CORESO Engineers ***North :*** NYAZIKA Paget HOYAL Matias ***South :*** DECKERS Bram	**Day Ahead report for** **23 January 2018**

Security Levels:

CWE: No critical constraint detected.

CEE: No critical constraint detected.

CSE: Constraints on CH - IT border can be managed by increasing the SL > IT target flow and preventive topological actions. Due to the forced outage of the line Albertville - Rondissone, special topologies are implemented on the FR grid.

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]	10000	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	2800
						900	2	
				Schw. Pumpe		800	2	1600
				Lippendorf		920	2	1840
RTE			RTE	Gravelines	Pmax (MW)	900	6	5400
Peak load [MW]	74400	19:00		Chooz		1500	2	3000
Generation Margin	Sufficient			Cattenom		1300	4	5200
				Fessenheim		900	**1**	900
NATIONAL GRID (UK time)				Penly		1300	2	2600
Peak load [MW]	45800	17:30		Paluel		1300	**3**	3900
Generation Margin	Sufficient			Nogent s/ Seine		1300	2	2600
				Bugey		900	**3**	2700
TERNA				St Alban		1300	2	2600
Peak load [MW]	46423	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

CSE

Rte - Terna : Line Albertville - Rondissone 1 is considered in forced outage until 12:30. The line will be inspected in the morning hours and is expected to return into service afterwards.

Terna : Load adjustment outside 500 MW limit at 23:30 (1036 MW)

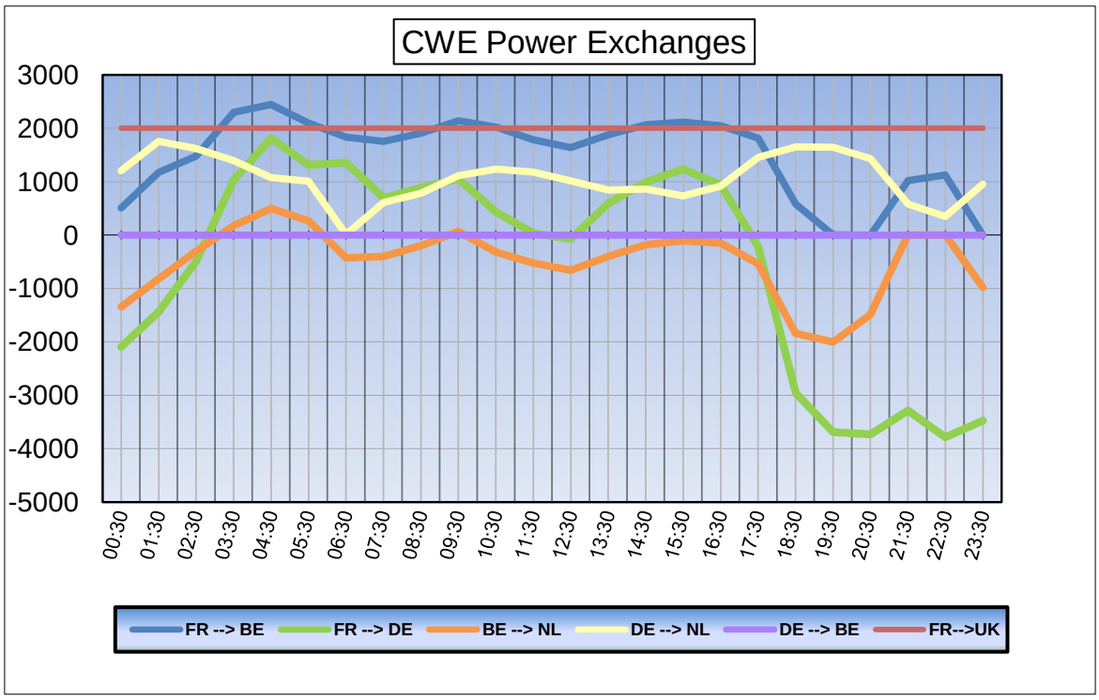
Terna : Model improvement on Rondissone PSTs: they have been adapted to tap 1 (tap 35 in the model) during the outage of the second Albertville - Rondissone axis to limit the flow on the line.

