

# ID Capacity calculation with DA FB market coupling

Presentation of the context explaining the evolution of the methodology for ID capacity calculation

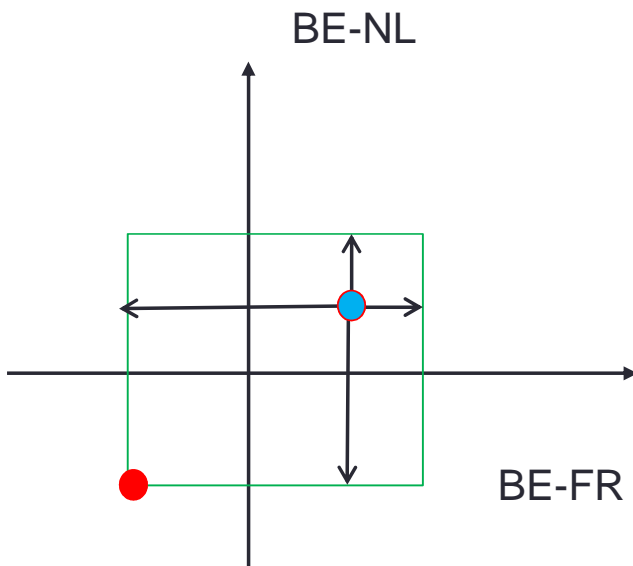
# Content

1. ID ATC before FB go-live
2. New ID ATC based on Day-Ahead FB domain
3. Towards ID FB Target model

ID ATC before FB go-live

# ID ATC before FB go-live

NTC based  
approach

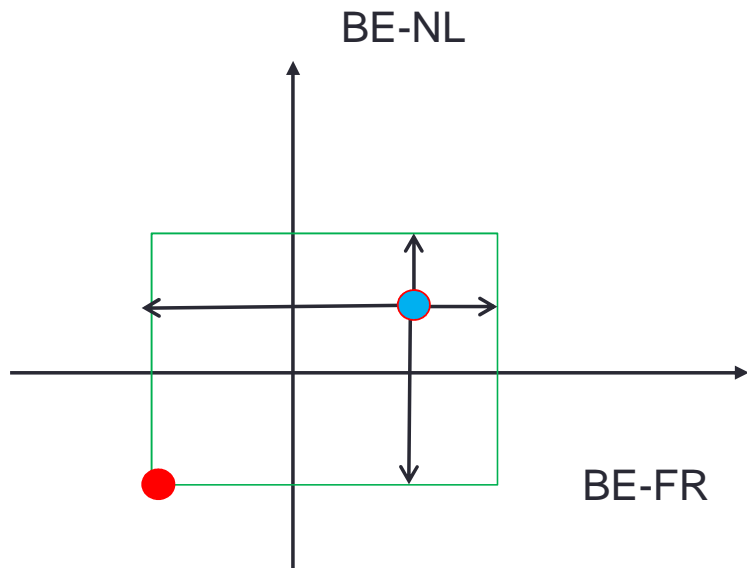


## Summary :

- For RTE, TenneT DE, Transnet, ID ATCs were the 'not used D-2 NTCs' after day-ahead allocation
- **TenneT NL, Amprion and ELIA were reassessing NTCs** in DA for intraday :
  - TenneT was reassessing every 4h the ID ATCs for the next 4h depending on the IDCF basecase flows on interconnectors
  - Amprion was assessing ID ATCs once in D-1 based on the DACF flows in interconnectors
- ELIA's reassessment was done based on a NTC calculation on the **DACF**
- Resulting ID ATCs were the **minimum of bilateral matching**
- In case of unforeseen event, leading to critical situation, each TSO has the possibility to **decrease the ID ATCs on his own border(s) up to 0 and ask neighboring TSOs for help** (freezing of ID ATC on their border can be asked without obligation of action). In that specific case, RTE may trigger a computation of ID ATCs for the remaining hours of the day

