CORESO Engineers ***North :*** LEONARD Jean-Louis ***South :*** SANTOS Eduardo	**Day Ahead report for** **16 January 2018**

Security Levels:

CWE: No critical constraint detected.

CEE: No critical constraint detected.

CSE: After double tripping between IT-CH border, a constraint was detected in Swissgrid area, requiring topological remedial actions on Swissgrid side.

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]	10 400	18:00		Tihange		1000	2	2900
						450	2	
Generation Margin	Sufficient			Coo		230	3	1170
						160	3	
			50HzT	Rostock	Pmax (MW)	530	**0**	0
				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]	75 600	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]	48 000	17:15		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]	47600	17:00		Cruas		900	**2**	1800
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

RTE: High load adjustment (2577MW) for timestamp 06:30.

CSE

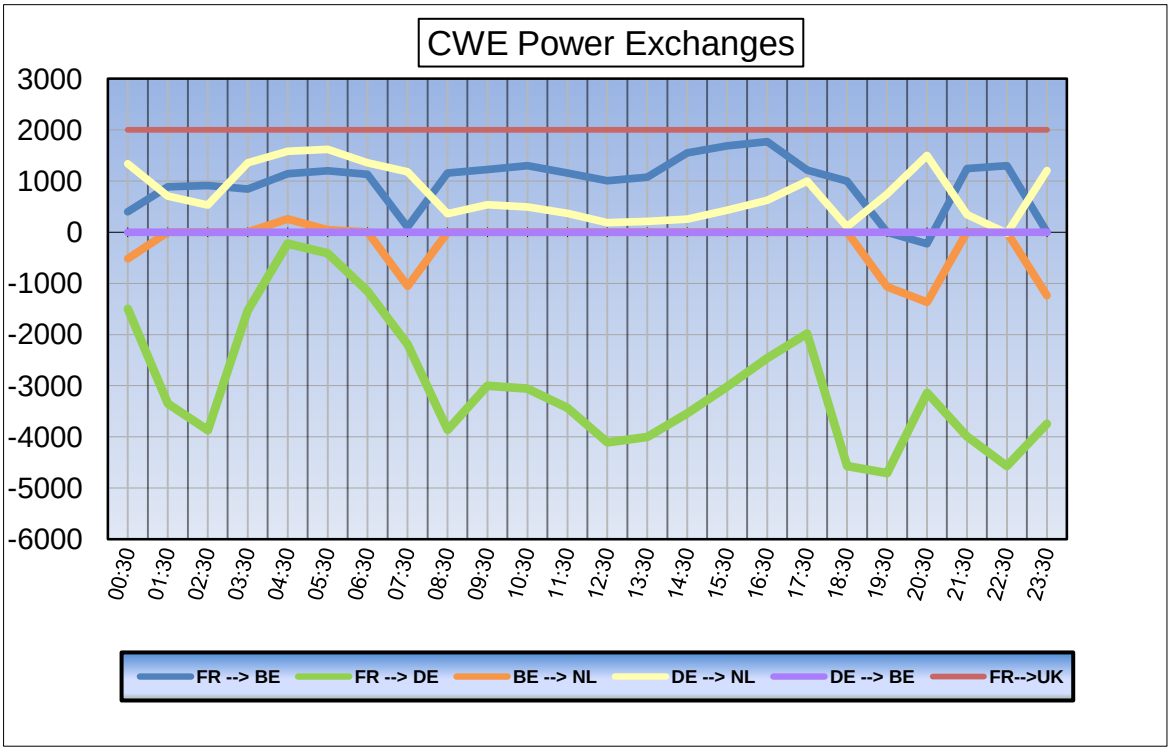
RTE/Terna: Possibility of sticky snow on the axis Albertville - Rondissone.

