CORESO Engineers ***North :*** CARNANDET Benoit ***South :*** GOSSIAUX Alain	**Day Ahead report for** **30 January 2018**

Security Levels:

CWE: some constraints detected (Tennet DE & Amprion) require topological action and redispatching in Germany.

CEE: some N state overloads detected in Tennet DE grid and many constraints detected require redispatching, topological actions and cancellation of outage in 50Hertz area.

CSE: A constraint is detected on Sils-Soazza requiring a 2-node topology in Sils to solve. Other constraints detected in RTE which require some preventive taps on La Praz PST but remain manageable with classical remedial actions.

Key overall conditions

Load & Generation margin forecast			Main generating units connected to the grid in DACF				
ELIA			Elia	Doel	Pmax (MW)	1000	**1**	1900
						450	2	
Peak load [MW]	11600	18:00		Tihange		1000	2	2900
						450	2	
Generation Margin	Sufficient			Coo		230	3	1170
						160	3	
			50HzT	Rostock	Pmax (MW)	530	1	530
				Janschwalde		500	6	3000
				Boxberg		500	2	1900
						900	**1**	
				Schw. Pumpe		800	2	1600
				Lippendorf		920	2	1840
RTE			RTE	Gravelines	Pmax (MW)	900	6	5400
Peak load [MW]	75800	19:00		Chooz		1500	2	3000
Generation Margin	Sufficient			Cattenom		1300	**3.5**	4550
				Fessenheim		900	**1**	900
NATIONAL GRID (UK time)				Penly		1300	2	2600
Peak load [MW]	45000	18:00		Paluel		1300	**2.5**	3250
Generation Margin	Sufficient			Nogent s/ Seine		1300	2	2600
				Bugey		900	4	3600
TERNA				St Alban		1300	2	2600
Peak load [MW]	46756	18:30		Cruas		900	**3**	2700
Generation Margin	Sufficient			Tricastin		900	4	3600

Generation margin legend:

Green: Sufficient margin available. No risk for need of inter-TSO solicitation due to margin issues.

Orange: Tight margin available. Low risk for need of inter-TSO solicitation due to margin issues.

Red: Insufficient margin available. High risk for need of inter-TSO solicitation due to margin issues.

Comments:

CWE / CEE

Creos : -2 taps in Schifflange PST between 04:00 - 15:00 to reduce LU-> BE flows.

RTE : Cattenom 3 & Paluel 1 in unplanned outage should come back in the evening.

Tennet DE : some 380kV lines in N state overload maximun detected at 12:30 (128% in 380kV line Sottrum Landerbergen).