# ID ATC before FB go-live

NTC based  
approach

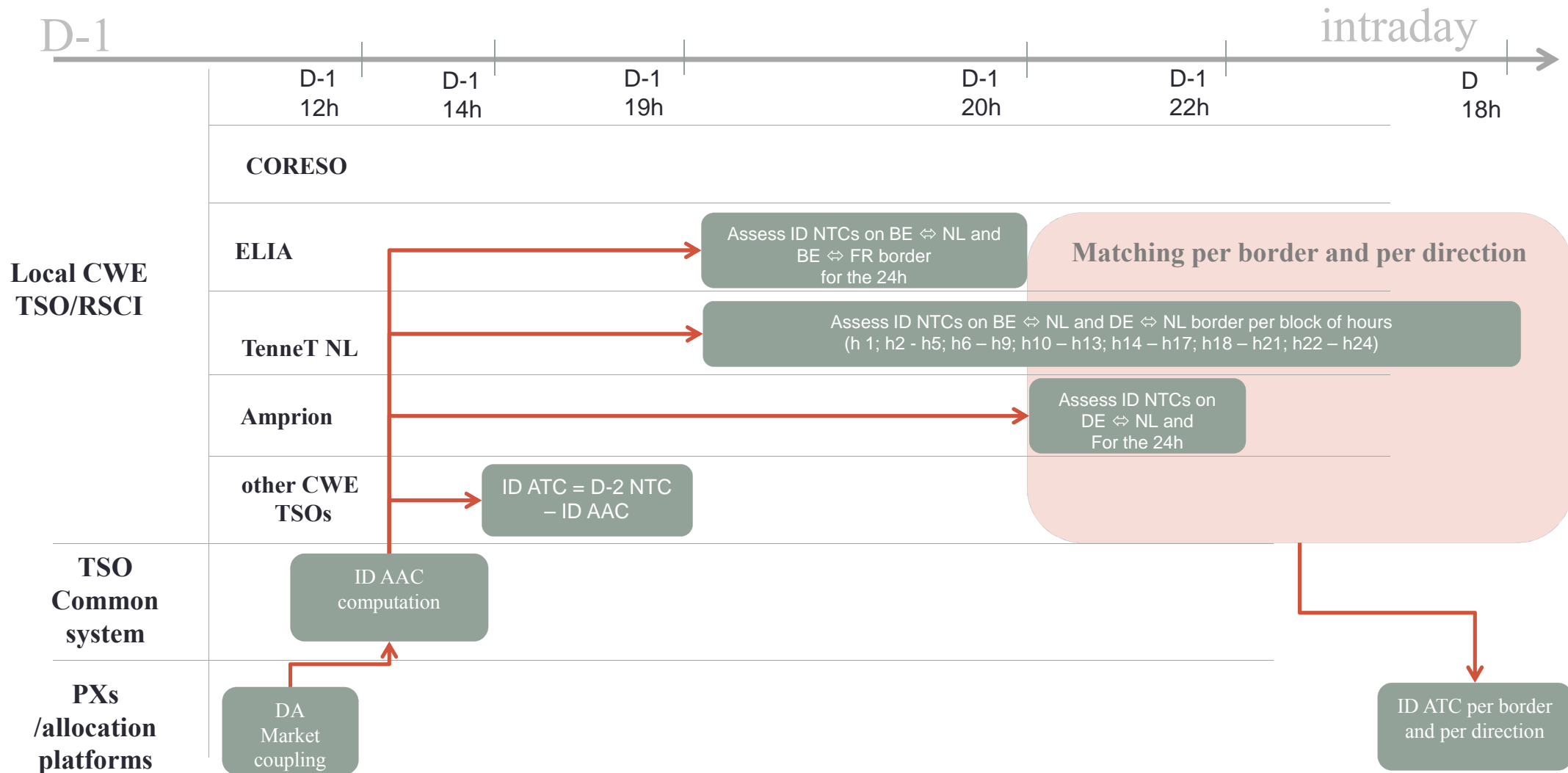


## Result of NTC based approach :

- In normal situation, on all CWE borders, the ID ATCs are at least the remaining capacity out of the D-2 NTC after DA market clearing
  - On NL  $\Leftrightarrow$  DE, an **increase of 100 MW** is possible in intraday, every 4h for the next 4h
  - On NL  $\Leftrightarrow$  BE, an **increase of 200 MW** is possible in intraday, every 4h for the next 4h
  - On BE  $\Leftrightarrow$  FR, **an increase up to the D-2 FR NTC** is possible in intraday.
- Other TSOs cannot reject increase
- With NTC based methodology, there is always capacity available on each border, at least in one direction, but
  - there is also possibility that BE import is 0 in intraday. Only if Market uses full BE import capacity in DA (**intuitive**)!
  - Some direction on some border are very often limited (BE-NL or DE-NL)

