CORESO Engineers ***North :*** NYAZIKA Paget HOYAL Matias ***South :*** DECKERS Bram	**Day Ahead report for** **24 January 2018**

Security Levels:

CWE: No critical constraint detected

CEE: No critical constraint detected

CSE: No critical constraints detected

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]	9600	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]	72100	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]	45200	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]	47842	18:30		Cruas		900	**3**	2700
Generation Margin	Sufficient			Tricastin		900	4	3600

Generation margin legend:

Green: Sufficient margin available. No risk for need of inter-TSO solicitation due to margin issues.

Orange: Tight margin available. Low risk for need of inter-TSO solicitation due to margin issues.

Red: Insufficient margin available. High risk for need of inter-TSO solicitation due to margin issues.

Comments:

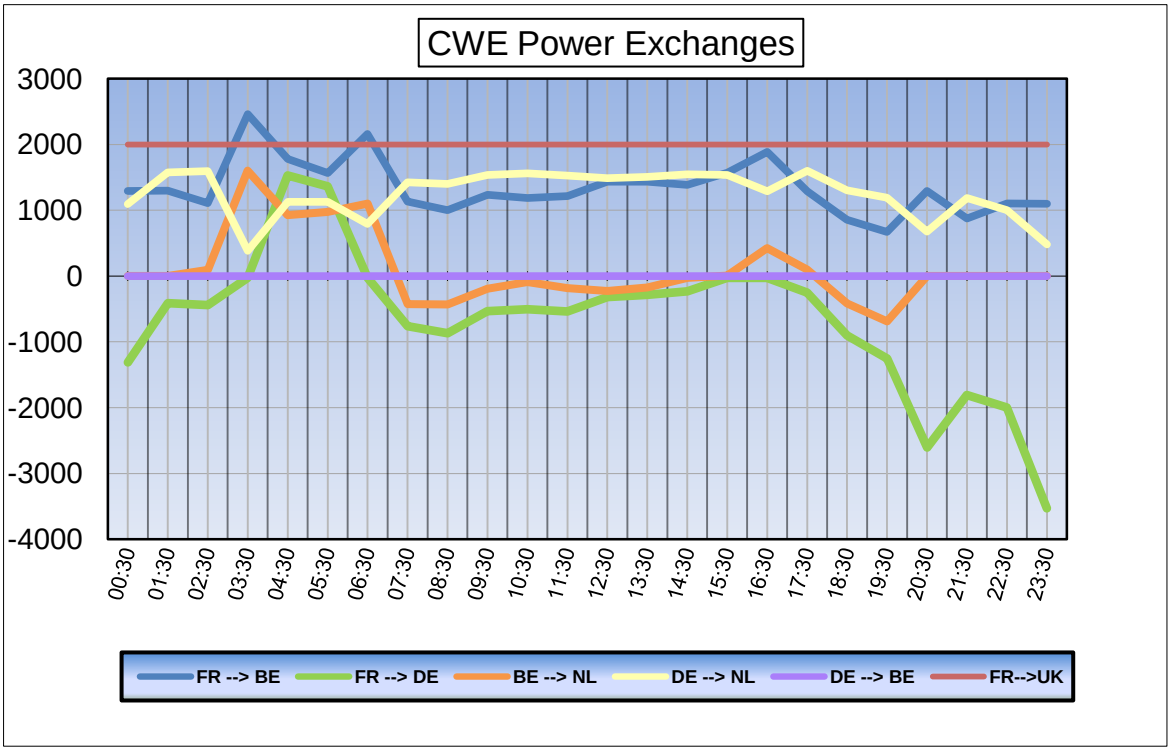
CWE / CEE

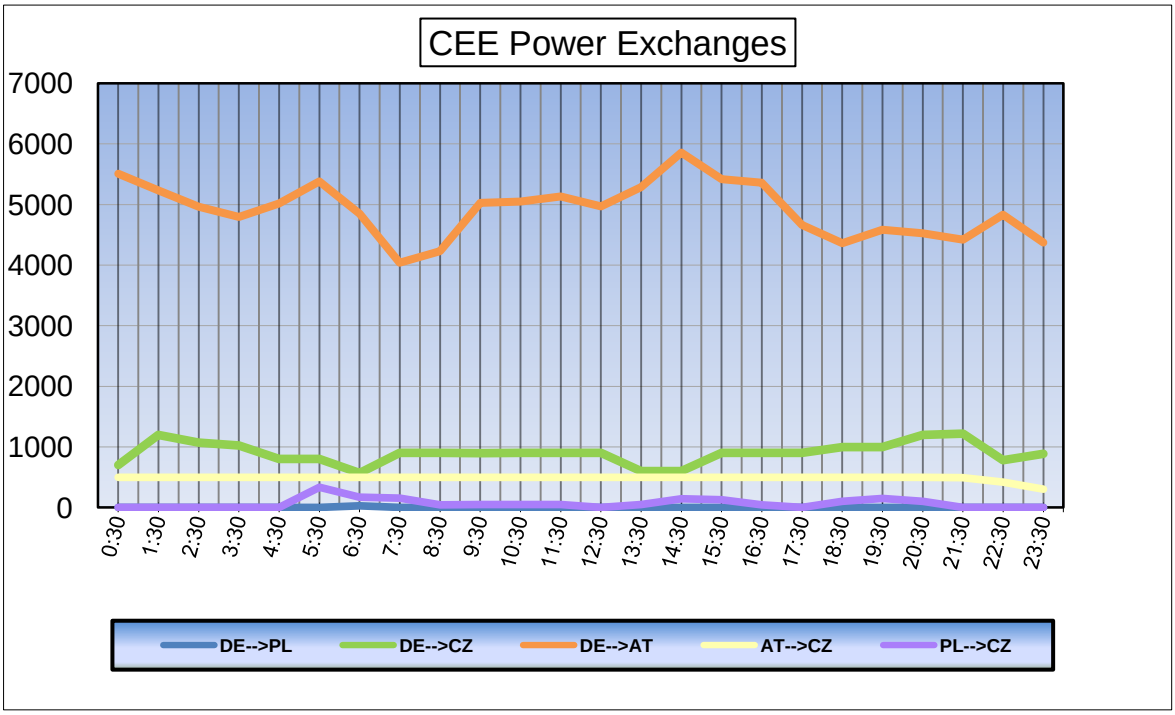
CSE

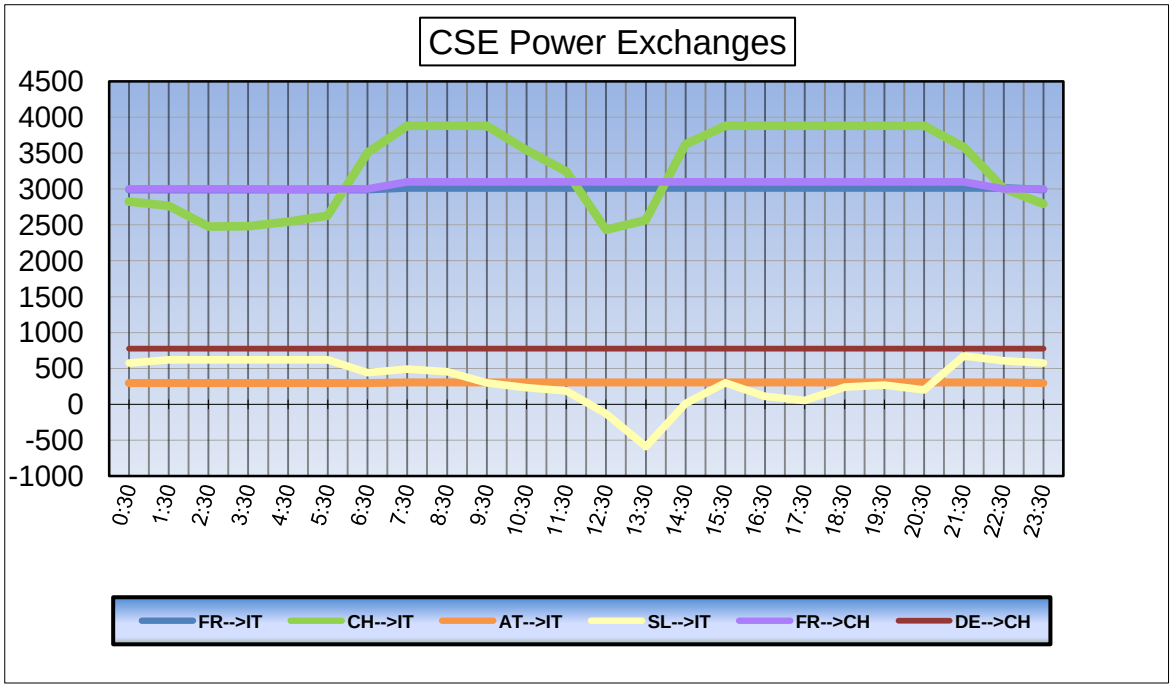
Outages table

OUTAGES					
Owner	Type of element	Line name	start	end	Comments
50HzT	Fossil.Gen	BOXBERG _ Unit Q 400 kV	22/01/2018	25/01/2018	277 MW (reduced)
50HzT	Hydro.Gen	GOLDISTHAL _ Unit A 400 kV	22/01/2018	26/01/2018	265 MW
50HzT	Hydro.Gen	MARKERSBACH _ Unit D 400 kV	28/09/2017	27/04/2018	160 MW
50HzT	Line	EULA _ Wolkramhausen 357 220 kV	06/10/2017	16/03/2018	
50HzT	Line	HAGENWERDER _ SCHMÖLLN 554 400 kV	22/01/2018	28/01/2018	
50HzT	Line	LUBMIN _ WIKINGER 281 220 kV	26/09/2017	31/01/2018	