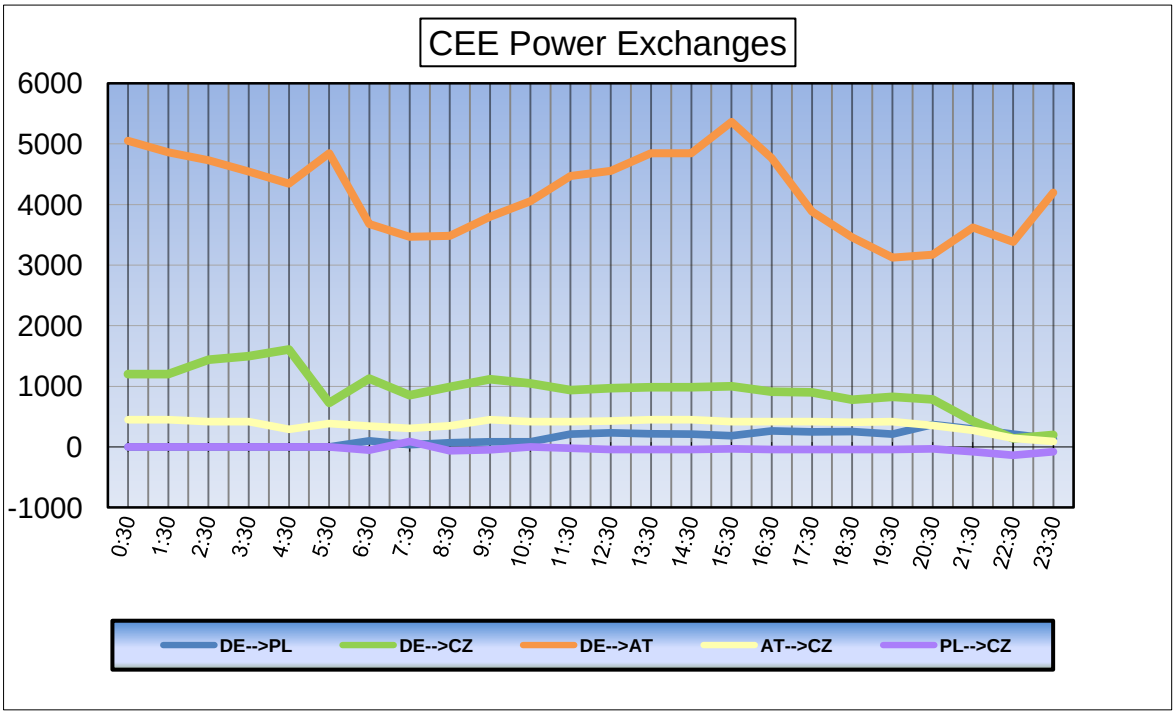
Terna: High wind infeed in all country, shut down of some generation units might be need.

