CORESO Engineers ***North :*** KROMLIDIS Stylianos LEROY-BIASUTTI Emilie ***South :*** BIVONA Ignazio HOYAL Matias	**Day Ahead report for** **07 February 2018**

Security Levels:

CWE: Constraint detected that's manageable with classical remedial actions.

CEE: No critical constraint detected.

CSE: Constraints are solved after increasing the SI->IT physical flow to 1400 MW.

Key overall conditions

Outages table

Exchange program forecasts

ELIA expected flows & PSTs tap position

CEE Renewable Power Generation & Forecast

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

RTE flows on cross-border lines

N state flows at 10:30 and 19:30

Special topologies at 10:30 and 19:30

North analyses results

- Constraints on Elia, RTE (North) and 50HzT 400kV grids and tie-lines
- Constraints greater than 100% on NL + Amprion 400kV grids and greater than 120% on DE, CZ, PL and SK 400kV grids
- Constraints on ELIA 220/150kV grid at 10:30
- 50HzT DC loopflows sensitivity

South analyses results

N state flows Off-Peak & Peak

Special topologies

- Sensitivity coefficients for the Pentalateral instruction
- Constraints on APG, Eles, RTE (South), Swissgrid and Terna 400kV grids and tie-lines
- Final PSTs settings

Conclusion

Key overall conditions

Load & Generation margin forecast			Main generating units connected to the grid in DACF					
ELIA			Elia	Doel	Pmax (MW)	1000	**3**	3900
						450	2	
Peak load [MW]	12000	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]	89100	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]	47 500	18:00		Paluel		1300	**3**	3900
Generation Margin	Sufficient			Nogent s/ Seine		1300	2	2600
				Bugey		900	4	3600
TERNA				St Alban		1300	2	2600
Peak load [MW]	47917	18:30		Cruas		900	4	3600
Generation Margin	Sufficient			Tricastin		900	**3**	2700

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

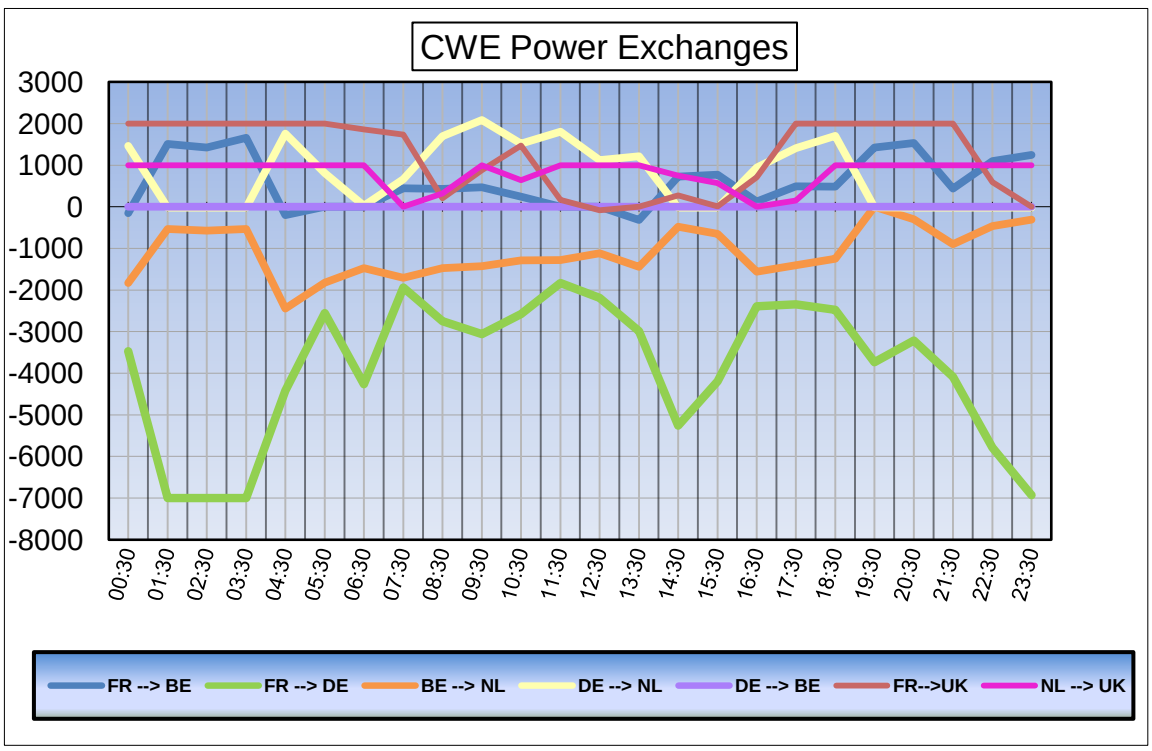
RTE: Tricastin 4 will be back at the end of the day.