50HzT	Line	MARKERSBACH _ T connection ZWOENITZ 400 kV	24/01/2018	26/01/2018	daily
50HzT	Line	RAGOW _ WUSTERMARK 521 400 kV	22/01/2018	28/01/2018	
50HzT	Line	ROHRSDORF _ T connection ZWOENITZ 400 kV	24/01/2018	26/01/2018	daily
50HzT / PSE	Line	KRAJNIK _ VIERRADEN 507 225 kV	22/06/2016	31/05/2018	Long term outage
50HzT / PSE	Line	KRAJNIK _ VIERRADEN 508 225 kV	22/06/2017	31/05/2018	Long term outage
AMP / TEN DE	Line	BECHTERDISSEN _ GUTERSLOH 400 kV	24/01/2018	24/01/2018	
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	KAINACHTAL _ SUDBURGENLAND 400 kV	24/01/2018	25/01/2018	daily
APG	Line	ST PETER _ Salzburg 455 220 kV	22/01/2018	26/01/2018	ALTERNATING WITH 456
APG	Line	ST PETER _ Salzburg 456 220 kV	22/01/2018	26/01/2018	ALTERNATING WITH 455
CEPS	Line	DASNY _ KOCIN 473 400 kV	08/01/2018	26/01/2018	
CEPS / SEPS	Line	NOSOVICE _ VARIN 404 400 kV	15/01/2018	02/03/2018	
CREOS	Line	BERTRANGE _ SCHIFFLANGE West 220 kV	08/01/2018	02/03/2018	
ELES	Line	BERICEVO _ KRSKO 2 400 kV	22/01/2018	25/01/2018	
ELES / HOPS	Line	KRSKO _ TUMBRI 1 400 kV	22/01/2018	02/03/2018	
ELIA	Line	GEZELLE _ STEVIN 111 400 kV	19/09/2017	02/03/2018	
ELIA	Line	GEZELLE _ STEVIN 112 400 kV	19/09/2017	02/03/2018	
ELIA	Nuc.Gen	DOEL _ Unit 3 (1000MW) 400 kV	23/09/2017	16/04/2018	Forced outage
HOPS	Line	BRINJE _ KONJSKO 220 kV	17/01/2018	27/01/2018	
PSE	Line	POLANIEC _ TARNOW 400 kV	22/01/2018	26/01/2018	daily
PSE	Line	TUCZNAWA _ RZESZOW 400 kV	22/01/2018	26/01/2018	daily
RTE	Line	CHEVALET _ ARGOEUVES 1 380 kV	24/01/2018	23/02/2018	
RTE	Line	PLESSIS GASSOT _ PENCHARD 1 400 kV	24/01/2018	25/01/2018	