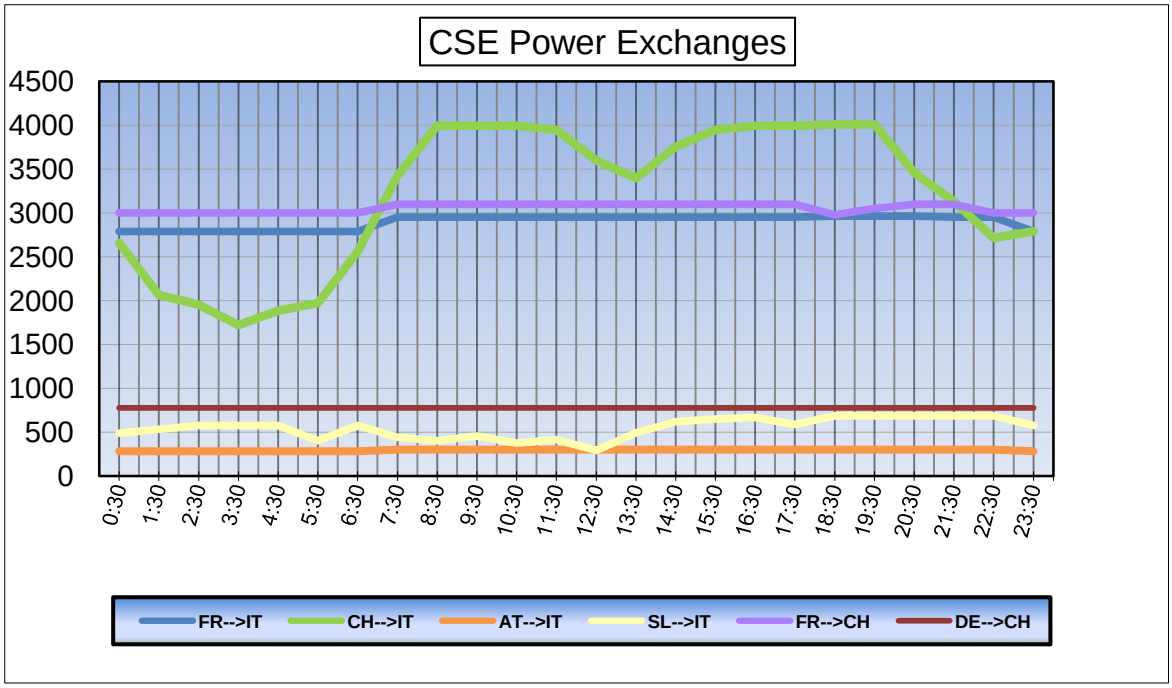
Outages table

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	BENTWISCH _ GUESTROW 544 400 kV	15/01/2018	16/01/2018	
50HzT	Line	EULA _ Wolkramhausen 357 220 kV	06/10/2017	16/03/2018	
50HzT	Line	HAMBURG Nord _ BRUNSBUTTEL 951 400 kV	14/01/2018	21/01/2018	
50HzT	Line	HAMBURG Nord _ HAMBURG Ost 961 400 kV	15/01/2018	19/01/2018	
50HzT	Line	KRUMMEL _ HAMBURG Öst 991 400 kV	16/01/2018	16/01/2018	
50HzT	Line	LUBMIN _ WIKINGER 281 220 kV	26/09/2017	31/01/2018	
50HzT	Line	MARKERSBACH _ T connection ZWOENITZ 400 kV	15/01/2018	17/01/2018	
50HzT	Line	REMPTENDORF _ WEIDA 575 400 kV	16/01/2018	17/01/2018	
50HzT	Line	ROHRSDORF _ T connection ZWOENITZ 400 kV	15/01/2018	17/01/2018	
50HzT / PSE	Line	KRAJNIK _ VIERRADEN 507 225 kV	22/06/2016	21/01/2018	Long term outage
50HzT / PSE	Line	KRAJNIK _ VIERRADEN 508 225 kV	22/06/2017	21/01/2018	Long term outage
AMP / TEN DE	Line	NEHDEN _ TWISTETAL W 400 kV	08/01/2018	23/02/2018	
AMPRION	Line	NEHDEN _ ARPE Sud 400 kV	15/01/2018	02/02/2018	
APG	Line	ST PETER _ Salzburg 455 220 kV	15/01/2018	19/01/2018	ALTERNATING WITH 456
APG	Line	ST PETER _ Salzburg 456 220 kV	15/01/2018	19/01/2018	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	
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
PSE	Line	POLANIEC _ TARNOW 400 kV	15/01/2018	19/01/2018	
PSE	Line	TUCZNAWA _ RZESZOW 400 kV	15/01/2018	19/01/2018	
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	
S.GRID	Line	CHAMOSON _ MUHLEBERG "Sanetsch 2" 220 kV	24/10/2017	30/03/2018	
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
TENNET DE	Line	BERGSHAUSEN _ GROHNDE 1 400 kV	15/01/2018	19/01/2018	
TENNET DE	Line	GROHNDE _ ALGERMISSEN 2 400 kV	15/01/2018	17/01/2018	
TENNET DE	Line	TWISTETAL _ BORKEN 3 400 kV	16/05/2017	11/10/2018	
TENNET NL	Line	BLEISWIJK _ KRIMPEN ZT 400 kV	15/01/2018	19/01/2018	Daily
TENNET NL	Line	HENGELO _ ZWOLLE WT 400 kV	13/01/2018	19/01/2018	permanent
TERNA	Line	PIAN CAMUNO _ S.FIORANO 358 400 kV	09/01/2018	19/01/2018	Forced outage
TransnetBW	Line	NEUROTT _ PHILIPPSBURG RT 400 kV	15/01/2018	07/02/2018	
TransnetBW	Line	PHILIPPSBURG _ PULVERDINGEN WS 400 kV	16/01/2018	16/01/2018	

Exchange program forecasts






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

ELIA expected flows & PSTs tap position

		Node 1	Node 2	Order	00:30	03:30	05:30	07:30	10:30	11:30	12:30	15:30	17:30	19:30	21:30	23:30
BE	FR	ACHENE	LONNY	380.19	125	-13	-222	174	154	225	311	122	93	455	274	344
BE	FR	AUBANGE	MONT ST MARTIN	220.51	4	-30	-85	67	39	55	76	2	12	124	64	85
BE	FR	AUBANGE	MOULAINE	220.51	-5	-36	-89	53	32	47	64	-12	-1	104	53	77
BE	FR	AVELGEM	AVELIN	380.80	-86	-433	-643	-5	25	121	270	-98	-237	480	112	145
BE	FR	AVELGEM	MASTAING	380.79	-165	-216	-351	-160	-167	-123	-45	-214	-302	21	-94	-67
BE	FR	MONCEAU	CHOOZ	220.48	-133	-123	-152	-107	-124	-111	-88	-133	-171	-87	-148	-134
BE	NL	VAN EYCK 1	MAASBRACHT	380.27	-399	-225	-173	-436	-460	-478	-494	-470	-381	-604	-508	-573
BE	NL	VAN EYCK 2	MAASBRACHT	380.28	-37	50	194	-36	-38	-84	-157	-85	239	-269	-158	-243
BE	NL	ZANDVLIET	BORSSELE	380.29	-198	-94	-22	-655	-707	-738	-796	-717	-618	-888	-578	-511
BE	NL	ZANDVLIET	GEERTRUIDENBERG	380.30	26	265	378	17	9	-35	-83	-33	133	-297	-167	-217
BE	LU	BELVAL	SCHIFFLANGE	220.511	-68	-4	-2	-90	-73	-62	-80	-66	-4	-133	-108	-155

