CORESO Engineers ***North :*** CARNANDET Benoit ***South :*** PREVOST Raphaël	**Day Ahead report for** **27 January 2018**

Security Levels:

CWE: No critical constraints detected due implementation of taps as preventive actions (Zandvliet PSTs & Gronau PST)

CEE: No critical constraints detected.

CSE: On RTE side some constraints detected close to the IT-FR border, which can be solved with topological measures.

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]	9200	10:00		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]	69100	13:00		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]	41400	17:30		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]	38439	19:30		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

Tennet NL/Elia : due to N-1 constraint on the axis Ens-Lelystad, tap positions on Zandvliet PSTs are decreased from 12 to 8 between 17:00 till 24:00 as Preventive Action.

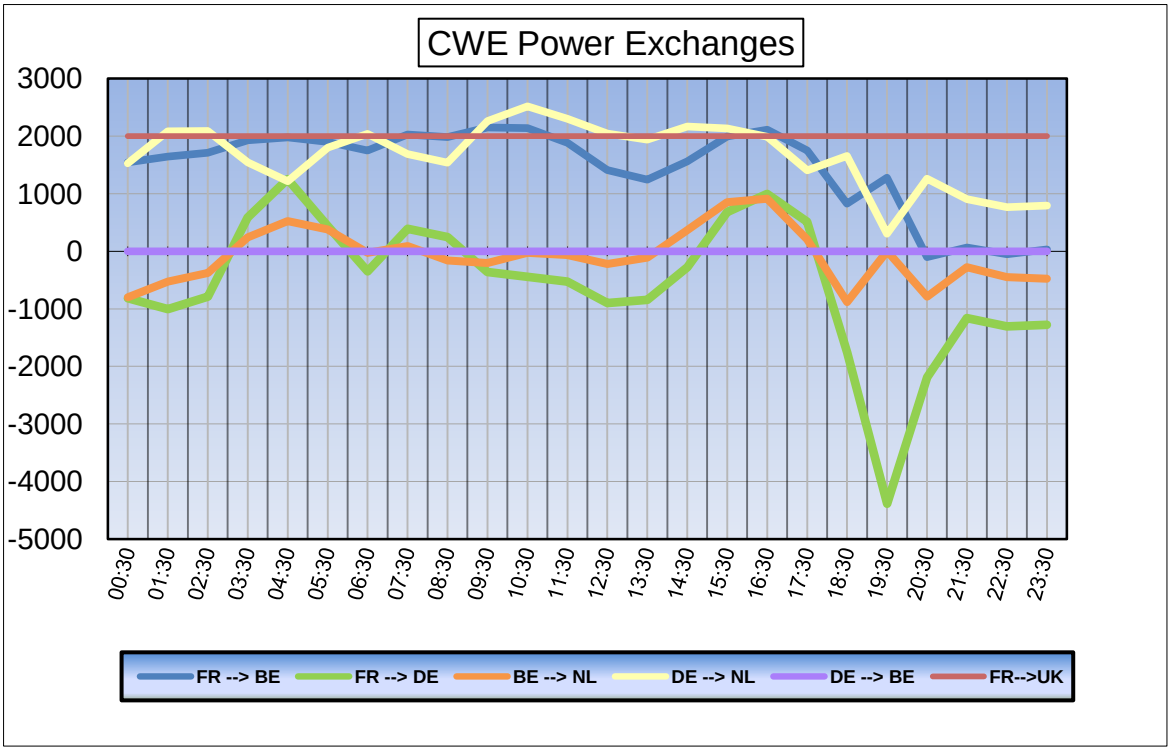
CSE

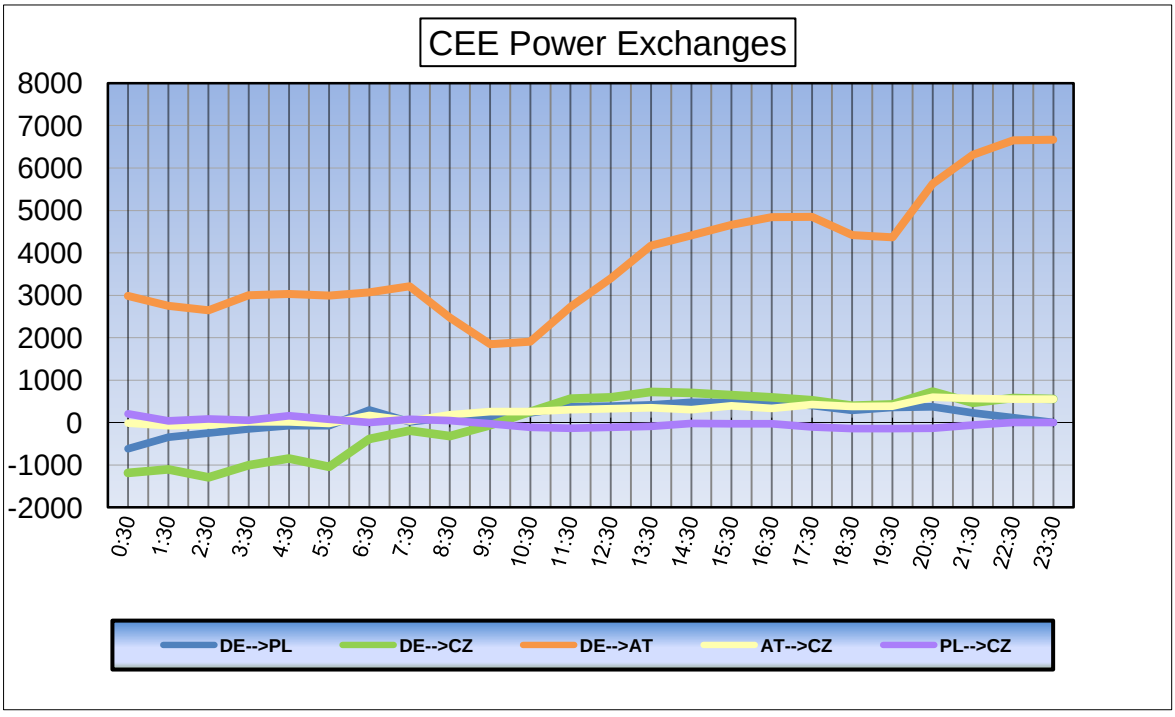
Outages table

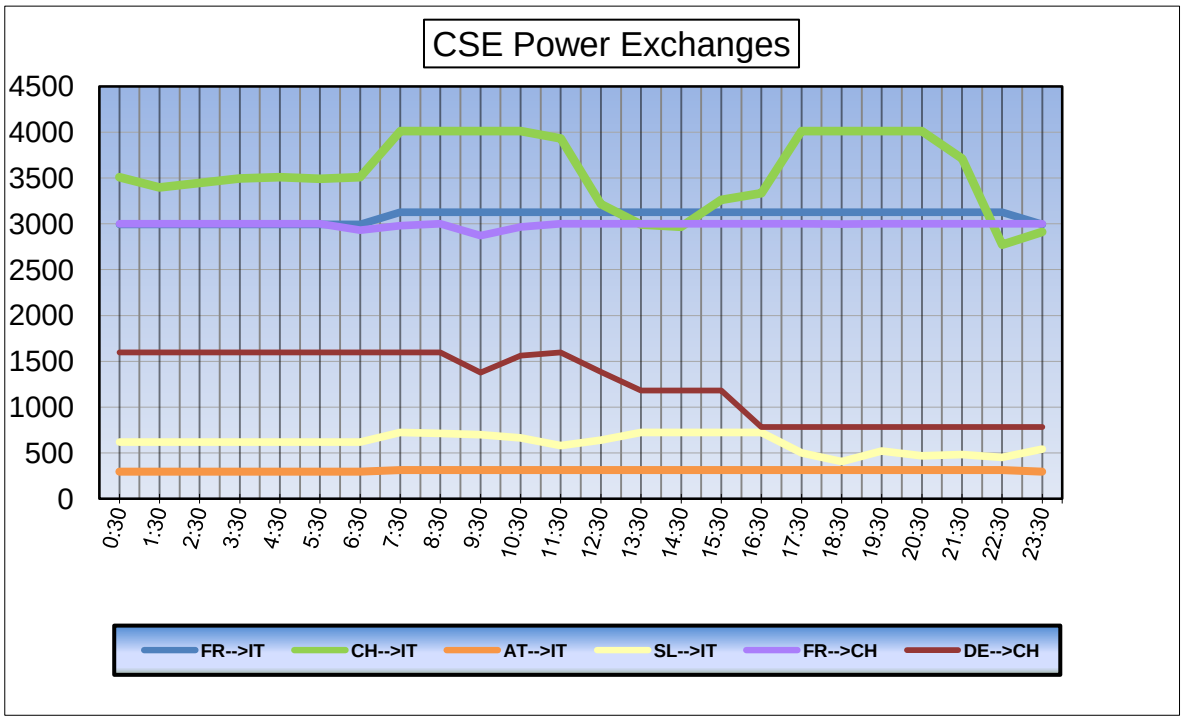
OUTAGES					
Owner	Type of element	Line name	start	end	Comments
50HzT	Fossil.Gen	LIPPENDORF _ Unit R 400 kV	22/01/2018	27/01/2018	890 MW
50HzT	Hydro.Gen	GOLDISTHAL _ UNIT C 400 kV	27/01/2018	30/01/2018	265 MW
