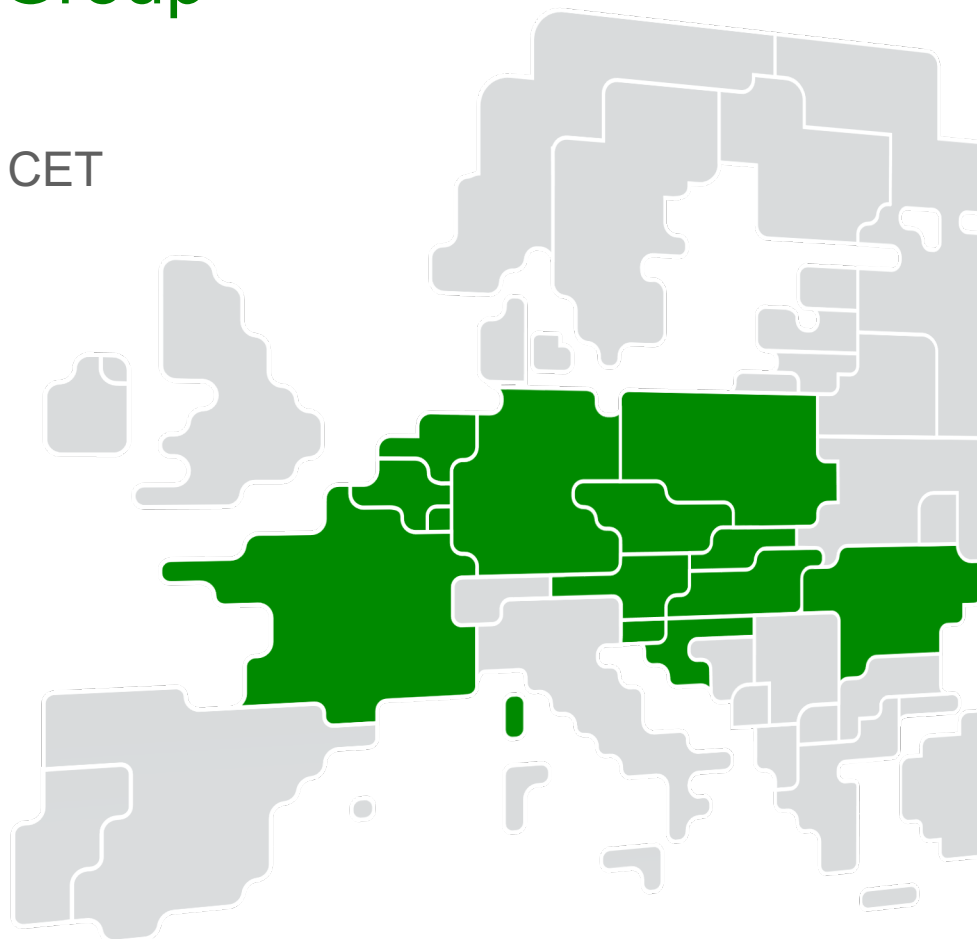




## Core Consultative Group

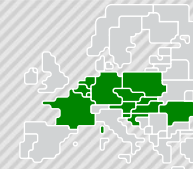
01 June 2022, 15:00 – 17:00 CET  
Microsoft Teams meeting



# 1. Welcome and Introduction

Practicalities, announcements and reminders

R.OTTER/  
H.ROBAYE



## Co-chairs



**Hélène ROBAYE**  
Market Participants, Eurelectric



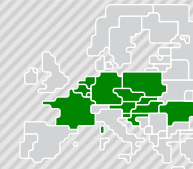
**Ruud OTTER**  
Core TSOs, Tennet BV

## Practicalities

- During meeting
  - Use of 'hand' function will facilitate all participants to have the opportunity to ask questions
  - Use of 'chat' function will give opportunity to address all questions and will facilitate proper tracking and answering
- Follow up
  - Minutes and final meeting documents will be shared with CCG distribution list
  - JAO Q&A forum
- MS Teams workshop and Q&A will be recorded and made available for all Market Participants

# 1. Welcome and introduction

R.OTTER/  
H.ROBAYE



## Agenda

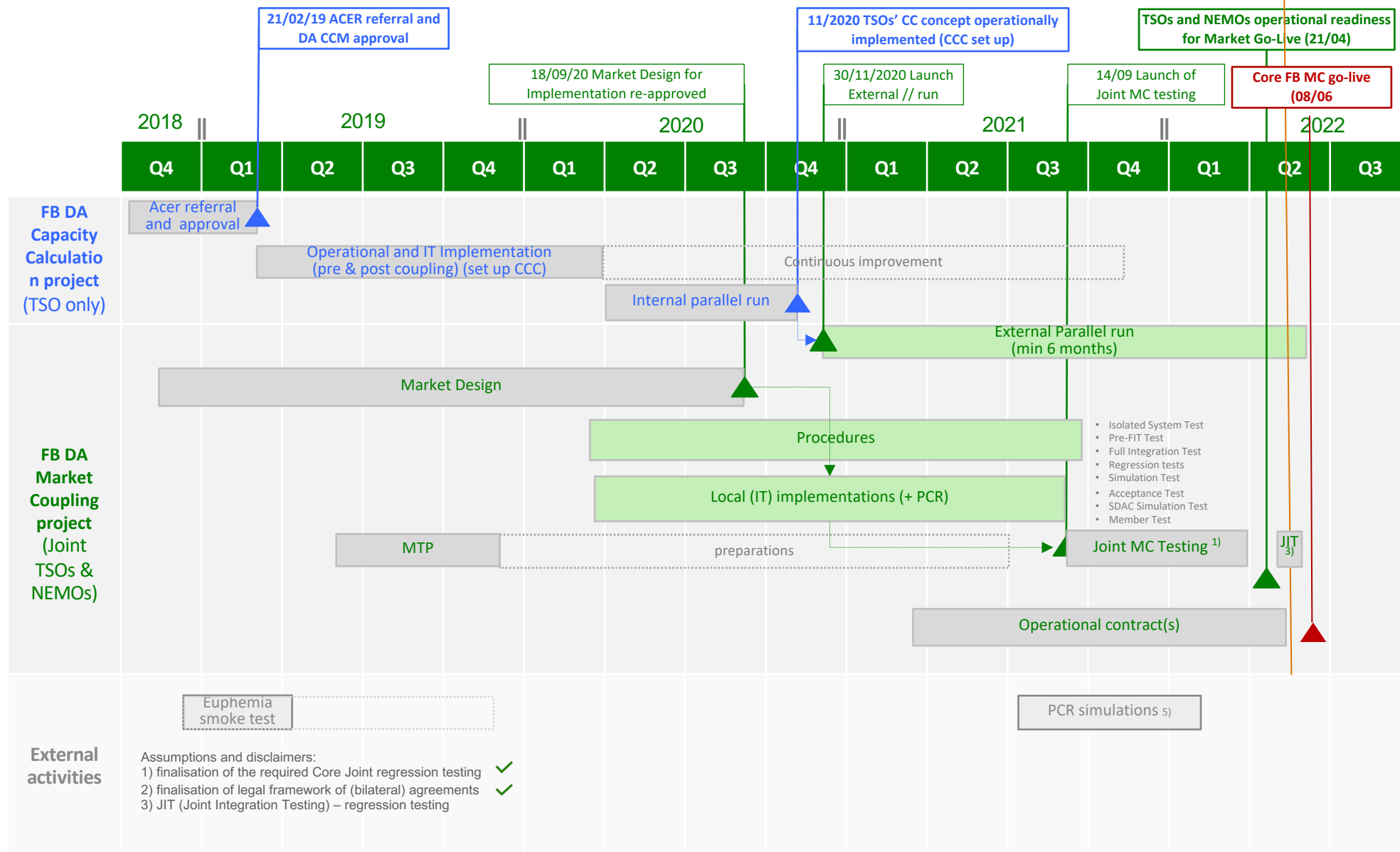
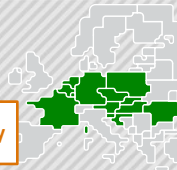
	SUBJECT	WHO	TIMING
1	<b>Welcome and introduction</b> <ul style="list-style-type: none"><li>• Announcements</li><li>• Agenda for today</li></ul>	R.OTTER/ H.ROBAYE	15:00 – 15:10
2	<b>Day Ahead Capacity Calculation &amp; Market Coupling</b> <ul style="list-style-type: none"><li>• Core FB DA MC roadmap</li><li>• Core FB DA Update on go-live readiness<ul style="list-style-type: none"><li>• Operational stabilisation of EXT // run</li><li>• ID ATCs after Core Flow based market coupling</li><li>• Reporting on occurrences of RAM lower than 20% of Fmax</li></ul></li><li>• Final High Level HLBP timings</li><li>• Update on Publication Tool</li></ul>	M.PREGL G. MEUTGEERT  G. MEUTGEERT A.KIRALY	15:10 – 16:50
3	<b>AOB &amp; closure</b> <ul style="list-style-type: none"><li>• Next CCG meeting</li></ul>	R.OTTER/ H.ROBAYE	16:50 – 17:00