directional border	BEFR	BENL	DEFR	DENL	FRBE	FRDE	NLBE	NLDE	
Min		0	0	-0.1	0	-0.1	-0.1	0	0
% of the time equal to 0		4.23%	37.31%	47.99%	81.43%	7.09%	4.73%	4.91%	0.04%
% of the time lower than 500MW		9.03%	53.66%	55.28%	88.08%	20.37%	7.55%	12.26%	0.08%

# ID ATC before FB go-live



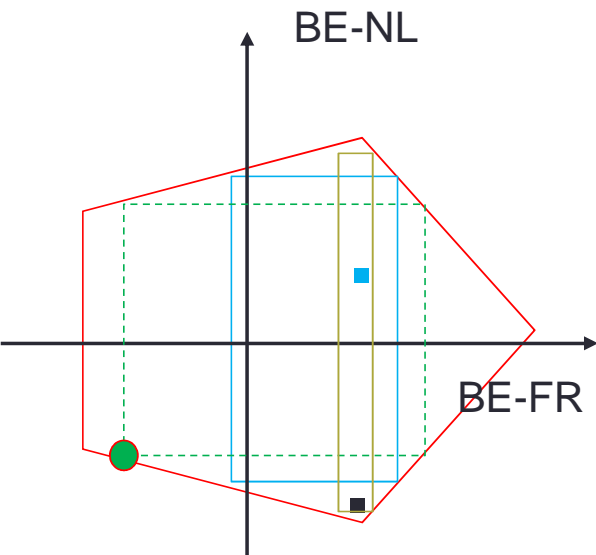
# New ID ATC based on Day-Ahead FB domain

# New ID ATC based on Day-Ahead FB domain



With DA FB , NTCs are not relevant anymore !

After DA FB approach



An algorithm has been developed in order to **compute initial ID ATCs out of the DA FB domain** :

This algorithm increase simultaneously and with identical quantity the exchanges on each border till reaching the limit of the domain.

When a limit of the domain is reached, all the exchanges on the border that would lead to overpassing the limit are blocked.

The process goes on for the exchanges on other borders till all exchange possibilities are blocked

With the current algorithm computing **ID ATC based on DA FB domain**, the **values will depend on the DA clearing point** :

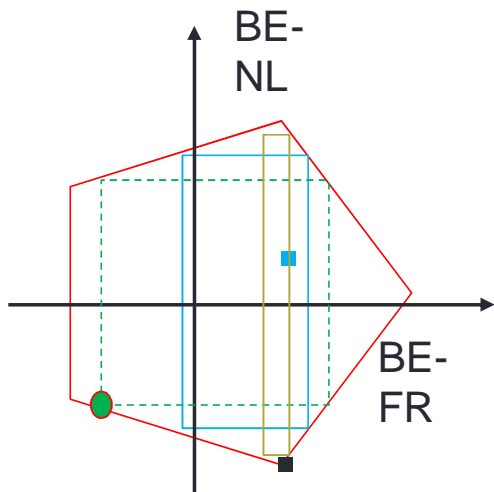
- Capacities could be 0 on both directions of a border
- If market in DA wants to use a direction to the limits and ends in a corner, capacities could also be blocked on (all the) other borders

Exp/imp capacity	Approach	BE imp	BE exp	DE imp	DE exp	FR imp	FR exp	NL imp	NL exp
ATC equal to 0	FB	5.20%	5.04%	0.92%	41.49%	11.22%	1.59%	41.71%	1.86%
ATC lower than 500FB MW		7.62%	8.38%	1.21%	51.72%	14.54%	2.42%	60.57%	3.14%