50HzT	Hydro.Gen	GOLDISTHAL _ Unit D 400 kV	27/01/2018	27/01/2018	265 MW
50HzT	Hydro.Gen	MARKERSBACH _ 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	HAGENWERDER _ SCHMÖLLN 554 400 kV	21/01/2018	14/02/2018	
50HzT	Line	HAGENWERDER _ SCHMÖLLN 554 400 kV	22/01/2018	28/01/2018	
50HzT	Line	RAGOW _ WUSTERMARK 521 400 kV	22/01/2018	28/01/2018	
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 456 220 kV	27/01/2018	27/01/2018	
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 / 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
HOPS	Line	BRINJE _ KONJSKO 220 kV	17/01/2018	27/01/2018	
PSE	Line	CZARNA _ PASIKUROWICE 400 kV	27/01/2018	02/02/2018	
PSE	Line	DUNOWO _ SLUPSK 400 kV	25/01/2018	28/01/2018	
PSE	Line	KROSNO ISKRZYNIA _ RZESZOW 400 kV	27/01/2018	27/01/2018	
PSE	Line	POLANIEC _ TARNOW 400 kV	22/01/2018	02/02/2018	daily
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	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	LIMMERN _ TIERFEHD 1 400 kV	28/01/2017	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
TENNET DE	Fossil.Gen	IRSCHING _ UNIT 4 400 kV	13/01/2018	29/01/2018	545 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	22/01/2018	09/02/2018	daily