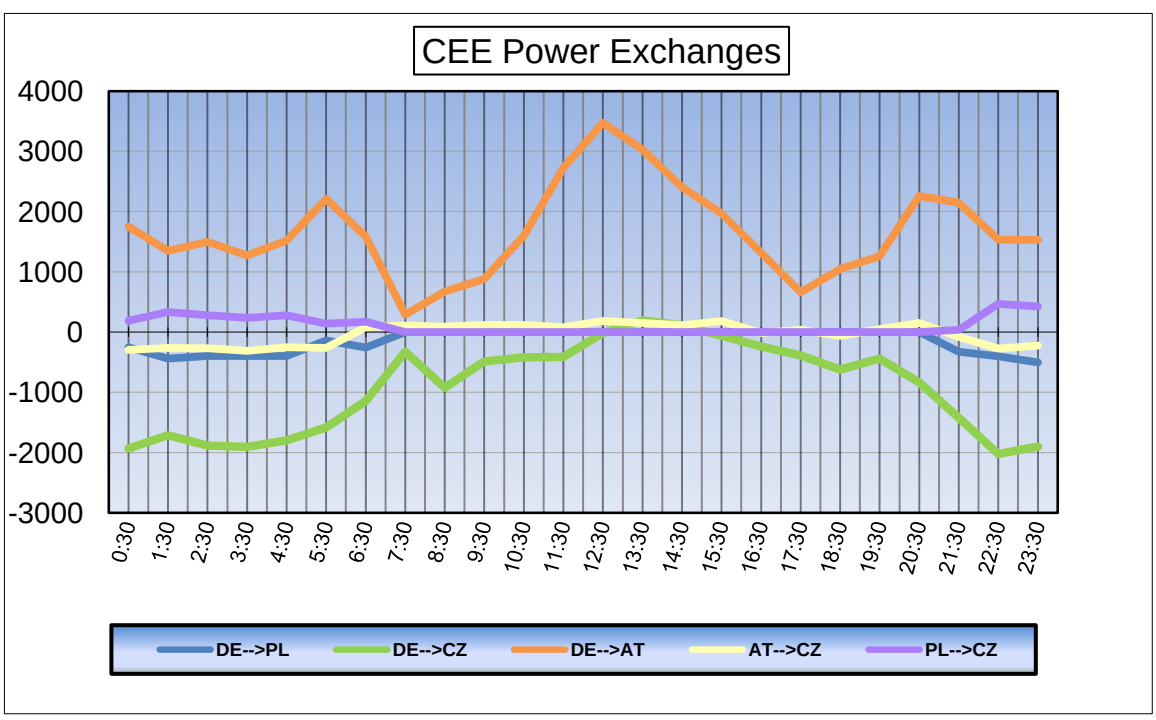
Outages table

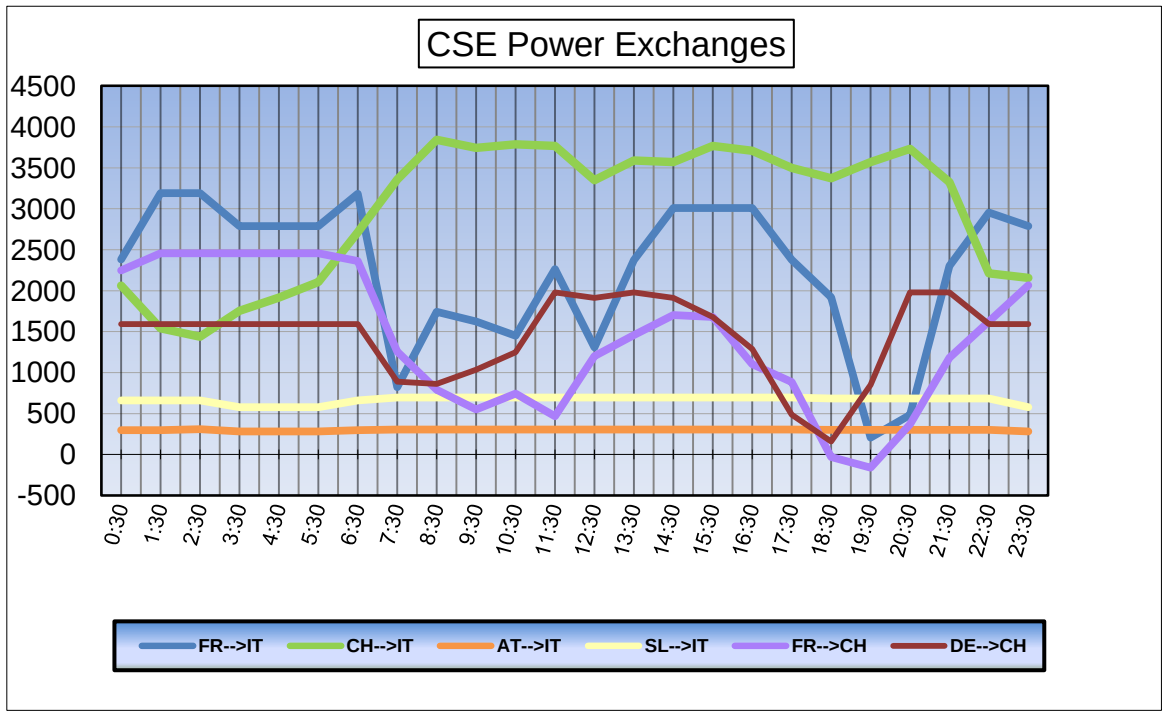
OUTAGES					
Owner	Type of element	Line name	start	end	Comments
50HzT	Fossil.Gen	LIPPENDORF _ Unit R 400 kV	07/02/2018	07/02/2018	reduced to 191 MW
50HzT	Fossil.Gen	SCHWARZE PUMP _ Unit 1 400 kV	07/02/2018	08/02/2018	755 MW
50HzT	Hydro.Gen	MARKERSBACH _ Unit D 400 kV	28/09/2017	27/04/2018	160 MW
50HzT	Line	HAGENWERDER _ SCHMÖLLN 554 400 kV	22/01/2018	09/02/2018	permanently
50HzT	Line	HAMBURG Nord _ BRUNSBUTTEL 951 400 kV	04/02/2018	11/02/2018	
50HzT	Line	LUBMIN _ WIKINGER 281 220 kV	04/02/2018	11/02/2018	
50HzT	Line	WOLMIRSTEDT _ WUSTERMARK 494 400 kV	04/02/2018	11/02/2018	
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
50HzT / TEN DE	Line	HELMSTEDT _ WOLMIRSTEDT 491 400 kV	05/02/2018	09/02/2018	daily
50HzT / TEN DE	Line	HELMSTEDT _ WOLMIRSTEDT 491 400 kV	05/02/2018	09/02/2018	daily
50HzT / TEN DE	Line	HELMSTEDT _ WOLMIRSTEDT 492 400 kV	05/02/2018	09/02/2018	daily
APG	Line	SARASDORF _ WIEN SUDOST 443D 400 kV	07/02/2018	07/02/2018	
CEPS	Line	BABYLON _ BEZDECIN 451 400 kV	01/02/2018	20/02/2018	permanently
CEPS	Line	KOCIN _ REPORYJE 1 400 kV	29/01/2018	14/02/2018	permanently
CEPS / SEPS	Line	NOSOVICE _ VARIN 404 400 kV	15/01/2018	02/03/2018	permanently
CREOS	Line	BERTRANGE _ SCHIFFLANGE West 220 kV	08/01/2018	02/03/2018	
ELES / HOPS	Line	KRSKO _ TUMBRI 1 400 kV	22/01/2018	02/03/2018	permanently
ELIA	Line	BRUEGEL _ COURCELLES 34 400 kV	07/02/2018	09/02/2018	permanently
ELIA	Line	DOEL _ MERCATOR 52 400 kV	01/02/2018	07/02/2018	permanently
ELIA	Line	GEZELLE _ MAERLANT 109 400 kV	25/01/2018	09/02/2018	permanently
ELIA	Line	GEZELLE _ STEVIN 111 400 kV	19/09/2017	02/03/2018	permanently
ELIA	Line	GEZELLE _ STEVIN 112 400 kV	19/09/2017	02/03/2018	permanently
ELIA	Line	GRAMME _ VANEYCK 12 380 kV	06/02/2018	08/02/2018	permanently
ELIA	Line	MAERLANT _ GEZELLE 110 400 kV	25/01/2018	09/02/2018	permanently
ELIA	Line	MAERLANT _ HORTA 104 400 kV	05/02/2018	09/02/2018	permanently
ELIA	Nuc.Gen	DOEL _ Unit 3 (1000MW) 400 kV	23/09/2017	16/04/2018	forced outage
PSE	Fossil.Gen	DOLNA ODRA _ Unit 7 400 kV	30/01/2018	07/02/2018	
PSE	Line	POLANIEC _ TARNOW 400 kV	05/02/2018	10/02/2018	daily
PSE	Line	TUCZNAWA _ RZESZOW 400 kV	05/02/2018	09/02/2018	daily
RTE	Line	BARNABOS _ TERRIER 2 400 kV	06/02/2018	07/02/2018	
RTE	Line	CHEVALET _ ARGOEUVES 1 380 kV	24/01/2018	23/02/2018	
RTE	Line	CHEVALET _ ARGOEUVES 1 380 kV	24/01/2018	23/02/2018	
RTE	Line	CREYS _ ST VULBAS 1 400 kV	31/01/2018	07/02/2018	
RTE	Line	GENISSIAT _ VIELMOULIN 1 400 kV	29/01/2018	23/02/2018	
RTE	Line	MAZURES _ REVIN 2 400 kV	05/02/2018	09/02/2018	
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	