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	BICKIGEN _ METTLEN 220 kV	22/01/2018	26/01/2018	No. 1 circuit Daily
S.GRID	Line	BICKIGEN _ METTLEN 220 kV	22/01/2018	26/01/2018	No. 2 circuit Daily
S.GRID	Line	CHAMOSON _ MUHLEBERG "Sanetsch 2" 220 kV	24/10/2017	30/03/2018	
S.GRID	Line	CHATELARD _ NANT DE DRANCE 400 kV	16/01/2018	27/04/2018	
S.GRID	Line	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	***Fossil.Gen***	STAUDINGER _ Unit 4 400 kV	22/01/2018	26/01/2018	577 MW

Exchange program forecasts






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

ELIA expected flows & PSTs tap position

		Node 1	Node 2	Order	00:30	03:30	04:30	07:30	10:30	12:30	14:30	17:30	18:30	19:30	22:30	23:30
BE	FR	ACHENE	LONNY	380.19	54	-89	-122	-6	-14	-85	-74	-44	106	153	224	291
BE	FR	AUBANGE	MONT ST MARTIN	220.51	-33	-91	-145	41	58	-29	-6	15	20	38	40	11
BE	FR	AUBANGE	MOULAINE	220.51	-40	-100	-145	23	43	-40	-16	6	11	29	34	4
BE	FR	AVELGEM	AVELIN	380.80	-183	-640	-644	-397	-400	-361	-424	-455	-168	-7	-42	193
BE	FR	AVELGEM	MASTAING	380.79	-162	-268	-286	-357	-387	-361	-333	-362	-275	-200	-159	-77
BE	FR	MONCEAU	CHOOZ	220.48	-102	-98	-109	-143	-149	-152	-140	-155	-130	-112	-100	-95
BE	NL	VAN EYCK 1	MAASBRACHT	380.27	-439	-180	-160	-400	-355	-383	-345	-323	-429	-480	-498	-564
BE	NL	VAN EYCK 2	MAASBRACHT	380.28	-222	99	156	55	189	27	59	203	17	-139	-140	-271
BE	NL	ZANDVLIET	BORSSELE	380.29	-214	1	19	-357	-375	-422	-346	-337	-463	-508	-344	-416
BE	NL	ZANDVLIET	GEERTRUIDENBERG	380.30	-81	317	352	64	143	67	126	168	-46	-164	-141	-272
BE	LU	BELVAL	SCHIFFLANGE	220.511	111	170	208	-65	-21	89	98	107	100	44	1	78