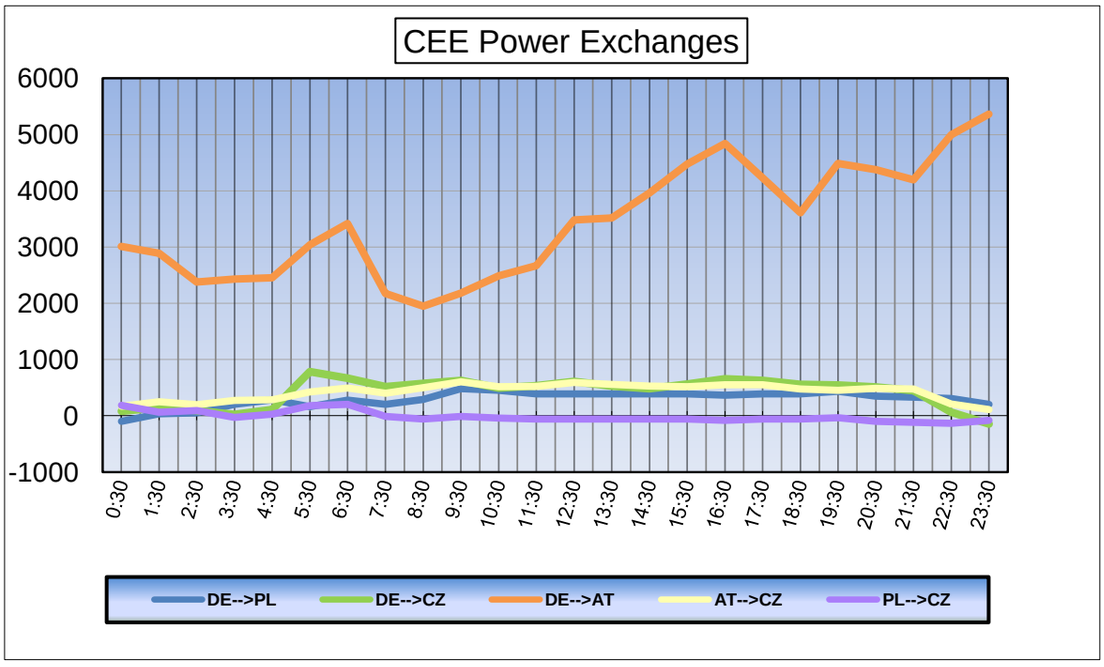
Outages table

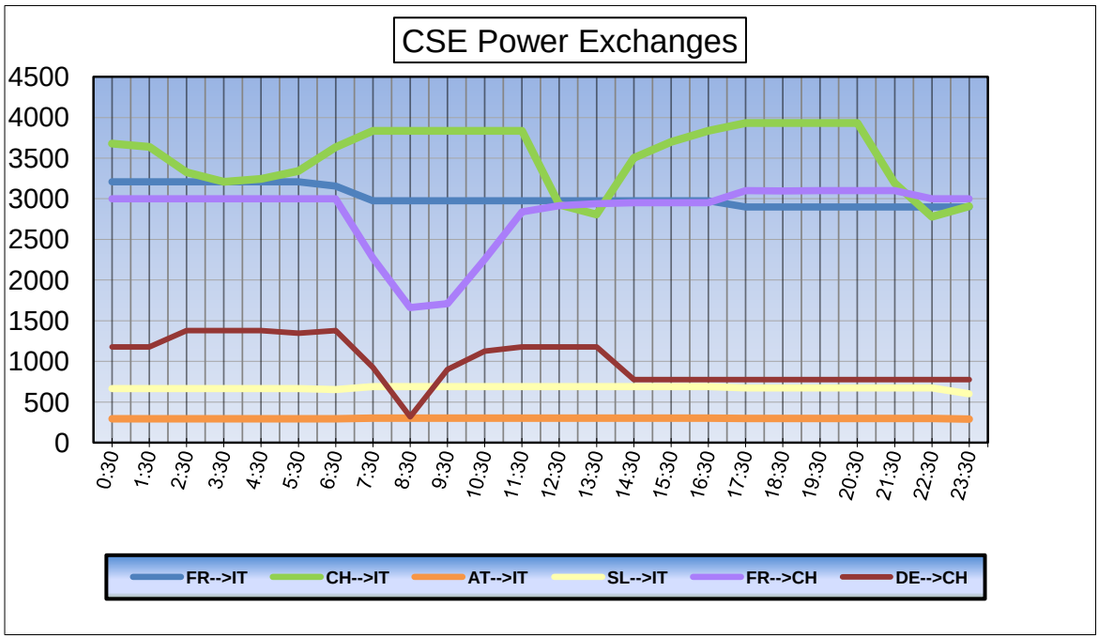
OUTAGES					
Owner	Type of element	Line name	start	end	Comments
50HzT	Fossil.Gen	BOXBERG _ Unit Q 400 kV	22/01/2018	25/01/2018	277 MW (reduced)
50HzT	Fossil.Gen	JANSCHWALDE _ Unit A 400 kV	22/01/2018	23/01/2018	52 MW (reduced)
50HzT	Hydro.Gen	GOLDISTHAL _ Unit A 400 kV	22/01/2018	26/01/2018	265 MW
50HzT	Hydro.Gen	MARKERSBACH _ Unit D 400 kV	28/09/2017	27/04/2018	160 MW
50HzT	Line	EULA _ Wolkramhausen 357 220 kV	06/10/2017	16/03/2018	
50HzT	Line	GUSTROW _ PUTLITZ 514 400 kV	22/01/2018	23/01/2018	
50HzT	Line	HAGENWERDER _ SCHMÖLLN 554 400 kV	22/01/2018	28/01/2018	
50HzT	Line	LUBMIN _ WIKINGER 281 220 kV	26/09/2017	31/01/2018	
50HzT	Line	RAGOW _ WUSTERMARK 521 400 kV	22/01/2018	28/01/2018	
50HzT / CEPS	Line	HRADEC VYCHOD _ ROHRSDORF 445 400 kV	22/01/2018	23/01/2018	daily
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	22/01/2018	26/01/2018	ALTERNATING WITH 456
APG	Line	ST PETER _ Salzburg 456 220 kV	22/01/2018	26/01/2018	ALTERNATING WITH 455
CEPS	Line	DASNY _ KOCIN 473 400 kV	08/01/2018	26/01/2018	
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 _ KRSKO 2 400 kV	22/01/2018	25/01/2018	
ELES / HOPS	Line	KRSKO _ TUMBRI 1 400 kV	22/01/2018	02/03/2018	
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	Nuc.Gen	DOEL _ Unit 3 (1000MW) 400 kV	23/09/2017	16/04/2018	Forced outage
HOPS	Line	BRINJE _ KONJSKO 220 kV	17/01/2018	27/01/2018	
PSE	Line	POLANIEC _ TARNOW 400 kV	22/01/2018	26/01/2018	daily
PSE	Line	TUCZNAWA _ RZESZOW 400 kV	22/01/2018	26/01/2018	daily
RTE	Line	CHESNOY _ MORBRAS 2 400 kV	22/01/2018	23/01/2018	
RTE	Line	CHEVALET _ ARGOEUVES 2 380 kV	22/01/2018	23/01/2018	
RTE	Nuc.Gen	BUGEY _ Unit 3 (900MW) 400 kV	19/01/2018	23/01/2018	
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	
RTE	Nuc.Gen	TRICASTIN _ Unit 1 (900MW) 400 kV	20/01/2018	23/01/2018	
S.GRID	Line	BASSECOURT _ BICKIGEN 400 kV	23/01/2018	23/01/2018	
S.GRID	Line	BENKEN _ METTLEN 400 kV	23/01/2018	23/01/2018	
S.GRID	Line	BICKIGEN _ METTLEN 220 kV	22/01/2018	26/01/2018	No. 1 circuit Daily
S.GRID	Line	BICKIGEN _ METTLEN 220 kV	22/01/2018	26/01/2018	No. 2 circuit Daily
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	HANDECK _ MOREL 220 kV	17/01/2018	23/01/2018	
S.GRID	Line	LIMMERN _ TIERFEHD 1 400 kV	28/01/2017	31/07/2018	
S.GRID	Line	MOREL _ SERRA 225 kV	16/01/2018	23/01/2018	

