CORESO Engineers ***North :*** KROMLIDIS Stylianos LEROY-BIASUTTI Emilie ***South :*** BIVONA Ignazio HOYAL Matias	**Day Ahead report for** **09 February 2018**

Security Levels:

CWE: Some constraints detected manageable with classical remedial actions.

CEE: No critical constraint detected.

CSE: Some constraints detected manageable with preventive remedial action on SWG side.

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]	11000	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]	87300	09:30		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]	45 600	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]	47124	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

50HzT: Works on Hamburg Nord - Hamburg Ost 961 & 962 are finished one day earlier than forecast.

CSE

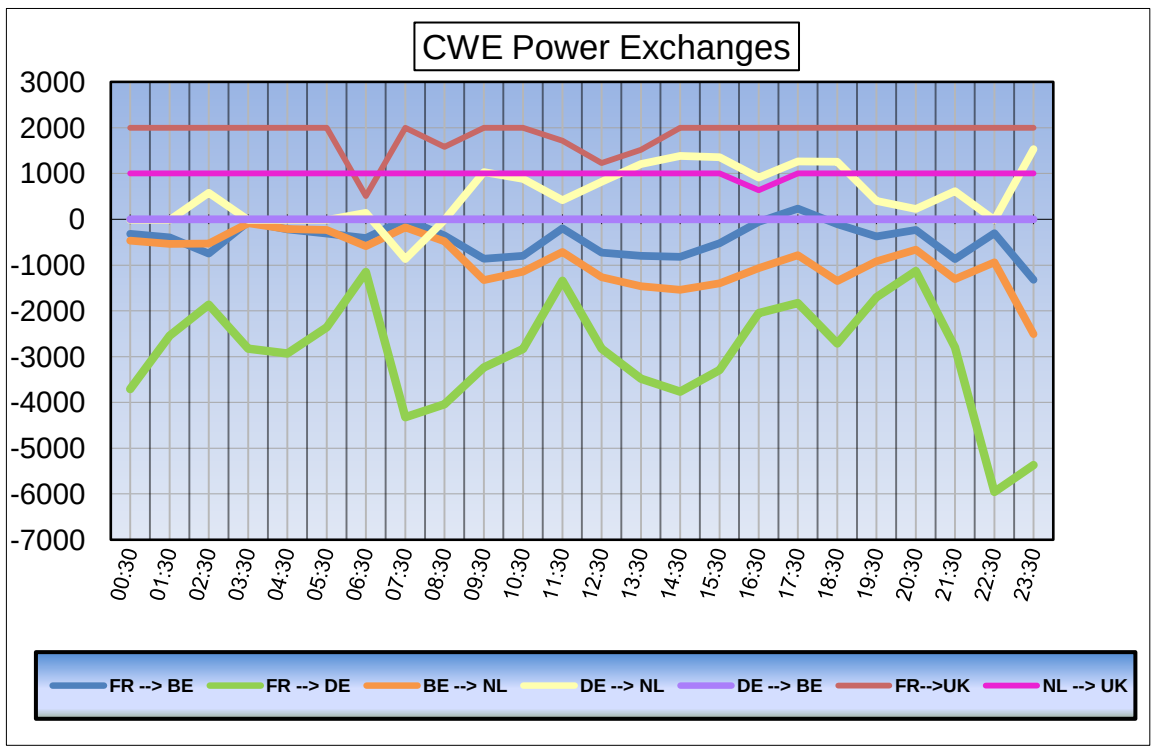
RTE: Tricastin 4 maybe will be available at the end of the day.