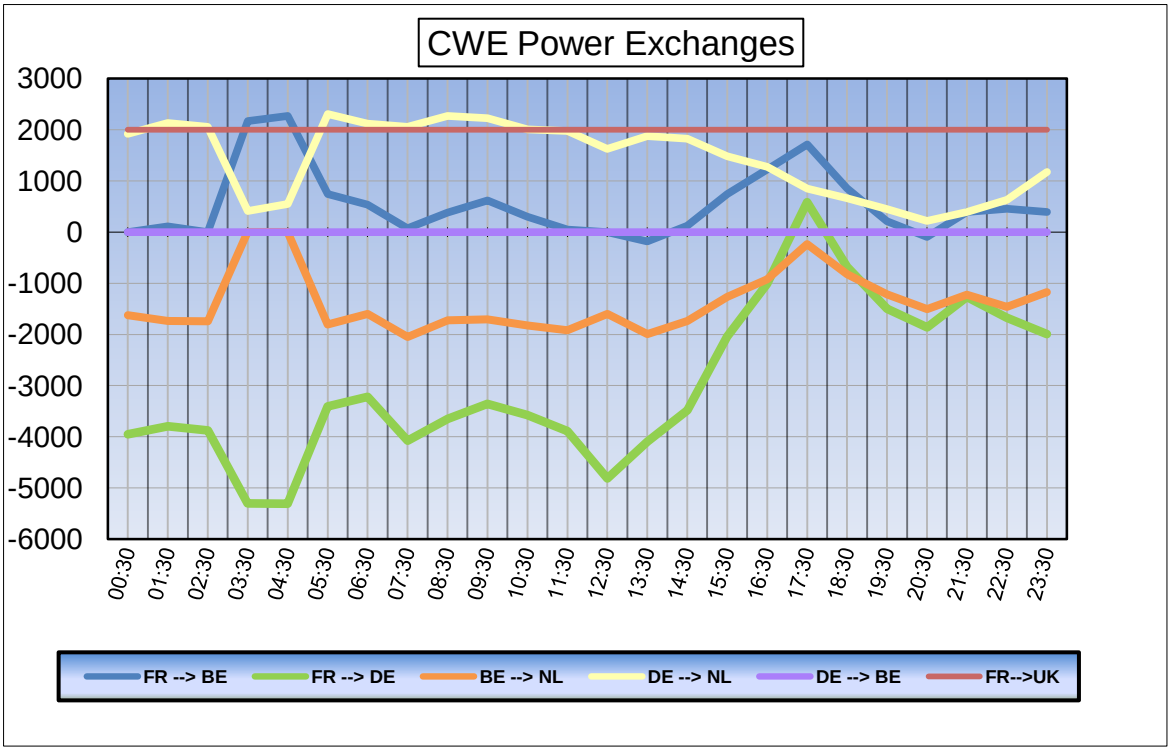
CSE

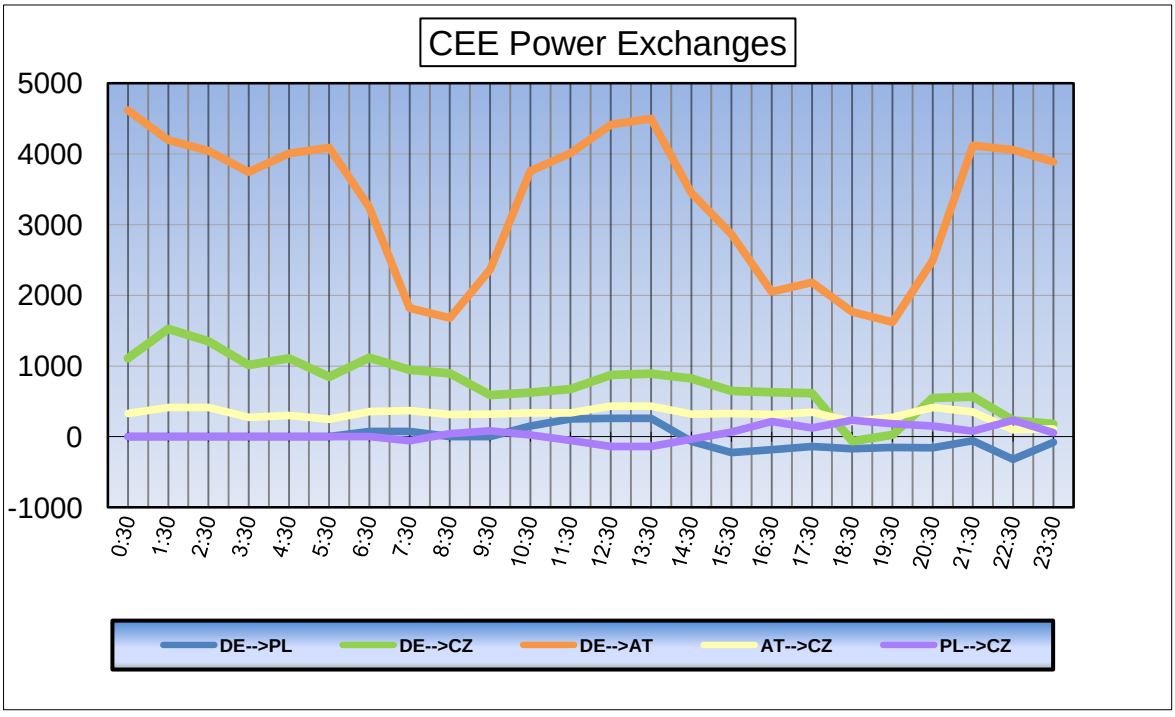
Outages table

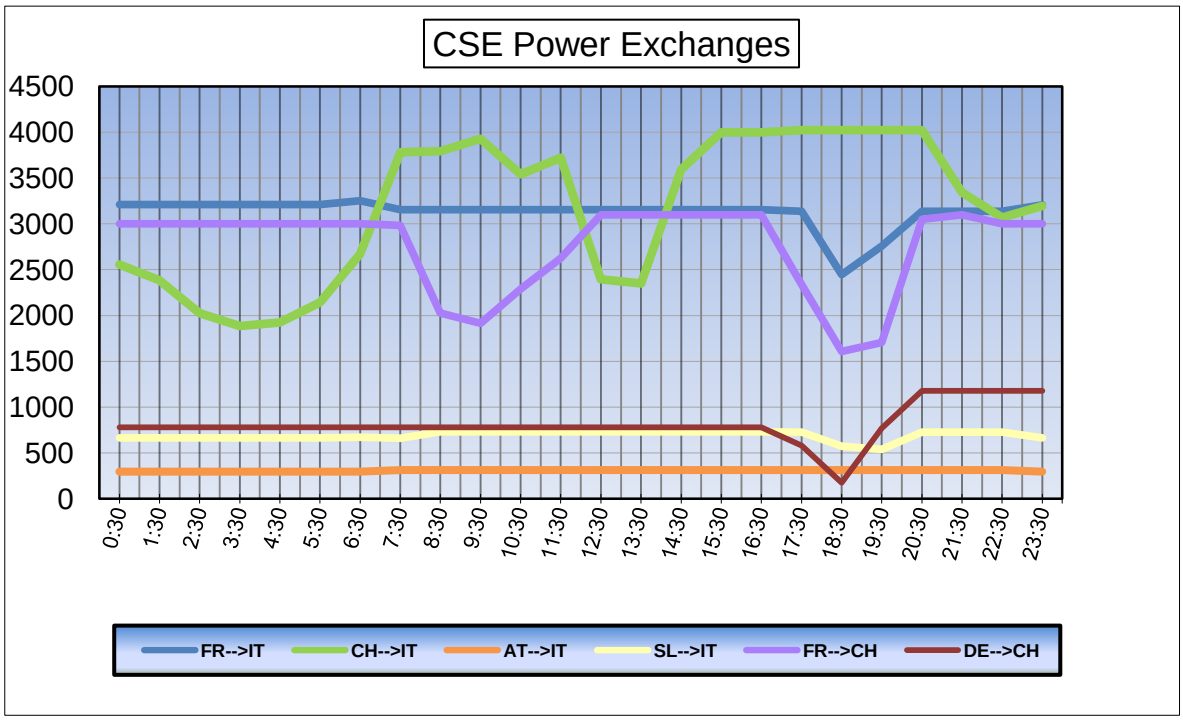
OUTAGES					
Owner	Type of element	Line name	start	end	Comments
50HzT	Hydro.Gen	GOLDISTHAL _ Unit A 400 kV	30/01/2018	30/01/2018	265 MW
50HzT	Hydro.Gen	GOLDISTHAL _ Unit B 400 kV	30/01/2018	30/01/2018	265 MW
50HzT	Hydro.Gen	GOLDISTHAL _ UNIT C 400 kV	27/01/2018	30/01/2018	265 MW
50HzT	Hydro.Gen	MARKERSBACH _ Unit D 400 kV	28/09/2017	27/04/2018	160 MW
50HzT	Line	BERTIKOW _ NEUENHAGEN 303 220 kV	29/01/2018	31/01/2018	
50HzT	Line	EULA _ Wolkramhausen 357 220 kV	06/10/2017	16/03/2018	
50HzT	Line	HAGENWERDER _ SCHMÖLLN 554 400 kV	21/01/2018	14/02/2018	
50HzT	Line	HAMBURG Nord _ HAMBURG Ost 961 400 kV	29/01/2018	02/02/2018	Daily
50HzT	Line	HAMBURG Nord _ HAMBURG Ost 962 400 kV	29/01/2018	23/02/2018	
50HzT	Line	LUBMIN _ ALTENTREPTOW/SOUTH 476 380 kV	30/01/2018	30/01/2018	
50HzT	Line	LUBMIN _ WIKINGER 281 220 kV	28/01/2018	04/02/2018	
50HzT	Line	Ludershagen _ BENTWISCH 318 220 kV	30/01/2018	30/01/2018	
50HzT	Line	RAGOW _ WUSTERMARK 521 400 kV	28/01/2018	04/02/2018	
50HzT	Line	STENDAL WEST _ WOLMIRSTEDT 489 400 kV	30/01/2018	01/02/2018	Daily
50HzT	Line	WOLMIRSTEDT _ WUSTERMARK 494 400 kV	28/01/2018	04/02/2018	
50HzT / CEPS	Line	HRADEC VYCHOD _ ROHRSDORF 445 400 kV	29/01/2018	02/02/2018	
50HzT / PSE	Line	KRAJNIK _ VIERRADEN 507 225 kV	22/06/2016	31/05/2018	Long term outage
50HzT / PSE	Line	KRAJNIK _ VIERRADEN 508 225 kV	22/06/2017	31/05/2018	Long term outage
AMP / TEN DE	Line	NEHDEN _ TWISTETAL W 400 kV	08/01/2018	23/02/2018	daily
AMPRION	Line	NEHDEN _ ARPE Sud 400 kV	15/01/2018	02/02/2018	
AMPRION	Line	NEHDEN _ UENTROP Sauerland Nord 400 kV	15/01/2018	02/02/2018	daily
APG	Line	ST PETER _ Salzburg 455 220 kV	29/01/2018	02/02/2018	
CEPS	Line	KOCIN _ REPORYJE 1 400 kV	29/01/2018	15/02/2018	
CEPS / SEPS	Line	NOSOVICE _ VARIN 404 400 kV	15/01/2018	02/03/2018	
CREOS	Line	BERTRANGE _ SCHIFFLANGE West 220 kV	08/01/2018	02/03/2018	
ELES	Line	BERICEVO _ PODLOG 225 kV	30/01/2018	30/01/2018	
ELES / HOPS	Line	KRSKO _ TUMBRI 2 400 kV	22/01/2018	02/03/2018	
ELIA	Line	GEZELLE _ MAERLANT 109 400 kV	25/01/2018	09/02/2018	
ELIA	Line	GEZELLE _ STEVIN 111 400 kV	19/09/2017	02/03/2018	
ELIA	Line	GEZELLE _ STEVIN 112 400 kV	19/09/2017	02/03/2018	
ELIA	Line	MAERLANT _ GEZELLE 110 400 kV	25/01/2018	09/02/2018	
ELIA	Nuc.Gen	DOEL _ Unit 3 (1000MW) 400 kV	23/09/2017	16/04/2018	Forced outage
ELIA / TEN NL	Tie - line	MAASBRACHT _ VANEYCK 28 400 kV	29/01/2018	30/01/2018	
HOPS	Line	BRINJE _ KONJSKO 220 kV	29/01/2018	31/01/2018	
PSE	Line	CZARNA _ PASIKUROWICE 400 kV	27/01/2018	02/02/2018	
PSE	Line	POLANIEC _ TARNOW 400 kV	22/01/2018	02/02/2018	daily
PSE	Line	TUCZNAWA _ RZESZOW 400 kV	29/01/2018	02/02/2018	daily
RTE	Line	BOIS TOLLOT _ GENISSIAT 1 400 kV	29/01/2018	31/01/2018	
RTE	Line	CHEVALET _ ARGOEUVES 1 380 kV	24/01/2018	23/02/2018	