Owner	Type of element	Line name	start	end	Comments
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	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	Trfo 32
TENNET DE	Generation	KUHTAI _ Unit 1 220 kV	02/10/2017	31/01/2019	142 MW
TENNET DE	Generation	KUHTAI _ Unit 2 220 kV	01/01/2017	01/10/2019	142 MW
TENNET DE	Generation	SILZ _ 2 220 kV	01/10/2017	01/10/2019	250 MW
TENNET DE	Generation	SILZ _ Unit M1 TIWAG 220 kV	01/10/2017	31/12/2018	250 MW
TENNET DE	Hydro.Gen	WALDECK _ UNIT 5 400 kV	15/01/2018	30/11/2018	240 MW
TENNET DE	Line	FLENSBURG _ AUDORF GRUN 380 kV	05/02/2018	**07/02/2018**	
TENNET DE	Line	IRSCHING _ OTTENHOFEN 421 400 kV	05/02/2018	**07/02/2018**	daily
TENNET DE	Line	JARDELUND _ AUDORF Grün 380 kV	06/02/2018	09/02/2018	daily
TENNET DE	Line	KARBEN _ BORKEN 2 380 kV	05/02/2018	**07/02/2018**	daily
TENNET DE	Line	TWISTETAL _ BORKEN 3 400 kV	16/05/2017	11/10/2018	
TENNET NL	Fossil.Gen	EEMSCENTRAAL _ EC6 400 kV	05/02/2018	09/02/2018	359 MW
TENNET NL	Fossil.Gen	EEMSHAVEN _ UNIT 1 400 kV	05/02/2018	09/02/2018	442 MW
TENNET NL	Generation	HEMWEG _ 8 380 kV	05/02/2018	09/02/2018	650 MW
TENNET NL	Generation	MAXIMA _ UNIT FL4 400 kV	05/02/2018	09/02/2018	435 MW
TENNET NL	Generation	MD _ 1 380 kV	05/02/2018	09/02/2018	348 MW
TENNET NL	Generation	MD _ 2 380 kV	05/02/2018	09/02/2018	426 MW
TENNET NL	Line	DOEKEGAT _ OUDESCHIP ZT 400 kV	**07/02/2018**	08/02/2018	
TENNET NL	Line	ENS _ ZWOLLE WT 400 kV	03/02/2018	09/02/2018	
TENNET NL	Line	WATERINGEN _ BLEISWIJK Black 400 kV	04/02/2018	09/02/2018	
TENNET NL	Line	WATERINGEN _ BLEISWIJK White 400 kV	04/02/2018	09/02/2018	
TransnetBW	Line	BUNZWANGEN _ LAICHINGEN Grün 380 kV	01/01/2018	24/02/2018	
TransnetBW	Line	DAXLANDEN _ PHILIPPSBURG GE 400 kV	05/02/2018	09/02/2018	daily
TransnetBW	Line	GROSSGARTACH _ PULVERDINGEN RT 400 kV	**07/02/2018**	**07/02/2018**	
TransnetBW	Line	NEUROTT _ PHILIPPSBURG RT 400 kV	15/01/2018	**07/02/2018**	daily
ransnetBW / S.Gri	Line	LAUFENBURG _ KUHMOOS Blau 220 kV	**07/02/2018**	**07/02/2018**	