Owner	Type of element	Line name	start	end	Comments
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
TENNET DE	Fossil.Gen	IRSCHING _ UNIT 4 400 kV	13/01/2018	29/01/2018	545 MW
TENNET DE	Fossil.Gen	STAUDINGER _ Unit 4 400 kV	22/01/2018	26/01/2018	577 MW
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 _ KLEIN ILSEDE 1 400 kV	18/01/2018	26/01/2018	daily
TENNET DE	Line	JARDELUND _ AUDORF Grün 380 kV	22/01/2018	09/02/2018	daily
TENNET DE	Line	OHLENSEHLEN _ LANDESBERGEN 1 380 kV	22/01/2018	**23/01/2018**	daily
TENNET DE	Line	PLEINTIG _ KUPPLUNG 380 kV	22/01/2018	26/01/2018	
TENNET DE	Line	STADORF _ WAHLE 1 400 kV	**23/01/2018**	**23/01/2018**	
TENNET DE	Line	TWISTETAL _ BORKEN 3 400 kV	16/05/2017	11/10/2018	
TENNET DE	Line	WAHLE _ ALGERMISSEN 2 400 kV	18/01/2018	26/01/2018	daily
TENNET DE	Line	WAHLE _ KLEIN ILSEDE 3 380 kV	18/01/2018	26/01/2018	daily
TENNET DE	Line	WURGASSEN _ GROHNDE 2 400 kV	22/01/2018	02/02/2018	daily
TENNET NL	Line	BLEISWIJK _ KRIMPEN WT 400 kV	21/01/2018	26/01/2018	
TENNET NL	Line	BLEISWIJK _ KRIMPEN ZT 400 kV	20/01/2018	26/01/2018	
TENNET NL	Line	EEMSHAVEN _ OUDESCHIP WT 400 kV	22/01/2018	**23/01/2018**	daily
TENNET NL	Line	HENGELO _ ZWOLLE WT 400 kV	13/01/2018	26/01/2018	
TERNA / S.GRID	Line	PALLANZENO _ SERRA 225 kV	16/01/2018	**23/01/2018**	
TERNA / S.GRID	Line	PONTE _ AIROLO 225 kV	17/01/2018	**23/01/2018**	
TransnetBW	Line	METZINGEN _ WENDLINGEN gelb 400 kV	22/01/2018	26/01/2018	
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	04:30	07:30	10:30	12:30	13:30	17:30	18:30	19:30	21:30	23:30
BE	FR	ACHENE	LONNY	380.19	245	-357	-387	-130	-164	-142	-187	-114	219	404	248	402
BE	FR	AUBANGE	MONT ST MARTIN	220.51	23	-135	-118	-62	-82	-77	-70	-68	-14	19	41	55
BE	FR	AUBANGE	MOULAINE	220.51	9	-139	-119	-72	-92	-87	-77	-80	-23	10	29	45
BE	FR	AVELGEM	AVELIN	380.80	-155	-854	-965	-560	-532	-424	-557	-514	78	376	86	204
BE	FR	AVELGEM	MASTAING	380.79	-205	-495	-546	-473	-450	-385	-426	-421	-164	-9	-70	18
BE	FR	MONCEAU	CHOOZ	220.48	-115	-187	-193	-191	-204	-187	-188	-189	-133	-92	-100	-67
BE	NL	VAN EYCK 1	MAASBRACHT	380.27	-592	-265	-196	-381	-418	-412	-361	-413	-660	-719	-456	-570
BE	NL	VAN EYCK 2	MAASBRACHT	380.28	-312	97	238	181	83	3	74	26	-443	-608	-151	-356
BE	NL	ZANDVLIET	BORSSELE	380.29	-581	-211	-171	-595	-629	-646	-604	-623	-898	-896	-631	-484
BE	NL	ZANDVLIET	GEERTRUIDENBERG	380.30	-181	402	488	139	162	74	137	59	-367	-481	-3	-247
BE	LU	BELVAL	SCHIFFLANGE	220.511	0	0	0	0	0	0	0	0	0	0	0	0