Owner	Type of element	Line name	start	end	Comments
RTE	Line	COULANGE _ PIVOZ CORDIER 2 400 kV	29/01/2018	02/02/2018	
RTE	Line	GENISSIAT _ VIELMOULIN 1 400 kV	29/01/2018	23/02/2018	
RTE	Nuc.Gen	CRUAS _ Unit 2 (900MW) 400 kV	02/12/2017	30/03/2018	
RTE	Nuc.Gen	FESSENHEIM _ Unit 2 (900MW) 400 kV	01/01/2017	15/03/2018	
RTE	Nuc.Gen	PALUEL _ Unit 2 (1300MW) 400 kV	01/08/2015	15/04/2018	
S.GRID	Line	CHAMOSON _ MUHLEBERG "Sanetsch 2" 220 kV	24/10/2017	30/03/2018	
S.GRID	Line	CHATELARD _ NANT DE DRANCE 400 kV	16/01/2018	27/04/2018	
S.GRID	Line	CHATELARD _ NANT DE DRANCE 400 kV	16/01/2018	27/04/2018	
S.GRID	Line	HANDECK _ MOREL 220 kV	17/01/2018	06/02/2018	
S.GRID	Line	HANDECK _ PECCIA 220 kV	30/01/2018	30/01/2018	
S.GRID	Line	LIMMERN _ TIERFEHD 1 400 kV	28/01/2018	31/07/2018	
S.GRID	Nuc.Gen	BEZNAU _ BEZNAU G11 220 kV	13/03/2015	28/02/2018	182 MW
S.GRID	Nuc.Gen	BEZNAU _ BEZNAU G12 220 kV	13/03/2015	28/02/2018	182 MW
S.GRID	Transformer	BASSECOURT _ Transformer 400 kV	13/12/2017	31/03/2018	Trafo 32
TEN DE / APG	Line	SILZ _ OBERBRUNN 220 kV	30/01/2018	01/02/2018	
TENNET DE	Hydro.Gen	WALDECK _ UNIT 5 400 kV	15/01/2018	30/11/2018	240 MW
TENNET DE	Hydro.Gen	WALDECK _ UNIT 6 400 kV	15/01/2018	14/02/2018	240 MW
TENNET DE	Line	GROHNDE _ ALGERMISSEN 2 400 kV	29/01/2018	31/01/2018	
TENNET DE	Line	JARDELUND _ AUDORF Grün 380 kV	22/01/2018	09/02/2018	daily
TENNET DE	Line	MECKLAR _ DIPPERZ 2 400 kV	30/01/2018	01/02/2018	
TENNET DE	Line	OBERBACHERN _ OBERBRUNN 220 kV	30/01/2018	01/02/2018	
TENNET DE	Line	OVENDSTADT _ SOTTRUM 3 400 kV	30/01/2018	30/01/2018	
TENNET DE	Line	PLEINTIG _ KUPPLUNG 380 kV	22/01/2018	26/02/2018	
TENNET DE	Line	SOTTRUM _ LANDESBERGEN 2 400 kV	30/01/2018	30/01/2018	
TENNET DE	Line	TWISTETAL _ BORKEN 3 400 kV	16/05/2017	11/10/2018	
TENNET DE	Line	WURGASSEN _ GROHNDE 2 400 kV	22/01/2018	02/02/2018	daily
TENNET NL	Line	BLEISWIJK _ KRIMPEN WT 400 kV	29/01/2018	02/02/2018	
TENNET NL	Line	BLEISWIJK _ KRIMPEN ZT 400 kV	29/01/2018	02/02/2018	
TENNET NL	Line	EINDHOVEN _ GEERTRUIDENBERG ZT 400 kV	29/01/2018	31/01/2018	
TERNA / S.GRID	Line	PONTE _ AIROLO 225 kV	18/01/2018	05/02/2018	
TransnetBW	Line	BUNZWANGEN _ LAICHINGEN Grün 380 kV	01/01/2018	24/02/2018	
TransnetBW	Line	NEUROTT _ PHILIPPSBURG RT 400 kV	15/01/2018	07/02/2018	daily

Exchange program forecasts






CSE Power Exchanges
4500
4000
3500
3000
2500
2000
1500
1000
500
0
0:30
1:30
2:30
3:30
4:30
5:30
6:30
7:30
8:30
9:30
10:30
11:30
12:30
13:30
14:30
15:30
16:30
17:30
18:30
19:30
20:30
21:30
22:30
23:30
FR-->IT
CH-->IT
AT-->IT
SL-->IT
FR-->CH
DE-->CH

