# WHAT ARE THE LATEST UPDATES ON **XBID**?

## XBID project news

- ▶ The **XBID Project** started as a joint initiative by Power Exchanges and TSOs from 11 countries **to create an integrated intraday cross-border market**
- ▶ Since then XBID Platform has been confirmed as the so called **Single Intraday Coupling (SIDC)** which shall enable continuous cross-border trading across Europe (IEM, internal energy market)



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 as long as transmission capacity is available.

**The purpose of the XBID initiative is to increase the overall efficiency of intraday trading**

## Delivery of XBID involves 3 areas of distinct focus:

### XBID Common Projects

Coordinate XBID design and development, implementation, common framework for pre- & post coupling

### XBID Solution

Project under contract – XBID development and testing

### Local Implementation Projects (LIPs)

Adjustment of local systems and interfaces

= Countries to be coupled in 1<sup>st</sup> go-live



2018 mid June

### LIP 15

### Part of the 2<sup>nd</sup> Go-live wave

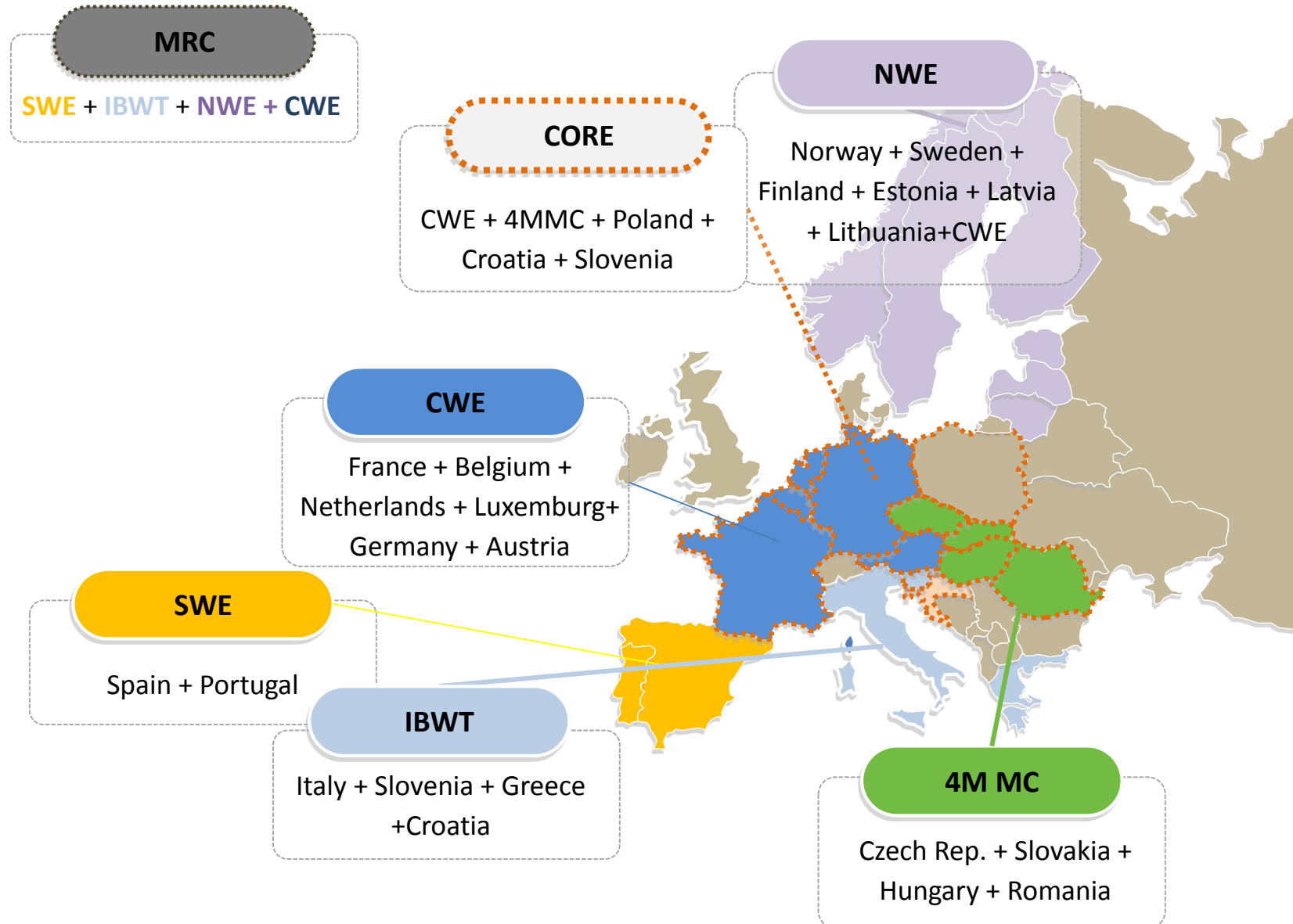
	Germany-Czech Republic		
	Austria - Czech Republic		
	Austria – Hungary		
	Croatia-Hungary		
	Hungary – Romania		
	Slovenia – Croatia		
	Slovenia - Hungary		