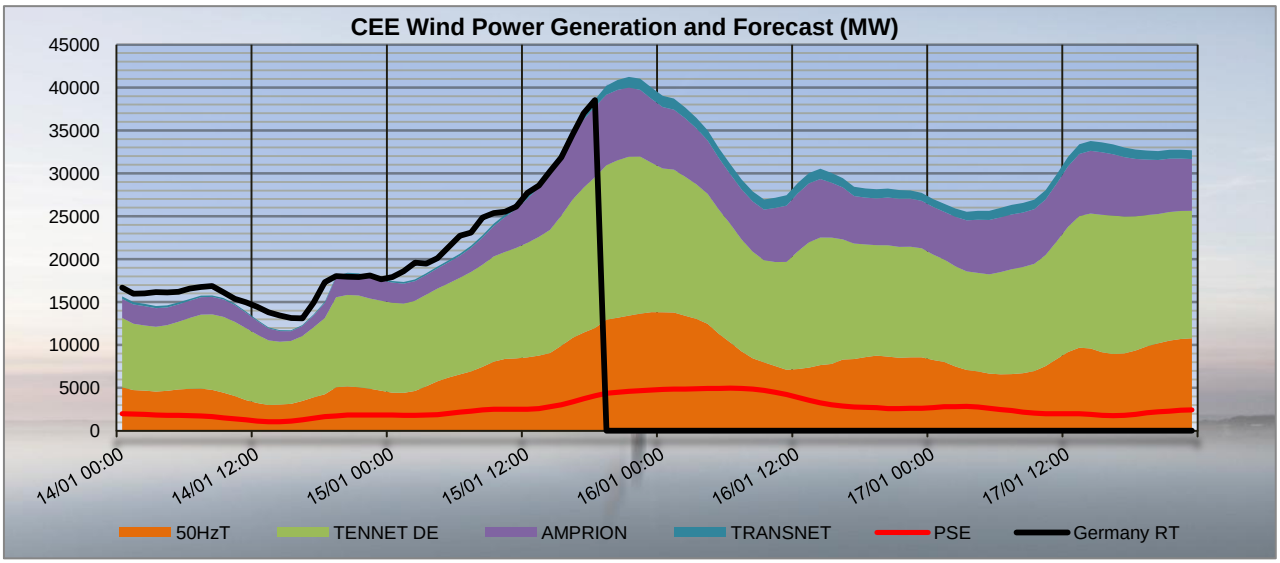
BE	FR	TOTAL		-260	-851	-1542	22	-41	214	588	-333	-606	1097	261	450
BE	NL	TOTAL		-608	-4	377	-1110	-1196	-1335	-1530	-1305	-627	-2058	-1411	-1544
BE	LU	TOTAL		-68	-4	-2	-90	-73	-62	-80	-66	-4	-133	-108	-155
TOTAL BELGIAN IMPORT/EXPORT				-936	-859	-1167	-1178	-1310	-1183	-1022	-1704	-1237	-1094	-1258	-1249

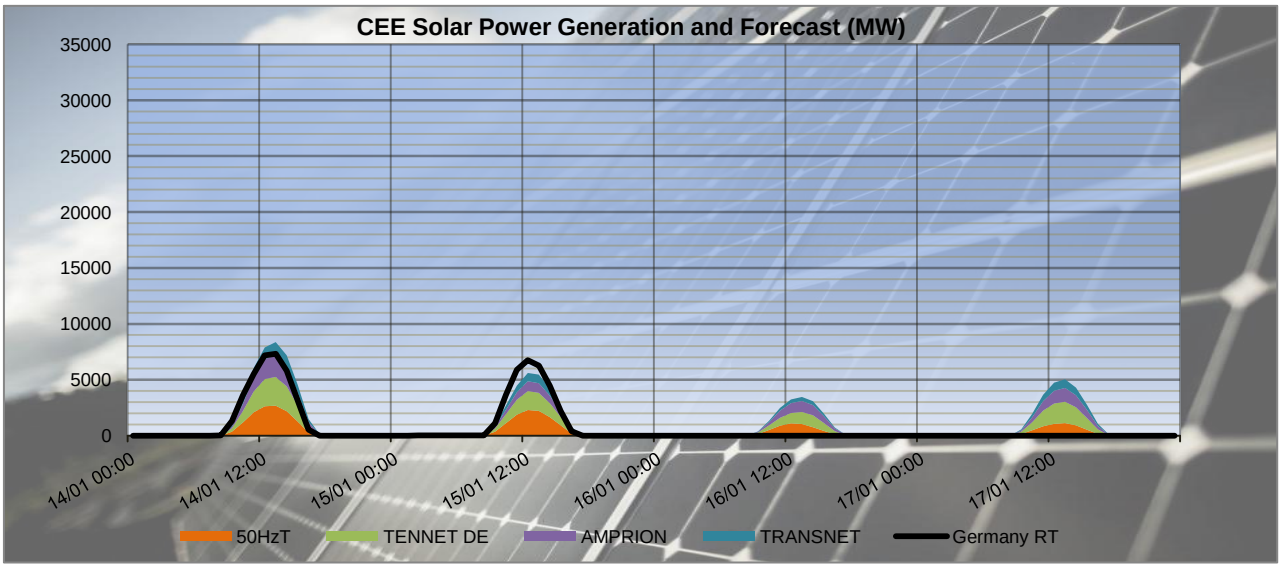
PST taps in DACF	**Zandvliet 1**	9	9	9	9	9	9	9	9	9	9	9	9	9
	Zandvliet 2	9	9	9	9	9	9	9	9	9	9	9	9	9
	Van Eyck 1	12	12	12	12	12	12	12	12	12	12	12	12	12
	Van Eyck 2	12	12	12	12	12	12	12	12	12	12	12	12	12
	Average	11	11	11	11	11	11	11	11	11	11	11	11	11