ELIA expected flows & PSTs tap position

		Node 1	Node 2	Order	00:30	03:30	05:30	07:30	09:30	10:30	12:30	13:30	17:30	19:30	20:30	23:30
BE	FR	ACHENE	LONNY	380.19	262	38	26	267	134	211	411	352	-173	233	291	149
BE	FR	AUBANGE	MONT ST MARTIN	220.51	-21	-82	-79	3	-55	-22	52	44	-64	43	62	25
BE	FR	AUBANGE	MOULAINE	220.51	-30	-90	-84	-16	-69	-39	33	27	-80	23	45	15
BE	FR	AVELGEM	AVELIN	380.80	127	-218	-247	34	-66	42	265	171	-623	110	121	-69
BE	FR	AVELGEM	MASTAING	380.79	-117	-212	-248	-79	-156	-82	61	14	-541	-226	-175	-237
BE	FR	MONCEAU	CHOOZ	220.48	-136	-137	-153	-149	-172	-152	-100	-112	-215	-138	-122	-164
BE	NL	VAN EYCK 1	MAASBRACHT	380.27	-966	-960	-1069	-1005	-922	-976	-1073		-350	-524	-523	-585
BE	NL	VAN EYCK 2	MAASBRACHT	380.28	0	0	0	0	0	0	0	0	219	-140	-241	-259
BE	NL	ZANDVLIET	BORSSELE	380.29	-460	-327	-352	-775	-741	-766	-805	-796	-431	-653	-701	-396
BE	NL	ZANDVLIET	GEERTRUIDENBERG	380.30	-228	-122	-220	-307	-216	-266	-339	-331	323	-35	-107	40
BE	LU	BELVAL	SCHIFFLANGE	220.511	-62	-68	-136	-99	-73	-85	-113	-115	-12	-124	-63	-101

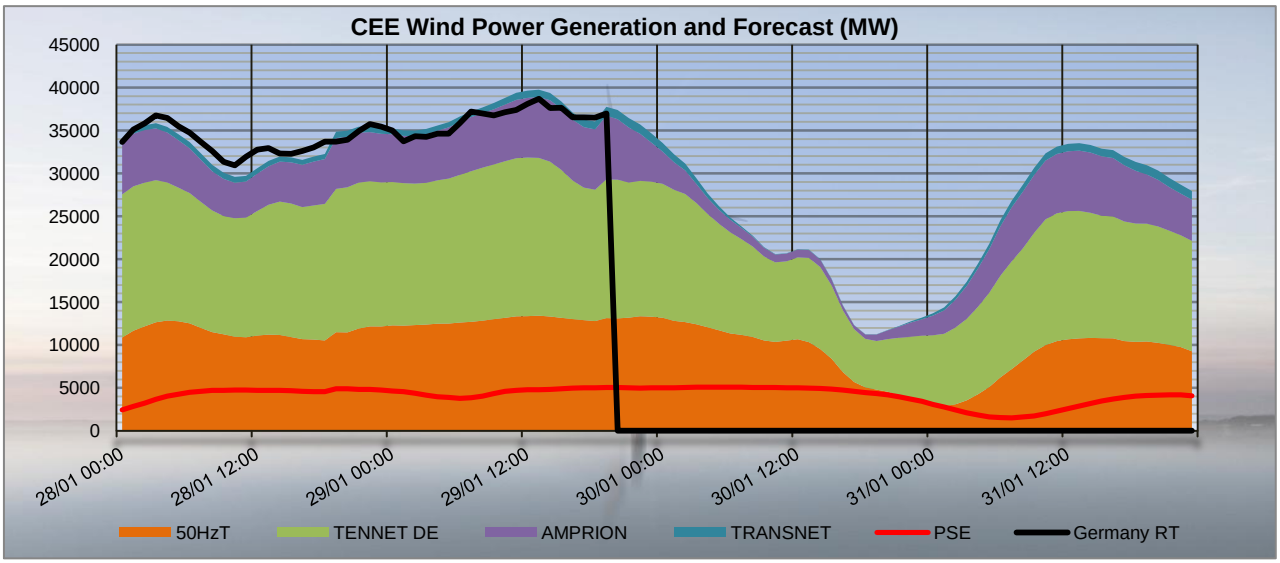
BE	FR	TOTAL		85	-701	-785	60	-384	-42	722	496	-1696	45	222	-281
BE	NL	TOTAL		-1654	-1409	-1641	-2087	-1879	-2008	-2217	-1127	-239	-1352	-1572	-1200
BE	LU	TOTAL		-62	-68	-136	-99	-73	-85	-113	-115	-12	-124	-63	-101
TOTAL BELGIAN IMPORT/EXPORT				-1631	-2178	-2562	-2126	-2336	-2135	-1608	-746	-1947	-1431	-1413	-1582

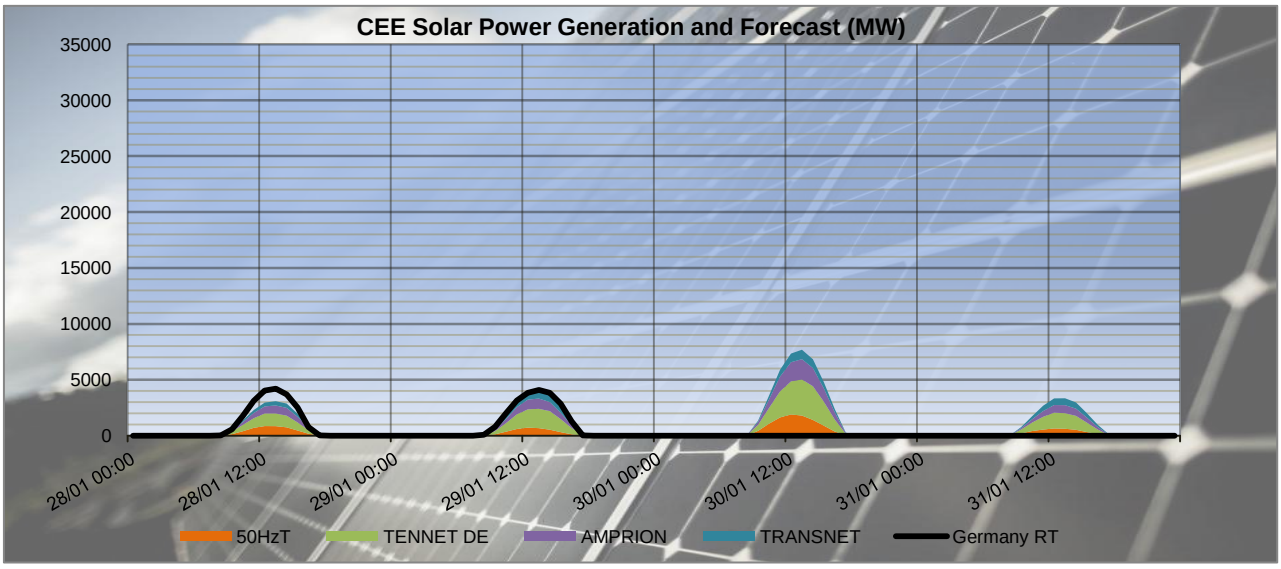
PST taps in DACF	**Zandvliet 1**	6	6	6	6	6	6	6	6	6	6	6	6
	Zandvliet 2	6	6	6	6	6	6	6	6	6	6	6	6
	Van Eyck 1	12	12	12	12	12	12	12	12	12	12	12	12
	Van Eyck 2	12	12	12	12	12	12	12	12	12	12	12	12
	Average	9	9	9	9	9	9	9	9	9	9	9	9

