Nordic - Publication Tool for DA CCM Publication Handbook



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Contents

1	Non	nenclature	- 3 -
	1.1	Abbreviations	- 3 -
	1.2	Hub definitions (bidding zones)	- 3 -
2	Bac	kground	- 3 -
3	Nav	igation	- 3 -
4	Дои	nloading data	- 4 -
5	Filte	r functionality: Domain pages	- 4 -
6	Pub	lication Overview	- 5 -
	6.1	Nordic Market View	- 5 -
	6.2	Nordic Market Graphs	- 7 -
	6.3	Nordic Map	- 8 -
	6.4	Flowbased Domain	- 8 -
	6.5	Max Net Positions	- 9 -
	6.6	Allocation constraints	- 10 -
	6.7	Max Exchanges (Maxbex)	- 10 -
	6.8	Validation Reductions	- 11 -
	6.9	Reference Net Position	- 12 -
7	Wel	Service	- 12 -
8	Pub	lication tool (underlying architecture)	- 13 -
9	Ann	ex	- 14 -
	9.1	Naming Convention for CNECs	- 14 -
	9.2	Naming Convention for RAs	- 14 -



## 1 Nomenclature

# 1.1 Abbreviations

CGM	-	Common grid model
CNE	-	Critical network element
CNEC	-	Critical network element and contingency
MTU	-	Market time unit
PTDF	-	Power transfer distribution factors
RAM	-	Remaining available margin

#### 1.2 Hub definitions (bidding zones)

Short name	Long name	Туре
DK1	Denmark West	Bidding zone
DK2	Denmark East	Bidding zone
FI	Finland	Bidding zone
NO1	Norway 1	Bidding zone
NO2	Norway 2	Bidding zone
NO3	Norway 3	Bidding zone
NO4	Norway 4	Bidding zone
NO5	Norway 5	Bidding zone
SE1	Sweden 1	Bidding zone
SE2	Sweden 2	Bidding zone
SE3	Sweden 3	Bidding zone
SE4	Sweden 4	Bidding zone
NO2_SK	Norway 2 – Skagerak	Virtual bidding zone – Internal
DK1_SK	Denmark West - Skagerak	Virtual bidding zone – Internal
DK1_ST	Denmark West – Storebælt	Virtual bidding zone – Internal
DK2_ST	Denmark East – Storebælt	Virtual bidding zone – Internal
SE3_FS	Sweden 3 – Fennoskan	Virtual bidding zone – Internal
DK1_KS	Denmark West – Kontiskan	Virtual bidding zone – Internal
SE3_KS	Sweden 3 – Kontiskan	Virtual bidding zone – Internal
FI_FS	Finland – Fennoskan	Virtual bidding zone – Internal
SE4_SP	Sweden 4 - SwePol	Virtual bidding zone – External
SE4_NB	Sweden 4 – Nordbelt	Virtual bidding zone – External
SE4_BC	Sweden 4 – Balti Cable	Virtual bidding zone – External
FI_EL	Finland – Estlink	Virtual bidding zone – External
DK1_DE	Denmark West – Germany	Virtual bidding zone – External
DK2_KO	Denmark East – Kontek	Virtual bidding zone – External
DK1_CO	Denmark West – COBRA Cable	Virtual bidding zone – External
NO2_ND	Norway 2 - NorNed	Virtual bidding zone – External

Internal virtual bidding zones repressent end-points of HVDC links with both end-points located in the Nordic capacity calculation region External virtual bidding zones repressent any connection (AC or HVDC) with other capacity calculation regions.

## 2 Background

The Nordic Day-ahead Capacity Calculation Methodology CCM Article 25 – "Publication of data" describes the publication obligations that TSOs need to fulfil. This encompasses the set-up of a dedicated online communication platform, and a handbook (this document) to enable market participants to have a clear understanding of the different published data.

The dedicated online communication platform is named the Nordic Publication Tool and can be accessed via the following link: <a href="https://test-publicationtool.jao.eu/nordic/">https://test-publicationtool.jao.eu/nordic/</a>

#### 3 Navigation

Various publications are structured in multiple pages and listed in the vertical navigation bar. The navigation bar is visible at all times allowing users to easily switch between the different available publications.

Also present in the vertical navigation bar are filters which allow users to:

- Filter for a specific (i) business day and if needed a specific (ii) MTU;
- Filter on specific (iii) hubs or (iv) borders

The filter functionality allows users to target their dataset of interest, and is beneficial in terms of performance.



#### 4 Downloading data

Users are able to download data in two formats (CSV or XML) via the "Download" button on the right upper corner. Users may opt to download data covering a range of days or a single day. If preferred, further filtering option to download specific time period is also available.

A download option for the Border Data Overview page is not planned as it is an overview page.

The main date filter in the navigation bar allows users to select and display data for a given day. Displaying multiple days in the GUI is not foreseen due to large volume of data (especially for domain pages).

The download option allows users additional filter functionality, users have an option to:

- Download a larger dataset (>24 hours)
- Download a shorter dataset (<24 hours)

Max Excha	anges	(MaxB	ex)																					[	Down	load
Date	ATH BE	AINCZ	AT+DE	ATHE	ATH-HR	AT» HU	ATH NL	AT» PL	ATH RO	ATH:51	ATH SK	BE> AT	BE⊁ CZ	BE► DE	BE►FR	BE> HR	BE> HU	.BE>NL	BEP PL	BE⊁ RO	80-51	BE⊁5K	CZ=A1	CZ> 8E	CZ> DE	C2>FR
2021-01-19	-	2958	-	-	101	176	280	18.15	138	100	-00	-	-	494	$_{\rm H^{\pm}}$		1946	-	104	180	- 245	394	304	49	3.00	404
2021-01-19 01:00:00	100	345			104		288	315	1.85	-	-	-	100	1811	-	**	-	-	- 100	-	-	-	-	-	100	-
2021-01-19 02:00:00	-	1964	-	-	101	191	1054	100	143	269			-	-875	398.		36	-100	394	-00-	385		188	-	-	-104
2021-01-19 03:00:00	100	700	-	-	100	343	263	100	1.83	1000	385	1000	-	1014	1011	-	1004	-	185	1444	-	-	- 25.5	478	1000	-
2021-01-19 04:00:00	347	194		3.5	- 2004	397	386	100	4.4.45	2020	3063	1861	4745	100	100		80	-		100	100	-	101		-	100
2021-01-19 05:00:00	-	-	-	-	-	1.000	-	-	Dow	nload				-	385	100		-445	144		361	100	107	-		-
2021-01-19 06:00:00	100	144	-001		344		284	319	2021-0	1-19 00:00	)			100	1000	-	100	-	1781	100	-	-	107	100	-	
2021-01-19 07:00:00	100	5054	1010	**	and i	105	-	-	2021-0	1-20 00:00	2		_	15	100	365		- 29	100	3398	200	340		-	-	-
2021-01-19 08:00:00				-	305	200	366	100	Downloa	d as:	XML		SV .	-	104	1815	241	154	-	144	-	-	-	-	-	-
2021-01-19 09:00:00	1458			-			-	104	1436	1867	100	-	105	-	100	363	200		-			-	1.00	101	- 161	-
2021-01-19 10:00:00	NET	-	-	10.05		area	-	1000	101	3674	-		100	-		104		-	1000	198	1000	(Inter-		-	-94	-
2021-01-19 11:00:00	344	500		**	3676	2004	244	319	1445	3838	-4564		308			-	100.0	-	-	1.875	-	-	MEL	1000		