Owner	Type of element	Line name	start	end	Comments
TENNET DE	Line	PLEINTIG _ KUPPLUNG 380 kV	22/01/2018	26/02/2018	
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	
TENNET DE	Line	WURGASSEN _ GROHNDE 2 400 kV	22/01/2018	02/02/2018	daily
TERNA	Line	CORDIGNANO _ SANDRIGO 362 400 kV	**27/01/2018**	28/01/2018	
TERNA / S.GRID	Line	PONTE _ AIROLO 225 kV	18/01/2018	05/02/2018	
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	04:30	06:30	07:30	10:30	12:30	16:30	17:30	19:30	21:30	23:30
BE	FR	ACHENE	LONNY	380.19	-30	-174	-197	-100	-172	-200	-25	-232	-119	355	212	202
BE	FR	AUBANGE	MONT ST MARTIN	220.51	-56	-105	-109	-69	-70	-125	-48	-96	-49	106	71	50
BE	FR	AUBANGE	MOULAINE	220.51	-66	-114	-114	-79	-78	-136	-59	-106	-64	88	57	43
BE	FR	AVELGEM	AVELIN	380.80	-402	-772	-825	-602	-638	-525	-222	-679	-603	179	-24	-38
BE	FR	AVELGEM	MASTAING	380.79	-425	-524	-532	-462	-514	-504	-328	-483	-458	-106	-158	-138
BE	FR	MONCEAU	CHOOZ	220.48	-190	-207	-199	-190	-201	-230	-177	-194	-187	-99	-98	-104
BE	NL	VAN EYCK 1	MAASBRACHT	380.27	-572	-347	-283	-445	-393	-416	-434	-247	-442	-705	-456	-482
BE	NL	VAN EYCK 2	MAASBRACHT	380.28	-155	231	324	95	147	144	10	333	51	-473	-65	-91
BE	NL	ZANDVLIET	BORSSELE	380.29	-397	-78	-37	-126	-260	-493	-552	-76	-212	-498	-195	-225
BE	NL	ZANDVLIET	GEERTRUIDENBERG	380.30	-61	285	374	189	212	291	167	431	447	-40	272	235
BE	LU	BELVAL	SCHIFFLANGE	220.511	3	106	132	3	22	21	30	143	95	-84	40	32