Go live date: 2019 April

# WHAT ARE THE LATEST UPDATES ON **MRC?**

## Core coupling news (former NWE CEE FB MC)

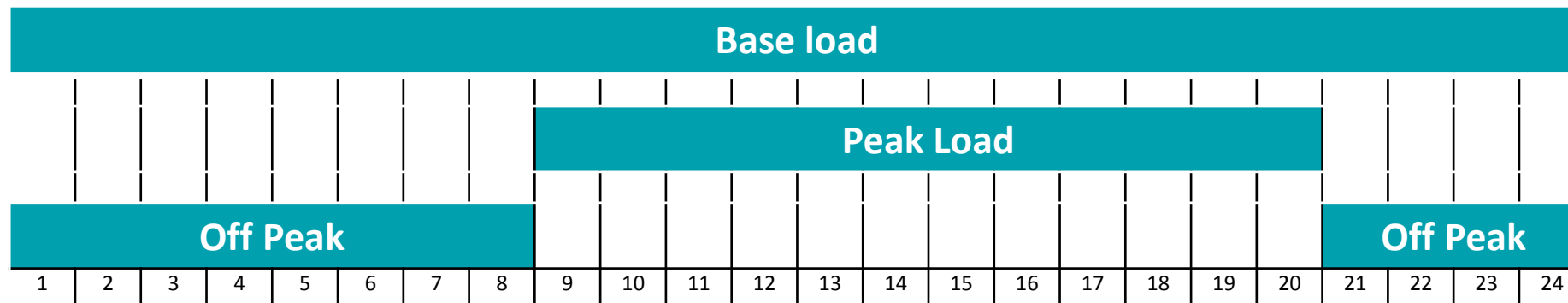
- ▶ According to CACM the target model to establish SDAC is the flow based market coupling in our region
- ▶ On 17.11.2016 ACER decision of the merger of CWE and CEE capacity calculation regions
- ▶ As a result it was necessary the restructure the project.
- ▶ Currently the project is suspended due to the delay of the establishment of the CORE capacity calculation methodology.



# HOW WE ARE PLANNING TO IMPROVE THE **SMART BLOCKS** ON HUPX DAM?

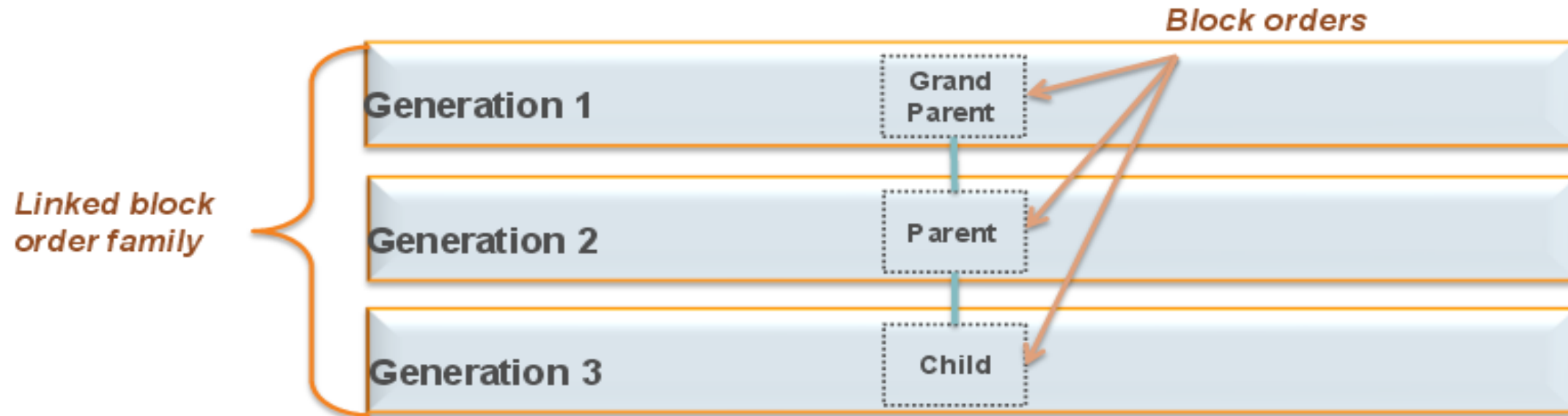
## Block specification

- ▶ Combined order with a minimum of two (2) hours of the day
- ▶ Profiled block
- ▶ All-or-None
- ▶ Continuous or Discontinuous
- ▶ Pre-defined or user defined
- ▶ Maximum volume for a Block Order is 200 MW
- ▶ Maximum of 10 Block Orders per Delivery Day and per portfolio