# New ID ATC based on Day-Ahead FB domain

## Futur DA FB approach



- FB leads using the system closer to its limits
- **Bilateral increase** is not acceptable anymore without a **common process** allowing
  - Information exchange among TSOs about increase requests
  - Possibility of rejection by other TSOs
- **ID FB domain computation** is the clear **target** to be fully in line with CACM NC
  - FB domain reassessment based on DACF/IDCFs need coordinated/centralized solutions
  - In intraday, time constraints will be an additional constraint that will require more automated solution and need **efficient coordination** process. **RSCIs should have an important and central role** in this process
- **In 2014, CWE TSOs investigated possible short-term improvements, after introduction of FB in DA**
  - ▶ An extensive list of improvements was ranked based on the criteria, such as complexity/time needed for implementation, CACM compliancy and congestion & balancing risk benefit.
  - ▶ Two short-term improvements were selected:
    - Sensitivity analysis for all borders, to possibly increase/decrease ID ATC capacity (full re-computation).
    - Coordinate on RAs for the actual market direction/corner including PST taps and re-compute the FB-domain based on D-2 CGMs.

# Outcome of the impact assessment

## Improvements for the ID timeframe

### Conclusions

- ▶ After thoroughly weighing pros and cons, CWE TSOs decided to start immediately with developing FB ID version 1 in line with CACM NC.
- ▶ ‘Short-term’ improvements required at least 1 year for implementation, without proof it would provide better (i.e. accurate) results considering the grid specificities of the CWE area
- ▶ As a stepwise approach, towards the development of FB ID version 1, CWE TSO agreed to implement a pragmatic ID ATC process for all CWE borders:
  - ID ATC Capacity Calculation for short term
    - a. Bilateral increase / decrease process starting from initial ID ATC values (implemented)
    - b. Coordinated increase / decrease process for all CWE borders (pending NRA approval)
  - FB ID Capacity Calculation for longer term solution (in progress. see next slide)



# New ID ATC based on Day-Ahead FB domain

A 3 steps approach has been implemented:

1/ ELIA-TENNET-AMPRION have to **send their request of bilateral increase in D-1** before 18h  
Considering the fact that no process/resources exist today in all other TSOs, request can only apply for NL-BE and NL-DE

2/ **Confirmation/rejection** of bilateral increase of capacities  
Each TSO (including the requesting ones) has the possibility to reject a request before the gate opening of the concerned critical hour. In that case, he will send to the requesting TSO an email with  
    The concerned critical hours  
    The limiting CBCO(s)  
**Deemed acceptance principle** is applied  
Current ID ATC assessment presented before will be applied on ELIA side for this step

3/ **Bilateral matching** of ID ATCS  
    At the time of the gate opening, the requesting TSOs will apply the requesting increase only for the hours which were not subject to rejection  
    The ID ATCs which will be given to the market on a border are the matching of the values proposed by the cross-border TSOs