Exchange program forecasts






CSE Power Exchanges
4500
4000
3500
3000
2500
2000
1500
1000
500
0
-500
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	01:30	03:30	05:30	06:30	07:30	10:30	12:30	14:30	17:30	19:30	21:30	23:30
BE	FR	ACHENE	LONNY	380.19	515	468	362	594	387	501	585	665	348	682	668	674
BE	FR	AUBANGE	MONT ST MARTIN	220.51	29	33	14	98	-9	-14	75	100	-13	49	81	109
BE	FR	AUBANGE	MOULAINE	220.51	13	18	3	81	-19	-25	59	80	-22	34	68	93
BE	FR	AVELGEM	AVELIN	380.80	582	445	289	542	316	503	503	615	262	741	755	580
BE	FR	AVELGEM	MASTAING	380.79	58	41	-42	39	-142	-77	15	71	-185	-16	70	44
BE	FR	MONCEAU	CHOOZ	220.48	-18	-63	-23	-13	-72	-54	-4	8	-90	-54	-12	-16
BE	NL	VAN EYCK 1	MAASBRACHT	380.27	-920	-904	-677	-810	-781	-773	-726	-794	-706	-905	-851	-934
BE	NL	VAN EYCK 2	MAASBRACHT	380.28	-671	-653	-428	-422	-288	-232	-310	-395	-170	-298	-415	-484
BE	NL	ZANDVLIET	BORSSELE	380.29	-851	-845	-912	-984	-962	-910	-902	-970	-851	-991	-1003	-793
BE	NL	ZANDVLIET	GEERTRUIDENBERG	380.30	-614	-591	-323	-490	-482	-345	-319	-456	-342	-530	-552	-621
BE	LU	BELVAL	SCHIFFLANGE	220.511	-177	-159	-100	-123	-111	-118	-107	-146	-140	-148	-165	-219

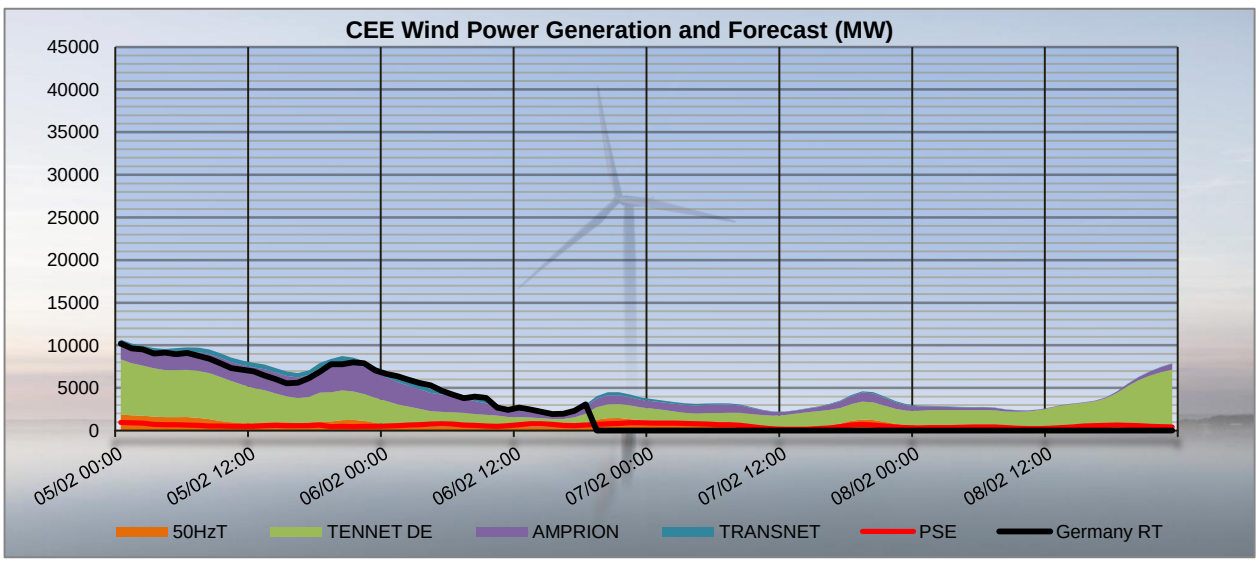
BE	FR	TOTAL		1179	942	603	1341	461	834	1233	1539	300	1436	1630	1484
BE	NL	TOTAL		-3056	-2993	-2340	-2706	-2513	-2260	-2257	-2615	-2069	-2724	-2821	-2832
BE	LU	TOTAL		-177	-159	-100	-123	-111	-118	-107	-146	-140	-148	-165	-219
TOTAL BELGIAN IMPORT/EXPORT				-2054	-2210	-1837	-1488	-2163	-1544	-1131	-1222	-1909	-1436	-1356	-1567