- 1. Linked Block Orders**
- 2. Exclusive Block Orders**





- ▶ A **linked Block Order family** is a set of Block Orders which have together a **linked execution constraint**
- ▶ A **child Block Order** has the execution constraints of a simple Block Order, and can be executed only if the parent Block Order it is linked to, is all executed

- ▶ The **execution of a child** directly **depends on** the execution of the **parent block order**. A parent can be a root of a linked Block Orders family or a child block order.
- ▶ A **parent block order can be executed alone** if the child block order is not executed.

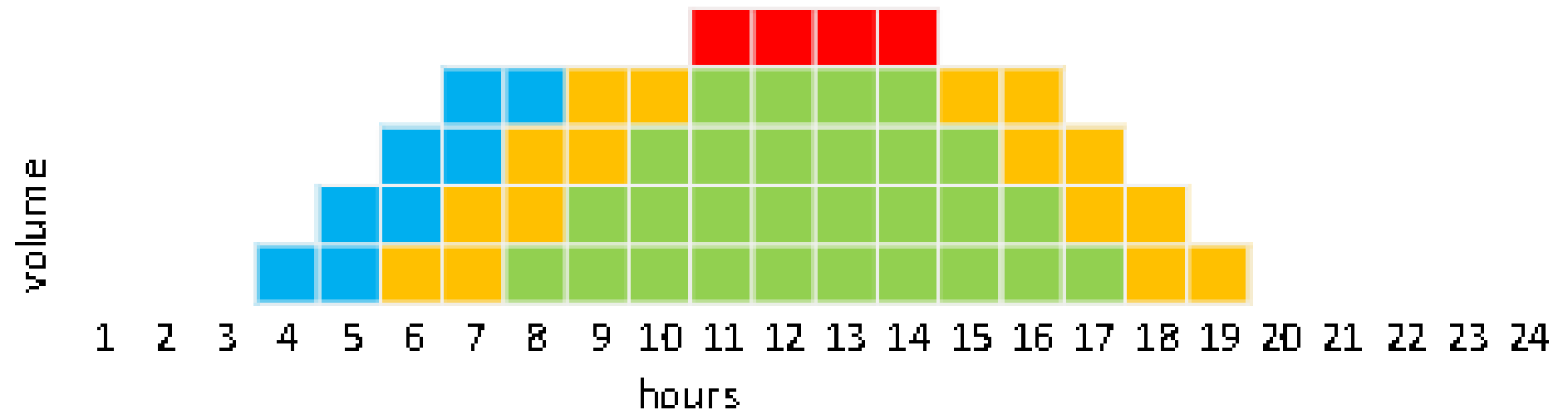
	Current settings Maximum value	Planned
No. of generations	3	3
No. of children for a parent block	1	2
No. of parents for a child block	1	1
Size of a linked block family	3	7
No. of linked block families for a portfolio	1	1



## Objective

- ▶ Linked blocks allow to take into account financial and technical constrains of power plants
- ▶ Linked blocks allow to design complex structures
- ▶ Effective tool to reduce the chance for having Paradoxically Rejected Blocks (PRB) .

Production pattern built up from linked block orders



Technical data for a power plant

Production costs	25MW	150 MW	
	65 €/MWh	60 €/MWh	
Marginal cost to increase production	from 25 MW to 150 MW	from 25 MW to 100 MW	from 100 MW to 150 MW
	59 €/MWh	61 €/MWh	56 €/MWh

**EXAMPLE**

First Bidding Strategy	Second Bidding Strategy
<ul style="list-style-type: none"> <li>➤ Block 1: Sell 25 MW @ 65 €</li> <li>➤ Block 2 (linked to Block 1): Sell 125 MW @ 59 €</li> </ul>	<ul style="list-style-type: none"> <li>➤ Block 1: Sell 25 MW @ 65 €</li> <li>➤ Block 2 (linked to Block 1): Sell 75 MW @ 61 €</li> <li>➤ Block 3 (linked to Block 2): Sell 50 MW @ 56 €</li> </ul>
<ul style="list-style-type: none"> <li>➤ The linked block order family is fully accepted if <math>P &gt; 60</math> (volume weighted average price of linked block family)</li> <li>➤ Or only Block 1 of 25 MW is accepted if <math>P &gt; 65</math> (if Block 2 is a PRB)</li> </ul>	<ul style="list-style-type: none"> <li>➤ The linked block order family is fully accepted if <math>P &gt; 60</math> (volume weighted average price of linked block family)</li> <li>➤ Or only Block 1 and Block 2 (25MW+75MW=100MW) are accepted if <math>P &gt; 62</math> (If Block 3 is a PRB)</li> <li>➤ Or only Block 1 of 25 MW is accepted if <math>P &gt; 65</math> (if Blocks 2 and 3 are PRBs)</li> </ul>