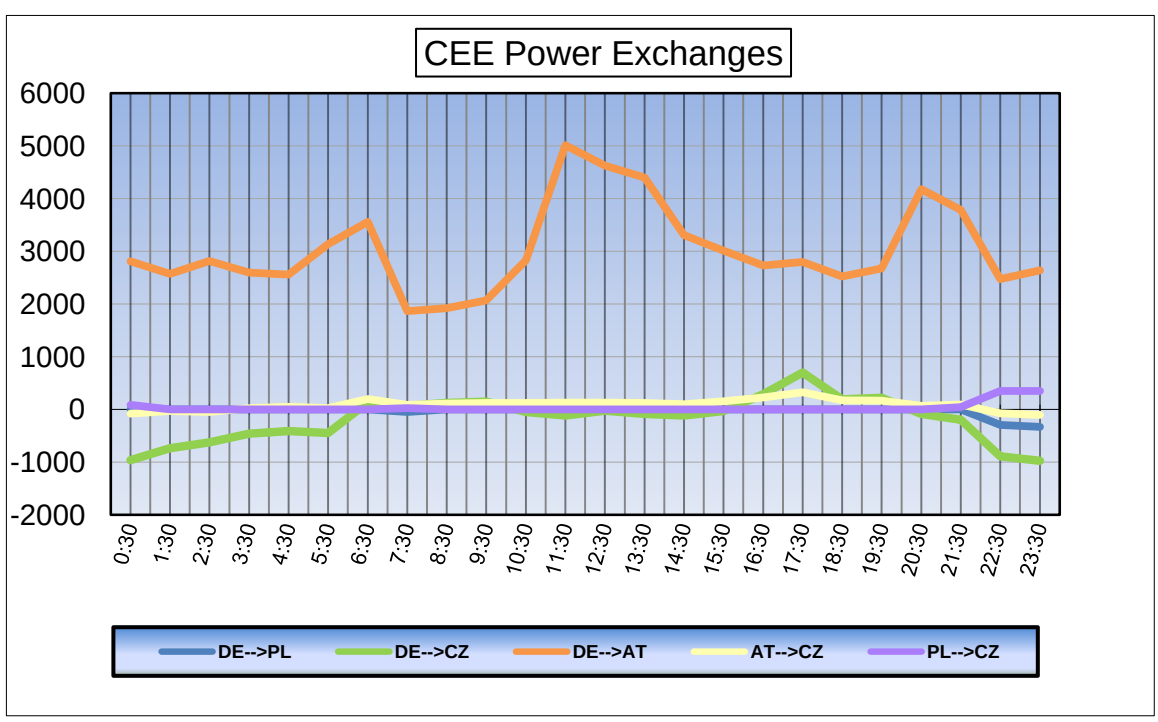
Outages table

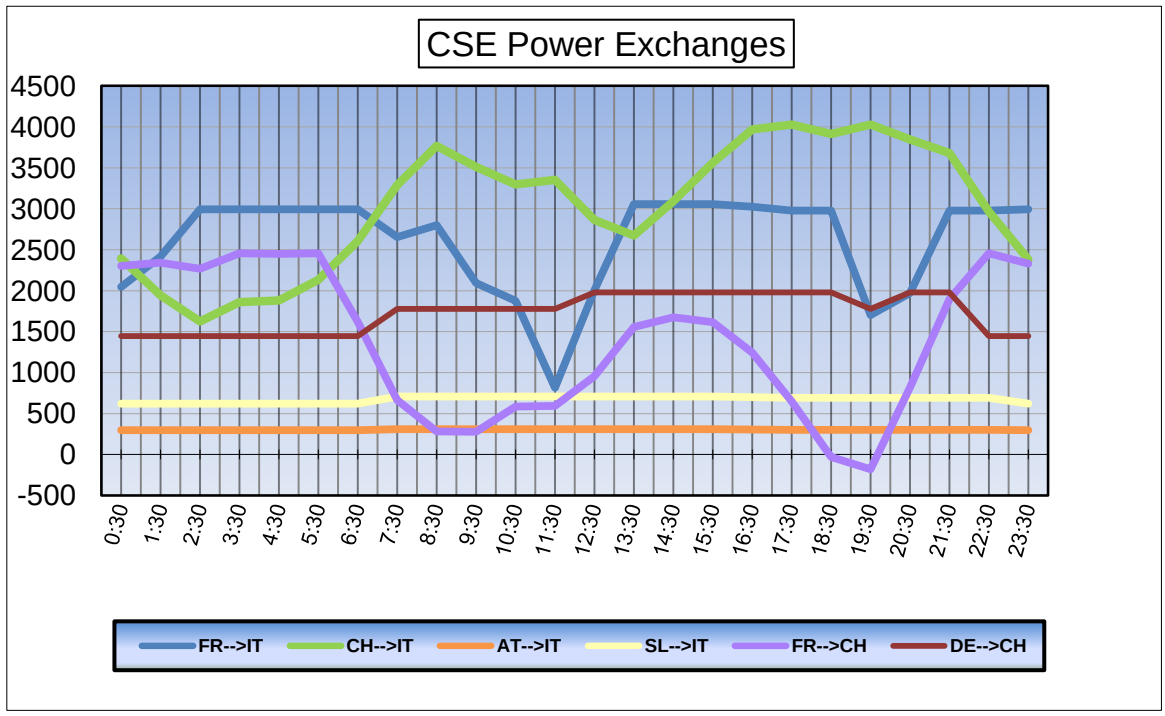
OUTAGES					
Owner	Type of element	Line name	start	end	Comments
50HzT	Hydro.Gen	MARKERSBACH _ Unit D 400 kV	28/09/2017	27/04/2018	160 MW
50HzT	Line	EULA _ Wolkramhausen 357 220 kV	04/02/2018	11/02/2018	
50HzT	Line	HAGENWERDER _ SCHMÖLLN 554 400 kV	22/01/2018	09/02/2018	permanently
50HzT	Line	HAMBURG Nord _ HAMBURG Ost 961 400 kV	05/02/2018	09/02/2018	daily - alternatively with line 962
50HzT	Line	HAMBURG Nord _ HAMBURG Ost 962 400 kV	05/02/2018	09/02/2018	daily - alternatively with line 961
50HzT	Line	REMPTENDORF _ VIESELBACH 416 400 kV	05/02/2018	11/02/2018	permanently
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
AMP / TEN DE	Line	NEHDEN _ TWISTETAL W 400 kV	08/01/2018	23/02/2018	daily
CEPS	Line	BABYLON _ BEZDECIN 451 400 kV	01/02/2018	20/02/2018	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
ELES / HOPS	Line	KRSKO _ TUMBRI 2 400 kV	08/02/2018	11/02/2018	daily
ELIA	Line	BRUEGEL _ COURCELLES 34 400 kV	07/02/2018	09/02/2018	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	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	Line	DOBRZEN _ TREBACZEW 400 kV	08/02/2018	09/02/2018	daily
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	CHEVALET _ ARGOEUVES 1 380 kV	24/01/2018	23/02/2018	
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	
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	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