				00:30	03:30	04:30	07:30	10:30	12:30	13:30	17:30	18:30	19:30	21:30	23:30
BE	FR	TOTAL		-198	-2167	-2328	-1488	-1524	-1302	-1505	-1386	-37	708	234	657
BE	NL	TOTAL		-1666	23	359	-656	-802	-981	-754	-951	-2368	-2704	-1241	-1657
BE	LU	TOTAL		0	0	0	0	0	0	0	0	0	0	0	0
TOTAL BELGIAN IMPORT/EXPORT				-1864	-2144	-1969	-2144	-2326	-2283	-2259	-2337	-2405	-1996	-1007	-1000

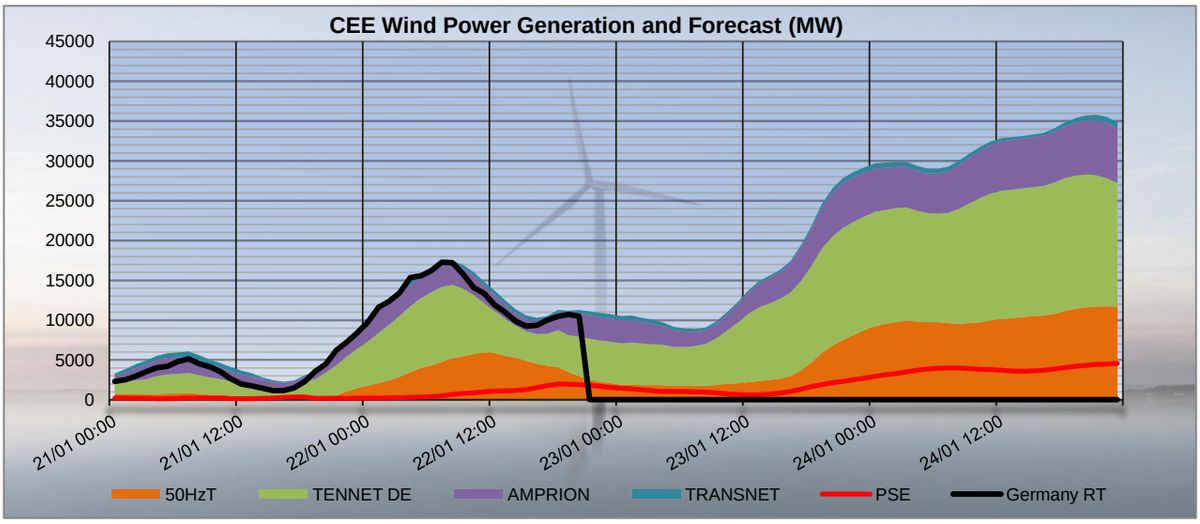
		00:30	03:30	04:30	07:30	10:30	12:30	13:30	17:30	18:30	19:30	21:30	23:30
PST taps in DACF	**Zandvliet 1**	12	12	12	12	12	9	9	9	9	9	9	9
	Zandvliet 2	12	12	12	12	12	9	9	9	9	9	9	9
	Van Eyck 1	15	15	15	15	15	12	12	12	12	12	12	12
	Van Eyck 2	15	15	15	15	15	12	12	12	12	12	12	12
	Average	14	14	14	14	14	11	11	11	11	11	11	11

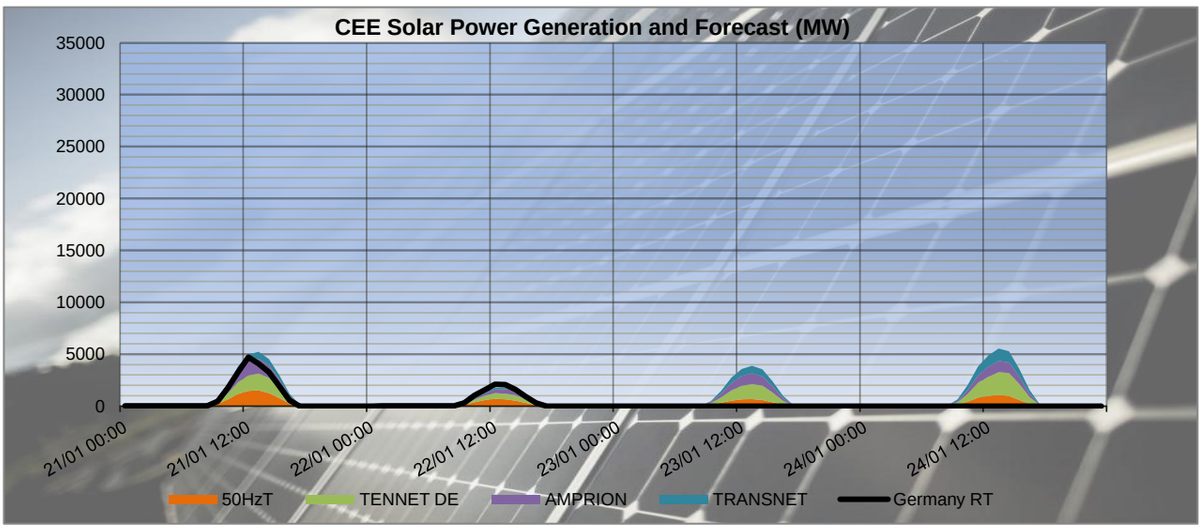
		00:30	03:30	04:30	07:30	10:30	12:30	13:30	17:30	18:30	19:30	21:30	23:30
CREOS PST in DACF	**Schifflange**	out	out	out	out	out	out	out	out	out	out	out	out