CREOS PST in DACF	**Schifflange**	17	17	15	15	15	15	15	15	17	17	17	17

Proposal for real time after D-1 studies																								
Timestamps		**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**	**21**	**22**	**23**	**24**
PSTs																									
Zandvliet PST 1	**[1;35]**	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
Zandvliet PST 2	**[1;35]**	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
Van Eyck PST 1	**[1;35]**	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
Van Eyck PST 2	**[1;35]**	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
Schifflange PST 1	**[1;35]**	17	17	17	17	13	13	13	13	13	13	13	13	13	13	13	17	17	17	17	17	17	17	17	17

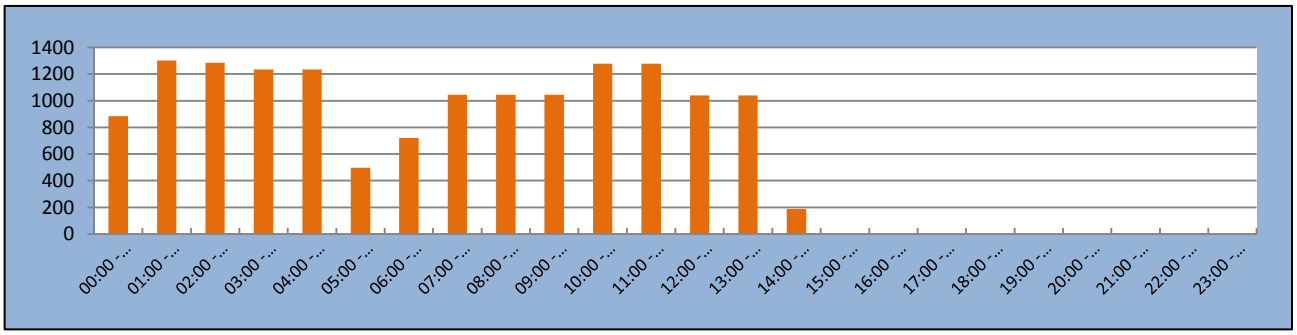
CEE Renewable Power Generation & Forecast



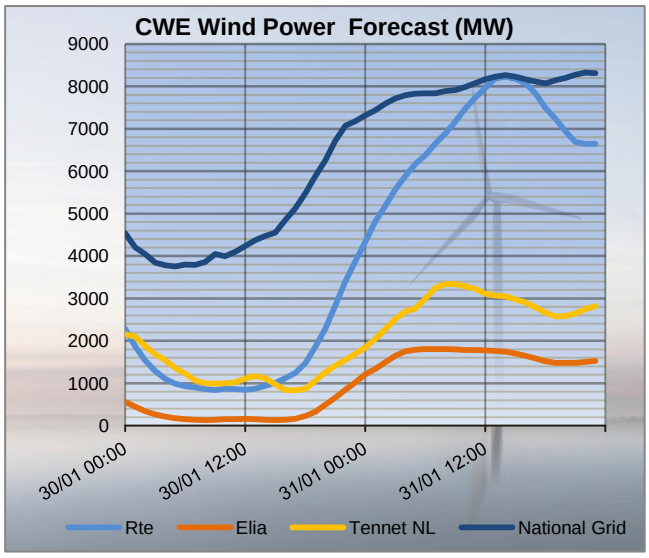


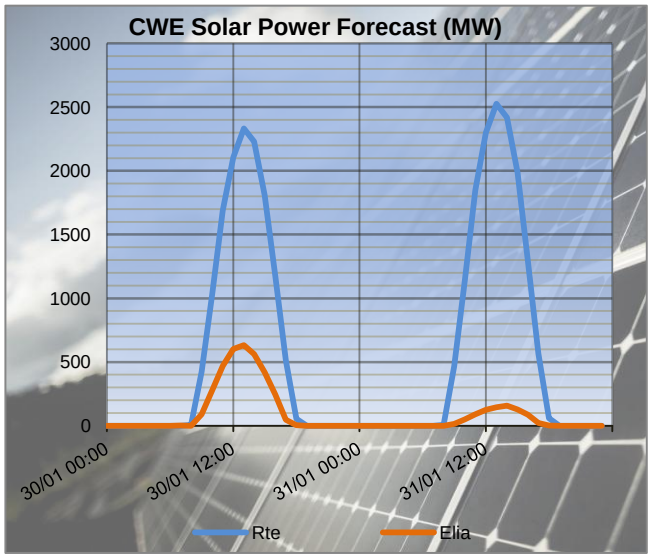
The charts above show the wind and solar generation forecasts for the TSOs in CEE (most significant) from D+1 until D-2 and the realised generation in Germany in real time. Source: Meteologica and 50HzT (RT)

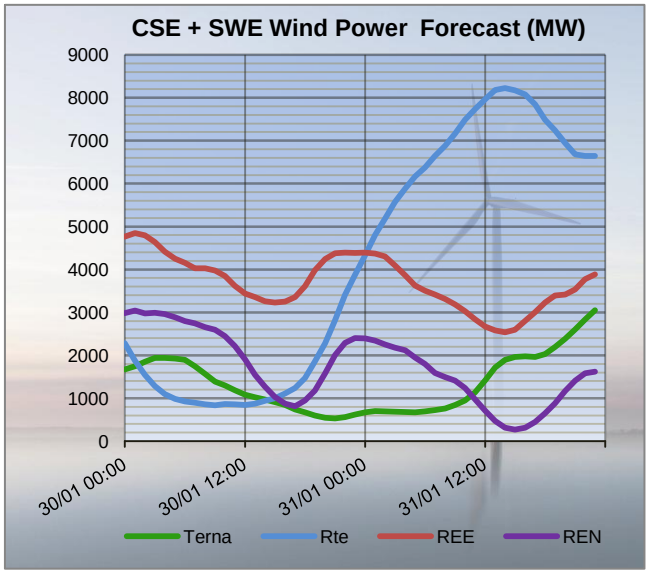
50HzT Preventive Redispatch

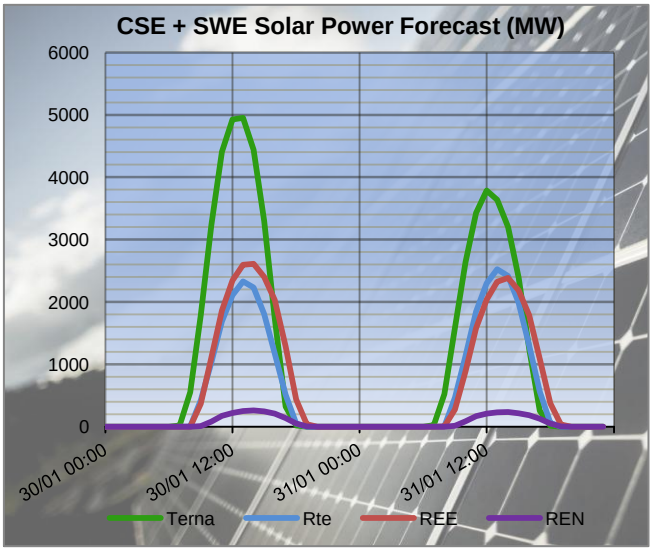


CWE, CSE & SWE Renewable Power Forecast (D-1 and D-2)