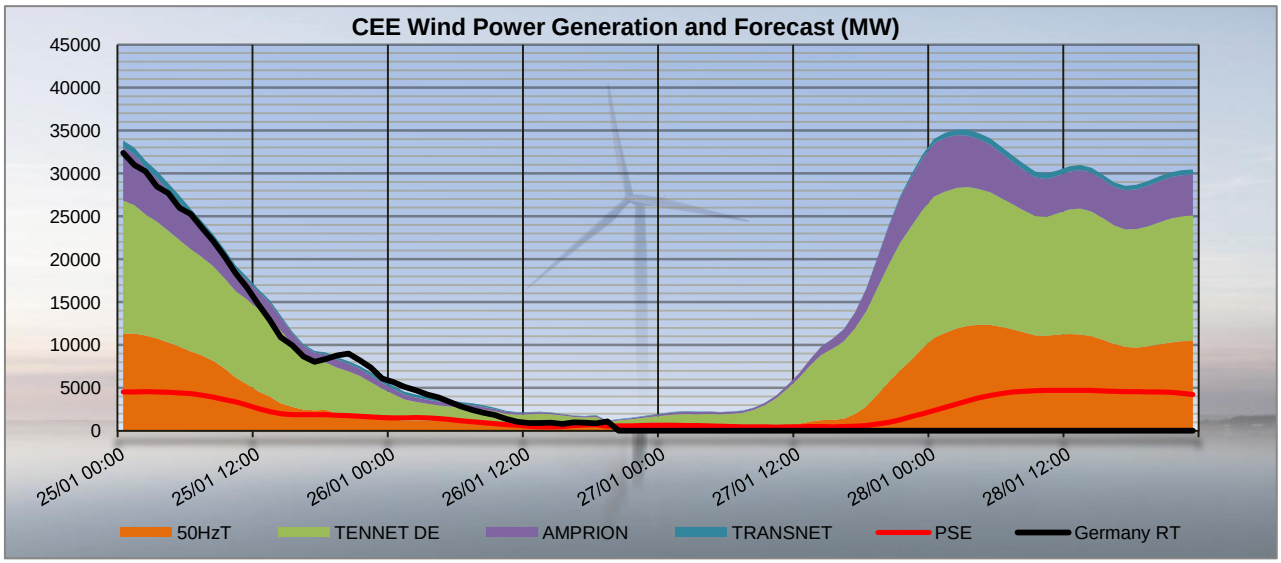
BE	FR	TOTAL		-1169	-1896	-1976	-1502	-1673	-1720	-859	-1790	-1480	523	60	15
BE	NL	TOTAL		-1185	91	378	-287	-294	-474	-809	441	-156	-1716	-444	-563
BE	LU	TOTAL		3	106	132	3	22	21	30	143	95	-84	40	32
TOTAL BELGIAN IMPORT/EXPORT				-2351	-1699	-1466	-1786	-1945	-2173	-1638	-1206	-1541	-1277	-344	-516

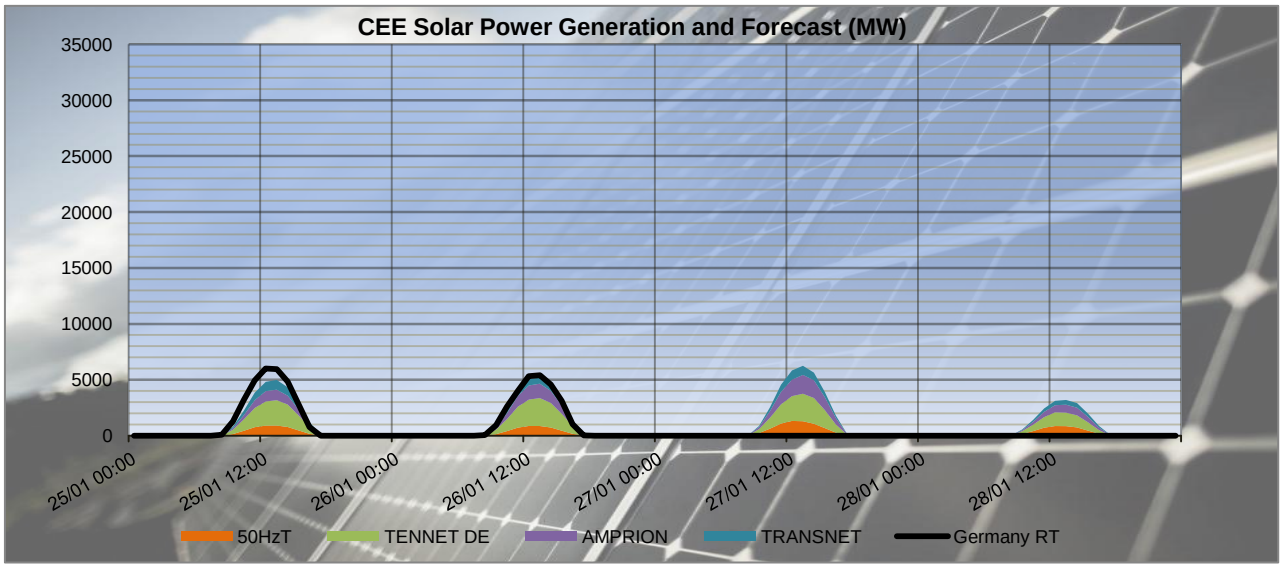
PST taps in DACF	**Zandvliet 1**	12	12	12	12	12	12	12	12	8	8	8	8
	Zandvliet 2	12	12	12	12	12	12	12	12	8	8	8	8
	Van Eyck 1	15	15	15	15	15	15	15	15	15	15	15	15
	Van Eyck 2	15	15	15	15	15	15	15	15	15	15	15	15
	Average	14	14	14	14	14	14	14	14	12	12	12	12

CREOS PST in DACF	**Schifflange**	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	8	8	8	8	8	8	8
Zandvliet PST 2	**[1;35]**	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	8	8	8	8	8	8	8
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

