

Core FB MC Operational KPI report

March 2024



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KPI 1: Average maximum AMR per CNE (Top 10)

KPI 2: Average maximum
AMR per TSO



CNE	Average Maximum AMR (MW)	AMR as % of Fmax
[D7-D2] Meppen - Y Niederlangen [OPP] [D2]	556.64	27.93%
[D7-D2] Hanekenfaehr - Doerpen West [OPP] [D2]	524.82	26.33%
[D8-D8] Lauchstaedt - Vieselbach 472 [DIR]	520.93	20.89%
[D8-D8] Lauchstaedt - Vieselbach 471 [DIR]	511.77	17.18%
[BE-BE] Y-Doel (-Lillo - Mercator) 380.51 [OPP]	495.60	32.38%
[D8-D8] Baerwalde - Schmoelin 552 [DIR]	470.39	18.86%
[D8-D8] Baerwalde - Schmoelln 551 [DIR]	470.39	18.86%
[D8-D8] Pulgar - Vieselbach 589 [DIR] [D8]	468.87	26.85%
[D8-D8] Pulgar - Vieselbach 590 [DIR] [D8]	468.87	26.85%
[D2-D2] Doerpen West - Y Niederlangen [DIR]	467.38	23.46%



TSO	Average maximum AMR per TSO	TSO	Average maximum AMR per TSO
AT	75.06	NL	335.91
BE	526.49	PL	47.39
CZ	385.19	RO	54.14
D2	702.43	SI	43.19
D4	399.36	SK	169.02
D7	602.85		
D8	756.24		
FR	105.49		
HR	7.89		

112.64

ΗU



KPI 3: Share of MTUs with intervention per TSO





Distinct MTUs

TSO	Share of distinct MTUs with IVA	Distinct MTUs with IVA	тѕо	Share of distinct MTUs with IVA
AT	0.13%	1	NL	0.00%
BE	0.40%	3	PL	0.27%
CZ	0.00%	0	RO	4.04%
D2	0.00%	0	SI	7.54%
D4	0.00%	0	SK	0.00%
D7	0.00%	0		
D8	0.00%	0		
FR	59.49%	442		
HR	3.77%	28		
HU	0.00%	0		





KPI 4a: Average IVA applied for each CNE affected by TSO intervention





KPI 4b: Average relative IVA applied for each CNE affected by TSO intervention













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KPI 6b: Virtual margins at market balance SK

KPI 7: Non-Core exchanges DC delta flow

KPI 8: NRAO – Applied Remedial Action

In the following plots, the relative time share relates to the hours labeled 'NRAO Ran and Applied RAs'.

KPI 8: Relative Time Share of Applied RAs, by TSO, Type and Mode

KPI 8: Relative Time Share of Applied RAs, by TSO, Type and Mode Relative Time Share of Applied PSTs in Preventive Mode

KPI 8: Relative Time Share of Applied RAs, by TSO, Type and Mode Relative Time Share of Applied PSTs in Curative Mode

KPI 8: Relative Time Share of Applied RAs, by TSO, Type and Mode Relative Time Share of Applied Topological RAs in Preventive Mode

KPI 8: Relative Time Share of Applied RAs, by TSO, Type and Mode Relative Time Share of Applied Topological RAs in Curative Mode

The graph below shows the distribution of CNECs which are the most limiting from NRAO perspective, these are the CNECs with lowest relative RAM per MTU

As expected, there is redistributing of the most limiting CNECs. This is because the application of Remedial Actions does not eliminate flows but re-routes, reducing the flows on some limiting CNECs and increasing the load on others, which at the end impacts also the RAM values.

KPI 10: Average variation of relative RAM before and after NRAO

The graph shows average values of relative RAM before and after NRAO, per TSO on the most limiting CNECs from NRAO perspective. Selected CNECs before RAO are the same as after RAO, and average computed for MTUs when was used further in the process.