The charts above show the latest wind and solar generation forecasts for D-1 and D-2 for all the European TSOs in CWE, CSE and SWE with a significant installed capacity. Source: Meteologica

RTE flows on cross-border lines

With last provided tap position on Belgian PSTs:

				03:30			07:30			10:30			12:30		
		Node 1	Node 2	DACF	Merge	Delta	DACF	Merge	Delta	DACF	Merge	Delta	DACF	Merge	Delta
FR	BE	LONNY	ACHENE	32	-38	-70	-104	-267	-163	-95	-211	-116	-207	-411	-204
FR	BE	MONT ST MARTIN	AUBANGE	35	82	47	-17	-3	14	-4	22	26	-47	-52	-5
FR	BE	MOULAINE	AUBANGE	45	90	45	3	16	13	14	39	25	-29	-33	-4
FR	BE	AVELIN	AVELGEM	195	218	23	-61	-34	27	-33	-42	-9	-299	-265	34
FR	BE	MASTAING	AVELGEM	211	212	1	248	79	-169	275	82	-193	113	-61	-174
FR	BE	CHOOZ	MONCEAU	138	137	-1	129	149	20	132	152	20	98	100	2
FR	DE	MUHLBACH	EICHSTETTEN	-204	27	231	-417	6	**423**	-415	-21	**394**	-463	-35	**428**
FR	DE	VOGELGRUN	EICHSTETTEN	-103	-15	88	-104	21	125	-119	15	134	-144	-5	139
FR	DE	ST AVOLD	ENSDORF	0	0	0	0	0	0	0	0	0	0	0	0
FR	DE	VIGY	ENSDORF 1	-79	-46	33	-60	-181	-121	-27	-185	-158	-164	-308	-144
FR	DE	VIGY	ENSDORF 2	-379	-325	54	-225	-305	-80	-172	-295	-123	-332	-438	-106

				17:30			19:30			23:30		
		Node 1	Node 2	DACF	Merge	Delta	DACF	Merge	Delta	DACF	Merge	Delta
FR	BE	LONNY	ACHENE	191	173	-18	-271	-233	38	-150	-149	1
FR	BE	MONT ST MARTIN	AUBANGE	81	64	-17	-39	-43	-4	-38	-25	13
FR	BE	MOULAINE	AUBANGE	96	80	-16	-19	-23	-4	-27	-15	12
FR	BE	AVELIN	AVELGEM	517	623	106	-218	-110	108	73	69	-4
FR	BE	MASTAING	AVELGEM	497	541	44	179	226	47	253	237	-16
FR	BE	CHOOZ	MONCEAU	155	215	60	83	138	55	146	164	18
FR	DE	MUHLBACH	EICHSTETTEN	297	598	**301**	-98	193	**291**	109	330	221
FR	DE	VOGELGRUN	EICHSTETTEN	77	151	74	-13	74	87	1	50	49
FR	DE	ST AVOLD	ENSDORF	0	0	0	0	0	0	0	0	0
FR	DE	VIGY	ENSDORF 1	658	514	-144	219	125	-94	165	61	-104
FR	DE	VIGY	ENSDORF 2	648	526	-122	119	42	-77	81	-10	-91

				03:30			07:30			10:30			12:30		
		Node 1	Node 2	DACF	Merge	Delta	DACF	Merge	Delta	DACF	Merge	Delta	DACF	Merge	Delta
FR	CH	SIERENTZ	ASPHARD	213	90	-123	2	123	121	5	88	83	53	113	60
FR	CH	MAMBELIN	BASSECOURT	-124	-108	16	-278	-170	108	-278	-174	104	-222	-141	81
FR	CH	SIERENTZ	BASSECOURT	591	532	-59	449	442	-7	388	404	16	490	483	-7
FR	CH	BOIS TOLLOT	ROMANEL	4	-85	-89	-213	-243	-30	-213	-243	-30	-248	-167	81
FR	CH	SIERENTZ	LAUFENBURG	219	280	61	-31	68	99	-29	78	107	30	141	111
FR	CH	CORNIER	RIDDES	-3	13	16	-103	-39	64	-102	-29	73	-65	16	81
FR	CH	CORNIER	ST TRIPHON	-37	-26	11	-115	-67	48	-119	-56	63	-63	11	74
FR	CH	PRESSY	VALLORCINES	-96	-80	16	-286	-207	79	-291	-201	90	-231	-73	158
FR	CH	BOIS TOLLOT	VERBOIS	-121	-32	89	73	103	30	72	103	31	103	22	-81
FR	CH	GENISSIAT	VERBOIS	221	180	-41	93	91	-2	78	106	28	163	210	47
FR	CH	GENISSIAT	VERBOIS	221	180	-41	93	91	-2	78	106	28	163	210	47
FR	IT	ALBERTVILLE	RONDISSONE	694	362	**-332**	859	503	**-356**	866	501	**-365**	784	484	**-300**
FR	IT	ALBERTVILLE	RONDISSONE	748	719	-29	943	888	-55	962	891	-71	865	609	**-256**
FR	IT	MENTON	CAMPOROSSO	255	202	-53	142	208	66	150	201	51	142	209	67
FR	IT	VILLARODIN	VENAUS	228	401	173	691	784	93	654	784	130	569	767	198

				17:30			19:30			23:30		
		Node 1	Node 2	DACF	Merge	Delta	DACF	Merge	Delta	DACF	Merge	Delta
FR	CH	SIERENTZ	ASPHARD	263	278	15	42	57	15	248	255	7
FR	CH	MAMBELIN	BASSECOURT	16	100	84	-221	-134	87	-98	-39	59
FR	CH	SIERENTZ	BASSECOURT	253	240	-13	276	250	-26	505	498	-7
FR	CH	BOIS TOLLOT	ROMANEL	-142	-174	-32	-152	-257	-105	10	-83	-93
FR	CH	SIERENTZ	LAUFENBURG	111	266	155	-57	52	109	198	297	99
FR	CH	CORNIER	RIDDES	-14	53	67	-63	-35	28	4	29	25
FR	CH	CORNIER	ST TRIPHON	-16	41	57	-60	-42	18	-25	1	26
FR	CH	PRESSY	VALLORCINES	-165	-81	84	-165	-162	3	-97	-65	32
FR	CH	BOIS TOLLOT	VERBOIS	14	47	33	6	110	104	-134	-41	93
FR	CH	GENISSIAT	VERBOIS	189	184	-5	98	78	-20	245	244	-1
FR	CH	GENISSIAT	VERBOIS	189	184	-5	98	78	-20	246	244	-2
FR	IT	ALBERTVILLE	RONDISSONE	1061	825	-236	916	531	**-385**	839	497	**-342**
FR	IT	ALBERTVILLE	RONDISSONE	1180	783	**-397**	1012	923	-89	921	880	-41
FR	IT	MENTON	CAMPOROSSO	154	207	53	160	191	31	154	196	42
FR	IT	VILLARODIN	VENAUS	1032	1254	222	1026	1068	42	745	884	139

N state flows at 10:30 and 19:30

The Imax and load values in the table below are extracted from the merged TSOs' DACF.