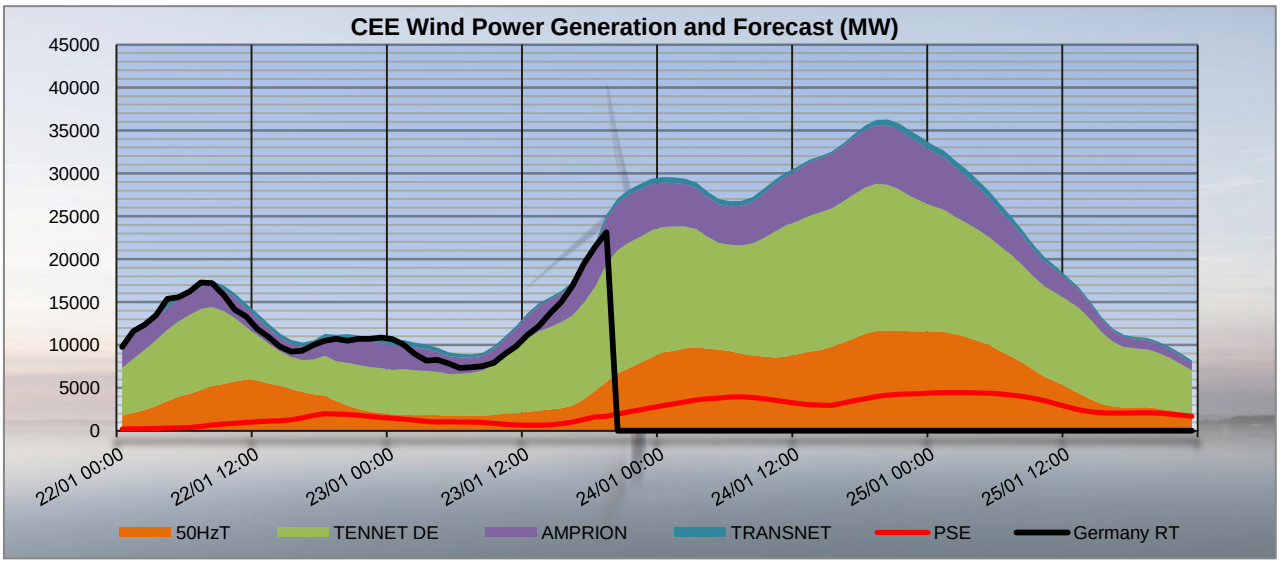
BE	FR	TOTAL		-466	-1286	-1451	-839	-849	-1028	-993	-995	-436	-99	-3	327
BE	NL	TOTAL		-956	237	367	-638	-398	-711	-506	-289	-921	-1291	-1123	-1523
BE	LU	TOTAL		111	170	208	-65	-21	89	98	107	100	44	1	78
TOTAL BELGIAN IMPORT/EXPORT				-1311	-879	-876	-1542	-1268	-1650	-1401	-1177	-1257	-1346	-1125	-1118

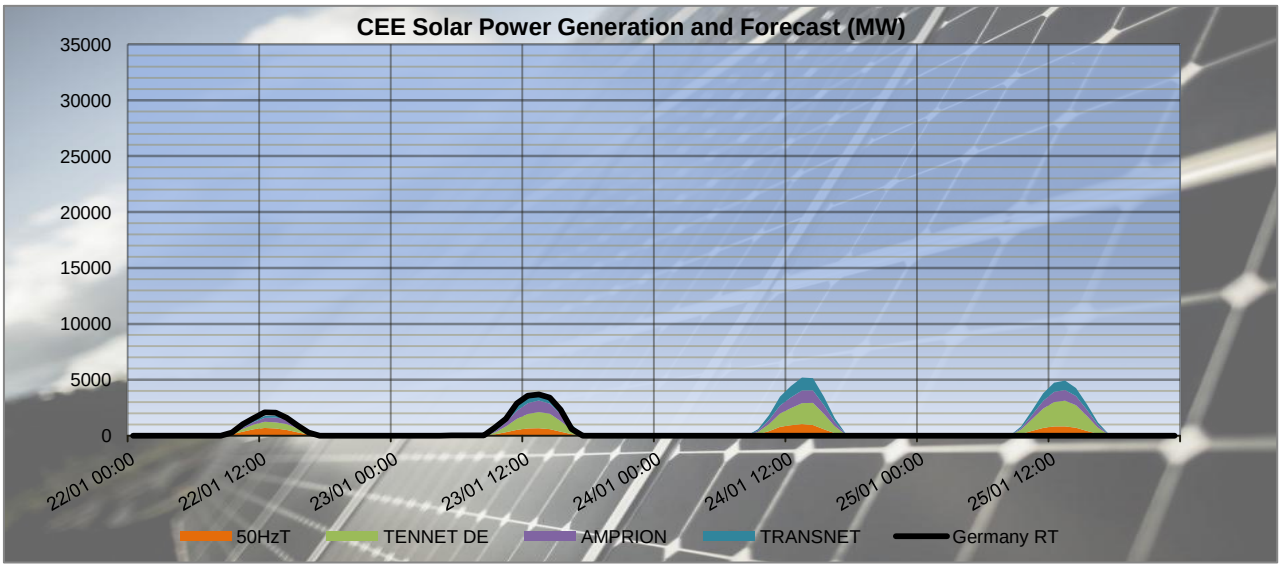
PST taps in DACF	**Zandvliet 1**	12	12	12	12	12	12	12	12	12	12	12	12	12
	Zandvliet 2	12	12	12	12	12	12	12	12	12	12	12	12	12
	Van Eyck 1	15	15	15	15	15	15	15	15	15	15	15	15	15
	Van Eyck 2	15	15	15	15	15	15	15	15	15	15	15	15	15
	Average	14	14	14	14	14	14	14	14	14	14	14	14	14