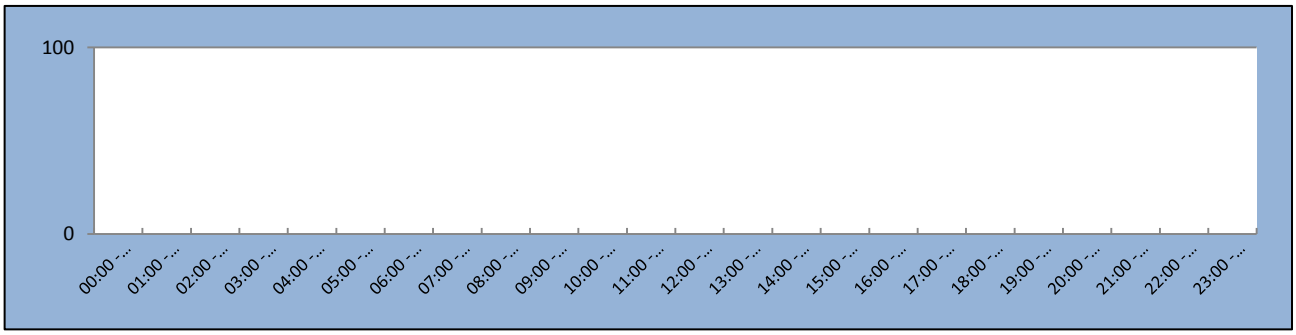
CEE Renewable Power Generation & Forecast



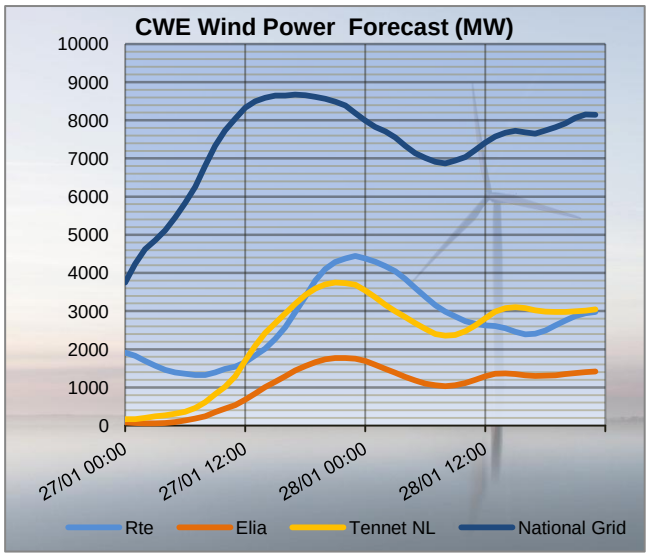


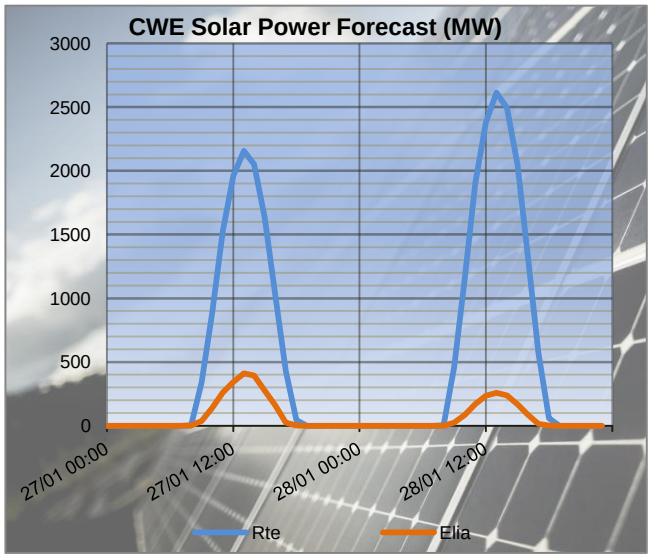
The charts above show the wind and solar generation forecasts for the TSOs in CEE (most significant) from D+1 until D-2 and the realised generation in Germany in real time. Source: Meteologica and 50HzT (RT)