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]**	12	12	12	12	12	12	12	12	12	12	12	9	9	9	9	9	9	9	9	9	9	9	9	9
Zandvliet PST 2	**[1;35]**	12	12	12	12	12	12	12	12	12	12	12	9	9	9	9	9	9	9	9	9	9	9	9	9
Van Eyck PST 1	**[1;35]**	15	15	15	15	15	15	15	15	15	15	15	12	12	12	12	12	12	12	12	12	12	12	12	12
Van Eyck PST 2	**[1;35]**	15	15	15	15	15	15	15	15	15	15	15	12	12	12	12	12	12	12	12	12	12	12	12	12
Schifflange PST 1	**[1;35]**	out	out	out	out	out	out	out	out	out	out	out	out	out	out	out	out	out	out	out	out	out	out	out	out

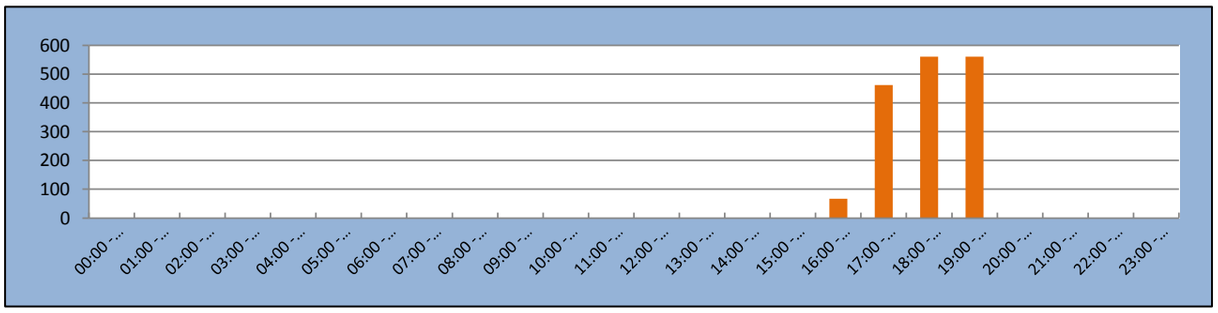
CEE Renewable Power Generation & Forecast



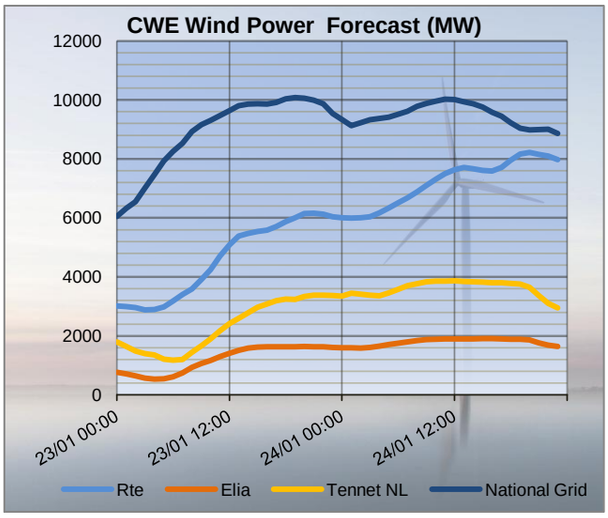


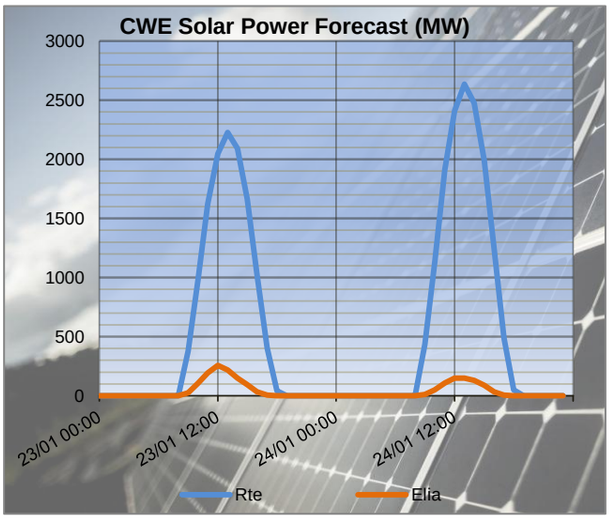
The charts above show the wind and solar generation forecasts for the TSOs in CEE (most significant) from D+1 until D-2 and the realised generation in Germany in real time. Source: Meteologica and 50HzT (RT)