CREOS PST in DACF	**Schifflange**	17	17	17	17	17	17	17	17	17	17	17	17	17

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

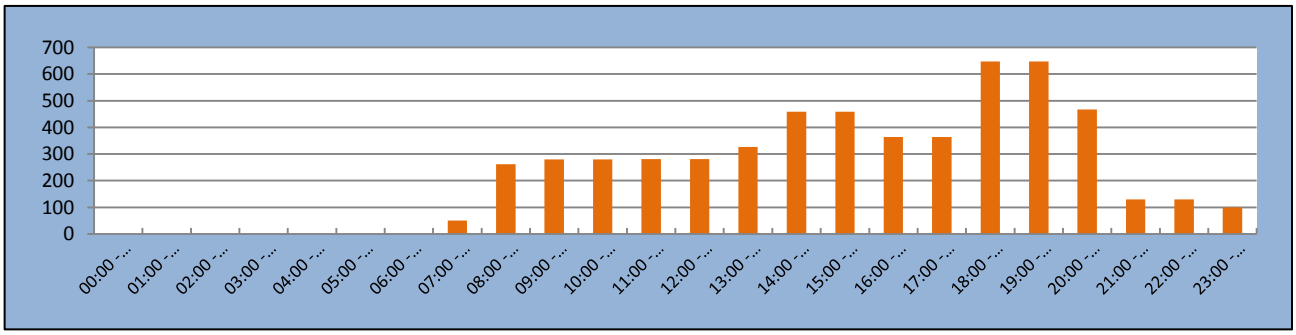
CEE Renewable Power Generation & Forecast



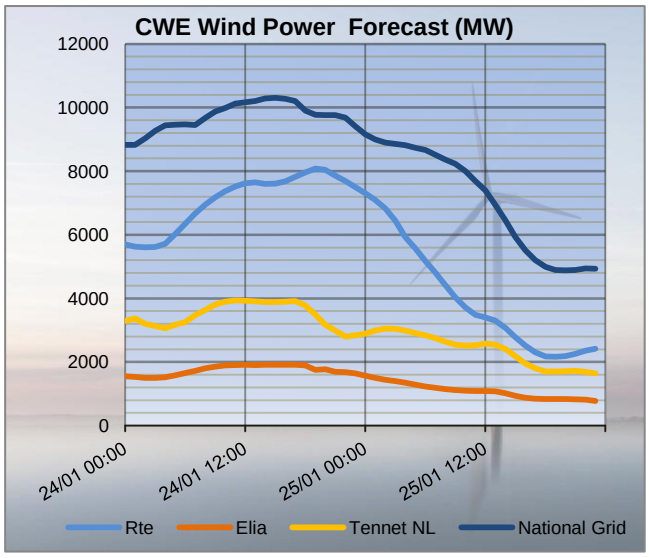


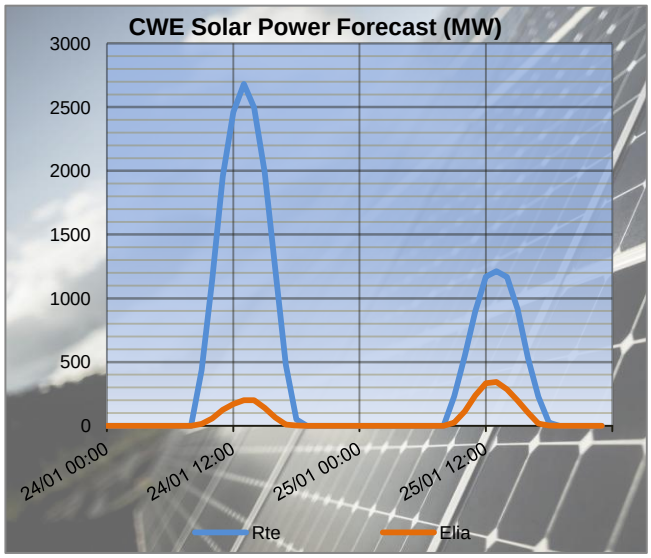
The charts above show the wind and solar generation forecasts for the TSOs in CEE (most significant) from D+1 until D-2 and the realised generation in Germany in real time. Source: Meteologica and 50HzT (RT)