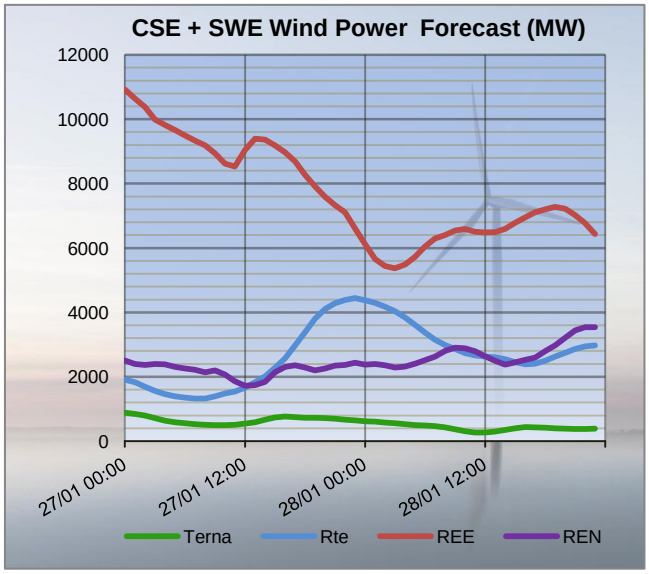
50HzT Preventive Redispatch

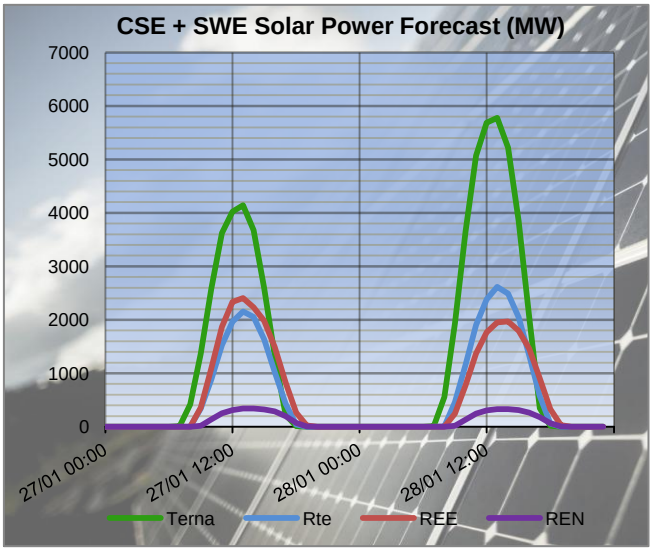


CWE, CSE & SWE Renewable Power Forecast (D-1 and D-2)









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	415	174	-241	341	172	-169	389	200	-189	110	25	-85
FR	BE	MONT ST MARTIN	AUBANGE	105	105	0	50	70	20	127	125	-2	29	48	19
FR	BE	MOULAINE	AUBANGE	114	114	0	59	78	19	137	136	-1	41	59	18
FR	BE	AVELIN	AVELGEM	715	772	57	754	638	-116	623	525	-98	497	222	**-275**
FR	BE	MASTAING	AVELGEM	499	524	25	599	514	-85	580	504	-76	517	328	-189
FR	BE	CHOOZ	MONCEAU	201	207	6	226	201	-25	241	230	-11	205	177	-28
FR	DE	MUHLBACH	EICHSTETTEN	427	525	98	350	458	108	153	327	174	82	342	**260**
FR	DE	VOGELGRUN	EICHSTETTEN	9	78	69	43	85	42	-8	63	71	-31	42	73
FR	DE	ST AVOLD	ENSDORF	0	0	0	0	0	0	0	0	0	0	0	0
FR	DE	VIGY	ENSDORF 1	492	578	86	489	485	-4	405	468	63	371	383	12
FR	DE	VIGY	ENSDORF 2	470	571	101	463	475	12	332	412	80	302	343	41

				17:30			19:30			23:30		
		Node 1	Node 2	DACF	Merge	Delta	DACF	Merge	Delta	DACF	Merge	Delta
FR	BE	LONNY	ACHENE	246	119	-127	-207	-355	-148	-166	-202	-36
FR	BE	MONT ST MARTIN	AUBANGE	21	49	28	-86	-106	-20	-54	-50	4
FR	BE	MOULAINE	AUBANGE	37	64	27	-69	-88	-19	-46	-43	3
FR	BE	AVELIN	AVELGEM	847	603	-244	-27	-179	-152	55	38	-17
FR	BE	MASTAING	AVELGEM	625	458	-167	205	106	-99	153	138	-15
FR	BE	CHOOZ	MONCEAU	232	187	-45	122	99	-23	108	104	-4
FR	DE	MUHLBACH	EICHSTETTEN	351	628	**277**	-130	223	**353**	218	391	173
FR	DE	VOGELGRUN	EICHSTETTEN	79	108	29	-61	8	69	51	67	16
FR	DE	ST AVOLD	ENSDORF	0	0	0	0	0	0	0	0	0
FR	DE	VIGY	ENSDORF 1	746	592	-154	150	51	-99	396	287	-109
FR	DE	VIGY	ENSDORF 2	718	596	-122	18	-44	-62	67	-33	-100