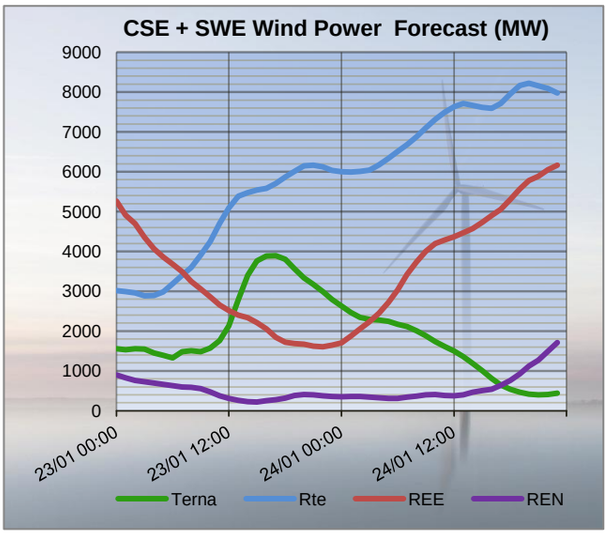
50HzT Preventive Redispatch

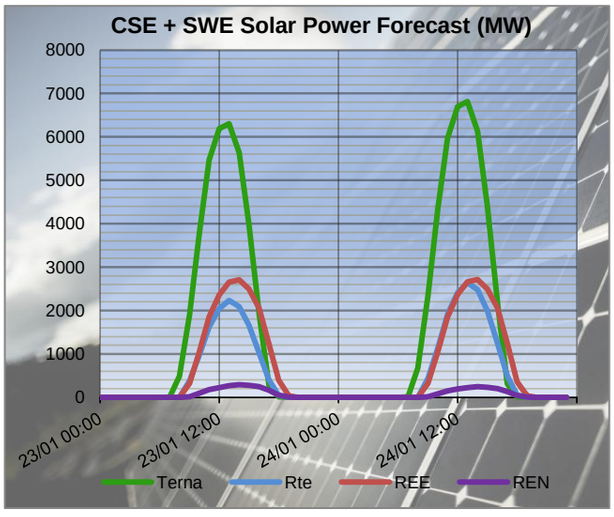


CWE, CSE & SWE Renewable Power Forecast (D-1 and D-2)









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	418	357	-61	194	130	-64	270	164	-106	261	142	-119
FR	BE	MONT ST MARTIN	AUBANGE	170	135	-35	68	62	-6	92	82	-10	67	77	10
FR	BE	MOULAINE	AUBANGE	171	139	-32	77	72	-5	101	92	-9	78	87	9
FR	BE	AVELIN	AVELGEM	735	854	119	394	560	166	471	532	61	354	424	70
FR	BE	MASTAING	AVELGEM	431	495	64	376	473	97	418	450	32	339	385	46
FR	BE	CHOOZ	MONCEAU	184	187	3	194	191	-3	199	204	5	198	187	-11
FR	DE	MUHLBACH	EICHSTETTEN	591	643	52	569	529	-40	428	491	63	448	535	87
FR	DE	VOGELGRUN	EICHSTETTEN	96	95	-1	132	116	-16	70	95	25	68	85	17
FR	DE	ST AVOLD	ENSDORF	0	0	0	0	0	0	0	0	0	0	0	0
FR	DE	VIGY	ENSDORF 1	684	656	-28	688	546	-142	643	502	-141	599	361	-238
FR	DE	VIGY	ENSDORF 2	714	701	-13	702	560	-142	654	515	-139	617	383	-234

				17:30			19:30			23:30		
		Node 1	Node 2	DACF	Merge	Delta	DACF	Merge	Delta	DACF	Merge	Delta
FR	BE	LONNY	ACHENE	250	114	-136	-223	-404	-181	-345	-402	-57
FR	BE	MONT ST MARTIN	AUBANGE	80	68	-12	-36	-19	17	-94	-55	39
FR	BE	MOULAINE	AUBANGE	92	80	-12	-26	-10	16	-82	-45	37
FR	BE	AVELIN	AVELGEM	437	514	77	-251	-376	-125	-230	-204	26
FR	BE	MASTAING	AVELGEM	372	421	49	82	9	-73	-32	-18	14
FR	BE	CHOOZ	MONCEAU	191	189	-2	115	92	-23	78	67	-11
FR	DE	MUHLBACH	EICHSTETTEN	462	564	102	-88	203	291	151	376	225
FR	DE	VOGELGRUN	EICHSTETTEN	81	70	-11	-60	-13	47	-6	17	23
FR	DE	ST AVOLD	ENSDORF	0	0	0	0	0	0	0	0	0
FR	DE	VIGY	ENSDORF 1	655	375	-280	-58	-249	-191	29	-58	-87
FR	DE	VIGY	ENSDORF 2	659	381	-278	-176	-351	-175	-48	-116	-68

