



# NORDIC RCC



DATA FOR EFFICIENT AND  
RELIABLE POWER SUPPLY



An aerial photograph of a mountain valley with a river, overlaid with a white network diagram consisting of lines, squares, and circles. The network diagram is a complex web of connections across the landscape. In the top right corner, the text 'NORDIC RCC' is displayed in a large, white, sans-serif font. Below it is a logo consisting of four vertical bars of varying heights, followed by the text 'DATA FOR EFFICIENT AND RELIABLE POWER SUPPLY'. At the bottom of the image, there is a white banner containing text about a stakeholder event.

# NORDIC RCC

DATA FOR EFFICIENT AND  
RELIABLE POWER SUPPLY

Stakeholder Event on Data Publication, JAO

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# AGENDA

- Intro to EPR and publications
  - Relevant links
- JAO dashboards
- FB domain parameters
  - Name
  - Status, Significant, Non-Redundant and RAM
  - CNEC example
  - Border-CNECs and ACs
  - Min and max flow and PTDFs
- How to use JAO
  - Handbook
  - Search function
  - Downloading data
- Questions?





# INTRO TO EPR & PUBLICATIONS

- External Parallel Run (EPR) since Jan 2022
- Publication of D-1 Flow-based day-ahead domain every morning
  - deadline 09.30 (normal case)

## Hyperlinks to relevant sites

- Test publication tool
  - <https://test-publicationtool.jao.eu/nordic/>
- JAO handbook
- EPR handbook





## JAO DATA OVERVIEW - NORDIC

- Market View
- Market Graphs
- Market Map
- Flowbased Domain
- Max and Min Net Pos
- Max Exchanges (MaxBex)
- Validation Reductions
- Ref. Net Pos. and HVDC exch.





# JAO DATA OVERVIEW - NORDIC



# FB DOMAIN PARAMETERS - NAME

## Flowbased Domain

Test data. [Full Disclaimer](#)

Download

SEARCH ▾

CNEC NAME

TSO  Select ▾

BIDDING ZONE FROM  ▾

BIDDING ZONE TO  ▾

CONTINGENCY

NON-REDUNDANT  TRUE  FALSE  UNSET

TOTAL ROWS WITHOUT FILTER: 709  
 TOTAL ROWS WITH FILTER: 149  
 DISPLAYED ROWS: 100

Date	CNEC or Combined Dynamic Constraint			Information on the CNE								Information on the Contingency		
	Name	Type	TSO	Name	EIC	Status	Bidding Zone From	Bidding Zone To	Substation From	Substation To	Type	Name	EIC	Status
2023-08-25 00:00:00	ACLineSegment ENDK DK2 E_MRP-TEG_2_2 N Terminal : N	BRANCH	ENERGINET	2 - Terminal: E_MRP- TEG_2_2	10T-DK-SE-000047	OK	DK2	DK2	TEG	MRP	CNE	400KV LINE C_GØR- SÅN	10T-DK-SE-000063	NK
2023-08-25 00:00:00	ACLineSegment ENDK DK2 E_MRP-TEG_2_2 N Terminal : N	BRANCH	ENERGINET	2 - Terminal: E_MRP- TEG_2_2	10T-DK-SE-000047	OK	DK2	DK2	TEG	MRP	CNE	400KV LINE C_HVE- SÅN	10T-DK-SE-000055	NK
2023-08-25 00:00:00	ACLineSegment ENDK DK2 E_STA-TEG_2_1 F Terminal : F	BRANCH	ENERGINET	1 - Terminal: E_STA- TEG_2		OK	DK2	DK2			CNE	400KV LINE C_HVE- SÅN		NK

CNE = Critical Network Element, CNEC = Critical Network Element with Contingency



# FB DOMAIN PARAMETERS - STATUS, NR, SIGNIFICANT AND RAM

## Status

“N”: Parameters of the network element appear as in base case without any contingencies applied.

“N-k”: Parameters of the network element are shown for a case with one or more contingencies applied.

## Non-redundant

“True”: The CNEC is constraining the domain.

## Significant

“True”: The CNEC has been considered in FB parameters calculation.

Significance threshold = difference between smallest and largest zone-to-slack PTDFs is at least 0.05.