## 2. Day Ahead Capacity Calculation & Market Coupling

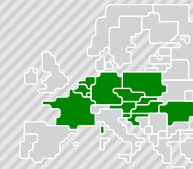
Core FB DA MC roadmap, important milestones and current status

M.PREGL

Today



## 2. Day Ahead Capacity Calculation & Market Coupling



### Core FB DA MC roadmap, important milestones and current status

#### Reminder

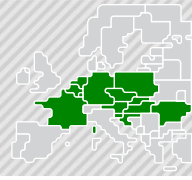
- Core project parties communicated on 21/04/2022 to stakeholders the new go-live date 08 June 2022 (Trading Day for delivery on 09 June 2022).
  - Core TSOs worked intensively on solutions to resolve the remaining concerns raised by some parties with regards to certain aspects of the Flow Based Day Ahead Capacity Calculation.
  - The next steps to adequately address the concerns raised earlier are:
    - The mitigations to further improve operational stability of TSO's capacity calculation were already implemented. In this period two issues occurred with fallbacks for which fixes will be in place before go-live.
    - To further optimise the intraday ATC capacities algorithmic improvements and local validation processes will be implemented before go-live. Further improvements are foreseen to be implemented after go-live.
  - Dedicated reporting to NRAs will be created for all cases with  $RAM < 20\%$  to closely monitor the occurrences and mitigations - this information of  $RAM < 20\%$  is already publicly available in the publication tool.
  - Improvements in the publication tool were implemented
- Project parties feel confident about going live, also considering the current market circumstances. Moreover, all parties see a significant benefit in the experience to gain during the summer period, prior to entering fall/winter.

#### Status

- All formal project deliverables and main milestones are reached, with the most recent ones
  - Core Joint Integration Testing – regression tests (16/05-19/05) – successfully finished
  - Common Contracts and bilateral contracts near to final and on-track for go-live
- Core Project parties are in the latest phase of preparing the Core Flow based go-live
- The (technical) go-live script is now followed & monitored and this covers all (technical) preparations needed for the go-live

## 2. Day Ahead Capacity Calculation & Market Coupling

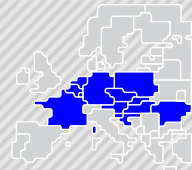
M.PREGL



Core FB DA MC roadmap, important milestones and current status

### Next steps

- **21/04/2022– Approval go-live and start final go-live preparations by Core Project parties – DONE**
- **24/05/2022 – Core JSC sign-off testing (regression)**
- **07/06/2022 - (D-2 Go live) Final Operational Confirmation Go-live**
  - This is a formal (operational) step to commence the Core FB DA process for 08/06 trading day
- **08/06/2022 – Go-Live (08/06 trading day for delivery on 9<sup>th</sup> of June 2022)**



### Update on go-live readiness: Background

#### Background

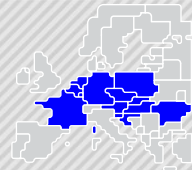
- On 01/04 EFET, IFIEC & MPP on behalf of MPs called for a postponement of Core Flow-Based market coupling Go-Live.
- Core project parties on 08/04 announced the postponement of the Go-Live due to concerns from some TSOs & NEMOs
  - Timing of the Core FB DA go-live considering the current market context - in combination with the other concerns listed below
  - The not sufficiently demonstrated stability of the DA pre-market coupling process in Flow-Based DA capacity calculation, and the impact on capacities when fallbacks need to be applied
  - The impact on ID ATC capacities, for which the methodology will be known mid-April and for which TSOs possibly need to develop tools for maximizing capacities while maintaining system security.
  - Issue of undue discrimination mentioned by RTE & ELIA triggered by too low capacities provided on critical network elements
- On 21/04 Core project parties announced the new Go-Live date for 08/06 and communicated the next steps to adequately address the concerns raised earlier:
  - The mitigations to further improve operational stability of TSO's capacity calculation were already implemented. In this period some issues occurred with fallbacks for which fixes will be in place before go-live.
  - To further optimise the intraday ATC capacities, algorithmic improvements and local validation processes will be implemented before go-live. Further improvements are foreseen to be implemented after go-live.
  - Dedicated reporting to NRAs will be created for all cases with  $RAM < 20\% \cdot F_{max}$  to closely monitor the occurrences and mitigations - this information of  $RAM < 20\% \cdot F_{max}$  is already publicly available in the publication tool.
  - Improvements in the publication tool were implemented

On 09/05 EFET, IFIEC & MPP on behalf of MPs sent a request and detailed questions relating to the new Go-Live date for Core Day-Ahead flow-based market coupling on 8 June 2022

Core TSOs provide in the next slides clarifications on the progress made in full transparency and this is also addressing all questions raised in the letter from EFET, IFIEC & MPP



## 2. Day Ahead Capacity Calculation & Market Coupling



### Operational stabilisation of EXT // run

Core TSOs have in detail monitored the operational stability throughout the period of the internal and external parallel run and increasingly investigated the details towards the Core FB DA go-live.

In the end of 2021, there were observations that individual validation fallback can have a high impact on capacities. Core TSOs therefore defined several mitigations in the beginning of 2022:

- Local mitigations and improvements to avoid the need to use the fallback for Individual Validation
- Adjustments in the method of the fallback for individual Validation (e.g. having a min RAM of  $20\% \cdot F_{\max}$  for most TSOs)

The final mitigations and improvements were implemented in the month before the initial go-live (March), which left for some TSOs insufficient time to gain the needed comfort that the mitigations were sufficient / successful.

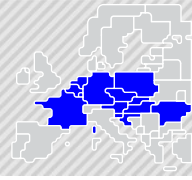
Core TSOs on the below to create sufficient comfort for those TSOs before deciding on a new go-live date, which was one of the criteria to decide on the new go-live date. This comfort was proven for all TSOs during 24/03 – 21/04

- 4 weeks of operational stability
- Meeting the defined targets for several KPIs
  - TS without DFP: 100% (target 100%)
  - TS without spanning: 100% (target 97%)
  - TS without fallback in indiv. val.: 95% (target 100%)
- In this monitoring period, there were only two instance of fallback applied
  - 20/04 – DAVinCy TSOs fallback leading to DFP equivalent domains. Mitigations: redundant servers & 24/07 support
  - 24/04 – ELIA ultimate fallback applied (little impact on results). Mitigation: update of local tool. A regional IT tool update is also foreseen post go-live to further mitigate the risks

All TSOs consider that the condition on stability of the EXT // run is fulfilled and strive to reach a target of 100% timestamps without DFPs, spanning or ultimate fallbacks.