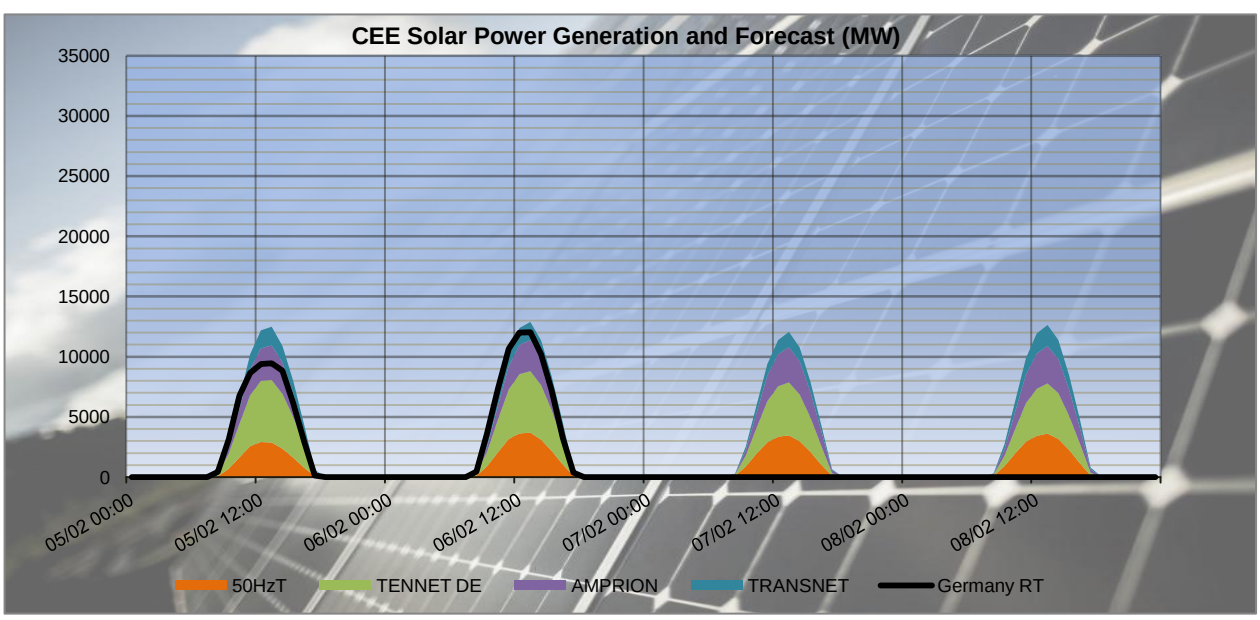
PST taps in DACF	**Zandvliet 1**	12	12	12	12	12	12	12	12	12	12	12	12	12	12
	Zandvliet 2	12	12	12	12	12	12	12	12	12	12	12	12	12	12
	Van Eyck 1	15	15	15	15	15	15	15	15	15	15	15	15	15	15
	Van Eyck 2	15	15	15	15	15	15	15	15	15	15	15	15	15	15
	Average	14	14	14	14	14	14	14	14	14	14	14	14	14	14

CREOS PST in DACF	**Schifflange**	16	16	17	17	17	17	17	17	17	17	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]**	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
Zandvliet 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
Van Eyck PST 1	**[1;35]**	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15
Van Eyck PST 2	**[1;35]**	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15
Schifflange PST 1	**[1;35]**	14	14	14	14	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17

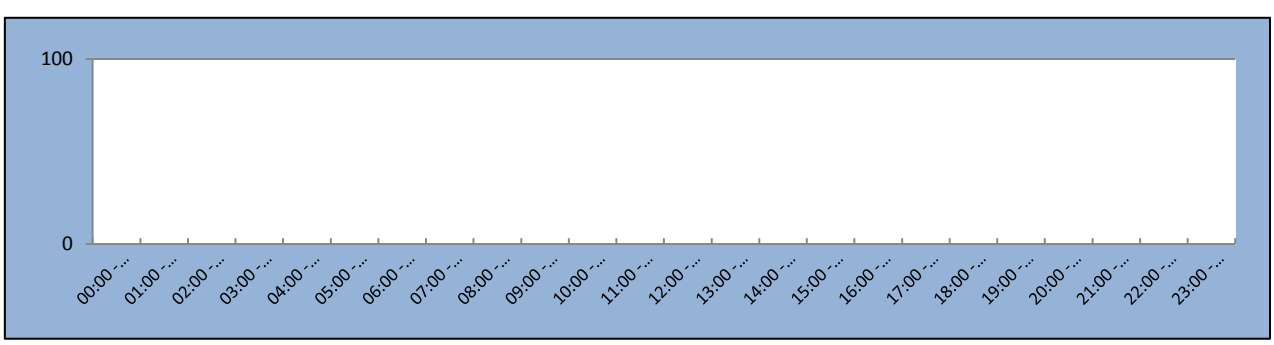
CEE Renewable Power Generation & Forecast