## 5 Filter functionality: Domain pages

In the Domain pages (Initial, Pre-Final and Final), users are able to filter within two specific columns:

- CNE\_Name
- EIC\_Code



Enter the text to filter in the search field, to execute the filtering either click outside of the search-field text box or by pressing enter, either of the two actions will result in returning your filtered results. The filter selection will not have an effect on the downloading of data, here all the results are downloaded depending on the selected time period.

				·																
IRCH		14T-220	-0-0203AH	NS WITHOUT FILTER: NS WITH FILTER: 18 0 RDWS: 18	40432															
				In	formatio	on on th	ie CNE							Information on t	he CONT	INGEN	CY			
Date	TSO	CNE_Name	EIC_Code	Direction	Hub From	Hub To	Substation From	Substation To	ElementType	FmaxType	TSO	Contingency Name	BranchName	EIC_Code	Hub From	Hub To	Substation From	Substation To	ElementType	
2021-01-19 00:00:00	Apg	[AT-AT] Aschach - St. Peter 2 203A []	14T-220-0-0203AH	NA	AT	AT	Aschach	St. Peter	Line	SEASONAL										
<b>2021-01-19</b> 00:00:00	Apg	[AT-AT] Aschach - St. Peter 2 203A []	14T-220-0-0203AH	NA	AT	AT	Aschach	St. Peter	Line	SEASONAL	Ceps	[CZ-10YCB- GERMANY-8] Prestice - Etzenricht [10YCB- GERMANY-8- CZ] Etzenricht - Prestice 442	Prestice - Etzenricht	10T-CZ- DE-00004Q	cz	DE	Prestice	Etzenricht	Tieline	
											Ad	ditional branch #2:	Etzenricht - Prestice 442	10T-CZ- DE-00004Q	DE	cz	Etzenricht	Prestice	Tieline	
<b>2021-01-19</b> 00:00:00	Apg	[AT-AT] Aschach - St. Peter 2 203A []	14T-220-0-0203AH	NA	AT	AT	Aschach	St. Peter	Line	SEASONAL	Ceps	[CZ-CZ] Prestice - Kocin	Prestice - Kocin	27T-TLI-V432G	cz	cz	Prestice	Kocin	Line	
<b>2021-01-19</b> 00:00:00	Apg	[AT-AT] Aschach - St. Peter 2 203A []	14T-220-0-0203AH	NA	AT	AT	Aschach	St. Peter	Line	SEASONAL	Ceps	[CZ-CZ] Dasny - Slavetice	Dasny - Slavetice	27T-TLI-V433B	CZ	cz	Dasny	Slavetice	Line	
<b>2021-01-19</b> 00:00:00	Apg	[AT-AT] Aschach - St. Peter 2 203A []	14T-220-0-0203AH	NA	AT	AT	Aschach	St. Peter	Line	SEASONAL	Apg	[AT-AT] Kronsdorf - St. Peter 1 431	NA	14T-380-0-00431P	NA	NA	NA	NA		
2021-01-19 00:00:00	Apg	[AT-AT] Aschach - St. Peter 2 203A []	14T-220-0-0203AH	NA	AT	AT	Aschach	St. Peter	Line	SEASONAL	Apg	[AT-AT] Kronsdorf - St. Peter 1 432	Kronsdorf - St. Peter 1 432	14T-380-0-00432N	AT	AT	Kronsdorf	St. Peter	Line	
2021-01-19 00:00:00	Apg	[AT-AT] Aschach - St. Peter 2 203A []	14T-220-0-0203AH	NA	AT	AT	Aschach	St. Peter	Line	SEASONAL	Apg	[AT-AT] St. Peter 2 - St. Peter 1 SPRHU41	St. Peter 2 - St. Peter 1 SPRHU41	14T-38220- SP041V	AT	AT	St. Peter 2	St. Peter 1	Transformer	
<b>2021-01-19</b> 00:00:00	Apg	[AT-AT] Aschach - St. Peter 2	14T-220-0-0203AH	NA	AT	AT	Aschach	St. Peter	Line	SEASONAL	Apg	[AT-AT] St. Peter 2 - St. Peter 1	St. Peter 2 - St. Peter 1 SPRHU42	14T-38220- SP042T	AT	AT	St. Peter 2	St. Peter 1	Transformer	