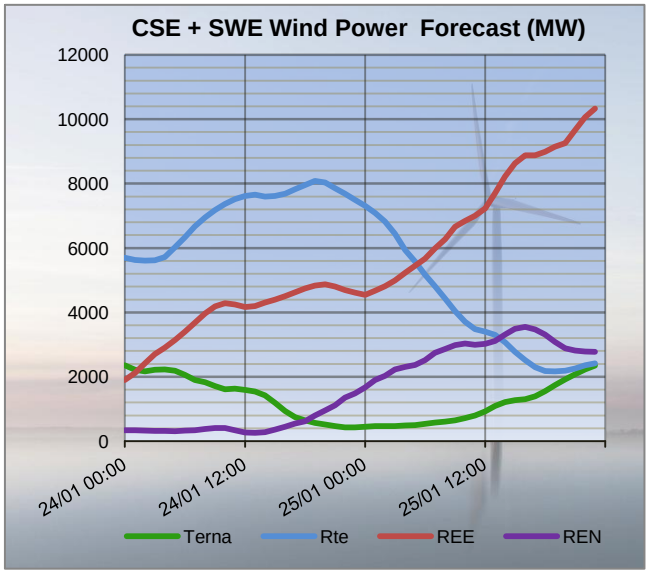
50HzT Preventive Redispatch

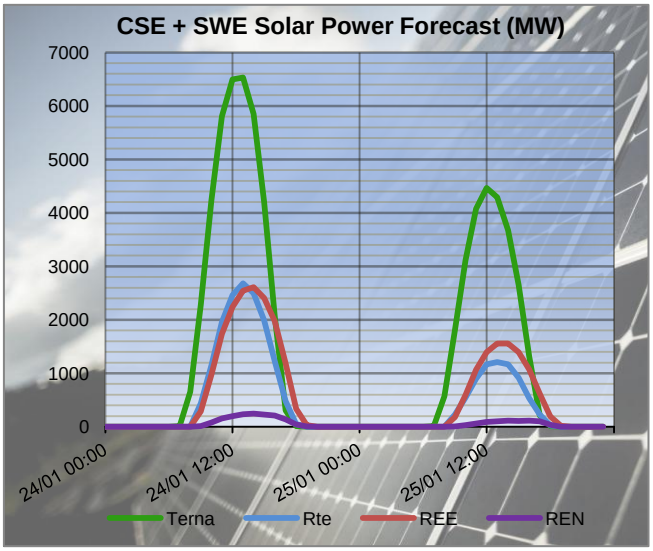


CWE, CSE & SWE Renewable Power Forecast (D-1 and D-2)









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	180	89	-91	82	6	-76	97	14	-83	249	85	-164
FR	BE	MONT ST MARTIN	AUBANGE	136	91	-45	-34	-41	-7	-20	-58	-38	41	29	-12
FR	BE	MOULAINE	AUBANGE	143	100	-43	-17	-23	-6	-7	-43	-36	51	40	-11
FR	BE	AVELIN	AVELGEM	692	640	-52	462	397	-65	427	400	-27	487	361	-126
FR	BE	MASTAING	AVELGEM	311	268	-43	416	357	-59	418	387	-31	451	361	-90
FR	BE	CHOOZ	MONCEAU	114	98	-16	142	143	1	133	149	16	173	152	-21
FR	DE	MUHLBACH	EICHSTETTEN	551	782	231	408	658	250	359	693	**334**	319	676	**357**
FR	DE	VOGELGRUN	EICHSTETTEN	54	95	41	13	67	54	33	82	49	32	80	48
FR	DE	ST AVOLD	ENSDORF	0	0	0	0	0	0	0	0	0	0	0	0
FR	DE	VIGY	ENSDORF 1	618	623	5	355	354	-1	427	367	-60	478	433	-45
FR	DE	VIGY	ENSDORF 2	463	494	31	337	364	27	426	387	-39	485	473	-12

				17:30			19:30			23:30		
		Node 1	Node 2	DACF	Merge	Delta	DACF	Merge	Delta	DACF	Merge	Delta
FR	BE	LONNY	ACHENE	194	44	-150	22	-153	-175	-239	-291	-52
FR	BE	MONT ST MARTIN	AUBANGE	23	-15	-38	4	-38	-42	-42	-11	31
FR	BE	MOULAINE	AUBANGE	30	-6	-36	11	-29	-40	-33	-4	29
FR	BE	AVELIN	AVELGEM	580	455	-125	123	7	-116	-158	-193	-35
FR	BE	MASTAING	AVELGEM	453	362	-91	277	200	-77	113	77	-36
FR	BE	CHOOZ	MONCEAU	170	155	-15	160	112	-48	127	95	-32
FR	DE	MUHLBACH	EICHSTETTEN	382	823	**441**	181	647	**466**	-26	272	**298**
FR	DE	VOGELGRUN	EICHSTETTEN	60	119	59	12	90	78	-4	50	54
FR	DE	ST AVOLD	ENSDORF	0	0	0	0	0	0	0	0	0
FR	DE	VIGY	ENSDORF 1	583	495	-88	330	255	-75	92	145	53
FR	DE	VIGY	ENSDORF 2	596	539	-57	303	260	-43	63	142	79