## Possible practical cases

### Optimization of thermal power plants

- ▶ Allowing to offer multiple orders with different outputs, each reflected by their own cost level
- ▶ More flexibility: run one or several hours earlier or later if prices remain interesting outside of the peak period

### Optimization of consumption processes

- ▶ One part of a consumption process will be executed only if another part was started earlier
- ▶ Two consumption processes will only be started if their overall costs will not exceed a certain amount

### Optimization of storage capacity

- ▶ Sell only during peak hours if off-peak purchase order has been accepted and buy/sell combination is in the money

## Exclusive Blocks

- ▶ An **Exclusive Group of Block Orders** is a set of Block Orders within which a maximum of one Block Order can be executed
- ▶ A block order in an **exclusive group is executed** if:
  - ▶ It is in the money and
  - ▶ It optimizes the total welfare among blocks in the money in the Exclusive group
- ▶ An **exclusive block order** is a block which is part of an exclusive group and has to fulfil the execution constraints of a simple block order
- ▶ The **size of an exclusive group** corresponds to the number of Block Orders which are gathered in the exclusive group.
- ▶ It is not possible yet to mix Linked Blocks and Exclusive Block Groups

## Objective

- ▶ Exclusive block orders allow to propose **different production patterns** for trading in order to **increase chances of having block executed**: submit different profiles with different prices for the same delivery day and the same power plant

### Current settings on HUPX DAM

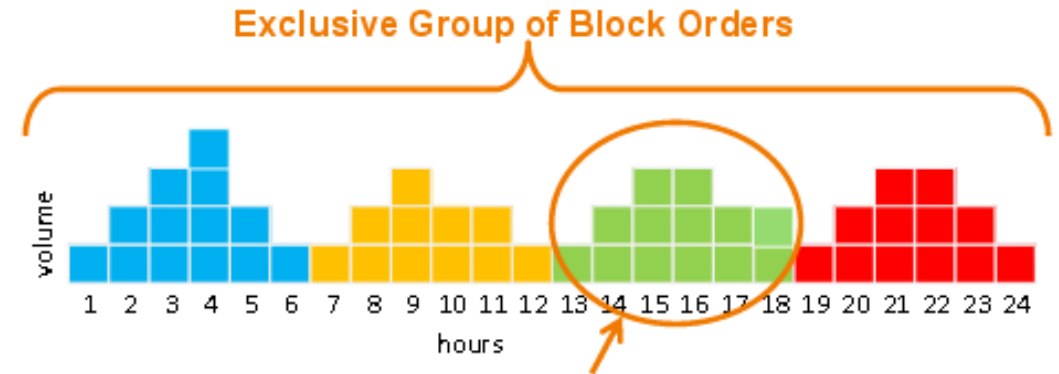
### Maximum value

Maximum No. of blocks in an exclusive group

8

Exclusive blocks families per portfolio

3



Only one block is executed in the exclusive group

## Block orders in an exclusive group

Block no.	Buy/Sell	MW	Block Price	Clearing Price	In the money?	Block Profit
No.1	buy	50	15	20	No	-
No.2	buy	50	35	20	Yes	750
No.3	sell	25	10	20	Yes	250
No.4	sell	100	5	20	Yes	500

- ▶ Block no.2, Block no.3 and Block no.4 are **in the money** but only one of them can be executed
- ▶ The block executed maximizes total welfare
- ▶ It is not necessarily the block with maximum profit for the member which is executed



## Possible practical cases

### Optimization of thermal power plants

- ▶ Allowing to offer multiple orders with different outputs, each reflected by their own cost level

### Optimization of combined heat & power installations

- ▶ Flexibility might allow to produce heat & power when power prices are high, using several exclusive production profiles

### Optimization of demand side management

- ▶ Example: End user can stop consumption, but only if Day-Ahead prices are  $>100$  €/MWh and for max 2 hours/day

# Q & A session

**Thank you for your attention**

**The slides will be available on HUPX  
website**