## 6 Publication Overview

## 6.1 Nordic Market View

	Here you can check the simultaneous execution of trading volumes of the market involved in the Core Market Coupling	Here you can find the maximal trade volumes (MWh/h) which can be physically transported	between two Hubs under the condition that
	Hub-to-Hub	Direction	Direction
	DK1⊨DK2	DK1>DK2 6	03.414 7410.071
	DK1ENO2	DK1=NO2 13	467.99 9196.378
	DK1►SE3	DK1>SE3 2	814.12 4082.986
	DK2ESE4 NaN	DK2>SE4 131	50.072 2624.739
	FI>SE1	FI>SE1 137	41.988 4844.269
	FI>SE3	FI>SE3 79	67.731 1976.166
	N01>N02	NO1►NO2 47	72.564 12107.499
	N01EN03	NO1>NO3 83	37.451 2017.212
Hub-to-Hub	N01EN05 Click here to	NO1>NO5 60	70.722 13127.426
Exchanges	NO1>SE3 test.	NO1>SE3 41	39.721 174.005
	N02⊨N05	NO2►NO5 6	69.473 10241.368
	N03►N04	NO3>NO4 7	36.717 573.778
	NO3≻SE2	NO3=SE2 127	84.866 12995.619
	NO4>SE1	NO4►SE1 136	67.805 8010.609
	NO4≥SE2	NO4►SE2 146	06.473 12201.874
	SE1►SE2	SE1>SE2 3	424.55 3678.726
	SE2>SE3	SE2>SE3 95	16.257 1367.437
	SE3►SE4	SE3►SE4 81	00.307 2964.491
	Hub positions Test 1 Test 2	Expor	t Import
	DK1	DK1	10382 10730
	DK2	DK2	5883 -2326
		FI	-13620 -6714
	N01	NO1	11689 -1511
The to The	NO2	NO2	-7360 8944
Positions	NO3 Click here	NO3	12322 -5213
1 OSIGONS	NO4 to test.	NO4	833 -14462
	N05	NO5	-1704 7397
	SE1	SE1	-8062 12078
	SE2	SE2	765 -7419
	SE3	SE3	-45 11712
	SE4	SE4	-1848 -8015

The Nordic Market View page enables market participants to evaluate the interaction between cross-zonal capacities and cross-zonal exchanges between hubs. It is split in two sections.

**Max Volume:** publication of "Max net position" and "Max exchanges (Maxbex)" for the MTU under consideration. Although this information is published on separate pages too, it is embedded in this page to facilitate the utilisation of the "check volume" part.



**Check Volume**: an interactive section where user can insert volumes of commercial trades (in terms of hub-tohub exchanges or hub net export positions) in order to test their feasibilities. The feasibility is assessed for the selected business day and MTU as explained below.

# (i) <u>Hub-to-hub</u>

To test the feasibility of trades, users can enter for each border the volume of exchanges they are willing to trade (positive values for direction indicated and negative values if the user wants to test in the other direction) and click in the adjacent box (i) to run the test.

The tool will then test whether for each CNEC in the final FB domain the condition RAM ≥SUM ([PTDF[hub-to-hub] x Enteredvalue[hub-to-hub exchanges]) is fulfilled. If the trades are feasible the cell turns green text "Trades feasible" is displayed. If the trades are not feasible, the cell turns red and the text "Constrained Transmission System" is displayed.



	Hub-to-Hub	Test 1
AT►CZ	0	
AT►HU	10000	
AT►SI	2000	
BE►FR	0	
CZ►PL	0	
CZ►SK	-5000	
DE►AT	0	
DE►BE(DC)	0	
DE►CZ	0	Constrained
DE FR	0	System
DE►NL	0	2,555
HR⊾HU	0	
HR►SI	0	
HU►RO	0	
HU►SK	0	
NL►BE	0	
PL►DE	0	
PL►SK	0	

# (ii) <u>Hub positions</u>

Users are able to check the feasibility of Hub positions (import/export positions).

- Test 1: The tool will check if the sum of Hub positions equals to zero (ii).
- $\circ$  Test 2: The tool will check whether the specified Hub positions are feasible or not by checking for each CNEC of the final FB whether the RAM ≥ SUM([PTDF[hub] x Enteredvalue[hubpositions]).

Note: the check on hub-to-hub exchanges and the check on the hub positions are independent from another. This means that the hub positions specified are not taken into account when testing the feasibility of the specified hub-to-hub exchanges, and vice versa.



## 6.2 Nordic Market Graphs



The "Nordic Market Graphs" illustrates for each Nordic hub, a graph with the "Min/Max net pos" and "Max exchanges (Maxbex)" for the 24 MTUs of the selected day. Users are able to de/select specific hubs on top of the page.



## 6.3 Nordic Map

The "Market map" displays the maximum possible bilateral exchanges between each border and the minimum and maximum net positions of each hub on a map representing the Nordic hub configuration. The data corresponds to the MTU and Business Day as selected in the filter from the final flow-based computation.

# Nordic max net positions and bilateral exchanges

#### Test data.Full Disclaimer



#### 6.4 Flowbased Domain

This page contains the flow-based parameters of the selected business day and MTU of the initial flow-based computation.

Description of table columns:

- DeliveryDate the energy delivery date for which the displayed data is valid
- Period the market time unit for which the displayed data is valid
- CNEC Critical Network Element and Contingency:
  - Name Human readable identifier of the CNEC(\*)
  - Type Critical branch type; Branch or Allocation constraint
  - TSO Sending TSO
- Information on the CNE:
  - CNE\_Name Human readable identifier of the network element(\*)
  - EIC\_Code
  - Status Validity of CNEC; "OK" = valid, "OUT" = invalid
  - $\circ$   $\hfill Hub From Hub associated with sending end (according to positive flow direction) of the CNE$
  - Hub To Hub associated with sending end (according to positive flow direction) of the CNE
  - ElementType "CNE" refers to a real network element (e.g., line segment, transformer, ...), "PTC" refers to a group
    of network elements comprising a power transmission corridor. (Note: PTCs may have multiple hubs defined in "Hub
    From" or "Hub To")
- Information on the Contingency:
  - Contingency Name Human readable identifier of the contingency(\*)
  - 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.
  - EIC\_Code



- Presolved "True": The CNEC is constraining the flow-based domain. "FALSE": the CNEC represents a redundant constraint. (e.g., among the two constraints; x < 3 and x < 5, the latter is redundant as it is already captured by the former)</li>
- RAM Remaining available margin, i.e. spare transmission capacity available for trading:

 $RAM = F_{max} - F_{RM} - F_{0,all} - FAV - AAC - AMR + F_{nrao}$ 

- Detailed breakdown of RAM for each CNEC of the final flow-based parameters before pre-solving
  - Imax Calculated maximal operational current limit corresponding to the implicit Fmax value. If Fmax is defined explicitly (e.g PTC) this value is not computed and is then set to zero.
  - o F\_max Maximum allowed flow for the CNEC. Value is stated in MW
  - o FRM Flow reliability margin accounts for uncertainties in flows (e.g. due to forecast uncertainties).
  - F\_ref- Reference flow on the network element, i.e. the flow stated in the common grid model which was used as basis for the flow-based domain.
  - F\_(0,all) Flow on the CNE at zero net-position
  - F\_nrao Impact of remedial actions on flow on the CNE
  - AMR Adjustment for minimum RAM
  - AAC Already allocated capacity on the CNE
  - o IVA Individual validation adjustment provided by TSOs during domain validation.
- PTDFs Power transfer distribution factors:
  - Hub to slack PTDFs Values describe how much the flow on the CNE would increase in response to a 1MW increase of the net-position of a given hub. A list of hubs is provided in Annex 1.2

\*) Note that names of certain network elements may be anonymized in accordance with point (d) of Article 2 of Council Directive 2008/114/EC of 8 December 2008 on the identification and designation of European critical infrastructures and the assessment of the need to improve their protection.