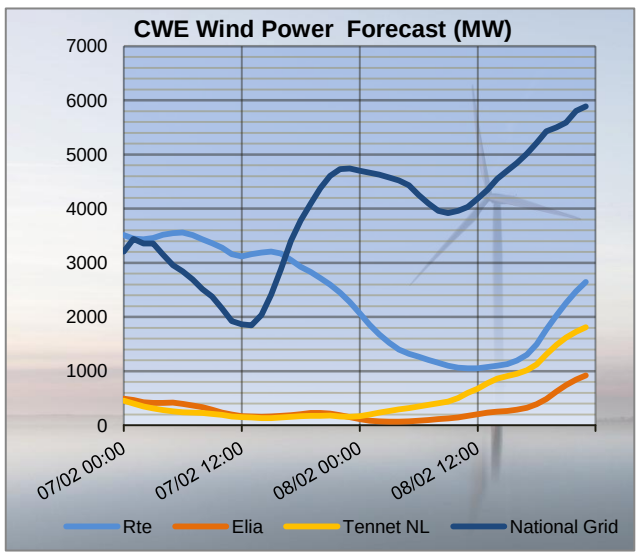


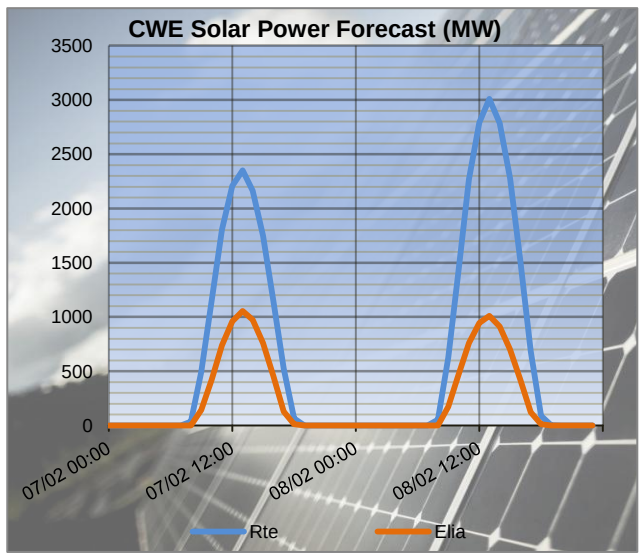
The charts above show the wind and solar generation forecasts for the TSOs in CEE (most significant) from D+1 until D-2 and the realised generation in Germany in real time. Source: Meteologica and 50HzT (RT)

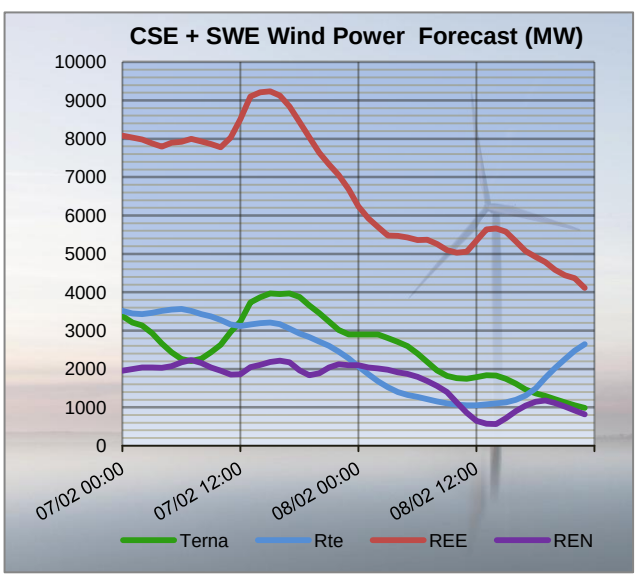
50HzT Preventive Redispatch

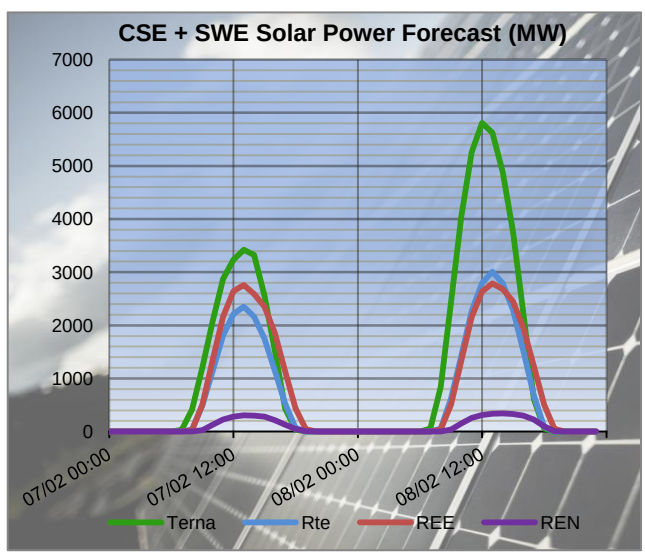


CWE, CSE & SWE Renewable Power Forecast (D-1 and D-2)









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	-240	-468	-228	-274	-387	-113	-313	-501	-188	-339	-585	-246
FR	BE	MONT ST MARTIN	AUBANGE	42	-33	-75	28	9	-19	106	14	-92	-38	-75	-37
FR	BE	MOULAINE	AUBANGE	0	-18	-18	0	19	19	0	25	25	0	-59	-59
FR	BE	AVELIN	AVELGEM	-315	-445	-130	-298	-316	-18	-431	-503	-72	-388	-503	-115
FR	BE	MASTAING	AVELGEM	51	-41	-92	171	142	-29	135	77	-58	65	-15	-80
FR	BE	CHOOZ	MONCEAU	104	63	-41	117	72	-45	101	54	-47	86	4	-82
FR	DE	MUHLBACH	EICHSTETTEN	-302	-56	246	-100	-43	57	-373	-154	219	-246	8	**254**
FR	DE	VOGELGRUN	EICHSTETTEN	-204	-106	98	-49	-36	13	-135	-34	101	-131	-52	79
FR	DE	ST AVOLD	ENSDORF	0	0	0	0	0	0	0	0	0	0	0	0
FR	DE	VIGY	ENSDORF 1	-565	-375	190	-117	80	197	-268	-39	229	-288	-72	216
FR	DE	VIGY	ENSDORF 2	-610	-375	235	-126	65	191	-252	-33	219	-284	-85	199