## 2. Day Ahead Capacity Calculation & Market Coupling



### ID ATCs after Core Flow based market coupling

Core TSOs have a shared view on the challenges related to ID ATC left-over capacities. The values observed in the Ext//run, showed a steep increase in the number of times ID ATC = 0 (26% historical versus 77% //run. )

- Core TSOs therefore agreed on a clear trajectory to achieve reasonably close to historical frequency of ID ATC = 0.
- Core TSOs agreed to
  - update their local parameters (rAMRid & rLTAincl)
  - investigate additional changes in parameters to improve the algorithm for ID ATC extraction to make more efficient usage of available capacities.

Core TSOs also agreed to work further on bilateral increase / decrease processes after go-live to monitor the results and further optimise the initial ID ATCs values.

To select the updated parameters related to the algorithmic improvements, Core TSOs analysed 30 days from Ext//run between Feb – April. The data set was selected to include recent BDs without any central fallbacks (spanning/DFP) or local fallbacks (during individual validation)

The outcomes of this analysis and the improvements will be shown for the following scenarios:

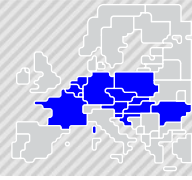
- Historical operational values
- Results without any algorithmic improvements
- Results with algorithmic improvements

Initial ID ATC values will be close to historical values after the improvements, mainly explained due to changed rAMRid & rLTAincl.

- **Improved:** 36% frequency of ID ATC = 0 & 639 MW average ID ATC
- **Historical operational:** 46% frequency of ID ATC = 0 & 1035 MW average ID ATC

*Note: the analysis is based on historical operational order books and different usage of DA capacities could influence the results*

## 2. Day Ahead Capacity Calculation & Market Coupling



### ID ATCs after Core Flow based market coupling

After the ACER decision on the Core ID CCM, each Core TSO concluded on their own local parameters: *rAMRid* & *rLTAincl*. These parameters are already applied in the Ext//run since April 4<sup>th</sup>.

### The updated parameters following ID CCM

- *rLTAincl*, *rAMRid*, – influencing the size of FB ID ATC domain used as a basis for ID ATC extraction

	AT	BE	CZ	FR	HR	HU	NL	PL	RO	SI	SK	LU	DE			
	APG	ELIA	CEPS	RTE	HOPS	MAVIR	TenneT NL	PSE	Transelect.	ELES	SEPS	CREOS	TransnetBW	TenneT DE	50 Hertz	Amprion
<b>rAMRid</b>	0,2	0,2	0,7	0,2	0,2	0,2	0,2	0,2	0,2	0,7	0,2	NA	0,2	0,2	0	0,2
<b>rLTAincl</b>	0,5	1	1	1	1	0,2	0,2	0,001	0,2	0,5	0,2	NA	0,2	0,2	0,001	0,2

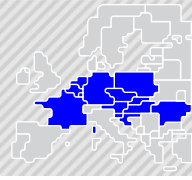
For *rLTAincl*, for each border the minimum of values provided by the adjacent TSOs is used. Some factors of borders need to be scaled down to respect the 1500 MW cap for the LTA\_ID

rLTAincl per border (Harmonised)	AT-CZ: 0,5	BE-DE: 0,2	CZ-AT: 0,5	FR-BE: 1	HR-HU: 0,2	HU-AT: 0,2	NL-BE: 0,2	PL-CZ: 0,001	RO-HU: 0,2	SI-AT: 0,5	SK-CZ: 0,2	DE-AT: 0,2
	AT-DE: 0,2	BE-FR: 1	CZ-DE: 0,001	FR-DE: 0,2	HR-SI: 0,5	HU-HR: 0,2	NL-DE: 0,2	PL-DE: 0,001		SI-HR: 0,5	SK-HU: 0,2	DE-BE: 0,2
	AT-HU: 0,2	BE-NL: 0,2	CZ-PL: 0,001			HU-RO: 0,2		PL-SK: 0,001			SK-PL: 0,001	DE-CZ: 0,001
	AT-SI: 0,5		CZ-SK: 0,2			HU-SK: 0,2						DE-FR: 0,2
												DE-NL: 0,2
												DE-PL: 0,001

These parameters will also be applied as of Core FB DA go-live on 08/06 and will be published on the JAO website.

As per Annex 5(4) of the amended Core ID CCM as decided upon by ACER on Apr 19th 2022, Core TSOs will regularly publish percentage of LTA and MinRAM provided for ID ATC extraction & applied WSUM value

## 2. Day Ahead Capacity Calculation & Market Coupling



### ID ATCs after Core Flow based market coupling

Core TSOs investigated the various parameters relevant for the algorithmic improvements, which are all aimed to make more efficient usage of DA leftover CZC available for ID ATC extraction

- Low PTDF threshold i.e., controlling neglecting of z2z PTDFs to avoid them blocking ID ATCs
- WSUM i.e., controlling trade-off between min ATC and avg ATC
- Improvement of objective function i.e., restricting min(ATC) part to borders where ATC>0 is possible

Core TSOs selected the parameters, based on the results to strike a balance between using more optimal the available capacities to avoid ID ATC = 0, while ensuring significant flows are not neglected to a large extent.

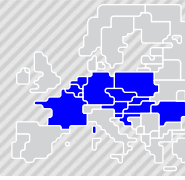
→ See next slides for outcomes of the analysis performed and the improvements compared to results with algorithmic improvements

The following values will be applied in the Ext//run as of beginning of June and at Core FB DA go-live as well.

	WSUM	Low PTDF Threshold
Previous	0.5	0
New (go-live)	0.1	0.5%

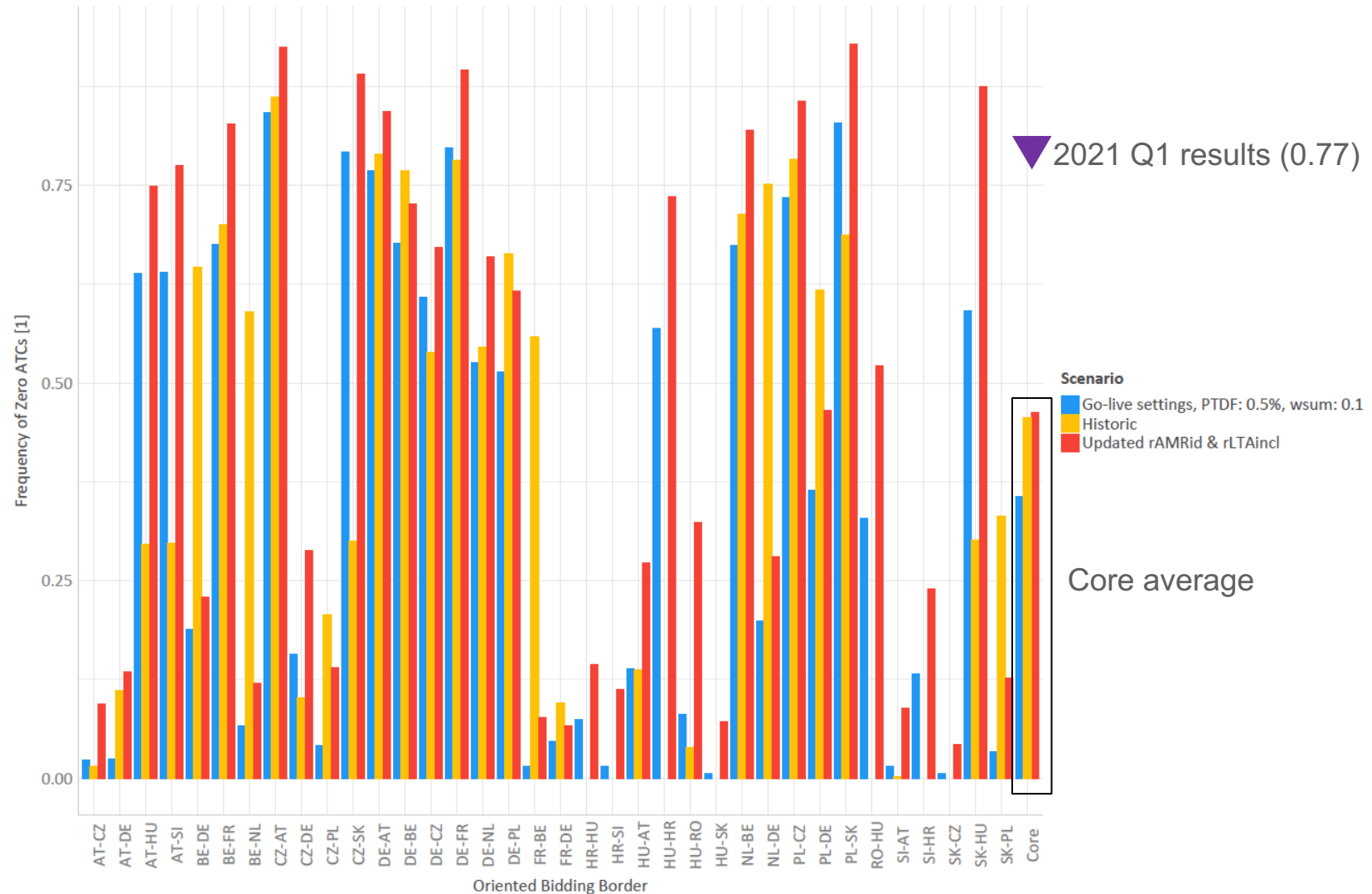
## 2. Day Ahead Capacity Calculation & Market Coupling