CREOS PST in DACF	**Schifflange**	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]**	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9
Zandvliet PST 2	**[1;35]**	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9
Van Eyck PST 1	**[1;35]**	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
Van Eyck PST 2	**[1;35]**	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
Schifflange PST 1	**[1;35]**	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17

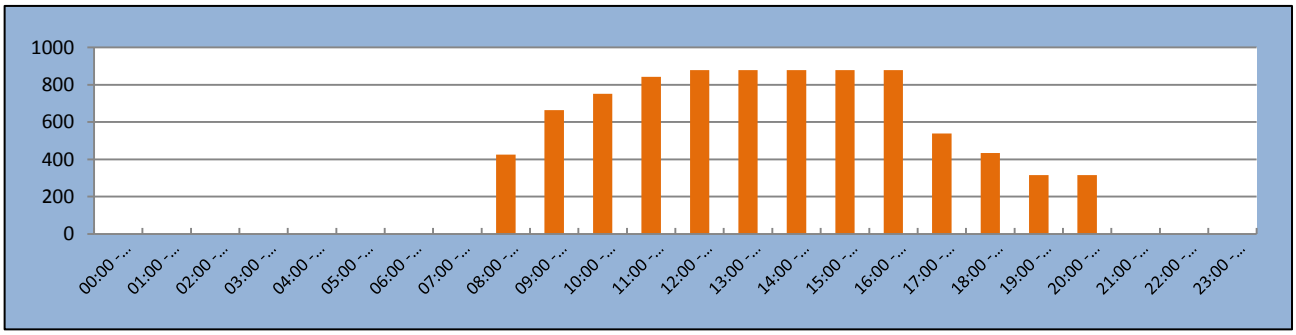
CEE Renewable Power Generation & Forecast



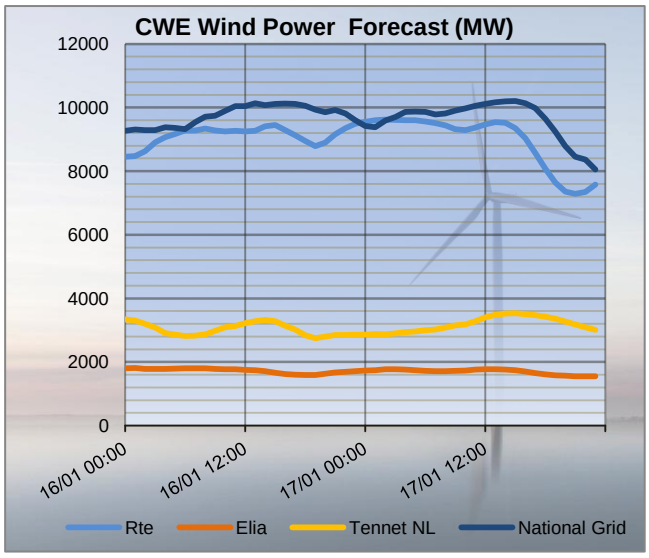


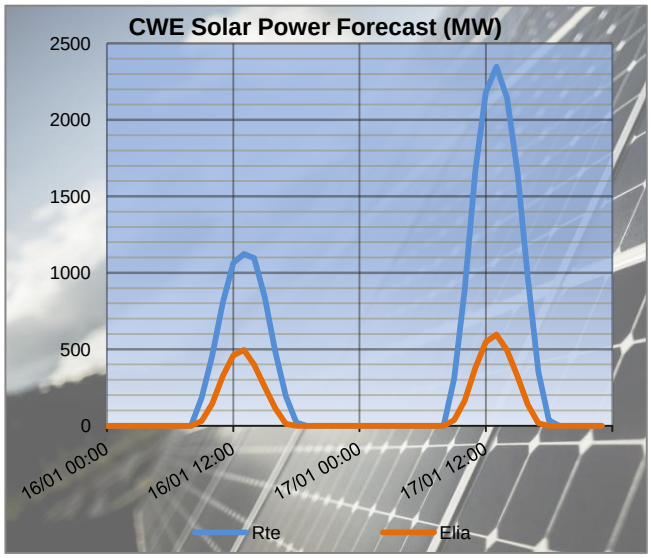
The charts above show the wind and solar generation forecasts for the TSOs in CEE (most significant) from D+1 until D-2 and the realised generation in Germany in real time. Source: Meteologica and 50HzT (RT)