Owner	Type of element	Line name	start	end	Comments
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	Hydro.Gen	WALDECK _ UNIT 6 400 kV	15/01/2018	14/02/2018	240 MW
TENNET DE	Line	JARDELUND _ AUDORF Grün 380 kV	06/02/2018	09/02/2018	daily
TENNET DE	Line	TWISTETAL _ BORKEN 3 400 kV	16/05/2017	11/10/2018	
TENNET DE	Line	WURGASSEN _ GROHNDE 2 400 kV	09/02/2018	09/02/2018	
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	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	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	
TERNA / S.GRID	Line	MESE _ GORDUNO 225 kV	08/02/2018	09/02/2018	
TransnetBW	Line	BUNZWANGEN _ LAICHINGEN Grün 380 kV	05/02/2018	24/02/2018	
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

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	00:30	02:30	03:30	07:30	09:30	10:30	11:30	12:30	17:30	19:30	20:30	23:30
BE	FR	ACHENE	LONNY	380.19	728	533	515	753	721	718	617	757	350	607	579	726
BE	FR	AUBANGE	MONT ST MARTIN	220.51	124	62	59	121	89	118	51	100	-6	74	64	100
BE	FR	AUBANGE	MOULAINE	220.51	101	46	46	102	67	95	33	82	-19	59	49	83
BE	FR	AVELGEM	AVELIN	380.80	783	522	499	1042	1023	970	801	900	415	831	692	865
BE	FR	AVELGEM	MASTAING	380.79	148	64	80	259	222	205	141	193	-50	119	97	160
BE	FR	MONCEAU	CHOOZ	220.48	40	12	-11	64	46	42	32	53	-42	-5	12	-46
BE	NL	VAN EYCK 1	MAASBRACHT	380.27	-686	-482	-503	-659	-712	-694	-636	-715	-546	-634	-548	-762
BE	NL	VAN EYCK 2	MAASBRACHT	380.28	-477	-220	-311	-517	-551	-505	-428	-553	-248	-370	-301	-643
BE	NL	ZANDVLIET	BORSSELE	380.29	-477	-340	-363	-876	-878	-857	-824	-893	-685	-870	-851	-1067
BE	NL	ZANDVLIET	GEERTRUIDENBERG	380.30	-376	-86	-129	-356	-337	-295	-231	-342	-92	-295	-210	-470
BE	LU	BELVAL	SCHIFFLANGE	220.511	-64	99	81	-115	-155	-156	-73	-131	-104	-66	-19	-143