G. MEUTGEERT

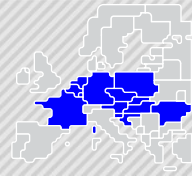


### Results comparison – Frequency of zero ID ATCs

Improved values result in a reduced frequency of Core ID ATC = 0 compared to historical operational values

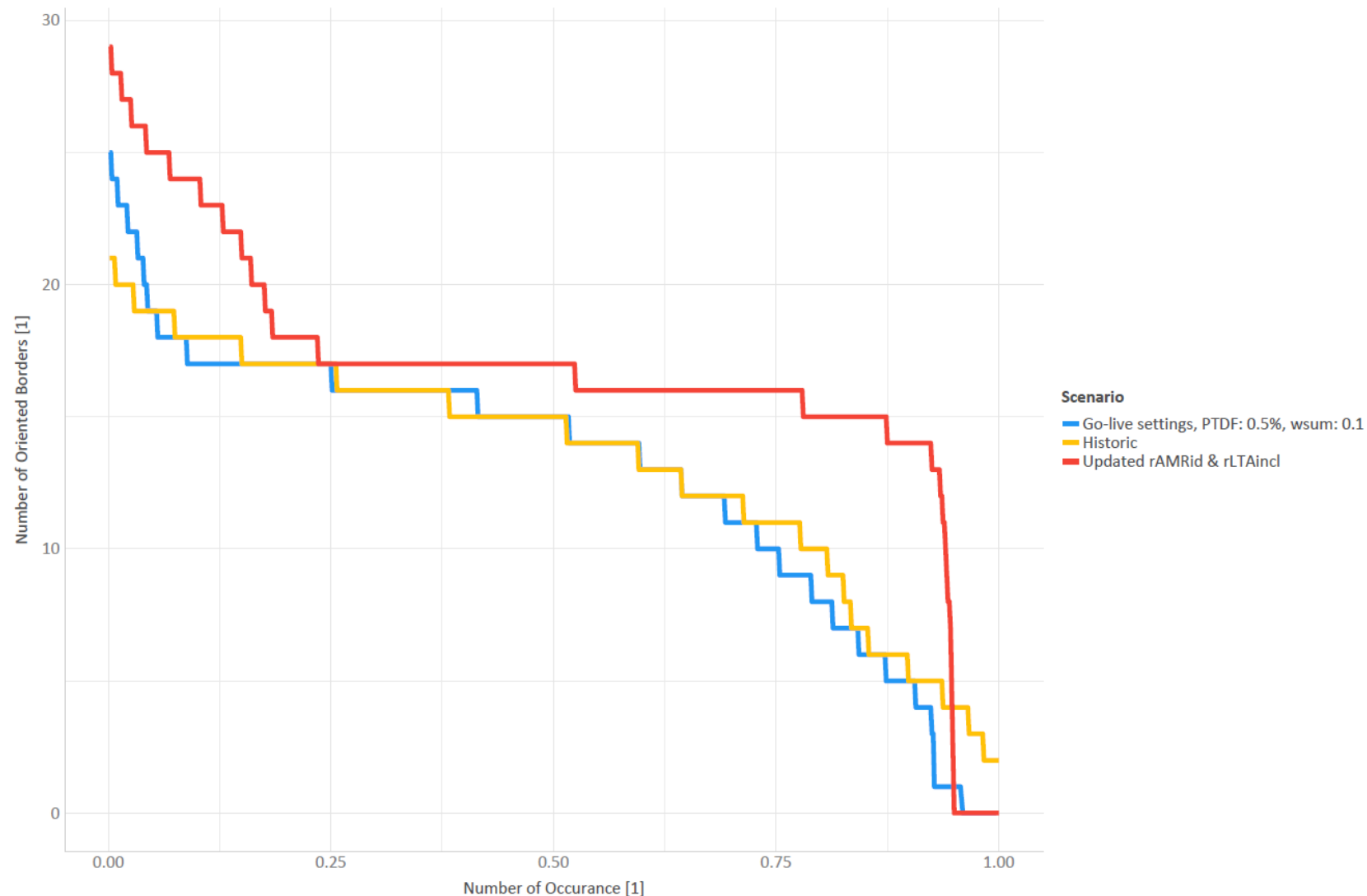


## 2. Day Ahead Capacity Calculation & Market Coupling

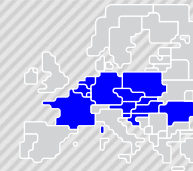


Results comparison – Duration curve of zero ID ATCs = 0

Thanks to the algorithmic improvements, liquidity for cross-zonal exchanges within Core is similar to historical operational values