				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	570	548	-22	352	527	175	358	534	176	369	547	178
FR	CH	MAMBELIN	BASSECOURT	138	224	86	60	101	41	44	62	18	45	60	15
FR	CH	SIERENTZ	BASSECOURT	308	374	66	199	195	-4	216	179	-37	283	224	-59
FR	CH	BOIS TOLLOT	ROMANEL	449	247	-202	152	-81	-233	142	-75	-217	279	11	-268
FR	CH	SIERENTZ	LAUFENBURG	454	549	95	218	359	141	248	368	120	254	454	200
FR	CH	CORNIER	RIDDES	116	58	-58	43	95	52	29	89	60	82	110	28
FR	CH	CORNIER	ST TRIPHON	100	85	-15	41	77	36	41	80	39	88	99	11
FR	CH	PRESSY	VALLORCINES	47	13	-34	-68	-31	37	-89	4	93	27	52	25
FR	CH	BOIS TOLLOT	VERBOIS	140	190	50	197	263	66	248	294	46	264	324	60
FR	CH	GENISSIAT	VERBOIS	262	245	-17	205	193	-12	226	205	-21	266	243	-23
FR	CH	GENISSIAT	VERBOIS	262	245	-17	205	193	-12	226	205	-21	266	243	-23
FR	IT	ALBERTVILLE	RONDISSONE	0	0	0	0	0	0	0	0	0	0	0	0
FR	IT	ALBERTVILLE	RONDISSONE	1032	1345	313	1041	1381	340	1066	1396	330	921	1302	381
FR	IT	MENTON	CAMPOROSSO	255	200	-55	154	200	46	158	206	48	158	206	48
FR	IT	VILLARODIN	VENAUS	1109	980	-129	1178	958	-220	1141	1000	-141	985	898	-87

				17:30			19:30			23:30		
		Node 1	Node 2	DACF	Merge	Delta	DACF	Merge	Delta	DACF	Merge	Delta
FR	CH	SIERENTZ	ASPHARD	327	499	172	126	334	208	295	265	-30
FR	CH	MAMBELIN	BASSECOURT	-36	67	103	-311	-162	149	-222	-125	97
FR	CH	SIERENTZ	BASSECOURT	271	362	91	374	434	60	446	480	34
FR	CH	BOIS TOLLOT	ROMANEL	19	-121	-140	88	-273	-361	155	-57	-212
FR	CH	SIERENTZ	LAUFENBURG	171	346	175	78	221	143	221	361	140
FR	CH	CORNIER	RIDDES	-17	52	69	-46	-19	27	-30	40	70
FR	CH	CORNIER	ST TRIPHON	-8	39	47	-78	-35	43	-73	-24	49
FR	CH	PRESSY	VALLORCINES	-164	-11	153	-139	-100	39	-156	-55	101
FR	CH	BOIS TOLLOT	VERBOIS	224	264	40	112	238	126	80	187	107
FR	CH	GENISSIAT	VERBOIS	203	197	-6	147	143	-4	163	175	12
FR	CH	GENISSIAT	VERBOIS	203	197	-6	147	143	-4	163	175	12
FR	IT	ALBERTVILLE	RONDISSONE	890	983	93	768	851	83	635	444	-191
FR	IT	ALBERTVILLE	RONDISSONE	994	1096	102	818	916	98	681	434	-247
FR	IT	MENTON	CAMPOROSSO	150	202	52	158	207	49	151	209	58
FR	IT	VILLARODIN	VENAUS	647	622	-25	577	505	-72	270	372	102

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	43	2448	37
	Doel - Mercator (51)	2239	31	2239	45
	Doel - Mercator (52)	2239	31	2239	45
	Doel - Mercator (54)	2448	31	2448	45
	Doel - Zandvliet (25)	2349	8	2349	34
	Mercator - Horta (73)	2569	14	2569	39
	Courcelles - Gramme (31)	2311	49	2349	43
	Mercator - Rodenhuize/Horta (74)	2324	17	2349	44
RTE	Attaques - Warande 2	3780	49	3780	56
	Avelin - Gavrelle	2622	8	2622	44
	Avelin - Warande	3458	20	3458	9
	Lonny - Seuil	4149	15	4149	24
	Mandarins - Warande 1	3780	46	3780	53
	Muhlbach - Scheer	2598	23	2598	27
	Revigny - Vigy	2596	18	2596	36
	Warande - Weppes	3458	25	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	11	2520	4
		Hagenwerder - Mikulowa (567)	2520	20	2520	28
		Hagenwerder - Mikulowa (568)	2520	20	2520	27
		Remptendorf - Redwitz (413)	3485	40	3485	51
		Remptendorf - Redwitz (414)	3485	40	3485	51
		Röhrsdorf - Hradec (445)	2520	0	2520	49
		Röhrsdorf - Hradec (446)	2520	53	2520	49
		Vieselbach - Mecklar (449-1)	2520	14	2520	5
		Wolmirstedt - Helmstedt (491-1)	2400	11	2400	16
		Wolmirstedt - Helmstedt (492-2)	2400	11	2400	16
	220 kV	Vierraden - Krajnik (507)	1370	0	1370	0
		Vierraden - Krajnik (508)	1370	0	1370	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	1	1
	Rte	Warande	1	1
		Cergy	2	2
		Terrier	1	1
		Plessis Gassot	1	1
		Mery/Seine	2	2
		Muhlbach	2	2
		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	
Elia	19:30	380	Mercator	Busbar	1A	105%	380	Doel	Mercator	54	19:30
		Curative action: Decrease 2 taps each on both Zandvliet PSTs - 99% remaining									

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

TSO	Validity	Contingency				Constraint					Timestamps of max
		U (kV)	Substation 1	Substation 2	Code	Overload	U (kV)	Substation 1	Substation 2	Code	