				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	496	502	6	370	408	38	367	384	17	358	422	64
FR	CH	MAMBELIN	BASSECOURT	23	113	90	-133	-55	78	-103	-28	75	-87	-16	71
FR	CH	SIERENTZ	BASSECOURT	303	319	16	331	339	8	330	325	-5	345	330	-15
FR	CH	BOIS TOLLOT	ROMANEL	315	213	-102	29	-125	-154	30	-45	-75	170	99	-71
FR	CH	SIERENTZ	LAUFENBURG	403	565	162	280	371	91	244	386	142	231	334	103
FR	CH	CORNIER	RIDDES	47	130	83	-47	8	55	-39	21	60	-23	64	87
FR	CH	CORNIER	ST TRIPHON	21	90	69	-55	-9	46	-30	2	32	-1	40	41
FR	CH	PRESSY	VALLORCINES	-32	76	108	-214	-70	144	-206	-66	140	-109	-4	105
FR	CH	BOIS TOLLOT	VERBOIS	133	200	67	177	225	48	257	264	7	276	279	3
FR	CH	GENISSIAT	VERBOIS	231	251	20	169	167	-2	209	202	-7	242	237	-5
FR	CH	GENISSIAT	VERBOIS	231	251	20	169	167	-2	209	202	-7	242	237	-5
FR	IT	ALBERTVILLE	RONDISSONE	949	645	**-304**	887	807	-80	901	855	-46	845	775	-70
FR	IT	ALBERTVILLE	RONDISSONE	1055	691	**-364**	1033	937	-96	1032	976	-56	948	835	-113
FR	IT	MENTON	CAMPOROSSO	250	245	-5	147	176	29	157	124	-33	147	161	14
FR	IT	VILLARODIN	VENAUS	614	886	**272**	737	822	85	745	804	59	650	738	88

				17:30			19:30			23:30		
		Node 1	Node 2	DACF	Merge	Delta	DACF	Merge	Delta	DACF	Merge	Delta
FR	CH	SIERENTZ	ASPHARD	377	412	35	253	319	66	285	240	-45
FR	CH	MAMBELIN	BASSECOURT	-79	-9	70	-161	-69	92	-124	-49	75
FR	CH	SIERENTZ	BASSECOURT	365	358	-7	363	338	-25	422	387	-35
FR	CH	BOIS TOLLOT	ROMANEL	-93	-109	-16	-34	-192	-158	137	30	-107
FR	CH	SIERENTZ	LAUFENBURG	271	405	134	151	339	188	222	349	127
FR	CH	CORNIER	RIDDES	-84	1	85	-58	-12	46	-26	44	70
FR	CH	CORNIER	ST TRIPHON	-68	-24	44	-54	-28	26	-58	-7	51
FR	CH	PRESSY	VALLORCINES	-254	-91	163	-219	-95	124	-129	-45	84
FR	CH	BOIS TOLLOT	VERBOIS	277	247	-30	238	240	2	152	203	51
FR	CH	GENISSIAT	VERBOIS	213	195	-18	187	160	-27	188	194	6
FR	CH	GENISSIAT	VERBOIS	213	195	-18	187	160	-27	188	194	6
FR	IT	ALBERTVILLE	RONDISSONE	860	842	-18	823	821	-2	735	387	**-348**
FR	IT	ALBERTVILLE	RONDISSONE	976	951	-25	971	964	-7	859	446	**-413**
FR	IT	MENTON	CAMPOROSSO	143	141	-2	143	187	44	152	155	3
FR	IT	VILLARODIN	VENAUS	495	635	140	850	1014	164	497	773	**276**

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	40	2448	36
	Doel - Mercator (51)	2239	24	2239	31
	Doel - Mercator (52)	2239	24	2239	31
	Doel - Mercator (54)	2448	24	2448	31
	Doel - Zandvliet (25)	2237	15	2349	10
	Mercator - Horta (73)	2569	12	2569	19
	Courcelles - Gramme (31)	2242	48	2349	41
	Mercator - Rodenhuize/Horta (74)	2242	14	2349	21
RTE	Attaques - Warande 2	3780	51	3780	54
	Avelin - Gavrelle	2622	14	2622	28
	Avelin - Warande	3458	18	3458	13
	Lonny - Seuil	4149	17	4149	19
	Mandarins - Warande 1	3780	49	3780	51
	Muhlbach - Scheer	2598	31	2598	30
	Revigny - Vigy	2596	20	2596	24
	Warande - Weppes	3458	23	3458	19

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	29
		Hagenwerder - Mikulowa (567)	2520	23	2520	26
		Hagenwerder - Mikulowa (568)	2520	23	2520	26
		Remptendorf - Redwitz (413)	3394	59	3370	59
		Remptendorf - Redwitz (414)	3394	59	3370	59
		Röhrsdorf - Hradec (445)	2520	58	2520	54
		Röhrsdorf - Hradec (446)	2520	58	2520	54
		Vieselbach - Mecklar (449-1)	2520	28	2520	28
		Wolmirstedt - Helmstedt (491-1)	2400	6	2400	21
		Wolmirstedt - Helmstedt (492-2)	2400	6	2400	21
	220 kV	Vierraden - Krajnik (507)	1334	0	1307	0
		Vierraden - Krajnik (508)	1334	0	1307	0

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

Special topologies at 10:30 and 19:30

Nodes in North area				
			10:30	19:30
380 kV	Elia	Doel	1	1
		Avelgem	1	1
	Rte	Warande	1	1
		Cergy	2	2
		Terrier	1	1
		Plessis Gassot	1	1
		Mery/Seine	2	2
		Muhlbach	2	2
		Vigy	2	2
	Transnet bw	Eichstetten	1	1
	Amprion	Uchtelfangen	1	1
	Tennet DE	Redwitz	1	1
	50 HzT	Remptendorf	1	1
		Wolmirstedt	1	1
	CEPS	Hradec Vychod	1	1
220 kV	50 HzT	Pasewalk	1	1

North analyses results

Security analyses have been performed for 24 timestamps.
All remedial actions have been agreed with concerned TSO during the day ahead process.