				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	450	340	-110	367	410	43	286	255	-31	220	266	46
FR	CH	MAMBELIN	BASSECOURT	23	92	69	-2	88	90	-47	29	76	-141	-11	130
FR	CH	SIERENTZ	BASSECOURT	341	395	54	289	371	82	278	338	60	312	378	66
FR	CH	BOIS TOLLOT	ROMANEL	211	185	-26	130	177	47	-25	70	95	190	148	-42
FR	CH	SIERENTZ	LAUFENBURG	403	444	41	290	320	30	224	243	19	170	261	91
FR	CH	CORNIER	RIDDES	42	86	44	44	102	58	8	75	67	34	80	46
FR	CH	CORNIER	ST TRIPHON	13	24	11	26	51	25	3	31	28	17	32	15
FR	CH	PRESSY	VALLORCINES	-39	-28	11	-36	9	45	-95	-28	67	-47	-22	25
FR	CH	BOIS TOLLOT	VERBOIS	150	141	-9	171	160	-11	203	174	-29	198	190	-8
FR	CH	GENISSIAT	VERBOIS	185	168	-17	190	188	-2	181	176	-5	203	184	-19
FR	CH	GENISSIAT	VERBOIS	185	168	-17	191	188	-3	181	176	-5	203	184	-19
FR	IT	ALBERTVILLE	RONDISSONE	988	896	-92	1059	971	-88	1090	985	-105	964	889	-75
FR	IT	ALBERTVILLE	RONDISSONE	1095	972	-123	1198	1076	-122	1194	1052	-142	1062	965	-97
FR	IT	MENTON	CAMPOROSSO	252	197	-55	158	203	45	154	191	37	149	194	45
FR	IT	VILLARODIN	VENAUS	615	672	57	893	954	61	925	970	45	787	874	87

				17:30			19:30			23:30		
		Node 1	Node 2	DACF	Merge	Delta	DACF	Merge	Delta	DACF	Merge	Delta
FR	CH	SIERENTZ	ASPHARD	247	443	196	114	198	84	215	201	-14
FR	CH	MAMBELIN	BASSECOURT	-72	96	168	-308	-146	162	-131	-27	104
FR	CH	SIERENTZ	BASSECOURT	244	346	102	344	424	80	335	410	75
FR	CH	BOIS TOLLOT	ROMANEL	19	34	15	-85	-123	-38	183	86	-97
FR	CH	SIERENTZ	LAUFENBURG	198	334	136	69	195	126	185	292	107
FR	CH	CORNIER	RIDDES	-15	51	66	-80	-29	51	-10	28	38
FR	CH	CORNIER	ST TRIPHON	-28	-6	22	-94	-90	4	-41	-33	8
FR	CH	PRESSY	VALLORCINES	-142	-92	50	-192	-191	1	-121	-106	15
FR	CH	BOIS TOLLOT	VERBOIS	194	183	-11	172	149	-23	150	157	7
FR	CH	GENISSIAT	VERBOIS	162	159	-3	128	106	-22	176	161	-15
FR	CH	GENISSIAT	VERBOIS	162	159	-3	128	106	-22	176	161	-15
FR	IT	ALBERTVILLE	RONDISSONE	1057	981	-76	891	800	-91	858	782	-76
FR	IT	ALBERTVILLE	RONDISSONE	1166	1064	-102	999	879	-120	947	848	-99
FR	IT	MENTON	CAMPOROSSO	146	191	45	143	205	62	151	196	45
FR	IT	VILLARODIN	VENAUS	891	960	69	699	740	41	709	792	83

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	46	2448	39
	Doel - Mercator (51)	2239	24	2239	29
	Doel - Mercator (52)	2239	24	2239	29
	Doel - Mercator (54)	2448	24	2448	29
	Doel - Zandvliet (25)	2309	15	2349	12
	Mercator - Horta (73)	2569	11	2569	23
	Courcelles - Gramme (31)	2330	52	2349	46
	Mercator - Rodenhuize/Horta (74)	2345	13	2349	26
RTE	Attaques - Warande 2	3780	51	3780	55
	Avelin - Gavrelle	2622	12	2622	36
	Avelin - Warande	3458	18	3458	10
	Lonny - Seuil	4149	17	4149	24
	Mandarins - Warande 1	3780	47	3780	52
	Muhlbach - Scheer	2598	18	2598	23
	Revigny - Vigy	2596	24	2596	34
	Warande - Weppes	3458	23	3458	16