- Most limiting element from NRAO perspective is the one which has the lowest relative RAM per MTU
- To determine value of relative RAM, the following formula was used

$$RAM_{rel} = \left\{ egin{array}{c} RAM_{nrao} \ \overline{\Sigma_{(A,B)\in neighbouring \, Core \, bidding \, zones \, pairs} |PTDF_{A o B, nrao}|} \,, \ if \ RAM_{nrao} \geq 0 \ RAM_{nrao}, \ if \ RAM_{nrao} < 0 \end{array}
ight.$$

RelRAM comparison before/after RAO

KPI 11: Most often presolved CNEs (top 20)

CNE Å	Distinct hours CNE was presolved	Count of presolved CNECs	Avg RAM/Fmax	Min RAM/Fmax	Max RAM/Fmax 🖕	Max z2zPTDF	Max sum z2zPTDF
[CZ-SK] Sokolnice - Stupava [DIR] [CZ]	743	743	79.76%	64.79%	94.66%	0.3239	1.3062
[RO-RO] TR Rosiori 400/220 1 [DIR]	743	745	41.74%	19.00%	81.50%	0.1447	0.2687
[CZ-SK] Sokolnice - Krizovany [OPP] [CZ]	743	743	94.89%	80.38%	110.25%	0.3257	1.3406
[SK-SK] Gabcikovo - P.Biskupice [DIR]	742	742	79.93%	59.87%	103.54%	0.2711	1.0545
[SI-HU] 400 kV Cirkovce - Hevitz [OPP] [SI]	739	1770	78.14%	53.11%	109.20%	0.2387	1.0524
[AT-AT] Westtirol 1 - Westtirol 2 WTRHU41 [OPP]	737	1546	39.04%	19.80%	101.50%	0.3248	1.4095
[CZ-SK] Liskovec - P. Bystrica [OPP] [CZ]	735	735	97.87%	72.62%	119.08%	0.0803	0.2797
[SK-SK] V.Dur - Levice 1 [DIR]	735	735	48.89%	39.09%	61.66%	0.2467	1.0529
[SK-HU] Gabcikovo - Gonyu [DIR] [HU]	733	735	85.07%	65.01%	110.53%	0.273	0.9299
[HU-HU] Gonyu - Gyor [OPP]	733	824	102.32%	66.14%	139.35%	0.2604	1.5221
[HU-HU] Gonyu - Gyor [DIR]	733	1088	78.31%	59.21%	117.47%	0.267	1.5221
[SI-HU] 400 kV Cirkovce - Hevitz [DIR] [SI]	732	1471	101.23%	70.78%	126.69%	0.2387	1.0524
[SK-HU] Levice - God [DIR] [HU]	730	933	67.65%	57.00%	80.66%	0.3182	1.1796
[CZ-D8] Hradec - Rohrsdorf 445 [OPP] [D8]	715	715	53.61%	38.66%	111.28%	0.3046	1.3356
[HR-SI] 220kV Pehlin - Divaca [DIR] [HR]	703	720	61.22%	32.35%	89.84%	0.1916	0.4902
[HR-SI] 220kV Pehlin - Divaca [OPP] [HR]	703	1332	105.97%	72.73%	148.40%	0.1916	0.4902
[AT-SI] Obersielach - Podlog 247 [OPP] [AT]	693	1304	92.08%	20.73%	147.06%	0.1789	0.5639
[AT-D2] St. Peter 2 - Pleinting 258 [DIR] [AT]	683	913	50.77%	19.63%	103.03%	0.1649	0.6182
[BE-FR] Achene - Lonny 380.19 [OPP] [BE]	682	1491	93.47%	63.06%	137.74%	0.3555	0.8332
[HU-AT] Gyor - Zurndorf [OPP] [HU]	677	1119	82.50%	56.57%	109.38%	0.353	1.5145

Note 1: The shown z2zPTDF values do not correspond to the maximum zone-to-zone PTDFs according to equation 5 of the Day-ahead CCM and hence are not the ones used for the CNEC Selection. The z2zPTDFs are calculated only between neighbouring BZs. See KPI reading guide on JAO.