Constraints on Elia, RTE (North) and 50HzT 400kV grids and tie-lines

TSO	Validity	Contingency				Constraint					Timestamps of max
		U (kV)	Substation 1	Substation 2	Code	Overload	U (kV)	Substation 1	Substation 2	Code	
50HzT	21-23	400	Lauchstadt	Vieselbach	axis	106%	400	Lauchstadt	Vieselbach	remaining	23:30
		Curative Action: 2 nodes in Vieselbach - 99% remaining									
	7-21	400	Hradec	Rohrsdorf	N-1	114%	400	Rohrsdorf	PST		16:30
		Curative Action: Decrease 10 taps on Hradec PSTs - 99% remaining									

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

TSO	Validity	Contingency				Constraint					Timestamps of max
		U (kV)	Substation 1	Substation 2	Code	Overload	U (kV)	Substation 1	Substation 2	Code	
Tennet NL	1-4	400	Diele	Meeden	axis	107%	400	Diele	Meeden	remaining	02:30
		Curative Action: 1 tap down on Meeden PST - 94% remaining									
Amprion/ Tennet DE	7-15	400	Hanekenfarh	Meppen	N-1	127%	400	Hanekenfahr	Dorpen West		23:30
		Preventive Action: Wind curtailment									

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 constraint 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 : **145 MW**
- PST of Lienz adapted to **120 MW**
- PST of Camporosso adapted to **200 MW**
- PST of Rondissone on max. tap position

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	1	1
		Ostiglia	1	1

N state flows Off-Peak & Peak

The Imax and load values in the table below are extracted from the **adapted** merged TSOs' DACF.

TSO	Voltage	Line (380 kV)	Off Peak		Peak	
			Imax (A)	% of Imax	Imax (A)	% of Imax
Terna	380 kV	Albertville - Rondissone 1	2370	54	2370	50
		Albertville - Rondissone 2	2370	61	2370	59
		Bulciago - Soazza	2300	23	2300	37
		Cagno - Mendrisio	855	29	855	37
		Musignano - Lavorgo	2270	42	2270	53
		Redipuglia - Divaca	2700	34	2700	35
		Robbia - San Fiorano	2530	32	2530	49
		Robbia - Gorlago	2530	33	2530	50
		Venaus - Villarodin	2715	37	2715	50
	220 kV	Airolo - Ponte	900	0	900	0
		Lienz - Soverzene	750	42	750	37
		Menton - Campo Rosso	1165	40	1165	41
		Padriciano - Divaca	960	42	960	39
		Riddes - Avise	1010	26	1010	20
		Riddes - Valpelline	1010	30	1010	36
		Serra - Pallanzeno	900	33	900	51

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	2707	2713	126	790
	Compensation ratio (calculated from NTC)	40%	47%	4%	8%
	Pentalateral impact on physical flows	-26%	-56%	-4%	-15%
Peak	Initial physical flows on adapted base case	2880	3816	109	802
	Compensation ratio (calculated from NTC)	38%	49%	4%	9%
	Pentalateral impact on physical flows	-29%	-58%	-3%	-9%

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	Grand Ile	N-2	97%(10')	380	Albertville	Grand Ile	3
						107%(20')	220	Albertville	Longefan	1
		Curative action: 2 Node operation in Grand Ile and automatic tap changer to neutral position on La Praz PST 87% remaining on Albertville - Grand Ile 100% remaining on Albertville - Longefan								
	Rte	380	Albertville	Coche	N-1	104%(1')	220	Albertville	Longefan	2
		Curative action: Stop pumping in Super Bissorte and automatic tap changer to neutral position on La Praz PST 91% remaining on Albertville - Longefan								
	Rte / Terna	380	Albertville	Rondissone	N-2	104%(20')	380	La Praz	PST	
		Curative action: automatic tap changer to neutral position on La Praz PST 83% remaining on La Praz PST								

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 / Terna	380	Albertville	Rondissone	N-2	111%(20')	380	La Praz	PST	
		Curative action: Automatic tap changer to neutral position on La Praz PST => 89% remaining								
	Terna	380	Vignole Borbera	La Spezia	N-2	121%	220	Vignole Borbera	San Colombano	
		Observability area								

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	686
Rondissone 1 (1/33)	33	963
Rondissone 2 (1/33)	33	854
Camporosso (-32/32)	-1	192
Lienz (-32/32)	11	127
Padriciano (1/33)	7	160
Divaca (-32/32 each)	15	632

PST	Peak	
	Tap position	Physical flow to Italy (MW)
La Praz (1/33)	1	946
Rondissone 1 (1/33)	33	933
Rondissone 2 (1/33)	33	800
Camporosso (-32/32)	-7	192
Lienz (-32/32)	-3	110
Padriciano (1/33)	9	151
Divaca (-32/32 each)	11	653

Conclusion

CWE: No critical constraint detected

CEE: No critical constraint detected

CSE: No critical constraints detected