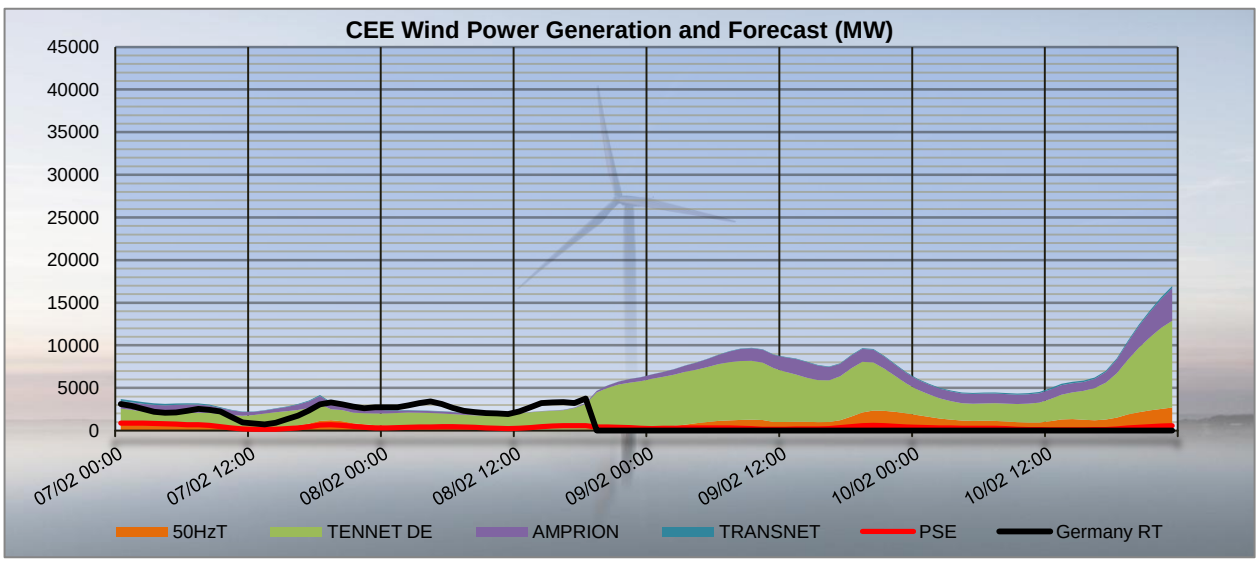
BE	FR	TOTAL		1924	1239	1188	2341	2168	2148	1675	2085	648	1685	1493	1888
BE	NL	TOTAL		-2016	-1128	-1306	-2408	-2478	-2351	-2119	-2503	-1571	-2169	-1910	-2942
BE	LU	TOTAL		-64	99	81	-115	-155	-156	-73	-131	-104	-66	-19	-143
TOTAL BELGIAN IMPORT/EXPORT				-156	210	-37	-182	-465	-359	-517	-549	-1027	-550	-436	-1197

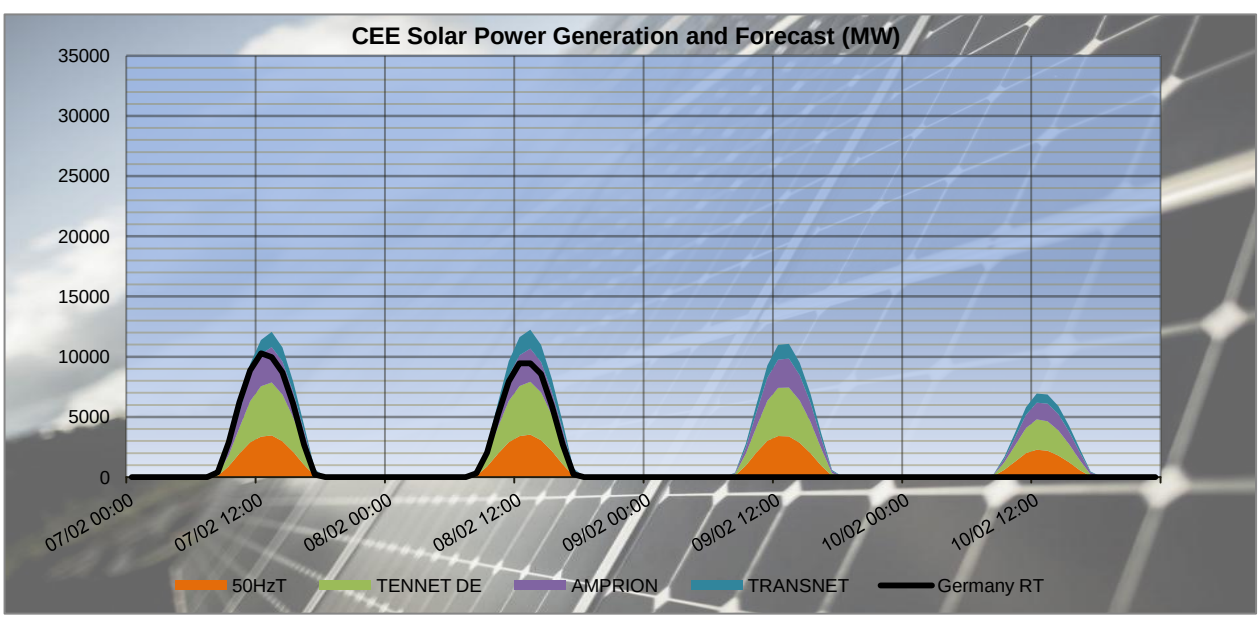
PST taps in DACF	**Zandvliet 1**	12	12	12	12	12	12	12	12	12	12	12	12	12	12
	Zandvliet 2	12	12	12	12	12	12	12	12	12	12	12	12	12	12
	Van Eyck 1	15	15	15	15	15	15	15	15	15	15	15	15	15	15
	Van Eyck 2	15	15	15	15	15	15	15	15	15	15	15	15	15	15
	Average	14	14	14	14	14	14	14	14	14	14	14	14	14	14