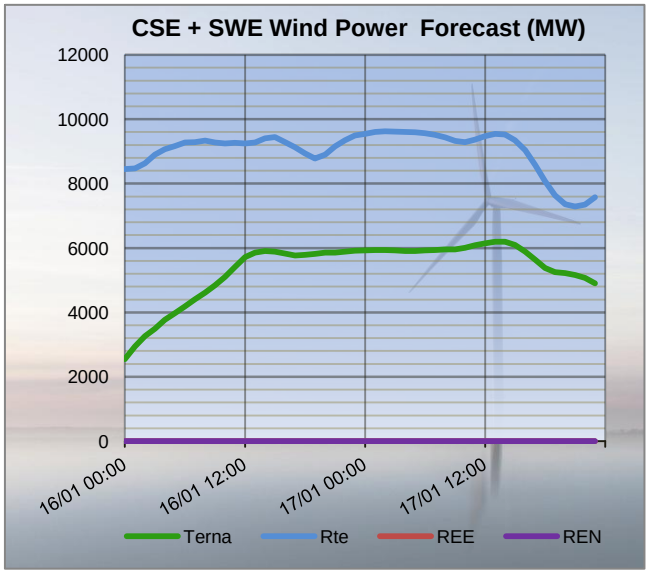
50HzT Preventive Redispatch

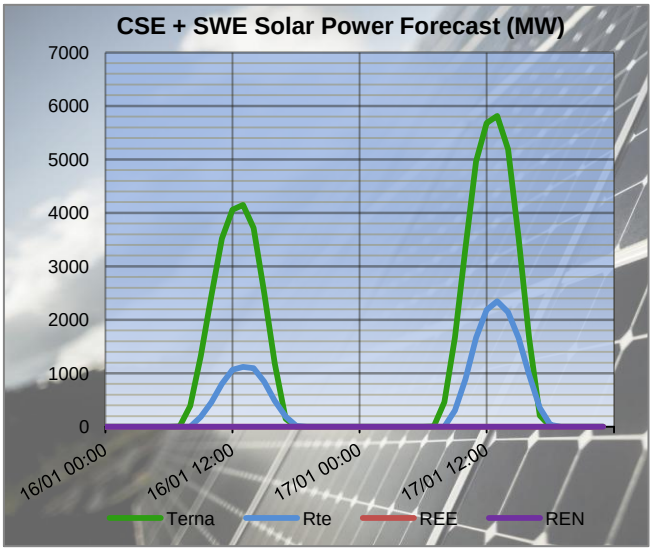


CWE, CSE & SWE Renewable Power Forecast (D-1 and D-2)









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	196	13	-183	-204	-174	30	-150	-154	-4	-278	-311	-33
FR	BE	MONT ST MARTIN	AUBANGE	102	30	-72	-64	-67	-3	34	-39	-73	22	-76	-98
FR	BE	MOULAINE	AUBANGE	104	36	-68	-50	-53	-3	37	-32	-69	29	-64	-93
FR	BE	AVELIN	AVELGEM	769	433	**-336**	17	5	-12	53	-25	-78	-171	-270	-99
FR	BE	MASTAING	AVELGEM	439	216	-223	184	160	-24	230	167	-63	116	45	-71
FR	BE	CHOOZ	MONCEAU	0	123	123	0	107	107	0	124	124	0	88	88
FR	DE	MUHLBACH	EICHSTETTEN	137	403	**266**	273	470	197	130	458	**328**	35	427	**392**
FR	DE	VOGELGRUN	EICHSTETTEN	13	27	14	16	47	31	-15	39	54	-51	35	86
FR	DE	ST AVOLD	ENSDORF	0	0	0	0	0	0	0	0	0	0	0	0
FR	DE	VIGY	ENSDORF 1	318	275	-43	149	116	-33	167	64	-103	37	-49	-86
FR	DE	VIGY	ENSDORF 2	113	92	-21	98	86	-12	106	28	-78	-47	-96	-49

				17:30			19:30			23:30		
		Node 1	Node 2	DACF	Merge	Delta	DACF	Merge	Delta	DACF	Merge	Delta
FR	BE	LONNY	ACHENE	-48	-93	-45	-439	-455	-16	-354	-344	10
FR	BE	MONT ST MARTIN	AUBANGE	38	-12	-50	-50	-124	-74	-16	-85	-69
FR	BE	MOULAINE	AUBANGE	48	1	-47	-35	-104	-69	-11	-77	-66
FR	BE	AVELIN	AVELGEM	235	237	2	-431	-480	-49	-71	-145	-74
FR	BE	MASTAING	AVELGEM	317	302	-15	23	-21	-44	132	67	-65
FR	BE	CHOOZ	MONCEAU	0	171	171	0	87	87	0	134	134
FR	DE	MUHLBACH	EICHSTETTEN	264	478	214	-125	164	**289**	48	362	**314**
FR	DE	VOGELGRUN	EICHSTETTEN	53	57	4	-70	-4	66	-37	20	57
FR	DE	ST AVOLD	ENSDORF	0	0	0	0	0	0	0	0	0
FR	DE	VIGY	ENSDORF 1	335	236	-99	-234	-180	54	-111	-118	-7
FR	DE	VIGY	ENSDORF 2	293	210	-83	-365	-278	87	-201	-182	19