## RAM

Remaining Available Margin, i.e., spare transmission capacity available for trade.

$$RAM = F_{\max} - F_{RM} - F_0 + F_{RA} + AMR - F_{AAC} - IVA$$

## Flowbased Domain

Test data. [Full Disclaimer](#)

SEARCH ▼

CNEC NAME:

TSO: EMERGINET Select ▼

BIDDING ZONE FROM: Select ▼

BIDDING ZONE TO: Select ▼

CONTINGENCY:

NON-REDUNDANT:  TRUE  FALSE  UNSET

reset search

TOTAL ROWS WITHOUT FILTER: 709  
TOTAL ROWS WITH FILTER: 149  
DISPLAYED ROWS: 100

Date	Information on the Contingency				Detailed Breakdown			
	EIC	Status	Substation From	Substation To	Imax method	Non-redundant	Significant	RAM
2023-08-25 00:00:00	10T-DK-SE-000063	NK	GØR	SAN	TATL	✘	✔	263
2023-08-25 00:00:00	10T-DK-SE-000055	NK	HVE	SAN	TATL	✘	✔	262
2023-08-25 00:00:00		NK				✘	✔	186

# FB DOMAIN PARAMETERS - CNEC EXAMPLE

Date	CNEC or Combined Dynamic Constraint			Information on the CNE			
	Name	Type	TSO	Name	Status	Bidding Zone From	Bidding Zone To
2023-08-25 00:00:00	L12503_11 70% 420 Sima-Dagali + 420 T_Hol-Usta	BRANCH	STATNETT	S 420 T_Hol-Usta	OK	NO5	NO5
2023-08-25 00:00:00	L12503_11 70% 420 T_Hol-Usta + 420 Sima-Dagali	BRANCH	STATNETT	S 420 Sima-Dagali	OK	NO5	NO5

## Information on the Contingency

Name	EIC	Status	Substation From
Contingency S 420 Sima-Dagali		NK	
Contingency S 420 T_Hol-Usta		NK	



# FB DOMAIN PARAMETERS - CNEC EXAMPLE

## Detailed Breakdown

Imax method	Non-redundant	Significant	RAM	Min Flow	Max Flow	U	Imax	Fmax	FRM	Fref	F0	FRA	AMR	FAAC	IVA	DK1	DK2	FI	NO1	NO2
	✓	✓	1564	-2498	1496	0	0	1600	80	754	-68	0	0	24	0	0	0.00002	0.02669	-0.05995	0.04422
	✓	✓	1549	-2508	1448	0	0	1550	78	698	-101	0	0	24	0	0	0.00002	0.02506	-0.05691	0.04961

## PTDF zone-to-slack

NO3	NO4	NO5	SE1	SE2	SE3	SE4	NO2_SK	DK1_SK	DK1_SB	DK2_SB	SE3_FS	DK1_KS	SE3_KS	FI_FS	SE4_SP	SE4_NB	SE4_BC	FI_EL	DK1_DE	DK2_KO	DK1_CO	NO2_ND	NO2_NK	SE3_SWL	SE4_SWL
0.20031	0.06756	0.37094	0.02896	0.0199	0.00665	0.00176	0.03699	0	0	0	0.01388	0	-0.00378	0.02669	0.00354	0.00483	0.00226	0.02669	0	0	0	0.04729	0.04987	0.00542	0.00226
0.18816	0.06344	0.36792	0.0272	0.01868	0.00624	0.00165	0.04204	0	0	0	0.01303	0	-0.00355	0.02506	0.00333	0.00453	0.00212	0.02506	0	0	0	0.05271	0.05539	0.00509	0.00212

# FB DOMAIN PARAMETERS-BORDER CNECS AND ALLOCATION CONSTRAINTS

## Border CNECs

- Naming convention: “Border\_CNEC\_[BZfrom]-[BZto]”
- do not represent constraints of the operational security of the power system
- assigned an arbitrarily high value of Fmax to ensure redundancy (9999MW)

Date	CNEC or Combined Dynamic Constraint			Information on the CNE		
	Name	Type	TSO	Status	Bidding Zone From	Bidding Zone To
2023-08-25 00:00:00	Border_CNEC_NO1-NO5	BRANCH		OK	NO1	NO5
2023-08-25 00:00:00	Border_CNEC_NO1-SE3	BRANCH		OK	NO1	SE3

## Allocation Constraints




- Naming convention “AC\_maximum\_[virtualBZname]” and “AC\_minimum\_[virtualBZname]”
- used to set capacities for HVDC lines and capacities for interconnectors to external CCRs
- Independently provided by each TSO