CREOS PST in DACF	**Schifflange**	17	17	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	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	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	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	15
Schifflange PST 1	**[1;35]**	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17

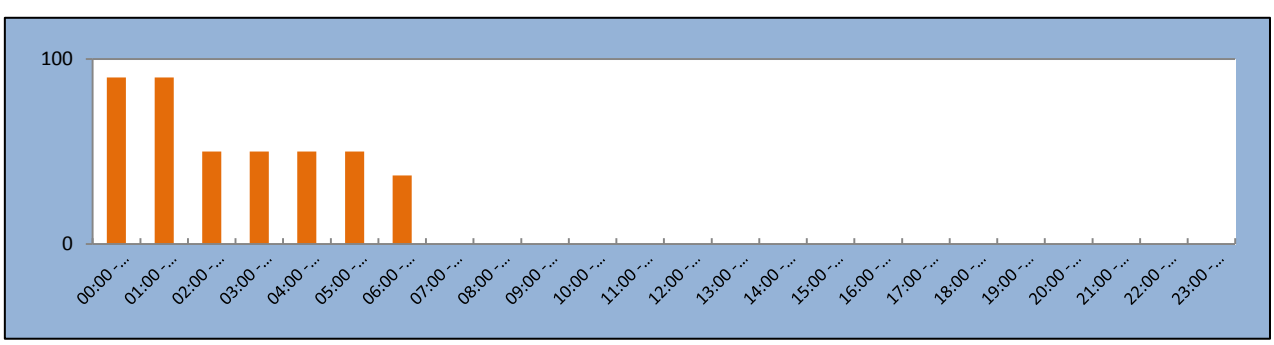
CEE Renewable Power Generation & Forecast



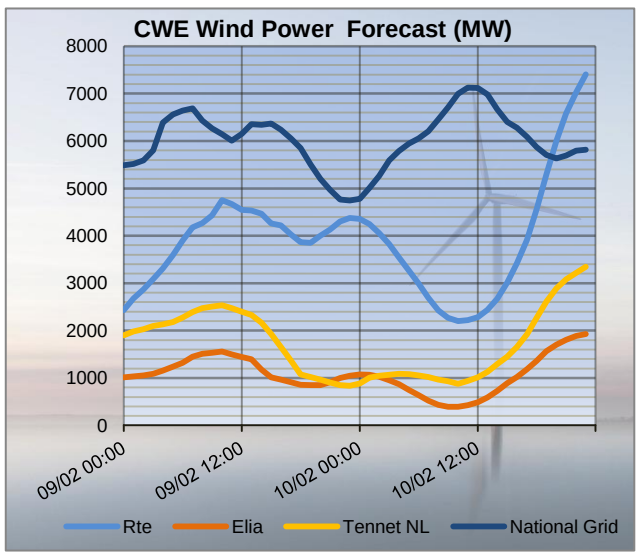


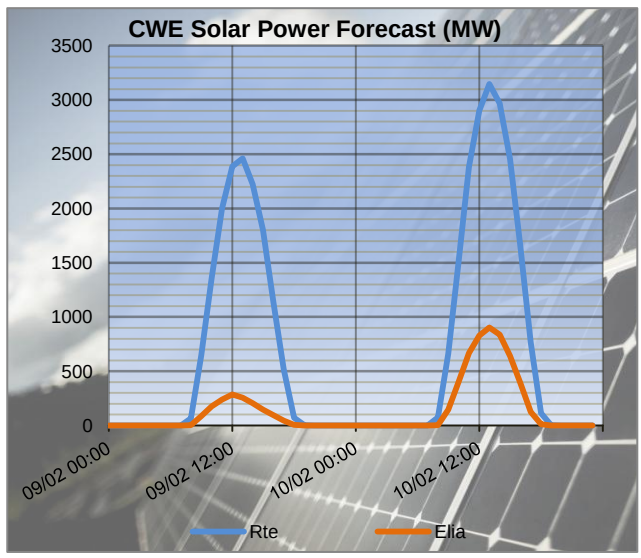
The charts above show the wind and solar generation forecasts for the TSOs in CEE (most significant) from D+1 until D-2 and the realised generation in Germany in real time. Source: Meteologica and 50HzT (RT)