This means that the network element or contingency, in question, has been assigned a new unique and static identifier, which cannot be used to identify the physical location of the asset.

			Information or	n the CO	NTINGE	NCY		
TSO	Contingency Name	BranchName	EIC_Code	Hub From	Hub To	Substation From	Substation To	ElementType
Elia	380.33 [BE- BE] Y- Courcelles (- Bruegel - Drogenbos) 380.33 [BE- BE] Y- Drogenbos (- Bruegel - Courcelles) 380.33	Y-Bruegel (- Courcelles - Drogenbos) 380.33	22T-BE-IN- LI0017	BE	BE	Bruegel	Mekingen	Line
Addit	tional branch #2:	Y-Courcelles (-Bruegel - Drogenbos) 380.33	22T-BE-IN- LI0017	BE	BE	Courcelles	Mekingen	Line
Addit	tional branch #3:	Y-Drogenbos (-Bruegel - Courcelles) 380.33	22T-BE-IN- LI0017	BE	BE	Drogenbos	Mekingen	Line

## 6.5 Max Net Positions

This page displays the minimum and maximum net positions in MW of each hub for each MTU of the day. These indicators are extracted from the vertices of the final flow-based domain given for market coupling.



Max Net	Positio	ons																								D	ownload	
Date	Min ALBE	Min ALDE	Min AT	Min CZ	Min BE	Min DE	Min FR	Min HR	Min HU	Min NL	Min PL	Min RO	Min SI	Min SK	Max ALBE	Max ALDE	Max AT	Max CZ	Max BE	Max DE	Max FR	Max HR	Max HU	Max NL	Max PL	Max RO	Max SI	Max SK
2021-01-19 00:00:00	-1000	-1000	-7853	-11049	-6500	-16984	-9157	-4111	-5872	-4912	-5410	-2059	-4805	-5741	1000	1000	8657	8268	5670	12404	9058	4029	8090	5750	3484	1405	4217	6825
<b>2021-01-19</b> 01:00:00	-1000	-1000	-7847	-11090	-6500	-16978	-9301	-4057	-6039	-4856	-5324	-2239	-4814	-5813	1000	1000	8688	8507	5668	12642	9795	4270	8474	5139	3597	1459	4269	6690
<b>2021-01-19</b> 02:00:00	-1000	-1000	-7930	-11013	-6500	-16813	-9466	-3675	-6188	-4919	-5202	-2362	-4846	-5323	1000	1000	8467	8327	5736	12845	9514	4337	8353	5332	3557	1508	4264	6699
2021-01-19 03:00:00	-1000	-1000	-8044	-10857	-6500	-16324	-10199	-3757	-6367	-4730	-5024	-2442	-4735	-5316	1000	1000	8278	8532	5756	13271	8679	4551	8561	5169	3491	1672	4382	677
2021-01-19 04:00:00	-1000	-1000	-8105	-10907	-6500	-16499	-10371	-3873	-6326	-4593	-5053	-2435	-4725	-5316	1000	1000	8166	8685	5830	14012	8611	4639	8420	5601	3579	1643	4316	674
2021-01-19 05:00:00	-1000	-1000	-8083	-10839	-6500	-16401	-11296	-3543	-6477	-4430	-4946	-2186	-4772	-5775	1000	1000	7431	8560	6085	14354	7802	4284	7709	5750	4209	1720	4290	660
2021-01-19 06:00:00	-1000	-1000	-8312	-10630	-6500	-15159	-11608	-4161	-6467	-4415	-4752	-2149	-4703	-5814	1000	1000	7167	8206	5669	14624	8268	4891	7388	5750	3967	1670	4585	671
2021-01-19 07:00:00	-1000	-1000	-8699	-9997	-6500	-14588	-10122	-4298	-6507	-4104	-4997	-2124	-4499	-5933	1000	1000	6846	7200	5677	12222	9045	5234	7439	4761	3899	1877	4885	6813
2021-01-19 08:00:00	-1000	-1000	-8640	-9912	-6500	-14267	-11276	-4041	-6552	-4106	-5328	-2084	-4401	-5932	1000	1000	6868	7124	5051	13282	8357	5024	7485	5187	3174	1813	5092	6952
2021-01-19 09:00:00	-1000	-1000	-8437	-10028	-6500	-14426	-10082	-4231	-6473	-4299	-5284	-2038	-4518	-5961	1000	1000	6870	7146	5224	12562	9124	5017	7441	4828	3079	1845	4882	6817
2021-01-19 10:00:00	-1000	-1000	-8733	-10025	-6500	-15758	-8808	-4588	-6200	-4591	-5144	-2046	-4601	-6049	1000	1000	6853	7185	5637	11698	10391	5506	7827	4762	3418	1782	4759	6729
2021-01-19 11:00:00	-1000	-1000	-8735	-9947	-6500	-15443	-8720	-4773	-6100	-4587	-5121	-2038	-4573	-5987	1000	1000	6848	7237	5473	12056	10212	5684	7864	4950	3219	1836	4766	6678
2021-01-19 12:00:00	-1000	-1000	-8718	-9921	-6500	-15865	-8561	-4610	-6072	-4541	-5205	-2082	-4597	-6109	1000	1000	6856	7263	5457	11916	10416	5611	7946	5080	3159	1785	5205	6726

## 6.6 Allocation constraints

This page displays the constraints which TSOs have provided for maximum and minimum net positions of a bidding zone, i.e. allocation constraints.