Date	Name	Type	Status
2023-08-25 00:00:00	AC_Maximum_DK2_KO	ALLOCATION_CONSTRAINT	OK
2023-08-25 00:00:00	AC_Minimum_DK2_KO	ALLOCATION_CONSTRAINT	OK



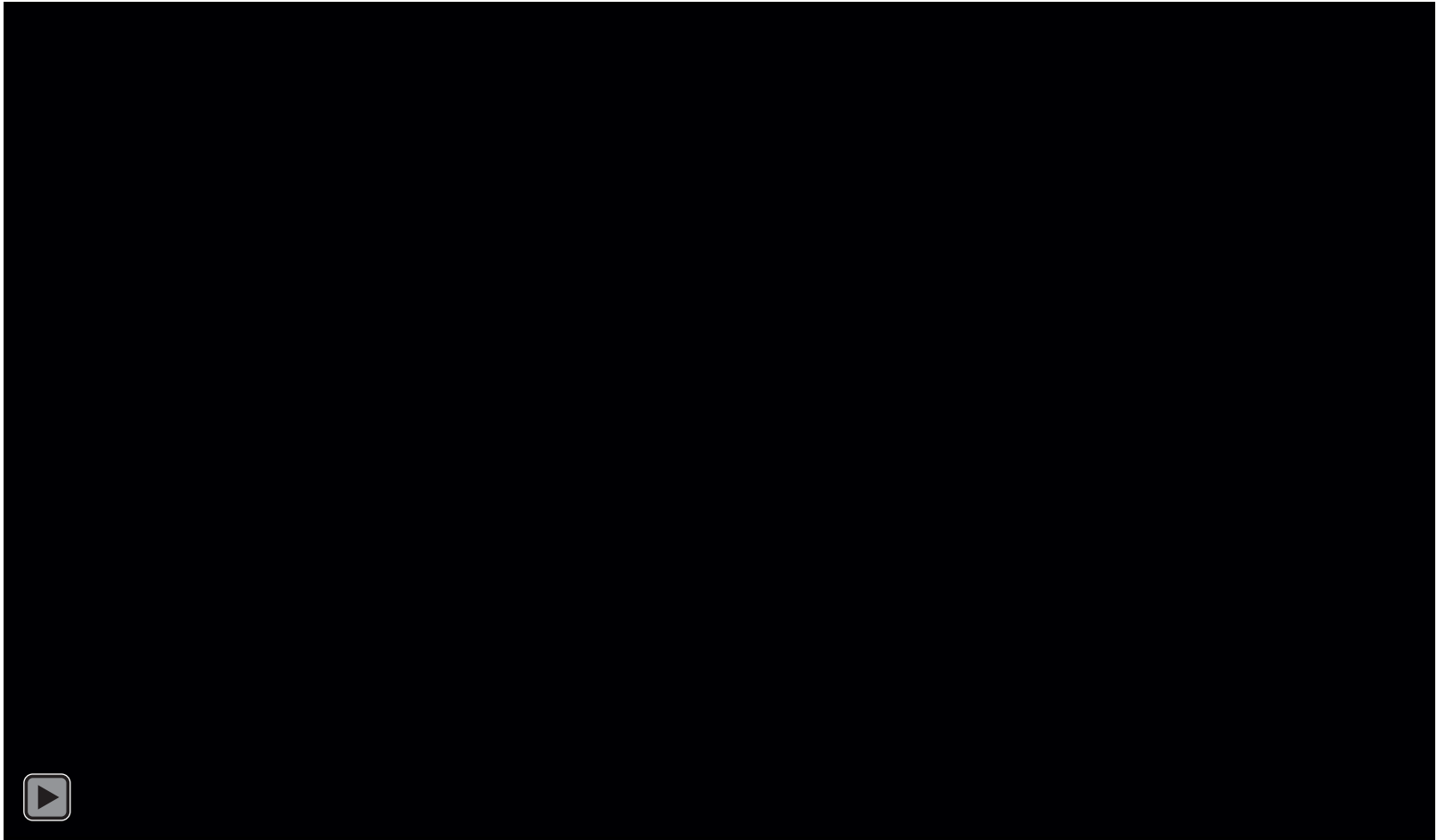


## HOW TO USE JAO

- Handbook 
- Search function 
- Downloading data 

JAO link: <https://test-publicationtool.jao.eu/nordic/>





# JAO SEARCH FUNCTION



# JAO DOWNLOADING DATA



# THANK YOU

ANY QUESTIONS?