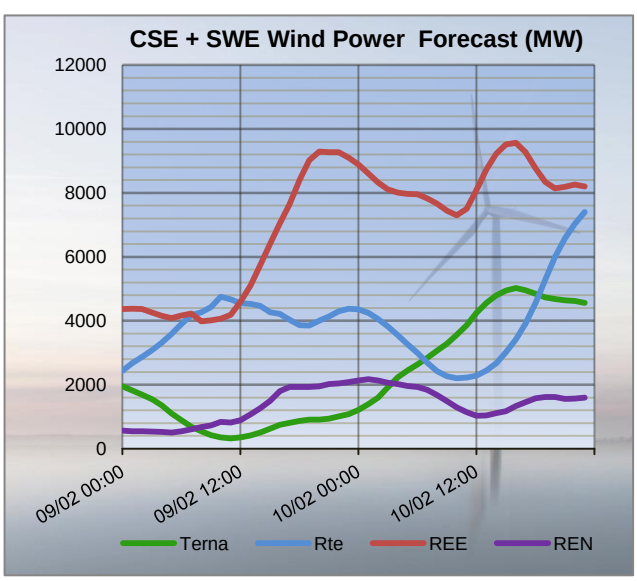
50HzT Preventive Redispatch

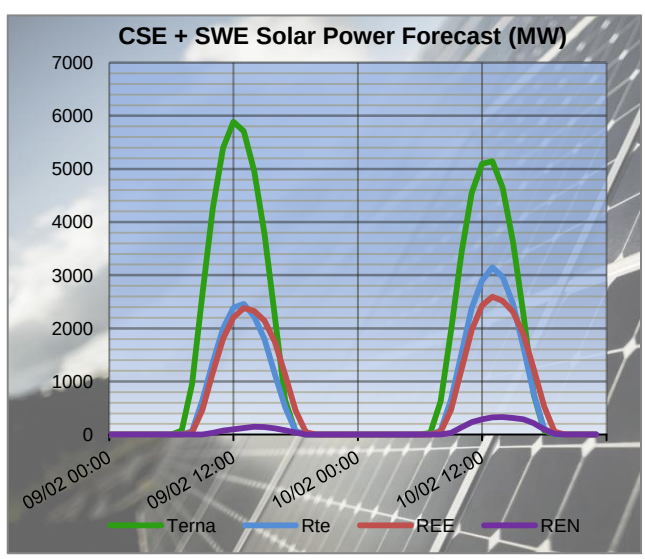


CWE, CSE & SWE Renewable Power Forecast (D-1 and D-2)









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	-468	-515	-47	-754	-753	1	-666	-718	-52	-628	-757	-129
FR	BE	MONT ST MARTIN	AUBANGE	-40	-59	-19	-91	-121	-30	-84	-118	-34	-48	-100	-52
FR	BE	MOULAINE	AUBANGE	-28	-46	-18	-74	-102	-28	-62	-95	-33	-34	-82	-48
FR	BE	AVELIN	AVELGEM	-514	-499	15	-984	-1042	-58	-913	-970	-57	-851	-900	-49
FR	BE	MASTAING	AVELGEM	-80	-80	0	-212	-259	-47	-160	-205	-45	-160	-193	-33
FR	BE	CHOOZ	MONCEAU	-40	11	51	-90	-64	26	-51	-42	9	-54	-53	1
FR	DE	MUHLBACH	EICHSTETTEN	283	381	98	-216	18	234	-233	-14	219	-160	32	192
FR	DE	VOGELGRUN	EICHSTETTEN	-59	-54	5	-120	-62	58	-95	-60	35	-103	-59	44
FR	DE	ST AVOLD	ENSDORF	0	0	0	0	0	0	0	0	0	0	0	0
FR	DE	VIGY	ENSDORF 1	124	187	63	-130	-132	-2	-194	-177	17	-217	-213	4
FR	DE	VIGY	ENSDORF 2	192	282	90	-109	-77	32	-178	-127	51	-206	-175	31

				17:30			19:30			23:30		
		Node 1	Node 2	DACF	Merge	Delta	DACF	Merge	Delta	DACF	Merge	Delta
FR	BE	LONNY	ACHENE	-333	-350	-17	-665	-607	58	-685	-726	-41
FR	BE	MONT ST MARTIN	AUBANGE	17	6	-11	-97	-74	23	-68	-100	-32
FR	BE	MOULAINE	AUBANGE	29	19	-10	-81	-59	22	-52	-83	-31
FR	BE	AVELIN	AVELGEM	-433	-415	18	-759	-831	-72	-843	-865	-22
FR	BE	MASTAING	AVELGEM	53	50	-3	-60	-119	-59	-136	-160	-24
FR	BE	CHOOZ	MONCEAU	17	42	25	-6	5	11	-30	46	76
FR	DE	MUHLBACH	EICHSTETTEN	-51	156	207	-143	-46	97	-307	-156	151
FR	DE	VOGELGRUN	EICHSTETTEN	-92	-25	67	-52	-44	8	-171	-94	77
FR	DE	ST AVOLD	ENSDORF	0	0	0	0	0	0	0	0	0
FR	DE	VIGY	ENSDORF 1	47	67	20	-60	-40	20	-427	-226	201
FR	DE	VIGY	ENSDORF 2	98	148	50	-51	-1	50	-438	-216	222