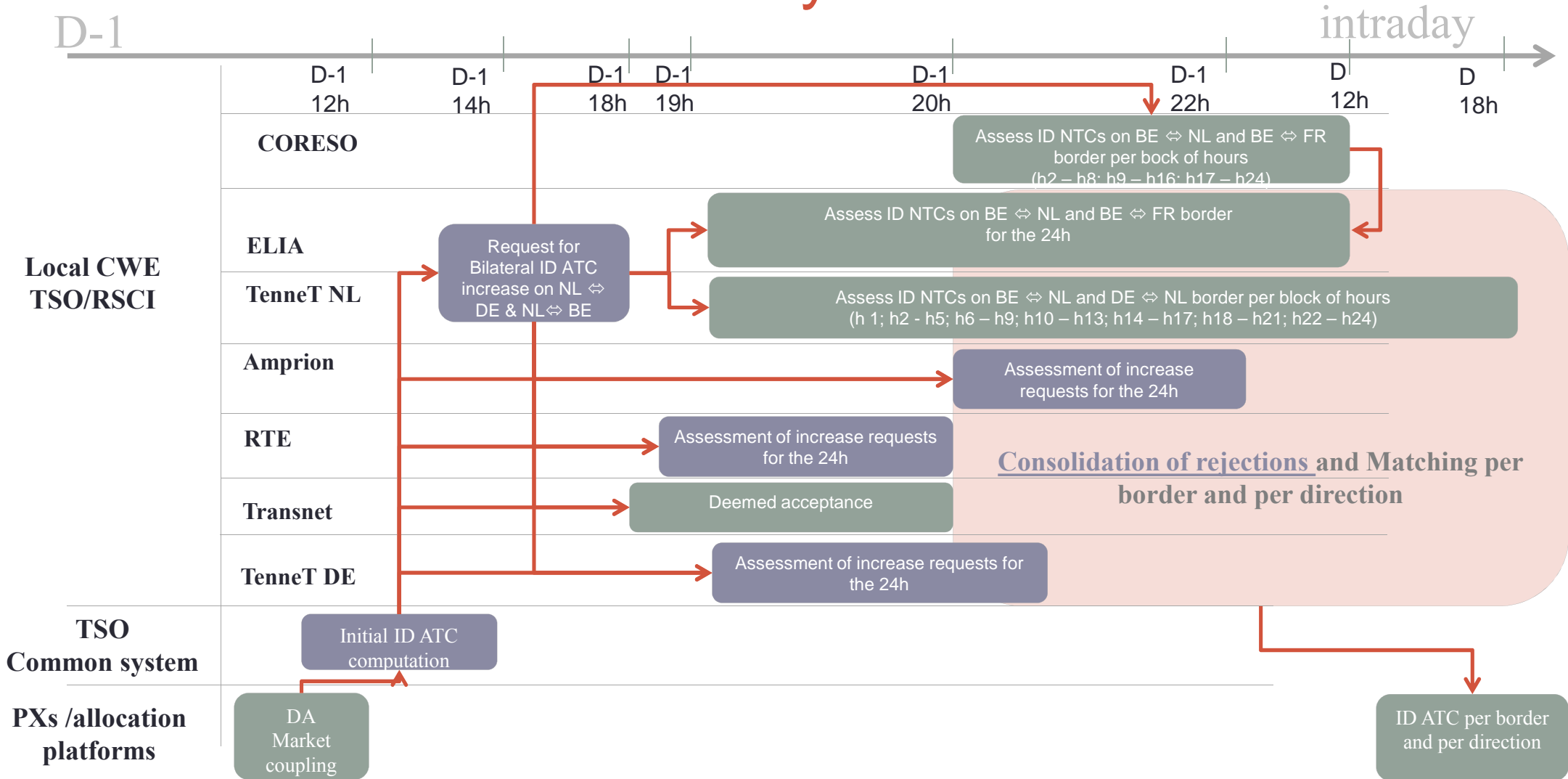
# New ID ATC based on Day-Ahead FB domain

Rejection time for NL-BE/NL-DE in function of Intraday ATC determination and matching time