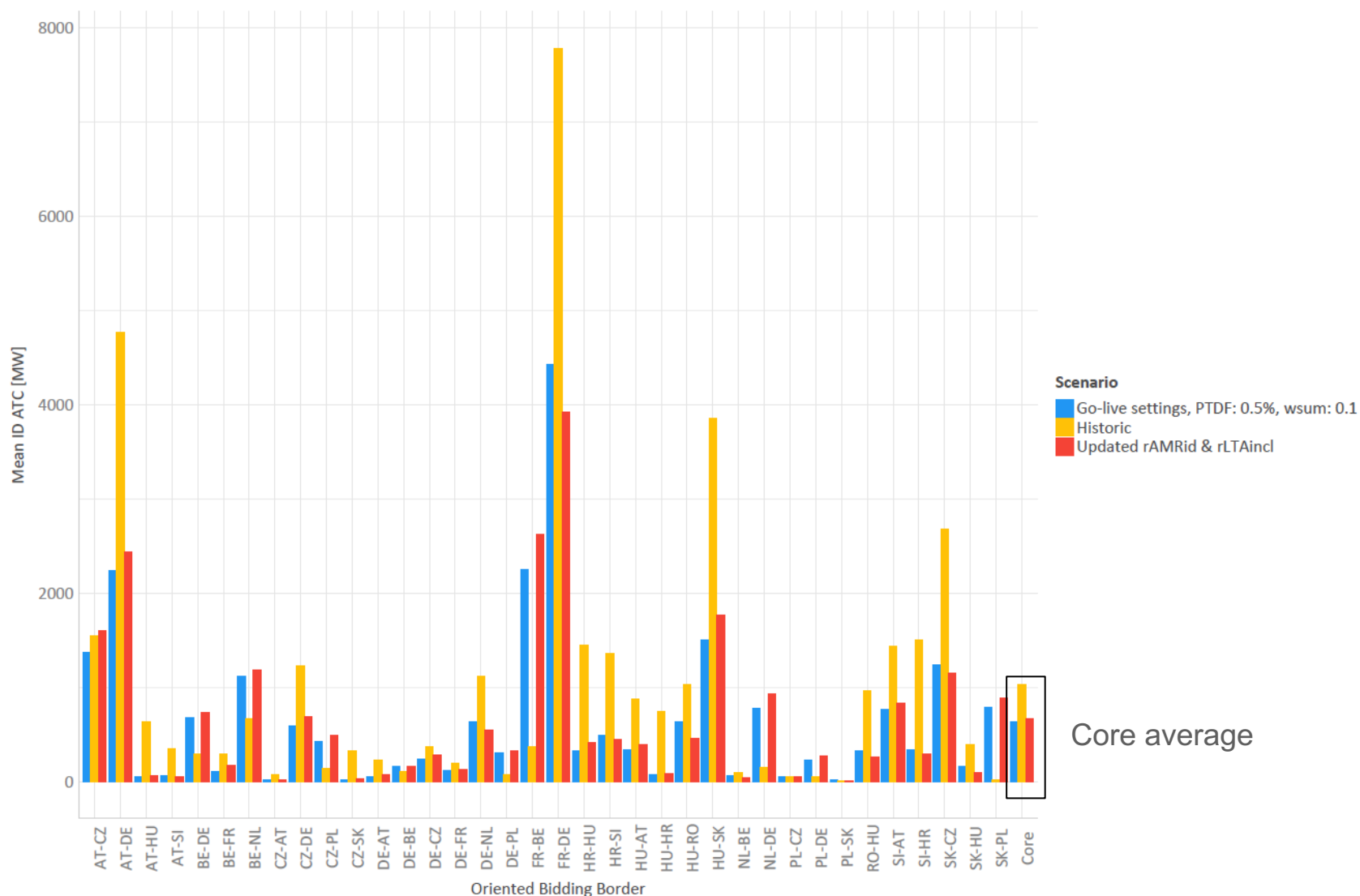


## 2. Day Ahead Capacity Calculation & Market Coupling



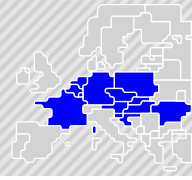
### Results comparison – Average ID ATCs

The change of the WSUM helps to reduce the frequency of ID ATC = 0 and this is justified as it does not have a detrimental effect on the ID ATC average values.



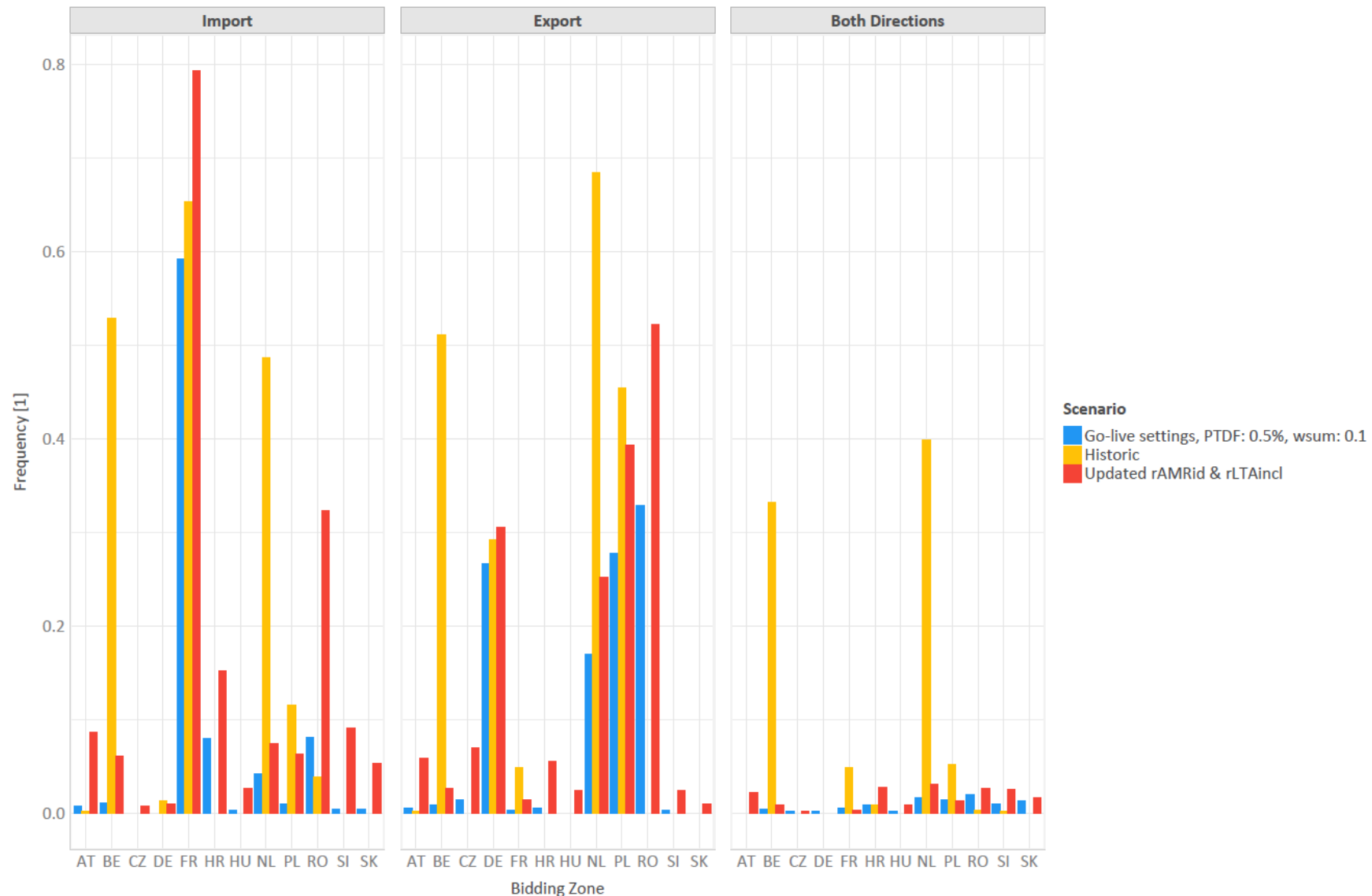
## 2. Day Ahead Capacity Calculation & Market Coupling

G. MEUTGEERT



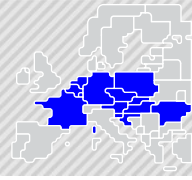
### Results comparison – Bidding Zone Isolation

For BZs that had a high frequency of isolation, improved values show a significant reduction of this phenomenon