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	
Observability area									

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): **00:30**
- Peak period (07:00 – 23:00): **08:30** **(Variant 11:30)**

Adaptations made on merged DACFs:

Off-peak:

- SI ➔ IT physical flow adapted to the target flow : **1100 MW (accepted by ELES and APG)**
- Mendrisio-Cagno flow adapted to the schedule : **197 MW**
- PST of Lienz adapted to **120 MW**
- PST of Camporosso adapted to **200 MW**
- PST of Rondissone adapted to tap 1 (tap 35 in the model)

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 Rondissone adapted to tap 1 (tap 35 in the model)

Special topologies

Nodes in South area				
			Off Peak	Peak
380 kV	Swissgrid	Sils	1	1
		Robbia	2	2
	Rte	Génissiat	1	1
		Albertville	1	1
		Grande Ile	2	2
	Terna	Turbigo	1	1
		Baggio	1	1
		Bovisio	1	1
		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	0	2370	0
		Albertville - Rondissone 2	2370	52	2370	67
		Bulciago - Soazza	2300	52	2300	44
		Cagno - Mendrisio	855	40	855	42
		Musignano - Lavorgo	2270	61	2270	64
		Redipuglia - Divaca	2700	46	2700	35
		Robbia - San Fiorano	2530	55	2530	49
		Robbia - Gorlago	2530	63	2530	52
		Venaus - Villarodin	2715	48	2715	58
	220 kV	Airolo - Ponte	900	0	900	0
		Lienz - Soverzene	750	40	750	41
		Menton - Campo Rosso	1165	43	1165	42
		Padriciano - Divaca	960	64	960	37
		Riddes - Avise	1010	29	1010	49
		Riddes - Valpelline	1010	34	1010	59
		Serra - Pallanzeno	900	53	900	77

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	1945	4541	123	1107
	Compensation ratio (calculated from NTC)	41%	47%	4%	8%
	Pentalateral impact on physical flows	-25%	-56%	-4%	-15%
Peak	Initial physical flows on adapted base case	2355	4471	125	803
	Compensation ratio (calculated from NTC)	38%	49%	4%	9%
	Pentalateral impact on physical flows	-23%	-58%	-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	Terna / Swissgrid	380	Robbia	Filisur / Pradella - Sils	N-2	102%	308	Lavorgo	Musignano	
		Preventive action: Increase the target flow SL > IT to 1100 MW (1200 MW has been accepted by ELES and APG, however overloads on Divaca PST are observed) 1 Node topology in Sils but open the line Sils - La Punt in Sils (Agreed by Swissgrid) Set Lavorgo PST at tap 15 (+2)								
	Terna / Swissgrid	380	Robbia	S.Fiorano / Gorlago	N-2	107%	380	Sils	Soazza	
		Preventive action: Increase the target flow SL > IT to 1100 MW (1200 MW has been accepted by ELES and APG, however overloads on Divaca PST are observed) 1 Node topology in Sils but open the line Sils - La Punt in Sils (Agreed by Swissgrid) Set Lavorgo PST at tap 15 (+2)								

Restart security analysis with preventive actions mentioned above

	TSO	Contingency				Constraint				
		U (kV)	Substation 1	Substation 2	Code	Overload	U (kV)	Substation 1	Substation 2	Code
Off-Peak	Eles / Terna / APG		Divaca	Redipuglia / Padriciano	N-2	114%	220	Lienz	Soverzene	
		Curative action: Decrease 3 taps on the Lienz PST (-12 > - 15) => 95% remaining								

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	Terna / Swissgrid	220	Rondissone	Trino		138%	220	Serra	Pallanzeno	
		Preventive action: The load in the Magenta 220 kV substation is connected to the wrong busbar. By switching the load to the other busbar the overloads dissappears.								

Restart security analysis with preventive actions mentioned above

	TSO	Contingency				Constraint				
		U (kV)	Substation 1	Substation 2	Code	Overload	U (kV)	Substation 1	Substation 2	Code
		No new constraints detected								

VARIANT 11:30

Constraint detected on the FR 380 kV grid

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
Peak	RTE	380	Albertville	Grande Ile	N-2	95% (10')	400	Albertville	Grande Ile	3
		Curative action: Open the line Saint Vulbas - Chaffard 1 => 92% remaining								
Peak	SWG	380	Mettlen	Lavorgo		111%	380/220	Mettlen	Tfo	
		Observability area **Preventive action:** Constraint solved by Swissgrid using internal topological actions								

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)	17	0
Rondissone 1 (1/33)	1	836
Rondissone 2 (1/33)	33	0
Camporosso (-32/32)	2	204
Lienz (-32/32)	-12	124
Padriciano (1/33)	19	246
Divaca (-32/32 each)	-3	864

PST	Peak	
	Tap position	Physical flow to Italy (MW)
La Praz (1/33)	17	0
Rondissone 1 (1/33)	1	1063
Rondissone 2 (1/33)	33	0
Camporosso (-32/32)	13	196
Lienz (-32/32)	-13	126
Padriciano (1/33)	12	141
Divaca (-32/32 each)	8	664

Conclusion

CWE: No critical constraint detected.

CEE: No critical constraint detected.

CSE: Constraints on CH - IT border can be managed by increasing the SL > IT target flow and preventive topological actions. Due to the forced outage of the line Albertville - Rondissone, special topologies are implemented on the FR grid.