				17:30			19:30			23:30		
		Node 1	Node 2	DACF	Merge	Delta	DACF	Merge	Delta	DACF	Merge	Delta
FR	BE	LONNY	ACHENE	-187	-348	-161	-421	-682	**-261**	-556	-674	-118
FR	BE	MONT ST MARTIN	AUBANGE	114	13	-101	29	-49	-78	-91	-109	-18
FR	BE	MOULAINE	AUBANGE	0	22	22	0	-34	-34	0	-93	-93
FR	BE	AVELIN	AVELGEM	-175	-262	-87	-646	-741	-95	-468	-580	-112
FR	BE	MASTAING	AVELGEM	252	185	-67	84	16	-68	38	-44	-82
FR	BE	CHOOZ	MONCEAU	135	90	-45	87	54	-33	84	16	-68
FR	DE	MUHLBACH	EICHSTETTEN	-130	46	176	-465	-294	171	-338	-123	215
FR	DE	VOGELGRUN	EICHSTETTEN	-65	-1	64	-94	-55	39	-153	-86	67
FR	DE	ST AVOLD	ENSDORF	0	0	0	0	0	0	0	0	0
FR	DE	VIGY	ENSDORF 1	-39	93	132	-391	-227	164	-624	-364	**260**
FR	DE	VIGY	ENSDORF 2	-55	63	118	-344	-194	150	-620	-372	248

				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	76	218	142	-61	17	78	-132	-92	40	-12	137	149
FR	CH	MAMBELIN	BASSECOURT	-329	-214	115	-324	-250	74	-414	-333	81	-360	-233	127
FR	CH	SIERENTZ	BASSECOURT	748	715	-33	408	409	1	437	420	-17	513	500	-13
FR	CH	BOIS TOLLOT	ROMANEL	20	-135	-155	-334	-403	-69	-248	-435	-187	-156	-389	-233
FR	CH	SIERENTZ	LAUFENBURG	98	180	82	-194	-139	55	-225	-198	27	-96	21	117
FR	CH	CORNIER	RIDDES	-131	-83	48	-158	-97	61	-162	-129	33	-122	-88	34
FR	CH	CORNIER	ST TRIPHON	-151	-131	20	-155	-109	46	-150	-150	0	-111	-105	6
FR	CH	PRESSY	VALLORCINES	-252	-204	48	-329	-229	100	-336	-279	57	-284	-229	55
FR	CH	BOIS TOLLOT	VERBOIS	133	169	36	177	238	61	189	263	74	203	267	64
FR	CH	GENISSIAT	VERBOIS	55	41	-14	-3	-6	-3	4	-3	-7	33	20	-13
FR	CH	GENISSIAT	VERBOIS	55	41	-14	-3	-6	-3	4	-3	-7	33	20	-13
FR	IT	ALBERTVILLE	RONDISSONE	543	416	-127	545	306	-239	586	476	-110	563	386	-177
FR	IT	ALBERTVILLE	RONDISSONE	546	388	-158	582	452	-130	652	508	-144	636	562	-74
FR	IT	MENTON	CAMPOROSSO	251	209	-42	146	209	63	144	207	63	143	192	49
FR	IT	VILLARODIN	VENAUS	76	30	-46	439	460	21	536	622	86	479	615	136

				17:30			19:30			23:30		
		Node 1	Node 2	DACF	Merge	Delta	DACF	Merge	Delta	DACF	Merge	Delta
FR	CH	SIERENTZ	ASPHARD	-58	75	133	-310	-141	169	51	72	21
FR	CH	MAMBELIN	BASSECOURT	-345	-252	93	-497	-405	92	-370	-309	61
FR	CH	SIERENTZ	BASSECOURT	348	365	17	343	343	0	694	649	-45
FR	CH	BOIS TOLLOT	ROMANEL	-334	-438	-104	-443	-539	-96	-84	-201	-117
FR	CH	SIERENTZ	LAUFENBURG	-138	-104	34	-388	-303	85	66	106	40
FR	CH	CORNIER	RIDDES	-168	-119	49	-191	-152	39	-139	-95	44
FR	CH	CORNIER	ST TRIPHON	-172	-148	24	-166	-167	-1	-161	-133	28
FR	CH	PRESSY	VALLORCINES	-354	-297	57	-356	-318	38	-266	-215	51
FR	CH	BOIS TOLLOT	VERBOIS	136	211	75	125	214	89	140	207	67
FR	CH	GENISSIAT	VERBOIS	-3	13	16	-43	-19	24	22	31	9
FR	CH	GENISSIAT	VERBOIS	-3	13	16	-43	-19	24	22	31	9
FR	IT	ALBERTVILLE	RONDISSONE	656	567	-89	382	299	-83	547	385	-162
FR	IT	ALBERTVILLE	RONDISSONE	753	639	-114	417	306	-111	561	309	**-252**
FR	IT	MENTON	CAMPOROSSO	148	198	50	157	197	40	160	207	47
FR	IT	VILLARODIN	VENAUS	603	658	55	413	512	99	385	437	52