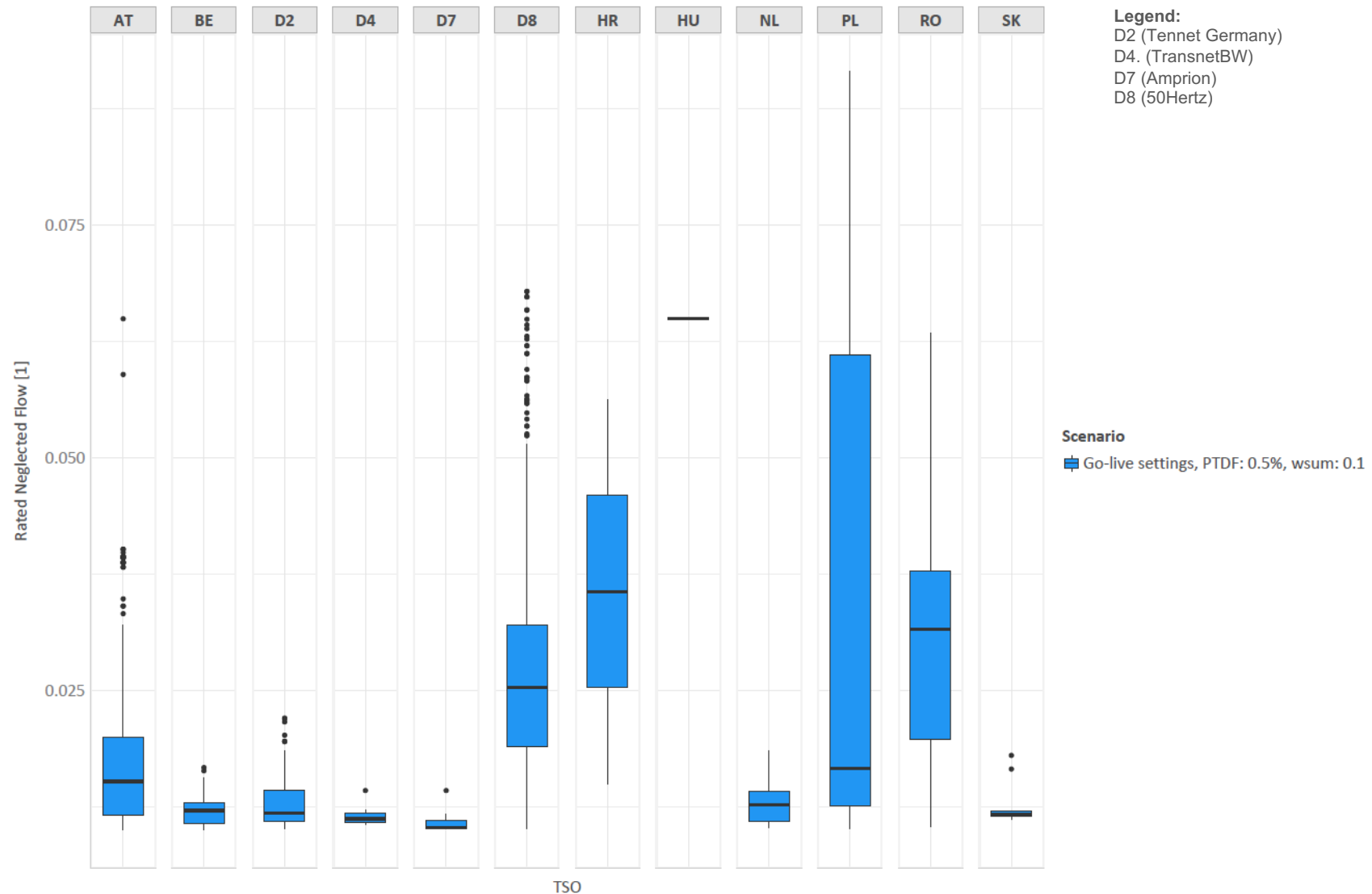
## 2. Day Ahead Capacity Calculation & Market Coupling



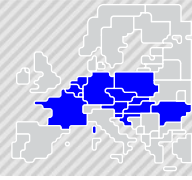
Results comparison – Neglected flows due to low PTDF threshold = 0.5%

To optimize capacity, TSOs accept operational security risks due to a limited amount of neglected flows on CNECs

- TSOs not present on the graph do not have neglected flows >1% of Fmax.



## 2. Day Ahead Capacity Calculation & Market Coupling



### ID ATCs after Core Flow based market coupling

Complementary to these mitigations and improvements, there are also local / bilateral improvements that are in place to some extent but will be further developed to allow better monitoring and validation of initial ID ATCs.

#### Bilateral increase / decrease processes

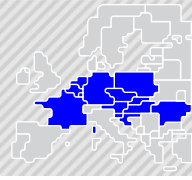
- Some TSOs have a process in place to bilaterally increase capacities in the range of max 300 MW or individually decrease capacities
- Other TSOs initiated the work to implement such process
- CWE increase/decrease process will remain as today in the first period after go-live (multi-lateral validation). The exact interpretation of Core ID CCM and impact on tool and procedure is being aligned between respective TSOs, NRAs and ACER

**Local validation tools** – aiming to further change the parameters to strive for higher capacities, while respecting operational security  
- disclaimer: ID ATC values might be lowered when there is better visibility on the risks

- There are TSOs that have such a tool in place already or can do this without a tool
- Various TSOs
  - initiated the work for these tools
  - will further develop this
  - or will monitor the developments in operations and act in accordance

## 2. Day Ahead Capacity Calculation & Market Coupling

G. MEUTGEERT



Reporting on occurrences of RAM lower than 20% of  $F_{max}$

In the last period of 2021, Core TSOs observed the high impact that application of that fallbacks can have (i.e., spanning, DFP and ultimate fallback of Individual Validation), which triggered further monitoring.

Referring to ACER's decision, the motivation of the minimum RAM of 20% of  $F_{max}$  rule can be understood as it being an essential feature to allow flow-based market coupling to function efficiently (avoiding empty or very small domains), and in turn contribute to avoid undue discrimination (where internal trades and trades outside of the Core region are prioritised with respect to trades inside the Core region).

The Core DA CCM does allow Core TSOs to reduce the RAM below the “absolute minimum” of RAM of 20% of  $F_{max}$ , but this is to be monitored and where feasible to be avoided.

To create transparency on this aspect, a targeted reporting on the occurrence of RAM below 20% is put forward by Core TSOs

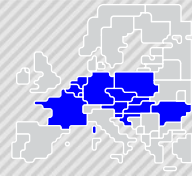
This report will be created and published on a monthly basis – see Annex March & April and cover

- All CNECs with  $RAM < 20\%F_{max}$
- Distinct MTUs (All CNECs with  $RAM < 20\%F_{max}$ )
- Only presolved CNECs with  $RAM < 20\%F_{max}$
- Distinct MTUs (Presolved CNECs with  $RAM < 20\% F_{max}$  )
- CNECs with 0 RAM capacity
- Distinct MTUs (CNECs with 0 RAM capacity)

Market Parties can already monitor daily the RAM below 20% on the PuTo – see next slide.


## 2. Day Ahead Capacity Calculation & Market Coupling

G. MEUTGEERT



Reporting on occurrences of RAM lower than 20% of Fmax

Underlying data is available on PuTo daily (in the Final computation place)  
MP can process this data by checking if :  $(RAM + F\_LTN) < 20\% F\_max$



JAO Publication Tool  
Core

DATE  
2022-05-18

HOUR  
00:00 - 01:00

HUB  
All

BORDER  
None available

Core

- Core MarketView
- Core MarketGraphs
- Core Map
- Border Data Overview
- D2CF
- Refprog
- Reference Net Position
- Initial Comp.(VirginDomain)
- Remedial Action Preventive
- Remedial Action Curative
- Validation Reductions
- Pre-Final (EarlyPub)
- LTN
- Final Computation
- Max Net Pos
- Max Exchanges (MaxBex)
- Allocation Constraints
- Final Bilateral Exchange R...
- ATCs on CORE external bo...
- Scheduled Exchanges

### Final Computation

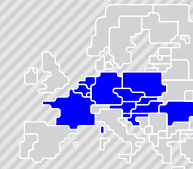
Download

SEARCH ▾

Detailed breakdown of RAM

	Presolved	RAM	Imax	U	F max	FRM	F_(ref,init)	F_nrao	F_ref	F0core	F0all	F_uaf	AMR	R_amr %	R_amr_justification	minRAM_target_Core %	ItaMargin	CVA	IVA	Ftotal_LTN	F_LTN	PTDF_ALBE
2022-05-18 00:00:00	272	925	220	360	28	57	-17	74	58	14	45	0	28.7			76.4	0	0	0	60	2	0
2022-05-18 00:00:00	392	925	220	360	28	-57	17	-74	-58	-14	-45	0	28.7			108.6	0	0	0	-60	-2	0
2022-05-18 00:00:00	241	925	220	360	28	85	-26	111	88	22	66	0	28.7			68.1	0	0	0	91	3	0
2022-05-18 00:00:00	423	925	220	360	28	-85	26	-111	-88	-22	-66	0	28.7			116.9	0	0	0	-91	-3	0
2022-05-18 00:00:00	279	925	220	360	28	54	-13	67	51	0	51	0	28.7			78.3	0	0	0	53	2	0
2022-05-18 00:00:00	385	925	220	360	28	-54	13	-67	-51	0	-51	0	28.7			106.7	0	0	0	-53	-2	0
2022-05-18 00:00:00	281	925	220	360	28	45	-17	62	49	15	34	0	28.7			78.9	0	0	0	51	2	0
2022-05-18 00:00:00	383	925	220	360	28	-45	17	-62	-49	-15	-34	0	28.7			106.1	0	0	0	-51	-2	0
2022-05-18 00:00:00	251	925	220	360	28	73	-27	100	79	23	56	0	28.7			70.6	0	0	0	81	2	0

## 2. Day Ahead Capacity Calculation & Market Coupling



### HLBP timings of Core DACC process

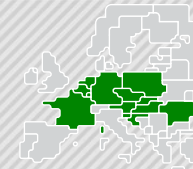
The Core FB DA Capacity Calculation timings were presented on 07/10/2020 Core CG meeting.