				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	244	353	109	277	263	-14	213	250	37	175	234	59
FR	CH	MAMBELIN	BASSECOURT	-147	-39	108	-220	-175	45	-256	-157	99	-305	-199	106
FR	CH	SIERENTZ	BASSECOURT	384	417	33	432	420	-12	380	390	10	422	422	0
FR	CH	BOIS TOLLOT	ROMANEL	176	162	-14	-25	4	29	72	18	-54	28	-3	-31
FR	CH	SIERENTZ	LAUFENBURG	216	459	243	217	269	52	124	257	133	109	245	136
FR	CH	CORNIER	RIDDES	-31	38	69	-59	-15	44	-62	-17	45	-73	-34	39
FR	CH	CORNIER	ST TRIPHON	-34	38	72	-87	-28	59	-79	-25	54	-103	-42	61
FR	CH	PRESSY	VALLORCINES	-110	-58	52	-150	-109	41	-158	-121	37	-185	-147	38
FR	CH	BOIS TOLLOT	VERBOIS	205	230	25	223	194	-29	238	221	-17	271	245	-26
FR	CH	GENISSIAT	VERBOIS	128	141	13	160	142	-18	169	144	-25	143	119	-24
FR	CH	GENISSIAT	VERBOIS	128	141	13	160	142	-18	169	144	-25	143	119	-24
FR	IT	ALBERTVILLE	RONDISSONE	618	440	-178	796	674	-122	894	787	-107	811	708	-103
FR	IT	ALBERTVILLE	RONDISSONE	649	383	**-266**	867	695	-172	970	829	-141	870	738	-132
FR	IT	MENTON	CAMPOROSSO	251	203	-48	148	192	44	152	208	56	159	199	40
FR	IT	VILLARODIN	VENAUS	133	551	**418**	558	604	46	683	735	52	617	621	4

				17:30			19:30			23:30		
		Node 1	Node 2	DACF	Merge	Delta	DACF	Merge	Delta	DACF	Merge	Delta
FR	CH	SIERENTZ	ASPHARD	203	267	64	114	112	-2	206	324	118
FR	CH	MAMBELIN	BASSECOURT	-211	-110	101	-372	-283	89	-320	-193	127
FR	CH	SIERENTZ	BASSECOURT	352	365	13	410	397	-13	486	479	-7
FR	CH	BOIS TOLLOT	ROMANEL	66	-14	-80	-16	-125	-109	50	25	-25
FR	CH	SIERENTZ	LAUFENBURG	107	265	158	81	166	85	234	324	90
FR	CH	CORNIER	RIDDES	-58	-24	34	-98	-66	32	-99	-29	70
FR	CH	CORNIER	ST TRIPHON	-86	-29	57	-137	-83	54	-122	-60	62
FR	CH	PRESSY	VALLORCINES	-165	-133	32	-213	-182	31	-233	-171	62
FR	CH	BOIS TOLLOT	VERBOIS	207	202	-5	156	189	33	178	199	21
FR	CH	GENISSIAT	VERBOIS	172	145	-27	118	107	-11	111	109	-2
FR	CH	GENISSIAT	VERBOIS	172	145	-27	118	107	-11	111	109	-2
FR	IT	ALBERTVILLE	RONDISSONE	890	797	-93	817	683	-134	670	331	**-339**
FR	IT	ALBERTVILLE	RONDISSONE	984	848	-136	903	739	-164	732	288	**-444**
FR	IT	MENTON	CAMPOROSSO	145	197	52	153	205	52	145	199	54
FR	IT	VILLARODIN	VENAUS	735	791	56	745	747	2	304	492	188

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	36	2448	38
	Doel - Mercator (51)	2239	32	2239	39
	Doel - Mercator (52)	2239	32	2239	39
	Doel - Mercator (54)	2448	32	2448	39
	Doel - Zandvliet (25)	2349	11	2349	22
	Mercator - Horta (73)	2569	16	2569	31
	Courcelles - Gramme (31)	2321	41	2349	43
	Mercator - Rodenhuize/Horta (74)	2333	23	2349	37
RTE	Attaques - Warande 2	3780	53	3780	56
	Avelin - Gavrelle	2622	29	2622	51
	Avelin - Warande	3458	13	3458	6
	Lonny - Seuil	4149	18	4149	24
	Mandarins - Warande 1	3780	50	3780	53
	Muhlbach - Scheer	2598	28	2598	22
	Revigny - Vigy	2596	26	2596	35
	Warande - Weppes	3458	18	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	28	2520	36
		Hagenwerder - Mikulowa (567)	2520	33	2520	21
		Hagenwerder - Mikulowa (568)	2520	33	2520	21
		Remptendorf - Redwitz (413)	3462	56	3485	64
		Remptendorf - Redwitz (414)	3462	56	3485	64
		Röhrsdorf - Hradec (445)	2520	67	2520	51
		Röhrsdorf - Hradec (446)	2520	2	2520	51
		Vieselbach - Mecklar (449-1)	2520	29	2520	36
		Wolmirstedt - Helmstedt (491-1)	2400	12	2400	19
		Wolmirstedt - Helmstedt (492-2)	2400	12	2400	19
	220 kV	Vierraden - Krajnik (507)	1361	0	1352	0
		Vierraden - Krajnik (508)	1361	0	1352	0