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	38	2448	43
	Doel - Mercator (51)	2239	56	2239	61
	Doel - Mercator (52)	2239	0	2239	0
	Doel - Mercator (54)	2448	56	2448	61
	Doel - Zandvliet (25)	2349	28	2349	36
	Mercator - Horta (73)	2569	42	2569	51
	Courcelles - Gramme (31)	2349	44	2349	50
	Mercator - Rodenhuize/Horta (74)	2349	47	2349	57
RTE	Attaques - Warande 2	3780	58	3780	66
	Avelin - Gavrelle	2622	64	2622	76
	Avelin - Warande	3458	7	3458	6
	Lonny - Seuil	4149	32	4149	32
	Mandarins - Warande 1	3540	58	3540	66
	Muhlbach - Scheer	2598	11	2598	5
	Revigny - Vigy	2596	54	2596	58
	Warande - Weppes	3458	14	3458	9

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	25	2520	22
		Hagenwerder - Mikulowa (567)	2520	13	2520	15
		Hagenwerder - Mikulowa (568)	2520	13	2520	15
		Remptendorf - Redwitz (413)	3572	36	3594	38
		Remptendorf - Redwitz (414)	3572	36	3594	38
		Röhrsdorf - Hradec (445)	2520	17	2520	18
		Röhrsdorf - Hradec (446)	2520	17	2520	18
		Vieselbach - Mecklar (449-1)	2520	28	2520	26
		Wolmirstedt - Helmstedt (491-1)	2400	0	2400	5
		Wolmirstedt - Helmstedt (492-2)	2400	17	2400	5
	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	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 - 21:30	380	Attaques	Warande		117%	380	Mandarins	Warande		19:30
		Curative action : 2-nodes operation in Warande 380 kV substation (sections 1C and 2C connected together) => 79 % 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	
		No constraint to report									

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	Mercator	Busbar	2A	112%	150	Zandvliet	Lillo	117	valid all day maximum at 20:30 (121 %)

50HzT DC loopflows sensitivity

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

South analyses results

Security analyses have been performed for these 2 timestamps:

- Off-peak period (23:00 – 07:00): **03:30**
- Peak period (07:00 – 23:00): **14:30**

Adaptations made on merged DACFs:

Off-peak:

- SI ➔ IT physical flow adapted to **1400 MW** (the target flow should be 800MW)
- Mendrisio-Cagno flow adapted to the schedule : **130 MW**
- PST of Lienz adapted to **200 MW**
- PST of Camporosso adapted to **200 MW**
- PST of La Praz on **tap 1**

Peak:

- SI ➔ IT physical flow adapted to the target of **800 MW**
- Mendrisio-Cagno flow adapted to the schedule : **160 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	1
		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	26	2370	36
		Albertville - Rondissone 2	2370	24	2370	40
		Bulciago - Soazza	2300	29	2300	45
		Cagno - Mendrisio	855	18	855	36
		Musignano - Lavorgo	2270	43	2270	60
		Redipuglia - Divaca	2700	46	2700	34
		Robbia - San Fiorano	2530	37	2530	53
		Robbia - Gorlago	2530	49	2530	65
		Venaus - Villarodin	2715	3	2715	37
	220 kV	Airolo - Ponte	900	23	900	9
		Lienz - Soverzene	704	40	704	43
		Menton - Campo Rosso	1165	44	1165	43
		Padriciano - Divaca	960	95	960	64
		Riddes - Avise	1010	4	1010	22
		Riddes - Valpelline	1010	3	1010	24
		Serra - Pallanzeno	900	25	900	48

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	985	2799	193	1386
	Compensation ratio (calculated from NTC)	39%	49%	4%	8%
	Pentalateral impact on physical flows	-27%	-56%	-4%	-14%
Peak	Initial physical flows on adapted base case	2145	4362	122	893
	Compensation ratio (calculated from NTC)	37%	50%	4%	9%
	Pentalateral impact on physical flows	-28%	-55%	-4%	-14%

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	APG / Eles / Terna	380	ATD Redipuglia - Planais		N-K	138%	220	Lienz	PST	
						146%	220	Lienz	Soverzene	
		Preventive action : -5 taps in Lienz PST (25 to 20) => 109% remaining for PST (115% for line) **Curative action :** -3 taps in Lienz PST (20 to 17) => 92% remaining for PST (97% for line)								
After the preventive action taken above, no more constraint detected.										

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	Swissgrid	380	Bonaduz	Sils	1&2	109%	380	Pradella	La Punt	
		Preventive action: 2 nodes in Sils => 92% remaining (Agreed with SwissGrid).								
After the preventive action taken above, no more constraint detected.										

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	30
Rondissone 1 (1/33)	33	387
Rondissone 2 (1/33)	33	414
Camporosso (-32/32)	-12	209
Lienz (-32/32)	-14	114
Padriciano (1/33)	33	364
Divaca (-32/32 each)	-32	862

PST	Peak	
	Tap position	Physical flow to Italy (MW)
La Praz (1/33)	1	479
Rondissone 1 (1/33)	33	649
Rondissone 2 (1/33)	33	579
Camporosso (-32/32)	-6	201
Lienz (-32/32)	-26	122
Padriciano (1/33)	33	243
Divaca (-32/32 each)	-28	651

Conclusion

CWE: Constraint detected that's manageable with classical remedial actions.
CEE: No critical constraint detected.
CSE: Constraints are solved after increasing the SI->IT physical flow to 1400 MW.