TSO	Line (380 kV)	10:30		19:30	
		Imax (A)	% of Imax	Imax (A)	% of Imax
ELIA	Champion - Gramme (32)	2448	44	2448	45
	Doel - Mercator (51)	2239	40	2239	35
	Doel - Mercator (52)	2239	40	2239	35
	Doel - Mercator (54)	2448	40	2448	35
	Doel - Zandvliet (25)	2349	22	2349	12
	Mercator - Horta (73)	2569	31	2569	27
	Courcelles - Gramme (31)	2335	48	2349	49
	Mercator - Rodenhuize/Horta (74)	2342	36	2349	30
RTE	Attaques - Warande 2	3780	57	3780	57
	Avelin - Gavrelle	2622	37	2622	38
	Avelin - Warande	3458	10	3458	9
	Lonny - Seuil	4149	24	4149	22
	Mandarins - Warande 1	3780	53	3780	53
	Muhlbach - Scheer	2598	16	2598	12
	Revigny - Vigy	2596	38	2596	32
	Warande - Weppes	3458	16	3458	15

X < 50 % of Imax 50 ≤ X < 75 % of Imax X ≥ 75 % of Imax

TSO	Voltage	Line (380 kV)	10:30		19:30	
			Imax (A)	% of Imax	Imax (A)	% of Imax
50 HzT	380 kV	Eisenach - Mecklar (450-2)	2520	50	2520	17
		Hagenwerder - Mikulowa (567)	2520	29	2520	14
		Hagenwerder - Mikulowa (568)	2520	29	2520	14
		Remptendorf - Redwitz (413)	3462	64	3507	47
		Remptendorf - Redwitz (414)	3462	64	3507	47
		Röhrsdorf - Hradec (445)	2520	45	2520	31
		Röhrsdorf - Hradec (446)	2520	45	2520	31
		Vieselbach - Mecklar (449-1)	2520	49	2520	21
		Wolmirstedt - Helmstedt (491-1)	2400	25	2400	5
		Wolmirstedt - Helmstedt (492-2)	2400	25	2400	5
	220 kV	Vierraden - Krajnik (507)	1334	0	1352	0
		Vierraden - Krajnik (508)	1334	0	1352	0

X < 50 % of Imax 50 ≤ X < 75 % of Imax X ≥ 75 % of Imax

Special topologies at 10:30 and 19:30

Nodes in North area				
			10:30	19:30
380 kV	Elia	Doel	1	1
		Avelgem	**2**	1
	Rte	Warande	1	1
		Cergy	2	2
		Terrier	1	1
		Plessis Gassot	1	1
		Mery/Seine	2	2
		Muhlbach	1	1
		Vigy	2	2
	Transnet bw	Eichstetten	1	1
	Amprion	Uchtelfangen	1	1
	Tennet DE	Redwitz	1	1
	50 HzT	Remptendorf	1	1
		Wolmirstedt	1	1
	CEPS	Hradec Vychod	1	1
220 kV	50 HzT	Pasewalk	1	1

North analyses results

Security analyses have been performed for 24 timestamps.
All remedial actions have been agreed with concerned TSO during the day ahead process.

Constraints on Elia, RTE (North) and 50HzT 400kV grids and tie-lines

TSO	Validity	Contingency				Constraint					Timestamps of max
		U (kV)	Substation 1	Substation 2	Code	Overload	U (kV)	Substation 1	Substation 2	Code	
Rte	00:30 - 23:30	380	Warrande	Busbar	2C	101% 5'	380/220	Warrande	Transformer	3	08:30
		Curative action: put in service other Transformer 2 -> 80% remaining									
50HzT / CEPS	12:00-14:00	380	Röhrsdorf	Hradec	446	105%	380	Röhrsdorf	PSTs	441	13:30
		Preventive action: Decrease -5 taps on Hradec PSTs -> 95% remaining									
50HzT	00:30 & 12:00-15:00	380	Rohrsdorf	Streumen	axis	107%	380	Rohrsdorf	Streumen	remaining	00:30
		Preventive action: 2 node in Streumen --> 101%, & Decrease 5 taps on Hradec PSTs -> 99%									
50HzT	00:00 - 15:00	380	Lauchstadt	Vieselbach	axis	108%	380	Lauchstadt	Vieselbach	remaining	12:30
		Preventive action: 2node in Lauchstadt --> 87% remaining Note : 2 node in Vieselbach already implemented in DACF									
50HzT	14:00 - 15:00	380	Barwalde	Graustein	axis	111%	380	Barwalde	Graustein	remaining	14:30
		Preventive action: 2 node in Barwalde --> 87% remaining									
50HzT	05:00 - 14:00	380	Bärwalde	Schmölln	552	118%	380	Schmölln	Dresden Süd	556	06:30
		Preventive action: 2 node in Barwalde --> 95% remaining									
50HzT / TenneT DE	07:00 - 18:00	380	Wilster	Dollern		117%	380	Hamburg Nord	Hamburg Ost	962	17:30
		Preventive action : cancellation of the outage Hamburg Nord - Hamburg Ost 961 then 2 node in Hamburg Nord & redispatching									
50HzT / TenneT DE	21:00-24:00	380	Hamburg Nord	Hamburg Ost	962	108%	380	Hamburg Nord	Hamburg Ost	remaining	23:30
		Preventive action : 2 node in Hamburg Nord & redispatching									

Constraints greater than 100% on NL + Amprion 400kV grids and greater than 120% on DE, CZ, PL and SK 400kV grids

Tennet DE : some lines in N state overload. Maximum values detected at 12:30 (128% in Sottrum Landerbergen [06:00-16:00], 107% in Ovenstadt - Landergergen [07:00-14:00] & 107% in Mekklar - Dipperz [07:00-14:00]). They leads to many constaints and needing of redispatching (during DOPT, Tennet DE requested new run in order to finalize all the remedial actions).