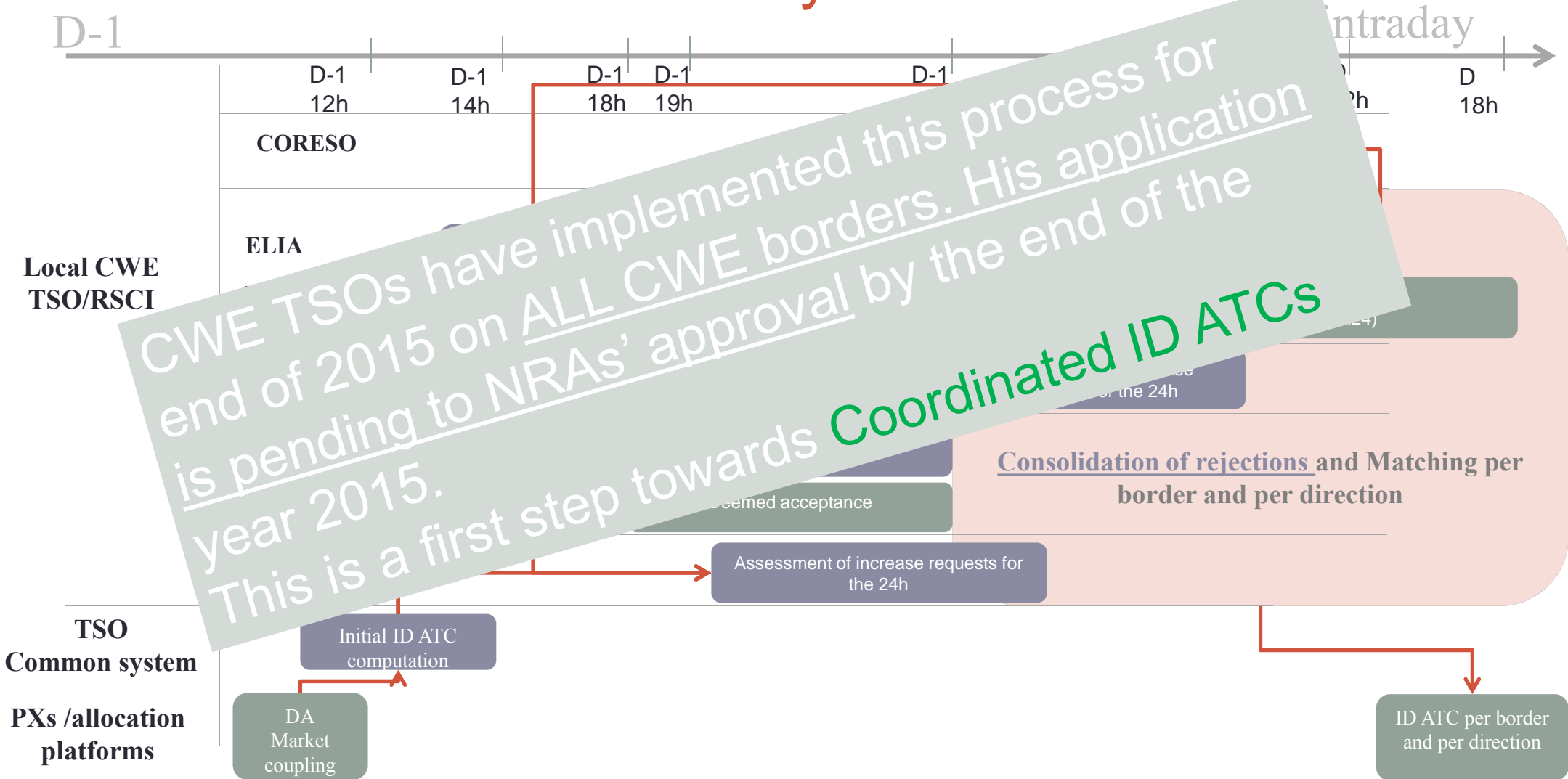
				rejection file timestamps																									
				D-1		D																							
Day	From	To	Action	23	24	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
D-1	15:00	18:00	Send Requested increase for BE-NL																										
D-1	15:00	18:00	Send Requested increase for DE-NL																										
D-1	-	19:45	Deadline for Rejection NL-BE hour 1																										
D-1	-	22:00	Deadline for Rejection DE-NL hour 1-5																										
D-1	-	22:00	Deadline for Rejection NL-BE hour 2-5																										
D	-	01:45	Deadline for Rejection DE-NL-BE hour 6-9																										
D	-	05:45	Deadline for Rejection DE-NL-BE hour 10-13																										
D	-	09:45	Deadline for Rejection DE-NL-BE hour 14-17																										
D	-	13:45	Deadline for Rejection DE-NL-BE hour 18-21																										
D	-	17:45	Deadline for Rejection DE-NL-BE hour 22-24																										
				applicable market time periods																									
				intraday ATC determination and ATC matching timestamps																									
				D-1		D																							
Day	From	To	Action	23	24	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
D-1	19:30	20:00	Determining and matching ATCs for NL-BE																										
D-1	21:30	22:00	Determining and matching ATCs for NL-BE																										
D-1	21:45	22:20	Determining and matching ATCs for NL-DE																										
D	01:30	02:00	Determining and matching ATCs for DE-NL-BE																										
D	05:30	06:00	Determining and matching ATCs for DE-NL-BE																										
D	09:30	10:00	Determining and matching ATCs for DE-NL-BE																										
D	13:30	14:00	Determining and matching ATCs for DE-NL-BE																										
D	17:30	18:00	Determining and matching ATCs for DE-NL-BE																										

TO BE UPDATED !!!!