Download

## Allocation Constraints Net Pos

Test data.Full Disclaimer

Date	Limit up DK1	Limit up DK2	Limit up Fl	Limit up NO1	Limit up NO2	Limit up NO2_NK	Limit up NO3	Limit up NO4	Limit up NO5	Limit up SE1	Limit up SE2	Limit up SE3	Limit down DK1	Limit down DK2	Limit down Fl	Limit down NO1	Limit down NO2	Limit down NO2_NK	Limit down NO3	Limit down NO4	Limit down NO5	Limit down SE1	Limi dow SE?
<b>2021-06-02</b> 00:00:00																							
<b>2021-06-02</b> 01:00:00																							
<b>2021-06-02</b> 02:00:00																							
<b>2021-06-02</b> 03:00:00																							
<b>2021-06-02</b> 04:00:00																							
<b>2021-06-02</b> 05:00:00																							
2024 06 02																							

# 6.7 Max Exchanges (Maxbex)

This page displays the maximum bilateral exchanges between two Nordic hubs with the assumption that the other net positions are zero.



## Max Exchanges (MaxBex)

Date	AT► BE	AT►CZ	AT► DE	AT• FR	AT► HR	AT►HU	AT►NL	AT► PL	AT► RO	AT► SI	AT► SK	BE►AT	BE►CZ	BE►DE	BE► FR	BE►HR	BE►HU	BE►NL	BE►PL	BE►RO	BE►SI	BE► SK	CZ►A
2021-01-19 00:00:00	5599	7153	6390	5015	2974	2796	2967	2573	1399	2830	4046	3841	3991	4218	3314	2873	2645	4418	1996	1362	3649	3594	5784
2021-01-19 01:00:00	5599	7473	6390	5013	3234	2773	2983	2573	1407	2830	4156	3936	4120	4321	3400	3116	2624	4380	1996	1370	3650	3698	6141
2021-01-19 02:00:00	5599	7301	6390	5012	3137	2792	3054	2589	1423	2830	2879	4167	4109	4575	3599	3023	2643	4286	2008	1385	3651	3037	5869
2021-01-19 03:00:00	5630	7204	6400	5037	3191	2800	2975	2593	1418	2830	2895	4366	4059	4794	3771	3075	2652	4224	2009	1380	3651	3054	6124
2021-01-19 04:00:00	5687	7514	6391	5135	3334	2807	2908	2600	1446	2830	2863	4461	4216	4898	3853	3211	2657	4150	2014	1408	3651	3016	6185
2021-01-19 05:00:00	5584	6348	6391	5301	2986	2788	2869	2590	1389	2830	3934	4923	4016	5014	4252	2886	2639	4005	2006	1352	3653	3833	6187
<b>2021-01-19</b> 06:00:00	5690	5695	6362	5279	3649	2727	2665	2274	1398	2812	4174	3956	3776	4000	3418	3489	2581	3718	1796	1361	3630	3687	5837
2021-01-19 07:00:00	5443	5153	6256	5151	3677	2705	2481	2401	1378	2622	4258	3918	3783	3772	3450	3885	2576	3216	1866	1343	3379	3669	5220
2021-01-19 08:00:00	5451	5132	6263	5158	3675	2728	2633	2398	1377	2624	4453	3582	3731	3672	3124	3571	2587	3528	1859	1343	3200	3596	5238
2021-01-19 09:00:00	5453	5131	6263	5159	3772	2727	2641	2399	1376	2625	4467	3600	3752	3816	3136	3629	2585	3551	1860	1342	3373	3600	5238
<b>2021-01-19</b> 10:00:00	5447	5128	6255	5155	3677	2713	2602	2392	1374	2624	4544	3703	3764	4130	3225	3734	2573	3500	1856	1340	3374	3660	5233
2021-01-19 11:00:00	5449	5150	6252	5157	3676	2694	2643	2376	1465	2624	4544	3511	3659	3913	3055	3540	2552	3584	1846	1429	3371	3634	5231
2021-01-19 12:00:00	5449	5150	6252	5157	3778	2708	2632	2370	1582	2624	4617	3625	3755	4039	3154	3654	2566	3537	1842	1543	3372	3662	5227
2021-01-19	5444	5152	6253	5153	3817	2673	2754	2412	1652	2625	4650	3738	3755	4166	3252	3767	2544	3866	1870	1610	3374	3663	5224

Download

## 6.8 Validation Reductions

## This page lists CNECs:

• for which capacity has been reduced as an outcome of the validation step op the process, including the justification for this reduction

• that have been added to the final list of CNECs during the validation step of the process, including the justification of the reasons of why adding the CNEC was the only way to ensure operational security