TSO	Validity	Contingency				Constraint					Timestamps of max
		U (kV)	Substation 1	Substation 2	Code	Overload	U (kV)	Substation 1	Substation 2	Code	
TenneT DE / Amprion	00:30-15:00	380	Hanekenfahr	Dorpen West		126%	380	Dorpen West	Niederlangen		06:30
		Preventive action : 3 node topology in Hanekenfah +8 taps on Gronau PST -> 103% then wind reduction (decision in Real Time)									

Constraints on ELIA 220/150kV grid at 10:30

Contingency				Constraint					Comments
U (kV)	Substation 1	Substation 2	Code	Overload	U (kV)	Substation 1	Substation 2	Code	
380	Massenhoven	Busbar		107%	150	Lillo	Zandvliet	117	(0:00-2:0 & 7:00 -24:00) Max at 22:30 at 117%

50HzT DC loopflows sensitivity

Vierraden-Krajnik 220kV axis in long term outage till 2018.

South analyses results

Security analyses have been performed for these 2 timestamps:

- Off-peak period (23:00 – 07:00): **01:30**
- Peak period (07:00 – 23:00): **20:30**

Adaptations made on merged DACFs:

Off-peak:

- SI ➔ IT physical flow adapted to the target flow : **800 MW**
- Mendrisio-Cagno flow adapted to the schedule : **128 MW**
- PST of Lienz adapted to **120 MW**
- PST of Camporosso adapted to **200 MW**
- PST of La Praz on **tap 1**

Peak:

- SI ➔ IT physical flow adapted to the target flow : **800 MW**
- Mendrisio-Cagno flow adapted to the schedule : **200 MW**
- PST of Lienz adapted to **120 MW**
- PST of Camporosso adapted to **200 MW**
- PST of La Praz on **tap 1**

Special topologies

Nodes in South area				
			Off Peak	**Peak**
380 kV	**Swissgrid**	Sils	**1**	**2**
		Robbia	2	2
	Rte	Génissiat	1	1
		Albertville	2	2
		Grande Ile	1	1
	Terna	Turbigo	1	1
		Baggio	1	1
		Bovisio	2	2
		Ostiglia	1	1

N state flows Off-Peak & Peak

The Imax and load values in the table below are extracted from the **adapted** merged TSOs' DACF.

TSO	Voltage	Line (380 kV)	Off Peak		Peak	
			Imax (A)	% of Imax	Imax (A)	% of Imax
Terna	380 kV	Albertville - Rondissone 1	2370	28	2370	38
		Albertville - Rondissone 2	2370	23	2370	63
		Bulciago - Soazza	2300	41	2300	38
		Cagno - Mendrisio	855	24	855	40
		Musignano - Lavorgo	2270	61	2270	56
		Redipuglia - Divaca	2450	37	2450	38
		Robbia - San Fiorano	2530	47	2530	54
		Robbia - Gorlago	2530	54	2530	73
		Venaus - Villarodin	2715	29	2715	51
	220 kV	Airolo - Ponte	900	0	900	0
		Lienz - Soverzene	704	40	704	42
		Menton - Campo Rosso	1165	40	1165	43
		Padriciano - Divaca	960	42	960	39
		Riddes - Avise	1010	27	1010	32
		Riddes - Valpelline	1010	33	1010	38
		Serra - Pallanzeno	900	56	900	59

For Terna:

X < 50 % of Imax | 50 ≤ X < 75 % of Imax | X ≥ 75% of Imax

Sensitivity coefficients for the Pentalateral instruction

The amount of the control program curtailment on peak and off-peak can be calculated thanks to the sensitivities in the table below:

		FR → IT	CH → IT	AT → IT	SI → IT
Off Peak	Initial physical flows on adapted base case	1580	4029	115	793
	Compensation ratio (calculated from NTC)	41%	47%	4%	8%
	Pentalateral impact on physical flows	-27%	-55%	-4%	-14%
Peak	Initial physical flows on adapted base case	2777	4470	120	800
	Compensation ratio (calculated from NTC)	38%	49%	4%	9%
	Pentalateral impact on physical flows	-27%	-54%	-4%	-15%

OFF PEAK

Off Peak constraints on APG, Eles, RTE (South), Swissgrid and Terna 400kV grids and tie-lines

	TSO	Contingency				Constraint				
		U (kV)	Substation 1	Substation 2	Code	Overload	U (kV)	Substation 1	Substation 2	Code
Off - Peak	RTE	380	Albertville	Busbar	2A	109% (1' night)	220	Albertville	Longefan	
		Preventive action: Change tap position from 1 to tap 10 on La Praz PST-> 98% (1' night) **Curative action:** Change tap position to tap 33 on La Praz PST -> 96% remaining on the night IST of the line *Rem: Stop pumps in Super Bissorte (total in DACF 487MW) will help to solve the constraint with less taps needed in La Praz*								
	Swissgrid	380	Breite	Laufenburg	N-1	101%	380	Breite	Beznau	
		Remark: This constraint is not detected by Swissgrid and should be solved by changing taps on local PSTs								

PEAK

Peak constraints on APG, Eles, RTE (South), Swissgrid and Terna 400kV grids and tie-lines

	TSO	Contingency				Constraint				
		U (kV)	Substation 1	Substation 2	Code	Overload	U (kV)	Substation 1	Substation 2	Code
Peak	Rte / Terna	380	Albertville	Rondissone	N-2	97% (10')	380	La Praz	PST	
		Curative action: Change tap position on La Praz PST from tap 1 to tap 20 => 96% remaining.								
	Terna/SWG	380	San Fiorano-Robbia	Robbia-Gorlago	N-2	106%	380	Sils	Soazza	
		Preventive action: 2 nodes in Sils => 93% remaining (agreed in D-1 but to be checked in real-time because Swissgrid doesn't see this constraint).								

Final PSTs settings

The tables below present the tap positions and the physical flows on different PSTs with the adaptations described at the top of the page (IT-SI target flow...) and preventive actions (before Pentalateral reduction).

PST	Off Peak	
	Tap position	Physical flow to Italy (MW)
La Praz (1/33)	1	542
Rondissone 1 (1/33)	4	378
Rondissone 2 (1/33)	7	469
Camporosso (-32/32)	-8	191
Lienz (-32/32)	-1	117
Padriciano (1/33)	18	164
Divaca (-32/32 each)	-3	631

PST	Peak	
	Tap position	Physical flow to Italy (MW)
La Praz (1/33)	1	971
Rondissone 1 (1/33)	33	988
Rondissone 2 (1/33)	7	611
Camporosso (-32/32)	0	202
Lienz (-32/32)	-24	121
Padriciano (1/33)	26	149
Divaca (-32/32 each)	-12	654

Conclusion

CWE: some constraints detected (Tennet DE & Amprion) require topological action and redispatching in Germany.

CEE: some N state overloads detected in Tennet DE grid and many constraints detected require redispatching, topological actions and cancellation of outage in 50Hertz area.

CSE: A constraint is detected on Sils-Soazza requiring a 2-node topology in Sils to solve. Other constraints detected in RTE which require some preventive taps on La Praz PST but remain manageable with classical remedial actions.