Core TSOs would like to communicate transparently on the final timings that will be used as of Go Live for the Core DA operational process.

Core DA FB CC HLBP (all timings in CET time zone)					
Process step	Day	Target start time (TST)	Target end time (TET)	Critical End Time (CET)	Sub-process
1	D-2	15:00	19:00	22:00	D-2 merging preparation
2	D-2	15:05	19:00	22:05	Initial TSO Receiving
3	D-2/D-1	19:00	20:00	01:20	D2CF merging
4	D-2/D-1	20:00	21:00	02:35	Second TSO Receiving
5	D-2/D-1	21:00	21:40	03:30	Initial FB computation
6	D-2/D-1	21:00	21:40	03:30	CNEC Selection
7	D-2/D-1	21:40	00:35	04:20	Remedial Action optimizations & selection
8	D-1	00:35	00:35	04:30	Intermediate Receiving & Data Gathering
9	D-1	00:35	01:10	05:25	Intermediate FB computation
10	D-1	01:10	01:45	06:05	Simple Coordinated Validation (RA potential)
11	D-1	01:45	02:00	06:20	Simple Coordinated Validation (Advices)
12	D-1	02:00	07:15	09:00	Individual Validation
13	D-1	07:15	07:45	09:55	Pre-Final FB computation
14	D-1	07:45	09:35	10:15	Final Receiving & Data gathering
15	D-1	09:30	10:00	11:15	Final FB computation
16	D-1	10:00	11:35	11:45	NEMO Receiving & Data Gathering
17	D-1	11:35	11:55	12:05	Congestion Income Allocation
18	D-1	12:45	15:25	15:30	Validation of Market Coupling Results
19	D-1	12:57	13:08	16:00	Distribution of Market Coupling Results
20	D-1	13:08	13:40	16:25	Intraday ATC / NTC Extraction
21	D-1	13:40	13:50	16:45	Export CGM at the Market Clearing Point
22	D-1	13:50	14:00	17:05	Distribute Inputs for Intraday Process

## 2. Day Ahead Capacity Calculation & Market Coupling

A. KIRALY



### Update on the Publication Tool

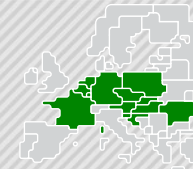
As part of the CORE go-live the production version of the Publication Tool (PuTo) will also be made available to the Market Participants on the JAO website.

It will be the same version that is present on the current external parallel run environment and will also include the feature of the monitoring tool which will help with identifying to the missing data.

The link to the production version of the tool and the webservices will be made available latest on the 7th of June under <http://www.jao.eu/publication-tool>

Besides including the CORE region related information the tool also includes data regarding certain external borders: <http://www.jao.eu/news/market-communication-22>

### 3. AOB & closure



#### Next meeting and communication channels

##### Next Core Consultative Group:

- Proposal for a next Core CG in October '22?
- Follow up of the ACER LTCC workshop of 24 May 2022

##### Existing Core communication channels

###### Core Consultative Group mailing list

- Register by sending an email to [CoreCG@magnus.nl](mailto:CoreCG@magnus.nl)

###### Core section on ENTSO-E website

- Upload of methodologies and reports on public consultations, current status of the Core CCR program, CG minutes
- Link: [https://www.entsoe.eu/network\\_codes/ccr-regions/#core](https://www.entsoe.eu/network_codes/ccr-regions/#core)

###### ENTSO-E newsletter

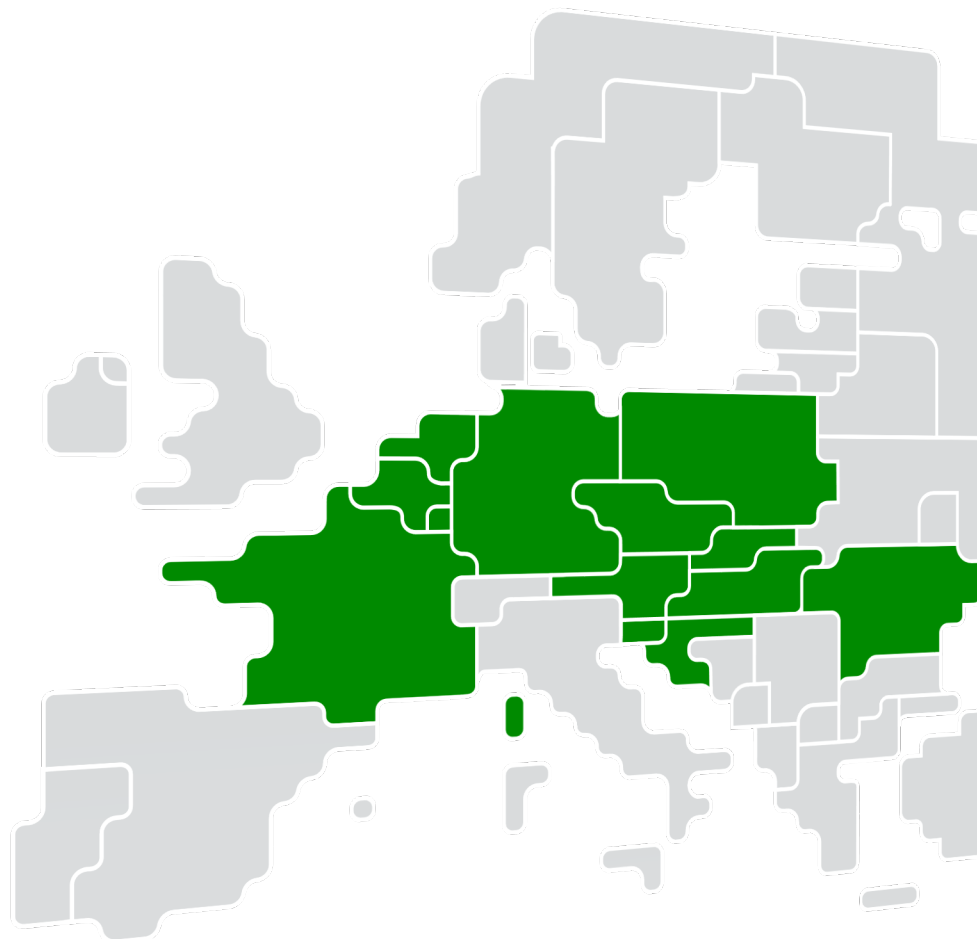
- Regularly updates on the different CCRs (e.g., submitted methodologies, launch of public consultations)
- Subscription via <https://www.entsoe.eu/contact/>

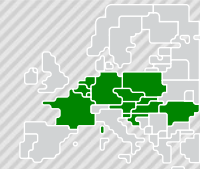
##### Q&A forum on JAO website

- Provides space to Market Participants to ask questions about the External Parallel Run and other relevant topics:
- Link: <http://coreforum.my-ems.net/>