				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	322	324	2	-61	92	153	-63	21	84	51	93	42
FR	CH	MAMBELIN	BASSECOURT	-194	-134	60	-372	-292	80	-385	-296	89	-327	-272	55
FR	CH	SIERENTZ	BASSECOURT	704	689	-15	608	551	-57	531	496	-35	562	548	-14
FR	CH	BOIS TOLLOT	ROMANEL	51	-168	-219	-372	-545	-173	-358	-533	-175	-318	-374	-56
FR	CH	SIERENTZ	LAUFENBURG	238	335	97	-113	1	114	-177	5	182	-41	93	134
FR	CH	CORNIER	RIDDES	-91	-31	60	-169	-96	73	-177	-100	77	-166	-77	89
FR	CH	CORNIER	ST TRIPHON	-117	-93	24	-162	-123	39	-157	-128	29	-149	-97	52
FR	CH	PRESSY	VALLORCINES	-195	-149	46	-305	-250	55	-310	-236	74	-308	-237	71
FR	CH	BOIS TOLLOT	VERBOIS	136	186	50	231	193	-38	251	227	-24	270	246	-24
FR	CH	GENISSIAT	VERBOIS	63	43	-20	32	-32	-64	57	4	-53	80	51	-29
FR	CH	GENISSIAT	VERBOIS	63	43	-20	32	-32	-64	58	4	-54	80	51	-29
FR	IT	ALBERTVILLE	RONDISSONE	676	595	-81	625	561	-64	559	515	-44	565	515	-50
FR	IT	ALBERTVILLE	RONDISSONE	715	551	-164	685	597	-88	604	544	-60	603	515	-88
FR	IT	MENTON	CAMPOROSSO	257	205	-52	154	198	44	152	208	56	148	195	47
FR	IT	VILLARODIN	VENAUS	398	489	91	568	682	114	516	553	37	484	587	103

				17:30			19:30			23:30		
		Node 1	Node 2	DACF	Merge	Delta	DACF	Merge	Delta	DACF	Merge	Delta
FR	CH	SIERENTZ	ASPHARD	120	137	17	-56	-19	37	98	-29	-127
FR	CH	MAMBELIN	BASSECOURT	-313	-238	75	-414	-332	82	-379	-368	11
FR	CH	SIERENTZ	BASSECOURT	485	477	-8	358	366	8	726	669	-57
FR	CH	BOIS TOLLOT	ROMANEL	-310	-417	-107	-440	-589	-149	-129	-330	-201
FR	CH	SIERENTZ	LAUFENBURG	33	93	60	-162	-31	131	70	56	-14
FR	CH	CORNIER	RIDDES	-161	-82	79	-181	-98	83	-163	-97	66
FR	CH	CORNIER	ST TRIPHON	-157	-107	50	-169	-122	47	-184	-151	33
FR	CH	PRESSY	VALLORCINES	-337	-247	90	-337	-246	91	-299	-231	68
FR	CH	BOIS TOLLOT	VERBOIS	262	243	-19	175	206	31	128	189	61
FR	CH	GENISSIAT	VERBOIS	54	15	-39	-15	-34	-19	28	15	-13
FR	CH	GENISSIAT	VERBOIS	54	15	-39	-15	-34	-19	28	15	-13
FR	IT	ALBERTVILLE	RONDISSONE	773	680	-93	641	526	-115	538	405	-133
FR	IT	ALBERTVILLE	RONDISSONE	868	749	-119	726	574	-152	592	396	-196
FR	IT	MENTON	CAMPOROSSO	157	199	42	150	202	52	150	200	50
FR	IT	VILLARODIN	VENAUS	698	734	36	675	807	132	378	404	26

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	27	2448	33
	Doel - Mercator (51)	2239	57	2239	43
	Doel - Mercator (52)	2239	0	2239	43
	Doel - Mercator (54)	2448	56	2448	43
	Doel - Zandvliet (25)	2349	34	2349	35
	Mercator - Horta (73)	2569	44	2569	46
	Courcelles - Gramme (31)	2349	31	2349	37
	Mercator - Rodenhuize/Horta (74)	2349	47	2349	50
RTE	Attaques - Warande 2	3780	66	3780	63
	Avelin - Gavrelle	2622	77	2622	71
	Avelin - Warande	3458	4	3458	6
	Lonny - Seuil	4149	34	4149	33
	Mandarins - Warande 1	3540	66	3540	63
	Muhlbach - Scheer	2598	23	2598	15
	Revigny - Vigy	2596	56	2596	52
	Warande - Weppes	3458	9	3458	12