Note 2: RAM for Core exchanges can be higher than 100% due to the relieving effect of Fuaf: RAM_Core = CEP_target - Fuaf. So if Fuaf is very negative you can get above 100%.

KPI 12: Most limiting CNEs (top 20)

CNE	Distinct hours CNE has shadow price	Count of CNECs with shadow price	Max shadow price [€/MW] ▼	Avg RAM/Fmax 🛓	Min RAM/Fmax 🍦	Max RAM/Fmax 🛔	Max z2zPTDF
[D7-FR] Ensdorf - Vigy VIGY1 N [OPP] [FR]	315	319	359.85	33.72%	0.00%	72.13%	0.237
[BE-FR] Achene - Lonny 380.19 [OPP] [BE]	88	89	110.81	87.80%	63.25%	107.92%	0.353
[NL-D2] Meeden-Diele 380 Z [OPP] [NL]	77	77	301.52	26.67%	19.94%	67.62%	0.2781
[D8-D8] Neuenhagen - Vierraden 304 [DIR] [D8]	72	72	573.4	48.51%	36.69%	68.11%	0.1071
[D8-D8] Pasewalk - Vierraden 306 [DIR]	72	72	746.13	45.13%	31.18%	63.31%	0.1111
[RO-RO] TR Rosiori 400/220 1 [DIR]	69	69	353.11	32.96%	19.00%	69.00%	0.1447
[RO-RO] Resita - Timisoara c1 [DIR]	66	66	877.38	31.24%	20.05%	56.68%	0.139
[D8-PL] Mikulowa PST1 [DIR] [PL]	45	45	100.77	54.35%	47.87%	70.87%	0.4393
[NL-NL] Krimpen a/d IJssel-Geertruidenberg 380 W [DIR]	38	38	467.16	34.96%	19.95%	66.58%	0.4452
[FR-D7] Vigy - Ensdorf VIGY1 N [DIR] [D7]	37	42	314.96	42.98%	19.90%	66.24%	0.2283
[NL-BE] PST Van Eyck 2 [DIR] [BE]	37	39	50.29	96.02%	78.87%	120.32%	0.3205
[SK-HU] Levice - God [DIR] [HU]	31	31	7.04	67.33%	60.75%	73.74%	0.253
[BE-BE] Y-Mercator (-Doel - Lillo) 380.51 [DIR]	27	27	125.04	43.89%	25.53%	84.14%	0.3214
[NL-D2] Meeden-Diele 380 W [OPP] [NL]	26	26	294.67	26.82%	19.94%	54.80%	0.2711
[FR-D7] Vigy - Ensdorf VIGY2 S [DIR] [D7]	26	26	101.83	41.13%	19.96%	67.30%	0.2091
[AT-AT] Zell am Ziller 1 - Zell am Ziller 2 ZZRHU41 [DIR]	24	24	267.35	24.98%	19.67%	46.58%	0.2129
[CZ-D8] Hradec - Rohrsdorf 445 [OPP] [D8]	22	22	225.24	49.20%	43.53%	64.83%	0.2853
[NL-NL] Wateringen - Bleiswijk 380 Z [DIR]	20	20	343.43	33.89%	24.25%	44.59%	0.2074
[NL-D7] Maasbracht - Siersdorf SELFK SW [DIR] [D7]	19	19	152.58	54.76%	43.84%	69.11%	0.269
[NL-BE] Rilland-Zandvliet 380 G [DIR] [NL]	18	18	142.57	67.88%	40.08%	100.09%	0.4753

Note 1: The RAM values (expressed as % of Fmax) should not be interpreted as "the capacities offered by the Core TSOs to the market coupling". Indeed, since the introduction of Ext LTA inclusion Euphemia performs an optimization where it takes a portion of the FB domain and a portion of the LTA domain to maximize welfare. The RAM value shown in this KPI report correspond to the "portion of the FB domain" resulting from this optimization Euphemia performs an optimization where it takes a Example:

• RAM = 500MW

• Portion of FB Domain = 40%

• RAM offered by Core TSOs = 400mW/0.4 = 1250MW

KPI 13 : Allocation Constraints - Poland