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

Special topologies at 10:30 and 19:30

Nodes in North area				
			10:30	19:30
380 kV	Elia	Doel	1	1
		Avelgem	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	01:00 - 03:00	400	Röhrsdorf	Streumen	axis	109%	400	Röhrsdorf	Streumen	Remaining	01:30
		Preventive action: Change taps on PSTs Hradec and Mikulowa.									
50Hertz / CEPS	07:00 - 09:00	400	Hradec	Röhrsdorf	axis	103%	400	Remptendorf	Röhrsdorf		07:30
		Preventive action: fake constraint, bad topology in files for Röhrsdorf.									
50Hertz	01:00 - 02:00	400	Bärwalde	Graustein	axis	103%	400	Bärwalde	Graustein	Remaining	01:30
		Preventive action: Change taps on PSTs Hradec and Mikulowa.									
50Hertz	01:00 - 03:00	400	Lauchstädt	Vieselbach	axis	112%	400	Lauchstädt	Vieselbach	Remaining	01:30
		Curative action: 2-nodes operation in Lauchstädt.									
50Hertz	12:00 - 21:00	400	Hamburg Nord	Hamburg Ost	axis	119%	400	Hamburg Nord	Hamburg Ost	Remaining	19:30
		Preventive action: 2 nodes in Hamburg ost and Hamburg Nord.									

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	All day long	400	Haneckenfahr	Meppen		135%	400	Dörpen West	Hanekenfahr		01:30
		Preventive actions: Decrease 5 taps (from 33 till 28) on Diele PSTs => 129% remaining. Then redispatching.									

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	1B	156%	150	Lillo	Zandvliet	117	(07:30 -23:30) Max at 18:30
380	Avelgem	Busbar	1	112%	150	Koksijde	Slykens	361	(08:30 -19:30) Max at 18:30
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): **01:30**
- Peak period (07:00 – 23:00): **17:30**

Adaptations made on merged DACFs:

Off-peak:

- SI ➔ IT physical flow adapted to the target flow : **800 MW**
- Mendrisio-Cagno flow adapted to the schedule : **128 MW**
- PST of Lienz adapted to **200 MW**
- PST of Camporosso adapted to **200 MW**

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 **200 MW**
- PST of Camporosso adapted to **200 MW**

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	20	2370	50
		Albertville - Rondissone 2	2370	17	2370	53
		Bulciago - Soazza	2300	35	2300	48
		Cagno - Mendrisio	855	25	855	37
		Musignano - Lavorgo	2270	59	2270	63
		Redipuglia - Divaca	2700	34	2700	34
		Robbia - San Fiorano	2530	33	2530	49
		Robbia - Gorlago	2530	45	2530	59
		Venaus - Villarodin	2715	30	2715	42
	220 kV	Airolo - Ponte	900	7	900	7
		Lienz - Soverzene	750	67	750	68
		Menton - Campo Rosso	1165	42	1165	42
		Padriciano - Divaca	960	40	960	39
		Riddes - Avise	1010	11	1010	17
		Riddes - Valpelline	1010	15	1010	22
		Serra - Pallanzeno	900	20	900	42

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	1375	3247	203	791
	Compensation ratio (calculated from NTC)	39%	49%	4%	8%
	Pentalateral impact on physical flows	-28%	-55%	-4%	-14%
Peak	Initial physical flows on adapted base case	2635	4183	203	803
	Compensation ratio (calculated from NTC)	37%	50%	4%	9%
	Pentalateral impact on physical flows	-26%	-56%	-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 / ELES / APG	380	Redipuglia ATD		N-K	120%	220	Lienz	Soverzene	
		Curative action: Decrease 4 taps at Lienz PST (10 -> 6) **=> 94% 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 / ELES / APG	380	Redipuglia ATD		N-K	123%	220	Lienz	Soverzene	
		Curative action: Decrease 4 taps at Lienz PST (-4 -> -8) **=> 97% remaining**								
	RTE / Terna	380	Albertville	Rondissone	N-K	107%	380	La Praz	PST	
		Curative action: Increase 6 taps (1 to 7) on La Praz PST **=> 99% remaining**								

PEAK Variant - 19:30

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
19:30	Terna / SWG	380	Robbia	Gorlago	N-2	104%	380	Sils	Soazza	
		Preventive actions: Increase 1 tap at Lavorgo PST (7 -> 8) and implement 2-node operation at Sils substation (agreed by SWG) **=> 99% 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	560
Rondissone 1 (1/33)	N/A	Out of Service
Rondissone 2 (1/33)	N/A	Out of Service
Camporosso (-32/32)	-15	200
Lienz (-32/32)	10	206
Padriciano (1/33)	13	153
Divaca (-32/32 each)	6	640

PST	Peak	
	Tap position	Physical flow to Italy (MW)
La Praz (1/33)	1	799
Rondissone 1 (1/33)	32	841
Rondissone 2 (1/33)	33	790
Camporosso (-32/32)	-7	197
Lienz (-32/32)	-4	206
Padriciano (1/33)	16	152
Divaca (-32/32 each)	3	653

Conclusion

CWE: No critical constraint detected.
CEE: No critical constraint detected.
CSE: After double tripping between IT-CH border, a constraint was detected in Swissgrid area, requiring topological remedial actions on Swissgrid side.