# APPENDIX

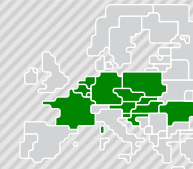




ACER	Agency for the Cooperation of Energy Regulators	IGM	Individual Grid Model
AHC	Advanced Hybrid Coupling	IVA	Individual Validation Adjustment
BZ	Bidding Zone	KPI	Key Performance Indicator
CACM	Capacity Allocation and Congestion Management	LF-SA	Load Flow Security Analysis
CC	Capacity Calculation	NRA	National Regulatory Authority
CCR	Capacity Calculation Region	NRAO	Non-costly Remedial Action Optimization
CGM	Common Grid Model	RA	Remedial Action
CGMES	Common Grid Model Exchange Standard	RAO	Remedial Action Optimizer
CNEC	Critical Network Element with a Contingency	RFI	Request for Information
CS	Cost Sharing	RFP	Request for Proposal
CSA	Coordinated Security Analysis	ROSC	Regional Operational Security Coordination
CSAM	Coordinated Security Analysis Methodology	RD&CT	Redispatching and Countertrading
CROSA	Coordinated Regional Operational Security Assessment	RSC	Regional System Operator
DA	Day-Ahead	TSO	Transmission System Operator
ENTSO-E	European Network of Transmission System Operators for Electricity	SHC	Simple Hybrid Coupling
FAT	Final Acceptance Test	SO GL	System Operation Guideline
FIT	Functional Integration Test	SAT	Site Acceptance Testing
FB	Flow Based	SIT	System Integration Testing
GSK	Generation Shift Key	V1/V2	Version 1/ Version 2
GLSK	Generation Load Shift Key	XNE	Cross-border element
IDCC	Intraday Capacity Calculation		

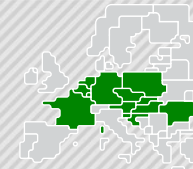
# APPENDIX

## Annex ID ATCs after Core Flow based market coupling: Bilateral increase decrease processes



### Core TSO local investigation to improve ID ATCs

	Increase / Decrease process available as of Go Live	ID ATC Validation tool available
50 Hertz	Yes	Yes, Further improvements After Go Live
Amprion	Yes	Yes, Further improvements After Go Live
APG	Yes, for CWE / No For Others	For CWE borders, Yes & Further improvements After Go Live For others: No & Tool available After Go Live
CEPS	Yes	Yes
CREOS	N/A	N/A
ELES	After Go Live	After Go Live
ELIA	Yes	Yes
HOPS	Yes	No
MAVIR	Yes	Yes
PSE	Yes	Yes
RTE	Yes	Yes
SEPS	Yes	Yes
TenneT GmbH	Yes	Yes, Further improvements After Go Live
TenneT NL	Yes	No, Further improvements After Go Live
Transelectrica	No	No
Transnet BW	Yes	Yes, Further improvements After Go Live

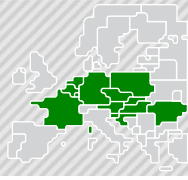


### March period (01/03/2022– 31/03/2022)

- 20% *minRAM* violation :  $\frac{RAM_{0Core} + AMR - CVA - IVA + 3^*}{F_{Max}} < 20\%$

	All CNECs with RAM < 20%Fmax	Distinct MTUs (All CNECs with RAM < 20%Fmax)	Only presolved CNECs with RAM < 20%Fmax	Distinct MTUs (Presolved CNECs with RAM <20% Fmax )	CNECs with 0 RAM capacity	Distinct MTUs (CNECs with 0 RAM capacity)
AT - APG	13201	114	5520	114	10	7
BE - Elia	399	2	0	0	0	0
CZ - CEPS	0	0	0	0	0	0
D2 – TenneTGmbH	4122	104	2555	102	1	1
D4 – TransnetBW	77263	110	3242	108	178	13
D7 – Amprion	19275	102	15451	102	139	21
D8 - 50Hertz	2529	105	321	101	9	9
FR - RTE	0	0	0	0	0	0
HR - HOPS	6	6	6	6	0	0
HU - MAVIR	0	0	0	0	0	0
NL - TenneTBV	31876	91	1366	91	35	19
PL - PSE	102	26	19	15	0	0
RO - Transelectrica	5910	63	443	63	8	5
SI - ELES	10	10	10	10	0	0
SK - SEPS	1	1	1	1	0	0

- \*A margin of 3 MW below the 20% is accepted to filter out rounding errors
- Note : During the month of March, the DAVinCy TSO's experienced 4 days of fallback & TEL one day with fallbacks (partially explaining the high number of occurrences)



### April period (01/04/2022– 30/04/2022)

- 20% *minRAM* violation :  $\frac{RAM_{Core} + AMR - CVA - IVA + 3^*}{F_{Max}} < 20\%$
- For this exercise, only the RAM on the CNECs was taken into account. The two first column represent all the CNECs, and the 3rd and 4th represent only the presolved CNECs

	All CNECs with RAM < 20%Fmax	Distinct MTUs (All CNECs with RAM < 20%Fmax)	Only presolved CNECs with RAM < 20%Fmax	Distinct MTUs (Presolved CNECs with RAM <20% Fmax )	CNECs with 0 RAM capacity	Distinct MTUs (CNECs with 0 RAM capacity)
AT - APG	461	27	251	27	1	1
BE - Elia	0	0	0	0	0	0
CZ - CEPS	0	0	0	0	0	0
D2 – TenneTGmbH	2027	26	322	28	0	0
D4 – TransnetBW	68998	31	357	26	46	12
D7 – Amprion	6306	28	1005	31	151	15
D8 - 50Hertz	2691	26	119	26	12	9
FR - RTE	0	0	0	0	0	0
HR - HOPS	4	4	4	4	0	0
HU - MAVIR	0	0	0	0	0	0
NL - TenneTBV	28593	27	398	25	54	5
PL - PSE	387	39	91	39	0	0
RO - Transelectrica	301	38	73	38	0	0
SI - ELES	0	0	0	0	0	0
SK - SEPS	0	0	1	1	0	0

- \*A margin of 3 MW below the 20% is accepted to filter out rounding errors
- Note : During the month of April, the DAVinCy TSO's experienced 1 day of fallback

# Core Flow-Based Day-Ahead market coupling

Status and feedback from market participants

CORE CG meeting – 1 June 2022

# Why did we ask to postpone the April go-live?

- EFET, IFIEC and MPP called for postponing go-live initially foreseen on April 20th
- Our 3 associations have **been long lasting very supportive of CORE Flow Based market coupling since its inception. We would like to see it implemented ASAP as long as all conditions are met.** Last time:
  - The results of the parallel run showed 10% to 20% of the hours with very small or empty domains => nearly no possibility to perform a market coupling (hence step back compared to initial situation)
  - Incompleteness of published data
  - Fallback mechanisms and validation tools not stable
  - ID capacity : step back following voluntary LTA and min RAM approach for ATC extraction

Market participants are insisting that new go-live should take place if :

- Minimum performance and quality standards for DA CC are set
- Method for ID ATC extraction ensures no step back compared to current CWE practices



# Many questions remain today

The announcement by CORE TSOs on the new intended go-live date was accompanied by several updates, triggering many questions (non- exhaustive list):

- Mitigation measures in place to improve the stability of DA CC
  - Which measures ? Which impact ?
- For ID ATC extraction, algorithmic improvements will be implemented before go live
  - Which ones ? Which impact ?
- Further improvements foreseen after go live
  - Which ones ? Which impact ?

These questions have been sent to CORE TSOs ahead of the CORE Consultative Group on 1 June 2022

# Where do we stand today with a few more weeks of parallel run?

Since last foreseen go-live (21/04) we observed:

- PTDF data publication/retrieval process seems to perform as intended
- No empty domains nor negative RAMs observed
- OMW RAM CNEs are almost fully explained by the equality constraints (on all hubs & on the Alegro hubs)

However, we still see major issues:

- Our remarks on ID CC remain, no improvement can be monitored as no data on ID ATC on JAO is published yet. Parameters allowing ID CC should be published ahead of go-live rAMRincl, Wsum & rLTaincl values used for ID ATC extraction
- No API description anymore on JAO + open issues file on JAO not updated (<https://www.jao.eu/core-fb-da-parallel-run-0>)
- No information has been provided regarding the detailed impact of the Core Flow-Based modelling on the operational Euphemia process (e.g. TTFS, duality gap)

Data has improved on DA in the last month but issues on ID capacity calculation and JAO publications remain. This should be tackled before go-live.