Validation	Reductions			Devriad
81.0 ACM	1000 A BARRA MARKAN AND AND AND AND AND AND AND AND A BARRA MARKAN AND AND AND AND AND AND AND AND AND A			
Date	CREC Name	Returned Branch	CVA (MIN) IVA (M	W) justification
2021-01-16	Y-Marcator (Zoel - Lilo) 380.51 / Doel - Mercator 380.53		4	N/A applied due to results of security analysis by IDIa
2021-01-16 00:00:00	Y-Mercetor ( Ooel - Lillo) 380.51 / Doel - Mercetor 380.53		4	NA applied due to results of security analysis by the
2021-01-16 04:00:00	Essenricht - Prestice 442 / Hradec - Essenricht - Hradec 441		0	NA applied due to results of joint security analysis by 50Herts, Amprion, APG, THG, TTN - 0 MW of the IVA are needed to shift the presolved ONE to the considered vertex of the intermediate domain
2021-01-16 04:00:00	Altheim - Sittling 219 / Altheim - Sittling 220		13	NA applied due to results of joint security analysis by 50Herts, Amprion, APG, THG, TTN - 371 MW of the NA are needed to shift the nonpresolved CNEC to the considered vertex of the intermediate domain
2021-01-16 04:00:00	Rilland - Zandvlet 350 Vihitar30 / PST Zandvlet 2		35	10A applied due to results of joint security analysis by 50Herts, Amprion, APG, THG, TTG, TTG, TTG, TTG, TTG, TTG, TT
2021-01-16 04:00:00	Sereedorf - Zurndorf 439A / Sereedorf - Zurndorf 440A		34	NA applied due to results of plint security analysis by 50Herts, Amprian, APG, THG, TTN - 230 MW of the INA are needed to shift the nonpresolved CNEC to the considered verses of the intermediate domain
2021-01-16 04:00:00	Salzburg- Tauern 231A/ Salzburg - Tauern 232A		0	IVA applied due to results of joint security analysis by 50Hents, Amprion, APG, THG, TTG, TTG- 0 MW of the IVA are needed to shift the presolved CNIC to the considered vertex of the intermediate domain
2021-01-16 04:00:00	Diele - Meeden SCHIIAR2 / Diele - Meeden 380 White Diele - Meeden 18855		50	NA applied due to results of joint security analysis by SDHertz, Amprion, APG, THG, TTN- 0 MW of the NA are needed to shift the presolved ONIC to the considered vertex of the intermediate domain
2021-01-16 04:00:00	Retoritz - Greuch 200C / Uenz 2 - Rosegg 207A		0	NA applied due to results of joint security analysis by 50Herst, Amprian, APG, THG, TTN - 0 MW of the NA are needed to shift the pressived OvEC to the considered vertex of the intermediate domain
2021-01-16 04:00:00	Hessenberg - Weissenbach 223 / Hessenberg - Weissenbach 224		10	RIA applied due to results of joint security analysis by SOHerts, Amprion, APG, TRG, TTG, TTG, 19 MW of the RIA are needed to shift the nonpresolved CREC to the considered vertex of the intermediate domain
2021-01-16 04:00:00	Lienz 2 - Ronegg 267A / Felstritz - Greuth 260C		0	NA applied due to results of joint security analysis by SDHetts, Amprion, APG, THG, TTN - 0 MW of the NA are needed to shift the presolved CNIC to the considered vertex of the intermediate domain
2021-01-16 11:02:00	Buers - Westfol ws (421) / Westfol 1 - Westfol 2 WTRHUH		39	NA applied due to results of joint security analysis by SDHertz, Amprion, APG, THG, TTG, TTG, TG, TH- 0 MW of the NA are needed to shift the presolved CNIC to the considered vertex of the intermediate domain
2021-01-16 11:00:00	Meddar - Vieselbach 448 / Vieselbach - Elsenach 454		29	NA applied due to results of joint security analysis by SOHerts, Amprian, APG, TMG, TTO, 100 MW of the NA are needed to shift the nonpresolved CNEC to the considered verses of the intermediate domain
2021-01-16 11:00:00	Duennohr 1 - Etzessforf 4348 / Duennohr 1 - Kronssforf 433		40	NA applied due to results of joint security analysis by SDHent, Amprion, APG, THG, TTG, TTG, 401 MW of the NA are needed to shift the nonpresolved CNEC to the considered verses of the intermediate domain
2021-01-16 11:00:00	Riland - Zandvlet 300 Vihite/30 / PST Zandvlet 2		79	NA applied due to results of joint security analysis by SDHett, Amprion, APG, THG, TTG, TTG, TGI, MW of the NA are needed to shift the nonpresolved CNEC to the considered verses of the intermediate domain
2021-01-16 11:00:00	Massbracht - Van Bjol: 380 Black/28 / Massbracht - Van Bjol: 380 White/28 Massbracht - Van Bjol: 380 Black/28		56	NA applied due to results of joint security analysis by SOHenz, Amprion, APG, TMG, TTG, TTN - 334 MW of the NA are needed to shift the nonpresolved CNEC to the considered verses of the intermediate domain
2021-01-16 11:00:00	Zumdorf - Gjoer 4398 / Gebolkovo - Gjor Gebolkovo - Gjor		61	NA applied due to results of joint security analysis by SOHerts, Amprian, APG, TMG, TTG, TTN - 857 MW of the NA are needed to shift the nonpresolved CNEC to the considered verses of the intermediate domain
2021-01-16 11:00:00	Massbredts - Van Bjok 380 Black/28 / ALBGrO		73	NA applied due to results of joint security analysis by SOHerts, Amprion, APG, THG, TTO, T37-MIX of the NA are needed to shift the nonpresolved CNEC to the considered verses of the intermediate domain
2021-01-16 11:00:00	Redwitz - Remptendorf 413 / Redwitz - Remptendorf 414 Remptendorf - Redwitz 414		126	NA applied due to results of joint security analysis by SOHertz, Amprion, APG, TMG, TTO- 1324 MW of the NA are needed to shift the nonpresolved CNIC to the considered verses of the intermediate domain
2021-01-16 11:00:00	Etternicht - Prestice 442 / Hradec - Etternicht Etternicht - Hradec 441		0	NA applied due to results of joint security analysis by SOHents, Amprion, APG, THG, TTN - 0 MW of the NA are needed to shift the presolved OvIIC to the considered vertex of the intermediate domain
2021-01-16 18:00:00	Y-Abhelm (Simbach - St. Peter) 233/230 / St. Peter - Abhelm Simbach 234,230 St. Peter - Abhelm Simbach 234,230 St. Peter - Abhelm Simbach 233,230 St. Peter - Abhelm Simbach 234,230 St. Peter		20	16A applied due to results of joint security analysis by 50Hertz, Amprion, APG, THG, TTG, TTG, TTG, TTG, TTG, TTG, TT

The CNEC Name consists of the CNE / Contingency.

Please note that the justification is sent by the TSOs themselves.

The TSOs Energinet, Fingrid, Statnett and Svenska Kraftnät run the individual validation process commonly with a centralised tool thus resulting in common justifications. <sup>1</sup>

<sup>&</sup>lt;sup>1</sup> A short description of the approach of the 4 TSOs: When the pattern of net positions represented by an analysed vertex of the flow-based domain cannot be realised within operational security limits while taking into account all available RAs, the domain must be contracted by applying IVA on a subset of CNECs. Normally, these would be the CNECs that are adjacent to the vertex. But a TSO can apply IVA only on its



#### 6.9 Reference Net Position

**Reference Net Position** 

This page displays the reference net position assumed for creating the CGM for non-Nordic hubs in the common grid model which are the global Net Positions of this hubs.