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	3	2520	7
		Hagenwerder - Mikulowa (567)	2520	13	2520	14
		Hagenwerder - Mikulowa (568)	2520	13	2520	13
		Remptendorf - Redwitz (413)	3594	39	3572	40
		Remptendorf - Redwitz (414)	3594	39	3572	40
		Röhrsdorf - Hradec (445)	2520	37	2520	33
		Röhrsdorf - Hradec (446)	2520	25	2520	33
		Vieselbach - Mecklar (449-1)	2520	8	2520	12
		Wolmirstedt - Helmstedt (491-1)	2400	0	2400	12
		Wolmirstedt - Helmstedt (492-2)	2400	24	2400	12
	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	all day	380	Attaques	Warande		119%	380	Mandarins	Warande		09:30
		Curative action : 2-nodes topology in Warande 380 kV (busbar coupler C and coupler between sections 1B and 1A open) => 80 % remaining.									
50HzT	00:00 - 07:00	380	Hamburg Nord	Hamburg Ost	961	107%	380	Hamburg Nord	Hamburg Ost	962	05:30
		Preventive action : 2-nodes topology in Hamburg Nord 380 kV (agreed with 50HzT) => No more constraint.									

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 detected									

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	Maerlant	Eeklo	103	130%	150	Brugge	Eeklo	241	valid from 7:00 to 12:00 max at 7:30 (130 %)
380	Bruegel	Busbar	1	138%	150	Gouy	Oisquercq	33	valid all day max at 6:30 (234 %)
380	Mercator	Busbar	1	110%	150	Lillo	Zandvliet	117	valid all day max at 18:30 (115 %)

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): **06:30**
- Peak period (07:00 – 23:00): **15:30**

Adaptations made on merged DACFs:

Off-peak:

- SI ➔ IT physical flow adapted to target flow **800 MW**
- Mendrisio-Cagno flow adapted to the schedule **140 MW**
- PST of Lienz adapted to **150 MW**
- PST of Camporosso adapted to **200 MW**
- PST of La Praz on **tap 1**

Peak:

- SI è IT physical flow adapted to target flow **800 MW**
- Mendrisio-Cagno flow adapted to the schedule : **80 MW**
- PST of Lienz adapted to **150 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	40	2370	40
		Albertville - Rondissone 2	2370	41	2370	43
		Bulciago - Soazza	2300	32	2300	48
		Cagno - Mendrisio	855	27	855	18
		Musignano - Lavorgo	2270	48	2270	61
		Redipuglia - Divaca	2700	35	2700	34
		Robbia - San Fiorano	2530	42	2530	59
		Robbia - Gorlago	2530	45	2530	67
		Venaus - Villarodin	2715	36	2715	36
	220 kV	Airolo - Ponte	900	18	900	7
		Lienz - Soverzene	704	41	704	43
		Menton - Campo Rosso	1165	43	1165	43
		Padriciano - Divaca	960	38	960	48
		Riddes - Avise	1010	17	1010	13
		Riddes - Valpelline	1010	18	1010	15
		Serra - Pallanzeno	900	39	900	40

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	2178	3341	136	799
	Compensation ratio (calculated from NTC)	40%	48%	4%	8%
	Pentalateral impact on physical flows	-27%	-55%	-4%	-14%
Peak	Initial physical flows on adapted base case	2231	4379	138	822
	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										
		No 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	APG / Eles / Terna	380/220	Robbia - Filisur / Pradella Sils		N-K	101%	220	Lienz	Soverzene	
		Curative action: -1 taps in Lienz PST (10 to 9) => 95% remaining.								
	Swissgrid	380	Bonaduz	Sils	N-2	103%	380	Pradella	La Punt	
		Preventive action: 2-nodes operation in 400kV substation Sils (agreed by SWG) => 86% remaining.								
	Swissgrid / Terna	380	Robbia	S.Fiorano / Gorlago	N-2	100%	380	Sils	Soazza	
		Preventive action: 2-nodes operation in 400kV substation Sils (agreed by SWG) => 86% remaining.								

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	546
Rondissone 1 (1/33)	31	660
Rondissone 2 (1/33)	33	642
Camporosso (-32/32)	-10	199
Lienz (-32/32)	-4	117
Padriciano (1/33)	22	147
Divaca (-32/32 each)	-8	662

PST	Peak	
	Tap position	Physical flow to Italy (MW)
La Praz (1/33)	1	460
Rondissone 1 (1/33)	33	692
Rondissone 2 (1/33)	33	645
Camporosso (-32/32)	-7	200
Lienz (-32/32)	-24	123
Padriciano (1/33)	33	185
Divaca (-32/32 each)	-25	645

Conclusion

CWE: Some constraints detected manageable with classical remedial actions.
CEE: No critical constraint detected.
CSE: Some constraints detected manageable with preventive remedial action on SWG side.