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	23	2520	12
		Hagenwerder - Mikulowa (567)	2520	25	2520	30
		Hagenwerder - Mikulowa (568)	2520	25	2520	30
		Remptendorf - Redwitz (413)	3462	37	3462	49
		Remptendorf - Redwitz (414)	3462	37	3462	49
		Röhrsdorf - Hradec (445)	2520	27	2520	45
		Röhrsdorf - Hradec (446)	2520	27	2520	45
		Vieselbach - Mecklar (449-1)	2520	26	2520	14
		Wolmirstedt - Helmstedt (491-1)	2400	5	2400	7
		Wolmirstedt - Helmstedt (492-2)	2400	5	2400	7
	220 kV	Vierraden - Krajnik (507)	1325	0	1334	0
		Vierraden - Krajnik (508)	1325	0	1334	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	
50Hertz	13:00 - 20:00	400	Hamburg Nord	Hamburg Ost	axis	110%	400	Hamburg Nord	Hamburg Ost	Remaining	17:30
		Preventive action: 2 node in Hamburg Nord -> 99%									
50HzT / CEPS	22:00-23:00	380	Röhrsdorf	Hradec	446	109%	380	Röhrsdorf	PSTs	441	22:30
		Preventive action: Decrease taps on Hradec PSTs solve the 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	
TenneT DE / Amprion	13:00-24:00	380	Hanekenfahr	Meppen		143%	380	Hanekenfahr	Dorpen West		22:30
		Preventive action : +10 taps on Gronau PST, 3 node topology in Hanekenfahr (DOPT information) -> 102% then +2 taps in Meeden PSTs -> 91%									

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	
No constraints detected.									

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): **04:30**
- Peak period (07:00 – 23:00): **08:30**

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 : **199 MW**
- PST of Lienz adapted to **120 MW**
- PST of Camporosso adapted to **200 MW**
- PST of Rondissone on max. tap position
- PST of La Praz on tap 13 in preventive

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 on max. tap position

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	59	2370	65
		Albertville - Rondissone 2	2370	64	2370	69
		Bulciago - Soazza	2300	30	2300	37
		Cagno - Mendrisio	855	41	855	41
		Musignano - Lavorgo	2270	53	2270	53
		Redipuglia - Divaca	2450	37	2450	39
		Robbia - San Fiorano	2530	42	2530	48
		Robbia - Gorlago	2530	46	2530	54
		Venaus - Villarodin	2715	38	2715	55
	220 kV	Airolo - Ponte	900	0	900	0
		Lienz - Soverzene	704	42	704	44
		Menton - Campo Rosso	1165	43	1165	44
		Padriciano - Divaca	960	40	960	37
		Riddes - Avise	1010	36	1010	25
		Riddes - Valpelline	1010	39	1010	38
		Serra - Pallanzeno	900	46	900	55

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	2736	3728	117	804
	Compensation ratio (calculated from NTC)	40%	47%	4%	8%
	Pentalateral impact on physical flows	-25%	-56%	-4%	-15%
Peak	Initial physical flows on adapted base case	3298	3937	124	802
	Compensation ratio (calculated from NTC)	38%	49%	4%	9%
	Pentalateral impact on physical flows	-24%	-57%	-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 / Terna	380	Albertville	Rondissone	N-2	107% (20')	380	La Praz	PST	
		Curative action: An automatic device will change tap position to tap 8 on La Praz PST -> 98% remaining on the PST								
	Rte / Terna	380	Albertville	La Coche	N-1	100% (5')	380/220	La Praz	Transformer	
						114% (1')	220	Albertville	Longefan	
		Preventive action: Change tap position to tap 13 on La Praz PST -> 90% remaining on the transformer and 99% remaining on the line Albertville-Longefan. **Curative action:** Increase tap position to tap 31 on La Praz PST -> 99% remaining on the line Albertville-Longefan. **Remark:** no new constraint after a new run of the security analysis with this preventive action.								
	Rte	380	Albertville	Grande Ile	N-2	97% (1')	380	Passy	Pressy	
		Curative action: 2-node topology in Pressy substation -> 80% remaining on the line.								

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		Albertville	La Coche	N-1	101% (10')	220	Albertville	Longefan	
		Curative action: Increase tap position to tap 13 on La Praz PST -> 99% remaining on the line Albertville-Longefan.								
	Rte / Terna	380	Albertville	Rondissone	N-2	109% (10')	380	La Praz	PST	
		Curative action: An automatic will change tap position to neutral position and bypass the La Praz PST.								

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)	13	488
Rondissone 1 (1/33)	33	1051
Rondissone 2 (1/33)	33	955
Camporosso (-32/32)	3	220
Lienz (-32/32)	-9	119
Padriciano (1/33)	19	160
Divaca (-32/32 each)	-4	646

PST	Peak	
	Tap position	Physical flow to Italy (MW)
La Praz (1/33)	1	1011
Rondissone 1 (1/33)	33	1067
Rondissone 2 (1/33)	33	1000
Camporosso (-32/32)	3	205
Lienz (-32/32)	-14	125
Padriciano (1/33)	18	143
Divaca (-32/32 each)	-1	661

Conclusion

CWE: No critical constraints detected due implementation of taps as preventive actions (Zandvliet PSTs & Gronau PST)

CEE: No critical constraints detected.

CSE: On RTE side some constraints detected close to the IT-FR border, which can be solved with topological measures.