Date	AL	BA	BG	СН	DK1	ES	GR	π	ME	МК	РТ	RS	TR	UA
<b>2021-01-16</b> 00:00:00	59	1209	259	-889	2330	-1033	388	-1950	-427	-140	-2250	676	-309	44
<b>2021-01-16</b> 01:00:00	100	1177	63	-2129	2490	-1033	308	-1737	-343	-57	-2250	907	-388	35
<b>2021-01-16</b> 02:00:00	120	1223	92	-2817	2500	-586	401	-2188	-350	56	-2250	599	-435	-46
<b>2021-01-16</b> 03:00:00	130	1153	95	-3334	2490	-46	441	-3056	-318	89	-2250	689	-553	-46
<b>2021-01-16</b> 04:00:00	145	1173	210	-3401	2480	-834	257	-3027	-273	69	-2385	845	-503	-46
<b>2021-01-16</b> 05:00:00	92	1261	127	-3232	2500	-748	196	-3104	-277	102	-2385	878	-172	26
<b>2021-01-16</b> 06:00:00	-187	1291	21	-3388	2500	-227	393	-3683	-363	-106	-2370	1018	150	-57
<b>2021-01-16</b> 07:00:00	-277	1276	71	-2454	2480	-706	302	-4828	-232	-214	-1620	1097	150	0
<b>2021-01-16</b> 08:00:00	-329	1385	273	-1316	2127	-1478	317	-3412	-10	-257	-1620	863	150	24
<b>2021-01-16</b> 09:00:00	-344	1305	556	1458	1580	-1750	291	-2293	0	-399	-1348	604	150	31
<b>2021-01-16</b> 10:00:00	-360	1315	555	1623	1641	-2442	273	-1806	5	-389	-656	450	150	34
<b>2021-01-16</b> 11:00:00	-366	1315	535	1425	1672	-2342	250	-2251	26	-403	-756	424	150	34
<b>2021-01-16</b> 12:00:00	-360	1294	444	1312	1717	-2578	333	-631	11	-408	-937	407	150	34
<b>2021-01-16</b> 13:00:00	-350	1295	508	9	1845	-2641	325	-953	-11	-443	-874	502	150	14
<b>2021-01-16</b> 14:00:00	-344	1295	498	-1224	2121	-2531	240	-2154	6	-474	-845	609	150	11
<b>2021-01-16</b> 15:00:00	-344	1345	615	-981	1901	-2367	127	-1820	-80	-453	-1009	648	150	8

## 7 Web Service

On <u>https://test-publicationtool.jao.eu/nordic/api</u>, users will find:

- Endpoint (drop down): Displays the different available publications.
- Request-tab: Displays the parameter structure which will be needed to retrieve the data, as it is a GET-method it will be needed to append the parameters to the URL
- Response-tab: displays how the response will be structured
- Test-tab: what the URL looks like with the provided parameters.

Before using web services, please note the following:

- An authentication token will be required in the future to access web services
- All Timestamp and Date parameters are stored and used in UTC (Coordinated Universal Time)
- All parameter values should be encoded in UTF-8
- All endpoints should be called via the GET-method
- The RESTful-API should be called via HTTPS and returns JSON

own CNECs. When one or more of the CNECs do not belong to the TSO(s) performing the individual validation, the required contraction of the domain can only be achieved by applying IVA on own CNECs that are not adjacent to the vertex. Since these "substitute" CNECs are not presolved, i.e., are "outside" of the FB domain, a first part of the IVA is needed just to shift them into the analysed vertex. Only the remainder of the IVA effectively contracts the domain.