# New ID ATC based on Day-Ahead FB domain



# New ID ATC based on Day-Ahead FB domain



# Towards ID FB Target model

# Towards ID FB Target model

- As it is obvious that ID FB will be the target solution, ELIA is already in discussion on one hand with Coreso and RTE and in another hand with other CWE TSOs
  - to define a **common view on the ID FB target model**
  - to design and implement **ASAP evolution** on post DA coupling ID ATC first assessment and intraday reassessment of ID ATCs based on DACF/IDCFs and in line with FB environment which can **improve ID ATCs on BE borders** (intermediate step towards target FB IDCC)
- Agree on **common CWE HLBP** for ID FB target model
- Agree on **common intermediate milestones** towards ID FB target model and implement ASAP
  - See opportunities to still have possible bilateral coordination/improvement, but will be limited or at least difficult to have inter-TSO agreement on this...
- Improve **step by step** the new post DA FB methodology in line with the commonly agreed ID FB target model
  - All evolutions will be done in the FB environment
- More and more **central and leading role for RSCIs** in (intraday) capacity calculation
- Consider possibility to move quicker within Coreso partnership in order to have as soon as possible **benefit for the BE market** in term of ID ATCs

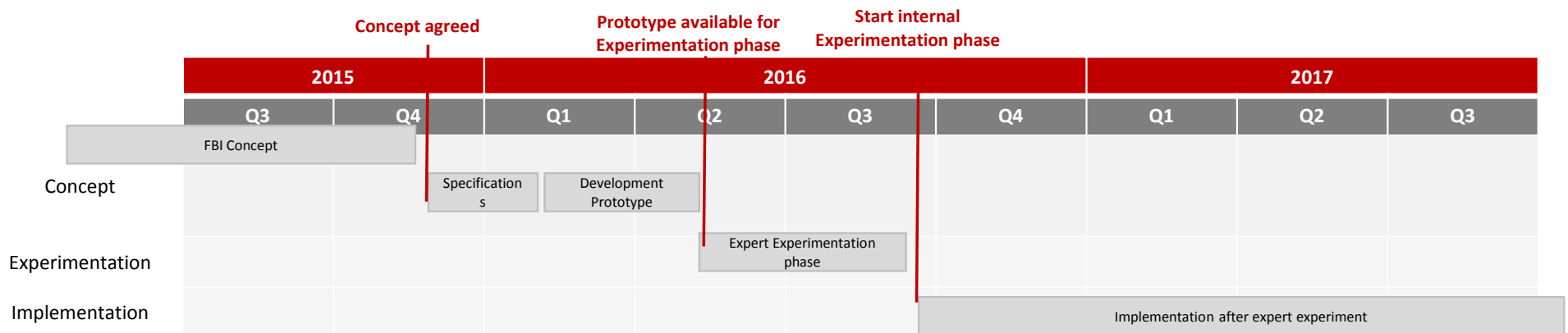


## Current status IDCC

### Challenges in developing FB ID v1

The main objective for the FB ID version 1, is to create a FB ID method based on ‘minimum’ requirements to ensure a delivery in line with CACM NC, while also ensuring a quick delivery.

- A FB domain re-computation should be performed based on more recent Common Grid Models.
  - More recent and accurate information will allow for more accurate result of the remaining capacity, but it will never guarantee an increase in capacity available for intraday.
  - The DA process can be seen as a good starting point (from a conceptual and technical point of view), some new and impacting challenges have to be considered:
    - How to update main inputs (CNEs, COs, RAs, GSKs, ECs, ...), consistent with new information contained in CGMs ?
    - How to optimize RAs around the DA clearing points and which objective to reach?
    - How to consider the 24 timestamps?
    - How to fit with more constraining timings?
    - How often re-computation is feasible and provides market’s added values?
    - How to extract new ID ATCs out of the new FB domains?
- CWE TSOs have already started working on these challenges and have estimated it takes about three years to define a concept, as well as develop, implement and test the associated centralized/decentralized processes.



# Many thanks for your attention!

Olivier Bronckart

ELIA SYSTEM OPERATOR  
Boulevard de l'Empereur 20  
1000 Brussels

+32 2 546 70 11  
info@ elia.be

www.elia.be  
An Elia Group company