# API

Test data.Full Disclaimer

IDPOINT	
Max Net Posi	ions
max not r oor	
RL	
GET https:	//core-parallelrun-publicationtool.jao.eu/api/core/maxNetPos/index
Request	Response Test Curl
ATE (UTC)	
2021-06-01T2	2:00:00.000Z (you can change the date in the menu on the left)
EQUESTED URL (GET	
ttps://test-publi	cationtool.jao.eu/nordic/api/maxNetPos/index?date=2021-06-01T22%3A00%3A00.000Z
ESPONSE HEADERS	
"content_type	". "application/icon. charcet_utf_0"
"content-type	": "application/json; charset=utf-8",
"content-type "date": "Tue,	": "application/json; charset=utf-8", 29 Jun 2021 11:36:06 GMT",
"content-type "date": "Tue, "transfer-end	": "application/json; charset=utf-8", 29 Jun 2021 11:36:06 GMT", oding": "chunked",
"content-type "date": "Tue, "transfer-end "x-frame-opti	": "application/json; charset=utf-8", 29 Jun 2021 11:36:06 GMT", oding": "chunked", ons": "DENY"
"content-type "date": "Tue, "transfer-end "x-frame-opti	": "application/json; charset=utf-8", 29 Jun 2021 11:36:06 GMT", oding": "chunked", ons": "DENY"
"content-type "date": "Tue, "transfer-end "x-frame-opti	": "application/json; charset=utf-8", 29 Jun 2021 11:36:06 GMT", oding": "chunked", ons": "DENY"
"content-type "date": "Tue, "transfer-end "x-frame-opti	": "application/json; charset=utf-B", 29 Jun 2021 11:36:06 GMT", oding": "chunked", ons": "DENY"
"content-type "date": "Tue, "transfer-end "x-frame-opti ESPONSE CONTENT	": "application/json; charset=utf-8", 29 Jun 2021 11:36:06 GMT", oding": "chunked", ons": "DENY"
"content-type "date": "Tue, "transfer-end "x-frame-opti ESPONSE CONTENT "maxNetPos":	": "application/json; charset=utf-8", 29 Jun 2021 11:36:06 GMT", oding": "chunked", ons": "DENY" [
<pre>"content-type "date": "Tue; "transfer-end "x-frame-opti "maxNetPos": { "id": 1</pre>	": "application/json; charset=utf-8", 29 Jun 2021 11:36:06 GMT", oding": "chunked", ons": "DENY" [
<pre>"content-type "date": "Tue; "transfer-end "x-frame-opti ESPON SE CONTENT "maxNetPos": { "id": 1, "dateTime"</pre>	": "application/json; charset=utf-B", 29 Jun 2021 11:36:06 GMT", oding": "chunked", ons": "DENY" [ [ [ ] ] [ ] ] ] ] ] ] ] ] ] ] ] ] ]
<pre>"content-type "date": "Tue, "transfer-end "x-frame-opti ESPON SE CONTENT "maxNetPos": { "id": 1, "dateTime "mioPK1"</pre>	<pre>": "application/json; charset=utf-8", 29 Jun 2021 11:36:06 GMT", oding": "chunked", ons": "DENY" [ Utc": "2021-06-02T00:00:00+02:00", 11245</pre>
<pre>"content-type "date": "Tue, "transfer-end "x-frame-opti ESPONSE CONTENT "maxNetPos": { "id": 1, "dateTime "minDK1" "minDK2"</pre>	<pre>": "application/json; charset=utf-8", 29 Jun 2021 11:36:06 GMT", oding": "chunked", ons": "DENY" [ Utc": "2021-06-02T00:00:00+02:00", 11345, 6075</pre>
<pre>"content-type "date": "Tue; "transfer-end "x-frame-opti ESPONSE CONTENT "maxNetPos": { id": 1, "dateTime "minDK2":</pre>	<pre>": "application/json; charset=utf-8", 29 Jun 2021 11:36:06 GMT", oding": "chunked", ons": "DENY" [ Utc": "2021-06-02T00:00:00+02:00", 11345, 6975, 12715</pre>
<pre>"content-type "date": "Tue, "transfer-end "x-frame-opt] ESPONSE CONTENT "maxNetPos": { "id": 1, "dateTime "minDK1": "minDK2": "minFI": "minFI": "minFI":</pre>	<pre>": "application/json; charset=utf-B", 29 Jun 2021 11:36:06 GMT", oding": "chunked", ons": "DENY" [ Utc": "2021-06-02T00:00:00+02:00", 11345, 6975, 12715, 7906</pre>
<pre>"content-type "date": "Tue, "transfer-end "x-frame-opti ESPON SE CONTENT "maxNetPos": { "id": 1, "dateTime "minDK1": "minDK1": "minN01"; "minN01"; "minN01";</pre>	<pre>": "application/json; charset=utf-8", 29 Jun 2021 11:36:06 GMT", oding": "chunked", ons": "DENY" [ Utc": "2021-06-02T00:00:00+02:00", 11345, 6975, 12715, -7896, 44327</pre>
<pre>"content-type "date": "Tue, "transfer-end "x-frame-opt!" ESPONSE CONTENT "maxNetPos": { "id": 1, "dateTime "minDK1": "minFI": "minN01": "minN02" "    "ender2"</pre>	<pre>": "application/json; charset=utf-8", 29 Jun 2021 11:36:06 GMT", oding": "chunked", ons": "DENY" [ Utc": "2021-06-02T00:00:00+02:00", 11345, 6975, 12715, -7896, 14337, 007</pre>
<pre>"content-type "date": "Tue, "transfer-end "x-frame-opt!" ESPONSE CONTENT "maxNetPos": { "id": 1, "dateTime "minDK2": "minNC1": "minNO1": "min</pre>	<pre>": "application/json; charset=utf-8", 29 Jun 2021 11:36:06 GMT", oding": "chunked", ons": "DENY" [ Utc": "2021-06-02T00:00:00+02:00", 11345, 6975, 12715, -7896, 14337, -907, 2000</pre>
<pre>"content-type "date": "Tue, "transfer-end "x-frame-opt;" ESPON SE CONTENT "maxNetPos": { "id": 1, "dateTime "minDK1" "minDK1" "minNO1" "minNO2" "minNO2" "minNO3" "minNO3" "minNO4"</pre>	<pre>": "application/json; charset=utf-8", 29 Jun 2021 11:36:06 GMT", oding": "chunked", ons": "DENY" [ Utc": "2021-06-02T00:00:00+02:00", 11345, 6975, 12715, -7896, 14337, -907, 2208, 0000</pre>
<pre>"content-type "date": "Tue, "transfer-end "x-frame-opt!" ESPON SE CONTENT "maxNetPos": { "id": 1, "dateTime "minDK1": "minN01"; "minN03"; "minN03"; "minN04"; "minN04"; "minN04"; "minN054"; "minN054"; "minN054"; "minN054"; "minN054"; "minN054"; "minN054"; "minN054"; "minN054"; "minN054"; "minN054"; "minN054"; "minN054"; "minN054"; "minN054"; "minN054"; "minN054; "minN054"; "minN054;</pre>	<pre>": "application/json; charset=utf-8", 29 Jun 2021 11:36:06 GMT", oding": "chunked", ons": "DENY" [ Utc": "2021-06-02T00:00:00+02:00", 11345, 6975, 12715, -7896, 14337, -907, 2208, 2923,</pre>
<pre>"content-type "date": "Tue, "transfer-end "x-frame-opt!" ESPONSE CONTENT "maxNetPos": { "id": 1, "dateTime "minDK1": "minN01": "minN02": "minN02": "minN04" "minN05": "minN05": "minSE1"</pre>	<pre>": "application/json; charset=utf-8", 29 Jun 2021 11:36:06 GMT", oding": "chunked", ons": "DENY" [ Utc": "2021-06-02T00:00:00+02:00", 11345, 6975, 12715, -7896, 14337, -907, 2208, 2923, -9281, -9281,</pre>
<pre>"content-type "date": "Tue, "transfer-end "x-frame-opti" ESPONSE CONTENT "maxNetPos": { "id": 1, "dateTime "minDK2": "minNC1": "minNO1": "minNO1": "minNO1": "minNO1": "minNO3": "minNO5": "minSE1": "minSE1": "minSE2"</pre>	<pre>": "application/json; charset=utf-8", 29 Jun 2021 11:36:06 GMT", oding": "chunked", ons": "DENY" [ Utc": "2021-06-02T00:00:00+02:00", 11345, 6975, 12715, -7896, 14337, -907, 2208, 2923, -9281, 10291,</pre>
<pre>"content-type "date": "Tue, "transfer-end "x-frame-opt!" ESPON SE CONTENT "maxNetPos": { "id": 1, "dateTime "minDK1": "minN01": "minN01": "minN03": "minN03": "minN03": "minN03": "minN03": "minN03": "minSE1": "minSE1": "minSE3":</pre>	<pre>": "application/json; charset=utf-8", 29 Jun 2021 11:36:06 GMT", oding": "chunked", ons": "DENY" [ Utc": "2021-06-02T00:00:00+02:00", 11345, 6975, 12715, -7896, 14337, -907, 2208, 2923, -9281, 10291, 14947,</pre>

# 8 Publication tool (underlying architecture)

The publication tool website is developed with a .netCore backend and a react frontend, communicating via rest-api.

A .netCore service runs on a separate server saving all data retrieved via FTP into an SQL-database.



9 Annex

9.1 Naming Convention for CNECs \*\*\*To be defined\*\*\*

9.2 Naming Convention for RAs \*\*\*To be defined\*\*\*